



BIDDING DOCUMENT

for

THE PROCUREMENT OF

Procurement and delivery of HDPE pipe (NS-40, PE-100) at Manma, Kalikot, Godown Store

National Competitive Bidding (NCB)

Single-Stage: Single-Envelope Bidding Procedure

Water Supply Irrigation and Energy Development
Office, Manma, Kalikot

Issued on: 2025-12-17 (2082-09-02)

Issued to: All Eligible Bidders

Invitation for Bids No.: 06

NCB No.:

Contract Identification No.: 06/082-083/NCB/GOODS/HDPE/WIEDO-KALIKOT


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Abbreviations

BD	Bidding Document
BDF	Bidding Forms
BDS	Bid Data Sheet
BOQ	Bill of Quantities
COF	Contract Forms
DP	Development Partners
DoLI.....	Department of Local Infrastructure
e-GP.....	Electronic Government Procurement
ELI	Eligibility
EEC.....	Evaluation and Eligibility Criteria
GCC	General Conditions of Contract
GoN ¹	Government of Nepal
ICC	International Chamber of Commerce
IFB	Invitation for Bids
ITB	Instructions to Bidders
JV	Joint Venture
NCB	National Competitive Bidding
PAN	Permanent Account Number
PPA	Public Procurement Act, 2063
PPMO	Public Procurement Monitoring Office
PPR	Public Procurement Regulations, 2064
PS	Provisional Sum
SBD	Standard Bidding Document
SCC	Special Conditions of Contract
TS	Technical Specifications
VAT	Value Added Tax
WRQ	Works Requirements

¹ “GoN” word indicates all public entities according to Public Procurement Act, 2063


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Invitation for Bids

[Government of Nepal/or other public entity if applicable]

Water Supply Irrigation and Energy Development Office

Manma, Kalikot

Invitation for Bids No: 06/082-083/NCB/GOODS/HDPE/WIEDO-KALIKOT

Date of publication: _2025-12-17 (2082-09-02)

1. **Water Supply Irrigation and Energy Development Office, Kalikot** invites sealed bids or electronic bids from Nepalese eligible bidders for the construction of **Procurement and delivery of HDPE pipe (NS-40, PE-100) at Manma, Kalikot, Godown Store.** under National Competitive Bidding procedures. The estimated amount for the works is **Rs. 4522287.00 including Vat and PS**
2. Eligible Bidders may obtain further information and inspect the Bidding Documents at the office of **Name: - Prabin Mahat,**
Location: - Manma, Kalikot
E-mailing address: - winedokalikot@gmail.com
Telephone: - 9849662022 or may visit PPMO website www.bolpatra.gov.np/egp.
3. Bidder who chooses to submit their bid electronically may purchase the hard copy of the bidding documents as mentioned above or may download the bidding documents for e-submission from PPMO's Web Site www.bolpatra.gov.np/egp. Bidders, submitting their bid electronically, should deposit the cost (as specified above) of bidding document 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. Information to deposit the cost of bidding document in Bank:
Name of the Bank: **Rastriya Banijya Bank Ltd.**
Name of Office: **Water Supply Irrigation and Energy Development Office, Kalikot**
Office Code no.: **3080165016**
Office Account no.: **1000200010000**
Rajaswa (revenue) Shirshak no. :14229
Account: **4120100202030000 (For Bid Fee Rs.3000)**
4. Pre-bid meeting shall be held at **NA**
5. Electronic bids must be submitted through PPMO website www.bolpatra.gov.np/egpon or before **[12:00] on [2082-10-02]**. Bids received after this deadline will be rejected.
6. The bids will be opened in the presence of Bidders' representatives who choose to attend at **2082-10-02. (2:00 PM)** at the office of **Manma, Kalikot**. Bids must be valid for a period of **[90 days]** from the bid submission deadline 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 **NRS. 105000.00** which shall be valid for 30 days beyond the validity period of the bid
7. 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 and bid security shall remain the same as specified for the original last date of bid submission.



Government of Karnali Province
Ministry of Water Resources and Energy Development
Water Supply, Irrigation and Energy Development Directorate
Water Supply, Irrigation and Energy Development Office
Kalikot, Nepal

Invitation for Electronic Bids .

Date of publication: 17-Dec-2025(2082-09-02)

1. **The Water Supply, Irrigation and Energy Development Office, Kalikot** invites bids for the following works under NCB Single-Envelope Bidding Procedure. All other information and Bids document can be Downloaded from PPMO's Website www.bolpatra.gov.np/egp. All eligible bidders are requested to submit bids with the requested documents with in the mentioned period. The name and identification of the contract are as follows:

S.	Contract ID No.	Name of Procurement	Estimated Amount incl. vat & PS Item Nrs	Bid Security Amount NRs.	Bid Doc. Fee NRs.	Remarks
1	01/082-083/NCB/WORKS/WSP/WIEDO-KALIKOT	Daat Naek harish-mul Water Supply Project. Tilagupha Ga.Pa.07, Kalikot, Nepal	3631471.85	84000.00	3000.00	
2	02/082-083/NCB/WORKS/WSP/WIEDO-KALIKOT	Khate Dhunga Bhatakatiya Water Supply Project. Khadachakra Na.Pa.1 & 2, Kalikot, Nepal	8145765.96	188000.00	3000.00	
3	03/082-083/NCB/WORKS/WSP/WIEDO-KALIKOT	Tallo Ranirada Water Supply Project. Naraharinath Ga.Pa.09, Kalikot, Nepal	3641791.31	84000.00	3000.00	
4	04/082-083/NCB/WORKS/WSP/WIEDO-KALIKOT	Parauti Water Supply Project. Palata Ga.Pa.07, Kalikot, Nepal	3561741.30	82000.00	3000.00	
5	05/082-083/NCB/WORKS/ISP/WIEDO-KALIKOT	Banchu Irrigation Project. Tilagupha Ga.Pa.-10-Kalikot, Nepal	3860282.76	89000.00	3000.00	
6	06/082-083/NCB/GOODS/WSP/WIEDO-KALIKOT	Procurement and delivery of HDPE pipe (NS-40, PE-100) at Manma, Kalikot, Godown Store	4522287.00	105000.00	3000.00	Manufacturer Company & Suppliers Only

Last Date of Bid Submission: 2082-10-02 (12:00)

Bid Opening Date: 2082-10-02. (2:00 PM)

Pre-Bid Meeting Date: 2082-09-21 At 2:00 PM (For Zoom Meeting link Contact Govinda Shahi Mob no. 9865370714)

Office Chief

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Part - I Bidding Procedures

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SECTION– I: Instructions to Bidders

This section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of contract.

A. General	
1. Scope of Bid	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 V (Works Requirements). The name, identification, and number of lots (Contracts) / multiple contracts of the National Competitive Bidding (NCB) are provided in the BDS .
	1.2 Throughout this Bidding Document: <ul style="list-style-type: none"> (a) the term “in writing” means communicated in written form and delivered against receipt through e-GP system or e-mail or fax or courier ; (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	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.
	Or 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.
	Or 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.
3. Fraud and Corruption	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.
	3.1 Procuring Entities as well as bidders, suppliers and contractors and their sub-contractors under GoN/DP-financed contracts, shall adhere to the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this; <ul style="list-style-type: none"> (a) the Employer adopts, for the purposes of this provision, the terms as defined below:



	<p>(i) “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;</p> <p>(ii) “fraudulent practice” means 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;</p> <p>(iii) “coercive practice” means 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;</p> <p>(iv) “collusive practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.</p> <p>(v) “obstructive practice” means (a) deliberately destroying, falsifying, altering, or concealing of evidence material to an investigation; (b) making false statements to investigators in order to materially impede an investigation; (c) failing to comply with requests to provide information, documents, or records in connection with an investigation; (d) 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 (e) materially impeding GoN/DP’s contractual rights of audit or access to information; and</p> <p>(vi) “integrity violation” is any act which violates Anticorruption Policy, including (i) to (v) above and the following: abuse, conflict of interest, violations of GoN/DP sanctions, retaliation against whistleblowers or witnesses, and other violations of Anticorruption Policy, including failure to adhere to the highest ethical standard.</p> <p>(b) the Employer will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the contract;</p> <p>(c) DP will cancel the portion of the financing allocated to a contract if it determines at any time that representative(s) of the GoN or of a beneficiary of DP-financing engaged in corrupt, fraudulent, collusive, or coercive practices or other integrity violations during the procurement or the execution of that contract, without the GoN having taken timely and appropriate action satisfactory to DP to remedy the situation.</p> <p>(d) DP will impose remedial actions on a firm or an individual, at any time, in accordance with DP’s Anticorruption Policy and related Guidelines (as amended from time to time), including declaring ineligible, either indefinitely or for a stated period of time, to participate in DP-financed, -administered, or -supported activities or to benefit from an DP-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations; and</p> <p>(e) The Contractor shall permit the GoN/DP to inspect the Contractor’s accounts</p>
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	<p>and records relating to the performance of the Contractor and to have them audited by auditors appointed by the GoN/DP, if so required by the GoN/DP.</p> <p>3.2 The Bidder shall not carry out or cause to carry out the following acts with an intention to influence the implementation of the procurement process or the procurement agreement :</p> <ul style="list-style-type: none"> (a) give or propose improper inducement directly or indirectly, (b) distortion or misrepresentation of facts, (c) engaging in corrupt or fraudulent practice or involving in such act, (d) interference in participation of other competing bidders, (e) coercion or threatening directly or indirectly to cause harm to the person or the property of any person to be involved in the procurement proceedings, (f) collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price with an intention to deprive the Employer the benefit of open competitive bid price, (g) contacting the Employer with an intention to influence the Employer with regards to the bids or interference of any kind in examination and evaluation of the bids during the period from the time of opening of the bids until the notification of award of contract. <p>3.3 PPMO, on the recommendation of the Procuring Entity may blacklist a Bidder for a period of one (1) to three (3) years for its conduct including on the following grounds and seriousness of the act committed by the bidder:</p> <ul style="list-style-type: none"> (a) if convicted by a court of law in a criminal offence which disqualifies the Bidder from participating in the contract, (b) if it is established that the contract agreement signed by the Bidder was based on false or misrepresentation of Bidder's qualification information, (c) if it at any time determines that the firm has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for, or in executing, a GoN/DP-financed contract. (d) if the successful bidder fails to sign the contract. (e) if the bidder fails to inform about the saturation of maximum number of contracts as per ITB 4.9. <p>3.4 A bidder declared blacklisted and ineligible by the GoN, Public Procurement Monitoring Office (PPMO), by a competent authority under the prevailing law for failure to repay a loan disbursed by a bank or financial institution, and/or the DP in case of DP funded project, shall be ineligible to bid for a contract during the period of time determined by the GoN, PPMO, the competent authority 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 28.3 and GCC 72.3(j).</p>
<p>4. Eligible Bidders</p>	<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</p>



	<p>venture. In the case of a JV:</p> <p>(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. The eligibility criteria requirement of the parties to the JV shall be as specified in Section III Evaluation and Eligibility Criteria, and</p> <p>(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>
	<p>4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of any country or eligible countries mentioned in the BDS. 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. if any of, including but not limited to, the following apply:</p> <p>(a) they have controlling partners in common; or</p> <p>(b) they receive or have received any direct or indirect subsidy from any of them; or</p> <p>(c) they have the same legal representative for purposes of this bid; or</p> <p>(d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or improperly influence on the Bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or</p> <p>(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 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. or</p> <p>(h) a Bidder that has a close business or family relationship with a professional staff of the Procuring Entity.</p>
	<p>4.4 A firm that is under a declaration of ineligibility by the GoN/DP 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</p>



	suspended or debarred firm will be rejected.
	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.
	4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.
	4.7 Firms shall be excluded in any of the cases, if <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, 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. (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; (c) DP Funded: a firm has been determined to be ineligible by the DP in relation to their guidelines or appropriate provisions on preventing and combating fraud and corruption in projects financed by them.
	4.8 The Bidder, including all parties constituting the Bidder, shall be ineligible to participate in the open competitive bidding process if it has already secured maximum number of construction contracts (in open competitive bidding) as specified in BDS and has not yet completed the work as stipulated in the respective contracts.
	4.9 For the purpose of ITB 4.8 above, the bidder shall declare that the bidder, and all parties constituting the Bidder have not already secured maximum number of construction contracts (in open competitive bidding in procurement of works) as specified in BDS. If the bidder, and all parties constituting the Bidder has participated in bidding processes of many public entities and during that period the maximum number of contracts have been attained as specified saturates due to issuance of letters of acceptance by a particular public entity, the bidder shall inform in writing to all other concerned public entities, where the bidder have participated in bidding process, within three days of issuance of last letter of acceptance that saturates the maximum number of contracts as specified.
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 the BDS and all expenditures 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.
	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.
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 Eligibility Criteria (EEC)</p> <p>Section IV Bidding Forms (BDF)</p> <p>PART II Requirements</p> <p>Section V Works Requirements (WRQ)</p> <p>Section VI Bill of Quantities (BOQ)</p> <p>PART III Conditions of Contract and Contract Forms</p> <p>Section VII General Conditions of Contract (GCC)</p> <p>Section VIII Special Conditions of Contract (SCC)</p> <p>Section IX Contract Forms (COF)</p> <p>6.2 The Invitation for Bids (IFB) 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 the 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 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 clarification, it shall do so following the procedure under ITB 8 and ITB 17.2</p> <p>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.</p> <p>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.</p>



	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, as far as possible, to submit any questions in writing, to reach the Employer as mentioned in BDS .
	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 Nonattendance 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 addendum or several addenda .
	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 19.2. However, the time available to submit bids shall not be less than five (5) days since amendment in bidding document.
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	11.1 The Bid shall comprise the following: <ul style="list-style-type: none"> (a) Letter of Bid; (b) completed Bill of Quantities (BoQ), in accordance with ITB 12 and ITB 13, or as stipulated in the BDS; (c) Bid Security, in accordance with ITB 16; (d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 17.2; (e) documentary evidence of establishing the Bidder's eligibility; (f) 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



	<p>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;</p> <p>(g) Table of Price Adjustment (if applicable); and</p> <p>(h) any other required documents required, in the BDS.</p>
	11.2 The Bidder is solely responsible for the authenticity of the submitted documents.
12. Letter of Bid and Schedules	12.1 The Letter of Bid, Schedules, and all documents listed under ITB 11, shall be prepared using the relevant forms in Section IV (Bidding Forms) and in Section VI (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. Bid Prices and Discounts	<p>13.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Schedules shall conform to the requirements specified below.</p> <p>13.2 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 VI (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.</p> <p>13.3 The price to be quoted in the Letter of Bid shall be the total price of the Bid, excluding any discounts offered. Absence of the total price in the Letter of Bid may result in rejection of the Bid.</p> <p>13.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.</p> <p>13.5 If so indicated in ITB 1.1 and ITB 29.4, bids are invited for individual Contracts or for any combination of Contracts (packages). Bidders wishing to offer any price 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 13.4, provided the bids for all Contracts are submitted and opened at the same time.</p> <p>13.6 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>13.7 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>
14. Currency of Bid and Payment	14.1 The currency of the bid and payment shall be in Nepalese Rupees.
15. Period of	15.1 Bids shall remain valid for the period specified in the BDS . The bid validity period



Validity of Bids	<p>shall starts from the bid submission deadline as prescribed by the Employer in accordance with ITB 19.1. If the prescribed bid submission deadline date falls on a government holiday, then the next working day shall be considered as the bid submission deadline date. In such case the validity period of the bids shall be considered from the original bid submission deadline date.</p> <p>In the case of electronic bid submission, if any technical issue arises in the handling of the e-GP system, the PPMO may extend the deadline for bid submission. However, the validity period of the bids shall still be counted from the original bid submission deadline.</p> <p>A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.</p> <p>15.2 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 16, 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>
16. Bid Security	<p>16.1 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 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>16.2 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 15.2.</p> <p>A bid security valid for a shorter period shall be rejected by the Employer as nonresponsive.</p> <p>16.3 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>16.4 The public entity shall return the bid securities except those that are to be forfeited as per ITB 16.5 to the respective bidders within three (3) days after the successful bidder has furnished the required performance security and signed the Contract Agreement pursuant, to ITB 34.1 and ITB 35.1.</p> <p>16.5 The bid security shall be forfeited if:</p> <ul style="list-style-type: none"> (a) a Bidder requests for withdrawal or modification of its bid, except as provided in ITB 15.2:



	<p>(i) during the period of bid validity specified by the Bidder on the Bid, in case of electronic submission;</p> <p>(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 Bid, in case of hard copy submission.</p> <p>(b) a Bidder changes the prices or substance of the bid while providing information pursuant to ITB 24.1;</p> <p>(c) a Bidder involves in fraud and corruption pursuant to ITB 3.1;</p> <p>(d) the successful Bidder fails to:</p> <p>(i) furnish a performance security in accordance with ITB 29.5 and ITB 34.1; or</p> <p>(ii) sign the Contract in accordance with ITB 35.1 or</p> <p>(iii) accept the correction of arithmetical errors pursuant to ITB 28.1;</p> <p>16.6 The Bid Security of a JV shall be in the name of the JV that submits the bid. If the JV 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>17. Format and Signing of Bid</p>	<p>17.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it ORIGINAL". 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. 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 18.1(b),</p> <p>17.2 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>17.3 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 style="text-align: center;">D. Submission and Opening of Bids</p>	
<p>18. Sealing and Marking of Bids</p>	<p>18.1 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>i. Bidders shall enclose the original and each copy of the Bid. These envelopes containing the original and the copies shall then be enclosed in one single envelope.</p> <p>ii. The inner and outer envelopes shall:</p> <p>(aa) bear the name and address of the Bidder;</p> <p>(bb) be addressed to the Employer as provided in BDS 19.1;</p> <p>(cc) bear the specific identification of this bidding process indicated in BDS 1.1;</p>



	<p>and</p> <p>(dd) bear a warning not to open before the time and date for bid opening.</p> <p>iii. If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid.</p> <p>(b) Bidders submitting Bids electronically shall follow the electronic bid submission procedure specified in BDS.</p>
19. Deadline for Submission of Bids	<p>19.1 Bids must be received by the Employer at the address and no later than the date and time indicated in the BDS.</p> <p>In case of e-submission, the standard time for e-submission is Nepalese Standard Time as set out in the server. The e-procurement system will accept the e-submission of bid from the date of publishing of notice and will automatically not allow the e-submission of bid after the deadline for submission of bid.</p> <p>19.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.</p>
20. Late Bids	<p>20.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 19. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.</p>
21. Withdrawal, and Modification of Bids	<p>21.1 A Bidder may withdraw, or modify its bid after it has been submitted either in hard copy or by e-submission. Procedures for withdrawal or modification of submitted bids are as follows:</p> <p>(i) Bids submitted in hard Copy</p> <p>a) Bidders may withdraw or modify its bids by sending a written notice in a sealed envelope, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 17.2 before 24 hours prior to the last deadline of submission of bid. The corresponding modification of the bid must accompany the respective written notice. All notices must be:</p> <p>(aa) prepared and submitted in accordance with ITB 17 and ITB 18, and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL”, “MODIFICATION;” and</p> <p>(bb) received by the Employer twenty-four hour prior to the deadline prescribed for submission of bids, in accordance with ITB 19.</p> <p>ii) E-submitted bids.</p> <p>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> <p>21.2. Bids requested to be withdrawn in accordance with ITB 21.1 shall not be opened. In case of hard copy submission, the Bid will be returned unopened to the Bidders.</p>



	<p>21.3 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>21.4 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>21.5 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> <p>21.6 The following provisions apply for withdrawal or modification of the Bids:</p> <p>(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.</p> <p>(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 Bid or any extension thereof.</p> <p>21.7 Once a Bid is withdrawn, bidder will not be able to submit another bid for the same bid.</p>
<p>22. Bid Opening</p>	<p>22.1 The Employer shall open the bids in public at the address, date and time specified in the BDS in the presence of Bidders` designated representatives who choose to attend.</p> <p>22.2 The Employer shall download the e-submitted bid files. The e-GP system allows the Employer to download the e-submitted bid files (report) only after bid opening date and time after login simultaneously by two members of the Bid opening committee.</p> <p>22.3 Electronically submitted 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 bids must be readable through open standards interfaces. Unreadable and or partially submitted bid files shall be considered incomplete.</p> <p>22.4 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 bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only envelopes that are opened and read out at bid opening shall be considered further.</p> <p>22.5 All other envelopes shall be opened one at a time, reading out: the name of the Bidder; the Bid Price(s), including any discounts and alternative bids and indicating whether there is a modification; the presence of a bid security and any other details as the Employer may consider appropriate. Only discounts and alternative offers read out at bid opening shall be considered for evaluation. No bid shall be rejected at bid opening except for late bids, in accordance with ITB 20.1.</p>



	<p>22.6 The Employer shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, or modification; the Bid Price, per Contract if applicable, including any discounts and alternative offers; 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>
E. Evaluation and Comparison of Bids	
23. Confidentiality	<p>23.1 Information relating to the examination, evaluation, comparison, 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>23.2 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>23.3 Notwithstanding ITB 23.2, 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>
24. Clarification of Bids	<p>24.1 To assist in the examination, evaluation, and comparison of the 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 prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 28. In case of e-submission of bid, upon notification from the employer, the bidder shall also submit the original of documents comprising the bid as per ITB 11.1 for verification of submitted documents for acceptance of the e-submitted bid.</p> <p>24.2 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>
25. Deviations, Reservations, and Omissions	<p>25.1 During the evaluation of bids, the following definitions apply:</p> <p>(a) "Deviation" is a departure from the requirements specified in the Bidding Document;</p> <p>(b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and</p> <p>(c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.</p>
26. Determination of Responsiveness	<p>26.1 The Employer's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB 11.</p> <p>26.2 A substantially responsive 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> <p>(a) if accepted, would:</p> <p>(i) affect in any substantial way the scope, quality, or 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>



	(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.
	26.3 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.
	26.4 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 24.1, the bid shall not be considered for further evaluation.
	26.5 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.
27. Nonconformities, Errors, and Omissions	27.1 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.
	27.2 Provided that a 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 bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.
	27.3 Provided that a bid is substantially responsive, the 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 Eligibility Criteria).
	27.4 If the monetary value of such non-conformities is found to be more than fifteen percent of the Bid Price of the bidder on account of minor discrepancies pursuant to ITB 27.3, such bid shall be considered non responsive and shall not be involved in evaluation.
28. Correction of Arithmetical Errors	28.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:
	<p>(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;</p> <p>(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; and</p> <p>(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 Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Bid will be corrected.</p>



	(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.
	28.2 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.
29. Evaluation of Bids	29.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.
	29.2 To evaluate a bid, the Employer shall consider the following: <ul style="list-style-type: none"> (a) the bid price, excluding Value Added Tax and Provisional Sums 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) adjustment for correction of arithmetic errors in accordance with ITB 28.1; (c) adjustment due to discounts offered in accordance with ITB 13.4; (d) adjustment for nonconformities in accordance with ITB 27.3; (e) application of all the evaluation factors indicated in Section III (Evaluation and Eligibility Criteria);
	29.3 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.
	29.4 If this Bidding Document allows Bidders to quote separate prices for different Lots (Contracts), and to award multiple Contracts to a single Bidder as specified in BDS , the methodology to determine the lowest evaluated price of the Contract combinations, including any discounts offered in the Letter of Bid, is specified in Section III (Evaluation and Eligibility Criteria).
	29.5 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 Contract or may consider the bid as non-responsive.
	29.6 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 24.1, the bid shall not be considered for further evaluation.
	29.7 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.
30. Comparison of	30.1 The Employer shall compare all substantially responsive bids in accordance with ITB



Bids	29.2 to determine the lowest evaluated bid.
31. Employer's Right to Accept Any Bid, and to Reject Any or All Bids	31.1 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.
	31.2 The public entity shall give notice of the rejection of bids or the cancellation of the procurement proceedings pursuant to ITB 31.1, along with the reasons for such rejection or cancellation, to all bidders participating in the bid.
	31.3 Where any bidder requests, within thirty (30) days of the communication of the notice pursuant to ITB 31.2, the grounds for the rejection of all bids or the cancellation of the procurement proceedings, the public entity shall provide such information to that bidder.
F. Award of Contract	
32. Award Criteria	32.1 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.
33. Letter of Intent to Award the Contract/Notification of Award	33.1 The Employer shall notify the concerned Bidder whose bid has been selected in accordance with ITB 32.1 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.
	33.2 After issuance of the notice under ITB 33.1 if the concerned bidder provides information pursuant to ITB 4.9 regarding saturation of maximum number of contracts, the employer shall disqualify the bidder and shall select the next lowest evaluated Bidder in accordance with ITB 32.1 and notify accordingly as per ITB 33.1.
	33.3 If no bidder submits an application pursuant to ITB 36 within a period of seven days of the notice provided under ITB 33.1, the Employer shall, accept the bid selected in accordance with ITB 32.1 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.
	33.4 After communicating letter of acceptance under ITB 33.3, if the concerned bidder provides information pursuant to ITB 4.9 regarding saturation of maximum number of contracts, the employer shall reject the bid of that bidder and shall select the next lowest evaluated Bidder in accordance with ITB 32.1 and shall issue the notice accordingly as per ITB 33.1. In such case bid security of the rejected bidder shall not be forfeited.
	33.5 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.
34. Performance Security	34.1 Within Fifteen (15) days of the receipt of Letter of Acceptance from the Employer, the successful Bidder shall furnish the performance security as under mentioned from



	<p>Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal in accordance with the conditions of Contract using Sample Form for the Performance Security included in Section IX (Contract Forms), or another form acceptable to the Employer.</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 = $[(0.85 \times \text{Cost Estimate} - \text{Bid Price}) \times 0.5] + 5\%$ of Bid Price.</p> <p>The Bid Price and Cost Estimate shall be without VAT and Contingencies but including Provisional Sum.</p> <p>34.2 Failure of the successful Bidder to submit the above-mentioned Performance Security 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 33.</p>
<p>35. Signing of Contract</p>	<p>35.1 The Employer and the successful Bidder shall sign the Contract Agreement within the period as stated ITB 34.1.</p> <p>35.2 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 (vii) contract price.</p> <p>35.3 Within thirty (30) days from the date of issuance of notification pursuant to ITB 33.1 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>35.4 If the bidder whose bid is accepted fails to sign the contract as stated ITB 35.1, the Public Procurement Monitoring Office shall blacklist the bidder on recommendation of the Public Entity.</p>
<p>36. Complaint and Review</p>	<p>36.1 If a Bidder is dissatisfied with the Procurement proceedings or the decision made by the Employer in the intention to award the Contract, it may file an application to the Chief of the Public Entity within Seven (7) days of providing the notice under ITB 33.1 by the Public Entity, for review of the proceedings stating the factual and legal grounds.</p> <p>36.2 Late application filed after the deadline pursuant to ITB 36.1 shall not be processed.</p> <p>36.3 The chief of Public Entity shall, within five (5) days after receiving the application,</p>



	<p>give its decision with reasons, in writing pursuant to ITB 36.1:</p> <p>(a) whether to suspend the procurement proceeding and indicate the procedure to be adopted for further proceedings; or</p> <p>(b) to reject the application.</p> <p>The decision of the chief of Public Entity shall be final.</p>
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SECTION - II

Bid Data Sheet

This section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section I. Instructions to Bidders.

A. General	
ITB 1.1	The number of the Invitation for Bids is : 06/082-083/NCB/GOODS/HDPE/WIEDO-KALIKOT
ITB 1.1	The Employer is: Water Supply irrigation and Energy Development Office, Kalikot
ITB 1.1	<p>Multiple Contract or lots (contracts) is [Insert “applicable” or “not applicable “]</p> <p><i>[If applicable, mention the group of contracts applicable to Multiple Contract:</i></p> <p><i>The number and identification of lots(contracts) / multiple contracts comprising this bidding process is:</i></p> <p><i>[insert the name and contract number of the lots(contracts)]</i></p>
ITB 2.1	The name of the Project is: Procurement and delivery of HDPE pipe (NS-40, PE-100) at Manma, Kalikot. The implementing agency is: Water Supply irrigation and Energy Development Office, Kalikot
ITB 4.1 (a)	Maximum number of partner in a joint venture shall be : 3 (three)
ITB 4.2	<p><i>[Select one option, either GoN Funded or DP Funded.]</i></p> <p>For GoN funded: Eligible countries: Nepal</p> <p>For DP funded: Eligible countries: <i>[attach list as per their list of eligible countries]</i></p>
ITB 4.8 & ITB 4.9	<p>For GoN Funded:</p> <p>The Bidder, including all parties constituting the Bidder, shall be ineligible to participate in the open competitive bidding process if it has already secured five (5) construction contracts (in open competitive bidding) and has not yet completed the work as stipulated in the respective contracts.</p> <p>Following Procurement of Works contracts shall not be counted for this purpose:</p> <p>a) The works for which tender were invited or contracts accepted before 2078-12-03 B.S (March 17, 2022 A.D)</p> <p>b) The works for which tender have been invited and contracts accepted after 2078-12-03 B.S (March 17, 2022 A.D) but the work acceptance report has been approved according to Rule 117 of PPR.</p> <p>c) The works for which tenders were invited or contracts accepted under all types of foreign assistance.</p> <p>For DP Funded:</p> <p><i>[select one options as per DPs Policy]</i></p> <p>There is no limit on number of <u>running contracts</u> that a Bidder, and all parties constituting the Bidder can have .</p> <p>Or</p>



	Maximum number of running contracts that a Bidder, and all parties constituting the Bidder can have shall be : 5 Five
ITB 5.1	[Select one option, either GoN Funded or DP Funded.] For GoN funded: For the purpose of Country of Origin: “all Countries” For DP funded: For the purpose of Country of Origin: [attach list as per their list of eligible countries]
B. Bidding Document	
ITB 7.1	For clarification purposes only, the Employer’s address is: Attention: Prabin Mahat Address: Manma, Kalikot Telephone: 9849662022 Electronic mail address: mahat.prabin12@gmail.com
ITB 7.4	A Pre-Bid meeting [“shall not”] held Pre-Bid Meeting will Take place at the following date, time and place: Date: _____ Time: _____ Place: _____ A site visit [“shall not be”] organized by the Employer.
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 11.1 (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 and Schedule of Prices for lump sum contracts: _____
ITB 11.1 (h)	The Bidder shall submit with its bid the following additional documents: [insert if any additional documents required which is not against the provision of Public Procurement Act/Regulation/Directives and Standard Bidding Document issued by PPMO].
ITB 13.6	The prices quoted by the Bidder [“shall not be”] subject to adjustment during the performance of the Contract. [insert the following text, in case price adjustment is applicable] “Bidder shall submit the Table of Price Adjustment Data as a part of bid.”
ITB 15.1	The bid validity period shall be: Ninety (90) days .
ITB 16.1	The Bidder shall furnish a bid security, from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal with a minimum of NRs 105000.00 [insert amount (2 to 3 % of estimated amount without VAT and contingency but including PS)], which shall be valid for 30 days beyond the validity period of the bid.



ITB 16.2 (b)	<p>Account Name: Water Supply, irrigation and Energy Development office, Kalikot</p> <p>Bank Name: Rastriya Baniya Bank Ltd.</p> <p>Bank Address: Manma, Kalikot</p> <p>Account Number: 1000200010000</p>
ITB 17.1	In addition to the original of the bid, the number of copy/ies is/are: <i>[insert "Not Applicable when additional copy is not required or when electronic procurement is being used and insert number of copy/ies when copy/ies is/are required"]</i>
ITB 17.2	<p>The written confirmation of authorization to sign on behalf of the Bidder shall indicate:</p> <p>(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</p> <p>(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.</p>
D. Submission and Opening of Bids	
ITB 18.1	<p>Bidders shall have the option of submitting their bids option:1</p> <p>option 1: "by electronic only"</p> <p>option 2: "by electronic or by mail/ by hand / by courier"</p> <p>Option 3: "by mail / by hand / by courier"].</p>
ITB 18.1 (b)	<p><u>Electronic bid submission procedure:</u></p> <p>(a) Bidders submitting Bids electronically shall follow the electronic bid submission procedures specified in this clause.</p> <p>i. Bidders who choose to submit their bids electronically, can view/download the bidding documents from "published bids" section of e-GP system, https://bolpatra.gov.np/egp.</p> <p>ii. For the purpose of e-Submission, the bidder shall, at first, register in e-GP system and maintain their organization profile data and documents required during bid response preparation. The details of e-GP registration and profile management procedure are specified in Article No 9 and 10 respectively of e-GP Directives issued by PPMO, which can be downloaded from Download section of e-GP system.</p> <p>iii. In order to submit the bid, interested bidders shall deposit the cost of bidding document in the bank and account specified in Invitation for Bid (IFB). The scanned copy (in PDF format) of the bank deposit voucher shall also be submitted along with the bid.</p> <p>iv. The bidders shall prepare their bids using data and documents maintained in bidder's profile, instruction provided by e-GP system and forms/format provided in the bidding document.</p> <p>v. Bidders may submit bids as a single entity or as a joint venture (JV). Bidder submitting</p>



bid in JV shall have to upload joint venture agreement along with partner(s) Bolpatra ID provided during bidder's registration.

- vi. Bidders (all partners in case of JV) shall update their profile data and documents required during preparation and submission of their bids.
- vii. 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.
- viii. Bidders shall submit the required documents as specified in Section I-Instruction to Bidders, Section II-Bid Data Sheet and Section III-Evaluation and Eligibility Criteria of the bidding document. The format of the documents shall be in PDF and/or web form as provisioned in the e-GP system.

The required forms and documents shall be part of bid.

No.	Document	Requirement	Remarks
1.	Letter of Bid	Mandatory	PDF
2.	Bid Security / Bank Guarantee	Mandatory	PDF
3.	Firm or Company registration Certificate	Mandatory	PDF
4.	VAT and PAN registration Certificate	Mandatory (for domestic bidders only)	PDF
5.	Business Registration Licence	Mandatory	PDF
6.	Tax Clearance Certificate / Tax return submission evidence / evidence of time extension	Mandatory (for domestic bidders only)	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.	Completed Bill of Quantities (BoQ)	Mandatory	Online Forms
11.	Price Adjustment Table (if Applicable)	Mandatory (If Applicable)	Online Forms
12.	Additional documents specified in ITB 11.2 (h)	Mandatory (If any)	PDF

Note:

- a) The documents specified as "Mandatory" should be included in e-submission and non-submission of the documents shall be considered as non-responsive bid.
- b) Bidders (all partners in case of JV) should verify/update their profile documents as appropriate for the specific bid before submitting their bid electronically.

- ix. After providing all the details and documents, the e-GP system will generate bid



	<p>response documents for the bidder. Bidders shall download, verify and confirm the bid response documents prior to bid submission.</p> <p>x. 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 then only allow bidders to submit their bid.</p> <p>xi. Electronically submitted bids can be modified and/or withdrawn through the system within the bid submission deadline.</p> <p>xii. The bidder/bid shall meet the following requirements and conditions for e-submission of bids;</p> <p>aa) The e-submitted bids must be readable through PDF reader.</p> <p>bb) The bidders are fully responsible for using the e-GP system as per specified procedures and in no case the employer shall be held liable for bidder's inability to use the system.</p> <p>cc) When a bidder submits electronic bid through the e-GP System, it is assumed that the bidder has prepared the bid by studying and examining the complete set of the bidding document and e-GP instruction including the provision stipulated in e-GP Directives.</p>
ITB 19.1	<p><u>For bid submission purposes only, the Employer's address is :</u> Attention: Address:</p> <p><u>The deadline for bid submission is :</u> Date [12:00] on [2082-10-02].</p>
ITB 22.1	<p>The bid opening shall take place at: Address: Kalikot, Manma Date : 2082-10-02. (2:00 PM) Time: [Insert time that is immediately after submission deadline]</p>
E. Evaluation and Comparison of Bids	
ITB 29.4	<p>Bidders are <i>["not permitted"]</i> to quote separate prices for lots (Contracts), and a single Bidder will be awarded multiple lots (Contracts) based on provision of <i>Paragraph 1.1, Multiple Contracts Section III (Evaluation and Eligibility Criteria):</i> <i>[If permitted to quote separate prices for lots (Contracts), insert the following otherwise delete]</i> <i>Multiple contracts comprising of following lots (contracts):</i> <i>[Insert the name and contract number of the lots (contracts)]</i>.....</p>
ITB 29.5	<p>The amount of the performance security be increased by Eight (8) percent of the quoted bid price (without VAT but Including PS).</p>



SECTION - III

Evaluation and Eligibility Criteria

This Section contains all the criteria that the Employer shall use to evaluate bids and eligible Bidders. GoN/DP requires bidders to be qualified by meeting predefined eligibility criteria. In accordance with ITB 29, 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 29.2 (a) - (e) the following criteria shall apply:

1.1 Multiple Contracts

Pursuant to Sub-Clause ITB 29.4 of the Instructions to Bidders, if Works are grouped in multiple contracts, evaluation will be as follows:

Works are grouped in multiple contracts and pursuant to Sub-Clause 29.4 of the Instructions to Bidders, the Employer will evaluate and compare Bids on the basis of a contract, or a combination of contracts, or as a total of contracts in order to arrive at the least cost combination for the Employer by taking into account discounts offered by Bidders in case of award of multiple contracts.

1.2 Quantifiable Nonconformities and Omissions

Subject to ITB 13.2 and ITB 29.2, the evaluated cost of quantifiable nonconformities including omissions, is determined as follows:

[Insert in bidding document: “Pursuant to ITB 27.3, the cost of all quantifiable nonmaterial nonconformities shall be evaluated, but excluding omission of prices in the Bill of Quantities. 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. Eligibility

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
2.1 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 Bid
2.2 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 Bid
2.3 Government-owned Entity					
Bidder required to meet conditions of ITB Sub-Clause 4.5.	must meet requirement	existing or intended JV must meet	must meet requirement	not applicable	Letter of Bid, Forms ELI - 1, ELI - 2,



		requirement			with attachments
2.4 UN Eligibility					
Not having been declared ineligible based on a United Nations resolution or Employer's country law, as described in ITB Sub-Clause 4.7.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Bid
2.5 Bidder's Running Contracts					
Bidder's have not yet secured five (5) number of construction contracts ² (in open competitive bidding) as described in ITB Sub-Clause 4.8.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	not applicable	Letter of Bid, Form ELI-3
2.6 Other Eligibility					
Firm or Company Registration Certificate	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Business Registration License	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
VAT and PAN Registration certificate	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Tax clearances certificate for the F/Y 2081/82 . or Tax return submission evidence or evidence of tax time extension for.	must meet requirement	not applicable	must meet requirement	not applicable	Document attachment
Additional requirements <i>[Insert if any]</i>

²Note: Following **Procurement of Works** contracts shall not be counted for this purpose:

- The **works for** which **tender** were invited or contracts accepted before 2078-12-03 B.S or March 17, 2022 A.D
- The **works for** which **tender** have been invited **and contracts accepted** after 2078-12-03 B.S or i.e March 17, 2022 A.D and accepted but the work acceptance report has been approved according to Rule 117 of PPR.
- The **works for which tenders were invited or** contracts **accepted** under all types of foreign assistance



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 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: **[Insert Complete name of Employer]**

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: **[Insert Description of the works]**.

(c) The total price of our Bid, excluding any discounts offered in item (d) below is: **[Insert one of the options below as appropriate]** or when left blank is the Bid Price indicated in the Bill of Quantities.

Option 1, in case of single contract: Total price is: **[insert the total price of the Bid in words and figures]**;

Or

Option 2, in case of multiple lots (contracts): (i) Total price of each lot (contracts): **[insert the total price of each lot in words and figures]**; (ii) Total price of subject contract [say Lot1] and Lot2 [another contract] **[insert the total price in words and figures]**; (iii) Total price of subject contract [say Lot1] and Lot3 [another contract] **[insert the total price in words and figures]**; Total price of subject contract [say Lot1], Lot2 [another contract], Lot3 [another contract], **[insert the total price in words and figures]**;

(d) The discounts offered and the methodology for their application for subject contract [single contract] are: [For Bidding Documents not provisioning multiple contracts]

Add following if Bidding Document provisions applicability of multiple contracts

The discounts offered and the methodology for their application for subject contract [say Lot1] and Lot2 [another contract] are:



The discounts offered and the methodology for their application for subject contract [say Lot1] and Lot3 [another contract] are:.....

The discounts offered and the methodology for their application for subject contract [say Lot1], Lot2 [another contract] and Lot3 [another contract],....., are:.....

[Note:

1. Formulate possible combinations depending upon the number of lots under Bidding Process and modify accordingly Paragraph (c) and (d)]

(e) Our bid shall be valid for a period of[insert validity period as specified in ITB 15.1] 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) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries or any countries [insert the nationality of the Bidder, including that of all parties that comprise the Bidder if the Bidder is a consortium or association, and the nationality of each Subcontractor and Supplier];

(h) 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;

(i) 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;

(j) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;

(k) [We are not a government owned entity] / [We are a government owned entity but meet the requirements of ITB 4.5]; *

(l) 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;

(m) We declare that, we have not been black listed as per ITB 3.4 and no conflict of interest in the proposed procurement proceedings and we have not been punished for an offense relating to the concerned profession or business.

(n) We declare that we have not yet secured five (5) number of constructions contracts³ (in open competitive

* Note: Use one of the two options as appropriate.

³ Note: Following Procurement of Works contracts shall not be counted for this purpose

a) The works for which tender were invited or contracts accepted before 2078-12-03 B.S (March 17, 2022 A.D).

b) The works for which tender have been invited and contracts accepted after 2078-12-03 B.S (March 17, 2022 A.D) and accepted but the work acceptance report has been approved according to Rule 117 of PPR.



bidding) as described in ITB Sub-Clause 4.9.

- (o) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and
- (p) If awarded the contract, the person named below shall act as Contractor's Representative:
- (q) 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.
- (r) 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.

Name: *[insert complete name of the person signing the Bid]*.....

In the capacity of *[insert legal capacity of person signing the Bid]*.....

Signed *[signature of the person whose name and capacity are shown above]*.....

Duly authorized to sign the Bid for and on behalf of *[insert complete name of the Bidder]*.....

Date *[insert date of signing]*.....

c) The works for which tenders were invited or contracts accepted under all types of foreign assistance.



Table of Price Adjustment Data⁴

[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

⁴ Non-compliance of the data (stipulated by the bidder in this table) with requirements described here shall not be grounds for bid rejection and such non-compliance will be subject to clarification and rectification prior to contract award.



Table of Price Adjustment Data⁵

[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.

⁵ Non-compliance of the data (stipulated by the bidder in this table) with requirements described here shall not be grounds for bid rejection and such non-compliance will be subject to clarification and rectification prior to contract award.



Bid Security

Bank Guarantee

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

(On letterhead paper of the Bank)

Beneficiary: **[Insert 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 **[Insert name of Contract]** under Invitation for Bids No. **[insert IFB 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..... **[Insert name of Bank]** hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of **Nepalese Rupees.** **[Insert amount in figures and 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 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 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) 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; or

(d) 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 (**URDG, 2010 Revisions**), ICC Publication No. 758. **except that the supporting statement under Article 15(a) is hereby excluded.**

... 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).



Bidder's Information Format

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others



Bidder's Information

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.	
<p>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.</p> <p>2. Authorization to represent the firm or JV named in above, in accordance with ITB 17.2.</p> <p>3. In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1.</p> <p>4. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITB 4.5.</p>	



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 .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 ELI - 3: Bidder's Running Contracts****

Each member of a JV must fill in this form



Bidder's Running Contracts					
Name of office	Contract Identification no.	Source of Fund*	Date of issuance of Letter of Acceptance	Status of contract**	Date of Issuance of Taking Over Certificate***

* Mention GON funded or DP funded or Other PE (Insert name) funded

** Mention "Yet to sign" if contract is not signed, "Running" if contract has been signed and contract is running and "Substantially completed" if taking over certificate has been issued.

*** Insert date of issuance of taking over certificate if the awarded contract has been substantially completed and taking over certificate has been issued.

****Note: Following **Procurement of Works** contracts shall not be counted for this purpose

- The **works for** which **tender** were invited or **contracts** accepted before 2078-12-03 B.S (March 17, 2022 A.D).
- The **works for** which **tender** have been invited and **contracts accepted** 2078-12-03 B.S (March 17, 2022 A.D) but the work acceptance report has been approved according to Rule 117 of PPR.
- The **works for which tenders were invited or** contracts **accepted** under all types of foreign assistance.



Part – II

REQUIREMENTS



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SECTION - V

Works Requirements

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



Scope of Work

[insert brief scope of works.]



Specifications

Notes on the Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Employer without qualifying or conditioning their Bids. The specifications must be drafted to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of economy, efficiency and fairness in procurement be realized, responsiveness of Bids be ensured, and the subsequent task of bid evaluation facilitated. The specifications should require that all goods and materials to be incorporated in the Works be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

Samples of specifications from previous similar projects are useful in this respect. The use of metric units is encouraged by the Funding Agency in case of funding assisted projects. Most specifications are normally written specially by the Employer or Project Manager to suit the Contract Works in hand. The available standard specification of works of Ministry of Physical Infrastructure and Transport, DoLI and Other line Ministries can be adopted for respective civil construction works.

There are considerable advantages in standardizing General Specifications for repetitive Works in recognized public sectors, such as highways, urban housing, irrigation, and water supply, in the same country or region where similar conditions prevail. The General Specifications should cover all classes of workmanship, materials, and equipment commonly involved in construction, however it may not necessarily be adequate to be used in a particular Works Contract and may necessitate preparation of Particular (Special) Specifications to amend and or supplement the provision of the General Specifications to meet the requirement of the particular Works.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for goods, materials, and workmanship, recognized international standards should be used as much as possible. Where other particular standards are used, whether national standards of Nepal or other standards, the specifications should state that goods, materials, and workmanship that meet other authoritative standards, and which ensure substantially equal or higher quality than the standards mentioned, will also be acceptable.

Employers should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in the Procurement Documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential bidders. For example:

The Employer should provide a description of the selected parts of the Works with appropriate references to Drawings, Specifications, Bill of Quantities, and Design or Performance criteria, stating that the alternative solutions if applicable shall be at least structurally and functionally equivalent to the basic design parameters and specifications.

Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology, and other relevant details.



Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards that ensure a substantially equal or higher quality than 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 and submitted to the Project Manager at least 30 days prior to the date when 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 the documents. These Notes for Preparing Specifications are intended only as information for the Employer or the person drafting the Procurement Documents. They should not be included in the final documents.



नेपाल सरकार
उद्योग, वाणिज्य तथा आपूर्ति मन्त्रालय
नेपाल गुणस्तर तथा मापतौल विभाग



प.सं. ०६९/०८०

च.नं. व.प्र. १६२१

संचालन महाशाखा

दर्ता नं.: १

मिति: ०८०१/१२

बालाजु, काठमाडौं

मिति: २०८०/३/३१

श्री काठमाडौं उपत्यका स्वाम्यपानी लिमिटेड
मि.पुर्खर, काठमाडौं

तय पाइएको नेपाल गुणस्तर ४० पारिभाषिक शब्दको जानकारी सम्बन्धमा।

उपरोक्त बिषयमा हाई डेन्सिटी पोलिइथालिन पाइप, HDPE Pipe को नेपाल गुणस्तर NS-40:2042 (चौथो संशोधन) नेपाल गुणस्तर PE Pipe NS-40:2079 वाट प्रतिस्थापित भई कार्यान्वयन समेत भईसकेको हुदाँ आवश्यक कार्याथ जानकारीका लागि निर्णयानुसार अनुरोध छ।

संलग्न:-

- Polyethylene pipes for water supply- Specification(NS-40:2079)-१थान

काठमाडौं उपत्यका स्वाम्यपानी लिमिटेड मुख्य कार्याकारी आधिकारिक कार्यालय	
दर्ता नं. - १४	मिति - ०८०१/१२
श्री प्रशासन तथा प्रबन्ध विभाग	संलग्नक कारवाही आगोडी बढाउने
श्री योजना तथा सारवाय विभाग	मा पत्रचार गर्ने
श्री संचालन विभाग	संग सहित पत्र गर्ने
श्री प्र. तथा मानवश्रम विभाग	संग सहित राख्ने
श्री दल संचालन महाशाखा	
श्री जल तथा विनिर्देश महाशाखा	
श्री जल दल पर्यवेक्षण वि. महाशाखा	
श्री प्रशासना व्यवस्थापन एकाई	
श्री	मुख्य कार्याकारी अधिकृत

संलग्न निर्देशक

संजिव कुमार ठाकुर

श्री दया नारायण / सचिव/कोज्या
महाशाखा
जानकारीको लागि
०८२

श्री धर्म शर्मा
संलग्न महाशाखा
काठमाडौं
०८२

पो.ब.नं. १८५, फोन : ४३५०८१८, ४३५०४४५, ४३५०४४७, ४३५७७२३, ४३५६६७२, ४३६२६७६, ४३६९९४९, ४३५४२०८
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ने.गुण. ४०:२०७९

NS 40:2022



नेपाल गुणस्तर
NEPAL STANDARD

Polyethylene Pipes for Water Supply - Specification



Government of Nepal
Ministry of Industry, Commerce and Supplies
Nepal Bureau of Standards and Metrology (NBSM)
Kathmandu, Nepal

www.nbsm.gov.np



NS 40:2079

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NS 40:2079

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II



NS 40:2079

Foreword

NBSM (Nepal Bureau of Standards and Metrology) is the National Standard Body involved in the development of standards in the country. The standard development process involves committee consisting of multi-stakeholders both from public and private sectors.

This standard is developed by technical committee having multi-stakeholder participation and approved by Nepal Standard Council as per Nepal Standard (Certification) Act, 1980.

This standard is based on ISO 4427 -1:2007 'Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply – Part1: General', ISO 4427 -2:2007 'Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply – part 2 : Pipes' and IS 4984 :2016 – Polyethylene Pipes for Water Supply – Specification' with some deviations.

This standard replaces NS 40: 2042 (fourth revision) and includes new raw material, pipe sizes range expansion, added performance requirements and some test methods. The standard will benefit both the users and the producers to have product of appropriate design and dimension; and will provide assurance of quality of the products as well.

The standard covers materials, design and dimension, tests, and sampling requirements.

This standard contributes towards fulfilment of SDG goals.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. NBSM shall not be held responsible for identifying any or all such patent rights. Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.nbsm.gov.np.

III



NS 40:2079

Nepal Standard

Polyethylene Pipes for Water Supply - Specification

1. SCOPE

- 1.1 This standard lays down the requirements for polyethylene (PE) pipes (mains and service pipes) intended for the conveyance of water for human consumption including raw water prior to treatment and also water for general purpose.
- 1.2 This standard is applicable for the water supplies with a maximum operating pressure of 2.0 MPa.
- 1.3 An operating temperature of 27°C has been taken as the reference temperature.
- 1.4 The reference temperature of 20°C for 50 years of continuous stress is considered for the minimum required strength (MRS) of polyethylene base resin. To enable an operating water temperature of 27°C, the design stress has been accordingly corrected (see Table 1 and corresponding Notes). The standard also provides pressure reduction coefficients for water temperatures higher than 20°C and other than 27°C so as to calculate the maximum allowable operating pressure at those temperatures.
- 1.5 This standard does not purport to give guidelines for designing and dimensioning of pipe lines.

2. REFERENCES

- 2.1 The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication the editions indicated are valid. All standards are subject to revision and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below :

NS... , Determination of water – Karl Fischer method (General method)

NS 97, Methods of test for polyethylene moulding materials and polyethylene compounds (melt flow rate)

NS 145, Methods of random sampling

NS 110, High Density polyethylene materials for moulding and extrusion — specification (first revision)

NS..., Method of analysis for the determination of specific and/or overall migration of constituents of plastics materials and articles intended to come in contact with foodstuffs

NS..., Positive list of constituents of polyethylene in contact with foodstuffs, pharmaceuticals and drinking water

NS..., Polyethylene for its safe use in contact with foodstuff, pharmaceuticals and drinking water)

3. TERMINOLOGY

For the purpose of this standard, the following definitions shall apply:

- 3.1 Nominal Size (DN) — Numerical designation of the size of a component, other than a component designated by a thread size, which is a convenient round number approximately equal to the manufacturing dimension in millimetres (mm).
- 3.2 Nominal Size (DN/OD) — Nominal size, related to the outside diameter.
- 3.3 Nominal Outside Diameter (d_n) — Specified outside diameter, in millimetres, assigned to a nominal size DN/OD.
- 3.4 Outside Diameter at any Point (d_e) — Value of the measurement of the outside diameter through its cross-section at any point of the pipe rounded to the next greater 0.1 mm.
- 3.5 Mean Outside Diameter (d_{em}) — Value of the measurement of the outer circumference of the pipe or spigot end of a fitting in any cross-section divided by π ($= 3.142$), rounded to the next greater 0.1 mm.
- 3.6 Minimum Mean Outside Diameter ($d_{em, Min}$) — Minimum value of the outside diameter as specified for a given nominal size.
- 3.7 Maximum Mean Outside Diameter ($d_{em, Max}$) — Maximum value of the outside diameter as specified for a given nominal size.
- 3.8 Out-of-roundness (Ovality) — Ovality shall be measured as the difference between maximum outside diameter and minimum outside diameter measured at the same cross-section of the pipe, at 300 mm away from the cut end, for the pipe to be coiled.
- 3.9 Nominal Wall Thickness (e_n) — Numerical designation of the wall thickness of a pipe, which is a convenient round number approximately equal to the manufacturing dimension in millimetres.
- 3.10 Standard Dimension Ratio (SDR) — The SDR value is the ratio of the nominal outside diameter, d_n , of a pipe to its nominal wall thickness.
$$SDR = \frac{d_n}{e_n}$$
- 3.11 Wall Thickness at any Point (e) — Wall thickness at any point of the body of the pipe, around its circumference
 - 3.11.1 Minimum Wall Thickness at any Point (e_{Min}) — Minimum value of the wall thickness at any point of the body of the pipe, around its circumference as specified.
 - 3.11.2 Maximum Wall Thickness at any Point (e_{Max}) — Maximum value of the wall thickness at any point of the body of the pipe, around its circumference as specified.



- 3.12 Mean Wall Thickness (e_m)** — The arithmetic mean of a number of measurements regularly spaced around the circumference of the pipe in the same cross-section of the pipe, including the measured minimum and the measured maximum values of the wall thickness.
- 3.13 Tolerance** — Permissible variation of the specified value of a quantity expressed as the difference between the permissible maximum and permissible minimum values.
- 3.14 Minimum Required Strength (MRS)** — Minimum value in megapascals (MPa), for long-term hydrostatic strength (LTHS) of the polyethylene resin which represents the 97.5 percent confidence limits of the predicted hydrostatic strength at 20°C for 50 years. This is considered as the property of the material.
- 3.15 Overall Service (Design) Coefficient (C)** — An overall design co-efficient with a value greater than 1, which takes into consideration service conditions as well as properties of the components of a piping system other than those represented in the lower confidence limit. For water supply pipes, the minimum value of C is 1.25.
- 3.16 Design Stress (s)** — The maximum allowable stress, expressed in megapascals (MPa), for a given application derived by dividing MRS by the co-efficient C. This is the allowable stress at 20°C.
- 3.17 Nominal Pressure (PN)** — Numerical designation used for reference purposes related to the mechanical characteristics of the component of piping system.

NOTE — For plastic piping systems conveying water, it corresponds to the maximum continuous operating pressure, expressed in bar which can be sustained with water at 27°C, based on the minimum design coefficient, C (1 MPa = 10 bar).

The relationship between MRS, PN and SDR is given in Annex A.

- 3.18 Maximum Allowable Operating Pressure (MAOP)** — The maximum allowable continuous pressure, expressed in MPa. It is given by the equations,

$$P \text{ (MPa)} = \frac{2 \times \sigma}{[(SDR-1)]} \times f_r$$

$$P \text{ (MPa)} = \frac{2 \times \text{MRS}}{C [(SDR-1)]} \times f_r$$

Where

SDR = standard dimension ratio;

σ = design stress, in MPa;

MRS = minimum required strength, in MPa;

f_r = pressure reduction co-efficient; and

C = overall service design co-efficient.

- 3.19 Pressure Reduction Co-efficient (f_r)** — A co-efficient which takes into account the reduction in maximum allowable operating pressure due to increase in operating temperature.
- 3.20 Melt Flow Rate (MFR)** — Value relating to the viscosity of the molten thermoplastic material at a specified temperature and rate of shear.
- 3.21 Virgin Material** — Thermoplastics material in a form such as granules which has not been previously processed other than for compounding and to which no reprocessed or recycled materials have been added.

4. GRADE OF RESIN

Pipes shall be classified according to the grade of the raw material (resin) as given in Table 1. The resin supplier shall give the raw material grade.

Table 1 Classification of Materials
(Clause 4)

Sl No.	Material Classification (Grade)	MRS (Minimum Required Strength) of PE Resin at 20°C for 50 Year Life MPa	Design Stress at 20°C MPa
(1)	(2)	(3)	(4)
i)	PE 63	6.3	5
ii)	PE 80	8.0	6.3
iii)	PE 100	10.0	8

NOTES

- The maximum allowable operating pressure (MAOP) of a pipe is obtained by the equations given in 3.18.
- Pressure reduction-coefficients for calculating maximum allowable operating pressure at temperatures higher than 20°C are given in Fig. 1.
- As an operating water temperature of 27°C has been considered, a pressure reduction co-efficient, f_r , of 0.85 has been taken from Fig. 1 and used in the equation given at 3.18 for determining the maximum allowable operating pressure at 27°C (nominal pressure). This ensures that no further correction factor is required for over ground or underground water supply systems.
- The wall thicknesses are calculated based on maximum allowable operating pressure at 27°C rounded up to nearest SDR series (PN values). The pressure class (pressure rating) is also rounded to standard series. Tolerances calculated from (0.1mm-0.1) mm rounded up to the next 0.1 mm. considering operational production problems, maximum wall thickness of pipes are considered around 130 mm.
- The pipes are recommended for maximum water temperature of +45°C.
- The pipes may also be used up to the ambient temperature of -40°C without any correction factor as long as the water temperatures inside the pipe do not exceed the operating temperature of 27°C. Intermittent increase in the ambient or water temperatures because of weather changes would not have any deleterious effect on the pipe's long-term performance.

5. MATERIAL

5.1 General

The material used for the manufacture of pipes should not constitute toxic hazard, should not support microbial growth and should not give rise to unpleasant taste or odour, cloudiness or discoloration of water. Pipe manufacturers shall obtain a certificate to this effect from the manufacturer of raw material.

5.2 Polyethylene Resin

PE resin used for the manufacture of pipes shall conform to parameters mentioned in Table 2. In addition, the resin shall conform to requirement of NS 110.

The material classification and conformity to Table 2 shall be provided by the raw material (resin) manufacturer with documentation duly certified by resin manufacturer.

5.3 Carbon Black Master Batch

Carbon black master batch shall be manufactured from a mixture of the following:

- Polyethylene, which may include co-polymers of ethylene and higher olefin, in which the higher olefin constituent does not exceed 10 percent (mass/mass) and density of 910-950 kg/m³.
- The constituents used should be from the positive list of constituents of PE, in contact with food stuff, pharmaceutical and drinking water as per NS.... and should not constitute a toxic hazard, shall not support microbial growth and shall not give rise to an unpleasant taste or odour, cloudiness or discoloration of the water.
- Loading of carbon black should not exceed 50 percent (m/m).
- Ash content <0.1 percent.
- Carbon black used in carbon black master batch shall comply with the following requirements:

- Density: 1.5 to 2.0 g/ml.
- Toluene extract not more than 0.1 percent (m/m).
- Maximum volatile matter 0.9 percent (m/m) (see Annex C).
- Carbon black particle size should be less than 0.025 μ .

NOTE — A test report or confirmative certificate may be obtained from the carbon black master batch manufacturer.

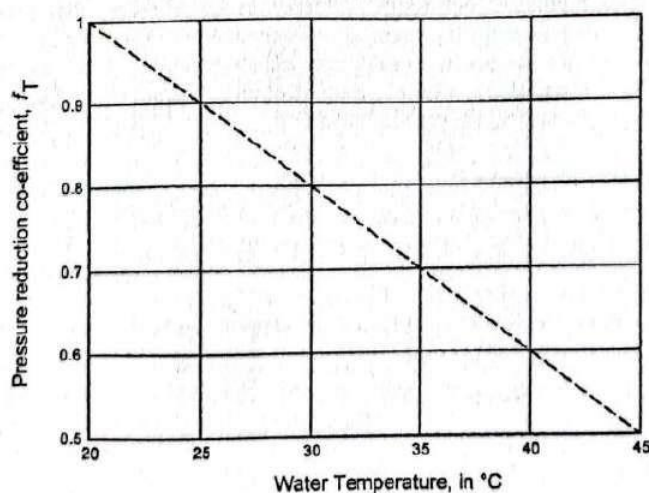


FIG. 1 PRESSURE REDUCTION CO-EFFICIENT FOR WATER TEMPERATURES ABOVE 20°C

Table 2 Characteristics of PE Resin as Granules
(Clauses 5.2 and 6.1.1)

Sl. No. (1)	Characteristics (2)	Units (3)	Requirements (4)	Test Parameters (5)	Test Method (6)
i)	Base density	kg/m ³	930-965	27°C	NS 110
ii)	Melt flow rate	g/10 min	0.2 to 1.1 (both inclusive)	190°C using 2.5 kg mass	NS 97
iii)	Thermal stability (oxidation induction time)	min	≥ 20	200°C, isothermal	Annex B
iv)	Volatile matter	mg/kg	≤ 350	Number of test pieces	01 Annex C
v)	Water content ¹⁾	mg/kg	≤ 300	Number of test pieces	01 Annex D

¹⁾ This requirement is only applicable if the measured volatile content is not in conformity with its specified requirement. In case of dispute, the requirement for water content shall apply. (If the water content exceeds the limit, drying to be done prior to use).

5.4 Anti-Oxidant

The percentage of anti-oxidant used shall not be more than 0.3 percent by mass of finished resin. The anti-oxidant used shall be physiologically harmless and shall be selected from the list given in NS... The raw material supplier shall provide test certificate containing the Anti-Oxidant percentage and the name of the Anti-Oxidant.

5.5 Rework Material

Clean, reprocessable material generated from a manufacturer's own production and works testing of products according to this standard may be used if it is derived from the same raw material as used for the relevant production however it shall not be more than 10%. Reprocessable material obtained from external sources and recycled material shall not be used.

6. PIPE DESCRIPTION

6.1 Pipes shall be designated according to the grade of material (see 6.1.1) followed by pressure rating (PN) (see 6.1.4), nominal outside diameter (see 6.1.3) and standard dimension ratio (SDR) (see 6.1.2). For example PE 80, PN 5, DN 200 SDR 26, indicates pipe pertaining to material grade PE 80, pressure rating 5, nominal outside diameter 200 mm & wall thickness corresponding to SDR 26.

6.1.1 The grade of material shall be as given in Table 1.

6.1.2 The standard dimension ratio of pipes covered in this standard are:

SDR 41, SDR 33, SDR 26, SDR 21, SDR 17, SDR 13.6, SDR 11, SDR 9, SDR 7.4 and SDR 6.

6.1.3 The nominal outside diameter of pipes covered in this standard are:

16, 20, 25, 32, 40, 50, 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500, 560, 630, 710, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000 mm.



6.1.4 The pipes shall be classified by pressure rating (PN) corresponding to the maximum allowable operating pressure at 27°C, as follows:

Pressure Rating of Pipe (1)	Maximum Allowable Operating Pressure at 27°C (2)
PN 2	0.20 MPa
PN 2.5	0.25 MPa
PN 3	0.30 MPa
PN 3.2	0.32 MPa
PN 4	0.40 MPa
PN 5	0.50 MPa
PN 6	0.60 MPa
PN 8	0.80 MPa
PN 10	1.00 MPa
PN 12.5	1.25 MPa
PN 16	1.60 MPa
PN 20	2.00 MPa

6.2 Colour

The colour of the pipe shall be black with blue identification stripes.

6.2.1 Identification Stripes

Each black pipe with identification stripes shall contain minimum of three longitudinal stripes of minimum width of 3 mm in blue colour, circumferentially distributed. These stripes shall be co-extruded during pipe manufacturing and shall not preferably be more than 0.2 mm in depth for wall thickness up to 10 mm and 0.5 mm beyond 10 mm. The material of the stripes shall be of the same type as used in the base compound for the pipe.

7. GEOMETRIC CHARACTERISTICS OF PIPE

7.1 Visual Appearance

The internal and external surface of the pipe shall be smooth, clean and free from grooving and other defects. The ends of the pipes shall be cleanly cut square with the axis of the pipe to within the tolerances given below and free from deformity. Slight shallow longitudinal grooves or irregularities in the wall thickness shall be permissible, provided that the wall thickness remains within the permissible limits.

Nominal diameter DN Mm (1)	Maximum Out of Square of Pipe End mm (2)
16 to 75	2
90 to 125	3
140 to 180	4
200 to 280	5
Above 280	7

7.2 Length

The length of straight pipe shall be 5 m to 20 m as agreed to between the manufacturer and purchaser. Short lengths of 3 m (minimum) up to the maximum of 10 percent of the total supply may be permitted.

7.3 Coiling

The pipes shall be coiled such that localized deformation, for example, buckling and kinking is prevented. The minimum internal diameter of the coil shall not be less than 18 d_n. The length of the coiled pipes shall be as agreed between the manufacturer and purchaser.

7.4 Dimensions

The mean outside diameters, d_{em}, and the out-of-roundness (ovality) of the pipes for different nominal diameters covered in the standard shall be in accordance with Table 3. The minimum and maximum wall thickness of pipes shall be as given in Table 4.

7.4.1 Methods of Measurement

7.4.1.1 Mean outside diameter of the pipe shall be the average of two measurements taken using a vernier at right angles for pipes up to 50 mm diameter. For higher sizes, the diameter shall be measured using a flexible Pi tape or a circometer, having an accuracy of not less than 0.1 mm. The wall thickness shall be measured by a dial vernier or ball ended micrometer. The resulting dimension shall be expressed to the nearest 0.1 mm.

NOTES

- 1 The outside diameter shall be measured at a distance of at least 300 mm from the end of the pipe.
- 2 In the case of discrepancy, the dimension of pipes shall be measured after conditioning at room temperature (27°C ± 2°C) for 4 h.

Table 3 Mean Outside Diameters and Out-of-roundness
(Clause 7.4)

All dimensions in millimetres.

Sl No.	Nominal Size DN \times OD	Nominal Outside Diameter d_n	Mean Outside Diameter		Maximum Out-of- Roundness (Ovality) (6)
			($d_{m, min}$)	($d_{m, max}$)	
(1)	(2)	(3)	(4)	(5)	(6)
i)	16	16	16.0	16.3	1.2
ii)	20	20	20.0	20.3	1.2
iii)	25	25	25.0	25.3	1.2
iv)	32	32	32.0	32.3	1.3
v)	40	40	40.0	40.4	1.4
vi)	50	50	50.0	50.4	1.4
vii)	63	63	63.0	63.4	1.5
viii)	75	75	75.0	75.5	1.6
ix)	90	90	90.0	90.6	1.8
x)	110	110	110.0	110.7	2.2
xi)	125	125	125.0	125.8	2.5
xii)	140	140	140.0	140.9	2.8
xiii)	160	160	160.0	161.0	3.2
xiv)	180	180	180.0	181.1	3.6
xv)	200	200	200.0	201.2	4.0
xvi)	225	225	225.0	226.4	4.5
xvii)	250	250	250.0	251.5	5.0
xviii)	280	280	280.0	281.7	5.8
xix)	315	315	315.0	316.9	11.1
xx)	355	355	355.0	357.2	12.5
xxi)	400	400	400.0	402.4	14.0
xxii)	450	450	450.0	452.7	15.6
xxiii)	500	500	500.0	503.0	17.5
xxiv)	560	560	560.0	563.4	19.6
xxv)	630	630	630.0	633.8	22.1
xxvi)	710	710	710.0	716.4	—
xxvii)	800	800	800.0	807.2	—
xxviii)	900	900	900.0	908.1	—
xxix)	1 000	1 000	1 000.0	1 009.0	—
xxx)	1 200	1 200	1 200.0	1 210.8	—
xxxi)	1 400	1 400	1 400.0	1 412.6	—
xxxii)	1 600	1 600	1 600.0	1 614.4	—
xxxiii)	1 800	1 800	1 800.0	1 816.2	—
xxxiv)	2 000	2 000	2 000.0	2 018.0	—

NOTE — For coiled pipes and for straight lengths with diameters ≥ 710 mm, the maximum out-of-roundness shall be as agreed to between the manufacturer and the purchaser.

7.4.1.2 Ovality

Ovality shall be measured at 300 mm away from cut end, using a scale having suitable graduations. For coiled pipes and pipes having SDRs ≥ 21 , re-rounding shall be permissible before the measurement of ovality. The ovality shall be measured during extrusion and prior to coiling.

8. PERFORMANCE REQUIREMENTS

8.1 Hydraulic Characteristics

8.1.1 Internal Pressure Creep Rupture Test of Pipe

When subjected to internal pressure creep rupture test in accordance with procedure given in Annex E and test parameters as specified in Table 5, the pipes under test shall show no signs of localized swelling, leakage or weeping and shall not burst during the prescribed test period.

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Table 4 Standard Dimension Ratio (SDR) and Corresponding Wall Thicknesses (e) of Pipes
(Clauses 7.4 and E-4.3)

SDR	SDR 41	SDR 33	SDR 26	SDR 21	SDR 17	SDR 13.6	SDR 11	SDR 9	SDR 7.4	SDR 6
	PN 2 PN 2.5 PN 3	PN 2.5 PN 3.2 PN 4	PN 3.2 PN 4 PN 5	PN 4 PN 5 PN 6	PN 5 PN 6 PN 8	PN 6 PN 8 PN 10	PN 8 PN 10 PN 12.5	PN 12.5 PN 16	PN 16 PN 20	PN 20
Nominal OD d _n mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm	e _{min} mm e _{max} mm
16	1.9	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9
20	2.2	2.6	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2
25	2.5	2.9	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4
32	2.7	3.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
40	3.1	3.5	3.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0
50	3.5	4.0	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4
63	4.0	4.5	4.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7
75	4.5	5.0	4.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2
90	5.0	5.5	5.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5
110	5.5	6.0	5.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0
125	6.0	6.5	6.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5
140	6.5	7.0	6.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0
160	7.0	7.5	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5
180	7.5	8.0	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0
200	8.0	8.5	8.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5
225	8.5	9.0	8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.0
250	9.0	9.5	9.0	8.5	8.5	8.5	8.5	8.5	8.5	8.5
280	9.5	10.0	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0
315	10.0	10.5	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5
355	10.5	11.0	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0
400	11.0	11.5	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5
450	11.5	12.0	11.5	11.0	11.0	11.0	11.0	11.0	11.0	11.0
500	12.0	12.5	12.0	11.5	11.5	11.5	11.5	11.5	11.5	11.5
550	12.5	13.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
630	13.0	13.5	13.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5
710	13.5	14.0	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0
800	14.0	14.5	14.0	13.5	13.5	13.5	13.5	13.5	13.5	13.5
900	14.5	15.0	14.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0
1000	15.0	15.5	15.0	14.5	14.5	14.5	14.5	14.5	14.5	14.5
1200	15.5	16.0	15.5	15.0	15.0	15.0	15.0	15.0	15.0	15.0
1400	16.0	16.5	16.0	15.5	15.5	15.5	15.5	15.5	15.5	15.5
1600	16.5	17.0	16.5	16.0	16.0	16.0	16.0	16.0	16.0	16.0
1800	17.0	17.5	17.0	16.5	16.5	16.5	16.5	16.5	16.5	16.5
2000	17.5	18.0	17.5	17.0	17.0	17.0	17.0	17.0	17.0	17.0

NOTES

- 1 Tolerances calculated from (0.1 e_{min} + 0.1) mm rounded up to the next 0.1 mm.
- 2 All pressure ratings are calculated at 27°C and rounded up to nearest pressure class.
- 3 Considering operational problems, maximum wall thickness of pipes are considered around 130 mm.

Table 5 Hydraulic Characteristic Requirements of Pipes
(Clauses 8.1.1 and E-4.3)

Sl No.	Test Temp °C	Test Duration h	Induced Hoop Stress MPa		
			PE 63 (4)	PE 80 (5)	PE 100 (6)
i)	27	100	6.9	8.6	10.7
ii)	80	48	3.8	4.9	5.7
iii)	80	165	3.5	4.5	5.4
iv)	80	1000	3.2	4.0	5.0

8.1.2 Internal Pressure Creep Rupture Test of Pipe Joints

The pipe joints shall also be tested for the hydraulic characteristic requirement by subjecting the butt fusion joint or electro fusion joint of a pipe to internal pressure creep rupture test at 80°C for 48 h as per Table 5 and in accordance with the method given in Annex E. The pipe joints under test shall show no signs of localized swelling, leakage or weeping and shall not burst during the prescribed test period.

8.2 Longitudinal Reversion Test

When tested in accordance with the method given in Annex F, the value of the longitudinal reversion shall not be greater than 3 percent.

8.3 Carbon Black Content and Dispersion

When tested from a composite sample of minimum three pipes, in accordance with NS 97 the carbon black content shall be within 2.5 ± 0.5 percent, and the dispersion of carbon black shall be satisfactory.

8.4 Melt Flow Rate

When tested from a composite sample of minimum three pipes as per NS 97 at 190°C with nominal load of 5 kgf, MFR shall not deviate from the MFR of the resin by more than 30 percent.

8.5 Oxidation Induction Time

The minimum oxidation induction time of the pipe when tested in accordance with the method given in Annex B shall be not less than 20 min.

8.6 Overall Migration

When tested from a sample of minimum 3 pipes as per NS..., the overall migration of constituents shall be within the limits stipulated in NS....

8.7 Density

When tested from a composite sample of minimum of 3 pipes as per NS 110, the base density of the pipe shall be between 930 to 965 kg/m³.

8.8 Tensile Strength for Butt-fusion

When tested according to Annex G, the test specimens prepared by punching /machining from pipe butt fusion sample preferably 110 mm Dia/SDR 11 shall show ductile failure. If the sample shows brittle fail the test may be considered as a failure.

NOTE — If 110 mm/SDR 11 pipes are not being manufactured, test shall be carried out on the nearest, preferably higher size/ SDR ratio being manufactured.

8.9 Elongation at Break

When tested according to Annex H, the test specimens punched/machined from pipe samples, shall meet requirement as per Table 6.

Table 6 Elongation at Break Requirements of Pipes
(Clause 8.9)

S. No. (1)	Characteristics (2)	Requirements (3)	Test Parameters Parameter (4)	Value (5)	Test Method Ref to (6)
i	Elongation at break for $e \leq 5$ mm	≥ 350 Percent	Test piece shape Test speed	Type 2 100 mm/min	Annex H
ii	Elongation at break for 5 mm $< e \leq 12$ mm	≥ 350 Percent	Test piece shape Test speed	Type 1 ¹⁾ 50 mm/min	Annex H
iii	Elongation at break for $e > 12$ mm	≥ 350 Percent	Test piece shape Test speed	Type 1 ¹⁾ 25 mm/min	Annex H
			OR		
			Test piece shape Test speed	Type 3 ¹⁾ 10 mm/min	

¹⁾ Where practical, machined type 2 test pieces may be used for pipe wall thickness ≤ 25 mm. The test may be terminated when the requirement is met, without continuing until the rupture of the test piece.

8.10 Slow Crack Growth Rate

When subjected to test parameters as given below and tested in accordance with the procedure given in Annex E, the notched test specimens prepared from pipe size of preferably 110 mm and SDR 11 in accordance with Annex J shall show no signs of localized swelling, leakage or weeping and shall not burst during the prescribed test period.

Test Temperature	Test Duration	Internal Test Pressure, MPa
$^{\circ}\text{C}$	H	PE 63 PE 80 PE 100
80 \pm 1	500 h	0.64 0.8 0.92

NOTE — If 110 mm / SDR 11 pipes are not being manufactured, test shall be carried out on the nearest, preferably higher size / SDR ratio being manufactured.

9. SAMPLING, FREQUENCY OF TESTS AND CRITERIA FOR CONFORMITY

9.1 Type Tests

9.1.1 Type tests are intended to prove the suitability and performance of a new composition, a new technique or a new size of a pipe. Such tests, therefore, need be applied only when a change is made in polymer composition or method of manufacture, or when a new size of pipe is to be introduced. Even if no change is envisaged, type test shall be done at least once in two years on each pressure rating and grade of pipe of the highest size manufactured during the period.

9.1.2 Three samples of the same grade, same size and same SDR selected at random shall be tested for compliance with the requirements of the type tests as given in Table 7.

- 9.1.3** If all the samples pass the requirements of the type test, the type of the pipe under consideration shall be considered eligible for type approval.
- 9.1.4** In case of any of the samples fails in the type test, the testing authority, at its discretion, may call for fresh samples not exceeding the original number and subject them to the type test again. If in repeat test, no single failure occurs, the type of pipe under consideration shall be considered eligible for type approval. If any of the samples fails in the repeat tests, the type of pipe shall not be approved. The manufacturer or the supplier may be asked to improve the design and resubmit the product for type approval.
- 9.1.5** At the end of the validity period (normally one year for internal pressure creep rupture test at 27°C for 100 h and internal pressure creep rupture test for joints at 80°C for 48 h and two years for all other type tests) or earlier as may be necessary, the testing authority may call for fresh samples for type-test for the purpose of type approval.

Table 7 Type Tests
(Clause 9.1.2)

Sl No. (1)	Description of Test (2)	Sample Requirement Size (3)	Clause (4)
i)	Tensile strength for butt-fusion	3	8.8
ii)	Overall migration	3	8.6
iii)	Internal pressure creep rupture test (hydrostatic resistance test) at 27°C for 100 h	3	8.1.1
iv)	Internal pressure creep rupture test (hydrostatic resistance test) at 80°C for 165 h	3	8.1.1
v)	Internal pressure creep rupture test (hydrostatic resistance test) at 80°C for 1 000 h test	3	8.1.1
vi)	Slow crack growth rate test	3	8.10
vii)	Internal Pressure Creep Rupture Test (Hydrostatic Creep Rupture Test) for Joints at 80°C for 48 h	3	8.1.2

9.2 Acceptance Test

- 9.2.1** Acceptance tests are carried out on sample selected from a lot for the purpose of acceptance of the lot.

9.2.2 Lot

All pipes of the same grade, same size, same SDR and also manufactured essentially under similar conditions of manufacture shall constitute a lot. For ascertaining conformity of the lot to the requirements of this standard, samples for acceptance tests (see Table 8) shall be selected and prepared after conditioning at 27±2°C and tested for compliance as per Table 8.

Table 8 Acceptance Tests
(Clause 9.2.2)

Sl No.	Description of Test	Sample Size	Requirement Clause
i)	Visual appearance and dimensions	Table 9	7.1 and 7.4
ii)	Melt flow rate	Table 10	8.4
iii)	Density	Table 10	8.7
iv)	Reversion test	Table 10	8.2
v)	Elongation at break	Table 10	8.9
vi)	Carbon black content	Table 10	8.3
vii)	Carbon black dispersion	Table 10	8.3
viii)	Oxidation Induction	Table 10	8.5
ix)	Internal pressure creep rupture test (hydrostatic resistance test) at 80°C for 48 h	Table 10	8.1.1

9.2.3 Conformity to Dimensional and Visual Characteristics

9.2.3.1 The number of test samples shall be in accordance with Table 9.

9.2.3.2 These pipes shall be selected at random from the lot and in order to ensure the randomness of selection, a random number table shall be used. For guidance and use of random number tables, NS 145 may be referred. For the above purpose, each length of the coil of a given size, grade and SDR shall be considered as one pipe. In the absence of a random number table, the following procedure may be adopted.

Starting from any pipe in the lot, count them as 1, 2, 3, 4 etc, up to r and so on where r is the integral part of N/n , N being the number of pipes in the lot and n is the number of pipes in the samples. Every r^{th} pipe so counted shall be drawn so as to constitute the required sample size.

9.2.3.3 The number of pipes given for the first sample in col 4 of Table 9 shall be examined for visual and dimensional requirements as given in 7.1 and 7.4 respectively. A pipe failing to satisfy any of these requirements shall be considered as defective. The lot shall be deemed to have satisfied these requirements, if the number of defectives found in the first sample are less than or equal to the corresponding acceptance number given in col 6 of Table 9. The lot shall be deemed not to have met these requirements if the number of defectives found in the first sample is greater than or equal to the corresponding rejection numbers given in col 7 of Table 9. If, however, the number of defectives found in the first sample lies between the corresponding acceptance and rejection numbers given in col 6 and 7 of Table 9, the second sample of the size given in col 4 of Table 9 shall be taken and examined for these requirements. The lot shall be considered to have satisfied these, requirements, if the number of defectives found in the cumulative sample is less than or equal to the corresponding acceptance number given in col 6 of Table 9 otherwise not. In case, the sample size is equal to or less than the lot size, 100 percent inspection shall be done for these tests and all the samples from the lot which pass these tests shall be tested for other acceptance tests.

9.2.4 Conformity to Acceptance Tests Other Than Dimensional and Visual Characteristics

The lot having satisfied dimensional and visual requirements shall be tested for other acceptance tests as given in Table 8. The number of test samples selected from the lot for subjecting to these tests shall be in accordance with Table 10. For the above purpose, each length of the coil of a given size, grade and SDR shall be considered as one pipe. The lot shall be considered to have met the requirements of these tests, if none of samples tested fails.

Table 9 Scale of Sampling for Dimensional Requirements
(Clauses 9.2.3.1 and 9.2.3.3)

Sl No.	No. of Pipes in the Lot	Sample No.	Sample Size	Cumulative Sample Size	Acceptance No.	Rejection No.
i)	Up to 150	First	13	13	0	2
		Second	13	26	1	2
ii)	151 to 280	First	20	20	0	3
		Second	20	40	3	4
iii)	281 to 500	First	32	32	1	4
		Second	32	64	4	5
iv)	501 to 1200	First	50	50	2	5
		Second	50	100	6	7
v)	1201 to 3200	First	80	80	3	7
		Second	80	160	8	9
vi)	3201 to 10000	First	125	125	5	9
		Second	125	250	12	13
vii)	10001 to 35000	First	200	200	7	11
		Second	200	400	18	19

Table 10 Scale of Sampling for Acceptance Tests Other Than Dimensional Requirements
(Clauses 9.2.2 and 9.2.4)

Sl No.	No. of Pipes in the Lot	Sample Size
a) For Pipe Sizes Up to 500 mm		
i)	Up to 150	3
ii)	151 to 1200	5
iii)	1201 to 35000	8
b) For Pipe Sizes Above 500 mm		
iv)	Up to 500	3
v)	501 to 1 200	5
vi)	1201 to 35000	5

10. MARKING

10.1 Each straight length/coil of pipe shall be clearly and indelibly marked in white/yellow colour using ink/ paint or inkjet print or hot embossed on white base, at every 1 m throughout the length of pipe/coil with the information given in 10.1.1.

10.1.1 The marking on the pipe shall carry the following minimum information:

- Manufacturer's name/trade-mark;
- Material designation, PE... (see 6.1);
- Pressure rating;
- Standard dimension ratio (SDR);
- Nominal Size; and
- Lot Number/Batch Number, containing information of date of manufacture shall include the details of production in the following manner

Year	Month	Day	Machine No.	Shift
Xxxx	Xx	Xx	xx	xx

10.2 NS Certification Marking

Each pipe/coil may also be marked with the Standard Mark.

10.2.1 The use of the Standard Mark is governed by the provisions of the Nepal Standards (Certification Mark) Act, 2037 and the Rules and Regulations made there under. The details of conditions under which a license for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Nepal Bureau of Standards and Metrology.

ANNEX A

(Clause 3.17)

THE RELATIONSHIP BETWEEN MINIMUM REQUIRED STRENGTH, NOMINAL PRESSURE AND STANDARD DIMENSION RATIO

A-1 The relation between nominal pressure (at 27°C) (PN), design stress at 20°C (σ), and the standard dimension ratio (SDR) is given by the following equation:

$$PN = \frac{20\sigma}{SDR - 1} \times f_T$$

Where, σ = MRS/C

PN = nominal pressure at 27°C, in bar

MRS = minimum required strength of the material class (see Table 1),

C = overall service design co-efficient = 1.25,

f_T = pressure reduction co-efficient = 0.85 for 27°C (from Fig. 1), and

SDR = standard dimension ratio.

The Nominal Pressure (PN) for various material class and different SDRs has been calculated using the above equation and is given in the informal Table below

However, if a higher value for C is required, the PN values will have to be recalculated using the above equation considering the calculated design stress, σ for each class. A higher value for C can also be obtained by choosing a higher PN class.

Sl. No.	SDR	Standard Dimension Ratio (SDR) Used in Wall Thickness Chart (Table 5) at 27°C		
		Nominal Pressure for Material Class in Bar		
(1)	(2)	PE 63 (3)	PE 80 (4)	PE 100 (5)
i)	41	2.0	2.5	3.0
ii)	33	2.5	3.2	4.0
iii)	26	3.2	4.0	5.0
iv)	21	4.0	5.0	6.0
v)	17	5.0	6.0	8.0
vi)	13.6	6.0	8.0	10.0
vii)	11	8.0	10.0	12.5
viii)	9	—	12.5	16.0
ix)	7.4	—	16.0	20.0
x)	6	—	20.0	—

**ANNEX B**

[Table 2 SI No. (iii)]

METHOD FOR DETERMINATION OF OXIDATION INDUCTION TIME (THERMAL STABILITY)**B-1 APPARATUS AND EQUIPMENT**

B-1.1 A differential thermal analyzer (DTA)/differential scanning calorimeter (DSC), calibrated using pure indium and pure tin to give values which lie within $156.6 \pm 0.5^\circ\text{C}$ and $231.9 \pm 0.5^\circ\text{C}$ respectively. The test cell shall allow the cell to be purged within 1 min by use of successive gases at the specified flow rate.

B-1.2 Aluminium pans, large enough to accommodate a test piece in solid or molten form.

B-2 TEST PIECES

A sample from the pipe shall be taken by use of a core drill directed radially through the pipe wall. The diameter of the core shall be just less than the inner diameter of the sample pan of the thermal analyzer, and care should be taken not to overheat the sample during the coring operation. Using a scalpel, cut the test pieces that weigh 15 ± 0.5 mg in the form of discs from the core sample, selecting the inner surface.

Outer surface and mid-wall as the minimum sample points which are to be tested individually.

B-3 PROCEDURE

Establish a nitrogen flow of $50 \text{ cm}^3/\text{min} \pm 10$ percent through the differential thermal analyzer or differential scanning calorimeter cell. Check that when a switchover to oxygen is made the gas flow will continue at the rate of $50 \text{ cm}^3/\text{min} \pm 10$ percent and then revert to a nitrogen flow of $50 \text{ cm}^3/\text{min} \pm 10$ percent.

Place a $15 \text{ mg} \pm 0.5$ mg cylindrical polyethylene specimen in an open aluminium pan an empty aluminium reference pan into the cell. Set the instrument to run isothermally at $200^\circ\text{C} \pm 0.1^\circ\text{C}$ raising the temperature at a rate of $20^\circ\text{C}/\text{min}$ and allowing the temperature to stabilize. Make any corrections to the heater voltage to bring the specimen temperature to $200^\circ\text{C} \pm 0.1^\circ\text{C}$. Start to record the thermo graph.

When stable conditions exist under the nitrogen flow, which should be the case after 5 min switch over to oxygen and mark this point on the thermo graph. The cell should be purged within 1 min of atmosphere changeover. Continue to run the thermo graph until the oxidation exotherm has occurred, and has reached its maximum.

B-4 INTERPRETATION OF RESULTS

The thermal stability of the specimen is the time taken in minutes from the introduction of oxygen to the intercept of the extended baseline and the tangent drawn to the exotherm at the point of maximum slope.

ANNEX C

[Table 2 SI No. (iv)]

METHOD FOR DETERMINATION OF VOLATILE CONTENT IN POLYETHYLENE PIPING MATERIALS AND COMPONENTS

C-1 PRINCIPLE

The method consists of determining the loss of mass of a test piece which has been put in a drying oven at a given temperature. The method is used for determining the content of material which volatiles at 105°C in polyethylene (PE) piping materials. This method is also applicable to moulding and extrusion materials. It can be also applicable to components in PE piping systems.

C-2 APPARATUS

C-2.1 Drying Oven or Equivalent Device, capable of maintaining the temperature at $(105 \pm 2)^{\circ}\text{C}$ at the position for the cup(s) (see C-3.2 and C-5.4).

C-2.2 A Cylindrical Glass Weighing Cup, with a diameter of 35 mm capable of containing a test piece (see C-4.1), a minimum volume of 50 ml and a corresponding lid.

C-2.3 A Desiccators

C-2.4 An Analytical Balance or Equivalent, capable of weighing to the nearest 0.1 mg.

C-3 TEST PIECE

C-3.1 Each test piece shall comprise an approximately 25 g portion of a sample representative of the material before molding or extrusion, as applicable, or cut in accordance with the referring standard from a cross section of a pipe or fitting.

NOTE — If test sample utilize different sampling weights or are taken from different sources, for example raw material granulate or finished product, then there may be a difference in test results obtained. This may depend on, for example, the surface area/mass ratio or the maximum thickness of material. To demonstrate correlation with results for granulate sample determined in accordance with this method, the preparation of samples from finished products may have to be modified.

C-3.2 The number of test pieces shall be as specified in Table 2.

C-4 PROCEDURE

C-4.1 Clean and dry a weighing cup and its lid until constant weight is achieved and store them in the desiccators for at least 0.5 h at room temperature.

C-4.2 Take the weighing cup and its lid out of the desiccator and determine their combined mass, m_0 to the nearest 0.1 mg.

C-4.3 Fill the cup with about 25 g portion of the sample and determine the mass, m_1 , of the cup, lid and the test portion to the nearest 0.1 mg.

C-4.4 Put the weighing cup in the drying oven zone which is kept at $(105 \pm 2)^{\circ}\text{C}$ (see C-3.1).

C-4.5 After a period of 65 ± 5 min, take the weighing cup out of the drying oven and put the cup in the desiccator for at least 1 h at room temperature.

C-4.6 Cover the cup with the lid. Weigh the cup, lid and residual material to the nearest 0.1 mg, as mass m_2 .

C-5 CALCULATION

Calculate the volatile material content, m_v , of the test portion using the following equation:

$$m_v = \frac{m_1 - m_2}{m_1 - m_0} \times 10^6$$

Where,

m_v = volatile material content in milligrams per kilogram (mg/kg) at $(105 \pm 2)^\circ\text{C}$;

m_0 = mass in grams of the empty weighing cup and its lid;

m_1 = mass in grams of the weighing cup and its lid plus the test portion; and

m_2 = mass in grams of the weighing cup and its lid plus the residual material after 1 h at $(105 \pm 2)^\circ\text{C}$.

ANNEX D

[Table 2 SI No. (v)]

METHOD FOR DETERMINATION OF WATER CONTENT IN POLYETHYLENE PIPING MATERIALS AND COMPONENTS

D-1 PRINCIPLE

This method of determining water content of plastics

is an extraction method, in which a test portion is extracted with anhydrous methanol and the extracted water determined by titration using the Karl Fischer method. It can be used for all plastics and is applicable

to granules having a maximum size of 4 mm × 4 mm ×

3 mm. The method do not test for water absorption

(kinetics and equilibrium) of plastics. It is suitable for the determination of water content as low as of 0.1 percent or above.

D-2 REAGENT

During the analysis, reagents of recognized analytical grade should only be used.

- Methanol, anhydrous, having water content less than 0.1 percent by mass.
- Karl Fischer Reagent, with an equivalent factor of approximately 3 mg/ml to 5 mg/ml of water, if the reagent is prepared; check its equivalent factor.

D-3 APPARATUS

Ordinary laboratory apparatus and the following:

- Glass Flasks, 250 ml capacity provided with ground-glass or rubber stoppers.
- Conical Titration Flasks, 150 ml capacity, with standard ground necks and provided with ground-glass stoppers.
- Reflux Condensers, with ground neck capable of being fitted on to the flasks [D-3 (b)] and on to the tubes [D-3 (d)].

d) Water Absorption Tubes with ground joints, containing calcium chloride or other drying agent.

e) Electrical or Hot-air Heaters, for the flasks [D-3 (b)].

f) Pipettes, 50 ml capacity (automatic filling Pipettes are acceptable).

g) Woulfe Bottles, with two tubes.

h) Curved or U-shaped Water Absorption Tubes, filled with calcium chloride.

j) Rubber Pipette Filler

k) Pipette, 10 ml capacity

m) Desiccator, containing calcium chloride

n) Analytical Balance, accurate to 0.2 mg

p) Karl Fischer Apparatus, for determining water content.

D-4 PREPARATION OF TEST SAMPLE

D-4.1 Granules

Take a representative sample of approximately 100 g. Put the sample into a pre-dried glass flask

[see D-3 (a)] and immediately close it with a stopper.
NOTE — It is desirable pre-dry the container in an oven, and then cools it over a suitable water absorbent, for instance silica gel.

D-4.2 Finished Articles

Cut or saw the sample into pieces of approximate size,

that is, having a maximum size of 4 mm × 4 mm ×

3 mm.



D-5 PROCEDURE

D-5.1 Precautions

Due to the low quantities of water measured, maximum care shall be taken exercised at all times to avoid contaminating the sample with water from the sample container, the atmosphere or transfer equipment. Hygroscopic resin samples shall be protected from the atmosphere.

D-5.2 Preparation of Test Portions

Conduct the test on two test portions from the same sample. Use test portions containing 10 mg to 20 mg of water based on the estimated water content of the sample.

D-5.3 Determination

- Carefully dry the apparatus.
- Weigh each test portion the nearest 1 mg into a conical titration flask [D-3 (b)] fitted with a ground-glass stopper. Pipette 50 ml [D-3 (f)] of anhydrous methanol [D-2 (a)] into the conical flask containing the test portion. At the same time, add 50 ml of anhydrous methanol to another conical flask for a blank test. Stopper the flask. Keep the stoppered flasks in the desiccator [D-3 (m)] pending continuation of the test.
- Unstopper the flask and quickly attach them to reflux condensers [D-3 (c)] fitted with calcium chloride tube [D-3 (d)]. Reflux the contents of the conical flasks for 3h, then leave them for 45 min to cool to room temperature.

Separate the flask from the condenser, quickly stopper them and place them in the desiccator.

- Use the Karl Fischer apparatus [D-3 (p)] to titrate the contents of each flask with Karl Fischer reagent [D-2 (b)].

D-6 EXPRESSION OF RESULTS

The water content w , expressed as a percentage by mass, for each of the two determinations is determined by the following formula:

$$w = \frac{(V_1 - V_2)T}{m \times 100}$$

where

V_1 is the volume, expressed in millilitres, of Karl Fischer reagent used for the determination;

V_2 is the volume, expressed in millilitres, of Karl Fischer reagent used for the blank test;

T is the water equivalent, expressed in the grams of water per millilitre of reagent, of Karl Fischer reagent, and

m is the mass, in gram of the test portion.

The two values for the water content shall not differ by more than 10 percent relative or 0.02 percent absolute, whichever is the greater. If the difference is greater, repeat the measurement until acceptable consecutive values are obtained and discard all unacceptable results.

The result is expressed as the average of these two determinations, rounded to the nearest 0.01 percent by mass.

ANNEX E

(Clauses 8.1.1, 8.1.2 and 8.10)

INTERNAL PRESSURE CREEP RUPTURE TEST

E-1 GENERAL

The test shall be carried out not earlier than 24 h after the pipes have been manufactured.

E-2 TEST SPECIMENS

A sample of pipe having free length between the end fittings equal to ten times the outside diameter but not less than 250 mm and not greater than 750 mm shall be taken for testing from each pipe to be tested.

E-3 APPRATUS

Equipment permitting the application of a controlled internal hydraulic pressure to the specimen which are immersed in a thermostatically controlled water-bath.

E-4 PROCEDURE

E-4.1 The pipes shall be fitted with the locking plugs at both ends in such a way that the axial force coming from the internal pressure are transmitted to the pipe. The pipe shall remain free to move in longitudinal direction.

E-4.2 Through a closable operating in one of the locking plugs, the pipe shall be filled with water at ambient temperature. It shall be put in a water bath at the applicable test temperature (permissible deviation of $\pm 1^\circ\text{C}$) and kept in the bath for minimum 1 h to adjust the temperature.

E-4.3 The pressure in the pipe shall then be increased to the test pressure (p) gradually and without shock, preferably within 10 to 30 s in the bath whose temperature has been adjusted in accordance with E-4.2. The pressure with a permissible deviation of ± 2.5 percent shall be maintained for the applicable test duration.

The test pressure (p) shall be calculated as follows from the minimum dimension given in Table 4 as the case may be and corresponding induced stress value given in Table 5.

$$p = \frac{2\sigma_i s}{d - s}$$

Where

- p = test pressure, in MPa;
- S = minimum wall thickness, in mm;
- σ_i = induced stress, in MPa; and
- d = outside diameter of pipe, in mm.

E-5 The sample shall not show sign of localized swelling or leakage and shall not burst during the prescribed test duration. The test showing failure within a distance equivalent to the length of end cap from the end shall be disregarded and the test be repeated.



ANNEX F

(Clause 8.2)

LONGITUDINAL REVERSION TEST

F-1 APPARATUS

F-1.1 Air Oven — Thermostatically controlled at $110 \pm 2^\circ\text{C}$ and is capable of re-establishing this temperature within 15 minutes after the introduction of test specimen in the oven.

F-1.2 Thermometer — Graduated to 0.5°C .

F-1.3 Test Specimens — Either 3 complete sections of pipe, approximately 200 mm long shall be taken as test pieces, or where the pipe diameter is greater than 200 mm, pieces of pipe about 200 mm axial length and with an approximate circumferential arc length of 200 mm shall be prepared by cutting. In such cases, the entire circumference of approximately 200 mm long section of pipe shall be divided into pieces measuring approximately 200 mm square. The direction of the pipe axis shall be marked on the pieces. All pieces are required to be tested. A mark shall be scribed on the external surface approximately 50 mm for each end of the test pieces in the axial direction of pipe. (in the case of complete section of pipe, the mark shall be scribed around the whole circumference). The distance between the marks, l_0 (reference length), shall be approximately 100 mm and shall be measured to the nearest 0.25 mm at ambient temperature.

F-2 PROCEDURE

F-2.1 Place the test pieces concave side up on a glass plate previously dusted with talcum, to ensure that changes in length take unimpeded. The pieces shall not touch each other.

F-2.2 Set the oven temperature at $110 \pm 2^\circ\text{C}$. The glass plate with the test pieces shall then be placed in the oven heated to test temperature and capable of maintaining continuous forced air circulation. The test pieces shall be kept in the oven at the temperature and for the periods specified below:

Wall Thickness, e mm	Test Temperature $^\circ\text{C}$	Period of Stressing min
Up to 8	110 ± 2	60 ± 1
Over 8 and up to 16	110 ± 2	120 ± 2
Over 16	110 ± 2	240 ± 5

F-2.3 Remove the test pieces from the oven and allow to cool in air, without being moved, at the ambient temperature. Measure the minimum distance between the two marks.

F-3 EXPRESSION OF RESULTS

F-3.1 For each test pieces calculate the longitudinal reversion, T, as a percentage, as follows:

$$T = \frac{l_0 - l_1}{l_0} \times 100$$

Where

l_0 and l_1 are the distance (reference length) in mm before and after the test.

F-3.2 The average value (arithmetic mean) of all the test pieces shall be obtained and reported.

ANNEX G

(Clause 8.8)

DETERMINATION OF FAILURE MODE OF TEST PIECES FROM A BUTT-FUSED JOINT

G-1 PRINCIPLE OF THE METHOD

A test piece machined from a butt-fused PE pipe joint to give a waisted section is subjected to a tensile stress at constant speed. When loading the test piece in a tensile-testing machine, the stress is concentrated through the jointed region and ultimate failure is in the vicinity of the joint. The failure mode is used as criteria for the evaluation of the butt-fused joint. The test is carried out at a temperature of $27 \pm 2^\circ\text{C}$.

G-2 APPARATUS

- Room, which can be controlled at a temperature of $27 \pm 2^\circ\text{C}$.
- Tensile-testing machine, capable of sustaining between its clamping jaws a constant speed of 5 ± 1 mm/min. and equipped with means for recording the consequent applied force and a device to detect test piece failure.
- Clamping device, equipped with bars fitting into traction holes machined in the test piece.
- Measuring devices, capable of determining the width and thickness of the test piece to within 0.05 mm.
- Template with the geometry of the test piece (see Fig. 5 and Fig. 6), to mark the shape of the test piece to be machined.

G-3 TEST PIECES

G-3.1 Preparation

G-3.1.1 General

The butt-fused PE pipe joints shall be prepared in accordance with the manufacturer's instructions or the instructions specified in the IS 7634 (Part 2).

For each test piece required, a strip shall be machined out along the longitudinal direction of the pipe, across the joint. The strip shall be further machined to prepare a test piece with dimensions conforming to following using a template to ensure that the joint interface will be aligned with the cross-section of the centre of the waist of the test piece of type A or type B, as applicable:

- Table 11 and Fig. 2 for pipes with wall thickness $e < 25$ mm (Type A);
- Table 11 and Fig. 3 for pipes with wall thickness $e \geq 25$ mm (Type B);

The fusion beads may be removed.

G-3.1.2 Type A Test Piece

The dimension and shape of the Type A test piece shall conform to Fig. 2 and Table 11.

The "waist" of the test piece shall be formed by drilling or machining holes with their centres 35 mm

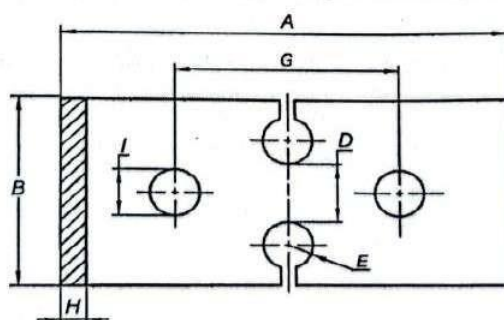


FIG. 2 MACHINED TYPE A TENSILE TEST PIECE
(FOR $E < 25$ mm)

or 45 mm apart, as applicable, so that the centre lines of the holes lie in the same plane as the joint interface, and then cutting towards the holes from the corresponding edge of the strip. The faces of the test piece waist shall be smooth. The finish of the remaining edges is not critical.

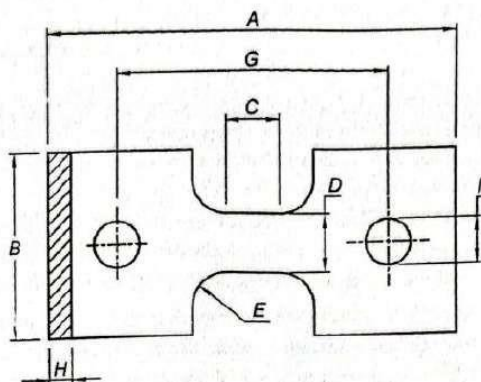


FIG. 3 MACHINE TYPE B TENSILE TEST PIECE (FOR $E \geq 25$ mm)

Table 11 Dimensions of Type A and B Test Pieces
(Clause G-3.1.2)

All dimensions in millimetres.

Sl No.	Symbol	Description	Dimension of Type A Test Piece		Dimension of Type B Test Piece
			$d_n \leq 160$ mm (4)	$d_n > 160$ mm (5)	
i)	A	Overall length, Min	180	180	250
ii)	B	Width at ends	60 ± 3	80 ± 3	100 ± 3
iii)	C	Length of narrow parallel-sided portion	Not Applicable	Not Applicable	25 ± 1
iv)	D	Width of narrow portion	25 ± 1	25 ± 1	25 ± 1
v)	E	Radius	5 ± 0.5	10 ± 0.5	25 ± 0.5
vi)	G	Initial distance between grip	90 ± 5	90 ± 5	165 ± 5
vii)	H	Thickness	Full wall thickness	Full wall thickness	Full wall thickness
viii)	I	Diameter of traction holes	20 ± 5	20 ± 5	30 ± 5

G-3.1.3 Type B Test Piece

The dimension and shape of the Type B test piece shall conform to Fig. 3 and Table 11.

G-3.2 Number of Test Pieces

The number of test pieces shall depend upon the nominal outside diameter d_n of the pipe as given in Table 12.

Table 12 Number of Test Pieces
(Clause G-3.2)

Sl No.	Nominal Outside Diameter, d_n mm	Number of Test Pieces
i)	$90 \leq d_n < 110$	2
ii)	$110 \leq d_n < 180$	4
iii)	$180 \leq d_n < 315$	6
iv)	$d_n \geq 315$	7

One test piece shall be taken at the position of maximum misalignment. The other test pieces shall be taken uniformly around the circumference of the joint.

G-4 CONDITIONING

Immediately prior to testing in accordance with G-5, condition each test piece in air for a minimum of 6 h at a temperature of $27 \pm 2^\circ\text{C}$, starting the period of conditioning at a time such that testing will not be carried out less than 24 h after the butt fusion of the joint.

G-5 PROCEDURE

- a) Measure the thickness of the test piece as the thickness of the pipe wall and the width of the test piece as the distance between the two holes drilled at the joint (D) for test pieces of type A (see Table 11 and Fig. 2) or as the width of the narrow portion (D) for test pieces of type B (see Table 11 and Fig. 3).
- b) Place the test piece in the clamping device of the tensile-testing machine, so that the direction of the force applied to the test piece is perpendicular to the butt-fusion joint.
- c) Apply tension to the test piece with a cross-head speed of 5 ± 1 mm/min.
- d) Record the force applied during extension until complete failure of the test piece.
- e) Record the type of failure as ductile or brittle. Only failures at the butt-fusion joint shall be taken into account.

G-6 EXPRESSION OF RESULTS

The sample shall not show brittle failure during the prescribed test. The results of all the test pieces shall be obtained and reported.

ANNEX H

(Clause 8.9 and Table 6)

DETERMINATION OF ELONGATION AT BREAK

H-1 APPARATUS

H-1.1 Tensile-testing machine meeting the specifications given in H-1.2 to H-1.4, as follows:

H-1.2 Grips, for holding the test piece and attached to the machine so that the major axis of the test piece coincides with the direction of pull through the centre line of the assembly. This can be achieved, for example, by using centring pins in the grips.

The test piece shall be held such that slip relative to the grips is prevented as far as possible and this shall be effected with the type of grip that maintains or increases pressure on the test piece as the force applied to the test piece increases.

The clamping system shall not cause premature fracture at the grips.

H-1.3 Load indicator, incorporating a mechanism capable of showing the total tensile load carried by the test piece when held by the grips. The mechanism shall be essentially free from inertia lag at the specified rate of testing, and shall indicate the load with an accuracy of within 1 percent of the actual value.

H-1.4 Extensometer, suitable for determining the gauge length of the test piece at any moment during the test.

The instrument shall be essentially free from inertia lag at the specified test speeds and shall be capable of measuring deformation to an accuracy of within 1 percent. Where a mechanical extensometer is used, this shall be fixed to the test piece in such a way that the test piece undergoes the minimum damage and distortion and no slip occurs between it and the extensometer.

The measurement of elongation of the test piece on the basis of the movement of the grips lacks accuracy and shall be avoided whenever possible.

NOTE — It is desirable, but not essential, for this instrument to record this length, or any variation in it, automatically as a function of the stress in the test piece.

H-1.5 Micrometer or equivalent, capable of reading to 0.01 mm or less and suitable for measuring the thickness and width of the test piece.

H-1.6 Cutting die, conforming to the relevant profile in this standard, as applicable.

H-1.7 Milling machine and cutter, capable of producing the test piece specified in this standard, as applicable.

H-2 TEST PIECES

H-2.1 Nature of Test Pieces

H-2.1.1 General

Where the thickness of the pipe is less than or equal to 12 mm, the test pieces shall be cut using a die or obtained by machining. Where the thickness of the pipes is greater than 12 mm the test pieces shall be machined.

H-2.1.2 Dimensions of Test Pieces

Test pieces shall be either of Type 1, the shape and dimensions of which are given in Fig. 4 and Table 13, Type 2, the shape and dimensions of which are given in Fig. 5 and Table 14 or Type 3, the shape and dimensions of which are given in Fig. 6 and Table 15. The choice of test piece is dependent on the wall thickness of the pipe from which it is taken (see H-2).

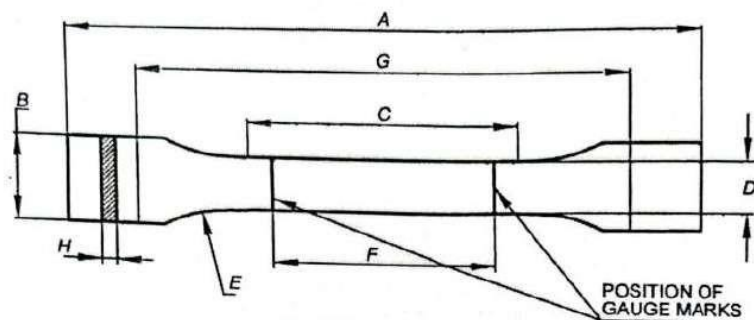


FIG. 4 TYPE 1 TEST PIECE

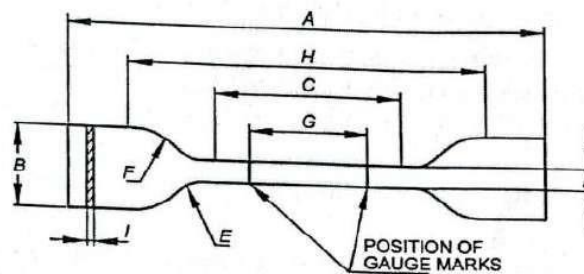


FIG. 5 TYPE 2 TEST PIECE

Table 13 Dimension of Type 1 Test Pieces
(Clause H-2.1.2)

Sl No.	Symbol	Description	Dimension
(1)	(2)	(3)	Mm (4)
i)	A	Overall length, Min.	150
ii)	B	Width of ends	20 ± 0.2
iii)	C	Length of narrow, parallel-sided portion	60 ± 0.5
iv)	D	Width of narrow, parallel-sided portion	10 ± 0.2
v)	E	Radius	60
vi)	F	Gauge length	50 ± 0.5
vii)	G	Initial distance between grips	115 ± 0.5
viii)	H	Thickness	That of the Pipe

Table 14 Dimension of Type 2 Test Pieces
(Clause H-2.1.2)

Sl No.	Symbol	Description	Dimension
(1)	(2)	(3)	Mm (4)
i)	A	Overall length, Min	115
ii)	B	Width of ends	25 ± 1
iii)	C	Length of narrow, parallel-sided portion	33 ± 2
iv)	D	Width of narrow, parallel-sided portion	6 ± 0.4
v)	E	Small radius	14 ± 1
vi)	F	Large radius	25 ± 2
vii)	G	Gauge length	25 ± 1
viii)	H	Initial distance between grips	80 ± 5
ix)	I	Thickness	That of the Pipe

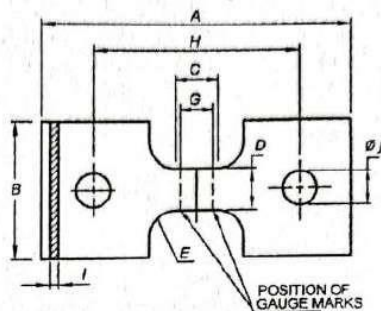


FIG. 6 TYPE 3 TEST PIECE

Table 15 Dimension of Type 3 Test Pieces
(Clause H-2.1.2)

SI No. (1)	Symbol (2)	Description (3)	Dimension mm (4)
i)	A	Overall length (min.)	250
ii)	B	Width of ends	100±3
iii)	C	Length of narrow, parallel-sided portion	25±1
iv)	D	Width of narrow, parallel-sided portion	25±1
v)	E	Radius	25±1
vi)	G	Gauge length	20±1
vii)	H	Initial distance between centres of loading pins	165±5
(viii)	I	Thickness	That of the pipe
ix)	J	Diameter of hole	30±5

H-2.2 Preparation of Test Pieces

Cut strips from the pipe as supplied, that is which has not been heated or flattened, so that their axis is parallel to the axis of the pipe and the positions from which the strips are taken conform to item (a) or item (b) below, as applicable:

- a) Pipes of nominal outside diameter less than or equal to 63 mm

Use lengths of pipe of approximately 150 mm

Cut strips from these various lengths, distributing them around the circumference from a generating line taken as the reference line

Unless otherwise specified, cut at least three strips from each sample so as to be able to take three test pieces (see Table 16).

Table 16 Recommended Number of Test Pieces [Clause H-2.2 (a)]

SI No. (1)	Nominal Outside Diameter, d_n mm (2)	Number of Sectors or Strips (3)
i)	$15 \leq d_n < 75$	3
ii)	$75 \leq d_n < 280$	5
iii)	$280 \leq d_n < 450$	5
iv)	$d_n \geq 450$	8

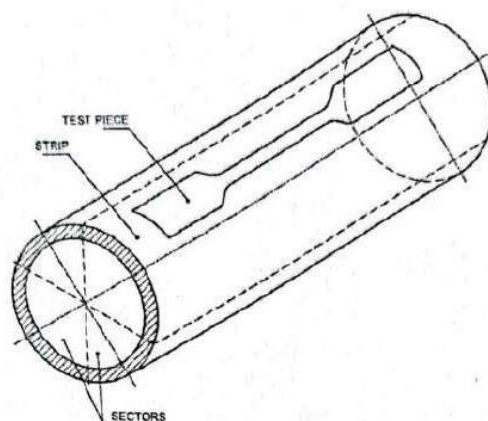


FIG. 7 PREPARATION OF TEST PIECES

- b) Pipes of nominal outside diameter greater than 63 mm
 Use a length of pipe of approximately 150 mm.
 Cut strips from the length in such a way that they are equally distributed around the circumference of the pipe as shown in Fig. 7.
 Unless otherwise specified, divide the circumference of the pipe length into a number of sectors, depending on the diameter of the pipe as given in Table 16. Cut out one test piece per strip.

H-2.2.2 Selection of Test Pieces

The test pieces shall be taken from the centre of strips cut from the length of pipe in accordance with H-2.2.1 and with item (a) or item (b) below, as applicable.

- a) Pipes of wall thickness less than or equal to 12 mm
 The test pieces shall be prepared by cutting with a die or machining to the following shape:
 — type 1, for wall thicknesses less than or equal to 12 mm but greater than 5 mm;
 — type 2, for wall thicknesses less than or equal to 5 mm.
- b) Pipes of wall thickness greater than 12 mm
 Test pieces shall be prepared by machining. They shall be of type 1 or type 3.

H-2.3 Cutting Method

Use the cutting die (H-1.6) clean cutting edges, free from notches with a profile corresponding to that of the type 1 or type 2 test piece, depending on the thickness of the pipe.

Cut out the test piece at ambient temperature, applying the die cutter to the inner surface of the strip and exerting a continuous uniform pressure.

H-2.4 Machining Method

Produce the specimen by milling, where necessary using a milling jig.

The shape of the milling cutter and the machining conditions (speed of rotation and advance) are at the discretion of the operator. They shall however be chosen so as to avoid any heating of the test piece and deterioration of its surface such as cracks, scratches or other visible flaws.

H-3 CONDITIONING

Prior to testing, condition the test pieces at a temperature of $(27 \pm 2)^\circ\text{C}$ for a period of not less than the time specified in Table 17, according to the thickness of the test piece.

Table 17 Conditioning Periods
(Clause H-3)

Sl No.	e_{min} mm	Conditioning Period
(1)	(2)	(3)
i)	$e_{\text{min}} < 3$	1 h \pm 5 min
ii)	$3 \leq e_{\text{min}} < 8$	3 h \pm 15 min
iii)	$8 \leq e_{\text{min}} < 16$	6 h \pm 30 min
iv)	$16 \leq e_{\text{min}} < 32$	10 h \pm 1 h
v)	$32 \leq e_{\text{min}}$	16 h \pm 1 h 30 min

The test pieces shall not be tested within a period of 15 h after the production of the pipes, except for manufacturing checks, unless otherwise specified in the referring standard.

H-4 TEST SPEED

The test speed, that is the speed of separation of the grips, shall depend on the thickness of the pipes, as specified in Table 18.

Table 18 Test Speed
(Clause H-4)

Sl No.	Nominal Wall Thickness of Pipe, e_n mm	Method of Preparation of Test Piece	Type of Test Piece	Test Speed mm/min
(1)	(2)	(3)	(4)	(5)
i)	$e_n \leq 5$	Die cutting or machining	Type 2	100
ii)	$5 < e_n \leq 12$	Die cutting or machining	Type 1	50
iii)	$e_n > 12$	Machining	Type 1	25
iv)	$e_n > 12$	Machining	Type 3	10

H-5 PROCEDURE

Carry out the following procedure at a temperature of $(27 \pm 2)^\circ\text{C}$.

- Measure, to within 0.01 mm, the width and minimum thickness of the central part of the test piece between the gauge marks. Calculate the minimum cross-sectional area.
- Place the test piece in the tensile-testing machine in such a way that the axis of the test piece coincides more or less with the direction of the tensile force. Clamp the grips uniformly and tightly to avoid any slippage of the test piece.
- Adjust the test speed to the value specified and set the machine in motion.
- Record the stress/strain curve up to the rupture of the test piece and record on this curve the gauge length at rupture, or note directly the value of the gauge length after rupture.

Discard any test pieces which slip in the grips, those which break at one of the shoulders and those which deform, thus changing the width of the shoulders, and retest an identical number of test pieces.

**H-6 EXPRESSION OF RESULTS**

Calculate, for each test piece, the elongation at break, using the following formula:

$$E = \frac{L_1 - L_0}{L_0} \times 100$$

Where

E = elongation at break expressed as a percentage;

L₀ = initial gauge length of the test piece, expressed in mm; and

L₁ = length at break, expressed in mm.

The above average value (arithmetic mean) of all the test pieces shall be obtained and reported.

ANNEX J

(Clause 8.10)

METHOD OF PREPARATION OF LONGITUDINALLY NOTCHED TEST PIECES FOR SLOW CRACK GROWTH RATE TEST

J-1 APPARATUS

The apparatus shall consist of a milling machine having a horizontal mandrel rigidly fixed to the bed to enable a pipe to be securely clamped to give a straight specimen. The mandrel shall support the pipe bore beneath and along the full length of the notch to be machined.

The milling cutter, mounted on a horizontal arbor, shall be a 60° included angle 'v' cutter, 12.5 mm wide having a cutting rate of 0.010 ± 0.002 mm/rev/tooth, for example a cutter with 20 teeth rotating at 700 rev/min traversed along at a speed of 150 mm/min has a cutting rate of $[150 / (20 \times 700)] = 0.011$ mm/rev/tooth. The milling cutter shall be carefully protected against damage. It shall not be used for any other material or purpose and shall be replaced after 100 m of notching.

J-2 TEST PIECE

A sample of pipe having free length between the end fittings equal to 10 times the outside diameter but neither less than 250 mm nor greater than 750 mm shall be taken for testing from each pipe to be tested.

J-3 PROCEDURE

J-3.1 The minimum pipe wall thickness shall be located and marked for machining an initial notch. The positions shall be marked for machining three additional notches equally spaced around the pipe circumference at the same position along the specimen as the initial notch.

J-3.2 The average minimum wall thickness shall be determined from measurements taken at either end of the specimen in line with a position of the initial notch.

J-3.3 For pipes having a wall thickness greater than 50 mm, the notch shall initially be machined with a slot drill of 15 mm to 20 mm diameter to leave approximately 10 mm to be removed by the 'v' cutter when machining in accordance with J-3.4 or J-3.5.

J-3.4 The initial notch (see J-3.1) shall be machined by climb milling to depth so as to produce a pipe wall ligament of thickness between 0.78 and 0.82 times the minimum specified wall thickness of the pipe (see Fig. 8).

NOTE — To achieve a remaining ligament within the required tolerance range, it is advisable to aim for a remaining ligament at the top of the tolerance range. This is because the pipe wall can move due to release of residual stresses, resulting in a deeper than anticipated notch.

The length of the notch, at full depth, shall be equal to the pipe outside diameter ± 1 mm.

J-3.5 An additional notch shall be machined at each of the three positions marked in accordance with J-3.1 so that each notch has an identical ligament thickness to that of the initial notch and the ends of each notch are aligned circumferentially with those of the initial notch as shown in Fig. 8 and Fig. 9.

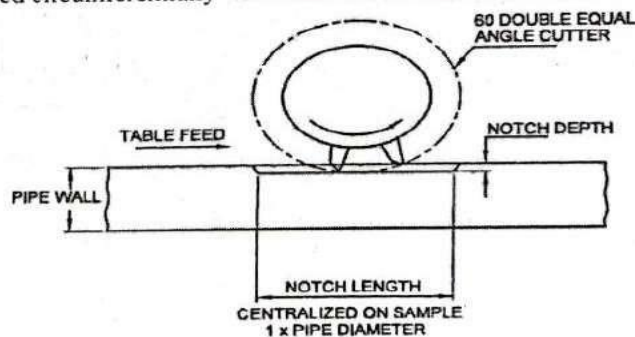


FIG. 8 NOTCH METHOD

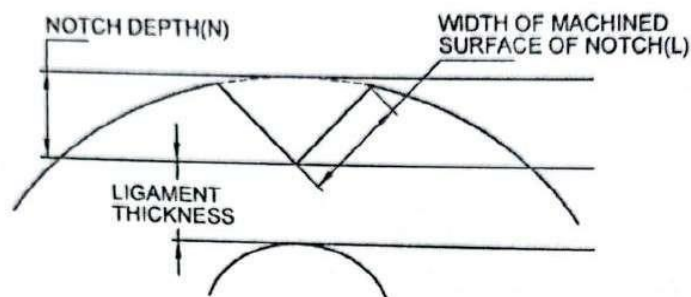


FIG. 9 MEASUREMENT TO CALCULATE NOTCH DEPTH

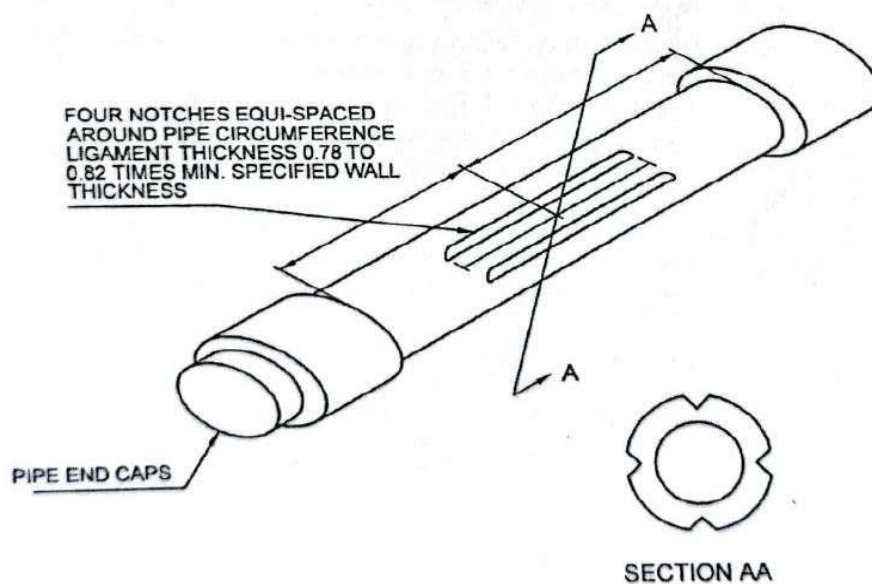


FIG. 10 PIPE TEST PIECE

J-4 MEASUREMENT OF NOTCH DEPTH

On completion of the pressure test, the test piece shall be removed from the water tank and allowed to cool to 27 ± 2 °C. A section of pipe shall be cut out from around the position of each notch.

The notch shall be opened up to give clear access to one of the machined surfaces of the notch. The width L

(mm) of the machined surface of the notch shall be measured to an accuracy of ± 0.1 mm with a microscope or other suitable means as shown in Fig. 10.

The notch depth N (mm) shall be calculated from the equation.

$$N = 0.5 [d_{em} - (d_{em}^2 - L^2)^{1/2}] + 0.86 L$$

Where

d_{em} = measured mean pipe outside diameter, in mm; and

L = width of machined surface of notch, in mm.

The ligament thickness shall be calculated from the notch depth. For acceptance, each notch shall be in accordance with J-3.4.

Nepal Council for Standardization (NCS)

ने.गुण.४०:२०७९ Polyethylene Pipes for Water Supply - Specification

अध्यक्ष : माननीय श्री दिलेन्द्रप्रसाद वडू, मन्त्री, उद्योग, वाणिज्य तथा आपूर्ति मन्त्रालय

उपाध्यक्ष : श्री अर्जुन प्रसाद पोखरेल, सचिव, उद्योग, वाणिज्य तथा आपूर्ति मन्त्रालय

सदस्यहरु

<u>सि.नं.</u>	<u>नाम</u>	<u>पद</u>	<u>संस्था</u>
१.	श्री चन्द्रकला पौडेल	सह सचिव	उद्योग, वाणिज्य तथा आपूर्ति मन्त्रालय
२.	डा. नारायण प्रसाद रेग्मी	सह सचिव	उद्योग, वाणिज्य तथा आपूर्ति मन्त्रालय
३.	श्री केशवकुमार शर्मा	सह सचिव	भौतिक पूर्वाधार तथा यातायात मन्त्रालय
४.	श्री शवनम सिवाकोटी अर्याल	सह सचिव	कृषि तथा पशुपन्छी विकास मन्त्रालय
५.	श्री कौशलचन्द्र सुवेदी	सह-प्राध्यापक	कानून, न्याय तथा संसदीय मामिला मन्त्रालय
६.	श्री इन्दु विक्रम जोशी	सह सचिव	शिक्षा विज्ञान तथा प्रविधि मन्त्रालय
७.	प्रा.डा. दीपक प्रसाद सुवेदी	प्राध्यापक	काठमाडौं विश्वविद्यालय
८.	डा. अजय कुमार झा	सह-प्राध्यापक	भौतिक शास्त्र, त्रिभुवन विश्वविद्यालय
९.	श्री भरत राज आचार्य	-	नेपाल उद्योग वाणिज्य महासंघ
१०.	श्री दीपक श्रेष्ठ	उपाध्यक्ष	नेपाल चेम्बर अफ कमर्स
११.	श्री ध्रुव बहादुर शाह	-	नेपाली उपभोक्ता संरक्षण महासंघ

सदस्य सचिव

श्री दीनानाथ मिश्र, महानिर्देशक, नेपाल गुणस्तर तथा नापतौल विभाग

ने.गुण. ४०: २०७९ Polyethylene Pipes for Water Supply - Specification विषयक प्राविधिक समितिका सदस्यहरू

सि.नं.	नाम	पद	संस्था
१.	श्री विधुबाबु पुडासैनी	महानिर्देशक	ने. गुण. तथा ना.तौ. विभाग
२.	श्री दीनानाथ मिश्र	उप-महानिर्देशक	ने. गुण. तथा ना.तौ. विभाग
३.	श्री कुमारी ज्योती जोशी	उप-महानिर्देशक	ने. गुण. तथा ना.तौ. विभाग
४.	श्री प्रभात कुमार सिंह	उप-महानिर्देशक	ने. गुण. तथा ना.तौ. विभाग
५.	डा. चण्डिका प्रसाद भट्ट	सि.डि.के.ई.	उद्योग वाणिज्य तथा आपूर्ति मन्त्रालय
६.	श्री आलोक कुमार मिश्र	निर्देशक	ने. गुण. तथा ना.तौ. विभाग
७.	श्री उदय कुमार गुप्ता	निर्देशक	ने. गुण. तथा ना.तौ. विभाग
८.	श्री किशु मानन्धर	निर्देशक	ने. गुण. तथा ना.तौ. विभाग
९.	श्री अनिल शाक्य	निर्देशक	ने. गुण. तथा ना.तौ. विभाग
१०.	श्री सुरत कुमार बंम	सि.डि.ई.	खानेपानी तथा ढल व्यवस्थापन विभाग
११.	श्री भरतराज आचार्य	सभापति	उ.समिति, नेपाल उद्योग वाणिज्य महासंघ
१२.	श्री शरद शर्मा	-	नेपाल प्लाष्टिक उत्पादक संघ
१३.	श्री ईश्वर प्रसाद	ए. मेनेजर	नेपाल वाटर सप्लाइ कोर्पोरेशन
१४.	श्री देवेन्द्र साह	ए.जी.एम.	पन्चकन्या प्लाष्टिक एण्ड पाईप ई.प्रा.लि.
१५.	श्री रविन्द्र झा	निर्देशक	हिलटेक प्लाष्टिक एण्ड पाईप ई.प्रा.लि.
१६.	श्री माधव तिमिल्सिना	अध्यक्ष	उपभोक्ता अधिकार अनुसन्धान मंच
१७.	श्री शुक्रराज अधिकारी	कमिष्ट	ने. गुण. तथा ना.तौ. विभाग
१८.	श्री सुजित कुमार चौधरी	प्रा.स.	ने. गुण. तथा ना.तौ. विभाग



NS 40:2079

नेपाल गुणस्तर तथा नापतौल विभाग

बालाजु, काठमाडौं, नेपाल

फोन नं. ०१-४३५०४४५, ४३५०४४७, ४३५०७२९, ४३५०८१८, ४३८५७२३

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Email: nbsm@nbsm.gov.np

पो.व.नं. ९८५

सर्वाधिकार सुरक्षित

७/५/२०
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Drawings

Note:

1. It is customary to bind the drawings in a separate volume, which is often larger than other volumes of the contract documents. The size will be dictated by the scale of the drawings, which must not be reduced to the extent that details are reduced illegible.
2. A simplified map showing the location of the Site in relation to the local geography, indicating major roads, posts, airports, and railroads, is helpful.
3. The construction drawings, even if not fully developed, must show sufficient details to enable bidders to understand the type and complexity of the work involved and the price the Bill of Quantities.

[Insert Drawings]


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Supplementary Information

[insert supplementary information if any]

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SECTION - VI

Bill of Quantities⁶

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:

⁶In lump sum contracts, delete “Bill of Quantities” and replace with “Schedule of Activities” throughout this section.

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- (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.

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.


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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: *[Insert as applicable]*

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,

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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

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.


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Government of Province							
Ministry of Water Resources and Energy Development							
Water Supply, Irrigation and Energy Development Directorate							
Water Supply irrigation and Energy Development Office							
Karnali Province							
Kalikot ,Nepal							
Bill Of Quantity							
Name of Work: Procurement and delivery of HDPE pipe (NS-40, PE-100)							
Location : Manma, Kalikot, Godov							
Contract Nos: 06/082-083/NCB/GOODS/HDPE/WIEDO-KALIKOT							
						F/Y 2082-083	
S.N	Descriptions of Works	Quantity	Unit	Contract			Remarks
				Rate in Fig	in Words	Amount	
A	Procurement of Different Size						
1	PE-100, PN-16, DN-20mm	17700.00	Mtr				
2	PE-100, PN-16, DN-25mm	4600.00	Mtr				
3	PE-100, PN-12.5, DN-32mm	11200.00	Mtr				
4	PE-100, PN-16, DN-32mm	3000.00	Mtr				
5	PE-100, PN-12.5, DN-40mm	3500.00	Mtr				
6	PE-100, PN-12.5, DN-50mm	3500.00	Mtr				
7	PE-100, PN-12.5, DN-63mm	1500.00	Mtr				
8	PE-100, PN-12.5, DN-75mm	100.00	Mtr				
Sub-Total Amount (A)=							
B	Provisional Item						
a)	Third Party Insurance	1.00	PS	5000.00	Rupees Five Thousand Only	5000.00	
b)	Insurance of Work	1.00	PS	5000.00	Rupees Five Thousand Only	5000.00	
c)	Insurance against accident of the workman	1.00	PS	5000.00	Rupees Five Thousand Only	5000.00	
d)	Execution of tests of construction materials as and when required as per instruction	1.00	PS	10000.00	Rupees Ten Thousand Only	10000.00	
	Total PS Items(B)=					25000.00	
	Add 13 % vat of (A)=						
	Net total Amount(A+B+Vat)						


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CONDITIONS OF CONTRACT AND CONTRACT FORMS

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Section VII: General Conditions of Contract

***Water Supply irrigation and Energy Development Office
Manma, Kalikot***

06/082-083/NCB/GOODS/HDPE/WIEDO-KALIKOT

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General Conditions of Contract

This Section provides the General Conditions of Contract that will apply to the Contract for which the Bidding document is issued.

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) Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.</p> <p>(d) Compensation Events are those defined in GCC 50 hereunder.</p> <p>(e) 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>(f) 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>(g) The Contractor is the party whose Bid to carry out the Works has been accepted by the Employer.</p> <p>(h) The Contractor's Bid is the completed bidding document submitted by the Contractor to the Employer.</p> <p>(i) 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>(j) Days are calendar days; months are calendar-months.</p> <p>(k) Dayworks 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>(l) A Defect is any part of the Works not completed in accordance with the Contract.</p> <p>(m) The Defects Liability Certificate is the certificate issued by Project Manager upon correction of defects by the Contractor.</p> <p>(n) The Defects Liability Period is the period calculated from the Completion Date where the Contractor remains responsible for remedying defects.</p> <p>(o) Drawings include calculations and other information provided or approved by the Project Manager for the execution of the Contract.</p> <p>(p) The Employer is the party who employs the Contractor to carry out the Works, as specified in the SCC.</p> <p>(q) Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.</p> <p>(r) Force Majeure means an exceptional event or circumstance: which is beyond a Party's control; which such Party could not reasonably have provided against before entering into</p>

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	<p>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>(s) The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.</p> <p>(t) In writing or written means hand written, type written, printed or electronically made, and resulting in permanent record.</p> <p>(u) 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>(v) 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>(w) Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.</p> <p>(x) Party means the Employer or the Contractor, as the context requires.</p> <p>(y) 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 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</p>

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	Manager shall provide instructions clarifying queries about these GCC.
	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).
	2.3 The documents forming the Contract shall be interpreted in the following order of priority: <ul style="list-style-type: none"> (a) Contract Agreement, (b) Letter of Acceptance, (c) Letter of 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	3.1 The language of the Contract and the law governing the Contract are stated in the SCC .
	3.2 Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Employer's country when <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 Employer's Country prohibits any import of goods from, or any payments to, a particular country, person, or entity. Where the Employer'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	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 upon the attached Contract forms in Section IX.
	4.2 Without altering the basic nature or scope of work, the contract may be amended upon mutual written consent as per prevailing Public Procurement Law.
5. Assignment	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 <ul style="list-style-type: none"> (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 (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.
6. Care and Supply of	6.1 The Specification and Drawings shall be in the custody and care of the Employer.

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Documents	<p>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 Laws	<p>8.1 The Contractor shall, in performing the Contract, comply with applicable Laws of Nepal.</p>
9. Joint and Several Liability	<p>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.</p>
10. Project Manager's Decisions	<p>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.</p>

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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	<p>12.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices and requests, these communications shall be:</p> <p>(a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the SCC; and</p> <p>(b) delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract. However:</p> <p>(i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and</p> <p>(ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.</p> <p>Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed.</p>
	12.2 A Notice shall be effective when delivered or on the Notice's effective date, whichever is later.
13. Subcontracting	13.1 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.
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 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</p>

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	be removed in accordance with Clause 15.2 above.
16. Employer's and Contractor's Risk	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.
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> <p>(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</p> <p>(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</p> <p>(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.</p> <p>(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> <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> <p>(a) a Defect which existed on the Completion Date,</p> <p>(b) an event occurring before the Completion Date, which was not itself an Employer's risk, or</p> <p>(c) the activities of the Contractor on the Site after the Completion Date.</p>
18. Contractor's Risks	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.
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> <p>(a) loss of or damage to the Works, Plant, and Materials;</p> <p>(b) loss of or damage to Equipment;</p> <p>(c) loss of or damage to property (except the Works, Plant, Materials, 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</p>

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	provide for compensation to be payable in the proportions of Nepalese Rupees required to rectify the loss or damage incurred.
	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.
	19.4 Alterations to the terms of insurance shall not be made without the approval of the Project Manager.
	19.5 Both parties shall comply with any conditions of the insurance policies.
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	23.1 The contractor shall be responsible for the design of permanent works as specified in SCC .
	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.
	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.
	23.4 The Project Manager's approval shall not alter the Contractor's responsibility for design of temporary works.
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> <ul style="list-style-type: none"> a. Have full regard for the safety of all persons entitled to be upon the site and keep the site (so as the same is under his control) and the works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons. b. Provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when necessary or required by the 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.

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	<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	28.1 The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.
	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.
	28.3 The Contractor shall permit the GoN/DP and/or persons appointed by 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.

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29. Dispute Settlement	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.
	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.
30. Procedures for Disputes	30.1 In case of arbitration, the arbitration shall be conducted in accordance with procedures in accordance with law of Nepal at the place given in the SCC .
B. Staff and Labor	
31. Forced Labor	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.
32. Child Labor	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.
33. Non-discrimination and Equal Opportunity	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 job shall not be deemed discrimination.
B1. Time Control	
34. Program	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.
	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.
	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

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	<p>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>
<p>35. Extension of the Intended Completion Date</p>	<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. Along with full supporting information the contractor shall also submit Performance Security, Advanced Payment Guarantee and insurance Policy with extended validity as well as revised work schedule.</p>
<p>36. Acceleration</p>	<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>
<p>37. Delays Ordered by the Project Manager</p>	<p>37.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.</p>
<p>38. Management Meetings</p>	<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>
<p>39. Early Warning</p>	<p>39.1 The Contractor shall warn the Project Manager at the earliest opportunity of specific</p>

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	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.
	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.
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	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 issuance of taking over certificate pursuant to GCC clause 69.2, and is defined in the SCC . The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
	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.
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	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.
	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.
45. Changes in the Contract Price	45.1 In the case of an Unit Rate contract: (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

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	<p>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</p>

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	amount to be paid to the Contractor within 30 days of submission by contractor.
	48.3 The value of work executed shall be determined by the Project Manager.
	48.4 The value of work executed shall comprise: <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.
	48.5 The value of work executed shall include the valuation of Variations and Compensation Events.
	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.
49. Payments	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.
	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.
	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 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

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	<p>to bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.</p> <p>(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.</p> <p>(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.</p> <p>(i) The advance payment is delayed.</p> <p>(j) The effects on the Contractor of any of the Employer's Risks.</p> <p>(k) The Project Manager unreasonably delays issuing a Certificate of Completion.</p>
	<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 cooperated with the Project Manager.</p>
51. Tax	<p>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.</p>
52. Currency	<p>52.1 The currency of Contracts shall be Nepalese Rupees.</p>
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 Formulae⁷: The formulae will be of the following general type:</p>

⁷ 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

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	$pn = A + b \frac{Ln}{Lo} + c \frac{Mn}{Mo} + d \frac{En}{Eo} + etc.$ <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><i>A</i> is a constant, specified in the Bidding Forms- Table of Price Adjustment data, representing the nonadjustable portion in contractual payments;⁸ <i>b, c, d, etc.</i>, 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 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</p>
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⁸ 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.

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	<p>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> <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.</p>
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.</p> <p>54.3 The Contractor may substitute retention money with an unconditional bank guarantee issued from Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law if:</p> <ul style="list-style-type: none"> (a) at least eighty (80) percent of the whole works have been completed, (b) progress of the works is satisfactory in accordance with the Contract as per approved work schedule, and (c) it can be assured that the works can be completed at the intended completion date. <p>The validity of the bank guarantee under this sub-clause shall be at least 30 days beyond the end of Defect Liability Period.</p> <p>54.4 If retention money is substituted by bank guarantee in accordance with clause 54.3, the</p>

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	bank guarantee shall be submitted either using the Retention Money Security Form included in Section X (Contract Forms) or in another Form acceptable to the employer. The validity of the bank guarantee shall be at least one month more than the end of defect liability period.
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 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>The validity of the bank guarantee under this sub-clause shall be at least 30 days beyond the end of intended completion date.</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 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> <p>57.4 If the advance provided under GCC 57.1 is not repaid due to non-performance of the works under the contract, by the contractor within the time period specified in the contract, the Employer shall recover the advance by enforcing the bank guarantee as provided under GCC 57.1, and shall also recover interest on the advance amount from</p>

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	the contractor at a rate stated in SCC .
58. Securities	<p>58.1 The Performance Security, including any additional security required as per ITB 29.5 and ITB 34.1, 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 in accordance with the conditions of Contract using Sample Form for the Performance Security included in Section IX (Contract Forms), or another form acceptable to the Employer, and denominated in Nepalese Rupees. The Performance Security shall be valid until a date 30 days beyond the end of the Defect Liability Period.</p> <p>However, if the bidder quoted a bid price more than fifteen (15) percent below the estimated cost, the bidder may submit a separate performance security for the amount exceeding five percent of the bid price, as per ITB 34.1 (ii) , which shall be valid until a date 30 days beyond the end of the intended completion date.</p> <p>Any additional performance security required as per ITB 29.5 shall be valid until a date 30 days beyond the end of the intended completion date.</p> <p>58.2 The performance security issued by any foreign Bank outside Nepal must be counter guaranteed by an Commercial Bank or Financial Institution eligible to issue Bank Guarantee as per prevailing Law in Nepal.</p>
59. Day works	<p>59.1 If applicable, the Day works 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 Repairs	<p>60.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects 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.</p>
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>

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	<p>(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;</p> <p>(b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war;</p> <p>(c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel;</p> <p>(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</p> <p>(e) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.</p>
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 other Party under the Contract.</p>
63. Duty to Minimize Delay	<p>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.</p> <p>63.2 A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.</p>
64. Consequences of Force Majeure	<p>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</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under GCC35 ; and</p> <p>(b) if the event or circumstance is of the kind described in sub-paragraphs (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 destructed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in GCC 19.</p> <p>64.2 After receiving this notice, the Project Manager shall proceed in accordance with GCC 10 to agree or determine these matters.</p>
65. Force Majeure	<p>65.1 If any Subcontractor is entitled under any contract or agreement relating to the Works to</p>

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Affecting Subcontractor	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	<p>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.</p> <p>66.2 Upon such termination, the Project Manager shall determine the value of the work done and issue a Payment Certificate, which shall include</p> <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 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; (c) other Costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works; (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 (e) the Cost of repatriation of the Contractor's staff and labor employed wholly in connection with the Works at the date of termination.
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> <ul style="list-style-type: none"> (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 (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.
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>

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	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.
69. Taking Over	<p>69.1 In the contractor's Opinion, if the works are complete and ready for taking over, the contractor may apply by notice to the Project Manager for a Taking-Over Certificate. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.</p> <p>69.2 The Project Manager shall, within 30 days after receiving the Contractor's application:</p> <p>(a) issue the Taking-Over Certificate to the Contractor if physical progress of works is at least ninety (90) percent in accordance with the Contract except for any minor outstanding work and defects (as listed in the Taking-Over Certificate) which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or</p> <p>(b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.</p> <p>69.3 If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 30 days, and if the Works or Section (as the case may be) are substantially completed in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.</p>
70. Final Account	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 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.
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> <p>a. does not commence the work as per the Contract,</p> <p>b. abandons the work without completing,</p> <p>c. fails to achieve progress as per the Contract.</p>

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		72.2 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.
		72.3 Fundamental breaches of Contract shall include, but shall not be limited to, the following : 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 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.
		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.
		72.5 Notwithstanding the above, the Employer may terminate the Contract for convenience.
		72.5 Notwithstanding the above, the Employer may terminate the Contract for convenience. 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.
73.Fraud	and	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,

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Corruption	<p>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 or contractor 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 or contractor:</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</p>

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	Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.
	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.
	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. In such case, amount to complete the remaining works as per the Contract shall be recovered from the Contractor as Government dues.
76. Property	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.
77. Release from Performance	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.
78. Suspension of DP Loan/Credit/Grant	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: a. the Employer is obligated to notify the Contractor of such suspension within 7 days of having received the DP's suspension notice; and 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.
79. Eligibility	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.
	79.2 The materials, equipment, and services to be supplied under the Contract shall have their origin in eligible source countries as specified in SCC 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.
	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

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	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.
80. Project Manager's Duties and Authorities	80.1 The Project Manager's duties and authorities are restricted to the extent as stated in the SCC .
81. Quarries and Spoil Dumps	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.
82. Local Taxation	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 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	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.
	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.
85. Duties, Taxes and Royalties	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.
	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.
	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

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	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.
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 Blasting	89.1 The Contractor shall at all times maintain full liaison with and inform well in advance, and obtain such permission as is required from all Government authorities, public bodies and private parties whatsoever concerned or affected, or likely to be concerned or affected by blasting operation.
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.

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Section VIII: 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 .

***Water Supply irrigation and Energy Development Office
Manma, Kalikot***

06/082-083/NCB/GOODS/HDPE/WIEDO-KALIKOT

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Special Conditions of Contract

A. General	
GCC 1.1 (p)	The Employer is: Water Supply irrigation and Energy Development Office, Kalikot
GCC 1.1 (u)	The Intended Completion Date for the whole of the Works shall be 2082-12-29 [If different dates are specified for completion of the Works by section ("sectional completion" or milestones), these dates should be listed here]
GCC 1.1(bb) & GCC 10.1	The Project Manager is Prabin Mahat The Project Manager and Engineer are synonyms.
GCC 1.1 (ee)	The Site is located at Manma, Kalikot, Nepal and is defined in drawings No.
GCC 1.1 (hh)	The Start Date shall be within 7 days after agreement
GCC 1.1 (ll)	The Works consist of (Reservoir tank, Solar Pump 3HP, Solar Invertor 3Hp, HDPE Pipe line etc
GCC 2.2	Sectional Completions are: ... Not Applicable
GCC 2.3 (i)	The following documents also form part of the Contract: <i>[insert if any documents]</i>
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 " may not " delegate any of his duties and responsibilities.
GCC 12.1 (a)	The agreed electronic transmission shall be: [Insert E-mail or E-Fax or any other such means of Employer] and [Insert E-mail or E-Fax or any other such means of Contractor.]
GCC 14.1	Schedule of other contractors: <i>[Insert details as appropriate].</i>
GCC 19.1	The minimum insurance amounts and deductibles shall be: 1. The minimum cover for loss of or damage to the Works, Plant and Materials is: 115 % of the Contract Amount. 2. The maximum deductible for insurance of the Works and of Plant and Materials is: [insert value as per the provision of Nepal Insurance Authority]. 3. The minimum cover for loss or damage to immovable Equipment/plants is : 100% (i.e Replacement Cost)

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	<p>4. The maximum deductible for insurance of immovable Equipment/plant is: [insert value as per the provision of Nepal Insurance Authority].</p> <p>5. The minimum cover for loss of or damage to other property is: [insert amount]⁹ with unlimited number of occurrences</p> <p>6. The maximum deductible for insurance of other property is: [insert value as per the provision of Nepal Insurance Authority].</p> <p>7. The minimum cover for personal injury or death insurance</p> <p>i. for the Contractor's employees is that specified in the Labor act of Nepal and</p> <p>ii. for other people is :[insert amount between 0.7 to 1 million] with an unlimited number of occurrences</p>
GCC 20.1	Site Investigation Reports are: Material test must be submitted
GCC 23.1	The following shall be designed by the Contractor NA
GCC 26.1	The Site Possession Date(s) shall be: Same day after agreement [Note: If the Site is made available by section, the different dates should be listed here]
GCC 30.1	The place of arbitration shall be: Kalikot, Kathmandu
C. Time Control	
GCC 34.1	The Contractor shall submit for approval a Program for the Works within 15 days from the date of the Letter of Acceptance.
GCC 34.3	The period between Program updates is.... 180 days . The amount to be withheld for late submission of an updated Program is [Insert Amount]
D. Quality Control	
GCC 42.1	The Defects Liability Period is: [365] days. [The defects liability period is usually limited to 365 days, but could be less in very simple cases or could be more in special cases as defined by employer.]
E. Cost Control	
GCC 49.1	[insert the prevailing interest rate]
GCC 53.1	The Contract "is not" subject to price adjustment, and the following information regarding coefficients ["does not"] apply. The coefficients and indices for adjustment of prices in Nepalese Rupees shall be as specified in

⁹ The amount depends on location, environment of construction site ,surrounding property etc. and hence differs case to case. Suitable amount should be inserted depending upon site condition and surrounding environment.

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	the Table of Adjustment Data submitted by bidder together with the Letter of Price Bid which is approved by the Project manager and attached as Annex-1.
GCC 53.6	Base Price of Construction Materials applicable for price adjustment shall be as per the Table of Adjustment Data submitted by Bidder together with the Letter of Price Bid which is approved by the Project manager and attached as Annex-1.
GCC 53.7	The Price Adjustment amount shall be limited to a maximum of : <i>[Insert percent, normally 25 %]</i> percentage of the initial Contract Amount (without VAT but including PS).
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 (without VAT but including PS) per day. The maximum amount of liquidated damages for the whole of the Works is 10 Percent of the final Contract Price (without VAT but including PS).
GCC 56.1	The provision of bonus <i>[“Not Applicable”]</i> in the contract. If Applicable, the Bonus for the whole of the Works is 0.05 Percent of the final Contract Price (without VAT but including PS) per day. The maximum amount of Bonus for the whole of the Works is <i>[Insert Percentage]</i> of the final Contract Price (without VAT but including PS).
GCC 57.1	The provision of Advance Payments <i>[“Applicable”]</i> in the contract. If Applicable, the Advance Payments shall be: <i>[upto 20%] percent of initial contract amount (without VAT but including PS)</i> and shall be paid in two equal installments and to the Contractor. <i>[specify how and when the installments will be paid]</i>
GCC 57.3	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 <i>[Insert percentage]¹⁰</i> 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 price.
GCC 57.4	Recover interest on the advance amount from the Contractor should be at a rate of 10 %.
GCC 58.1	The Performance Security amount is: 5% <i>[Insert required Amount at the time of Contract agreement]</i>. <i>[insert amount including an additional amount based on ITB 29.5 and/or ITB 34.1 if the Employer has increased the Performance Security amount]</i>
G. Finishing the Contract	
GCC 71.1	The date by which operating and maintenance manuals are required is; After completion of work
GCC 71.2	The date by which “as built” drawings are required is: After completion of work The amount to be withheld for failing to produce “as built” drawings and/or Operating and maintenance manuals is: <i>[Insert Amount]</i>

¹⁰ $[\% \text{ of advance payment} \times 100 / (80-30)]$

[Signature]
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GCC 72.3 (i)	The maximum number of days is: 200
GCC 79.2	<p><i>[Select one option, either GoN Funded or DP Funded.]</i></p> <p>For GoN funded: For the purpose of Country of Origin: “all Countries”</p> <p>For DP funded: For the purpose of Country of Origin: <i>[attach list as per their list of eligible countries]</i></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;

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Section IX: Contract Forms

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

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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 BDS/SCC] to you as your bid
price *Nepalese Rupees* *[insert amount of contract price in figures and words*
including taxes] 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.]

[Signature]
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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 **for the Invitation of Bids** dated**[Insert date of bid invitation]**for execution of the.....**[Insert name of the contract and identification number, as given in the Contract BDS/SCC]** for the Contract price of Nepalese Rupees **[insert amount in figures and words including taxes]**, 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:


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Contract Agreement

THIS AGREEMENT made theday of.....between..... 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 Letter of Bid;
 - (c) the Addenda Nos [Insert addenda numbers if any]
 - (d) the Special Conditions of Contract;
 - (e) the List of Eligible Countries as per GCC,
 - (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
 - (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


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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


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Performance Security

(On letterhead paper of the Bank)

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

Beneficiary: **[Insert Name and Address of Employer]**

Date:

Performance Guarantee No.:.....

We have been informed that ... **[insert name of the Contractor, which in the case of a joint venture shall be the name of the joint venture]** (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 **Nepalese Rupees****[insert amount in figures* and 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.....**[insert day]**.....Day of**[insert month, year]**..... **, and any demand for payment under it must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees **(URDG), 2010 Revisions**., ICC Publication No. 758 . **except that the supporting statement under Article 15(a) is hereby excluded.**

.....

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.*

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Advance Payment Security

(On letterhead paper of the Bank)

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

Beneficiary: **[Insert Name and address of employer]**

Date :

Advance Payment Guarantee No.....

We have been informed that **[insert name of the Contractor, which in the case of a joint venture shall be the name of the joint venture]** (hereinafter called "the Contractor") has entered into Contract No. **[insert reference number of the contract]** dated **[insert agreement date]** with you, for the execution of **[Insert name of the 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 **Nepalese Rupees** **[insert amount in figures*and in words]** is to be made against an advance payment guarantee.

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 **Nepalese Rupees** **[insert amount in figures*. =and 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:

(a) Used the advance payment for purposes other than the costs of mobilization in respect of the Works.
Or

(b) .Has failed to repay the advance payment when it has become due and payable in accordance with the conditions of the contract, specifying the amount payable by the contractor.

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 .. **[insert day]**..... day of ... **[insert month, year]**...**, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (**URDG**), 2010 Revisions,, ICC Publication No. 758 , **except that the supporting statement under Article 15(a) is hereby excluded..**

.....

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.*

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Retention Money Security

(On letterhead paper of the Bank)

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

Beneficiary: *[Insert name and Address of Employer]*

Date: *[Insert date of issue]*

RETENTION MONEY GUARANTEE No.: *[Insert guarantee reference number]*

We have been informed that *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the **Contractor**") has entered into Contract No. *[insert reference number of the contract]* dated with the Beneficiary, 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, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when at least eighty (80) percent of the whole works have been completed, progress of the works is satisfactory in accordance with the Contract as per approved work schedule and it can be assured that the works can be completed at the intended completion date, payment of *[insert the amount of the Retention Money]* is to be made against a Retention Money guarantee.

At the request of the **Contractor**, we, .. *[insert name of the Bank]*, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of **Nepalese Rupees** *[insert amount in figures and amount in words]*¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the **Contractor** is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

This guarantee shall expire no later than the ...*[insert day]*... day of*[insert month, year]*...², and any demand for payment under it must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (**URDG**), 2010 Revisions, ICC Publication No. 758, **except that the supporting statement under Article 15(a) is hereby excluded.**

.....

Seal of Bank and Signature(s)

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

¹*The Guarantor shall insert the amount of the Retention Money.*

²*Insert the same expiry date which is 30 days more than the end of Defect Liability Period. The Employer should note that in the event of an extension of this date 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.*

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Annex-1

Table of Price Adjustment Data
[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

Note: Base value and Bidder's proposed weighting coefficient to be filled as per "Bid Form of Table of Price Adjustment Data" in Bidding Forms (Section-IV) after verification by the Employer in case of the alternative provision of Bidder proposed value and weighting coefficient.

Table of Price Adjustment Data
[GCC 53.6]

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

** For the purpose of calculation of price adjustment, the Ex-factory price of the same source mentioned in the table shall be taken into consideration.

Note: Base Price and source to be filled as per "Bid Form of Table of Price Adjustment Data" in Bidding Forms (Section-IV) after verification by the Employer in case of the alternative provision of Bidder proposed source and base price.

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