



BIDDING DOCUMENT
for
THE PROCUREMENT OF

***Churiya Tunnel Maintenance and Management Work
at Hetauda Sub Metropolitan City-15***

**National Competitive Bidding (NCB)
Single-Stage: Two-Envelope Bidding Procedure**

***Ministry of Physical Infrastructure Development
Transport Infrastructure Directorate
Hetauda, Makawanpur***

Issued on:

Issued to:

Invitation for Bids

No.TID/BAG/CW/NCB/03/077/78

Contract ID : TID/BAG/CW/NCB/03/077/78

Abbreviations

BD	.....	Bidding Document
BDF	..... ..	Bidding Forms
BDS	..... ..	Bid Data Sheet
BOQ	..... ..	Bill of Quantities
COF	..... ..	Contract Forms
DP	..... ..	Development Partners
DoLIDAR	..... ..	Department of Local Infrastructure Development and Agricultural Roads
ELI	..... ..	Eligibility
EQC	..... ..	Evaluation and Qualification Criteria
EXP	..... ..	Experience
FIN	..... ..	Financial
GCC	..... ..	General Conditions of Contract
GoN	..... ..	Government of Nepal
ICC	..... ..	International Chamber of Commerce
IFB	..... ..	Invitation for Bids
ITB	..... ..	Instructions to Bidders
JV	..... ..	Joint Venture
LIT	..... ..	Litigation
NCB	..... ..	National Competitive Bidding
PAN	..... ..	Permanent Account Number
PPA	..... ..	Public Procurement Act
PPMO	..... ..	Public Procurement Monitoring Office
PPR	..... ..	Public Procurement Regulations
PL	..... ..	Profit & Loss
SBD	..... ..	Standard Bidding Document
SCC	..... ..	Special Conditions of Contract
TS	Technical Specifications
VAT	Value Added Tax
WRQ	Works Requirements



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Invitation for Bids

Province Government

Ministry of Physical Infrastructure Development Transport Infrastructure Directorate

Bagmati Province, Hetauda, Makawanpur

Invitation for Bids

IFB No: **TID/BAG/CW/NCB/03/077/78**

Date of publication: **18th February 2021**

1. The Province Government Bagmati Province **has allocated funds** towards the cost of following project and intends to apply part of the funds to cover eligible payments under the Contract **for TID/BAG/CW/NCB/03/077/78**. Bidding is open to all eligible as per Section V of bidding document..
2. **Ministry of Physical Infrastructure Development, Transport Infrastructure Directorate, Bagmati Province, Makawanpur, Hetauda** invites electronic bids from eligible bidders for the following work under National Competitive Bidding – Single Stage Two Envelope Bidding procedures.

S N	Name of the works	Bid Security Nrs.	Minimum Average Annual Construction Turnover the best 3 years with in the last 10 years Nrs	Similar size of work experience & Key activities
1	Churiya Tunnel Maintanance and Management Work	11,44,000.00	6,10,00,000.00	1 no.of Tunnel Construction /Maintenance works having value at least Nrs 3,25,00,000.00, Key activities: Tunnel Size greater than 2.5 m* 2.5 m of length 160 m

3. Under the Single Stage, Two Envelope Procedure, Bidders are required to submit simultaneously two separate sealed envelopes, one containing (i) the Technical Bid and the other (ii) the Price Bid, both in turn enclosed in one sealed envelope as per the provision of ITB 21 of the Bidding Document.
4. Eligible Bidders may obtain further information and inspect the Bidding Documents at the office of **Transport Infrastructure Directorate, Hetauda**, Email: tid@bagamati.gov.np, roadtid@bagamati.gov.np , website www.tid.bagamati.gov.np or may visit PPMO e-GP system www.bolpatra.gov.np/egp.
5. Bidder who chooses to submit their bid electronically may download the bidding documents for e-submission from PPMO's e-GP system www.bolpatra.gov.np/egp. Bidders, submitting their bid electronically, should deposit the cost of bidding document in the Office Rajaswa (revenue) account as specified below and the scanned copy (pdf format) of the bank deposit voucher shall be uploaded by the bidder at the time of electronic submission of the bids. The cost of bid document is NRs 5,000.00 for each .

Information to deposit the cost of bidding document in Bank:

Name of the Bank: Rastriya Banijya Bank, Hetauda Branch

Name of the Office: Transport Infrastructure Directorate, Hetauda
Office Code no. : 3370132013 Office Account no.: 1000200010000
Rajaswa (revenue) Shirshak no. :14229

6. Pre-bid meeting shall be held at **Transport Infrastructure Directorate, Hetauda** at **11:00 AM, 12th March 2021**.
7. Electronic bids must be submitted to the office through PPMO's e-GP system www.bolpatra.gov.np/egpon or before **12:00 Hrs.** on 21st **March, 2021**. Bids received after this deadline will be rejected.
8. The bids will be opened in the presence of Bidders' representatives who choose to attend at 13:00 **Hrs.** on 21st **March, 2021** at the office. Bids must be valid for a period of **90 days** after bid opening and must be accompanied by a bid security or scanned copy of the bid security in pdf format in case of e-bid, amounting to a minimum of as mentioned in the table above, which shall be valid for 30 days beyond the validity period of the bid i.e. which shall be valid for 30 days beyond the validity period of the bid **19 July 2021**.
9. If the last date of purchasing and /or submission falls on a government holiday, then the next working day shall be considered as the last date. In such case the validity period of the bid security shall remain the same as specified for the original last date of bid submission.

Part I: BIDDING PROCEDURES

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Section I: Instructions to Bidders

A. General	
1. Scope of Bid	<p>1.1 In connection with the Invitation for Bids indicated in the Bid Data Sheet (BDS), the Employer, as indicated in the BDS, issues this Bidding Document for the procurement of Works as specified in Section VI (Works Requirements). The name, identification, and number of Contracts of the National Competitive Bidding (NCB) are provided in the BDS.</p> <p>1.2 Throughout this Bidding Document:</p> <ul style="list-style-type: none"> (a) the term “in writing” means communicated in written form and delivered against receipt; (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and (c) “day” means calendar day.
2. Source of Funds	<p>2.1 GoN Funded: In accordance with its annual program and budget, approved by the GoN, the implementing agency indicated in the BDS plans to apply a portion of the allocated budget to eligible payments under the contract(s) for which this Bidding Document is issued.</p> <p>Or</p> <p>Public Entities' own Resource Funded: In accordance with its annual program and budget, approved by the public entity, the implementing agency indicated in the BDS plans to apply a portion of the allocated budget to eligible payments under the contract(s) for which this Bidding Document is issued.</p> <p>Or</p> <p>DP Funded: The GoN has applied for or received financing (hereinafter called “funds”) from the Development Partner (hereinafter called “the DP”) indicated in the BDS toward the cost of the project named in the BDS. The GoN intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued.</p> <p>2.2 DP Funded: Payment by the DP will be made only at the request of the GoN and upon approval by the DP in accordance with the terms and conditions of the financing agreement between the GoN and the DP (hereinafter called the “Loan/Grant Agreement”), and will be subject in all respects to the terms and conditions of that Loan/Grant Agreement. No party other than the GoN shall derive any rights from the Loan Agreement or have any claim to the funds.</p>
3. Fraud and Corruption	<p>3.1 Procuring Entities as well as Bidders, suppliers and contractors and their sub-contractors shall adhere to the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this;</p> <p>(a) the Employer adopts, for the purposes of this provision, the terms as defined below:</p>

	<p>3.4 A bidder declared blacklisted and ineligible by the GoN, Public Procurement Monitoring Office (PPMO) and/or the DP in case of DP funded project, may be ineligible to bid for a contract during the period of time determined by the GoN, PPMO and/or the DP.</p> <p>3.5 In case of a natural person or firm/institution/company which is already declared blacklisted and ineligible by the GoN, any other new or existing firm/institution/company owned partially or fully by such Natural person or Owner or Board of director of blacklisted firm/institution/company; shall not be eligible bidder.</p> <p>3.6 Furthermore, Bidders shall be aware of the provisions of GCC (GCC 28.3 and 72.3(j)).</p>
4. Eligible Bidders	<p>4.1 A Bidder may be a natural person, private entity, or government owned entity subject to ITB 4.5 or any combination of them in the form of a Joint Venture (JV) under an existing agreement, or with the intent to constitute a legally-enforceable joint venture. In the case of a JV:</p> <ul style="list-style-type: none"> (a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. Maximum number of JV shall be as specified in the BDS. and (b) the JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during Contract execution. <p>4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of an eligible country, in accordance with Section V (Eligible Countries). A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, or incorporated, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed sub-contractors or suppliers for any part of the Contract including related services.</p> <p>4.3 A Bidder shall not have a conflict of interest. A Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to be in a conflict of interest with one or more parties in this bidding process, if any of, including but not limited to, the following apply:</p> <ul style="list-style-type: none"> (a) they have controlling shareholders in common; or (b) they receive or have received any direct or indirect subsidy from any of them; or (c) they have the same legal representative for purposes of this bid; or (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to material information about or improperly influence the Bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or (e) a Bidder participates in more than one bid in this bidding process either individually or as a partner in a joint venture. This will result in the disqualification of all Bids in which it is involved. However, subject

	<p>to any finding of a conflict of interest in terms of ITB 4.3 (a)-(d) above, this does not limit the participation of the same subcontractor in more than one bid; or</p> <p>(f) a Bidder or any of its affiliated entity, participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or</p> <p>(g) a Bidder was affiliated with a firm or entity that has been hired (or is proposed to be hired) by the Employer as Engineer for the Contract.</p> <p>4.4 A firm that is under a declaration of ineligibility by the GoN in accordance with ITB 3, at the date of the deadline for bid submission or thereafter, shall be disqualified. A firm shall not be eligible to participate in any procurement activities under an DP-financed, -administered, or -supported project while under temporary suspension or debarment by DP pursuant to the DP's Anticorruption Policy (see ITB 3), whether such debarment was directly imposed by the DP, or enforced by other DPs pursuant to the Agreement for Mutual Enforcement of Debarment Decisions. A bid from a temporary suspended or debarred firm will be rejected.</p> <p>4.5 Enterprises owned by Government shall be eligible only if they can establish that they are legally and financially autonomous and operate under commercial law, and that they are not a dependent agency of the GoN.</p> <p>4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.</p> <p>4.7 Firms shall be excluded in any of the cases, if</p> <p>(a) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, Nepal prohibits any import of goods or Contracting of works or services from that country or any payments to persons or entities in that country. Where Nepal prohibits payments to a particular firm or for particular goods by such an act of compliance, that firm may be excluded;</p> <p>(b) DP Funded: as a matter of law or official regulation, Nepal prohibits commercial relations with that country, provided that the DP is satisfied that such exclusion does not preclude effective competition for the supply of goods or related services required;</p> <p>(c) DP Funded: a firm sanctioned or temporarily suspended by the DP in relation to their guidelines or appropriate provisions on preventing and combating fraud and corruption in projects financed by them.</p> <p>4.8 In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to prequalified Bidders.</p>
5. Eligible Materials, Equipment and Services	5.1 The materials, equipment and services to be supplied under the Contract shall have their origin in any source countries as defined in accordance with Section V (Eligible Countries) and all expenditures

	<p>under the Contract will be limited to such materials, equipment, and services. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.</p> <p>5.2 For purposes of ITB 5.1 above, "origin" means the place where the materials and equipment are mined, grown, produced or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.</p>
B. Contents of Bidding Documents	
6. Sections of Bidding Document	<p>6.1 The Bidding Document consist of Parts I, II, and III, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.</p> <p>PART I Bidding Procedures</p> <p>Section I Instructions to Bidders (ITB)</p> <p>Section II Bid Data Sheet (BDS)</p> <p>Section III Evaluation and Qualification Criteria (EQC)</p> <p>Section IV Bidding Forms (BDF)</p> <p>Section V Eligible Countries</p> <p>PART II Requirements</p> <p>Section VI Works Requirements (WRQ)</p> <p>Section VII Bill of Quantities (BOQ)</p> <p>PART III Conditions of Contract and Contract Forms</p> <p>Section VIII General Conditions of Contract (GCC)</p> <p>Section IX Special Conditions of Contract (SCC)</p> <p>Section X Contract Forms (COF)</p> <p>6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Document.</p> <p>6.3 The Employer is not responsible for the completeness of the Bidding Document and their Addenda, if they were not obtained directly from the source stated by the Employer in the Invitation for Bids.</p> <p>6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document and to furnish with its bid all information and documentation as is required by the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.</p>
7. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting	<p>7.1 A prospective Bidder requiring any clarification of the Bidding Document shall contact the Employer in writing at the Employer's address indicated in BDS or raise any question or curiosity during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received within the period as mentioned in ITB 7.5. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for</p>

	clarification, it shall do so following the procedure under ITB 8 and ITB 22.2.
	7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself, on its own risk and responsibility, all information that may be necessary for preparing the bid and entering into a Contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.
	7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.
	7.4 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the BDS . The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
	7.5 The Bidder is requested, to submit any questions in writing, to reach the Employer as mentioned in BDS .
	7.6 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting.
	7.7 Non attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.
8. Amendment of Bidding Document	8.1 At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Document by issuing agenda.
	8.2 Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3.
	8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer may, at its discretion, extend the deadline for the submission of Bids, pursuant to ITB 22.2
C. Preparation of Bids	
9. Cost of Bidding	9.1 The Bidder shall bear all costs associated with the preparation and

	submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
10. Language of Bid	10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language specified in the BDS . Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified in the BDS , in which case, for purposes of interpretation of the Bid, such translation shall govern.
11. Documents Comprising the Bid	<p>11.1 The Bid shall comprise two envelopes submitted simultaneously, one called the Technical Bid containing the documents listed in ITB 11.2 and the other the Price Bid containing the documents listed in ITB 11.3, both envelopes enclosed together in an outer single envelope.</p> <p>11.2 The Technical Bid shall comprise the following:</p> <ul style="list-style-type: none"> (a) Letter of Technical Bid; (b) Bid Security in accordance with ITB 19; (c) alternative Technical Bid, at Bidder's option and if permissible, in accordance with ITB 13; (d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2; (e) documentary evidence in accordance with ITB 17, establishing the Bidder's qualifications to perform the contract; (f) Technical Proposal in accordance with ITB 16; (g) Bids submitted by a Joint Venture shall include a copy of the Joint Venture Agreement entered into by all partners. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all partners and submitted with the Bid, together with a copy of the proposed agreement. The Joint Venture agreement, or letter of intent to enter into a Joint Venture including a draft agreement shall indicate at least the parts of the Works to be executed by the respective partners; and (h) any other required documents, which is not against the provision of Procurement Act/Regulation/Directives and Standard Bidding Document issued by PPMO as specified in the BDS. <p>11.3 The Price Bid shall comprise the following:</p> <ul style="list-style-type: none"> (a) Letter of Price Bid; (b) completed Bill of Quantities(BoQ), in accordance with ITB 12 and ITB 14, or as stipulated in the BDS; (c) alternative price Bids, at Bidder's option and if permissible, in accordance with ITB 13; (d) Any other document required in the BDS. <p>11.4 The Bidder is solely responsible for the authenticity of the submitted documents.</p>

12. Letter of Bid and Schedules	12.1 The Letters of Technical Bid and Price Bid, Schedules, and all documents listed under ITB 11, shall be prepared using the relevant forms in Section IV (Bidding Forms) and in Section VII (Bill of Quantities). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.
13. Alternative Bids	13.1 Unless otherwise specified in the BDS , alternative bids shall not be considered.
	13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the BDS , as will the method of evaluating different times for completion.
	13.3 When specified in the BDS pursuant to ITB 13.1, and subject to ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer's design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.
	13.4 When specified in the BDS , Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the BDS and described in Section VI (Works Requirements). The method for their evaluation will be stipulated in Section III (Evaluation and Qualification Criteria).
14. Bid Prices and Discounts	14.1 The prices and discounts quoted by the Bidder in the Letter of Price Bid and in the Schedules shall conform to the requirements specified below.
	14.2 The Bidder shall submit a bid for the whole of the works described in ITB 1.1 by filling in prices for all items of the Works, as identified in Section VII (Bill of Quantities). In case of Unit Rate Contracts, the Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities.
	14.3 The price to be quoted in the Letter of Price Bid shall be the total price of the Bid, excluding any discounts offered. Absence of the total price in the Letter of Price Bid or the Bid Price in the Bill of Quantities shall result in rejection of the Bid.
	14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Price Bid, in accordance with ITB 12.1.
	14.5 If so indicated in ITB 1.1, bids are invited for individual Contracts or for any combination of Contracts (packages). Bidders wishing to offer any price

	<p>reduction for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Price reductions or discounts shall be submitted in accordance with ITB 14.4, provided the Bids for all Contracts are submitted and opened at the same time.</p> <p>14.6 Unless otherwise provided in the BDS and the Conditions of Contract, the prices quoted by the Bidder shall be fixed. If the prices quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Table of Adjustment Data in Section IV (Bidding Forms) and the Employer may require the Bidder to justify its proposed indices and weightings.</p> <p>14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 30 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total bid price submitted by the Bidder.</p>
15. Currency of Bid and Payment	15.1 The currency of the bid and payment shall be in Nepalese Rupees.
16. Documents Comprising the Technical Proposal	16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.
17. Documents Establishing the Qualifications of the Bidder	17.1 To establish its qualifications to perform the Contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section IV (Bidding Forms).
18. Period of Validity of Bids	<p>18.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.</p> <p>18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended 30 days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its Bid and to include any additional conditions against the provisions specified in Bid Documents.</p>
19. Bid Security	19.1 The Bidder shall furnish as part of its bid, in original form, a bid security as specified in the BDS . In case of e-submission of bid, the Bidder shall upload scanned copy of Bid security letter at the time of electronic submission

	<p>of the bid. The Bidder accepts that the scanned copy of the Bid security shall, for all purposes, be equal to the original. The details of original Bid Security and the scanned copy submitted with e-bid should be the same otherwise the bid shall be non-responsive.</p> <p>19.2 The bid security shall be, at the Bidder's option, in any of the following forms:</p> <ul style="list-style-type: none"> (a) an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law or; (b) a cash deposit voucher in the Employer's Account as specified in BDS. <p>In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section IV (Bidding Forms) or in another Form acceptable to the employer. The form must include the complete name of the Bidder. The bid security shall be valid for minimum thirty (30) days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.</p> <p>19.3 The bid security issued by any foreign Bank outside Nepal must be counter guaranteed by Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal.</p> <p>19.4 Any bid not accompanied by an enforceable and substantially compliant bid security shall be rejected by the Employer as nonresponsive. In case of e- Submission, if the scanned copy of an acceptable Bid Security letter is not uploaded with the electronic Bid then Bid shall be rejected.</p> <p>19.5 The bid security of unsuccessful Bidders shall be returned within three days, once the successful Bidder's furnishing of the required performance security and signing of the Contract Agreement pursuant to ITB 40.1 and 41.1</p> <p>19.6 The bid security shall be forfeited if:</p> <p>GoN funded :</p> <ul style="list-style-type: none"> (a) a Bidder requests for withdrawal or modification of its bid, except as provided in ITB 18.2: <ul style="list-style-type: none"> (i) during the period of bid validity specified by the Bidder on the Letter of Technical Bid and Price Bid, in case of electronic submission; (ii) from the period twenty-four hours prior to bid submission deadline up to the period of bid validity specified by the Bidder on the Letter of Technical Bid and Price Bid, in case of hard copy submission. (b) a Bidder changes the prices or substance of the bid while providing information pursuant to clause 27.1; (c) a Bidder involves in fraud and corruption pursuant to clause 3.1; (d) the successful Bidder fails to: <ul style="list-style-type: none"> (i) furnish a performance security in accordance with ITB 40.1; (ii) sign the Contract in accordance with ITB 41.1; or
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	<p>(iii) accept the correction of arithmetical errors pursuant to clause 33.1 DP funded:</p> <p>The bid security shall be forfeited</p> <p>(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid, except as provided in ITB 18.2; or</p> <p>(b) if the successful Bidder fails to</p> <p>(i) furnish a performance security in accordance with ITB 40.1; or</p> <p>(ii) sign the Contract in accordance with ITB 41.1;</p> <p>(iii) accept arithmetical corrections in accordance with ITB 33.1;</p> <p>19.7 The Bid Security of a Joint Venture shall be in the name of the Joint Venture that submits the bid. If the Joint Venture has not been legally constituted at the time of bidding, the Bid Security shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.</p>
<p>20. Format and Signing of Bid</p>	<p>20.1 The Bidder shall prepare one original set of the Technical Bid and one original of the Price Bid comprising the Bid as described in ITB 11 and clearly mark it “ORIGINAL – TECHNICAL BID” and “ORIGINAL – PRICE BID.” Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked “ALTERNATIVE”. In addition, the Bidder shall submit copies of the bid in the number specified in the BDS, and clearly mark each of them “COPY.” In the event of any discrepancy between the original and the copies, the original shall prevail.</p> <p>In case of e-submission of bid, the Bidder shall submit his bid electronically in PDF or web forms files as specified in ITB Clause 21.1(b).</p> <p>20.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid, except for un amended printed literature, shall be signed or initialed by the person signing the bid.</p> <p>20.3 Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.</p>
<p>D. Submission and Opening of Bids</p>	
<p>21. Sealing and Marking of Bids</p>	<p>21.1 Unless otherwise specified in BDS, Bidders shall submit their bids by electronic or by mail/by hand/by courier. Procedures for submission, sealing and marking are as follows:</p> <p>(a) Bidders submitting bids by mail, by hand or by courier</p> <p>shall enclose the original of the Technical Bid, and the original of the Price Bid and each copy of the Technical Bid and Price Bid, including alternative bids, if permitted in accordance with ITB 13, in</p>

separate sealed envelopes, duly marking the envelopes as **“ORIGINAL TECHNICAL BID”, “ORIGINAL – PRICE BID”, “ALTERNATIVE” and “COPY No. – TECHNICAL BID” and “COPY NO. PRICE BID”** These envelopes containing the original and the copies shall then be enclosed in one single envelope.

- (b) Bidders submitting Bids electronically shall follow the electronic bid submission procedure specified in this clause.
- The bidder is required to register in the e-GP system <https://www.bolpatra.gov.np/egp> following the procedure specified in e-GP guideline.
 - Interested bidders may either purchase the bidding document from the Employer's office as specified in the Invitation for Bid (IFB) or bidders may download the IFB and bidding document from e-GP system.
 - The registered bidders need to maintain their profile data required during preparation of bids.
 - In order to submit their bids the cost of the bidding document can be deposited as specified in IFB. In addition, electronic scanned copy (.pdf format) of the bank deposit voucher/cash receipt should also be submitted along with the technical bid.
 - The bidder can prepare their technical and price bids using data and documents maintained in bidder's profile and forms/format provided in bidding document by Employer. The bidder may submit bids as a single entity or as a joint venture. The bidder submitting bid in joint venture shall have to upload joint venture agreement along with partner(s) Bolpatra ID provided during bidder's registration.
 - Bidders (all partners in case of JV) should update their profile data and documents required during preparation and submission of their technical bids.
 - In case of bid submission in JV, the consent of the partners shall be obtained through the confirmation link sent to the registered email address and the partners shall have to acknowledge their confirmation.

The required forms and documents shall be part of technical bids.

No.	Document	Requirement	Remarks
1.	Letter of Technical Bid	Mandatory	PDF
2.	Bid Security/Bank Guarantee	Mandatory	PDF
3.	Company registration Certificate	Mandatory	PDF
4.	VAT registration Certificate	Mandatory for domestic bidders	PDF
5.	Business Registration Certificate	Mandatory	PDF
6.	Tax Clearance Certificate/Tax return submission evidence/evidence of time extension	Mandatory for domestic bidders	PDF

7.	Power of Attorney of Bid signatory	Mandatory	PDF
8.	Bank Voucher for cost of bid document	Mandatory	PDF
9.	Joint venture agreement	Mandatory in case of JV Bids Only	PDF
10.	Qualification Documents	Mandatory	Using profile data(financial details, contract details etc.) and Technical Proposal
11.	Additional documents specified in ITB 11.2 (h)	If applicable	PDF

The required forms and documents shall be part of price bids.

No.	Document	Requirement	Remarks
1.	Letter of Price Bid	Mandatory	PDF
2.	Completed Bill of Quantities (BoQ)	Mandatory	Online Forms
3.	Price Adjustment Table	If applicable	Online Forms
4.	Additional Documents specified in ITB 11.3 (d)	If applicable	PDF

Note:

a) Bidders (all partners in case of JV) should verify/update their profile documents as appropriate for the specific bid before submitting their bid electronically.

- viii. After providing all the details and documents, two separate bid response documents i.e technical bids and price bids will be generated from the system. Bidders are advised to download and verify the response documents prior to bid submission.
- ix. For verifying the authentic user, the system will send one time password (OTP) in the registered e-mail address of the bidder. System will validate the OTP and allow bidder to submit their bid.
- x. Electronically submitted bids can be modified and/or withdrawn through system. The bidder may modify their bids multiple times online within bid submission date and time specified in e-GP system. Once a Bid is withdrawn, bidder won't be able to submit another bid response for the same bid.
- xi. The Bidder / Bid shall meet the following requirements and conditions for e-submission of bids;
 - aa) The e-submitted bids must be readable through PDF reader.
 - bb) The facility for submission of bid electronically through e-submission is to promote transparency, non-discrimination, equality of access, and open competition in the bidding process. The Bidders are fully responsible to use the e-submission facility properly in e-GP system as per specified procedures and in no case the Employer shall be held liable for Bidder's inability to use this facility.
 - cc) When a bidder submits electronic bid through the PPMO e-GP portal, it is assumed that the bidder has prepared the bid by

	<p>(bb) received by the Employer twenty four hour prior to the deadline prescribed for submission of bids, in accordance with ITB 22.</p> <p>DP Funded:</p> <p>A Bidder may withdraw or modify its Bid – Technical or Price – after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2, (except that withdrawal notices do not require copies). The corresponding modification of the Bid must accompany the respective written notice. All notices must be</p> <ul style="list-style-type: none"> i) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” and “MODIFICATION;” and ii) received by the Employer prior to the deadline prescribed for submission of Bids, in accordance with ITB 22. <p>ii) E-submitted bids.</p> <ul style="list-style-type: none"> a) Bidder may submit modification or withdrawal prior to the deadline prescribed for submission of bids through e-GP system by using the forms and instructions provided by the system.
	<p>24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall not be opened. In case of hard copy submission, the Bid will be returned unopened to the Bidders.</p>
	<p>24.3 The following provisions apply for withdrawal or modification of the Bids:</p> <p>GoN Funded:</p> <ul style="list-style-type: none"> (i) In case of bids submitted in hard copy no bid shall be withdrawn or modified in the interval between 24 hours prior to the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof. (ii) In case of e-submitted bids no bids shall be withdrawn or modified in the interval between deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Technical Bid and Price Bid or any extension thereof. <p>DP Funded:</p> <p>No Bid may be withdrawn or modified in the interval between the deadline for submission of Bids and the expiration of the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid or any extension thereof.</p>
	<p>24.4 Except in case of any modification or correction in bid document made by procuring entity, Bidder may submit request for withdrawal or modification only one time.</p> <p>24.5 In case of hard copy bid, no bid may be withdrawn if the bid has already been modified;except in case of any modification or correction in bid document by procuring entity.</p>
	<p>24.6 Request for withdrawal or modification must be made through the same medium of submission. Request for withdrawal or modifications through different medium shall not be considered.</p>

25. Bid Opening	<p>25.1 The Employer shall open the Technical Bids in public at the address, on the date and time specified in the BDS in the presence of Bidders' designated representatives who choose to attend. The Price Bids will remain unopened and will be held in custody of the Employer until the specified time of their opening. If the Technical Bid and Price Bid are submitted together in one envelope, the Employer shall reject the entire Bid.</p>
	<p>25.2 The Employer shall download the e-submitted Technical Bid. The e-GP system allows the Employer to download the e-submitted technical bid only after bid opening date and time after login simultaneously by at least two members of the Bid Opening Committee.</p>
	<p>25.3 Electronically submitted Technical Bid shall be opened at first in the same time and date as specified above. Electronic Bids shall be opened one by one and read out. The e-submitted technical bids must be readable through open standards interfaces. Unreadable and or partially submitted bid files shall be considered incomplete.</p>
	<p>25.4 Thereafter, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding Bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be Permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked "MODIFICATION" shall be opened and read out with the corresponding bid. No Technical Bid and/or Price Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out and recorded at bid opening. Only the Technical Bid, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Price Bids, both Original and Modification, will remain unopened in accordance with ITB 25.1.</p>
	<p>25.5 All other envelopes holding the Technical Bid shall be opened one at a time, reading out: the name of the Bidder; whether there is a modification; the presence of a bid security and any other details as the Employer may consider appropriate.</p> <p>Only Technical Bids read out and recorded at bid opening shall be considered for evaluation.</p> <p>No bid shall be rejected at opening of Technical Bids except for late bids, in accordance with ITB 23.1.</p>
	<p>25.6 The Employer shall prepare a record of the opening of Technical Bids that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, or modification; and the presence or absence of a bid security. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record.</p>
	<p>25.7 At the end of the evaluation of the Technical Bids, the Employer will</p>

	<p>invite bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified for award to attend the opening of the Price Bids. The date, time, and location of the opening of Price Bids will be advised in writing by the Employer. Bidders shall be given at least 7 days notice for the opening of Price Bids.</p>
	<p>25.8 The Employer will notify Bidders in writing who have been rejected on the grounds of their Technical Bids being substantially nonresponsive to the requirements of the Bidding Document and return their Price Bids unopened.</p>
	<p>25.9 The Employer shall conduct the opening of Price Bids of all Bidders who submitted substantially responsive Technical Bids, in the presence of Bidders' representatives who choose to attend at the address, on the date, and time specified by the Employer. The Bidder's representatives who are present shall be requested to sign a register evidencing their attendance.</p>
	<p>25.10 All envelopes containing Price Bids shall be opened one at a time and the following read out and recorded:</p> <ul style="list-style-type: none"> (a) the name of the Bidder; (b) whether there is a modification; (c) the Bid Prices, including any discounts and alternative offers; and (d) any other details as the Employer may consider appropriate. <p>Only Price Bids, discounts, modifications, and alternative offers read out and recorded during the opening of Price Bids shall be considered for evaluation. No Bid shall be rejected at the opening of Price Bids.</p>
	<p>25.11 The Employer shall prepare a record of the opening of Price Bids that shall include, as a minimum, the name of the Bidder, the Bid Price (per lot if applicable), any discounts, modifications and alternative offers. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record.</p>
E. Evaluation and Comparison of Bids	
26. Confidentiality	<p>26.1 Information relating to the examination, evaluation, comparison, and post-qualification of bids and recommendation of Contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders.</p>
	<p>26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.</p>
	<p>26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.</p>

27. Clarification of Bids	<p>27.1 To assist in the examination, evaluation, and comparison of the Technical and Price Bids, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Price Bids, in accordance with ITB 33. In case of e-submission of bid, upon notification from the employer, the bidder shall also submit the original of documents comprising the Technical and Price Bid as per ITB 11.2 and ITB 11.3 for verification of submitted documents for acceptance of the e-submitted bid.</p> <p>27.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Employer's request for clarification, its Bid may be rejected.</p>
28. Deviations, Reservations, and Omissions	<p>28.1 During the evaluation of bids, the following definitions apply:</p> <ul style="list-style-type: none"> (a) "Deviation" is a departure from the requirements specified in the Bidding Document; (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and (c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.
29. Examination of Technical Bid	<p>29.1 The Employer shall examine the Technical Bid to confirm that all documents and technical documentation requested in ITB 11.2 have been provided, and to determine the completeness of each document submitted.</p> <p>29.2 The Employer shall confirm that the following documents and information have been provided in the Technical Bid. If any of these documents or information is missing, the offer shall be rejected.</p> <ul style="list-style-type: none"> (a) Letter of Technical Bid; (b) written confirmation of authorization to commit the Bidder; (c) Bid Security; and (d) Technical Proposal in accordance with ITB 16
30. Determination of Responsiveness of Technical Bid	<p>30.1 The Employer's determination of a Bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB11.2.</p> <p>30.2 A substantially responsive Technical Bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,</p> <ul style="list-style-type: none"> (a) if accepted, would: <ul style="list-style-type: none"> (i) affect in any substantial way the scope, quality, or

	<p>performance of the Works specified in the Contract; or</p> <p>(ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer's rights or the Bidder's obligations under the proposed Contract; or</p> <p>(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.</p> <p>30.3 The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section VI (Works Requirements) have been met without any material deviation, reservation or omission.</p> <p>30.4 If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.</p> <p>30.5 In case of e-submission bids, the Employer evaluates the bid on the basis of the information in the electronically submitted bid files. If the Bidder cannot substantiate or provide evidence to establish the information provided in e-submitted bid through documents/clarifications as per ITB Clause 27.1, the bid shall not be considered for further evaluation.</p>
	<p>30.6 In Case, a corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such bidder's bid shall be excluded from the evaluation, if public entity receives instruction from Government of Nepal.</p> <p>30.7 Except in case of e-submission, the Financial Bid of the bidder, which is evaluated as substantially non-responsive in technical bid, shall be returned to the respective bidders.</p>
31. Nonconformities, Errors, and Omissions	<p>31.1 Provided that a bid is substantially responsive, the Employer may waive any non-conformities in the bid that do not constitute a material deviation, reservation, or omission.</p> <p>31.2 Provided that a Technical Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.</p> <p>31.3 Provided that a Technical Bid is substantially responsive, the</p>

	<p>Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the methods indicated in Section III (Evaluation and Qualification Criteria).</p> <p>31.4 If the monetary value of such non-conformities is found to be more than fifteen percent of the Bid Price of the bidder pursuant to ITB 31.3, such bid shall be considered nonresponsive and shall not be involved in evaluation.</p>
32 Qualification of the Bidder	<p>32.1 The Employer shall determine to its satisfaction during the evaluation of Technical Bids whether Bidders meet the qualifying criteria specified in Section III (Evaluation and Qualification Criteria).</p> <p>32.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.</p> <p>32.3 An affirmative determination shall be a prerequisite for the opening and evaluation of a Bidder's Price Bid. A negative determination shall result into the disqualification of the Bid, in which event the Employer shall return the unopened Price Bid to the Bidder.</p>
33. Correction of Arithmetical Errors	<p>33.1 During the evaluation of Price Bids, the Employer shall correct arithmetical errors on the following basis:</p> <ul style="list-style-type: none"> (a) only for unit price Contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected; (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; (c) If there is a discrepancy between the bid price in the Summary of Bill of Quantities and the bid amount in item (c) of the Letter of Price Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Price Bid will be corrected. (d) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a), (b) and (c) above. <p>33.2 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be disqualified and its bid security shall be forfeited.</p>
34 Subcontractors	<p>34.1 In case of Prequalification, the Bidder's Bid shall name the same subcontractor as submitted in the prequalification application and</p>

	<p>approved by the Employer.</p> <p>In case of Post-qualification, the Employer may permit subcontracting for certain specialized works as indicated in Section III. When subcontracting is permitted by the Employer, the sub-contractor shall meet the qualifications criteria as indicated in section III.</p> <p>Sub-contractors' qualification and experience will not be considered for evaluation of the Bidder. The Bidder on its own (without taking into account the qualification and experience of the sub-contractor) should meet the qualification criteria.</p> <p>Bidders may propose subcontracting up to the percentage of total value of contracts or the volume of works as specified in the BDS.</p>
35. Evaluation of Price Bids	35.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.
	<p>35.2 To evaluate a Price Bid, the Employer shall consider the following:</p> <ul style="list-style-type: none"> (a) the bid price, excluding Value Added Tax, Provisional Sums, and the provision, if any, for contingencies in the Summary Bill of Quantities, for Unit Rate Contracts, or Schedule of Prices for lump sum Contracts, but including Day work items, where priced competitively; (b) price adjustment for correction of arithmetic errors in accordance with ITB 33.1; (c) price adjustment due to discounts offered in accordance with ITB 14.4; (d) adjustment for nonconformities in accordance with ITB 31.3; (e) application of all the evaluation factors indicated in Section III (Evaluation and Qualification Criteria);
	35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.
	35.4 If this Bidding Document allows Bidders to quote separate prices for different Contracts, and to award multiple Contracts to a single Bidder, the methodology to determine the lowest evaluated price of the Contract combinations, including any discounts offered in the Letter of Price Bid, is specified in Section III (Evaluation and Qualification Criteria).

	<p>35.5 if the bid for an Unit Rate Contract, which results in the lowest Evaluated Bid Price is seriously unbalanced or front loaded or extremely low in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder as mentioned in BDS to protect the Employer against financial loss in the event of default of the successful Bidder under the Contractor may consider the bid as non-responsive.</p> <p>35.6 In case of e-submission bids, the Employer evaluates the bid on the basis of the information in the electronically submitted bid files. If the Bidder cannot substantiate or provide evidence to establish the information provided in e-submitted bid through documents/clarifications as per ITB Clause 27.1, the bid shall not be considered for further evaluation.</p>
	<p>35.7 In Case, a corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such bidder's bid shall be excluded from the evaluation, if public entity receives instruction from Government of Nepal.</p>
36. Comparison of Bids	36.1 The Employer shall compare all substantially responsive bids in accordance with ITB 35.2 to determine the lowest evaluated bid.
37. Employer's Right to Accept Any Bid, and to Reject Any or All Bids	37.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all Bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.
F. Award of Contract	
38. Award Criteria	38.1 The Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
39. Letter of Intent to Award the Contract/Notification of Award	39.1 The Employer shall notify the concerned Bidder whose bid has been selected in accordance with ITB 38.1 within seven days of the selection of the bid, in writing that the Employer has intention to accept its bid and the information regarding the name, address and amount of selected bidder shall be given to all other bidders who submitted the bid.
	39.2 If no bidder submits an application pursuant to ITB 42 within a period

	<p>of seven days of the notice provided under ITB 39.1, the Employer shall, accept the bid selected in accordance with ITB 38.1 and Letter of Acceptance shall be communicated to the selected bidder prior to the expiration of period of Bid validity, to furnish the performance security and sign the contract within fifteen days.</p> <p>39.3 In Case, a corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such bidder's bid shall be excluded from the evaluation, if public entity receives instruction from Government of Nepal.</p>
<p>40. Performance Security and Line of Credit</p>	<p>40.1 Within Fifteen (15) days of the receipt of Letter of Acceptance from the Employer, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, subject to ITB 35.5, as specified below from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal using Sample Form for the Performance Security included in Section X (Contract Forms), or another form acceptable to the Employer. The performance security issued by any foreign Bank outside Nepal must be counter guaranteed by Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal.</p> <p>i) If bid price of the bidder selected for acceptance is up to 15 (fifteen) percent below the approved cost estimate, the performance security amount shall be 5 (five) percent of the bid price.</p> <p>ii) For the bid price of the bidder selected for acceptance is more than 15 (fifteen) percent below of the cost estimate, the performance security amount shall be determined as follows:</p> <p>Performance Security Amount = [(0.85 x Cost Estimate – Bid Price) x 0.5] + 5% of Bid Price.</p> <p>The Bid Price and Cost Estimate shall be inclusive of Value Added Tax.</p> <p>Within Fifteen (15) days of the receipt of Letter of Acceptance from the Employer, the successful Bidder shall furnish the Letter of Commitment for Bank's Undertaking for Line of Credit of the amount as specified in the BDS, using Sample Form for the Line of Credit included in Section X (Contract Forms) at the time of contract agreement.</p> <p>40.2 Failure of the successful Bidder to submit the above-mentioned Performance Security and Line of Credit or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily. The process shall be repeated according to ITB 39.</p>
<p>41 Signing of</p>	<p>41.1 The Employer and the successful Bidder shall sign the Contract</p>

Contract	<p>Agreement within the period as stated ITB 40.1.</p> <p>41.2 At the same time, the Employer shall affix a public notice on the result of the award on its notice board and make arrangement for causing such notice to be affixed on the notice board also of the District Coordination Committee, District Administration Office, Provincial Treasury and Controller Office and District Treasury and Controller Office. The Employer may make arrangements to post the notice into its website, if it has; and if it does not have, into the website of the Public Procurement Monitoring Office, identifying the bid and lot numbers and the following information: (i) the result of evaluation of bid; (ii) date of publication of notice inviting bids; (iii) name of newspaper; (iv) reference number of notice; (v) item of procurement; (vi) name and address of bidder making contract and (viii) contract price</p> <p>41.3 Within thirty (30) days from the date of issuance of notification pursuant to ITB 39.1 unsuccessful bidders may request in writing to the Employer for a debriefing seeking explanations on the grounds on which their bids were not selected. The Employer shall promptly respond in writing to any unsuccessful Bidder who, requests for debriefing.</p> <p>41.4 If the bidder whose bid has been accepted fails to sign the contract as stated ITB 40.1, the Public Procurement Monitoring Office shall blacklist the bidder on recommendation of the Public Entity.</p>
42. Complaint and Review	<p>42.1 If a Bidder is dissatisfied with the Procurement proceedings or the decision made by the Employer in opening of the price bid or the intention to award the Contract, it may file an application to the Chief of the Public Entity or Public Procurement Monitoring Office or office established as per Clause 145(a) of the Public Procurement Regulation within Seven (7) days of providing the notice under ITB 25.8 and ITB 39.1 by the Public Entity, for review of the proceedings stating the factual and legal grounds.</p> <p>42.2 Late application filed after the deadline pursuant to ITB 42.1 shall not be processed.</p> <p>42.3 The chief of Public Entity shall, within five (5) days after receiving the application, give its decision with reasons, in writing pursuant to ITB 42.1:</p> <ul style="list-style-type: none"> (a) whether to suspend the procurement proceeding and indicate the procedure to be adopted for further proceedings; or (b) to reject the application. <p>The decision of the chief of Public Entity shall be final for the Bid amount up to the value as stated in 42.4.</p> <p>42.4 If the Bidder is not satisfied with the decision of the Public Entity in accordance with ITB 42.3, is not given within five (5) days of receipt of application pursuant to ITB 42.1, it can, within seven (7) days of receipt of such decision, file an application to the Review Committee of the GoN, stating the reason of its disagreement on the decision of the chief of Public Entity and furnishing the relevant documents, provided that its Bid amount, equal or more than Rupees Twenty Million (NRs).</p>

	20,000,000). The application may be sent by hand, by post, by courier, or by electronic media at the risk of the Bidder itself.
	42.5 Late application filed after the deadline pursuant to ITB 42.4 shall not be processed.
	42.6 Within three (3) days of the receipt of application from the Bidder, pursuant to ITB 42.4, the Review Committee shall notify the concerning Public Entity to furnish its procurement proceedings, pursuant to ITB 42.3.
	42.7 Within three (3) days of receipt of the notification pursuant to ITB 42.6, the Public Entity shall furnish the copy of the related documents to the Review Committee.
	42.8 The Review Committee, after inquiring from the Bidder and the Public Entity, if needed, shall give its decision within one (1) month of the receipt of the application filed by the Bidder, pursuant to ITB 42.4.
	42.9 The Bidder, filing application pursuant to ITB 42.4, shall have to furnish a cash amount or Bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law equivalent to one percent (1%) of its quoted Bid amount with the validity period of at least ninety (90) days from the date of the filing of application pursuant to ITB 42.4.
	42.10 If the claim made by the Bidder pursuant to ITB 42.4 is justified, the Review Committee shall have to return the security deposit to the applicant, pursuant to ITB 42.9, within seven (7) days of such decision made.

Section II: Bid Data Sheet

A. General	
ITB 1.1	The number of the Invitation for Bids is: TID/BAG/CW/NCB/03/077/78
ITB 1.1	The Employer is: Transport Infrastructure Directorate, Bagmati Province, Hetauda
ITB 1.1	The number and identification of lots comprising this bidding process is: Churiyamai Tunnel Maintenance and Management Work at Hetauda-15 , Contract ID TID/BAG/CW/NCB/03/077/78
ITB 2.1	<p>The name of the Project is Churiyamai Tunnel Maintenance and Management Work at Hetauda -15</p> <p>The DP is Not Applicable</p> <p>The implementing agency is Transport Infrastructure Directorate, Hetauda</p> <p>GoN Funded or DP Funded: Go</p>
ITB 3.3 (d)	For DP Funded: Not Applicable (For GoN funded delete this row)
ITB 4.1 (a)	For GoN Funded: Maximum number of partner in a joint venture shall be : 3 (three)
B. Bidding Document	
ITB 7.1	<p>For clarification purposes only, the Employer's address is: Attention: Director</p> <p>Address: Transport Infrastructure Directorate, Hetauda</p> <p>Telephone: : 057-522178/522478</p> <p>Electronic mail address: Email: tid@bagamati.gov.np, roadtid@bagamati.gov.np , website www.tid.bagamati.gov.np</p>
ITB 7.4	<p>A Pre-Bid meeting shall held, Pre-Bid Meeting will Take place at the following date, time and place:</p> <p>Date: 12th March 2021</p> <p>Time: 11:00Hrs</p> <p>Place: Transport Infrastructure Directorate, Hetauda</p> <p>A site visit "shall not be" organized by the Employer.</p>
ITB 7.5	Time for request: Requests for clarification should be received by the Employer no later than 10 days prior to the deadline for submission of bids.
C. Preparation of Bids	
ITB 10.1	The language of the bid is: English / Nepali
ITB 11.2 (h)	The Bidder shall submit with its Technical Bid the following additional documents:



	Not Applicable
ITB 11.3 (b)	In accordance with ITB 12 and ITB 14, the following schedules shall be submitted with the bid, including the priced Bill of Quantities for Unit Rate Contracts .
11.3 (d)	The Bidder shall submit with its Price Bid the following additional documents: Not Applicable
ITB 13.1	Alternative bids “shall not be” permitted.
ITB 13.2	Alternative times for completion “shall not be” permitted.
ITB 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: Not Applicable
ITB 14.6	The prices quoted by the Bidder “shall not be” subject to adjustment during the performance of the Contract.
ITB 18.1	The bid validity period shall be: Ninety (90) days
ITB 19.1	The Bidder shall furnish a bid security, from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law with a minimum of NRs 11,44,000.00 which shall be valid for 30 days beyond the validity period of the bid. i.e 19th July 2021
ITB 19.2 (b)	Office Name: Transport Infrastructure Directorate, Bagmati Province, Hetauda Bank Name: Rastriya Banijya Bank Bank Address: Hetauda, Nepal Account Number: 1300100202030000 (Dhaaraui Khata) Office Code: 3370132013
ITB 20.1	In addition to the original of the bid, the number of copy/ies is/are: Not Applicable
ITB 20.2	The written confirmation of authorization to sign on behalf of the Bidder shall indicate: (a) The name and description of the documentation required to demonstrate the authority of the signatory to sign the Bid such as a Power of Attorney; and (b) In the case of Bids submitted by an existing or intended JV, an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, and (ii) nominating a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.
D. Submission and Opening of Bids	
ITB 21.1	Bidders shall have the option of submitting their bids "by electronic only"
ITB 22.1	For bid submission purposes only, the Employer's address is : Attention : Director Address : Transport Infrastructure Directorate, Bagmati Province, Hetauda

	The deadline for bid submission is : Date : 21st March , 2021 Time : 12:00 hrs
ITB 25.1	The Technical Bid opening shall take place at : Address : Transport Infrastructure Directorate, Bagmati Province, Hetauda Date : 21 st March, 2021 Time : 13:00 hrs
E. Evaluation and Comparison of Bids	
ITB 34.1	a) Contractor's proposed subcontracting: Maximum percentage of subcontracting permitted is: NA. b) Sub-contractors' qualification and experience will not be considered for evaluation of the Bidder. The Bidder on its own (without taking into account the qualification and experience of the sub-contractor) should meet the qualification criteria.
ITB 40.1	Letter of Commitment for Bank's Undertaking for Line of Credit shall be of NRs. 1,35,00,000.00 amount.
ITB 35.5	The amount of the performance security be increased by Eight (8) percent of the quoted bid price.

Section III: Evaluation and Qualification Criteria

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders by post-qualification exercise. GoN/DP requires bidders to be qualified by meeting predefined, precise minimum requirements. The method sets pass-fail criteria, which, if not met



by the bidder, results in disqualification. In accordance with ITB 32 and ITB 35, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section IV (Bidding Forms).

1. Evaluation

In addition to the criteria listed in ITB 35.2 (a) - (e) the following criteria shall apply:

Note:

Use the evaluation criteria listed below as appropriate and required for the project.

1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity, to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section VI (Works Requirements).

1.2 Multiple Contracts -NA

1.3 In Case, other than Multiple Contracts -NA

1.4 Completion Time

An alternative Completion Time, if permitted under ITB 13.2, will be evaluated as follows:

[insert project specific requirements]

1.5 Alternative Technical Solutions

Alternative technical solutions, if permitted under ITB 13.4, will be evaluated as follows:

[insert project specific requirements]

1.6 Quantifiable Nonconformities and Omissions

Subject to ITB 14.2 and ITB 35.2, the evaluated cost of quantifiable nonconformities including omissions, is determined as follows:

[Insert in bidding document: “Pursuant to ITB 31.3, the cost of all quantifiable nonmaterial nonconformities shall be evaluated, but excluding omission of prices in the BoQ. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of bids.”]

2. Qualification

2.1 Eligibility

Criteria		Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
2.1.1 Nationality					
Nationality in accordance with ITB sub-clause 4.2	must meet requirement	must meet requirement	must meet requirement	not applicable	Letter of Technical Bid Forms ELI –1; ELI –2 with attachments
2.1.2 Conflict of Interest					
No conflicts of interest in accordance with ITB Sub-Clause 4.3.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Technical Bid
2.1.3 Government/DP Eligibility					
Not having been declared ineligible by government/DP, as described in ITB Sub-Clause 4.4.	must meet requirement	must meet requirement	must meet requirement	not applicable	Letter of Technical Bid
2.1.4 Government-owned Entity					
Bidder required to meet conditions of ITB Sub-Clause 4.5.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Forms ELI - 1, ELI - 2, with attachments
2.1.5 UN Eligibility					
Not having been declared ineligible based on a United Nations resolution or Employer's country law, as described in ITB	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Technical Bid

Sub-Clause 4.8.					
2.1.6 Other Eligibility					
Firm Registration Certificate	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Business Registration Certificate	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
VAT and PAN Registration certificate (only for domestic bidders)	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Tax Clearance Certificate/Tax return submission for the F/Y076/077(Only for domestic bidders)	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Additional requirements	.....	.....	.....	.....	.....

2.2 Pending Litigation

Criteria		Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
2.2.1 Pending Litigation					
All pending litigation shall be treated as resolved against the Bidder and so shall in total not represent more than 50 percent of the Bidder's net worth.	must meet requirement by itself or as partner to past or existing JV	not applicable	must meet requirement by itself or as partner to past or existing JV	not applicable	Form LIT - 1

2.3 Financial Situation

Criteria		Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
2.3.1 Historical Financial Performance					
Submission of audited balance sheets and income statements, for the last 3 years to demonstrate the current soundness of the Bidder's financial position. As a minimum, a Bidder's net worth calculated as the difference between total assets and total liabilities should be positive.	must meet requirement	not applicable	must meet requirement	not applicable	Form FIN - 1 with attachments

2.3.2 Average Annual Construction Turnover					
Minimum average annual construction turnover of NRs 6,10,00,000.00 calculated as total certified payments received for construction contracts in progress or completed, within best three years out of last ten fiscal years.	must meet requirement	must meet requirement	must meet 25% of the requirement	must meet 40% of the requirement	Form FIN -2

2.3.3 Required Bid Capacity					
The bidding capacity of the bidder should be equal to or more than the NRs 4,06,22,000.00	must meet requirement	must meet requirement	must meet 25% of the requirement	must meet 40% of the requirement	Form FIN -3,4

2.4 Experience

Criteria		Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture			Submission Requirement
		All Partners Combined	Each Partner	One Partner	
2.4.1 General Construction Experience					
Experience under construction contracts in the role of contractor, subcontractor, or management contractor for at least the last 5 years prior to the applications submission deadline.	must meet requirement	not applicable	must meet requirement	not applicable	Form EXP - 1

2.4.2 Specific Construction Experience

(a) Contracts of Similar Size and Nature

Participation as Prime contractor, management contractor, or subcontractor, in at least 1 (One) Contracts within the last ten (10) years, each with a value of at least NRs 3,25,00,000.00 that have been successfully or are substantially completed and that are similar to the proposed works. The similarity shall be based on the physical size, complexity, methods, technology or other characteristics as described in Section VI, Works Requirements.	must meet requirement	must meet requirement	not applicable	not applicable	Form EXP – 2(a)
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(b) Construction Experience in Key Activities

For the above or other contracts executed during the period stipulated in 2.4.2(a) above, a minimum construction experience in the following key activities :	must meet all requirements	must meet all requirements	not applicable	not applicable	Form EXP - 2(b)
Tunnel Size greater than 2.5 m* 2.5 m of length 160 m within last 10 years in a single project					

2.5 Personnel

The Bidder must demonstrate that it has the personnel for the key positions that meet the following requirements:

SN.	Position	Required No.	Academic Qualification [When position demands]	Total Work Experience [Years]	Experience in Similar Works [years]
1.	Contract Manager	One	Bachelor in Civil Engineering or Equivalent	7	3
2.	Geo Technical / Tunnel Engineer	One	Bachelor in Civil Engineering or Equivalent	3	1
3.	Sub Engineer	Two	Intermediate in Civil Engineering or Equivalent	3	

In case the bidder proposes to consider Personnel that may be spared from committed/ongoing contracts for evaluation, the bidder shall provide details of personnel which will be spared from such committed/ongoing contracts based on the physical progress at the date of bid submission.

The Bidder shall provide details of the proposed personnel and their experience records in the relevant Information Forms included in Section IV (Bidding Forms).

2.6 Equipment

The Bidder must demonstrate that it has the key equipment listed hereafter:

No.	Equipment Type and Characteristics	Min. Number Requirement
1.	Down Hole Drill Machine	2
2.	Compressor	2
3.	Shot Crete machine	2
4.	Grouting Machine	2

In case the Bidder proposes to consider Equipment that may be spared from committed/ongoing contracts for evaluation, the Bidder shall provide details of Equipment which will be spared from committed / ongoing contracts clearly demonstrating the availability of such

equipment with respect to the physical progress of the ongoing contracts on the date of bid submission.

In case of Equipment to be leased/hired the same procedure as mentioned above shall apply.

The Bidder shall provide further details of proposed items of equipment using the relevant Form in Section IV (Bidding Forms)

2.7 Subcontractors

The experience and financial capacity of the sub-contractors shall not be added to those of the Bidder for purposes of qualification of the Bidder.

The sub-contractors proposed shall be fully qualified for their work proposed, and meet the following criteria:

2.7 (a) Nature of Works that can be sub contracted:

(i)

(ii)

Note: Employer should specify the nature of work, if sub-contracting is permitted.

2.7 (b) Qualification Criteria

The proposed sub-contractor shall meet the following requirements:

- 1) Completion of 80% of the quantity of the work being sub contracted
- 2) Average Annual Construction Turnover for the work being sub contracted should be at least $1.5 * V/T$ where V is the proposed value of sub contract and T is time in year. For contract duration of up to 1 year, T shall be "1".
- 3) Financial Resources: The sub contract must demonstrate that it has the financial resources to meet its current contract commitment plus three months' requirements for the sub contracted work.

Note: Delete 2.7(b) if 2.7(a) is not applicable



Section IV: Bidding Forms

This Section contains the forms which are to be completed by the Bidder and submitted as part of its Bid.

Letter of Technical Bid

The Bidder must accomplish the Letter of Bid in its letterhead clearly showing the Bidder's complete name and address.

Date:

Name of the contract:

Invitation for Bid No.:

To:.....

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) Clause 8.
- (b) We offer to execute in conformity with the Bidding Documents the following Works:
- (c) Our Bid consisting of the Technical Bid and the Price Bid shall be valid for a period of **[insert validity period as specified in ITB 18.1 of the BDS]** days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- (d) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries in accordance with ITB 4.2 **and meet the requirements of ITB 3.4, & 3.5**
- (e) We are not participating, as a Bidder or as a subcontractor, in more than one Bid in this bidding process in accordance with ITB 4.3(e), other than alternative offers submitted in accordance with ITB 13.
- (f) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible by DP, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;
- (g) We are not a government owned entity/We are a government owned entity but meet the requirements of ITB 4.5;¹
- (h) We declare that, we including any subcontractors or suppliers for any part of the contract do not have any conflict of interest in accordance with ITB 4.3 and we have not been punished for an offense relating to the concerned profession or business.
- (i) We declare that we are solely responsible for the authenticity of the documents submitted by us. **The document and information submitted by us are true and correct. If any document/information given is found to be concealed at a later date, we shall accept any legal actions by the Employer.**
- (j) We agree to permit the Employer/DP or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by the Employer.



(k) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section III (Evaluation and Qualification Criteria) and our technical proposal, or as otherwise agreed with the Employer.

(l) We are committed to submit the Letter of Commitment for Bank's Undertaking for Line of Credit ofMillions at the time of contract agreement, if the bid is awarded to us.

Name:

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

Letter of Price Bid

The Bidder must accomplish the Letter of Bid in its letterhead clearly showing the Bidder's complete name and address.

Date:

Name of the contract:

Invitation for Bid No.:

To:.....

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) Clause 8;
- (b) We offer to execute in conformity with the Bidding Documents the following Works:
- (c) The total price of our Bid, excluding any discounts offered in item (d) below is: NRs.; or when left blank is the Bid Price indicated in the Bill of Quantities.
- (d) The discounts offered and the methodology for their application are:.....
- (e) Our bid shall be valid for a period of ***[insert validity period as specified in ITB 18.1]*** days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;
- (g) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:¹

Name of Recipient	Address	Reason	Amount
.....
.....

- (h) We understand that this bid, *together with your written acceptance thereof* included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed;

¹ If none has been paid or is to be paid, indicate "None".



- (i) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and
- (j) We declare that we are solely responsible for the authenticity of the documents submitted by us.
- (k) We agree to permit the Employer/DP or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by the Employer.

Name:

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

Table of Price Adjustment Data

[To be used if Price Adjustment is applicable as per GCC 53.1]

Code	Index Description	Source of Index*	Base Value and Date	Employer's Proposed Weighting Range (coefficient)	Bidder's Proposed Weighting (coefficient)**
1	2	3	4	5	6
	Non - Adjustable (A)			0.15	0.15
	Labor (b)				
	Materials (c)				
	Equipment usage (d)				
		Total			1.00

*Normally following source of index shall apply. Public Entity shall choose applicable Index for each item.

- (a) Labor: "National Salary and Wage Rate Index" - "Construction Labor" of Nepal Rastra Bank or rate fixed by District Rate Fixation Committee
- (b) Material: "National Wholesale Price Index" - Construction Materials" of Nepal Rastra Bank
- (c) Equipment usage: "National Wholesale Price Index" - Machinery and Equipment" of Nepal Rastra Bank or "Fuel" Price fixed by Nepal Oil Corporation.

** Bidders proposed weightings should be within the range specified by the Employer in column - 5

Table of Price Adjustment Data

[To be used if Price Adjustment is applicable as per GCC 53.6]

Code	Construction Material*	Unit	Base Price (NRs/Unit) (Ex-factory)	Source (Factory)**
1	2	3	4	5

* Major construction materials to be specified by Employer in column - 2.

** Base Price and source normally to be specified by Employer (or alternatively informed to be proposed by bidder) in column 4 and 5.

Note:

The base prices of the construction materials shall be taken as of 30 days before the deadline for submission of the Bid as quoted by the Bidder and verified by the Employer. For the purpose of calculation of price adjustment, the Ex-factory price of the same source shall be taken into consideration.

Bid Security

Bank Guarantee

Bank's Name, and Address of Issuing Branch or Office

(On Letter head of the Commercial bank or any Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

Beneficiary: **name and address of Employer**

Date: Bid Security No.:

We have been informed that. **[insert name of the Bidder]** (hereinafter called "the Bidder") intends to submit its bid (hereinafter called "the Bid") to you for the execution of **name of Contract** under Invitation for Bids No. ("the IFB"). Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we..... **name of Bank** hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . . . **amount in figures** (**amount in words**) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn or modifies its Bid:
 - i) during the period of bid validity specified by the Bidder on the Letter of Technical and Price Bid, in case of electronic submission
 - (ii) from the period twenty-four hours prior to bid submission deadline up to the period of bid validity specified by the Bidder on the Letter of Technical Bid and Price Bid, in case of hard copy submission; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (c) changes the prices or substance of the bid while providing information pursuant to clause 27.1 of ITB; or
- (d) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB.
- (e) is involved in fraud and corruption in accordance with the ITB

This guarantee will remain in force up to and including the date **number** 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.

This Bank guarantee shall not be withdrawn or released merely upon return of the original guarantee by the Bidder unless notified by you for the release of the guarantee.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

... **Bank's seal and authorized signature(s)** ...

Note:

The bid security of has been counter guaranteed by the Bank on (Applicable for Bid Security of Foreign Banks).



Technical Proposal Format

Personnel

Equipment

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others

Personnel

Form PER - 1: Proposed Personnel

Bidders should provide the names of suitably qualified personnel to meet the specified requirements for each of the positions listed in Section III (Evaluation and Qualification Criteria). The data on their experience should be supplied using the Form below for each candidate.

No.	Name	Position*	Academic Qualification	Total Work Experience [Years]	Experience in Similar Works [years]
1.					
2.					
3.					
4.					
5.					

* As listed in Section III (Evaluation and Qualification Criteria).



Form PER - 2: Resume of Proposed Personnel

The Bidder shall provide all the information requested below. Fields with asterisk (*) shall be used for evaluation.

Position*		
Personal Information	Name	Date of Birth
	Professional qualifications	
Present employment	Name of employer	
	Address of employer	
	Telephone	Contact (manager/personnel officer)
	Fax	E-mail
	Job title	Years with present employer

Summarize professional experience over the last twenty years in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From*	To*	Company, Project, Position and Relevant Technical and Management Experience*

Note:

In case of e-submission the Resume of Proposed Personnel shall be submitted on notification by the Employer as per ITB 27.

Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III (Evaluation and Qualification Criteria). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder. The Bidder shall provide all the information requested below, to the extent possible. Fields with asterisk (*) shall be used for evaluation.

(i) For the equipment under Bidder's ownership

No.	Equipment Type and Characteristics	Total Nos. of Equipment under Bidder's Ownership	No. of Equipment engaged/proposed for ongoing/committed contracts	Nos. of Equipment proposed for this contract
1.				
2.				
3.				
4.				
5.				

(ii) For the Equipment to be leased/hired

No.	Equipment Type and Characteristics	Total Nos. of Equipment under the ownership of lease/hire provider	No. of Equipment engaged/committed for other works	Nos. of Equipment proposed to be leased/hired for this contract
1.				
2.				
3.				
4.				
5.				

Type of Equipment*

Equipment Information	Name of manufacturer	Model and power rating
	Capacity*	Year of manufacture
Current Status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

The following information shall be provided only for equipment not owned by the Bidder.



Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	email
Agreements	Details of rental / lease / manufacture agreements specific to the project	

The Bidder shall be solely responsible for the data provided. However, this shall not limit the right of Employer to verify the authenticity of submitted information.

Note:

In case of e-submission the “Agreements” shall be submitted on notification by the Employer as per ITB 27.1

Bidder's Information and Qualification Format

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others

Bidder's Qualification

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

Form ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	
In case of JV, legal name of each partner	
Bidder's country of constitution	
Bidder's year of constitution	
Bidder's legal address in country of constitution	
Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents.	
<ol style="list-style-type: none"> 1. In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. 2. Authorization to represent the firm or JV named in above, in accordance with ITB 20.2. 3. In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. 4. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITB 4.5. 	

Form ELI - 2: JV Information Sheet

Each member of a JV must fill in this form

JV / Specialist Subcontractor Information	
Bidder's legal name	
JV Partner's or Subcontractor's legal name	
JV Partner's or Subcontractor's country of constitution	
JV Partner's or Subcontractor's year of constitution	
JV Partner's or Subcontractor's legal address in country of constitution	
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents.	
<ol style="list-style-type: none"> 1. articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. 2. Authorization to represent the firm named above, in accordance with ITB 20.2. 3. In the case of government-owned entity, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB 4.5. 	



Form LIT - 1: Pending Litigation

Each member of a JV must fill in this form

Pending Litigation			
<input type="checkbox"/> No pending litigation in accordance with Criteria 2.2 of Section III (Evaluation and Qualification Criteria)			
<input type="checkbox"/> Pending litigation in accordance with Criteria 2.2 of Section III (Evaluation and Qualification Criteria)			
Year	Matter in Dispute	Value of Pending Claim in NRS	Value of Pending Claim as a Percentage on Net Worth

Form FIN - 1: Financial Situation

Each Bidder or member of a JV must fill in this form

Financial Data for Previous 3 Years [in NRS]		
Year 1 :	Year 2 :	Year 3 :

Information from Balance Sheet

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profit Before Tax			
Profit After Tax			
<ul style="list-style-type: none"> Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the last three or above years, as indicated above, complying with the following conditions. All such documents reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies. Historic financial statements must be audited by a certified auditor. Historic financial statements must be complete, including all notes to the financial statements. Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted). <p>Note: In case of e-submission the attachments should not be uploaded but shall be submitted on notification by the Employer as per ITB 27.1</p>			



Form FIN - 2: Average Annual Construction Turnover

Each Bidder or member of a JV must fill in this form

The information supplied should be the Annual Turnover of the Bidder or each member of a JV in terms of the amounts billed to clients for each year for work in progress or completed to NRs at the end of the period reported.

Annual Turnover Data for the Last 10 Years (Construction only)	
Year	Amount Currency

- **Average Annual Construction Turnover
(Best three years within the last 10 years)**

--

Form FIN - 3: Bid Capacity

Each Bidder or member of a JV must fill in this form

$$\text{Bid Capacity} = [(7 \times A) - B]$$

A = Average Annual Turnover of best three years out of last ten fiscal years.

B = Annual Value of the existing commitments and works (ongoing) to be completed, calculated from FIN-4.

SN	Name of Bidder	Pan No.	A, in Million	B, in Million	Bid Capacity, in Million
1	|	|			
2	|	|	|	|	|
3					

Total Bid Capacity :

Signature of Bidder



Form FIN-4: Current Contract Commitments / Works in Progress

Bidders and each partner to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments (For Calculation of B with reference of FIN-3)									
No.	Name of Contract	Name of the Contractor/s	Employer's Contact Address, Tel, Fax	Contract Share in % (a)	Contract Amount in Millions (b)	Contract Date(yyyy-mm) (c)	Initial or Revised Contract Duration (months) (d)	Value of outstanding works [In Millions,NRS]# (e)	Estimated Time in Month to Complete the outstanding works (f) = (c) + (d) – Date of Invitation of Bid (f)
1									
2									
3									
4									

Signature of Bidder

The Outstanding Works means Contract Price (excluding Vat) minus Work Evaluated by Employer till the reference date. Bidder shall have to submit the relevant documentary evidence to substantiate the facts/figures.

Note 1: "B" shall be calculated as : $B = \sum \left[\frac{(e) \times (a)}{(f)} \right] \times 12$, If (f) is less than 12, then value of (f) shall be taken as 12.

Note 2: If Initial or Revised Contract Date is run out with respect to Date of Invitation of Bid, the Estimated Time in Month to Complete the outstanding works shall be taken equal to 12 months.

**Form EXP - 1: General Construction Experience**

Each Bidder or member of a JV must fill in this form.

General Construction Experience				
Starting Month Year	Ending Month Year	Year	Contract Identification and Name and Address of Employer Brief Description of the Works Executed by the Bidder	Role of Bidder



Form EXP - 2(a): Specific Construction Experience

Fill up one (1) form per contract.

Contract of Similar Size and Nature			
Contract No..... of.....	Contract Identification		
Award Date		Completion Date	
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total Contract Amount	<input type="checkbox"/> NRS		
If Partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount	
Employer's Name Address Telephone/Fax Number E-mail			
Description of the similarity in accordance with Criteria 2.4.2 (a) of Section III			
Note : <i>The Employer should insert here contract size, complexity, methods, technology, or other characteristics as described in Section VI (Work Requirements) against which the bidder demonstrates similarity in the box on the right-hand-side.</i>			



Form EXP - 2(b): Specific Construction Experience in Key Activities

Fill up one (1) form per contract.

Contract of Similar Size and Nature			
Contract No..... of.....		Contract Identification	
Award Date		Completion Date	
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total Contract Amount	<input type="checkbox"/> NRS		
If Partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount	
Employer's Name Address Telephone/Fax Number E-mail			
Description of the similarity in accordance with Criteria 2.4.2 (a) of Section III			
Note : <i>The Employer should insert here production rate(s) for the key activity (activities) subject contract against which the bidder demonstrates in the box on the right-hand-side production rates achieved by him on previous contracts.</i>			

Section V - Eligible Countries

For GoN funded: *[with estimate upto NRs. 1 Billion]*

For the purpose of ITB 4.2: “**Nepal**”; and

For the purpose of Country of Origin ITB 5.1 and GCC 79.2: “**all Countries**”

Part II :BIDDING PROCEDURES

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Section VI: Works Requirements

This Section contains the Specification, the Drawings, and supplementary information that describe the Works to be procured.

Scope of Work

The scope of this works is to carry out Tunnel Rectification, Portal Stabilization, and outlet construction of Churiamai Tunnel in Makwanpur district along East West Highway. The work consists clearing, support & strengthening with grouting and other underground civil engineering structures.

The associated construction works are:

- i. Earthwork
- ii. Clearance
- iii. Rock bolting
- iv. Shotcrete
- v. Lime shotcrete
- vi. Grouting
- vii. Concreting
- viii. Slope stabilization works

Specifications

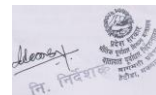
All the work under this contract shall be carried out in accordance with the **“Standard Specification for Roads and Bridge works (2073)”**, published by Government of Nepal, Ministry of Physical Infrastructure and Transport, Department of Roads. The contractor shall purchase the Standard Specification at his own cost.

The Technical Specifications are covered by two sections:

Section A (Standard Specification): This part covers Technical Specifications for all classes of quality control, or workmanship, materials and equipment commonly involved in construction, although not necessarily to be used in a particular works in contract. This specification is the same as approved by Department of Roads "Standard Specifications for Road and Bridge Work" 2073.

Section B (Special Provision): This part contains the Special Provisions to Standard Specification of Section -A to suite major items of work contained in the Bill of Quantities. This Special Provisions too is regional and follows the Specifications of DoR Standard or Indian Standards or internationally recognized BS, AASHTO & ASTM Standards. Some of the Chapters of this section are repetitive of section A, only to reduce frequent references to that section.

1. Nevertheless, the work exigencies may require or lack elaboration to the extent needed for execution. In such cases and also in the cases where better performance and qualities of work is ensured in adopting other internationally recognized standards, the clause described below in 3 will always apply.
2. Where reference is made in the contract to the specific standards and codes to be met by goods and materials to be furnished, 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 that ensure a substantially equal or high quality that the standards and codes specified will be accepted subject to the Project Manager's prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the contractor desires the Project Manager's consent. In the event the Project Manager determines that such proposed deviations do not ensure substantially equal or higher quality, the contractor shall comply with the standards specified in Section – 100.
3. Method of measurement of work is contained in this specification. If during execution of work it is found that some of the works lack this information, the standards laid by Section- 100 shall apply.
4. The contractors shall be required to provide the local standards such as Nepal standards (NS)/ Indian standards (IS)/ Indian road congress (IRC) the relevant section of the works as per Appendix.



Section B (Special Provision to Standard Specification):

The Special Provisions contained herein shall be read in conjunction with the Standard Specifications and shall supplement, replace or supersede the Standard Specifications as appropriate. Where there is any ambiguity or discrepancy between the Standard Specification and the Special Provisions, the Special Provisions shall have preference and shall govern.

Section 100: General

106 Survey and Setting Out

Add the following to Sub-clause (5)

“If at any time the Contractor believes that there exists a discrepancy between the location of the works as defined by the setting out and the apparent location of the works as shown in the plans, he shall immediately inform the Engineer and request clarification.”

Delete Sub-clause (6) and substitute the following:

Some survey data of the project site is held by the Engineer and this survey data will be made available to the Contractor in digital format. But the existing data shall be checked against the survey data by the Contractor and, should any changes be found necessary in the Survey Traverse Points and Bench Marks, after the procedures required in Sub-clauses (1) & (2) above, the existing data set shall be amended accordingly. Should the Engineer consider that design modifications or if the Contractor find that the existing survey data set is inadequate or inaccurate in any area of the Works, the Engineer shall issue detailed instructions to the Contractor and the Contractor shall perform the necessary modifications in the field, as required, and modify the cross sections accordingly.

116 Supply of Project Record

Delete whole section and substitute the following:

The contractor shall provide all supply of digital record of project events in digital format (DVD/Flash Drive) including color photographs, both in digital format as well as mounted on albums to serve as a permanent record of the work needed for an authentic documentation, as approved by the Engineer. The Contractor shall prepare and supply photographs of the site before, during and after completion of the project and photographs of the works project records in digital format (DVD/Flash Drive) including color photographs as directed by the Engineer. This work shall be measured in LS basis and shall be paid after completion of project along with supplying of photographs as mentioned above. The payment shall be in accordance with BoQ item which shall be the full and the final compensation to the Contractor as per Clause 112.

Add the following clauses: 117 Provision of Insurances

The Contractor shall provide all necessary Insurances as required and detailed in the Tender Documents, Conditions of Contract or this Specification. Measurement shall be as lump sum payments for all expenditure with regard to the provision of Insurances. Payment of the lump sums shall be made under the relevant items in the Bill of Quantities on submission to the Engineer of acceptable Insurance policies, as required by the Conditions of Contract, with proof of payment of Insurance premiums. Where premiums are for one year only, 35% of the quoted lump sum shall be

paid for the first year of the Contract period with a further 35% being paid on presentation of proof of payment of premiums for the rest of the construction period and the remaining 30% being paid on presentation of proof of payment of premiums for the Defects Liability period. If the insurance premium does not cover all months within contract period, payment shall be made on pro-rata basis i.e. part of quoted LS amount shall be deducted comparing the period not covered by insurance premium.

Add the following clauses: 118 Overhaul

Notwithstanding anything said or implied to the contrary anywhere else in this Specification or elsewhere in the contract documents no separate measurement or payment shall be made in respect of the haulage of materials of any nature, including excavated materials and materials from site clearance.

Add the following clauses: 119 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. This is especially important wherever it is necessary to enable the free passage of the public through the Site. 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. All open excavations 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 local regulations. The Contractor shall be responsible for ensuring that all persons working in the vicinity of power lines 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. Where work is to be carried out in the proximity of buildings, bridges, 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.

Section 200: Site Clearance

201 Clearing and Grubbing

(4) Measurement

Delete entire text and replace with: "Clearing, grubbing and cutting trees including removal of stumps and their roots of girth of all size and backfilling of holes with compaction executed as per this Specification shall be measured in square meter."

(5) Payment

Delete entire text and replace with:

Clearing, grubbing and cutting trees shall be paid at the contract unit rate which shall be the full and the final compensation to the Contractor as per Clause 112. The contract unit rate shall also include handling, salvaging, piling and disposing off the cleared materials with all leads and lifts. No payment shall be made in respect of clearing and grubbing carried out at the sites of quarries, borrow



pits, Contractor's facilities or any other area other than those areas specifically directed to be cleared and grubbed by the Engineer for the execution of the permanent works."

(9) Payment delete the word "respective".

Section 3100: Miscellaneous Works

3109 Weep Holes

(1) Weep holes

Add "stone masonry and plum concrete" after "plain/ reinforced concrete" in the second sentence of the paragraph and delete the third sentence of the same paragraph.

4000 Drilling and Grouting

4010 Drilling – General

1) Requirement for Drilling

- a) Drilling shall include:
- exploratory drilling with and without core recovery;
 - drilling for curtain, contact and consolidation grouting;
 - drilling for drainage holes;
 - drilling for installation of instrumentation including piezometers and extensometers;
 - drilling for anchors and rockbolts.
- b) During the course of the work, the Contractor shall be required to core drill vertical or inclined holes. Such cored holes shall be water tested in stages as the drilling progresses.

2) Location and Method

- a) The location, direction and length of holes and their reference numbers will be determined by the Contractor and approved by the Employer.
- b) If foundation conditions and rock conditions as revealed by the excavation, drilling, testing and grouting operations, indicate that grouting at greater depths or closer spacing or in other locations than those initially determined is necessary to achieve the required permeability, the Contractor shall drill holes to such depths and spacing.
- c) Grout, test, exploratory and instrumentation holes may be drilled with either rotary type diamond drills or percussion type drills, provided that where holes satisfactory for subsequent grouting cannot be drilled by percussion type drills, rotary type diamond drills shall be used.
- d) The diameters specified shall be obtained at the maximum depth required. The drilling equipment shall be capable of drilling at any angle and be capable of being set to an accuracy of one degree.
- e) Holes shall be drilled to an accuracy of 3° of angle of that specified. Holes shall be drilled from positions shown on the Drawings with a tolerance of 150 mm. Holes for testing and grouting shall have diameters not less than 35 mm. For percussion drill holes the bit diameter shall be at least 8 mm greater than that of the coupling used for drill rods.
- f) All holes shall be drilled without mud support and without the use of grease, rod dope or other non-water soluble material or the lubrication of the drill rods. The Employer may permit the use of an additive in the drilling water. A sample of any proposed

additive shall be submitted to the Employer at least seven days prior to its being used. The concentration of the permitted additive shall not exceed the manufacturer's recommendation.

- g) All holes shall, immediately after drilling, be thoroughly washed out with water under pressure from the bottom. Water flushing shall continue until the waste water runs clear.

3) Drilling Sequence

- a) In local regions the upstream and downstream rows shall be drilled and grouted prior to drilling and grouting the central row of grout holes in that region.
- b) When drilling curtain grout holes the first holes drilled into the foundations shall be widely spaced and shall be drilled and grouted before intermediate holes are drilled and grouted, and in this manner the drilling and grouting of holes shall be completed to such final spacing as to produce the required grout curtain.
- c) After holes in a region have been drilled and grouted, it may be found necessary to drill additional grout holes.

4) Casing

- a) It may be necessary to install casing in portions of holes drilled for grouting. Any casing that is installed for the purpose of keeping the grout hole open for grouting shall be removed immediately prior to or simultaneously with the grouting process. Over lengths of the hole where grouting is required the casing left in place shall be perforated.

5) Capping Holes

- a) Each grout hole in foundations shall be protected from becoming clogged or obstructed by installing a grout connection grouted into the grout hole and suitably capped, or by other means, until the hole is grouted, and any hole which becomes obstructed before being grouted shall be cleared.

6) Standpipes

- a) Where holes are required below or behind concrete they shall be drilled through the concrete or through pipes embedded in the concrete. When grouting is carried out it shall be carried out through pipes set into the concrete or rock. The pipes shall project 300 mm above the rock surface or concrete and shall be bonded firmly into the top of the hole for a length of not less than 750 mm. The grout hole shall be suitably capped until the hole is grouted, and any hole which becomes obstructed before being grouted shall be cleared.
- b) The standpipes shall be supplied and installed in accordance with this Technical Specification.

7) CORE DRILLING

7.1. General

- a) The Contractor shall core drill such holes as may be required to determine the condition of the rock, the effectiveness of the grouting operations, the quality of the construction of

the diaphragm cut-off beneath the plinth across the valley floor and for in-situ rock testing.

- b) A minimum of one cored hole to the maximum depth of grouting in that region under consideration will be drilled for each 30 m length of curtain grouted.
- c) All core drilling shall be performed with rotary type hydraulic feed core drilling equipment, using NMLC or NQTT sized bottom discharge diamond bits and triple tube, swivel inner tube type core barrels. The Contractor shall ensure that cores obtained are in as good a condition as possible from all holes.
- d) Drilling lifts shall be terminated and the cores removed from the barrel as often as considered necessary to secure the maximum possible amount of core. Drilling lifts shall not be longer than the length of core barrel.

7.2. Records

- a) Within 24 hours of completing drilling of a cored hole, the Contractor shall submit in triplicate a complete log of the hole in a form approved by the Employer. The log shall include the following data:
 - location
 - borehole number
 - type and diameter of boring
 - ground level
 - immediate, intermediate and equilibrium water levels with times and dates. Note on colour and losses, etc
 - description and state of weathering of rock and the levels of its boundaries
 - percentage core recovery
 - fracture log
 - the results and levels of all in situ testing
 - a record of the driller's observations on progress of boring, rate of penetration, type of bit and speed of rotation of bit
 - water pressure test results.
- b) The logging of rock cores shall be based upon the Geological Society Engineering Group Working Party Report "The Logging of Rock Cores for Engineering Purposes", Quarterly Journal Eng. Geol. Vol. 3 1970 London.
- c) Preferably, cores should be logged by the same person to avoid discrepancies in description of rock.
- d) Colour photographs of each box are to be taken for all cored drill holes showing the core from 90° to the plane of the box. The core is to be dampened prior to being photographed. Each photograph shall include project name, drill hole number, depth range of core, core box number, core size and a prominent scale graduated in 100

mm intervals. No core is to be removed from the core box prior to being photographed.

- e) The Contractor shall provide strong 1.05 m long core boxes fabricated from zinc galvanised steel sheet. Each box shall hold cores from 5 m of hole and they shall be provided with fast enable lids fabricated from galvanised steel sheet.
- f) The Contractor shall place the core in the box in the correct sequence after extraction from the core barrel. The core at the bottom of each lift shall be marked immediately it has been placed in the box and a corresponding mark shall be printed on the side of the core box and on the rock core. When core is not recovered, timber blocks of square cross section shall be cut to the same length as the core losses and placed in the positions in the box for which the core was lost. If these positions cannot be determined, the blocks shall be placed at the top of the lift. A box shall not contain cores from more than one hole. Designating marks, hole numbers and elevations shall be placed on the boxes and along the line of cores. The covers shall be fastened securely to the core boxes, and the boxes shall be delivered to the Employer at a point designated in the vicinity of the Works.
- g) The cored holes shall be grouted as requested.

8) EXPLORATORY DRILLING

- a) For the purpose of exploratory drilling, the Contractor shall use drilling procedures and equipment which, in the opinion of the Employer, are capable of obtaining samples listed below, in accordance with the requirements of ASTM D2113.
- b) In cohesive soil and completely weathered in-situ rock the Contractor shall continuously take undisturbed samples using a thin walled sampler having a minimum diameter of 62 mm. Unless otherwise approved thin walled samples shall be pushed into the soil with a smooth continuous action. Sample tubes shall be sealed using microcrystalline wax or an approved sealing device.
- c) Material which is too hard to be penetrated by a thin walled sampler N-size core samples shall be taken by drilling in accordance with the provisions of the relevant Section of this Technical Requirements. The Contractor shall, if necessary, vary the drilling technique until the maximum possible percentage core recovery is obtained and cores are intact and in good condition. Drill core shall be stored in zinc galvanised steel sheet core boxes as specified in the relevant Section of this Technical Requirements.
- d) All samples and drill cores shall be placed in their tubes or core boxes, as appropriate, as soon as they have been extracted and shall be stored at each drill site completely protected from the weather. All drill cores shall be correctly identified by marking and the Contractor shall survey all drilled holes to determine their co-ordinates and elevations. The Contractor shall keep an accurate log of all drill holes in accordance with the provision of the relevant Section of this Technical Requirements.
- e) The Contractor shall furnish all equipment required for the work. All core boxes and tubes containing samples shall become the property of the Employer and shall be delivered to the Employer at a point designated in the vicinity of the Works.

9) DRILLING GROUT HOLES IN TUNNELS

- a) Prior to drilling grout holes in the rock surrounding tunnel and shaft linings and other lined underground structures, the Contractor shall complete all backfill grouting in the vicinity of such linings or plugs and such backfill grout shall have been completed for not less than 28 days.

10) WATER PRESSURE TESTS

- a) A water pressure test shall be carried out in all grout holes prior to grouting, and in cored and test holes.
- b) Water pressure tests shall be carried out in stages of depth not exceeding 10 m, with clean water and the rate of flow shall be determined to an accuracy of ten (10) per cent for flows exceeding 1 litre/min, using an air vessel to smooth out fluctuations of pressure. The results shall be expressed in Lugeon units. One Lugeon unit is determined by a water pressure test where a leakage occurs of 1 litre of water per minute per metre length of hole under pressure of 1 MPa.
- c) The water pressure test shall be carried out between a packer and the bottom of the hole or between packers in depth stages to suit the variation of jointing of rock.
- d) Pressure shall be maintained for 5 minutes at each of five pressures, which shall be 0.1 MPa, 0.3 Ma, 0.5 MPa, 0.3 MPa, 0.1 MPa per metre of depth to the top of the stage, or as approved by the Employer. The pressure shall be determined to an accuracy of ten (10) per cent. The results of the tests shall be processed in order to yield by estrapolation the actual Lugeon Units values.
- e) Should the flow be too great to hold the specified pressure, the flow shall be held constant at the maximum discharge of the pump and the pressure shall be observed at one minute intervals over a period of 10 minutes. If the results do not give an adequate indication of the required grouting, the tests shall be repeated using two or more shorter stage lengths.

11) PRESSURE GROUTING – GENERAL

11.1 Requirement for Grouting

- a) Drilling and grouting operations shall be performed in accordance with the requirements of this Technical Requirements and with procedures developed by the Contractor with regard to experience as the work proceeds and submitted to and approved by the Employer from time to time.
- b) These procedures shall embody the Contractor's recommendations on both the type and composition of the grout and the injection pressures to be used after determination by the Contractor of the basic parameters of the rock including permeability and jointing pattern.
- c) It is anticipated that the majority of the grout will be of the cement type. In appropriate circumstances, sodium silicate grout will be required.

- d) The addition of fine aggregate or bentonite to cement grout may be necessary where foundation rock is disturbed or contains large voids.
- e) The Contractor shall use grout proportions and injection pressures as nominated in the approved procedures and it shall be responsible for control of those grout proportions and injection pressures.

11.2 Mixing and Pumping Equipment

- a) In accordance with the requirements for Contractor's Documents to allow for the initial review period of not less than sixty (60) days before commencing any grouting operations including the drilling associated therewith, the Contractor shall submit to the Employer for approval full details of the proposed mixing and grouting plant and related apparatus.
- b) Grouting shall generally be carried out from one or more central stations which shall contain stores for grouting materials, batching plant, grout mixers, holding tanks, and grout pumps.
- c) The arrangements shall be such as to ensure the continuous and uninterrupted flow of grout to the hole being injected and shall include standby equipment capable of being brought into use immediately in the event of a breakdown. The grouting shall be carried out by a return flow system to ensure continuous circulation of grout to the hole being injected and return surplus grout which is not accepted by the hole to the holding tank.
- d) Each grouting unit, including the mixer, pump, hoses and pipelines used for surface grouting operations shall be capable of delivering not less than 60 litres of liquid grout per minute to each hole being injected up to a maximum pressure of 2.5 MPa and shall include a water storage tank of adequate capacity to be used for pressure testing and for flushing out the pumps.
- e) Each grouting unit, including the mixer, pump, hoses and pipelines used for underground grouting shall be capable of delivering not less than 30 litres of liquid grout per minute to each hole being injected up to a maximum pressure of the hydrostatic pressure at the point of application plus 1 MPa. Sufficient water capacity shall be available for pressure testing and for flushing out the pumps.
- f) Two compartment, high speed, colloidal mixers shall be used. The grout shall be mixed in one compartment and be discharged into a holding tank. A screen shall be inserted between the holding tank and the suction of the grout pump. The grout in the holding tank shall be continuously agitated. A water meter shall be provided for the accurate measurement of the water to be used for mixing. The holding tank shall be provided with a volume measure indicator to enable a record of grout take to be made.
- g) All grout shall be pumped with a screw feed or other approved type of pumping equipment, arranged with interconnecting pipes and valves in such a way as to permit a standby pump to be brought into immediate service. The pumping equipment shall be capable of forcing grout into the holes or grout connections in a continuous, uninterrupted flow at any specified pressure up to maximum pressures as noted above, only minimum fluctuations in pressure during the pump cycle being permissible. The grouting equipment shall be arranged to provide a supply line and a return line from the grout pump to the grout hole. Provision shall be made to permit accurate control of

grouting pressures and of grout flow into the grout holes, and continuous circulations of grout within the grouting system.

- h) Pressure gauges shall have an accuracy of \pm three (3) per cent.
- i) A standardised gauge shall be provided for calibrating working gauges. Working gauges shall be used for no longer than two shifts after which time they shall be cleaned and calibrated. All working gauges, water meters and automatic recorders shall have permanently inscribed reference numbers for identification. Tests on gauges, meters and automatic recorders used in connection with drilling and grouting shall be carried out frequently and regularly by the Contractor.
- j) The Contractor shall arrange to have available on Site an adequate number of water meters and pressure gauges correctly calibrated so that water pressure testing and grouting operations are not held up at any time due to the lack of accurate, calibrated equipment.
- k) Packers shall be such that they seal drill holes at the specified level and shall then be capable of withstanding water pressure exceeding the maximum grout or water pressure to be used at the level without leakage. The Contractor shall have available on site an adequate supply of packers of a size to suit different holes being used.
- l) The total length of pipe and hose between the hole being grouted and the pump shall be kept to a minimum.
- m) A valve, bypass valve, and pressure gauge shall be fitted at the collar of a hole being grouted.
- n) Communication facilities between the grout plant and the grout holes or grout connections being grouted shall be furnished by the Contractor.

11.3 Polymer Material for Grouting

The grouting material should be of two component based pre-polymeric materials. Both components should be of low viscosity liquid mixtures that can permeate through tiny pores. After mixing, they polymerize in 2-4 minutes to produce network molecular structure, to reinforce the area effectively. The setting time should be completed within 12-15 minutes. The product should be non-expendable product and should have properties given in table 3. Approximately 15-18 liter chemical will required in one hole.

11.4 Materials for Pressure Grouting

- a) Cement used in pressure grouting shall comply with the requirements of this Technical Specification except that where considered necessary, bentonite shall be added to the cement at the rate of two (2) to seven (7) per cent by mass.
- b) Clay for pressure grouting, which is to be used as an inert filler, shall be prepared as approved.
- c) Bentonite for pressure grouting shall be as specified by the American Petroleum Institute as follows

Type	Sodium montmorillonite
Wet Screen Analysis Residue on U.S. standard sieve No. 200	2.5%, maximum
Moisture	10%, maximum
Fan Reading	30, minimum at 600 r.p.m.
Yield Point	3 x Plastic viscosity, maximum
Filtrate	13.5 cc, maximum

d) Sodium silicate for pressure grouting shall be as follows:

Specific gravity at 15°C	more than 40 Be (Baume gravity meter)
SiO ₂	28 to 30%
Na ₂ O	9 to 10%
Fe	less than 0.02%
Matter insoluble in water	less than 0.2%

- e) Fine aggregate for pressure grouting shall be clean and of such fineness that one hundred (100) per cent will pass a 2.36 mm sieve and not less than thirty (30) per cent a 0.300 mm sieve.
- f) Cement grout mixtures within the range of two (2) parts of water to one (1) part of cement to a half (0.5) part of water to one part of cement by mass are envisaged although thinner or thicker grouts may also be required.
- g) The basic mixture of clay cement grout shall be as below and this shall be the assumed average mixture.

GROUT MIXTURE PER m³

Material or Property	Quantity or Value
Water	880 litres
Clay	120 kg (dry weight)
Bentonite	12 kg
Cement	220 kg
Sodium silicate	10 litres
Marsh viscosity	30 sec. (500 cc Marsh Cone)
Decantation	less than 3%

- h) Water having a temperature above 30°C shall not be used in grouting operations. The use of water at a temperature not exceeding 30°C is designed to limit the temperature rise in the grout during the grouting operation. The Contractor's attention is drawn to the need to provide shelter from effects of hot weather and wind, for the stored cement, water and grout lines and the other equipment handling the grout. Recommendations for hot weather concreting are contained in ACI 305 Title No. 74 33 and the Contractor shall adopt any of these recommendations applicable to grouting.
- i) The Contractor shall submit recommendations to the Employer on the grouts and injection pressures to be used for:
 - Trials in cored trial holes after determining the nature of the jointing, etc, and the permeabilities of the rock.
 - Production holes in the light of the grout trials in cored holes and subsequently in the light of experience.
- j) The Contractor shall use approved grouts and injection pressures and the Contractor shall be responsible for control of grout proportions and injection pressures.
- k) Cement grout without chemicals which is not injected within two hours and chemical grout which is not injected within the setting time of the grout after mixing shall not be used for grouting.
- l) Not less than thirty (30) days before the commencement of grouting, the Contractor shall submit to the Employer the proposed source of the materials, test certificates or the results of the Contractor's tests and notes on any limitations in respect of the use of the material for grouting in the Works, with proposals to overcome those limitations where necessary.

11.5 Grouting Methods

- a) Drilling and grouting of foundations and rock surrounding tunnels (of both type contact grouting and consolidation grouting) and other underground works may be performed by using both the upstage method and the downstage method.
- b) For the upstage method, the drilling and grouting of foundations and rock surrounding tunnels and other underground works shall be performed in successive operations, consisting in each case of:
 - Drilling the hole to its required final depth.
 - Installing a packer into the hole at the top of the lowest stage and grouting that stage.
 - Allowing the packer to remain in place until there is no back pressure and then installing the packer at the top of the next stage; and thus successively grouting the hole in stages until the hole is completely grouted.
- c) Whenever the downstage method is necessary, the drilling and grouting of foundations and rock surrounding tunnels or other underground works shall be performed in successive operations, consisting in each case of:
 - Drilling holes to a limited depth and grouting at that depth.
 - Allowing the grout in the grout holes to set for at least 24 hours, unless washing out of the hole is approved.
 - Drilling the hole to an additional depth and then grouting at the additional depth thus successively drilling and grouting the hole in stages until the required depth of hole is completely drilled and grouted.
- d) Pressure grouting of any part of the foundations shall not be carried out until all excavation, drilling and water pressure testing has been completed within 30 m of the holes to be grouted, and any concrete or shotcrete through which the grout holes extend is at least fourteen (14) days old.
- e) The composition of the grout, the time of grouting and all other details of the grouting operations shall be as approved by the Employer.
- f) Pressures as high as practicable, but which, as determined by trial, are safe against concrete or rock displacement or foundations heave, shall be used in the grouting.
- g) The Contractor shall provide access for the Employer and shall give at least 24 hours advance notice to the Employer to enable him to be present during all pressure grouting operations.

11.6 Grouting Operation - General

- a) If, during the grouting of any hole, grout is found to flow from adjacent grout connections in sufficient quantity to interfere seriously with the grouting operation or to cause appreciable loss of grout, such connections may be capped temporarily, provided that when grouting is being done with packers, the pressure of the grout returning from any adjacent hole shall be measured by seating a packer in the adjacent hole and the pressure in such adjacent hole shall be kept below the allowable pressure for that stage of that hole. Where such capping is not essential, ungrouted holes shall

be left open to facilitate the escape of air and water from pockets in the surrounding rock as the grout is forced into other holes. Before grout has set, the grout pump shall be connected to adjacent capped holes and to other holes from which grout flow has been observed and grouting of all holes shall be completed at the approved pressure.

- b) If, during the grouting of any hole, grout is found to flow from points in the rock surfaces, such leaks shall be immediately and effectively plugged or caulked by the Contractor. As a safeguard against rock or concrete displacement, or while grout leaks are being caulked, a reduction of the pumping pressure, or the discontinuation of pumping may be required.
- c) After grouting of the holes is completed, the pressure shall be maintained by means of stopcocks or other suitable valve devices until the grout has set sufficiently so that it will be retained in the holes or connections being grouted.

11.7 Grouting Foundations

- a) The depth of the grout curtain shall be such as to achieve a permeability of less than 5 Lugeons and to reach a rock class with non-erodible seams present, expected to be Class II or better. The depth of hole shall be measured from the final foundation level.
- b) The grouting of any hole shall be a continuous operation until the hole or grout connection takes grout at the rate of less than 30 litres of grout mixture in 20 minutes if pressures of 0.7 MPa or less are being used; in 15 minutes if pressures between 0.7 and 1.4 MPa are being used; in 10 minutes if pressures between 1.4 and 2.5 MPa are being used, and in 5 minutes if pressures in excess of 2.5 MPa are being used.
- c) Curtain grouting of any portion of the foundations shall be carried out using the following criteria unless otherwise approved.
- d) Curtain grouting shall generally be started by the drilling of primary holes at 6 m centres. Secondary holes shall be midway between the primary holes. Zones of third and subsequent series holes (closure holes) may be necessary. No holes of subsequent series shall be drilled until grouting has been completed to full depth in adjacent holes of the previous series. Locations of grout holes shall be as approved.
- e) If the excavated surface is not satisfactory for grouting, foundation concrete shall be placed prior to grouting.
- f) Grouting shall be carried out in stages suited to the jointing and nature of the rock and the grout to be used but not exceeding 10 m (except as allowed below) and shall be performed by using the upstage method except where the downstage method is necessary for satisfactory grouting.
- g) In downstage grouting sufficient time shall be allowed for the grout to set before the next stage is commenced.
- h) The water pressure test shall be carried out in stages before grouting. Permeabilities shall be measured in Lugeon units at the point in the hole being tested. A stage need not be grouted on its own but may be included in the next stage (the combined stages having a height of up to 20 m) where the permeability of the stage is less than 5 Lugeon.

- i) The grouting of each stage shall commence with a lean grout of the type most likely to penetrate the rock, according to the jointing, etc, of the rock and of the results of the water pressure test, with the grout pressure being increased towards the maximum grout pressure described below.
- j) Fissure splitting will be avoided. The maximum grout pressure shall be 20 kPa per metre of depth to the top of the hole. The viscosity of the grout shall then be increased if the pressure fails to increase to the required pressure per metre of depth whilst there is a high rate of take, or decreased if there is a quick increase of pressure with a low rate of take at high pressure. The grout shall be changed to a more viscous type or to a less viscous type as appropriate if the change of viscosity of the initial grout does not result in a satisfactory rate of take at the required pressure per metre of depth.
- k) During grouting, grout leaks shall be caulked but if this cannot be achieved and the leaks are excessive, grouting shall be stopped and resumed later when the grout already injected into the leaking fissures has hardened. Precautions shall be taken to ensure that the grout does not enter other parts of the Works such as drains. Level reference points, upheaval gauges, etc shall be established and be observed as a check against uplift. Any possible movement shall be taken as an indication that the grouting pressure being used is excessive and it shall be immediately relieved.
- l) Adequate communication by telephone or by any other approved means shall be maintained between the grout pump and the collar of the hole being grouted.
- m) When a stage has been satisfactorily grouted, the Contractor shall flush out the hole with water before the grout has set sufficiently to require re drilling, except when it is considered desirable that the grout shall be left to set and the hole be re drilled. To confirm that the stage has been satisfactorily grouted it may be required that a grouted hole is water pressure tested after flushing out or re drilling.
- n) When the last stage of the hole has been grouted, the hole shall be water pressure tested at the maximum specified pressure for grouting the top most stage. If the test shows a permeability greater than that specified then the zone of higher permeability shall be established by pressure testing suspect stages.
- o) Any faulty stage or zone shall be re grouted with grout which may differ from that originally used until a satisfactory result is obtained, or, if this is unattainable the depth concerned shall be grouted using immediately adjacent holes until a satisfactory result is obtained in the original hole. Grouting of a hole shall not be considered as complete until approved by the Employer. The completed hole shall then be filled with thick grout.
- p) After grouting grout holes, grout pipes or casing set for foundation grouting shall be removed or cut off flush with the surface and the holes backfilled with dry packed mortar.

11.8 Pressure Grouting in Other Underground Structures

Pressure grouting of rock surrounding the tunnel in locations other than the plug may be required and in such cases the drilling and pressure grouting procedure shall be as approved.

12) Grouting and Water Test Records

12.1 Details to be Recorded

- a) Within 24 hours of doing the work concerned, the Contractor shall submit in triplicate and in an approved form a record of the grouting and water pressure tests. The record shall include the following data:
- b) The location and reference number of holes grouted and the lengths of stages. Level of grout pump and collar of hole.
- c) Water pressure test results including details of pressures, volumes of water used, timing of each operation, permeability values and graphical records of the tests.
- d) Details of grout injections, pressures, consistencies, quantities and timing for each stage of the grouting including the printout from the automatic recorders clearly identify each grout hole and its stage.
- e) Proportions of the grout materials, viscosities and, where appropriate, gelling times.
- f) General remarks on the procedure of the grouting, surface leaks and connections to other holes, if any.
- g) When directed by the Employer, the Contractor shall supply grout samples 0.5 kg in mass taken from any point in the grouting system.
- h) Within sixty (60) days of completing grouting of a section of the Works, the Contractor shall submit to the Employer a report in triplicate, complete with record drawings in approved form showing details of the grouting in that section and any conclusions which it may have reached regarding methods used and the effectiveness of the grouting. Such records and drawings when approved by the Employer shall be submitted as as built documents and drawings.

13) Pipes, Fittings and Outlets for Grouting

6.1 General

- a) The Contractor shall furnish and install standard black pipe for all standpipes and grout connections set in the concrete or rock.
- b) Pipes for grouting shall also be set over springs, crevices in the rock, faults or other foundation defects as approved.
- c) Grout pipes set in concrete, except those for the grout cap shall end not less than 30 mm inside the finished surface of the concrete. When grouting is performed after the completion of concreting operations, a standard coupling and wrapped nipple, to facilitate removal after grouting, shall be attached to the grout pipe and shall extend outside the finished surface. The holes left upon removal of the wrapped nipples shall be filled immediately and completely with dry pack.
- d) The size of the grout pipe for each hole and the depth of holes for setting pipe for foundation grouting shall be as approved. Each pipe shall be anchored into the rock or concrete into which it is set and the space around the pipe shall be carefully sealed with grout or other suitable material. All pipes and fittings to be embedded in concrete shall be cleaned thoroughly of all dirt, grease, grout and mortar immediately before being embedded in the concrete or rock.

6.2 Materials

- a) All standard black pipe and fittings for grouting, special grout outlets, all nails, tie wire, wooden plugs, mastic material for sealing purposes, temporary supports and other accessories required for installation of the grouting systems, as described in this Clause, shall be furnished by the Contractor. The pipe shall be cut to length, threaded and fabricated where required, and placed by the Contractor.
- b) The pipe shall be medium thickness, in accordance with ASTM A53.
- c) The pipe fittings shall be malleable iron in accordance with ASTM A181, suitable for the pressure to be applied during grouting.

14) Measurement and Payment

The complete works units of measurement for grouting is kg. The complete works units of measurement for drilling is meter. Payment is with contract rate as per standard specification.

4012 Rockbolts

1) General

- a) For the purposes of this Technical Requirements a rockbolt is an element of steel reinforcing bar which has been installed in a drilled hole, anchored to the rock at the far end and tensioned by the application of an axial, tensile load through a nut and steel plate bearing against the surface of the rock or shotcrete. Such a rockbolt may be grouted or ungrouted. Unless otherwise specified, the rockbolt means the grouted rockbolts.
- b) The Contractor shall furnish and install grouted or ungrouted rockbolts in surface and/or underground excavations where necessary to support the excavation.
 - ◆ Grouted rockbolts shall be used in locations requiring permanent rock support.
 - ◆ Ungrouted rockbolts shall be used in locations requiring temporary rock support.
- c) For the purposes of this Technical Requirements the term "grouted" means full encapsulation of the rockbolt in the hole with cement or other approved type of grout.
- d) Rockbolts required for permanent support shall be protected against corrosion in accordance with this Technical Requirements.

2) Materials

- a) Rockbolts shall be of the type shown on the Drawings or an equivalent approved by the Employer.
- b) The Contractor shall furnish with each rockbolt all accessories including a chemical or mechanical anchor, a steel bearing plate, a ball-washer, a machine washer, a hexagonal nut and where cement grouting is required a rubber plug and accessories for grouting. The bearing plate shall have a bearing area of not less than 225 square centimetres per bolt and minimum thickness of 10 mm. Where cement or other approved grouting is required the bearing plate shall have two holes suitable to permit grouting and venting operations and shall be suitably located to ensure the whole length of the rockbolt can be fully encapsulated in grout.
- c) Where rockbolts are required for permanent support, the bearing plate, the nut, and the ball and machine washers shall be coated by hot-dip galvanising and the mass of the coating shall be not less than 0.6 kg/m². Following installation and grouting, the exposed surfaces of the bearing plates and other external parts of the rockbolts shall be embedded in shotcrete to provide a minimum cover of 50 mm in all directions.
- d) The Contractor shall supply test certificates for each batch of each size and type of rockbolts manufactured and delivered to site. In addition, one bolt in every 100 of each size and type shall be tested by the Contractor in the presence of the Employer to the ultimate strength of the bolt. When tests show satisfactory results the number of tests may be reduced, and if failures occur then additional tests, which may include testing each bolt, will be required. All failed bolts shall be replaced.

3) Patterns of Installation

- a) The patterns in which the rockbolts are installed for permanent and temporary support shall be as required to ensure stability of the excavation, the Employer's Requirements and the Approved Contractor's Documents.

- b) The types of rockbolts in surface excavations, together with specified loads are shown in the following table. The Contractor shall furnish bars with threaded ends not less than 180 mm in length for use as rockbolts.

Rockbolt Type	Minimum Yield Strength	Min. Thread Diameter (mm)	Axial Load (kN)
Grouted	400 MPa	24	60

- c) The types of rockbolts in underground excavations, together with specified loads are shown on the following table. The Contractor shall furnish bars with threaded ends not less than 180 mm in length for use as rockbolts.

Rockbolt Type	Minimum Yield Strength	Class of Support	Min. Thread Diameter (mm)	Axial Load (kN)
Type A	400 MPa	Temporary (ungrouted)	24	
Type B	400 MPa	Permanent (grouted)	24	

- d) The Contractor shall use only rockbolts that meet the requirements of this Technical Requirements. The method of installation shall be in accordance with the requirements of this Technical Requirements the manufacturer's recommendation.
- e) The rock bolts shall be of expansion type and rock dowels of grouted type. The diameter and length of steelbars are presented in the table below and as shown on the Drawings.

Type of RockBolt

Type	I	II	III	IV	V
Length (m)	2.0	3.0	4.0	4.0	4.0
Diameter(mm)	20/25	25	25	25	25

The Contractor shall have in stock at any time the various lengths of rock bolts. Any delay in the progress of the work due to the lack of such stock shall be the responsibility of the Contractor.

- f) The Contractor may nominate the use of:
- Rockbolts which are longer than 10 m, in which case the Contractor may fabricate the lengths on site provided the steel type and diameter meet the specific requirements and the couplers comply with the manufacturer's specification. The couplings shall have a centre stop so that each section of the rockbolt is connected by an equal length of thread. The diameter of the drilled hole shall be increased to ensure the coupler is embedded in the same thickness of grout as is the approved rockbolt without couplers.
 - Flat steel plates and rolled steel sections fastened by rockbolts.

4) **Methods of Installation**

- a) The rockbolts and methods of installation, including the details of the equipment necessary to drill the hole, to clean out the drilled hole, to anchor the rockbolt in the hole and test the anchorage, to tension the rockbolt to the specified axial load and to grout the rockbolt, if required, shall be in accordance with the manufacturer's instructions.
- b) In surface excavations the Contractor shall plan its operations so that routine installation of rockbolts, including grouting and the erection of steel mesh reinforcement and steel reinforcing fabric, unless otherwise approved, can be performed as the excavation proceeds. Excavation shall not proceed more than 2 m below the level of any designed or directed rockbolts until the rockbolts are installed, and grouted.
- c) In underground excavations the Contractor shall plan its operations so that routine installation of rockbolts, including grouting, can be carried out up to the face.
- d) Holes for rockbolts shall be drilled accurately to the depths and at locations and orientations shown on the Drawings. Hole diameters shall be compatible with the rockbolt diameter and in accordance with the manufacturer's recommendations. Hole orientations shall be within 3 degrees of those specified. Where resin anchorages are used, the hole length shall not exceed the placed length of the bolt by more than 100 mm.
- e) When rockbolt support is required, the hole shall be drilled and cleaned out immediately and the rockbolt shall then be installed and tensioned without any further delay.
- f) Each rockbolt shall be tensioned to the specified axial load using a calibrated hydraulic jacking system. The nut shall be done up until the gauge on the jack registers that the nut has begun to take the load of the jack. The jack shall then be released smoothly. The Contractor shall provide calibration curves and test certificates for the jack. The calibration check must have been performed within the last twelve months by an independent testing authority acceptable to the Employer. Recalibration shall be performed at least once every twelve (12) months or sooner if considered by the Employer to be necessary for any reason. If a calibrated torque wrench is used, the wrench shall be tested daily by approved means. If a torque wrench is used, all threads and washers shall be clean and greased to ensure that friction is the same for each rockbolt. If any discrepancy is found in the daily calibration then the rockbolts tested on the previous day shall be retested.
- g) Where rockbolts have been installed and tensioned within 12 m of any blasting work, the tension of each bolt will be checked and each bolt retensioned, if necessary, to achieve the specified load.
- h) Immediately prior to grouting each rockbolt in place the Contractor shall check that the required tension in each bolt has not been relaxed. Grouting shall not commence until all loosened bolts have been retensioned to the required axial load.

5) **Grouting**

- a) If the rockbolt is to be grouted it shall be sealed in the hole to prevent leakage of grout past the bearing plate, and the space around the bolt shall be completely filled with grout.
- b) Grout shall be cement grout, cement mortar or other approved material. All cement used in grout for grouting rockbolts shall comply the relevant provisions of this Technical Requirements. Grout mixtures, admixtures to ensure the necessary expansion of the grout, methods of mixing, grouting pressures and the equipment used for grouting shall be adequate to achieve the specified requirements. For this purpose the Contractor shall use two compartment high speed colloidal mixers with agitator tanks. The Contractor shall have at the site where the work is being carried out at all times at least two (2) operable grout mixing units and grout pumps capable of doing the required work.

- c) For cement grouted rockbolts, unless otherwise approved, a superplastizer such as Sikament 320, or equivalent, shall be added to the dry cement for grout. Preparation shall be in accordance with the manufacturer's instructions.
- d) The ratio of water to cement by mass in cement grout shall be between 0.38 and 0.44.
- e) The grout shall be used within one (1) hour after starting to mix the components.
- f) Where resin mortar encapsulation or resin grout is used the encapsulation and grouting shall be carried out in accordance with the manufacturer's recommendations.
- g) Grouted rockbolts shall be grouted as soon as practicable after tensioning but within twenty one (21) days of installation. Each rockbolt shall be injected with grout in one continuous operation and the grout must flow from the vent until the consistency is equivalent to that being injected. The ventilation tube and subsequently injection tube shall be sealed under pressure until the grout has set. The facility must be provided to check that there is no drop in grout pressure after the grout pump is disconnected. In the event that loss of pressure occurs, the grouting process must be repeated. If the grouting process is interrupted for any reason, the hole shall be immediately flushed out with water under pressure until all grout has been removed. The Contractor shall maintain full records of the grouting and submit copies to the Employer within one (1) day of grouting.
- h) The grouting shall be arranged to fill the holes from the bottom to the top for rockbolts installed below the horizontal and from top to the bottom of the hole for rockbolts installed above the horizontal. The arrangement of grouting and ventilation tubes shall be arranged to suit the inclination of the installed rockbolt. The grouted rockbolts should not be disturbed or loosened in any way until at least seven (7) days after the completion of grouting.
- i) If, during the grouting of any rockbolt, grout is found to flow from points in the rock surfaces adjacent to the rockbolt, such leaks shall be plugged or caulked and this leakage must be stopped prior to completion of the grouting.

15) Measurement and Payment

The complete works units of measurement for rockbolt is meter. Payment is with contract rate as per standard specification.

4013 Wire Mesh

1) General

The contractor shall furnish and install, where approved, steel reinforcing fabric or steel mesh reinforcement in conjunction with rockbolt, shotcrete and lattice girders. The work consists of furnishing and installing wire mesh (Welded Wire Fabric) as indicated on the Drawings, and/or as directed by the Engineer.

2) Material Requirements

Wire mesh shall conform to the requirements of ASTM A185-90 or BS 4483-85.

Wire mesh shall be of a fagot type with a square spacing of 150-mm in each direction. The diameter of the wire shall be 6-mm in accordance with ASTM A185-90.

3) Construction Requirements

Wire mesh shall be installed with the minimum clearance of 50-mm from the excavated surface as shown on the Drawings, accommodating the actual excavation profile, never to exceed more than 20-cm away from any part of the excavated rock face. A minimum overlap length of 20-cm shall be maintained. To prevent loosening during shotcrete application, wire mesh shall be firmly fixed to rock or other surfaces on which it is applied. The spacing of fixing points shall be not more than 50-cm in all directions unless approved or directed by the Engineer otherwise.

4) Measurement and Payment

The complete works units of measurement for wiremesh is sqm with given thickness. Payment is with contract rate as per standard specification.

4014 Shotcrete

1) General

- a) The Contractor shall apply reinforced or unreinforced shotcrete to the excavated surfaces of surface and/or underground excavations where required to ensure stability of the excavation and where approved.
- b) For the purposes of this Technical Requirements shotcrete is concrete, with set accelerator, pneumatically applied at high velocity onto a prepared surface. The dry mix process or wet mix process shall be used.
- c) Shotcrete shall be applied in accordance with the requirements of the American Concrete Institute Standard ACI-506, Guide to Shotcrete or Concrete Institute of Australia ☐ Recommended Practice Sprayed Concrete or of equivalent standard. Steel fibre reinforced shotcrete shall be applied in accordance with the guidelines of ACI 506-1 State-of-the-art Report on Fibre Reinforced Shotcrete.
- d) Where shotcrete support is required, the Contractor shall apply shotcrete to give the minimum thicknesses required for support and approved.
- e) The Contractor shall have on site at all times at least three (3) operable shotcreting units capable of performing the required work.

2) Material

- a) Cement for shotcrete shall comply with the requirements for Type I cement in ASTM C150.
- b) Water used in shotcrete and for curing shall comply with the relevant provisions of this Technical Requirements.
- c) Coarse and fine aggregate for shotcrete shall comply with ASTM C33 and the provisions of this Technical Requirements.
- d) The Contractor shall periodically test the aggregate held in the batch bins for moisture content.
- e) An accelerating admixture shall be used and as approved by the Employer to develop quickset and high early strength, in line with the American Concrete Institute Standard ACI-506, Guide to Shotcrete. Admixtures shall be cementitious, not corrosive to steel and shall not encourage other detrimental effects such as cracking and spalling. Admixtures containing calcium chloride will not be permitted. The minimum quantity of set accelerator shall be used. The properties of accelerating admixtures for normal use shall not exceed six (6) per cent of cement content by mass for powder and eight (8) per cent for liquid accelerators but in no case shall the amount used be in excess of the manufacturer's recommendations or the amount verified as acceptable by testing, whichever is less.

- f) Subject to the approval of the Employer, admixtures to control rebound, increase plasticity or reduce water may be used. Details of admixtures proposed shall be submitted to the Employer and shall include:
- brand names
 - place of manufacture
 - base chemical composition
 - any manufacturers promotion literature.
- g) The method of adding the admixture shall be in accordance with the manufacturer's instructions.
- h) Other additives may include:
- Fly ash (pulverised fuel ash)
 - Fly ash is a finely divided inorganic Pozzolanic material which can be added to concrete to improve or achieve certain properties in the plastic and/or hardened state. Fly ash for use in all shotcrete shall conform to ASTM C618.
 - Ground granulated blast furnace slag (GGBFS)
 - GGBFS is a fine granule latent hydraulic binding material which can be added to concrete in order to improve or achieve certain properties in the plastic and/or hardened state.
 - GGBFS used in sprayed concrete shall comply with national standards and regulations valid in the place in use of the sprayed concrete.
 - Silica fume
 - Silica fume is a finely divided, highly active inorganic pozzolanic material which can be added to concrete to improve or achieve certain properties.
 - Silica fume used in sprayed concrete shall comply with the national standards or regulations valid in the place of use of the sprayed concrete. Where such standards and/or regulations do not exist the use of silica fume shall comply with the recommendations of the suppliers.

- Maximum levels for these additives will be as follows:

Cementitious Material	Maximum Addition
Silica Fume	15 percent of the mass of Portland cement
Fly Ash	30 per cent of Portland cement
	15 per cent of Portland/Fly Ash cement
	20 per cent of Portland blast furnace slag cement
GGBFS	30 per cent of Portland cement

3) Proportioning

- Materials and preparation of the shotcrete mix shall be such that the mix, when discharged from the nozzle, contains a minimum cement content of 350 kg/m^3 of mix with a maximum water/cement rate of 0.4 by mass and that three cast cylinders 150 mm diameter by 300 mm high made from the shotcrete mix, including admixture additives, achieve an average minimum early strength in line with the American Concrete Institute Standard ACI-506, Guide to Shotcrete and for age beyond 24 hours as follows:
 - compressive strength at one (1) day - 8 MPa minimum
 - compressive strength at three (3) days - 16 MPa minimum
 - Compressive strength at twenty eight (28) days - 30 MPa minimum.
- Steel fibre reinforced shotcrete shall contain not less than 30 kg of steel fibres per cubic metre of shotcrete at the mixer.
- Mixed wet shotcrete shall be discarded if not placed within a time determined by the Employer on the basis of the moisture content of the mix and the amount of admixture.

4) Equipment

- In accordance with the requirements for Contractor's Documents to allow for the initial review period of not less than sixty (60) days before applying any shotcrete, the Contractor shall submit to the Employer drawings showing the proposed plant arrangement together with a general description of the equipment it proposes to use, the methods of operation, the mix proportions and admixtures. Mixing of ingredients by hand will not be permitted.
- The type and amount of admixture used shall be as determined from test results. The dosing equipment shall be of such type as to ensure accurate control of the dosage rate and calibration certificates shall be submitted to the Employer. Calibration checks shall be carried out by the Contractor monthly and the results shall be submitted to the Employer.
- Accelerating admixture shall be introduced in a dry or liquid form. The means of introduction of the admixture shall be capable of continuous control and metering.
- The accelerating admixture shall not be added until immediately prior to depositing the materials in the placing equipment. Preference shall be given to the liquid form, and the

accelerating and mixture shall be accurately proportioned into the shotcrete mix at the application nozzle.

- e) The air supply system shall be capable of supplying the delivery machine and hose at the pressures and volumes recommended by the manufacturer of the machine. Air supply systems that deliver air contaminated by oil or are incapable of maintaining constant pressure shall not be used.
- f) The delivery machine shall have a manufacturer's rated capacity of not less than 7.5 m³/hr. The machine shall be capable of introducing mixed materials to the delivery hose at a uniform rate with ejection from the nozzle at velocities which ensure adherence of materials to the treated surface with minimum rebound and maximum density.

5) **Workmanship**

- a) Not less than thirty (30) days before applying shotcrete or steel fibre reinforced shotcrete, the Contractor shall prepare at least three test panels of each type of shotcrete in the presence of the Employer for each admixture to be used. The test panels shall be made by applying at least 150 mm thickness of shotcrete or steel fibre reinforced shotcrete to a hardboard panel approximately 750 mm square with sides splayed outwards at 45 degrees. The shotcrete shall be applied to the panels in the same manner (vertically down, horizontally and overhead), equipment and pressures that will be used in the Works and shall be cured in the same manner as proposed for the actual work.
- b) Early strength tests in accordance with the American Concrete Institute Standard ACI-506, Guide to Shotcrete have to be conducted.
- c) The Contractor shall take six 75 mm diameter core samples from each panel. Cores shall have a length/diameter ratio of 2.0 and shall not be taken from within 125 mm of the edge of the panel. The cores shall be tested either uncapped, with parallel machined planar ends within 20 of normal to the core axis, with bonded caps in accordance with ASTM C617 or with unbonded caps in accordance with ASTM C1231.
- d) No shotcrete shall be applied to the Works until the quality of workmanship and the compressive strength of the shotcrete, as determined from cores taken from the test panels, is shown to conform to the strength requirements specified in Subclause 5.6.3. of this Section.
- e) The Contractor shall employ only skilled nozzlemen and a full-time foreman who has at least five years experience in shotcreting.
- f) The thickness of the shotcrete shall be determined during the application..
- g) The distance of the nozzle from the work shall be between 600 mm and 1500 mm and the nozzle shall be held perpendicular to the application surface except that, when spraying around reinforcing bars, the nozzle may be held closer and at a slight angle in order to facilitate encasement. The shotcrete shall emerge from the nozzle in a steady uninterrupted flow. Should the flow become intermittent from any cause, the nozzle operator shall direct it away from the work until it again becomes uniform.
- h) Layer thickness shall mainly be governed by the requirement that the material shall not slump or sag and is dependent on factors such as position of reinforcement, plane of application, mix design, constituents and use of admixtures. Where thick layers are applied it is important that the leading edge be maintained at a slope. Where necessary to achieve great overall thickness, a layer of shotcrete may be covered by a succeeding layer but it shall first be allowed to stiffen. This surface will be inspected and approved by the Employer prior to application of further layers.

During the application of shotcrete, the Contractor shall provide adequate lighting and ventilation facilities and take such other measures as are necessary for the safety of the

Contractor's workmen. Nozzlemen and other shotcreting assistants shall be provided with protective clothing and appropriate headgear incorporating respirators.

6) Admixtures

- a) The type and amount of admixture used shall be as determined from test results. The dosing equipment shall be of such type as to ensure accurate control of the dosage rate and calibration certificates shall be submitted to the Employer. Calibration checks shall be carried out by the Contractor monthly and the results submitted to the Employer.
- b) Accelerating admixtures shall not contain chlorides or materials corrosive to steel nor shall they cause other detrimental effects such as cracking or spalling.

7) Preparations

- a) Depending on the condition of the rock being supported by shotcrete and the temporary or permanent nature of the support any one or more of the following methods of treatment may be required.
 - shotcrete without steel reinforcement
 - shotcrete with steel reinforcing fabric (= wire mesh)
 - shotcrete with steel reinforcing bars
 - steel fibre reinforced shotcrete.
- b) Steel reinforcement shall be securely fastened with surface anchors and supported with spacers to provide 50 mm clearance between the reinforcement and the rock surface.
- c) Surface anchors are defined as devices used for fastening the reinforcement but which do not penetrate to rock to a depth greater than 600 mm and include nails, staples, and embedded wire ties and masonry anchors.
- d) Wherever shotcrete is required, the Contractor shall clean and prepare the surfaces to receive the coating. Loose or shattered rock, rock debris, soil or other loose material and any oil film or otherwise objectionable substances shall be removed from the surfaces. Where necessary a degreasing liquid or high pressure steam shall be used to remove the oil film.

8) Application

- a) Care shall be taken to ensure that cavities resulting from cutting back of seams or geological defects, are completely backfilled with shotcrete. Wherever practicable, rock surfaces shall be rendered free of water flowing over or seeping through the surfaces to be shotcreted immediately before the shotcrete is applied. Where steel reinforcement is used, shotcrete shall cover the reinforcement to a depth of at least 30 mm or other specified thickness, if greater.
- b) Where very poor rock conditions are anticipated, shotcreting equipment shall be available before blasting so that shotcrete can be applied with the minimum of delay.
- c) All rebound and other loose material shall be removed from the surface of each layer as work proceeds. Such rebound shotcrete shall not be used/reused but shall be removed from the Works and disposed of by the Contractor as part of the work under this Clause.
- d) During the application of shotcrete, any remaining water flowing over or seeping through the surfaces to which the shotcrete is to be applied shall be diverted by the use of panning, pipes, felt strips or other acceptable means. Where necessary, formed holes or pipe outlets shall be provided in the shotcrete, to relieve water pressure on the shotcrete.
- e) No more than one layer of reinforcement shall be shotcreted at a time.

- f) Pressure relief holes of 42 mm diameter shall be drilled through the shotcrete to a depth of 200 mm into the rock in any areas of high water pressure build-up. Holes shall be drilled at a density of at least one hole per 4 m², or as required to relieve pressure. Holes shall be drilled at the minimum density in all areas of shotcrete applied to the excavated surfaces.

9) Safety of Works

- a) The application of shotcrete as temporary or permanent support shall not be considered as relieving the Contractor of its responsibility to maintain all portions of the Works in a safe condition.

10) Testing and Repairs

- a) For early strength of shotcrete up to 24 hours of age, tests according to the American Concrete Institute Standard ACI-506, Guide to Shotcrete for Shotcrete apply.
- b) The Contractor shall perform production control tests comprising 75 mm diameter test cores from in-place shotcrete at the locations and times directed. Cores shall be drilled through the full thickness of shotcrete at the rate of six (6) suitable cores per month or for every 2000 m² of completed shotcrete, whatever comes first. The cores shall have a length/diameter ratio of two and shall be tested by the Contractor in accordance with the requirements set out below. In places where the specified thickness of shotcrete will not provide cores with a length/diameter ratio of two, the Contractor shall provide test panels in accordance with Subclause 5.6.5 of this Section and secure them immediately adjacent to the area proposed to be shotcreted and tested. The shotcrete shall be applied for the full thickness of 150 mm at the same time as the shotcrete is being applied to the excavated surface and in the same application direction. The same number of cores shall be taken from the test panels
- c) Two cores shall be tested for compressive strength requirements at one (1) day, three (3) days and twenty eight (28) days.
- d) The compressive strength requirements for each set of cores shall be satisfied if:
- each core has a compressive strength equal to or greater than that specified in 5.6.3 of this Section, or
 - the average compressive strength is equal to or greater than that specified in 5.6.3 of this Clause and the difference between the strengths is less than twenty (20) per cent of the average.
- e) Where plain shotcrete is applied, the Contractor shall carry out an average of three sets of compressive strength tests (6 cores) for every 2000 m² of shotcrete applied.
- f) For the application of fibre reinforced shotcrete at least two sets of test panels on average shall be constructed by the Contractor for every 2000 m² of shotcrete applied. Three sets of compressive strength tests (6 cores) shall be conducted from each panel.
- g) For flexural strength, toughness index and compressive strength testing, test panels shall be constructed by spraying into moulds 750 x 750 x 150 mm deep with sides sprayed outwards at 45 degrees to prevent the entrapment of rebound. Panels shall be made for each mix and position sprayed by fixing the moulds to downward, vertical and overhead positions. Panels shall be clearly marked to identify the time and date of spraying and the location and position where they were sprayed.
- h) The thickness of the shotcrete support shall be tested when directed by drilling five randomly located holes in a rectangular area 1 000 mm by 1 500 mm. The locations of the holes shall be as directed. The holes shall be approximately 40 mm in diameter.

- i) Areas of shotcrete which are drummy, below strength or otherwise defective, shall be removed and repaired.
- j) Testing for shotcrete shall be performed in accordance with the Standards included in the following table:

Performance Parameter		Testing Specification	Fibre Reinforced Shotcrete	Plain Shotcrete
Compressive strength	at 24 hours	As approved	8 MPa	8 MPa
Compressive strength	at 3 days	ASTM C39	16 MPa	16 MPa
Compressive strength	at 28 days	ASTM C39	30 MPa	30 MPa
First crack and ultimate flexural strength	at 7 days	ASTM C1018	8 MPa	N/A
Bond strength		As approved	0.5 MPa	0.5 MPa
Setting time	Initial set	ASTM C403	3 min	3 min
Setting time	Final set	ASTM C403	9 min	9 min

- k) The Contractor shall test the setting time of the accelerating admixture in accordance with ASTM C266 as modified herein or ASTM 1102. The accelerator shall be added to 50 grams of cement in the preparation of the paste, together with water to produce a water cement ratio of 0.40, in the varying percentages expected to be used in actual shotcrete application. The minimum possible time interval shall be used to attain the proper mixing without disturbing the initial set of the paste. The test report shall be submitted to the Employer.
- l) The compressive strength test of cement with set accelerating admixtures shall be carried out in accordance with ASTM C109. In these tests the accelerator in the varying percentages expected to be used in the shotcrete mix design shall be added to the mortar prepared with a water cement ratio of 0.40. The Contractor shall submit the test report to the Employer.

11) Defective Shotcrete

- a) For the purposes of routine testing, the quality of the shotcrete shall be considered satisfactory if every result is at least ninety (90) per cent of the specified strength and if at least ninety (90) per cent of all results exceed the specified strength.
- b) Should test samples of shotcrete not achieve the specified minimum strength, additional tests shall be carried out by the Contractor to determine new mix proportions to avoid further such failure.
- c) Contractor shall responsible for any corrective measures in shotcrete surface if the shotcrete surface is encountered by any crack due to shotcrete defective and any other reasons.

d) If the Employer considers that the low strengths of the applied shotcrete may reduce the long-term stability of the Works and be detrimental to the effectiveness of the support, the Contractor shall:

- Remove the defective shotcrete in strips or panels in such a way that the safety of the works and persons is not endangered and replace with shotcrete that is complies with this Technical Requirements, which may also require the replacement of reinforcing fabric.
- Apply an additional layer of shotcrete not exceeding the thickness originally required provided that sufficient space clearance exists.

The Engineer may direct the Contractor to remove and replace rejected shotcrete or make necessary corrections. Corrections deemed necessary (in the opinion of the Engineer) may include installation of additional shotcrete (with or without reinforcement), the placement of additional rock bolts, partial removal and replacement of shotcrete or other measures.

All corrective work and associated costs incurred by the Contractor for accomplishing corrective work or removing and replacing unaccepted shotcrete shall be made good at the cost of the Contractor.

12) Measurement and Payment

The complete works units of measurement for shotcrete is sqm with given thickness. Payment is with contract rate as per standard specification.

4015 Lattice Girders

1) General

The Contractor shall furnish and install lattice girders in underground excavations where required.

2) Supply

At all times during underground excavation, the Contractor shall have available on the Site, ready for immediate use, at least 20 lattice girders suitable for installation in the particular section of the underground excavation.

3) Installation

Placement of lattice girders should be completed as soon as possible after each advance. The maximum unsupported advance in each heading shall be as approved.

4) Steel Mesh Lagging

Steel mesh lagging shall consist of steel mesh reinforcement and/or steel reinforcing fabric complying with the relevant provisions of this Technical Requirements and, where required, shall be placed between supports for the purpose of supporting the rock. The steel mesh lagging shall be attached firmly to the supports by welding. Dimensions of the steel mesh lagging shall be as approved.

5) Removal of Timber before Concreting

Before placing the concrete lining all loose timber shall be removed as completely as practicable and all timber spreaders shall be removed. The Contractor shall securely brace the supports with the minimum practicable amount of blocking and wedging.

6) Measurement and Payment

All complete works units of measurement for reinforcement bar is kg and concrete is cum. The payment is as per standard specification

4016 Tunnel Lighting System

Tunnel lighting shall be mounted on tunnel walls, using the format detailed below to ensure that the interior of the tunnel is well-lit, thereby contributing to traffic safety.

Lighting will be installed in the connecting evacuation tunnels to ensure an evacuation route in case of emergency.

- Basic Lighting
- Entrance Lighting
- Special Structure Lighting (Emergency Parking Strip, Etc.)
- Backup Lighting for Power Outages

Lighting shall be installed outside the tunnel entrances and exits to illuminate the width of the road and changes in road path and surface, etc.

Tunnel and Lighting**1) Applicable Standards**

Each device must meet the standards below and conform to these specifications.

- Electrical Appliances and Materials Safety Act
- The Ministerial Ordinance on Technical Standards for Electrical Equipment International Electrotechnical Commission (IEC); IEC 60598 product safety, luminaires requirements and tests or f Japanese Industrial Standards (JIS) Safety Requirements for Road and Highways Lighting Components and General Capacity Requirement Rules

Led Modules for Tunnel Lighting**2) Types and Applicable Regulations**

The following standards shall be applied to LED modules for road lighting, along with these specifications.

JIS C 8152-2:2014 White Lighting Luminous Diode (LED) Measurement Methods, Part 2:

LED modules and LED light engines

JIS C 8154:2009 General Lighting LED Modules — Safety Specifications

JIS C 8155:2010 General Lighting LED Modules — Required Performance

3) LED Module Performance

LED modules shall be contained within fixtures with a protection class rating of at least IP55, as standardized in JIS C 8105-1:2013 "Lighting Components — Lighting Components — Part 1: General Safety Requirement Rules," and shall be designed for appropriate heat dissipation to maintain the standard luminous flux continuously over the long term.

a. Tunnel Lighting Led Module Controllers

Types and Applicable Regulations

The following standards shall be applied to LED module controllers for road lighting, along with these specifications.

JIS C 8147-1:2011	Lamp Controllers - Part 1: General Rules and Safety Requirements
JIS C 8147-2-13:2014	Lamp Controllers - Part 2-13: Individual Requirements for LED Module Controllers for DC or AC Power Supply
JIS C 8153:2009	LED Module Controllers — Performance Requirements
JIS C 61000-3-2:2011	Electromagnetic Compatibility — Part 3-2: Limit Value —Harmonic Current Generation Limit Value (Device with input current of less than 20A per phase)
JIS C 61000-4-5:2009	Electromagnetic Compatibility — Part 4-5: Testing and Measuring Technology — Surge Immunity Testing

LED Module Controller Performance

Design and materials shall be in accordance with JIS C 8147-2-13:2014.

Lead Wires

Lead wires shall have capacities equivalent to JIS C 3317:2000 "Grade heat-resistant polyvinyl chloride insulated wires", JIS C 3306:2000 "vinyl cord" or JIS C 3327:2000 "600V rubber cabtyre cable" and must have a nominal cross-sectional area of at least 0.75 mm².

b. Noise Characteristics

Noise terminal voltage from the light fixtures and noise power from the light fixtures must satisfy the performance listed below when measured by the method stipulated in the Electrical Appliances and Materials Safety Act.

Terminal Voltage 526.5 kHz - 5 MHz: < 56 dB

5 MHz - 30 MHz: < 60 dB

Noise Power 30 MHz - 300 MHz: < 55 dB

4) Connecting Road Lighting (Entrance Lightening)

The LED road illumination light fixtures use LEDs as a light source, and are composed of LED road light fixtures, LED modules, and LED module controllers.

a. Applicable Standards

The following standards shall be applied to LED module controllers for road lighting, along with these specifications.

JIS Standard	Application Reference
JIS C 8147-1:2011	Lamp Controllers— Part 1: General Rules Safety Requirement
JIS C 8147-2-13:2014	Lamp Controllers — Parts 2-13: Individual Requirements for LED Module Controllers for DC or AC Power Supply
JIS C 8153:2009	Lighting LED Module Controllers-Performance Requirements
JIS C 61000-3-2:2011	Electromagnetic Compatibility-Part 3-2
JIS C 61000-4-5:2009	Electromagnetic Compatibility-Part 4-5

b. *Performance*

Optical performance of fixtures must be measured according to the method standardized in JIS C 8105-5:2014, and must satisfy the performance indices and recommended values stipulated in "Road Lighting Facilities Installation Standards/Explanations" (October 2007, Japan Road Association) chapters 3, 4, and 7.

c. *Insulation Resistance*

Must satisfy the capacities in (1), when measured according to the method standardized in JIS C 8105-1:2013.

- When tested as detailed in (2), insulation resistance must be greater than or equal to 5 Ma Also, when tested in the cold, it must be greater than or equal to 30 MS2.
- For the insulation resistance test, lamps must be lit continuously until all parts of the fixture have reached roughly the same temperature. Then, the insulation resistance of both terminals and the non-charging metal parts must be measured with a 500 V Insulation Resistance Meter or other instrument with greater precision, as standardized in JIS C 1302:2014 "Insulation Resistance Meter."

d. Voltage Resistance

- Must satisfy the capacities in (1) when measured according to the method standardized in JIS C 8105-1:2013.
- Voltage resistance must withstand the voltage delivered when tested as detailed in (ii).
- The voltage resistance test must be conducted directly after the insulation resistance test, sending a test voltage ($2U+1000$ V) close to a sine wave of 50 Hz or 60 Hz in frequency between the charged parts and non-charged parts for about one minute, and checking that no abnormalities occur.

- If independent LED module controllers for installation outside the fixture are used, measurement shall include the combined fixture and controllers.

e. Thermal Shock Resistance

The thermal shock resistance of fixtures must satisfy the following capacities at the time of testing using the JIS C JIS C 8105-2-3:2011 standard method.

4017 Methodology

The rectification work should follow given method.

Working sequence

The rectification work should go through given steps

Step 1: About 10m span of present support should be strengthen by using jacked frame structure so that the ground and support will not be disturbed or deformed.

Step 2: Precise drilling should be done at the given locations according to the methodology given in 'Drilling' section.

Step 3: Grouting work should be done according to methodology given in 'Grouting' section.

Step 4: Rock bolts will be installed.

Step 5: About 4m span (conditional) of working place will make free and cutting of present lining will be done.

Step 6: Wire mesh will install in the prepared space.

Step 7: Plate of rock bolt will apply holding the wire mesh. The rock bolt installation should be so accurately that it should not be appear after shotcrete.

Step 8: Shotcrete will apply.

Step 9: Remove of temporary support structure.

Drilling

Gravel of the area are very sensitive and loose. So the drilling should be done very carefully. Very soft and portable rotary drilling method is recommended without collapsing drill hole. The drill hole should be of 38 to 40mm diameter. Electric drilling is strongly recommended.

Grouting method

Removable pipe will be installed that have 1.5m perforated. The grouting length is 1.5m. Remaining 1m plie will have packer and end of pipe connected with grouting machine set.

Application method of chemical

The two components of each proposed chemical is mixed together using a pump with a static helix mixer. The mixing ratio is 1:1 by volume. After mixing, the chemical will inject

continuously. While the two components are mixed, viscosity increases substantially to avoid separation or wash-out of the injected material by pressurized water.

Grouting pressure

From the joint characteristics and ground condition analysis, two compositions of grout mixtures are purposed. Grouting pressure is also varying according to ground condition. Grouting pressures were calculated on the basis of above and below groundwater conditions based on following equations purposed by Nonveiller, (1989).

$$P_i = P + h_1\gamma + (h_2 - l/2)(\gamma + \gamma_w) \quad (\text{for groundwater below condition})$$

$$P_i = P + (h - l/2)\gamma \quad (\text{for groundwater above condition})$$

Where, P_i grout pressure, P pressure at the base of hole, $\gamma = C / C/\gamma_c$, h_1 groundwater level height, h_2 packer height below groundwater level and l stage length. In general grouting pressure will be 6-8bar with flow rate 3-4 lit per min.

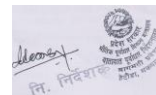
Grout pump

Injection of grouting material into the ground is performed by grouting pumps. Usually piston type pumps with electric or pneumatic drive are used (figure 12).



Figure 1: The grouting pump

A maximum pumping pressure of 270 bars can be achieved using this pump, with a pumping rate of 3 to 25 l/min.



Appendix to Special Provision

Appendix 1: List of Standard

NEPAL STANDARDS (NS)

NS 169-2045 (1988) Requirements for mild steel wire (for Gabions)

INDIAN STANDARDS (IS)

IS: 1597–1992 Code of Practice for construction of stone masonry

Part 1: Rubble stone masonry

IS: 2116–1980 Sand for masonry mortars

IS: 2250-1981 Method of Test for cement mortar

IS: 2386-1963 Method of Test for Aggregates (Parts 1-6)

IS: 2720 Method of Test for Soils (Parts 1-5,7,8,10,14,16,22,28,29,37& 40)

BRITISH STANDARDS (BS)

BS: 812-1975 Testing Aggregates

Part 1: Methods for determination of particle size and shape.

Part 2: Methods for determination of physical properties

BS: 1377 Methods of test for soil for civil engineering purposes

BS: 1881 Methods of testing concrete, Parts 5, 101-122, 124,125,127, 129, 201-207 & 209

AMERICAN PUBLICATIONS & STANDARDS (ASTM/AASHTO)

ASTM Section 4: Construction Volumes 0401 to 0409 inclusive.

AASHTO Part I: Standard Specification for Materials

Part II: Method of Sampling and Testing

All standards provided shall become the property of the Employer on completion of the contract.

OTHER PUBLICATIONS

In addition, the Contractor is to be familiar with and be able to provide, in part or in full or photocopies where possible, to the Engineer on a temporary basis the latest editions of the following Standards and/or Publications, which are mentioned in the most relevant Sections of the Standard Specifications for Road and Bridge Works, when so requested.



NEPAL STANDARDS (NS)

NS: 84 -2042 (1985) Specification for Reinforcing Steel

NS: 191-2045 (1988) Specification for Reinforcing Steel

NS: 199-2046 (1989) Specification for Galvanized Iron (GI) Pipe

INDIAN PUBLICATIONS & STANDARDS

IS: 277-1992 Galvanized Steel Sheets (Plain and Corrugated)

IS: 432-1982 Mild steel and medium tensile steel bars and hard-drawn steel wire for concrete reinforcement

IS 456-2000 Code of Practice for plain and reinforced concrete

IS: 1566-1985 Steel mesh fabric (for concrete reinforcement)

IS: 1786-1985 High strength deformed steel bars and wires for concrete reinforcement

IS: 2062-1999 Steel for general structural purpose

IS: 2062-1986 Method of Test for galvanized hardware

IS: 2386 Method of Test for Aggregates (Parts 7 & 8)

IS 2629- 1985 Hot-Dip Galvanizing of Iron and Steel

IS: 2074 Zinc chromate primer

IS: 4031 Method of Test for Cement, Parts 2,3,5& 6

Indian Roads Congress (IRC) Specifications for Road and Bridge Works

IRC: 89 Stone for Pitching/ Revetment on Slopes (Clause 5.5.5.1)

BRITISH PUBLICATIONS & STANDARDS

BS: 12 Specification for Portland cement (Requirements for composition, strength, physical and chemical properties of four strength classes.)

BS: 63 Specification for Single-Sized aggregate for general purposes.

BS: 812 Testing Aggregates, Methods for determination of soluble Chloride Content. Part 117

BS: 3148 Methods of test for water for making concrete (including notes on the suitability of water)

BS 5075 Specification for concrete admixtures/workability agents

BS: 6906 Method of Testing Geotextiles



Japanese Industrial Standards (JIS)
International Electrotechnical Commission (IEC)

Drawings

The Drawings for Works under the Contract as produced by Employer will be used and will be available in Employer's Office.

Supplementary Information

[insert supplementary information if any]

Section VI: Bill of Quantities²

Notes for Unit Rate Contracts:

Objectives

The objectives of the Bill of Quantities are

- (a) to provide sufficient information on the quantities of Works to be performed to enable Bids to be prepared efficiently and accurately; and*
- (b) when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.*

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and brief as possible.

Content

The Bill of Quantities should be divided generally into the following sections:

- (a) Preamble;*
- (b) Work Items (grouped into parts);*
- (c) Day works Schedule;*
- d) Provisional Sums; and*
- (d) Summary.*

Preamble

The Preamble should indicate the inclusiveness of the unit prices, and should state the methods of measurement which have been adopted in the preparation of the Bill of Quantities and which are to be used for the measurement of any part of the works.

Work Items

The items in the Bill of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing, or any other special characteristics may give rise to different methods of construction, or phasing of the Works, or considerations of cost. General items common to all parts of the works may be grouped as a separate section in the Bill of Quantities.

²In lump sum contracts, delete “Bill of Quantities” and replace with “Schedule of Activities” throughout this section.

Day work Schedule

A Day work Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Employer of the realism of rates quoted by the Bidders, the Day work Schedule should normally comprise the following:

- (a) A list of the various classes of labor, materials, and Constructional Plant for which basic day work rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor will be paid for work executed on a day work basis.*
- (b) Nominal quantities for each item of Day work, to be priced by each Bidder at Day work rates as bid. The rate to be entered by the Bidder against each basic Day work item should include the Contractor's profit, overheads, supervision, and other charges.*

Provisional Sums

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 in accordance with the Conditions of Contract.

Summary

The Summary should contain a tabulation of the separate parts of the Bill of Quantities carried forward, with provisional sums for Day work, for physical (quantity) contingencies, and for price contingencies (upward price adjustment) where applicable.

Preamble of Bill of Quantities

A. General

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical 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. For any item for which measurement is based on records made before or during construction the records shall be prepared and agreed between the Engineer and the Contractor. Should the Contractor carry out such work without the prior agreement of the Engineer, the Engineer may request the Contractor to carry out investigations to confirm the extent of the work and the quantity of work certified for payment shall be solely at the Engineer's discretion. The cost of any such investigation shall be borne by the Contractor.
4. The rates and prices bid in the priced Bill of Quantities shall, except as otherwise provided under the Contract, include all construction equipment, 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.
5. 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.
6. 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.
7. 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. The Specification Clause references where given in the item description of the Bills of Quantities are for the convenience of bidders and generally refer to the principal relevant- specification clause but do not necessarily represent the whole of the specification requirements for the work required within the item. The presence of a Specification clause reference shall not in any way reduce the Bidders obligation to complete work in accordance with all the requirements of the Specification.
8. 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 in accordance with the Conditions of Contract.
9. The method of measurement of completed work for payment shall be in accordance with the Specifications.
10. The abbreviations and symbols used in this Bill of Quantities are:

Units	Abbreviations
cubic metre	Cu.M
cubic metre-kilometer	Cu.M-km
hour	hr
kilogram	kg
kilometre	km
Kilometre-month	km-Month
Litre	Lit.
lump sum	LS
man day	Md.
metre	M
metric ton (1000 kg)	Mt.
millimetre	mm
month	Mth
number	nos.
provisional sum	PS
Running metre	R.M.
square metre	Sq.M.
Per Month	Per-mth

B. Day work Schedule

a) General

1. Work shall not be executed on a day work basis except by written order of the Project Manager. Bidders shall enter basic rates for day work items in the Schedules. These rates shall apply to any quantity of day work ordered by the Project Manager. Nominal quantities have been indicated against each item of day work, and the extended total for day work shall, be carried forward as a Provisional Sum to the Summary Total Bid Amount. Unless otherwise adjusted, payments for day work shall be subject to price adjustment in accordance with the provisions in the Conditions of Contract.

b) Day work Labor

1. In calculating payments due to the Contractor for the execution of day works, the hours for labor will be reckoned from the time of arrival of the labor at the job site to execute the particular item of day work to the time of departure from the job site, but excluding meal breaks and rest periods. Only the time of classes of labor directly doing work ordered by the Project Manager and are competent to perform such work will be measured. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.
2. The Contractor shall be entitled to payment in respect of the total time that labor is employed on day work, calculated at the basis rates entered by it in the " SCHEDULE OF DAY WORK RATES: 1. LABOR". The rates for labor shall be deemed to cover all costs to the Contractor including (but not limited to) i) the amount of wages paid to such labor, transportation time, overtime, subsistence allowances, ii) any sums paid to or on behalf of such labor for social benefits in accordance with Nepal law, iii) Contractor's profit, overheads, superintendence, liabilities and insurance and iv) charges incidental to the foregoing.

c) Day work Equipment

1. The Contractor shall be entitled to payments in respect of Constructional Plant already on site and employed on day work at the basis rental rates entered by him in the "SCHEDULE OF DAY WORK RATES:2 EQUIPMENT". The said rates shall be deemed to include due and complete allowance for



depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricant, and other consumables and all overhead, profit and administrative costs related to the use of such equipment. The cost of drivers, operators and assistants also shall be included in the rate of the equipment and no separately payment shall be made for it.

2. In calculating the payment due to the Contractor for Constructional Plant employed on day work, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Project Manager, the travelling time from the part of the Site where the Construction Plant was located when ordered by the Project Manager to be employed on day work and the time for return journey there to shall be included for payment.

d) Day work Materials

1. The Contractor shall be entitled to payment in respect of materials used for day work (except for materials for which the cost is included in the percentage addition to labor costs as detailed heretofore), at the rates entered by him in the "SCHEDULE OF DAY WORK RATES: 3 MATERIALS" and shall be deemed to include overhead charges and profit as follows;
 - (i) the rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc. and shall provide for delivery to store for stockpiling at the Site.
 - (ii) the cost of hauling materials for use on work ordered to be carried out as day work, from the store or stockpile on the Site to the place where it is to be used also shall be include in the same rate.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the SCC should state the manner in which they will be used, and under whose authority (usually the Project Manager's).

The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors should be indicated in the relevant part of the Bill of Quantities as a particular provisional sum with an appropriate brief description. A separate procurement procedure is normally carried out by the Employer to select such specialized contractors. To provide an element of competition among the Bidders in respect of any facilities, amenities, attendance, etc., to be provided by the successful Bidder as prime Contractor for the use and convenience of the specialist contractors, each related provisional sum should be followed by an item in the Bill of Quantities inviting the Bidder to quote a sum for such amenities, facilities, attendance, etc.

Bill of Quantities

BoQ is attached at end with the Bid Document.

Part III: CONDITIONS OF CONTRACT AND CONTRACT FORMS

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Section VIII: General Conditions of Contract

***Transport Infrastructure Directorate, Bagmati
Province, Hetauda***

**Churiyamai Tunnel Maintenance and Management Work at
Hetauda-15, Churiyamai**



A. General

A. General	
1. Definitions	<p>1.1 Boldface type is used to identify defined terms.</p> <p>(a) The Accepted Contract Amount means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.</p> <p>(b) The Activity Schedule is a schedule of the activities comprising the construction, installation, testing, and commissioning of the Works in a lump sum contract. It includes a lump sum price for each activity which is used for valuations and for assessing the effects of Variations and Compensation Events.</p> <p>(c) The Adjudicator is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in GCC 23.2 hereunder.</p> <p>(d) Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.</p> <p>(e) Compensation Events are those defined in GCC 50 hereunder.</p> <p>(f) The Completion Date is the date of completion of the Works as certified by the Project Manager, in accordance with GCC 68.1.</p> <p>(g) 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 GCC 2.3 below.</p> <p>(h) The Contractor is the party whose Bid to carry out the Works has been accepted by the Employer.</p> <p>(i) The Contractor's Bid is the completed bidding document submitted by the Contractor to the Employer.</p> <p>(j) The Contract Price is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract.</p> <p>(k) Days are calendar days; months are calendar-months.</p> <p>(l) 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.</p> <p>(m) A Defect is any part of the Works not completed in accordance with the Contract.</p> <p>(n) The Defects Liability Certificate is the certificate issued by Project Manager upon correction of defects by the Contractor.</p> <p>(o) The Defects Liability Period is the period calculated from the Completion Date where the Contractor remains responsible for remedying defects.</p> <p>(p) Drawings include calculations and other information provided or approved by the Project Manager for the execution of the Contract.</p> <p>(q) The Employer is the party who employs the Contractor to carry out the Works, as specified in the SCC.</p> <p>(r) Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.</p> <p>(s) Force Majeure means an exceptional event or circumstance: which is</p>

	<p>beyond a Party's control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party.</p> <p>(t) The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.</p> <p>(u) In writing or written means hand written, type written, printed or electronically made, and resulting in permanent record.</p> <p>(v) 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 SCC. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.</p> <p>(w) Letter of Acceptance means the formal acceptance by the Employer of the Bid and denotes the formation of the contract at the date of acceptance.</p> <p>(x) Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.</p> <p>(y) Party means the Employer or the Contractor, as the context requires.</p> <p>(z) SCC means Special Conditions of Contract</p> <p>(aa) Plant is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.</p> <p>(bb) The Project Manager is the person named in the SCC (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract.</p> <p>(cc) Retention Money means the aggregate of all monies retained by the Employer pursuant to GCC 54.1.</p> <p>(dd) Schedules means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Bids, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.</p> <p>(ee) The Site is the area defined as such in the SCC</p> <p>(ff) 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.</p> <p>(gg) Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.</p> <p>(hh) The Start Date is given in the SCC. 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.</p> <p>(ii) 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.</p> <p>(jj) Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation</p>
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	<p>of the Works.</p> <p>(kk) A Variation is an instruction given by the Project Manager which varies the Works</p> <p>(ll) The Works are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the SCC.</p>
2. Interpretation	<p>2.1 In interpreting these GCC, 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 Project Manager shall provide instructions clarifying queries about these GCC.</p> <p>2.2 If sectional completion is specified in the SCC, references in the GCC 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).</p> <p>2.3 The documents forming the Contract shall be interpreted in the following order of priority:</p> <ul style="list-style-type: none"> (a) Contract Agreement, (b) Letter of Acceptance, (c) Letters of Technical Bid and Price Bid, (d) Special Conditions of Contract, (e) General Conditions of Contract, (f) Specifications, (g) Drawings, (h) Bill of Quantities (or Schedules of Prices for lump sum contracts), and (i) Any other document listed in the SCC as forming part of the Contract.
3. Language and Law	<p>3.1 The language of the Contract and the law governing the Contract are stated in the SCC.</p> <p>1.2. Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Employer's country when</p> <ul style="list-style-type: none"> (a) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's Country prohibits any import of goods from, or any payments to, a particular country, person, or entity. Where the borrower's country prohibits payments to a particular firm or for particular goods by such an act of compliance, that firm may be excluded.
4. Contract Agreement	<p>4.1 The Parties shall enter into a Contract Agreement within 15 days after the Contractor receives the Letter of Acceptance, unless the Special Conditions establish otherwise. The Contract Agreement shall be based</p>

	upon the attached Contract forms in Section X.
5. Assignment	<p>5.1 Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party</p> <p>(a) may assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party; and</p> <p>(b) may, as security in favor of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.</p>
6. Care and Supply of Documents	<p>6.1 The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, one copy of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.</p> <p>6.2 Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents.</p> <p>6.3 The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.</p> <p>6.4 If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.</p>
7. Confidential Details	<p>7.1 The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify the Contractor's compliance with the Contract and allow its proper implementation.</p> <p>7.2 Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.</p> <p>7.3 Notwithstanding the above, the Contractor may furnish to its Subcontractor(s) such documents, data and other information it receives from the Employer to the extent required for the Subcontractor(s) to perform its work under the Contract, in which event the Contractor shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Contractor under this Clause.</p>
8. Compliance with	8.1 The Contractor shall, in performing the Contract, comply with applicable



Laws	Laws.
9. Joint and Several Liability	9.1 If the Contractor is a joint venture of two or more entities , all such entities shall be jointly and severally liable to the Employer for the fulfillment of the provisions of the Contract, and shall designate one of such persons to act as a leader with authority to bind the joint venture. The contractor shall not handover the responsibility of the contract to any one member or some members of Joint Venture or any other parties, not involved in the contract. The composition or the constitution of the joint venture shall not be altered without the prior consent of the Employer.
10. Project Manager's Decisions	10.1 Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Employer and the Contractor in the role representing the Employer.
11. Delegation	11.1 The Project Manager may delegate any of his duties and responsibilities to other people after notifying the Contractor, and may cancel any delegation after notifying the Contractor.
12. Communications	12.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.
13. Subcontracting	<p>13.1 For GoN Funded:</p> <p>A list of approved Subcontractors including its value/works is included as Article 2 (k) of contract Agreement. Approval by the Employer for any of the Subcontractors shall not relieve the Contractor from any of its obligations, duties, or responsibilities under the contract.</p> <p>For DP Funded :</p> <p>The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations. Bidders may propose subcontracting up to the percentage of total value of contracts as specified in the SCC. The Sub contractor shall meet the qualification requirement as specified in SCC.</p>
14. Other Contractors	14.1 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 SCC . 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
15 Personnel and Equipment	<p>15.1 The Contractor shall employ the key personnel and use the equipment identified in its Bid to carry out the Works, or other personnel and equipment approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel and equipment only if their relevant qualifications or characteristics are substantially equal to or better than those proposed in the Bid.</p> <p>15.2 If the Project Manager asks the Contractor to remove a person who is a</p>

	<p>member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.</p> <p>15.3 If the Employer, Project Manager, or Contractor determines, that any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or other prohibited practices during the execution of the Works, then that employee shall be removed in accordance with Clause 15.2 above.</p>
16. Employer's and Contractor's Risk	<p>16.1 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.</p>
17. Employer's Risks	<p>17.1 From the Start Date until the Defects Liability Certificate has been issued, the following are Employer's risks:</p> <ul style="list-style-type: none"> (a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to <ul style="list-style-type: none"> (i) use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or (ii) 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. (b) 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. <p>17.2 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</p> <ul style="list-style-type: none"> (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.
18. Contractor's Risks	<p>18.1 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.</p>
19. Insurance	<p>19.1 The Contractor shall provide insurance in the joint names of the Employer and the Contractor from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the SCC for the following events which are due to the Contractor's risks:</p> <ul style="list-style-type: none"> (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,



	<p>and Equipment) in connection with the Contract; and</p> <p>(d) Personal injury or death.</p> <p>19.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the proportions of Nepalese Rupees required to rectify the loss or damage incurred.</p> <p>19.3 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.</p> <p>19.4 Alterations to the terms of insurance shall not be made without the approval of the Project Manager.</p> <p>19.5 Both parties shall comply with any conditions of the insurance policies.</p>
20. Site Investigation Reports	20.1 The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the SCC , supplemented by any information available to the Contractor.
21. Contractor to Construct the Works	21.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.
22. The Works to Be Completed within intended Completion Date	22.1 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 Project Manager, and complete them within the intended Completion Date.
23. Design by contractor and Approval by the Project Manager	<p>23.1 The contractor shall be responsible for the design of permanent works as specified in SCC.</p> <p>23.2 Contractor shall be responsible for design of the Temporary Works. The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, for his approval.</p> <p>23.3 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, shall be subject to prior approval by the Project Manager before their use.</p> <p>23.4 The Project Manager's approval shall not alter the Contractor's responsibility for design of temporary works.</p>
24. Safety, Security and Protection of the Environment	<p>24.1 The Contractor shall, throughout the execution, and completion of the works and remedying of any defects therein:</p> <p>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.</p>

	<p>b. Provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when necessary or required by the Project Manager or by any duly constituted authority, for the protection of the Works of for the safety and convenience of the public or others.</p> <p>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.</p> <p>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.</p> <p>e. Any spoil or material removed from drains shall be disposed of to designated stable tipping areas as directed by the Project Manager.</p> <p>f. Shall not use fuel wood as a means of heating during the processing or preparation of any materials forming part of the works.</p> <p>g. The Project 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 Project Manager consider, on the advice of the relevant Government Departments, that the practices or activities will be harmful to wildlife.</p> <p>h. Provide on the Site such lifesaving 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.</p>
25. Discoveries	25.1 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 Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.
26. Possession of the Site	26.1 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 SCC , the Employer shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event.
27. Access to the Site	27.1 The Contractor shall allow the Project Manager and any person authorized by the Project 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.
28. Instructions, Inspections and Audits	<p>28.1 The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.</p> <p>28.2 The Contractor shall keep, and shall make all reasonable efforts to cause its Subcontractors and sub consultants to keep accurate and systematic accounts and records in respect of the Works in such form and details as will clearly identify relevant time changes and costs.</p> <p>28.3 The Contractor shall permit the GoN/DP and/or persons appointed by</p>



	<p>the GoN/DP to inspect the Site and/or the accounts and records of the Contractor and its sub-contractors relating to the performance of the Contract, and to have such accounts and records audited by auditors appointed by the GoN/DP if required by the GoN/DP. The Contractor's attention is drawn to Sub-Clause 73.2 which provides, inter alia, that acts intended to materially impede the exercise of the GoN's/DP's inspection and audit rights provided for under this Sub-Clause constitute a obstructive practice subject to contract termination.</p>
29. Dispute Settlement	<p>29.1 The Employer and the Contractor shall attempt to settle amicably by direct negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p> <p>29.2 Any dispute between the Parties as to matters arising pursuant to this Contract which cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be referred to Arbitration within 30 days after the expiration of amicable settlement period.</p>
30. Procedures for Disputes	<p>30.1 In case of arbitration, the arbitration shall be conducted in accordance with the arbitration procedures published by the Nepal Council of Arbitration (NEPCA) at the place given in the SCC.</p>
B. Staff and Labor	
31. Forced Labor	<p>31.1 The Contractor shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labor, such as indentured labor, bonded labor, or similar labor–contracting arrangements.</p>
32. Child Labor	<p>32.1 The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where national laws have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.</p>
33. Non-discrimination and Equal Opportunity	<p>34.1 The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where national law provides for non-discrimination in employment, the Contractor shall comply with national law. When national laws are silent on nondiscrimination in employment, the Contractor shall meet this Sub clause's requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the</p>

	job shall not be deemed discrimination.
B. Time Control	
34. Program	<p>34.1 Within the time stated in the SCC, after the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. In the case of a lump sum contract, the activities in the Program shall be consistent with those in the Activity Schedule.</p> <p>34.2 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.</p> <p>34.3 The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period stated in the SCC. If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount stated in the SCC 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. In the case of a lump sum contract, the Contractor shall Provide an updated Activity Schedule within 15 days of being instructed to by the Project Manager.</p> <p>34.4 The Project Manager's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.</p>
35. Extension of the Intended Completion Date	<p>35.1 The Project 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.</p> <p>35.2 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information at least 21 days prior to the intended completion date. 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.</p>
36. Acceleration	<p>36.1 When the Employer wants the Contractor to finish before the Intended Completion Date, the Project Manager shall obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Employer and the Contractor.</p> <p>36.2 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.</p>



37. Delays Ordered by the Project Manager	37.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.
38. Management Meetings	<p>38.1 Either the Project 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.</p> <p>38.2 The Project 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 Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.</p>
39. Early Warning	<p>39.1 The Contractor shall warn the Project 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 Project 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.</p> <p>39.2 The Contractor shall cooperate with the Project 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 Project Manager.</p>
C. Quality Control	
40. Identifying Defects	40.1 The Project 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 Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.
41. Tests	41.1 If the Project 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.
42. Correction of Defects	<p>42.1 The Project 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 SCC. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.</p> <p>42.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice.</p>
43. Uncorrected Defects	43.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount.

D. Cost Control	
44. Contract Price	<p>44.1 In the case of a Unit Rate contract, the Bill of Quantities shall contain priced items for the Works to be performed by the Contractor. The Bill of Quantities is used to calculate the Contract Price. The Contractor will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item.</p> <p>44.2 In the case of a lump sum contract, the Activity Schedule shall contain the priced activities for the Works to be performed by the Contractor. The Activity Schedule is used to monitor and control the performance of activities on which basis the Contractor will be paid. If payment for Materials on Site shall be made separately, the Contractor shall show delivery of Materials to the Site separately on the Activity Schedule.</p>
45. Changes in the Contract Price	<p>45.1 In the case of an Unit Rate contract:</p> <p>(a) If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 2 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change.</p> <p>(b) The Project 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.</p> <p>(c) If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.</p> <p>45.2 In the case of a lump sum contract, the Activity Schedule shall be amended by the Contractor to accommodate changes of Program or method of working made at the Contractor's own discretion. Prices in the Activity Schedule shall not be altered when the Contractor makes such changes to the Activity Schedule.</p>
46. Variations	<p>46.1 All Variations shall be included in updated Programs, and, in the case of a lump sum contract, also in the Activity Schedule, produced by the Contractor.</p> <p>46.2 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.</p> <p>46.3 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.</p> <p>46.4 If the Project 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.</p> <p>46.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.</p>

	<p>46.6 In the case of an Unit Rate contract, if the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in GCC 45.1 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.</p>
47. Cash Flow Forecasts	<p>47.1 When the Program, or, in the case of a lump sum contract, the Activity Schedule, is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast.</p>
48. Payment Certificates	<p>48.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.</p> <p>48.2 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor within 30 days of submission by contractor.</p> <p>48.3 The value of work executed shall be determined by the Project Manager.</p> <p>48.4 The value of work executed shall comprise:</p> <ul style="list-style-type: none"> (a) In the case of an Unit Rate contract, the value of the quantities of work in the Bill of Quantities that have been completed; or (b) In the case of a lump sum contract, the value of work executed shall comprise the value of completed activities in the Activity Schedule. <p>48.5 The value of work executed shall include the valuation of Variations and Compensation Events.</p> <p>48.6 The Project 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.</p>
49. Payments	<p>49.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest as indicated in the SCC 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.</p> <p>49.2 If an amount certified is increased in a later certificate or as a result of an award by 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.</p> <p>49.3 Items of the Works for which no rate or price has been entered in BOQ shall not be paid for by the Employer and shall be deemed covered by</p>

	other rates and prices in the Contract.
50. Compensation Events	<p>50.1 The following shall be Compensation Events:</p> <ul style="list-style-type: none"> (a) The Employer does not give access to a part of the Site by the Site Possession Date pursuant to GCC 26.1. (b) The Employer modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract. (c) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time. (d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects. (e) The Project Manager unreasonably does not approve a subcontract to be let. (f) 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. (g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons. (h) Other contractors, public authorities, utilities, or the Employer does 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 Project Manager unreasonably delays issuing a Certificate of Completion. <p>50.2 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 Project 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.</p> <p>50.3 As soon as information demonstrating effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager shall assume that the Contractor shall react competently and promptly to the event.</p> <p>50.4 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</p>



	cooperated with the Project Manager.
51. Tax	51.1 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 30 days before the submission of bids for the Contract and the date of the last Completion certificate. 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 GCC 53.
52. Currency	52.1 The currency of Contracts shall be Nepalese Rupees.
53. Price Adjustment	<p>53.1 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the SCC. If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due.</p> <p>53.2 Adjustment Formulae³: The formulae will be of the following general type:</p> $pn = A + b \frac{Ln}{Lo} + c \frac{Mn}{Mo} + d \frac{En}{Eo} + etc.$ <p>Where:</p> <p><i>pn</i> is a price adjustment factor to be applied to the amount for the payment of the work carried out in the subject month, determined in accordance with Clause 49;</p> <p>A is a constant, specified in the Bidding Forms- Table of Price Adjustment data, representing the nonadjustable portion in contractual payments;⁴b, c, d, etc., coefficients representing the estimated proportion of each cost element (labor, materials, equipment usage, etc.) in the Works or sections thereof, net of Provisional Sums, as specified in the SCC;</p> <p><i>Ln, Mn, En, etc.</i>, are the current cost indices or reference prices of the cost elements for month "n," determined pursuant to Sub-Clause 53.4, applicable to each cost element; and</p> <p><i>Lo, Mo, Eo, etc.</i>, are the base cost indices or reference prices corresponding to the above cost elements at the date specified in Sub-Clause 53.4</p> <p>53.3 Sources of Indices and Weightings: The sources of indices shall be those listed in the Bidding Forms- Table of Price Adjustment data, as approved by the Project Manager and stated in SCC. Indices shall be appropriate for their purpose and shall relate to the Contractor's proposed source of supply of inputs on the basis of which his Contract shall have been computed. As the proposed basis for price adjustment, the Contractor shall have submitted with his bid the</p>

³ For complex Works involving several types of construction work with different inputs, a family of Formulae will be necessary. The various items of Day work may also require different formulae, depending on the nature and source of the inputs

⁴ Insert a figure for factor A only where there is a part of the Contractors' expenditures which will not be subject to fluctuation in cost or to compensate for the unreliability of some indices. A should normally be 0.15. The sum of A, b, c, d, etc., should be one.

	<p>tabulation of Weightings and Source of Indices in the Bidding Forms, which shall be subject to approval by the Project Manager.</p> <p>53.4 Base, Current and Provisional Indices: The base cost indices or prices shall be those prevailing on the day 30 days prior to the latest date for submission of bids. Current indices or prices shall be those prevailing on the day 30 days prior to the last day of the period to which a particular Interim Payment Certificate is related. If at any time the current indices are not available, provisional indices as determined by the Project Manager will be used, subject to subsequent correction of the amounts paid to the Contractor when the current indices become available.</p> <p>53.5 Weightings: The weightings for each of the factors of cost given in the Bidding Forms shall be adjusted if, in the opinion of the Project Manager, they have been rendered unreasonable, unbalanced or inapplicable as a result of varied or additional work already executed or instructed under Clause 46 or for any other reason.</p>
	<p>53.6 Where, price adjustment provision is not applicable pursuant to Sub-clause 53.1 then the Contract is subject to price adjustment only for construction material in accordance with this clause. If the prices of the construction materials stated in the contract is increased or decreased in an unexpected manner in excess of ten (10%) percent in comparison to the base price construction material stated in Section –IV, Bidding Forms-Table of Price Adjustment Data, then the price adjustment for the increase or decrease of price of the construction material beyond 10% shall be made by applying the following formulas:</p> <p>For unexpected increase in price</p> $P = [R_1 - (R_0 \times 1.10)] \times Q$ <p>For unexpected decrease in price P</p> $= [R_1 - (R_0 \times 0.90)] \times Q$ <p>Where:</p> <p>“P” is price adjustment amount</p> <p>“R₁” is the present price of the construction material (Source of indices shall be those listed in the Bidding forms)</p> <p>“R₀” is the base price of the construction material</p> <p>“Q” is quantity of the construction material consumed in construction during the period of price adjustment consideration If the Base price and source is to be proposed by the Bidder as per the provision made in Section –IV, Bidding Forms-Table of Price Adjustment Data then the Base price and source filled by Bidder for the construction material stated in the Bidding Form shall be subject to the approval of the Project manager and shall be as stated in SCC..</p> <p>53.7 The Price Adjustment amount shall be limited to a maximum of the initial Contract Amount as specified in the SCC.</p>



	53.8 The Price Adjustment provision shall not be applicable for delayed period if the contract is not completed in time due to the delay caused by the contractor or the contract is a Lump sum Contract
54. Retention	<p>54.1 The Employer shall retain from each payment due to the Contractor the proportion stated in the SCC until Completion of the whole of the Works.</p> <p>54.2 Upon the issue of a Defects Liability Certificate by the Project Manager, in accordance with GCC 70.1, half the total amount retained shall be repaid to the Contractor and half when the Contractor has submitted the evidence of submission of tax return to the concerned Internal Revenue Office. On completion of the whole works, the Contractor may substitute retention money with an “on demand” bank guarantee.</p>
55. Liquidated Damages	<p>55.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the SCC 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 SCC. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.</p> <p>55.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project 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 GCC.49</p>
56. Bonus	56.1 The Contractor shall be paid a Bonus calculated at the rate per calendar day stated in the SCC 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 Project Manager shall certify that the Works are complete, although they may not be due to be complete.
57. Advance Payment	<p>57.1 The Employer shall make advance payment to the Contractor of the amounts stated in the SCC in two equal installments by the date stated in the SCC, against provision by the Contractor of an unconditional bank guarantee from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal in a form acceptable to the Employer in amounts 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 shall not be charged on the advance payment.</p> <p>57.2 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</p>

	<p>demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.</p> <p>57.3 The advance payment shall be repaid by deducting proportionate amounts, as stated in SCC, from payments otherwise due 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.</p>
58. Securities	<p>58.1 The Performance Security, including any additional security required as per ITB 35.5 and ITB 40.1, shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount specified in the SCC, by a Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal, acceptable to the Employer, and denominated in Nepalese Rupees. The Performance Security shall be valid until a date 30 days from the date of issue of the Defect Liability Certificate in the case of a bank guarantee.</p> <p>Any additional performance security required as per ITB 35.5 shall be valid until a date 30 days from the date of issue of the certificate of Completion in the case of a bank guarantee.</p> <p>Any additional performance security required as per ITB 40.1 shall be valid until a date 30 days from the date of issue of the certificate of DLP in the case of a bank guarantee.</p> <p>58.2 The performance security issued by any foreign Bank outside Nepal must be counter guaranteed by Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal.</p>
59. Dayworks	<p>59.1 If applicable, the Dayworks rates in the Contractor's Bid shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.</p> <p>59.2 All work to be paid for as Day works shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.</p> <p>59.3 The Contractor shall be paid for Day works subject to obtaining signed Day works forms.</p>
60. Cost of	<p>60.1 Loss or damage to the Works or Materials to be incorporated in the</p>



Repairs	Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.
F. Force Majeure	
61. Definition of Force Majeure	<p>61.1 In this Clause, "Force Majeure" means an exceptional event or circumstance,</p> <ul style="list-style-type: none"> (a) which is beyond a Party's control; (b) which such Party could not reasonably have provided against before entering into the Contract; (c) which, having arisen, such Party could not reasonably have avoided or overcome; and (d) which is not substantially attributable to the other Party.
	<p>61.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:</p> <ul style="list-style-type: none"> (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies; (b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war; (c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel; (d) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; and (e) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.
62. Notice of Force Majeure	<p>62.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.</p> <p>62.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.</p> <p>62.3 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the</p>

	other Party under the Contract.
63. Duty to Minimize Delay	63.1 Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure.
	63.2 A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.
64. Consequences of Force Majeure	64.1 If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under GCC 62, and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to GCC 30 to <ul style="list-style-type: none"> (a) an extension of time for any such delay, if completion is or will be delayed, under GCC35 ; and (b) if the event or circumstance is of the kind described in subparagraphs (a) to (d) of GCC 61.2 and, in the case of subparagraphs (b) to (d), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in GCC 19.
	64.2 After receiving this notice, the Project Manager shall proceed in accordance with GCC 10 to agree or determine these matters.
65. Force Majeure Affecting Subcontractor	65.1 If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's nonperformance or entitle him to relief under this Clause.
66. Optional Termination, Payment and Release	66.1 If the execution of substantially all the Works in progress is prevented for a continuous period of 90 days by reason of Force Majeure of which notice has been given under GCC 62, or for multiple periods which total more than 150 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with GCC 72.5.
	66.2 Upon such termination, the Project Manager shall determine the value of the work done and issue a Payment Certificate, which shall include <ul style="list-style-type: none"> (a) the amounts payable for any work carried out for which a price is stated in the Contract; (b) the Cost of Plant and Materials ordered for the Works which have



	<p>been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal;</p> <p>(c) other Costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;</p> <p>(d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and</p> <p>(e) the Cost of repatriation of the Contractor's staff and labor employed wholly in connection with the Works at the date of termination.</p>
67. Release from Performance	<p>67.1 Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises, which makes it impossible or unlawful for either or both Parties to fulfill its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance,</p> <p>(a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract; and</p> <p>(b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under GCC 66 if the Contract had been terminated under GCC 66.</p>
G. Finishing the Contract	
68. Completion	<p>68.1 The Contractor shall request the Project Manager to issue a certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the work is completed.</p> <p>68.2 In addition to the other provisions, before acceptance of the completed works, Employer shall verify and assure that such works are within the set objective, quality and appropriate to operate and use.</p>
69. Taking Over	<p>69.1 The Employer shall take over the Site and the Works within seven days of the Project Manager's issuing a certificate of Completion.</p>
70. Final Account	<p>70.1 The Contractor shall supply the Project 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 Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 60 days of receiving the Contractor's account if it is correct and complete. If it is not, the</p>

	<p>Project Manager shall issue within 60 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 Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.</p>
71. Operating and Maintenance Manuals	<p>71.1 If “as built” Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the SCC.</p> <p>71.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the SCC pursuant to GCC 71.1, or they do not receive the Project Manager’s approval, the Project Manager shall withhold the amount stated in the SCC from payments due to the Contractor.</p>
72. Termination	<p>72.1 The Employer may terminate the Contract at any time if the contractor;</p> <ul style="list-style-type: none"> a. does not commence the work as per the Contract, b. abandons the work without completing, c. fails to achieve progress as per the Contract. <p>72.2 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.</p> <p>72.3 Fundamental breaches of Contract shall include, but shall not be limited to, the following :</p> <ul style="list-style-type: none"> (a) The Contractor uses the advance payment for matters other than the contractual obligations, (b) the Contractor stops work for 30 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager; (c) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days; (d) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation. (e) a payment certified by the Project Manager is not paid by the Employer to the Contractor within 90 days of the date of the Project Manager’s certificate; (f) the Project 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 Project Manager; (g) the Project Manager gives two consecutive Notices to update the Program and accelerate the works to ensure compliance with GCC Sub clause 22.1 and the Contractor fails to update the Program and demonstrate acceleration of the works within a reasonable period of time determined by the Project Manager; (h) the Contractor does not maintain a Security, which is required; (i) 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 SCC; and

	<p>(j) If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract, pursuant to GCC 73.1.</p> <p>72.4 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under GCC 72.3 above, the Project Manager shall decide whether the breach is fundamental or not.</p> <p>72.5 Notwithstanding the above, the Employer may terminate the Contract for convenience.</p> <p>72.6 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.</p>
<p>73. Fraud and Corruption</p>	<p>73.1 If the Employer determines that the Contractor has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 15 days notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site.</p> <p>73.2 Should any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Works, then that employee shall be removed in accordance with GCC Clause 15.</p> <p>For the purposes of this GCC 73;</p> <ul style="list-style-type: none"> (i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party. (ii) "fraudulent practice"⁵ is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation; (iii) "collusive practice"⁶ is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party; (iv) "coercive practice"⁷ is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party; (v) "obstructive practice" is <ul style="list-style-type: none"> (aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or (bb) acts intended to materially impede the exercise of the GON's/DP's inspection and audit rights provided for under GCC28.3.

74. Black Listing	<p>74.1 Without prejudice to any other rights of the Employer under this Contract, GoN, Public Procurement Monitoring Office (PPMO), on the recommendation of procuring entity, may blacklist a Bidder for its conduct for a period of one (1) to three (3) years on the following grounds and seriousness of the act committed by the bidder:</p> <ul style="list-style-type: none"> (a) if it is established that the Contractor has committed substantial defect in implementation of the contract or has not substantially fulfilled its obligations under the contract or the completed work is not of the specified quality as per the contract. (b) If convicted from a court of law in a criminal offense liable to be disqualified for taking part in procurement contract, (c) If it is established that the Contractor has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
75. Payment upon Termination	<p>75.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project 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. 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.</p> <p>75.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project 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.</p> <p>75.3 If the Contract is terminated because of fundamental breach of Contract or for any other fault by the Contractor, the performance security shall be forfeited by the Employer.</p> <p>In such case, amount to complete the remaining works as per the Contract shall be recovered from the Contractor as Government dues.</p>
76. Property	<p>76.1 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.</p>
77. Release from Performance	<p>77.1 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 Project 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.</p>
78. Suspension of DP Loan/Credit/Gra	<p>78.1 In the event that the DP suspends the loan/ credit/grant to the Employer from which part of the payments to the Contractor are being made:</p> <ul style="list-style-type: none"> a. the Employer is obligated to notify the Contractor of such



nt	<p>suspension within 7 days of having received the DP's suspension notice; and</p> <p>b. if the Contractor has not received sums due him within the 30 days for payment provided for in GCC 49.1, the Contractor may immediately issue a 15-day termination notice.</p>
79. Eligibility	<p>79.1 The Contractor shall have the nationality of an eligible country as specified in Section V of the bidding document. The Contractor shall be deemed to have the nationality of a country if the Contractor is a citizen or is constituted, or incorporated, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including related services.</p> <p>79.2 The materials, equipment, and services to be supplied under the Contract shall have their origin in eligible source countries as specified in Section V of the bidding document and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, the Contractor may be required to provide evidence of the origin of materials, equipment, and services.</p> <p>79.3 For purposes of GCC 79.2, "origin" means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.</p>
80. Project Manager's Duties and Authorities	<p>80.1 The Project Manager's duties and authorities are restricted to the extent as stated in the SCC.</p>
81. Quarries and Spoil Dumps	<p>81.1 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 Project 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.</p>
82. Local Taxation	<p>82.1 The prices bid 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 30 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</p>



	responsibility to pay any tax that may be levied in Nepal on profits made by him in respect of the Contract.
83. Value Added Tax	83.1 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.
84. Income Taxes on Staff	<p>84.1 The Contractor's staff, personnel and labor will be liable to pay personal income taxes in 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.</p> <p>84.2 The issue of the Final Account Certificate pursuant to clause GCC 70 shall be made only upon submittal by the Contractor of a certificate of income tax clearance from the Government of Nepal.</p>
85. Duties, Taxes and Royalties	<p>85.1 Any element of royalty, duty or tax in the price of any goods including fuel oil, and 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.</p> <p>85.2 The Contractor shall familiarize himself with GON the rules and regulations 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.</p> <p>85.3 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 exempted from payment of royalties, taxes or other kinds of surcharges on these construction materials so extracted and paid for to the DDC.</p>
86. Member of Government, etc, not Personally Liable	86.1 No member or officer of GoN or the Employer or the Project 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.
87. Approval of Use of Explosives	87.1 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.
88 Compliance with Regulations for Explosives	88.1 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.
89. Permission for	89.1 The Contractor shall at all times maintain full liaison with and



Blasting	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.
90. Records of Explosives	90.1 Before the beginning of the Defects Liability Period, the Contractor shall account to the satisfaction of the Project 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 Project Manager.
91. Traffic Diversion	91.1 The Contractor shall include the necessary safety procedures regarding 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 Project Manager. All traffic devices used shall be designed in accordance with the instruction of Project Manager.



Section IX: Special Conditions of Contract

The following Special Conditions of Contract shall supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC



Special Conditions of Contract

A. General	
GCC 1.1 (q)	The Employer is Transport Infrastructure Directorate, Bagmati Province , Hetauda
GCC 1.1 (v)	The Intended Completion Date for the whole of the Works shall be 12 Month
GCC 1.1(bb) & 10.1	The Project Manager is Director , TID Hetauda The Project Manager and Engineer are synonyms.
GCC 1.1 (ee)	The Site is located at Hetauda Sub Metropolitan city -15,Churiyamai and is defined in drawings
GCC 1.1 (hh)	The Start Date shall be 15 days after signing of the Contract
GCC 1.1 (ll)	The Works consist of Maintenance and Management of Tunnel
GCC 2.2	Sectional Completions are: Not Applicable
GCC 2.3(i)	The following documents also form part of the Contract: NA
GCC 3.1	The language of the contract is ENGLISH/NEPALI The law that applies to the Contract is the law of NEPAL
GCC 11.1	The Project Manager <i>may</i> delegate any of his duties and responsibilities.
GCC 13.1	NA
GCC 14.1	NA
GCC 19.1	The minimum insurance amounts and deductibles shall be: <ol style="list-style-type: none"> 1. The minimum cover for loss of or damage to the Works, Plant and Materials is: 115 Percent of the Contract Amount. 2. The maximum deductible for insurance of the Works and of Plant and Materials is: 500,000.00 3. The minimum cover for loss or damage to Equipment is : Value of Equipment 4. The maximum deductible for insurance of Equipment is:50,000.00 5. The minimum for insurance of other property is: 500,000.00 with unlimited number of occurrences 6. The maximum deductible for insurance of other property is: 50,000.00 7. The minimum cover for personal injury or death insurance <ol style="list-style-type: none"> i. for the Contractor's employees is that specified in the Labor act of Nepal and ii. for other people is : 500,000.00 with an unlimited number of occurrences

GCC 20.1	Site Investigation Reports are:
GCC 23.1	The following shall be designed by the Contractor.
GCC 26.1	The Site Possession Date(s) shall be: 15 days after signing of the Contract
GCC 30.1	The place of arbitration shall be: Kathmandu, Nepal
C. Time Control	
GCC 34.1	The Contractor shall submit for approval a Program for the Works within 7 days from the date of the Letter of Acceptance.
GCC 34.3	The period between Program updates is 60 days. The amount to be withheld for late submission of an updated Program is 50,000.00
D. Quality Control	
GCC 42.1	The Defects Liability Period is 365 days
E. Cost Control	
GCC 49.1	NA
GCC 53.1	The Contract “is not” subject to price adjustment, and the following information regarding coefficients “does not” apply.
GCC 53.6	NA
GCC 53.7	NA
GCC 54.1	The proportion of payments retained is:5 (five) percent
GCC 55.1	The liquidated damages for the whole of the Works are 0.05 Percent of the final Contract Price per day. The maximum amount of liquidated damages for the whole of the Works is 10 Percent of the final Contract Price.
GCC 56.1	NA
GCC 57.1	<p>The Advance Payment shall be maximum 20% of the initial contract price excluding the provisional sums, day works and VAT and shall be made in two installments. The First installment of 10% (Ten percent) shall be made to the contractor upon submission of acceptable Bank Guarantee for advance payment and the second installment of 10 % (Ten percent) shall be made after the contractor completes the following conditions</p> <ul style="list-style-type: none"> • Mobilization at site and establishment of site camp. • Mobilization of key personnel and equipment as per contract.



	<ul style="list-style-type: none"> • Fulfillment of contractual obligation of submission of insurance policies. • Submission of revised / updated Work Schedule. <p>Submission of acceptable bank guarantee to the Employer.</p>
GCC 57.3	<p>Deductions from Payment Certificates will commence in the first certificate in which the value of works executed exceeds 30% of the Contract Price. Deduction will be at the rate of 40 % of the respective Monthly Interim Payment Certificate until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the end of 80 % of the approved contract period.</p>
GCC 58.1	<p>If bid price of the bidder selected for acceptance is up to 15 (fifteen) percent below approved cost estimate, the performance security amount shall be 5 (five) percent of bid price.</p> <p>ii) For the bid price of the bidder selected for acceptance is more than 15 (fifteen) percent below of the cost estimate, the performance security amount shall be determined as follows:</p> <p>Performance Security Amount = [(0.85 x Cost Estimate – Bid Price) x 0.5] + 5% of Bid Price.</p> <p>The Bid Price and Cost Estimate shall be inclusive of Value Added Tax.</p>
G. Finishing the Contract	
GCC 71.1	<p>The date by which operating and maintenance manuals are required is; NA</p>
GCC 71.2	<p>The date by which “as built” drawings are required is: within 60 days of completion of work</p> <p>The amount to be withheld for failing to produce “as built” drawings is 50,000.00 and Operating and maintenance manuals is: NA</p>
GCC 72.3 (i)	<p>The maximum number of days is: 200</p>
GCC 80	<p>The Project Manager has to obtain the specific approval of the Employer for taking any of the following actions :</p> <ol style="list-style-type: none"> Approving subcontracting of any part of the works under General Conditions of Contract Clause 13; Certifying additional costs determined under General Conditions of Contract Clause 50; Determining start date under General Conditions of Contract Clause 1; Determining the extension of the intended Completion Date under General Conditions of Contract Clause 35; Issuing a Variation under General Conditions of Contract Clause 1 and 46, except in an emergency situation, as reasonably determined by the Project Manager; emergency situation may be defined as the situation when protective measures must be taken for the safety of life or of the works or of adjoining property. Adjustment of rates under General Conditions of Contract Clause 45;



Section X: Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.



Letter of Intent

[on letterhead paper of the Employer]

Date:

To: **Name and address of the Contractor**.....

Subject: Issuance of letter of intent to award the contract.....

This is to notify you that, it is our intention to award the contract **[insert date]**for execution of the **[insert name of the contract and identification number, as given in the Contract Data/SCC]** to you as your bid price **[insert amount in figures and words in Nepalese Rupees]** as corrected and modified in accordance with the Instructions to Bidders is hereby selected as substantially responsive lowest evaluated bid.

Authorized Signature:

Name:

Title:

CC:

[Insert name and address of all other Bidders, who submitted the bid]

[Notes on Letter of Intent]

The issuance of Letter of Intent is the information of the selection of the bid of the successful bidder by the Employer and for providing information to other unsuccessful bidders who participated in the bid as regards to the outcome of the procurement process. This standard form of Letter of Intent to Award should be filled in and sent to the successful Bidder only after evaluation and selection of substantially responsible lowest evaluated bid.]



Letter of Acceptance

[on letterhead paper of the Employer]

Date:

To: **Name and address of the Contractor**

Subject: **Notification of Award**

This is to notify that your Bid dated **date** for execution of the **name of the contract and identification number, as given in the Contract Data/SCC** for the Contract price of Nepalese Rupees [**insert amount in figures and words in Nepalese Rupees**], as corrected in accordance with the Instructions to Bidders is hereby accepted in accordance with the Instruction to Bidders.

You are hereby instructed to contact this office to sign the formal contract agreement within 15 days with Performance Security of **NRs.** in accordance with the Conditions of Contract, using for that purpose the Performance security Form included in Section X (Contract Forms) of this Bidding Document.

Authorized Signature:

Name and Title of Signatory:



Contract Agreement

THIS AGREEMENT made theday ofbetween..... name of the Employer(**hereinafter “the Employer”**), of the one part, andname of the Contractor(**hereinafter “the Contractor”**), of the other part:

WHEREAS the Employer desires that the Works known as name of the Contractshould be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects in the sum of NRs[**insert amount of contract price in words and figures including taxes**](hereinafter “the Contract Price”).

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - (a) the Letter of Acceptance;
 - (b) the Letters of Technical and Price Bid;
 - (c) the Addenda Nos **Insert addenda numbers if any**
 - (d) the Special Conditions of Contract;
 - (e) the List of Eligible Countries that was specified in Section V of the bidding document,
 - (f) the General Conditions of Contract;
 - (g) the Specification;
 - (h) the Drawings;
 - (i) Bill of Quantities (or Schedules of Prices for lump sum contracts), and
 - (j) Table of Price Adjustment Data
 - (k) List of Approved Subcontractors [*For GoN funded project*]
 - (l) [**Specify if there are any other document**]
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, 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 hereto have caused this Agreement to be executed in accordance with the laws of Nepal on the day, month and year indicated above.

Signed by
for and on behalf the Contractor in the presence of

Witness, Name Signature, Address, Date

Signed by
for and on behalf of the Employer in the presence of

Witness, Name, Signature, Address, Date



List of Approved Subcontractors

In accordance with GCC Sub-Clause 13.1, The following Subcontractors are approved for carrying out the work as specified below.

Name of Subcontractors	Description of Works	Value/Percentage of subcontract

Letter of Commitment for Bank's Undertaking for Line of Credit

Bank's Name, and Address of Issuing Branch or Office

(On Letter head of the Commercial bank or any Financial Institution eligible to issue Bank Guarantee as per prevailing Law)

Date:

Contract No:

Name of Contract :

To:

[Name and address of the Employer]

CREDIT COMMITMENT No: [insert number]

We are pleased to know that [name of Contractor] (hereinafter called "the Contractor") has been awarded the Contract for the execution of the Works of [description of works] for above contract.



Furthermore, we understand that, according to your conditions, the Contractor's Financial Capacity i.e. Liquid Asset must be substantiated by a Letter of Commitment of Bank's Undertaking for Line of Credit.

At the request of, and arrangement with, the Contractor, we *[name and address of the Bank]* do hereby agree and undertake that *[name and address of the Contractor]* will be provided by us with a revolving line of credit, for execution of the Works viz. *[insert name of the works]*, for an amount not less than NRs*[in figure]* (*in words*) for the sole purpose of the execution of the above Contract. This Revolving Line of Credit will be maintained by us until ***[Insert "Initial Contract Period"]*** months by the Procuring Entity.

This committed line of credit shall not be terminated or cancelled without the prior written approval of Employer.

In witness whereof, authorised representative of the Bank has hereunto signed and sealed this Letter of Commitment.

Signature

Signature

Name :

Name :

Designation:

Designation:

Performance Security

(On letterhead **paper of the Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal.**)

..... **Bank's Name, and Address of Issuing Branch or Office**

..... Beneficiary: Name and Address of Employer

.....

Date:

Performance Guarantee No.:

We have been informed that ***[insert name of the Contractor]*** (hereinafter called "the Contractor") has been notified by you to sign the Contract No. ***[insert reference number of the Contract]*** for the execution of ***[insert name of contract and brief description of Works]*** (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we... ***[insert name of the Bank]*** hereby



irrevocably undertake to pay you any sum or sums not exceeding in total an amount of***[insert name of the currency and amount in figures*] (... .. insert amount in words)*** such sum being payable in Nepalese Rupees, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the.....Day of **, and any demand for payment under it must be received by us at this office on or before that date.

.....

Seal of Bank and Signature(s)

Note:

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

* The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract in Nepalese Rupees.

** Insert the date thirty days after the date specified for the Defect Liability Period. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee".



Advance Payment Security

(On **letterhead paper of the Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal.**)

..... **Bank's Name, and Address of Issuing Branch or Office**.....

Beneficiary: **Name and address of employer**

Date :

Advance Payment Guarantee No.

We have been informed thathas entered into Contract No. **Name and Address of Employer**.....**name of the Contractor**.....(hereinafter called "the Contractor")..reference number of the Contract.....dated with you, for the execution of ...contract and brief description of Works (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum..... name of the currency and amount in figures*...(**amount in words**) is to be made against an advance payment guarantee.

At the request of the Contractor, we..... **name of the Bank** hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of.....name of the currency and amount in figures*.....(**amount in words**) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the day of**, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

.....

Seal of Bank and Signature(s)

Note:

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

*The Guarantor shall insert an amount representing the amount of the advance payment in Nepalese Rupees of the advance payment as specified in the Contract.

** Insert the date Thirty days after the expected completion date. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee".

SECTION-VI

Bill of Quantities

Notes for Unit Rate Contracts :

Objectives

The objectives of the Bill of Quantities are

- (a) to provide sufficient information on the quantities of Works to be performed to enable Bids to be prepared efficiently and accurately; and
- (b) when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and brief as possible.

Content

The Bill of Quantities should be divided generally into the following sections:

- (a) Preamble;
- (b) Work Items (grouped into parts);
- (c) Day works Schedule;
- d) Provisional Sums; and
- (d) Summary.

Preamble

The Preamble should indicate the inclusiveness of the unit prices, and should state the methods of measurement which have been adopted in the preparation of the Bill of Quantities and which are to be used for the measurement of any part of the works.

Work Items

The items in the Bill of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing, or any other special characteristics may give rise to different methods of construction, or phasing of the Works, or considerations of cost. General items common to all parts of the works may be grouped as a separate section in the Bill of Quantities.

Day work Schedule

A Day work Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Employer of the realism of rates quoted by the Bidders, the Day work Schedule should normally comprise the following:

- (a) A list of the various classes of labor, materials, and Constructional Plant for which basic day work rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor will be paid for work executed on a day work basis.
- (b) Nominal quantities for each item of Day work, to be priced by each Bidder at Day work rates as bid. The rate to be entered by the Bidder against each basic Day work item should include the Contractor's profit, overheads, supervision, and other charges.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the Contract Data should state the manner in which they will be used, and under whose authority (usually the Project Manager's).

Summary

The Summary should contain a tabulation of the separate parts of the Bill of Quantities carried forward, with provisional sums for Day work, for physical (quantity) contingencies, and for price contingencies (upward price adjustment) where applicable.

These Notes for Preparing Specifications are intended only as information for the Employer or the person drafting the Bidding documents. They should not be included in the final documents.

Bill of Quantities

1 Provisional Sum

Procurement Item Details					
SL. No	Item Description	Unit	Quantity	Unit Rate(NPR)	Amount(NPR)
1	Carry out additional tests for material and works as required and instructed by the Engineer	PS	1.0	100000.0	100,000.00
2	Environmental Mitigation Works as per EMP and as Instructed by the Engineer(DOR Section 111)	PS	1.0	1000000.0	1,000,000.00
3	Construction works monitoring by experts including design review	PS	1.0	150000.0	150,000.00
4	Provision for implementation of Recommendations from Brief Environmental Study (BES)	PS	1.0	150000.0	150,000.00

2 Construction work

2.1 Road Construction Work

2.1.1 Road Work General Item

Procurement Item Details						
SL. No	Item Description	Unit	Quantity	Bidder's Rate (NPR)	Bidder's Rate (in words)	Total Amount (NPR)
1	Insurance of works, plants, materials, loss and damage to equipments, Contractor's workmen and employees and third party insurance against damage to other persons and property as per DoR Standard Specification for Road and Bridge Works (SSRBW) 2073,Section-103 (2)	LS	1.0			
2	Provide and maintain traffic safety, Occupation Health and Safety (OHS) as per special provision, control measures and temporary Road construction as instructed by the Engineer.(DoR SS 104)	LS	1.0			
3	Supply and erecting 1.8 x 1.2 m size Project sign board in place including 50mm dia. Steel tube, 2mm. Thick steel plate, cement concrete, painting, writing and supporting steel angle nut and bolt etc all complete.(SS/SP-108)	Nos	1.0			
4	Construction power facilities and permanent lighting of 400 volt, 3-phase (4 wire with earth) 50 Hz a.c with all weatherproof accessories and light intensity minimum 150 lux at the floor including standby backup Generators 15 kVA	Ls	1.0			

2.1.2 Road Miscellaneous Works

Procurement Item Details						
SL. No	Item Description	Unit	Quantity	Bidder's Rate (NPR)	Bidder's Rate (in words)	Total Amount (NPR)

Procurement Item Details						
SL. No	Item Description	Unit	Quantity	Bidder's Rate (NPR)	Bidder's Rate (in words)	Total Amount (NPR)
1	Portals & Outlet : Earth work excavation for Portals and Outlet including slide clearance and disposal up to 1 km and lift etc, as directed by the Engineer all complete (SS/SP-900) All types of Soil including rocks .	m3	8272.87			
2	Clearing and Grubbing including cutting of all types of plants including uprooting, carrying and disposing of vegetation, grass, bush, sapling and trees as per DOR SSRBW Spec. Clause No. 201.	m2	314.0			
3	Scaling and Cleanning with all complete.	m2	76.46			
4	Providing and placing of 10 cm thick Fiber Reinforced Shotcrete with Concrete Grade M30 (as per IS 456-2000)	m2	962.04			
5	Supply and Installation of Rock bolts Grade Fe 500D or 500S, 3.0 m long , 25 mm dia(as per IS 1786-2008), minimum yield load 200KN including 10 mm thick plate of 150mm x 150 mm	m	723.0			
6	Providing and placing P.C.C. works M 20/20 including compaction, curing, etc all complete as per DOR SSRBW - Section 2000	m3	138.51			
7	Supply & place TMT high tensile strength steel reinforcement of specified grade (Fe 500) for RCC works including cutting, bending, centring & binding in position, etc. all complete as per DOR SSRBW - Section 2000 & 2014	kg	3019.04			
8	Supply and Installaiton of Fabricated Stainless Structural Steel (ASTM A193 or equivalent as per IS: 226-1975)	kg	2527.76			
9	Tunneling: Tunnel cleaning, mucking and stock piling at designated loacations upto lead of 1000m all complete.	m3	713.28			
10	Dismantling of cement concrete Structure by mechanical means using pneumatic tools , breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dimantled material upto lead of 1000 meters , stacking serviceable and unserviceable material separately.(Mechanical means)	m3	216.0			
11	Supply and Installation of Rock bolts Grade Fe 500D or 500S, 2.5 m long , 25 mm dia(as per IS 1786-2008), minimum yield load 200KN including 10 mm thick plate of 150mm x 150 mm	m	1252.5			
12	Supply and apply Polymer Grouting, Two component close cell pre-polymer grout as per specification (NABL (India) approved or equivalent test approved	ltr	4500.0			

Procurement Item Details						
SL. No	Item Description	Unit	Quantity	Bidder's Rate (NPR)	Bidder's Rate (in words)	Total Amount (NPR)
13	Cement Grouting 2 parts of water to 1 part of cement to 0.5 part of water to 1 part of cement) based on site conditions as per instructed by engineer with all complete.	kg	30000.0			
14	Drilling the hole to its required depth as per drawing of 50 mm dia. for Grouting with all complete.	m	900.0			
15	Providing and placing of 10 cm thick Fiber Reinforced Shotcrete with Concrete Grade M30(as per IS 456-2000)	m2	291.6			
16	Providing and placing of 20 cm thick Fiber Reinforced Shotcrete with Concrete Grade M30(as per IS 456-2000)	m2	656.1			
17	Providing and placing of 25 cm thick Wiremesh Fiber Reinforced Shotcrete with Concrete Grade M30 (as per IS 456-2000)	m2	437.4			
18	Supplying and fixation of Wire mesh Grade Fe500D or Fe 500S, Mesh width 150mm*150mm, bar dia. 6mm, minimum yield strength $f_y=500\text{N/mm}^2$	m2	729.0			
19	Providing and placing 25 mm thick Lime and white cement shotcret	m2	1458.0			
20	Providing and placing P.C.C. works M 20/20 including compaction, curing, etc all complete as per DOR SSRBW - Section 2000	m3	105.0			
21	Steel Ribs (152X23) with invert strut	kg	4062.03			
22	Supply & place TMT high tensile strength steel reinforcement of specified grade (Fe 500) for RCC works including cutting, bending, centring & binding in position, etc. all complete as per DOR SSRBW - Section 2000 & 2014	kg	9399.76			
23	Supply and place class F2 finish formwork for concrete works including removal of forms, etc. all complete as per DOR SSRBW - Section 1804, 1805	m2	50.0			
24	Guard house: Dismantling of Kilometer Stone including cutting of earth, foundation and disposal of dismantled material with all lifts and lead upto 1000m and back filling of pit.	m3	1.27			
25	Supply & place TMT high tensile strength steel reinforcement of specified grade (Fe 500) for RCC works including cutting, bending, centring & binding in position, etc. all complete as per DOR SSRBW - Section 2000 & 2014	kg	160.71			
26	Supply and Installation of Fabricated Structural Steel (ASTM A6, A36 or equivalent) including primer and paints of thickness 150 micron	kg	546.2			

Procurement Item Details						
SL. No	Item Description	Unit	Quantity	Bidder's Rate (NPR)	Bidder's Rate (in words)	Total Amount (NPR)
27	Supply and place class F2 finish formwork for concrete works including removal of forms, etc. all complete as per DOR SSRBW - Section 1804, 1805	m2	9.44			
28	Providing and laying of hand pack stone soling with 150 to 200 mm thick stones and packing with smaller stone on prepared surface as per drawing and technical specifications	m3	2.45			
29	Providing and laying Brick Masonry Work in Cement mortar(1:4) in Foundation / structure complete excluding Pointing and Plastering, as per Drawing and Technical Specifications.	m3	7.74			
30	Supply and fixation of Aluminium Door & Window Shutter with all complete.	m2	4.72			
31	Supply and fixation of 24 " CGI Roofing work with all complete .	m2	12.25			
Total of Procurement Items						
Total Item Price						
VAT						
Grand Total						