NATIONAL POWER CORPORATION

MinGen

PHILIPPINE BIDDING DOCUMENTS (Procurement of INFRASTRUCTURE PROJECTS)

FOR

A6GS O/M BUILDING PRIMARY WALL & STEEL BARRIER

P.R. No.: MG-A7M25-020

Contracts Management Office
Logistics Division

Sixth Edition
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Glossary of
Terms, Abbreviations, and Acronyms

ABC –Approved Budget for the Contract.

ARCC – Allowable Range of Contract Cost.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender.*(2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral Ng Pilipinas.

CDA – Cooperative Development Authority.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

Contractor – is a natural or juridical entity whose proposal was accepted by the Procuring Entity and to whom the Contract to execute the Work was awarded. Contractor as used in these Bidding Documents may likewise refer to a supplier, distributor, manufacturer, or consultant.

CPI – Consumer Price Index.

DOLE – Department of Labor and Employment.

DTI – Department of Trade and Industry.

Foreign-funded Procurement or Foreign-Assisted Project –Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

GFI – Government Financial Institution.

GOCC –Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term "related" or "analogous services" shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PCAB – Philippine Contractors Accreditation Board.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

UN – United Nations.

Section I. Invitation to Bid

NATIONAL POWER CORPORATION

MinGen

Invitation to Bid for *A6GS O/M BUILDING PRIMARY WALL AND STEEL BARRIER*

The *NATIONAL POWER CORPORATION–MINDANAO GENERATION*, through the *approved Corporate Budget of NPC for CY 2025* intends to apply the sum of ***Six Million Pesos (PHP6,000,000.00)*** being the Approved Budget for the Contract (ABC) to payments under the contract for **A6GS *O/M Building Primary Wall and Steel Barrier, Fuentes, Barangay Maria Cristina, Iligan City (PR No. MG-A7M25-020/ Ref. No. INFRA2025-AG6-005).*** Bids received in excess of the ABC shall be automatically rejected at bid opening.

1. The *NATIONAL POWER CORPORATION–MINDANAO GENERATION* now invites bids for the above Procurement Project. Completion of the Works is required ***Eighty-Two (82) calendar days***. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

2. Bidding will be conducted through open competitive bidding procedures using non-discretionary *"pass/fail"* criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

3. Interested bidders may obtain further information from *BAC Secretariat, NATIONAL POWER CORPORATION–MINDANAO GENERATION* and inspect the Bidding Documents at the address given below from *8:00 AM – 5:00 PM Monday to Friday.*

4. A complete set of Bidding Documents may be acquired by interested Bidders on ***July 11-31, 2025*** from the given address and website(s) below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of ***Ten Thousand Pesos (PHP10,000.00)***. The Procuring Entity shall allow the bidder to pay online and present its proof of payment for the fees in person, by facsimile, or through electronic means. For those prospective bidders who wish to pay online, below are the details of the account:

Landbank Account name : NPC-GENCO 5 COLLECTIONS FUND

Landbank Account number: 0321-1689-14

It may also be downloaded free of charge from the website of the Philippine Government Electronic Procurement System (PhilGEPS) provided that Bidders shall pay the applicable fee for the Bidding Documents not later than the submission of their bids.

5. The *NATIONAL POWER CORPORATION–MINDANAO GENERATION* will hold a Pre-Bid Conference on ***July 18, 2025*** ***at 9:00 AM*** at *Bidding Room, NPC-Mindanao Generation Headquarters, Maria Cristina, Iligan City* and/or through videoconferencing/webcasting *via ZOOM*, which shall be open to prospective bidders. Interested online attendees are required to pre-register one (1) day before the scheduled pre-bidding conference. For pre-registration, contact tel. no. (063) 223-4604, 224-5452, 224-5551 & 224-5553 (local-2544) or email *cmo_logistics_afd_mingen@napocor.gov.ph.*

6. Bids must be duly received by the BAC Secretariat through manual submission at the office address as indicated below, on or before ***July 31, 2025*** ***at 9:30 AM.*** Late bids shall not be accepted.

7. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 15.

8. Bid opening shall be on ***July 31, 2025*** ***at 9:30 AM*** at the *Bidding Room, NPC-Mindanao Generation Headquarters, Maria Cristina, Iligan City.* Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

9. *This project requires submission of at least:*

   - ***Certificate of Site Inspection***

   Note: Submission of bids shall be done manually

10. The *NATIONAL POWER CORPORATION– MINDANAO GENERATION* reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised Implementing Rules and Regulations (IRR) of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

BAC Secretariat
Contracts Management Office
Logistics Division
Mindanao Generation Headquarters
National Power Corporation
Maria Cristina, Iligan City
cmo_logistics_afd_mingen@napocor.gov.ph
Tel. No.: 063) 223-4604, 224-5452, 224-5551 & 224-5553 (local-2544)
www.napocor.gov.ph

12. You may visit the following websites:

For downloading of Bidding Documents: *https://www.philgeps.gov.ph/* or *https://www.napocor.gov.ph/BCSD/bids.php*

R.T. CIRUELA
Chairman, Bids and Awards Committee
Mingen HQ, Agus 6&7 and Pulangi IV, HPPs

Date of PhilGEPS Publication: ***11 July 2025***

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, ***NATIONAL POWER CORPORATION–MINDANAO GENERATION*** invites Bids for the ***A6GS O/M Building Primary Wall and Steel Barrier at Agus 6 HPP, Fuentes, Barangay Maria Cristina, Iligan City, with Project Identification Number/PR No. MG-A7M25-020 /Ref. No. INFRA2025-AG6-005.***

The Procurement Project (referred to herein as "Project") is for the construction of Works, as described in Section VI (Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for CY 2025 in the amount of ***Six Million Pesos (PHP6,000,000.00)***

2.2. The source of funding is:

a. GOCC and GFIs, the approved Corporate Operating Budget.

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manual and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or invitation to bid by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have inspected the site, determined the general characteristics of the contracted Works and the conditions for this Project, such as the location and the nature of the work; (b) climatic conditions; (c) transportation facilities; (c) nature and condition of the terrain, geological conditions at the site communication facilities, requirements, location and availability of construction aggregates and other materials, labor, water, electric power and access roads; and (d) other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, Coercive, and Obstructive Practices

The Procuring Entity, as well as the Bidders and Contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex "I" of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

5.2. The Bidder must have an experience of having completed a Single Largest Completed Contract (SLCC) that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC adjusted, if necessary, by the Bidder to current prices using the PSA's CPI, except under conditions provided for in Section 23.4.2.4 of the 2016 revised IRR of RA No. 9184.

A contract is considered to be "similar" to the contract to be bid if it has the major categories of work stated in the **BDS**.

5.3. For Foreign-funded Procurement, the Procuring Entity and the foreign government/foreign or international financing institution may agree on another track record requirement, as specified in the Bidding Document prepared for this purpose.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184.

6. Origin of Associated Goods

There is no restriction on the origin of Goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN.

7. Subcontracts

7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than fifty percent (50%) of the Project.

The Procuring Entity has prescribed that:

a. Subcontracting is not allowed.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address **and/or through videoconferencing/webcasting** as indicated in paragraph 6 of the IB.

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents Comprising the Bid: Eligibility and Technical Components

10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents.**

10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

10.3. A valid PCAB License is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.

10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.

10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS**.

11. Documents Comprising the Bid: Financial Component

11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.

11.2. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

11.3. For Foreign-funded procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Alternative Bids

Bidders shall submit offers that comply with the requirements of the Bidding Documents, including the basic technical design as indicated in the drawings and specifications. Unless there is a value engineering clause in the **BDS**, alternative Bids shall not be accepted.

13. Bid Prices

All bid prices for the given scope of work in the Project as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as determined by the NEDA and approved by the GPPB pursuant to the revised Guidelines for Contract Price Escalation guidelines.

14. Bid and Payment Currencies

14.1. Bid prices may be quoted in the local currency or tradable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

14.2. *Payment of the contract price shall be made in:*

a. Philippine Pesos.

15. Bid Security

15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

15.2. The Bid and bid security shall be valid until ***One Hundred Twenty (120) Calendar Days from the Scheduled Bid Opening.*** Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission to the given website or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

17. Deadline for Submission of Bids

The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the IB.

18. Opening and Preliminary Examination of Bids

18.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

18.2. The preliminary examination of Bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*" using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the lowest calculated cost to the Procuring Entity. Bid Security as required by ITB Clause 16 shall be submitted for each contract (lot) separately.

19.3. In all cases, the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184 must be sufficient for the total of the ABCs for all the lots participated in by the prospective Bidder.

20. Post Qualification

Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS), and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Bid Data Sheet

ITB Clause			
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be: **Construction of Slope Protection**		
7.1	Subcontracting is not allowed.		
10.3	None		
10.4	The key personnel must meet the required minimum years of experience set below:		
	Key Personnel	**General Expertise**	**Relevant Experience**
	1 – Project Engineer	Licensed Civil Engineer	At least five (5) years' experience in related works
	1 - Construction Foreman	B.S. Civil Engineering Graduate	At least three (3) years' experience in similar works
		Civil Engineering Technology Graduate	At least five (5) years' experience in similar works
		Non-graduate	At least five (5) years working experience as Construction Foreman in similar works
	1 - Construction Safety and Health Officer (SO2)	Construction Safety Officer 2	At least forty (40) hours of Construction Safety and Health (COSH) Training from Occupational Safety and Health Center (OSHC) or Safety Training Organizations (STOs) accredited by the Department of Labor and Employment (DOLE). Must be present during the whole duration of the project). At least three (3) years experience as Safety Officer.

<table>
<tr><td></td><td>The following key personnel information indicated above must be included in Standard Form NPCMGNSF-INFR-05: List of Key personnel proposed to be assigned to the Contract. Filled up Standard Form NPCMGNSF-INFR-05 must be included in the technical component envelope.

Project Engineer or Foreman and Construction Safety & Health Officer maybe one person, as long as he meets the requirements of the two positions. Provided however, that there is no overlapping of projects undertaken by the same contractor and supervised by the same person.

The above key personnel must be either employed by the applicant or contracted by the applicant to be employed for the contract to be bid.</td></tr>
<tr><td>10.5</td><td>The minimum equipment requirements are the following:

<table><tr><th>Equipment</th><th>Capacity</th><th>Number of Units/Assembly</th></tr><tr><td>Hydraulic Rock Splitter</td><td>Min. 200 Tons splitting force</td><td>One (1)</td></tr><tr><td>Jack/Demolition Hammer</td><td>Min. 1500W</td><td>One (1)</td></tr><tr><td>Dump Truck</td><td>10 cu.m.</td><td>One (1)</td></tr><tr><td>Back Hoe</td><td>0.8 cu.m.</td><td>One (1)</td></tr><tr><td>Transit Mixer</td><td>10 cu.m</td><td>One (1)</td></tr><tr><td>Pumpcrete</td><td>20 cu.m/hr</td><td>One (1)</td></tr><tr><td>Concrete Vibrator with hose/ flexible shaft</td><td>5 HP</td><td>One (1)</td></tr></table></td></tr>
<tr><td>12</td><td>N/A</td></tr>
<tr><td>15.1</td><td>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:
a. The amount of not less than One Hundred Twenty Pesos Only (PHP120,000.00) (2% of ABC), if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;
b. The amount of not less than Three Hundred Thousand Nine Pesos Only (PHP300,000.00) (5% of ABC), if bid security is in Surety Bond.</td></tr>
<tr><td>19.2</td><td>Partial bids are not allowed.</td></tr>
<tr><td>20</td><td>Additional documents to be submitted during post-qualification:

1. Other appropriate licenses and permits required by law and stated in the Bidding documents.
a. Original Bank Statement year ending prior to bid opening;</td></tr>
</table>

	b. *Valid and updated PhilGEPS Registration (Platinum Membership) (all pages);* c. *Registration Certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document;* d. *Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;* e. *Valid Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR). Quarterly Income Tax Returns filed and paid through the BIR Electronic Filing and Payment System (eFPS);* f. *The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission;* g. *Philippine Contractors Accreditation Board (PCAB) License;* h. *Board of Accountancy (BOA) Certificate;* 2. *Contract and/or Notice of Award as supporting documents for NPC MinGen Form No. NPCMGNSF-INFR-01, if applicable;* 3. *(a) Valid Professional Regulation Commission (PRC) license for professional personnel; (b) Certificate of Training with accreditation from DOLE for the Construction Safety & Health Officer and (c) Diploma and/or Service Record/Certificate of Employment of previous and/or current employer for Construction Foreman;National Certificate II and Certificate of Employment of previous and/or current employer for other skilled workers required in the project - as supporting documents for NPC MinGen Form No. NPCMGNSF-INFR-05, if applicable.* 4. *Certificate of good performance and/or Statement of Work Accomplishment showing Target and Actual Accomplishments issued by the End-user/Implementing Agency of the ongoing projects listed in NPC MinGen Form No. NPCMGNSF-INFR-05, if applicable* 5. *Certificate of Site Inspection issued by Department Manager or his authorized representative.* 6. *Unamended product brochure/literature of the following materials:* • *None*
21	Additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, prior to contract signing, such as: a) Approved construction schedule and S-curve

	b) Approved manpower schedule c) Construction methods d) Approved equipment utilization schedule e) Construction safety and health program approved by the DOLE f) Approved Project Evaluation Review Technique/Critical Path Method (PERT/CPM)

Section IV. General Conditions of Contract

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuance s, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

2. Sectional Completion of Works

If sectional completion is specified in the **Special Conditions of Contract (SCC)**, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date shall apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

3. Possession of Site

4.1. The Procuring Entity shall give possession of all or parts of the Site to the Contractor based on the schedule of delivery indicated in the **SCC**, which corresponds to the execution of the Works. If the Contractor suffers delay or incurs cost from failure on the part of the Procuring Entity to give possession in accordance with the terms of this clause, the Procuring Entity's Representative shall give the Contractor a Contract Time Extension and certify such sum as fair to cover the cost incurred, which sum shall be paid by Procuring Entity.

4.2. If possession of a portion is not given by the above date, the Procuring Entity will be deemed to have delayed the start of the relevant activities. The resulting adjustments in contract time to address such delay may be addressed through contract extension provided under Annex "E" of the 2016 revised IRR of RA No. 9184.

4. The Contractor's Obligations

The Contractor shall employ the key personnel named in the Schedule of Key Personnel indicating their designation, in accordance with **ITB** Clause 10.3 and specified in the **BDS**, to carry out the supervision of the Works.

The Procuring Entity will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are equal to or better than those of the personnel listed in the Schedule.

5. Performance Security

5.1. Within ten (10) calendar days from receipt of the Notice of Award from the Procuring Entity but in no case later than the signing of the contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR.

5.2. The Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to RA No. 3688 against any subcontractor be they an individual, firm, partnership, corporation, or association supplying the Contractor with labor, materials and/or equipment for the performance of this Contract.

6. Site Investigation Reports

The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the **SCC** supplemented by any information obtained by the Contractor.

7. Warranty

7.1. In case the Contractor fails to undertake the repair works under Section 62.2.2 of the 2016 revised IRR, the Procuring Entity shall forfeit its performance security, subject its property(ies) to attachment or garnishment proceedings, and perpetually disqualify it from participating in any public bidding. All payables of the GOP in his favor shall be offset to recover the costs.

7.2. The warranty against Structural Defects/Failures, except that occasioned on force majeure, shall cover the period from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity. Specific duration of the warranty is found in the **SCC**.

8. Liability of the Contractor

Subject to additional provisions, if any, set forth in the **SCC**, the Contractor's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Contractor is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

9. Termination for Other Causes

Contract termination shall be initiated in case it is determined *prima facie* by the Procuring Entity that the Contractor has engaged, before, or during the implementation of the contract, in unlawful deeds and behaviors relative to contract acquisition and implementation, such as, but not limited to corrupt, fraudulent, collusive, coercive, and obstructive practices as stated in **ITB** Clause 4.

10. Day works

Subject to the guidelines on Variation Order in Annex "E" of the 2016 revised IRR of RA No. 9184, and if applicable as indicated in the **SCC**, the Day works rates in the Contractor's Bid shall be used for small additional amounts of work only when the Procuring Entity's Representative has given written instructions in advance for additional work to be paid for in that way.

11. Program of Work

11.1. The Contractor shall submit to the Procuring Entity's Representative for approval the said Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works. The submissions of the Program of Work are indicated in the **SCC.**

11.2. The Contractor shall submit to the Procuring Entity's Representative for approval an updated Program of Work at intervals no longer than the period stated in the **SCC.** If the Contractor does not submit an updated Program of Work within this period, the Procuring Entity's Representative 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 of Work has been submitted.

12. Instructions, Inspections and Audits

The Contractor shall permit the GOP or the Procuring Entity to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors of the GOP or the Procuring Entity, as may be required.

13. Advance Payment

The Procuring Entity shall, upon a written request of the Contractor which shall be submitted as a Contract document, make an advance payment to the Contractor in an amount not exceeding fifteen percent (15%) of the total

contract price, to be made in lump sum, or at the most two installments according to a schedule specified in the **SCC**, subject to the requirements in Annex "E" of the 2016 revised IRR of RA No. 9184.

14. Progress Payments

The Contractor may submit a request for payment for Work accomplished. Such requests for payment shall be verified and certified by the Procuring Entity's Representative/Project Engineer. Except as otherwise stipulated in the **SCC**, materials and equipment delivered on the site but not completely put in place shall not be included for payment.

15. Operating and Maintenance Manuals

15.1. If required, the Contractor will provide "as built" Drawings and/or operating and maintenance manuals as specified in the **SCC.**

15.2. If the Contractor does not provide the Drawings and/or manuals by the dates stated above, or they do not receive the Procuring Entity's Representative's approval, the Procuring Entity's Representative may withhold the amount stated in the **SCC** from payments due to the Contractor.

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	
2	**Sectional completion is not specified.**
4.1	The **Procuring Entity** shall give possession of the Site to the Contractor *on* ***the start date***.
6	The site investigation reports are: **NONE**
7.2	**Fifteen (15) years**
10	Day works are not applicable to the contract.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative **upon contract signing** or within **three (3)** days of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is **Fifty (50) %** of the billed amount. The updating of Program of Work shall be done bi-monthly.
13	The amount of the advance payment is **15% of contract amount and paid in lump sum.**
14	No further instruction.
15.1	The date by which operating and maintenance manuals are required is **upon completion of the project**. The date by which "as built" drawings are required is **upon completion of the project.**
15.2	The amount to be withheld for failing to produce "as built" drawings and/or operating and maintenance manuals by the date required is **one hundred percent (100%) of the final billing.**

Section VI. Specifications

PROJECT HIGHLIGHTS

PH 1.0 GENERAL

A wall barrier safeguards A6GS O/M buildings from natural hazards like falling rocks and landslides. It shields the structure, protects personnel, safeguards critical equipment, minimizes environmental impact, and reduces long-term costs by preventing damage and ensuring operational resilience. This investment enhances the overall sustainability and reliability of the A6GS O/M buildings.

The Contractor shall furnish all labor, materials, equipment/tools and other incidental matters necessary to complete the works in accordance with the contracts and approved detailed engineering activities; and other existing laws, rules and regulations relative thereto.

PH 2.0 PROJECT LOCATION

The project is located at Fuentes, Brgy. Maria Cristina, Iligan City.

PH 3.0 SCOPE OF WORKS

The works and services to be performed by the Contractor for this undertaking shall essentially consist of, but not limited to the A6GS O/M Building Primary Wall & Steel Barrier at Fuentes, Brgy. Maria Cristina, Iligan City with the following scope of works:

1. Mobilization/establishment of Contractors complete construction camp and other facilities;
2. Construction Safety and Health Program (To provide safety signages and PPE's on the whole duration of the project. First aid kit must be present at the site and shall be turned-over to NPC after the completion of the project, if not used.)
3. Materials Strength and Testing
4. Earthworks
   4.1 Stripping of Soil, Removal of Construction & Disposal
   4.2 Excavation
   4.3 Gravel Bed
5. Reinforcement DSB Works, Grade 60
6. Concrete Works, 3000Psi
7. Demobilization and Clean-Up Works including clearing of site/demolition of Contractor's camp facilities.

PH 4.0 CONTRACT PERIOD

The contractor shall complete the works as specified in Clause 3 within **Eighty-Two (82) Calendar Days**. The total contract duration is inclusive of six (6) unworkable days considered unfavorable for the execution of work at site. The contract period shall be reckoned from the date of contract effectivity as specified in the Notice to Proceed.

PH 5.0 CONTRACTOR'S CLASSIFICATION

The Contractor must have a valid Philippine Contractors Accreditation Board (PCAB) license of at least **Category C or D General Engineering.** with inter-agency classification and registration of at least **Small B - Dam, Reservoir or Tunneling.**

The Contractor must have undertaken similar contracts that involves construction/rehabilitation/expansion of commercial, industrial or office building provided that the contract cost shall be at least equivalent to 50% of ABC.

TECHNICAL SPECIFICATIONS

CW - CIVIL WORKS

CW-1.0 GENERAL CONSTRUCTION FACILITIES

Scope

This section covers the A6GS O/M Building Primary Wall & Steel Barrier at Fuentes, Brgy. Maria Cristina, Iligan City and other appurtenant structures, moving-in of the Contractor's construction equipment, setting up of the Contractor's various facilities at the end of the Contract.

Moving-in

The Contractor shall bring to the site all his necessary construction equipment and plant and install all stationary construction equipment and plant at location and in the manner approved by NPC. The Contractor shall submit sufficient detailed plans showing the proposed location of such stationary equipment and plant and other pertinent data. No installation of such stationary equipment shall be undertaken unless the corresponding plans have been approved by NPC.

Contractor's Camp Facilities

The Contractor shall construct and maintain the service roads, and related work that may be necessary, to the various work area, and other areas such as access to the camps, stores, plants, disposal areas and other facilities related to the work.

The Contractor shall provide and grade his camp site, construct his camp, employee housing, warehouse, machines and repair shops, fuel storage tanks and provide such related facilities and sanitary conveniences that the Contractor deems necessary for maintaining health, peace and order in the camp and work areas. The areas that may be used by the Contractor within the plant site shall be designated by NPC.

The Contractor shall provide, maintain, and operate, under competent direction, such camps and facilities as are necessary for the housing, feeding and accommodation of his employees.

Water Supply

The Contractor shall, at his own expense, be responsible for the supply, installation, operation and maintenance of a safe and adequate supply of drinking and domestic water. Whenever there is a possibility of contamination of the water supply for drinking and domestic purposes, chlorination or some other approved methods of sterilization shall be carried out. The installation and maintenance of these services shall be subject to the approval NPC.

Sewerage Disposal and Sanitation

The Contractor shall, at his own expense, be responsible for the installation, operation and maintenance of an adequate sewerage disposal and sanitation system and shall

provide adequate toilet and wash-up facilities for his employees at his camp and in the areas where work is being carried out. The Contractor shall execute the work with due regard to adequate sanitary provisions and applicable codes and shall take all necessary steps to prevent the pollution of water in any spring, river, or other sources of water supply. All toilets or wash-up facilities shall be subject to the prior and continuing approval of NPC.

Fire Protection

The Contractor shall observe all necessary precautions against fire shall provide and maintain at his own expense, portable firefighting equipment he may deem necessary, and shall comply with all applicable laws of the Philippines relating thereto.

In the event of an uncontrollable fire occurring in the area of the Contractor's operation, the Contractor shall have to extinguish the fire immediately at his own expense, to the full extent of the manpower and equipment employed under the contract at the time of the fire.

The Contractor shall indemnify NPC against all liabilities, claims, damages and/or lawsuits arising thereto.

Construction Power

The Contractor shall be responsible for providing his own electric power supply required for construction and erection/installation. If power is available from NPC and should the contractor elect to utilize the NPC's power supply, he shall make an arrangement with NPC concerned group as to the billing rates and other requirements needed for direct connection to NPC.

Camp Security
The Contractor shall provide his own security force to the extent that he deems necessary for maintaining peace and order in the camp and work areas and to safeguard materials and equipment. Nothing under the provisions of this paragraph shall relieve the Contractor from full responsibility for the maintenance of peace and order and protection of life and property in all areas where he operates.

Construction Material Storage
The Contractor is required to put up cement warehouse (s) with capacities sufficient to store construction materials required in the work. The warehouse (s) shall be specifically for this contract notwithstanding his other facilities in the site that may serve the purpose.

Removal of Camp and Construction Facilities
After the completion of the work covered by the contract and prior to acceptance of the completed work, the entire camp facilities of the Contractor, including its water supply systems, electric distribution system, quarters, warehouses, shops, dining halls, commissaries, temporary shed and other facilities therein shall be removed by the Contractor. The site shall cleared and cleaned as directed by NPC.

CW 1.2 MATERIALS

CW 1.3 WORKMANSHIP

The Contractor shall bring to the site all his necessary construction equipment and plant and install all stationary construction equipment and plant at location and in the manner approved by NPC. The Contractor shall submit sufficient detailed plans showing the proposed location of such stationary equipment and plant and other pertinent data.

The Contractor shall provide and grade his camp site, construct his camp, employee housing, warehouse and provide such related facilities and sanitary conveniences that the Contractor deems necessary for maintaining health, peace and order in the camp and work areas. The areas that may be used by the Contractor within the construction site shall be designated by NPC.

CW 1.4 MEASUREMENT AND PAYMENT

Work prescribed herein shall not be measured and paid separately; same shall be deemed to be included in pay items for other items for work.

CW-2.0 CONSTRUCTION SAFETY & HEALTH PROGRAM

Scope
This section pertains to the environment and safety provisions, requirements and conditions that shall govern during the execution of all civil works under this project.

General Conditions
The Contractor shall ensure compliance with the applicable environmental and safety regulations, as well as ECC conditions, during installation/construction of this project through the implementation of measures that include, but not limited to the following:

a. Designate a Safety Officer and a Pollution Control Officer who shall respectively handle all safety and environmental concerns of the project.
b. Prepare and submit Construction Safety Health Plan (CSHP)
c. Properly manage debris and various waste generated during installation/construction, such as the following:
    - Dispose of demolition and construction debris in a designated or NPC approved disposal area(s);
    - Stockpile (and cover if possible) or haul to the designated and/or pre developed dump sites that shall be provided with suitable drainage-equipped with sediments traps, stripped top soil, spoils from quarry/borrow sites and excavated materials
    - Segregate solid wastes, such as empty cement sacks, scraps of tin or wood, used wires and other domestic garbage for recycling or storage in NPC-approved temporary storage areas and further disposal to LGU-designated disposal sites.
    - Properly handle, store and dispose off, through DENR-accredited transporter/treater, hazardous waste i.e. used oils, paints, thinner and etc.
d. Limit construction activities that generate excessive, grading and excavation during dry weather.

e. As far as practicable, undertake site stripping, grading and excavation during dry weather.
f. Construction/Installation shall be carried out in a manner where landslides and erosions are minimized.
g. Avoid unnecessary opening/clearing of areas outside construction sites or destruction of vegetable cover especially cutting of existing trees; and to re-vegetate disturbed areas.
h. Spray water, whenever and wherever necessary, to minimize dust generation.
i. Provide PPE's and other safety provisions required by DOLE, for its project/site works.
j.

Measurement and Payment

Measurement and payment shall be made at the contract unit price or lot price as specified in the Bid Price Schedule. Payment shall include all cost in furnishing labor, materials, tool equipment and other incidentals necessary for the satisfactory completion of the project.

CW 3.0 MATERIAL STRENGTH &TESTING

CW 3.1 SAMPLING AND TESTING OF CONCRETE

The Contractor shall furnish all materials, either separately or mixed, as required by NPC. Selection of materials and the making of test specimens shall be made under the supervision of NPC and delivered to NPC laboratory or any NPC accredited testing at the Contractor's expense.

The expense of making and curing all concrete specimens including the materials comprising the concrete specimens shall be borne by the Contractor. The cost of shipping and testing the concrete shall likewise be at the expense of the Contractor.

No concreting work on the project will be permitted to be done until NPC signifies in writing that, following the performance of the necessary tests, he gives his approval to the use of all materials involve in making the concrete.

Test cylinders shall be prepared from the concrete samples and tested. At least one set of (4) four cylinder samples shall be made for each major structural member.Two (2) cylinders shall be tested at 28 days for specification compliance and one shall be tested at 7 and 14 days respectively for information. The acceptance test result shall be the average of the strength of the two cylinders tested for 28 days.

The compressive strength of the concrete shall be deemed acceptable if the average of the three consecutive strength test results is equal to or exceeds the specified strength and no individual test falls below the specified strength by more than 3.50 MPa.

Concrete deemed to be not acceptable using the above criteria maybe rejected unless the Contractor can provide evidence, by means of core tests, that the quality of concrete represented by the failed test result is acceptable in place. Three (3) cores shall be taken in accordance with ASTM C42 and soaked for 24 hours prior to testing. Concrete in the area represented by the cores will be deemed acceptable if the average strength of the cores is equal to at least 85% of and no single core is less than 75% of the specified strength.

CW 4.0 EARTHWORKS

CW 4.1 EXCAVATION

CW 4.1.1 GENERAL SCOPE

This item shall consist of excavation and the disposal of material in accordance with the Specification and in conformity with the lines, grades and dimensions shown on the Plans or established by the NPC Engineer.

CW 4.1.2 MATERIALS

CW 4.1.3 WORKMANSHIP

All excavations shall be finished to reasonably smooth and uniform surfaces. No materials shall be wasted without authority of the NPC Engineer. Excavation operations shall be conducted so that material outside of the limits of slopes will not be disturbed.

All suitable materials removed from the excavation shall be used in the formation of the embankment, subgrade, shoulders, slopes, bedding, and backfill for structures, and for other purposes shown on the Plans or as directed.

Only approved materials shall be used in the construction of embankments and backfills.

All excess materials, including rock and boulders that cannot be used in embankments shall be disposed off as directed.

CW 4.1.4 MEASUREMENT AND PAYMENT

Unit of measure shall be the net volume in its original position.

The accepted quantities shall be paid for at the contract unit price included in the Bill of Quantities which price and payment shall be full compensation for the removal and disposal of excavated materials including all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this Item.

CW 4.2 BACKFILLING

CW 4.2.1 GENERAL SCOPE

This item shall consist of furnishing, placing and compacting boulders on top of existing soft seabed material encountered and found unsuitable for foundation of the wharf which shall be constructed in accordance with the Plans.

CW 4.2.2 MATERIALS

All rocks (Class I & II) to be used shall be hard durable, and not likely to disintegrate in sea/lake water. Rocks shall weigh not less than 1,900 kilograms per cubic meter (specific gravity – 1.9) or approximately 19.05 kilo-Newton (kN) per cubic meter of solid materials. Rocks shall be angular. Sub-angular rocks may be used subject to

the approval of the NPC Engineer. Rounded or well-rounded rocks will not be accepted.

Concrete filler for the purpose of preventing escape of fill material, shall be class "B" concrete plus 10% additional cement.

CW 4.2.3 WORKMANSHIP

The larger pieces of facing rock (Class I & II) shall be laid carefully along the toe with allowance being made for possible settlement. These rows of large rocks shall be extended to maintain slightly in advance of the completed portion of work. The larger pieces of rock shall be place on the outer slope of the concrete and they shall be laid so their longest dimension will be approximately normal to the plane of the face of the slope as indicated in the plans.

The work shall be done in skill-full manner, which implies careful selection of rocks to fit properly together so that the finished surface shall be even and tight.

CW 4.2.4 MEASUREMENT AND PAYMENT

Backfilling will be measured by cubic meter (cu.m.). The quantity to be paid for shall be the design volume compacted in-place as shown on the Plans and accepted in the completed course.

The accepted quantities shall be paid for at the contract unit price for Backfilling which price and payment shall be full compensation for furnishings and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

CW 5.0 REINFORCEMENT DSB WORKS

CW 5.1 GENERAL SCOPE

This item shall consist of furnishing, bending, fabricating and placing of steel reinforcement of the type, size, shape and grade required in accordance with this Specification and in conformity with the requirements shown on the Plans or as directed by the NPC Engineer.

CW 5.2 MATERIALS

Reinforcing steel shall conform when tested to the requirements of the following Specifications:

Deformed Billet-Steel Bars for Concrete Reinforcement	AASHTO M 31 (ASTM A 615/PNS 49)
Deformed Steel Wire for Concrete Reinforcement	AASHTO M 225 (ASTM A 496)
Welded Steel Wire Fabric for Concrete Reinforcement	AASHTO M 55 (ASTM A 185)
Cold-Drawn Steel Wire for Concrete Reinforcement	AASHTO M 32 (ASTM A 82)
Fabricated Steel Bar or Rod Mats	AASHTO M 54 (ASTM A 184)

for Concrete Reinforcement	
Welded Deformed Steel Wire Fabric of Concrete Reinforcement	AASHTO M 221 (ASTM A 497)
Plastic Coated Dowel Bars	AASHTO M 254 Type A
Low Alloy Steel Deformed Bars for Concrete Reinforcement	ASTM A 206

Bar reinforcement for concrete structures, except No. 2 bars shall be deformed in accordance with AASHTO M 42, M 31 and M 53 for Nos. 3 to 11.

Dowel and tie bars shall conform to the requirements of AASHTO M 31 (ASTM A 615/PNS 49) or AASHTO M 42 except that rail steel shall not be used for tie bars that are to be bent and restraighten during construction. Tie bars shall be deformed bars. Dowel bars shall be plain round bars. They shall be free from burring or other deformation restricting slippage in the concrete. Before delivery to the site of the work, a minimum of one half (1/2) the length of each dowel bar shall be painted with one coat of approved lead or tar paint.

The sleeves for dowel bars shall be metal of an approved design to cover 50 mm, plus or minus 6.3 mm of the dowel, with a closed end, and with a suitable stop to hold the end of the sleeve at least 25 mm from the end of the dowel bar. Sleeves shall be of such design that they do not collapse during construction.

Plastic coated dowel bar conforming to AASHTO M 254 may be used.

CW 5.3 WORKMANSHIP

All steel reinforcement shall be accurately placed in the position shown on the Plans or as required by the NPC Engineer and firmly held there during the placing and setting of the concrete. Bars shall be tied at all intersections except where 238 spacing is less than 300 mm in each direction, in which case, alternate intersections shall be tied. Ties shall be fastened on the inside.

Steel reinforcement shall be stored above the surface of the ground upon platforms, skids, or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the work, reinforcement shall be free from dirt, detrimental rust, loose scale, paint, grease, oil, or other foreign materials. Reinforcement shall be free from injurious defects such as cracks and laminations.

All reinforcement shall be furnished in the full lengths indicated on the Plans. Splicing of bars, except were shown on the Plans, will not be permitted without the written approval of the Engineer. Splices shall be staggered as far as possible and with a minimum separation of not less than 40 bar diameters. Not more than one-third of the bars may be spliced in the same cross-section, except were shown on the Plans.

CW 5.4 MEASUREMENT AND PAYMENT

The quantity of concrete to be paid shall be the quantity shown in the Bid Schedule in kilogram.

The accepted quantity, measured as prescribed in the Bid Schedule, shall be paid for at the contract unit price for Reinforcing Steel which price and payment shall be

full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

CW 6.0 CONCRETE WORKS

SCOPE

This Section covers all the materials as cement, aggregates, water, admixtures and proportioning, mixing, transporting, placing, finishing, curing and protecting of concrete, including supplies, equipment, tools and all other incidentals necessary for concrete works. All the applicable provisions of the latest revision of the ACI Building Code (ACI-318-63) and American Society for Testing Materials (ASTM) shall govern in all cases not specifically provided for herein.

CONCRETE COMPOSITION

Concrete shall be composed of Portland cement, fine and coarse aggregates, water, and if necessary, admixtures or agents approved by NPC. The design of concrete mixtures and consistency shall be as specified in this Section.

CEMENT

General

The cement shall conform to the requirements of the standard specifications for Portland Cement (ASTM: C-150 Type 2). Special Cement may be used subject to the approval of the Engineer provided it meets the requirements of Portland Cement with regards to strength, soundness and setting time.

Storage

Contractor shall, immediately upon delivery of cement to the jobsite, store the same in a dry, weathertight and properly ventilated structure with adequate provisions for the prevention of absorption of moisture. All storage facilities shall be subject to the approval of the Engineer and shall be such as to permit easy access for the inspection and identification. In order that cement may not become unduly aged after delivery, the Contractor shall use any cement of the same type, which has been stored at the site for 60 days or more before using cement of lesser storage age. Any cement stored at the project site over four months shall not be used unless retest proves it to be satisfactory. Sacked cement shall not be stocked higher than 14 sacks for storage for a period of no longer than 30 days and not higher than seven sacks for longer period.

ADMIXTURES

In order to reduce the cement content and/or the amount of mixing water, and to improve the concrete workability, the Contractor may be allowed to use Admixtures and as such he shall submit to CDD (Implementor) for approval such Admixture he proposes to use. The Contractor shall be required to submit manufacturer's brochures and data sheets for review together with detailed proposals on how the admixtures will be used in the works. This information should be supported with mix

designs and the results of trial mixes. All admixtures shall be used strictly in accordance with the manufacturer's recommendations. However, no additional payment will be made by NPC to the Contractor in view of this as the cost thereof is considered included in the contract unit price for the different classes of concrete.

The following type of admixtures will be given consideration by the NPC provided that they conform to the provisions of this Paragraph:

1. Air entraining agent
2. Water reducing admixtures
3. Water reducing and retarding admixtures
4. Water reducing and accelerating admixtures

Admixtures shall be furnished in a powder or liquid form. If furnished in a solution it shall contain at least 50% solids and a mold inhibitor. The admixtures effect on the properties of Portland cement concrete mixtures shall meet the requirements of ASTM: C-494.

Admixtures will be accepted on manufacturers certification of conformance with the specifications but permission to slip on certification shall in no way relieve the Contractor of responsibility for furnishing an admixture not meeting specification requirements. Where the NPC Engineer has reason to believe that testing is necessary to prove compliance with the requirements of these specifications, it may order these admixtures to be sampled and tested anytime. The Contractor shall provide facilities satisfactory to the NPC Engineer for readily procuring samples for test.

Air Entraining Agent. Concrete produced with water reducing agents shall contain four to six per cent of air entraining agent by volume. The air entraining agent shall conform to the requirements of ASTM: C 260, and shall be tested in accordance with ASTM: C 233. The total calculated air content of the concrete as discharged from the mixer shall be as follows:

Coarse Aggregates Maximum Size	Total Air % by the Volume of Concrete
2 cm	5+1
3.8 cm	4+1

The agent in solution shall be maintained at uniform strength and shall be added to the batch in a portion of the mixing water. This solution shall be batched by means of a mechanical batcher capable of accurate measurement. When a retarder dispersing agent is used in the concrete, the portion of the mixing water containing the air-entraining agent shall be introduced separately into the mixer.

Water Reducing Agent or Water Reducing and Set Retarding Agent. The Contractor may be allowed to use an approved water reducing agent, or water-reducing and set retarding agent in concrete. The ASTM designations for these admixtures are Type A and Type D, respectively. The agent used shall be either suitable calcium, sodium or ammonium salts of lignosulfonic acids or of the nonlignin, hydroxylated carboxylic

and acid groups. The agent shall be of uniform consistency and quality within each container and from shipment to shipment.

The amount of water reducing, or water reducing and set retarding agent to be used in each concrete mix shall in general be within the following limits:

Lignosulfonic Acid Type - 0.27 to 0.37 percent of solid rystalline ligning, by weight, of cement.

Hydroxylated Carboxylic Acid Type - 0.25 to 0.50 percent of liquid, by weight of cement.

Water Reducing and Accelerating Admixture. The ASTM designation for this admixture is Type E. Water reducing and accelerating admixture may be used by the Contractor for speeding up precasting and posttensioning operations for precast and prestressed beams, girders, slabs and bearing pads, if approved.

WATER

The water used in concrete, mortar and grout shall be free from objectionable quantities of silt, organic matter, alkali, salts and other impurities. The recommendation of the seventh edition of the U.S. Bureau of Reclamation Concrete Manual for mixing water shall be followed.

FINE AGGREGATES

a. General

The term "Fine Aggregates" is used to designate aggregates in which the maximum size of particles is 5 millimeters. Fine aggregates for concrete, mortar and grout shall be provided by the Contractor and shall consist of natural sand, manufactured sand, or a combination of both. The different components shall be batched separately, or subject to the written approval of the Engineer, or blended prior to delivery to the batching plant.

As a means of providing moisture control, the Contractor may be required to stockpile the fine aggregates over porous storage to drain excessive water and to stabilize moisture content.

b. Quality

Fine aggregates shall conform to the requirements of ASTM C-33 and shall consist of hard, tough, durable, uncoated rock particles. The Contractor shall exercise every possible precaution in transporting, washing and screening operations to prevent contamination of sand particles. Fine aggregates shall conform to the following requirements:

1. Grading -It is assumed that the sand available in natural deposits will require processing to provide a suitable gradation. Regardless of the source, the fine aggregates shall be well graded from fine to coarse and the gradation as delivered to the mixers shall conform to the following requirements unless otherwise approved:

Sieve Designation Standard Square Passing Mesh	Percent by Weight Passing Individual Sizes
3/8"(9.50mm)	100
No. 4 (4.75mm)	95-100
No. 8 (2.36mm)	85-95
No. 16 (1.18mm)	60-85
No. 30 (600um)	25-60
No. 50 (300 um)	10-30
No. 100 (150um)	2-10

In addition to the grading limits shown above, the fine aggregates as delivered to the mixer shall have the fineness modulus of not less than 2.30 or more than 3.00. The grading of the fine aggregates also shall be controlled so that the fineness moduli of at least 9 to 10 test samples of the fine aggregates as delivered to the mixer shall not vary more than 0.10 from the average fineness modulus of all samples previously taken. The fineness modulus shall be determined by dividing by 100, the sum of the cumulative percentages retained on US standard sieves No. 4, 8, 16, 30, 50 and 100. At the option of the Contractor fine aggregates may be separated into two or more sizes or classifications, but the resulting sand when combined before entering the concrete mixer shall be of uniform grading within the limits specified above.

2. Particle Shape. The shape of the particles shall be generally spherical or cubical and reasonably free from flat or elongated particles. A flat or elongated particle is defined as a particle having a maximum dimension in excess of five times the minimum dimension. Rocks which breaks down into such shape, regardless of the type of processing equipment used, will not be approved for use in the production of fine aggregates. 3.

3. Deleterious Substances. the maximum percentages of deleterious substances in the fine aggregates as delivered to the mixer shall not exceed the following values:

	Percent by Weight
Materials passing no. 200	3
Screen (Designation 16)*	
Shale (Designation 17)	1
Clay (designation 13)	1
Total of other deleterious substances (such as alkali, mica, soft, flaky particles and loam)	2

*The designation in parenthesis refers to methods of testing described in the seventh (7th) edition of the US Bureau of Reclamation Concrete Manual and ASTM.

The sum of the percentages of all deleterious substances shall not exceed 5% by weight. Fine aggregates producing a color darker than the standard in the colometric test for organic impurity (USBR designation 14 or ASTM C-

40) may be rejected. Fine aggregate having specific gravity (USBR Designation 9 or ASTM C-128, saturated surface dry basis) of less than 2.60 may be rejected. The fine aggregate may be rejected if the portion retained on No. 50 (300 um) screen, when subjected to five cycles of sodium sulphate test for soundness (USBR designation 19 or ASTM C-88) shows an average loss of more than 18% by weight. Fine aggregates delivered to the batching plant may be rejected if it contains more than 0.10% soluble sulphate for any one sample or more than 0.10 for an average of at least 9 out of 10 consecutive test samples of finished sand, when samples are taken hourly. The percent soluble sulphate in fine aggregates shall be determined in accordance with the method of test prescribed in subparagraph 4. below.

4. Sampling - Sampling of fine and coarse aggregates shall be done in accordance with paragraph 1509. The source from which fine and coarse aggregates is to be obtained shall be selected well in advance of the time when the materials will be required in the work. Unless otherwise specified, all test samples shall be taken under the supervision of the Engineer in sufficient time as approved to permit adequate testing and examination of results sufficiently in advance of the time for use in concrete. Routine control test and analysis of the fine and coarse aggregates at various stages in the processing operation shall be made. The approval of a source shall not be construed as containing approval of all materials from the source, and the Contractor will be held responsible for the specified quality of all such materials used in the work.

c. Storage
Fine aggregates shall be stored in such a manner as to avoid the inclusion of any foreign materials in the concrete. The storage or stockpile shall be constructed so as to prevent segregation. Depositing of materials in storage and its removal therefrom shall be done in such a manner as to result in increasing the uniformity of the grading insofar as this is practicable. All fine aggregates shall remain in free drainage storage for at least seventy-two (72) hours prior to use. Sufficient live storage shall be maintained at all times to permit continuous placement of concrete.

d. Measurement and Payment –
Fine aggregates will not be measured for payment. The cost of excavation, stockpiling, transporting, processing, blending, handling and other costs for providing fine aggregates shall be considered included in the unit price bid for the various items in the Bill of Quantities for which fine aggregates are used.

COARSE AGGREGATES

a. General

The term "Coarse Aggregate" is used to designate aggregates of such sizes as to fall within the range of 0.5 cm. to 7.5 cm or any size or range of sizes within such limits. The coarse aggregates shall be reasonably well graded within the nominal size ranges hereinafter specified. Coarse aggregate for concrete shall be furnished by the Contractor and shall consists of crushed rock or mixture of natural gravel and crushed rock as provided in paragraph 1508. Coarse

aggregate, as delivered to the batching plant shall have a uniform and stable moisture content. Any rewashing found necessary to provide clean aggregates shall be done prior to finish screening. Rewashing shall not be performed in finish screen.

b. Quality - Coarse aggregates shall conform to the requirement of ASTM C-33 and shall consist of hard, dense, uncoated durable rock fragments.

1. Grading - The coarse aggregates shall be well graded from fine to coarse. It shall be separated into the following specific size groups. The grading of the aggregates within the separated size groups as delivered to the mixer shall be as follows:

S I Z E G R O U P S

Sieve Sizes		Per Cent by Weight Passing Individual Sizes				
US Std. Sq. Mesh		12.5 mm	19 mm	37.5mm	50mm	75mm
6"	(150 mm)	-		-	-	-
3"	(75mm)	-		-	-	100
2-1/2"	(63 mm)	-		-	100	90-100
2"	(50 mm)	-		100	95-100	35-70
1-1/2"	(37.5mm)	-		90-100	-	0-15
1"	(25 mm)	-	100	20-55	35-7	-
3/4"	(19 mm)	100	90-100	0-15	-	0-5
1/2"	(12.5mm)	90-100	-	-	10-30	-
3/8"	(9.5 mm)	40-70	20-55	0-5	-	-
No. 4	(4.75mm)	0-15	0-10	-	0-5	

Coarse aggregates shall contain not more than 1.5 per cent of materials passing the No. 200 sieve by meshing, nor more than 5% of soft fragments.

It shall have an abrasion loss of not more than 45 per cent at 500 revolutions.

Unless otherwise directed, the maximum sizes of aggregates to be used in concrete for the various parts of the work shall be in accordance with the following:

General Use	Maximum Aggregate Diameter
Lean Concrete to control water Intrusion and other miscellaneous uses	37.5 mm
Concrete for Footings, Walls, Slabs, Beams, 0.22 to 0.75 meters thick	37.5 mm
Concrete for thin walls, slabs, beams, less than 0.22 meters thick	19 mm

Concrete for Reinforced Concrete Pipes	12.5 mm

In all cases, the diameter of the aggregate shall not exceed 1/2 the distance between the reinforcing steel bars of the members being placed.

2. Particle Shape - The particle shape of the crushed coarse aggregate shall be generally spherical or cubical and reasonably free from flat or elongated particles. A flat or elongated particle is defined as a particle having a maximum dimension in excess of five times the minimum dimensions. Rocks which breaks down into such shape will not be approved for the production of aggregate.

3. Deleterious Substances - The deleterious substances in any size of coarse aggregate, as delivered to the mixer, shall not exceed the following values:

	Percent by Weight
Materials passing no. 200 Screen (Designation 16)*	1/2
Shale (Designation 18)	1
Clay Lumps (designation 13)	1/2
Other deleterious substances	1

*The designations in parenthesis refers to methods of Testing described in the seventh edition of the U.S. Bureau of Reclamation Concrete Manual and ASTM.

The sum of the percentages of all deleterious substances in any size, as delivered to the mixer, shall not exceed 3% by weight. Coarse aggregate may be rejected if it fails to meet the following requirements:

1) Petrographic Examination - If more than 10% of poor aggregate particles can be identified in physical quality test and in case 20% of the particles would be classified with respect to the chemical quality (USBR Desig. 7 or ASTM C-295).

2) Sodium-sulphate Test for soundness (USBR Desig. 9 or ASTM C-88)- If the weighted average loss, after 5 cycles is more than 10% by weight.

3) Specific Gravity (USBR Desig. 10 or ASTM C-127) - If the specific gravity (saturated surface-dry basis) is less than 2.60.

4) Sampling - All sampling of coarse aggregates shall be in accordance with Paragraph 1509. c)

c. Storage - Coarse aggregate storage or stockpiles shall be built in such a manner as to avoid the inclusion of any foreign materials in the concrete and to prevent segregation and excessive breakage. Water sprayers shall be installed to keep that portion of the coarse aggregate stockpiles saturated which is intended for immediate use in the concrete. Sufficient live storage shall be maintained at all times to permit continuous placement of concrete.

d. Measurement and Payment - Coarse aggregates will not be measured for payment. The cost of excavation, stockpiling, processing, blending, handling

and other cost for providing coarse aggregates shall be considered included in the unit price bid for the various items in the Bill of Quantities for which coarse aggregates are used.

PRODUCTION OF FINE AND COARSE AGGREGATES

a) **Source of Aggregates** - Fine and coarse aggregates for concrete, and fine aggregate for mortar and grout may be obtained by the Contractor from any approved source. Approval of deposit shall not be construed as constituting approval of all materials taken from the deposit, and the Contractor shall maintain the specified quality of all such materials used in concrete works. If the aggregates are to be obtained from deposits or quarry sources not previously tested and approved by NPC; Contractor shall submit, for preliminary test and approval, a representative, 90 kilograms (approximately 200 pounds) sample of the fine aggregate and of the 0.5 centimeters to 2 centimeter size of coarse aggregate and a 45 kilograms (approximately 100 pounds) sample of each of the other sizes of coarse aggregate proposed for use in the work, at least 90 days before the materials are required for use.

b) **Developing Aggregate Deposit.** The Contractor shall carefully clear the area, from which aggregates are to be taken, of trees, roots, brush, sod, soil, unsuitable sand and gravel or aggregates, and other objectionable matter. The portion of the deposit used shall be located and operated so as not to detract from the usefulness of the deposit or of any adjacent property and so as to preserve, insofar as practicable, the future usefulness or value of the deposit. Waste materials removed from aggregate borrow areas shall be disposed of in approved locations.

c) **Processing Raw Materials.** The Contractor shall employ processing equipment which will ensure wellshaped particle in all aggregate sizes and a minimum of particle which are flat or elongated. Processing of raw materials shall include screening, washing, and blending if necessary to produce fine and coarse aggregate meeting the requirements of Paragraphs 1506 and 1507. Processing of aggregates produced from any source shall be done at an approved site. Water used for washing aggregates shall conform to Paragraph 1505. To utilize the greatest practicable yield of suitable materials in the portion of the deposit being worked, the Contractor may crush oversize material and any excess materials of the size of coarse aggregate to be furnished, until the required quantity of each size has been secured, provided, that the crushed aggregates shall be blended uniformly with the uncrushed aggregates. Crushing and blending operations shall at all times be subject to approval by the NPC Engineer.

   Aggregates, as delivered to the mixers, shall consist of clean, hard and uncoated particles. When required, dust shall be removed from the coarse aggregate by adequate washing.

d) **Moisture Control.** The free moisture control of the fine aggregate and smallest size group of coarse aggregate as delivered to the mixers shall be controlled so as not to exceed the value of 6.0 and 1.5, respectively, expressed as a

percentage by weight of the saturated, surface dry aggregates. The percent variation of free moisture content in fine aggregate and the smallest size of coarse aggregate shall not exceed 0.5% and 2.0%, respectively, during any one hour of mixing plant operation. The free moisture of the other sizes of coarse aggregates shall be the least amount when delivered to mixers and variations shall be the least practicable under all job conditions. Sand shall have a uniform and stable moisture content. Under no conditions shall the other sizes of coarse aggregates be delivered to the mixing plant bins dripping wet. The Contractor may accomplish the required moisture control by use of free drainage storage, mechanical dewatering devices, or any other satisfactory means of dewatering.

AGGREGATE SAMPLING AND TESTING

Sampling of the aggregate materials approved for use in the work shall be done by the contractor in accordance with ASTM Sampling Method at 10 days in advance of the time when placing of concrete is expected to begin. Aggregate studies and tests will be made by the contractor at its own expense. It shall be the responsibility of the Contractor to designate the source(s) of aggregates early enough to give NPC sufficient time to obtain the necessary samples and have them subjected to tests.

The samples of aggregates shall be obtained and tested in accordance with the following ASTM standard methods:

Sampling aggregate - C 75
Sieve Analysis - C 136
Amount of material finer than 200 sieve - C 117
Organic Impurities - C 40
Mortar Strength - C 87
Soundness - C 88
Soft Particles - C 235
Abrasion - C 131
Clay lumps - C 142

No aggregate shall be used until official advice has been received that it has satisfactorily passed all tests, at which time written authority shall be given for its use. Material from source which has been previously tested and shown satisfactory compliance with all the requirements given herein may be used without further testing upon written permission of NPC. Test reports for previous tests must be available before approval can be given.

During construction, aggregates will be sampled as delivered to the mixer to determine compliance with specification provisions. Test shall be made in accordance with the applicable ASTM Standards. Routine control test and analysis of aggregates at various stages in processing, transporting, stockpiling, redraining, and batching, if used will be made by the contractor. The Contractor shall provide such facilities as may be considered necessary for the ready procurement of representative test samples. All test will be made by the contractor under the supervision of NPC.

CLASSIFICATION AND PROPORTIONING OF CONCRETE MIXTURES

a. **Classification and Design Mixtures.** The mixture for all classes of concrete shall be designed by the Contractor and approved by NIA to obtain the compressive strength at the age of 28 days as specified below:

Class	Min. Strength (kg/cm^2)	Max. Aggregate Size (mm)	Minimum Cement (kg/m^3)	Max. Water/ Cement Ratio
X	300	19	375	0.55
Y	210	12.5	350	0.60
AA	210	19	325	0.60
A	210	37.5	300	0.60
B	170	50	250	0.70
C	170	75	225	0.70
Z	140	75	200	0.85
Blinding (Concrete)	70	37.5	150	No limit

b. **Aggregate Content.** - Concrete mixtures shall be designed to use the largest size and the maximum amount of coarse aggregate as practicable for the intended use of the concrete.

c. **Consistency.** - The amount of water to be used in the concrete shall be regulated as required to secure concrete of the proper consistency and to adjust for any variation in the moisture content or grading of the aggregates as they enter the mixer.

It shall be such consistency that it will flow around reinforcing steel bar but individual particles of the coarse aggregate when isolated shall have coating of mortar containing its proportionate amount of sand. The consistency shall be gauged by the ability of the equipment to properly place it and not by the difficulty in mixing or transporting. Addition of water to compensate for stiffening of the concrete before placing will not be permitted. Uniformity in concrete consistency from batch to batch will be required.

The slump of the concrete at the time of placing shall not exceed 5 centimeters in heavy concrete sections and at top of walls, piers and parapets, 10 centimeters for pumped or air placed concrete, and 7.5 centimeters for concrete elsewhere.

The NPC Engineer reserves the right to require a lesser slump whenever concrete of lesser slump can be consolidated readily into place by means of the vibration specified.

d. Notwithstanding the approval by NPC of the design mixtures and the above specified minimum cement content for different classes or gradation of aggregates, the Contractor shall be responsible that all the concrete meet the desired strength.

MEASUREMENT OF MATERIALS

All materials from which the concrete will be manufactured shall be mechanically measured by weight, except as otherwise specified and/or authorized by the Engineer and admixture solutions which may be measured by volume.

Measuring devices shall be suitably designed and constructed for the purpose and shall be weighing separately the cement, fine and coarse aggregates. The accuracy of all weighing devices shall be such that successive quantities can be measured to one per cent of the desired weights. Cement in standard bags (40 kilograms) need not be weighed. The water measuring devices shall be of such type and make to be readily controlled to obtain an accuracy of one-half per cent of the desired quantity of water.

Whenever volumetric proportioning and measurement is permitted due to failure or malfunction of weighing devices the equivalent volumetric proportions of weighed representative samples of the concrete ingredients shall be computed taking into consideration bulking effect of cement and variations of moisture content of the aggregates.

When sack or bag cement is used, the quantities of aggregates for each batch shall be for one or more full sack of cement. No batch requiring a fractional sack of cement will be tolerated.

MIXING AND DELIVERY

Ready-mixed concrete shall be mixed and delivered to the point designated by the NPC Engineer by means of one of the following combination of operations:

- Mixed completely in a stationary mixer and the mixed concrete transported to the point of delivery in a truck mixer operating at agitator speed or in non-agitating equipment when approved by the NPC Engineer. (Known as central-mixed concrete).
- Mixed completely in a truck mixer at the batching point or while in transit. (Known as transit-mixed concrete).
- Mixed completely in a truck mixer at the point of delivery following the addition of mixing water. (Known as truck-mixed concrete).

Truck mixers and truck agitators shall be operated within a capacity not to exceed 63 or 80 percent, respectively of the gross volume of the drum and at a speed of rotation for mixing or agitating as designated by the manufacturer of the equipment. A truck mixer or truck agitator used for transporting concrete that has been completely mixed in a stationary mixer shall be operated within the limits of capacity and speed of rotation designated by the manufacturer for agitating, except that the agitator capacity shall in no event exceed 80 percent of gross drum volume.

When a stationary mixer is used for the complete mixing of the concrete, the mixing time for mixers having a capacity of 10 cubic yards (7.6 m3) or less shall be not less than 60 seconds. For mixers of more than 10 cubic yards (7.6 m3) capacity, the mixing time shall be determined by the Engineer. The time is valid provided mixer efficiency tests prove the concrete is satisfactory for uniformity and strength. Mixing

time shall be measured from the time all cement and aggregates are in the drum. The batch shall be so charged into the Mixer that some water will enter in advance of cement and aggregates, and all water shall be in the drum by the end of the first one-fourth of the specified mixing time.

When a truck mixer is used for complete mixing, each batch of concrete shall be mixed for not less than 70 nor more than 100 revolutions of the drum or blades at the rate of rotation designated by the manufacturer of the equipment on the metal plate on the mixer as mixing speed. Additional mixing, if any, shall be at the speed designated by the manufacturer of the equipment as agitating speed. All materials including mixing water shall be in the mixer drum before actuating the revolution counter for determination of the number of revolutions of mixing.

When a truck mixer or truck agitator is used for transporting concrete that has been completely mixed in a stationary mixer, mixing during transport shall be at the speed designated by the manufacturer of the equipment as agitating speed.

When a truck mixer or truck agitator is used for transporting concrete, the concrete shall be delivered to the site of the work and discharge shall be completed within 1 hour after the addition of the cement to the aggregates. Each batch of concrete delivered at the job site shall be accompanied by a time slip issued at the batching plant, bearing the time of charging of the mixer drum with cement and aggregates. In hot weather or under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 30oC (85oF) or above, the time between the introduction of the cement to the aggregates and discharge shall not exceed 45 minutes. When a truck mixer is used for the complete mixing of the concrete, the mixing operation shall begin within 30 m minutes after the cement has been added to the aggregate.

The concrete when discharged from truck mixers or truck agitators, shall be of the consistency and workability required for the job. The rate of discharge of the plastic concrete from the mixer drum shall be controlled by the speed of rotation of the drum in the discharge direction with the discharge gate fully open. If additional mixing water is required to maintain the specified slump and is added with the permission of the NPC Engineer, a minimum of 20 revolutions of the truck mixer drum at mixing speed shall be required before discharge of any concrete.

When approved by the NPC Engineer, central-mixed concrete which is designated for the purpose may be transported in suitable non-agitating equipment.

When non-agitating equipment is used for transportation of concrete the following requirements shall apply.

Bodies of equipment shall be smooth, water-tight, metal containers equipped with gates that will permit control of the discharge of the concrete. Covers meeting the approval of the Engineer shall be provided for protection against the weather.

The concrete shall be delivered to the site of the work in a thoroughly mixed and uniform mass and discharged with a satisfactory degree of uniformity. Slump tests of representative samples taken during the discharge shall not differ by more than

2 inches (50.8 mm). Discharge shall be completed within 30 min. after introduction of the mixing water to the cement and aggregates.

Concrete delivered in outdoor temperatures lower than 5oC (40F) shall arrive at the work having a temperature not less than 15.6oC (60oF) nor greater than 32.2oC (90oF).

The volume of concrete mixed or transported shall not be less than 15 percent of the gross volume of the drum.

RE-TEMPERING

Concrete, mortar and grout mixers which have developed initial set shall not be used. Concrete, mortar and grout which have partially hardened shall not be retempered or remixed.

SAMPLING AND TESTING OF CONCRETE

The Contractor shall provide the required samples of Concrete to be furnished by the Contractor without cost to NPC. Sampling will, in all cases be performed by the contractor under the direct supervision of the NPC Engineer and Contractor shall provide without cost to NPC all available tools and labor as may be required. Concrete sampling shall be carried on during concrete operations at the rate of one standard sample for each 75 cubic meters of concrete or fraction thereof placed during each continuous placing operations but in no case shall there be less than one sample for each day concreting. Each standard sample shall consist of three standard cylinders (6- inch diameter by 12-inches high.) The Contractor shall keep a record of the samples and the portion of the structures and volume represented which shall be available to NPC on demand.

Sampling shall conform to ASTM Designations C-172, preparation, storage and curing to ASTM Designation C31 and testing to ASTM Designation C-39. NPC shall have the sample tested by an approved testing laboratory at the expense of the Contractor.

CONVEYING AND PLACING CONCRETE

a) General

Approval of the Engineer shall be obtained before starting any concrete pour. Concrete placement will not be permitted when, in the opinion of the Engineer, conditions prevent proper placement and consolidation. Before concrete is placed, all saw dust, chips, and other construction debris and extraneous matters will be removed from the interior of forms, struts, stays, and braces, serving temporarily to hold the forms in correct shape and alignments, pending the placing of concrete at their location, shall be removed when the concrete placing has reached an elevation rendering their services unnecessary as may be. These temporary members shall be entirely removed from the forms and not to be buried in concrete. Surfaces of existing concrete left after partial demolition against which new concrete is to be placed, shall be cleared thoroughly of all loose concrete coatings or concrete dust by brushing or other effective means followed by thorough washing or jetting. Such surfaces shall be kept moist for at least 24 hours before pouring the new concrete.

Concrete shall be placed only in the presence of the Engineer or his duly authorized representatives. Any and all concrete placed in the absence of the Engineer or his duly authorized representatives will not be considered for measurement and payment, and shall be removed at the discretion of the Engineer with the Contractor assuming all losses. Concrete shall be conveyed from mixer to forms, as rapidly as practicable, by methods which will prevent segregation, or loss of ingredients. In case of circular siphons, pumpcrete shall be used. There shall be no vertical drop greater than 1.50 meters except where suitable equipment is provided to prevent segregation and where specifically authorized by the Engineer. Belt conveyors, clutch or similar continuously exposed flow, will not be permitted.

b) Concrete on Earth Foundation.

All concrete shall be placed upon clean and dump surfaces free from standing or running water. Prior to placing concrete, the earth foundation shall be satisfactorily compacted in accordance with these Specifications.

c) Concrete on Rock or Other Concrete.

Rock surface or hardened concrete upon or against which concrete is to be placed shall be clean, free from oil, standing or running water, mud, drummy rock objectionable coatings, debris, loose and semi- detached or unsound fragments. Fault, fissures and seams in rock shall be cleaned to a satisfactory depth and to firm rock on the sides. Immediately before concrete is placed, all surfaces shall be cleaned thoroughly by the use of high velocity, air water jets, wet sand blasting or other satisfactory means. When required by the Engineer, roughening by grooving with pneumatic tool, of existing concrete surfaces against which concrete is to be placed may be required. All surfaces shall be wetted before placing concrete and approximately horizontal surface shall be covered immediately, before the concrete is placed, with a layer of mortar not to exceed 15 millimeters in thickness and of the same cement-sand ratio as used in the concrete.

d) Lift in Concrete.

The permissible depth of concrete placed in one lift will be as shown in the detailed Drawings or as directed for each structure by the Engineer. Unless otherwise authorized or shown, lifts of mass concrete shall not exceed 1.5 meters in height, and a minimum of 72 hours shall elapse between the placing of each successive lifts. Lifts of three meters will be permitted in piers and walls. Height of lift specified herein will not apply where the use of slip form has been approved. All concrete, when placed and vibrated shall be approximately horizontal layers not to exceed 50 centimeters in thickness unless otherwise specifically authorized. The placement of concrete surfaces shall not have reached their initial set before additional concrete is placed thereon. Slabs shall generally be placed in one lift unless the depth is so great that this procedure will produce objectionable results.

e) Consolidation of Concrete

Consolidation of concrete shall be by the use of mechanical vibratory equipment. The vibrating equipment shall be of the internal type and shall at all

times be adequate in number of units and the power of each unit shall be capable to properly consolidate all concrete. The frequency of vibration shall not be less than 6,000 revolutions per minute. Form or surface vibrators shall not be used, unless otherwise specified in other Sections of this Technical Specifications. The duration of vibration shall be limited to that necessary to produce satisfactory consolidation without causing objectionable segregation. In consolidating each layer of concrete the vibrating head shall be allowed to penetrate under the action of its own weight and revibrate the concrete in the upper portion of the underlying layer.

At least one spare vibrator in working order shall be available at any location where concrete is being placed.

f) Finishing of Concrete Lift Surfaces.

The manipulation of the concrete adjacent to the surface of the lift in connection with completing lift placement shall be the minimum necessary to produce not only the degree of consolidation desired in the surface layer of concrete but also a surface with the desired degree of roughness for bond with the next lift. Surface vibration or excessive surface working will not be permitted. All unfinished top surface not covered by forms and which are not to be covered by additional concrete or backfill, shall be carried slightly above grade, as directed, and struck off by board finish.

g) Placing Concrete Through Reinforcement.

In placing concrete through reinforcement, care shall be taken so that no segregation of the coarse aggregate occurs. On the bottom of beams and slabs, where the congestion of steel near the forms makes placing difficult, a layer of mortar of the same cement-sand ratio as used in the concrete shall be first deposited to cover the surface.

h) Depositing Concrete in Water. When specifically authorized, concrete may be deposited in water. The methods and equipment used shall be subject to approval of the NPC Engineer. 1516

FORMS

a. General

Forms shall be used wherever necessary to confine the concrete during vibration and to shape it to the required lines. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall be maintained rigidly in position. The strength and rigidity of the forms shall be such that formed surfaces will conform to specification requirements relating to surface irregularities and tolerances for concrete construction. Forms shall be tight to prevent loss of mortar from the concrete.

Chamfer strips shall be placed in the corners of forms for exposed exterior corners so as to produce beveled edges. Interior corners and edges of formed joints shall not be beveled unless the requirement therefore is shown on the Drawings.

The tolerance limits specified in Paragraph **1521** and the surface irregularity limits specified in Paragraph **1521** are the maximum permissive limits of misalignment or irregularity surface which may occur despite workmanlike effort to construct and maintain the forms to the specified surfaces. These limits pertain only to inadvertent and occasional irregularities, even though these irregularities are within the maximum permissive limits, will be rejected. Accordingly, these limits, shall not be construed to be tolerances for aligning forms or determining acceptability of form materials.

Stub walls shall not be used, except that stub walls shall be used for walls having fillets at the bottom.

Concrete in such stub walls shall be re-vibrated after adjacent floor concrete is placed.

Forms for footing shall be constructed with grade strips at the horizontal construction joints, unless the use of groove strips is specified on the Drawings. Such forms shall be removed and reset from lift to lift, they shall be continuous from lift to lift. Sheathing of reset forms shall overlap the previous lift by not less than 25 mm. Forms shall be tightened against the concrete so that the forms will not spread and permit abrupt irregularities or loss of mortar or paste. Supplementary bolts or form ties shall be used as necessary to hold the rested forms against the concrete.

Forms for all wall openings shall be constructed so as to facilitate loosening.

b. Form Sheathing and lining

Wood sheathing or lining shall be of such kind of quality and shall be so treated or coated that there will be no chemical deterioration or discoloration of the formed concrete surfaces. The type and condition of form sheating and lining, and the fabrication of forms for finishes F2, F3 and F4 shall be such that the form surfaces will be even and uniform. The ability of forms to withstand distortion caused by placement and vibration of concrete shall be such that formed surfaces will conform with applicable requirements of these specifications pertaining to finish of formed surfaces. Where finish F3 is specified, the sheathing or lining shall be placed so that the joint marks on the concrete surfaces will be in general alignment, both horizontally and vertically.

Plywood (3/4"thk. Marine Plywood) used for sheathing or lining shall be high density overlaid plywood specially manufactured for use in construction concrete forms as approved. Materials used for form sheathing or lining shall conform with the following requirements, or other materials producing equivalent results as approved by the NPC Engineer.

The lumber shall be free from warp and knotholes and shall have no knots larger than five centimeters in diameter. All knots shall be sound and tight. There will be no pitch pockets, barb or lack of wood on the face of the lumber against which concrete is to be placed. ** Steel sheathing denotes steel sheets not supported by a backing of wood boards.

c. Form Ties.

Embedded ties for holding forms shall remain embedded and, except for F1 finish, shall terminate within the concrete approximately two diameters or twice the minimum dimensions of the tie from the formed faces of the concrete. Embedded ties for F1 finish shall terminate within the concrete or shall be cut-off flush with the faces of the concrete, at the Contractor's option.

The ties shall be so constructed that ends and end fasteners can be removed by unskilled workmen without causing spalling at the faces of the concrete.

d. Cleaning and Oiling of Forms. T

The surfaces of the forms in contact with the concrete shall be free from encrustations of mortar, grout or other foreign material when the concrete is placed. The surfaces of the forms to be in contact with the concrete shall be coated with an approved coating which will enable the ready release of the forms and will not contaminate the concrete surfaces. Except as provided below, forms for surfaces which are to be painted shall be coated with straight, refined, pale, paraffin mineral oil, or other approved coating, and the coating for steel forms shall consist of refined mineral oil suitably compounded for the purpose

e. Forms of Curved Surfaces. Curved surfaces have been dimensioned at several sections. The Contractor shall interpolate intermediate sections as necessary and shall construct the forms so that the curvature will be continuous between sections. Where necessary to meet requirements for curvature, the form lumber shall be built up to laminated splines cut to make tight, smooth form surfaces. The forms shall be constructed so that the joint marks on the concrete surfaces generally will follow the line of water flow. After the forms have been constructed, all surface imperfections shall be corrected, and all surface irregularities at packing faces of form materials shall be dressed to the specified curvature.

f. Forms for Slopes or Battered Surfaces

Forms for sloped or battered surfaces shall be built so that the sheathing can be placed board-by-board immediately ahead of concrete placement so as to enable ready access for placement, vibration, and inspection of the concrete. The sheathing shall be built so that the sheathing can be removed board-by-board from the bottom to top.

g. Forms for Open Channel Transitions

When warped surfaces of transitions are not backformed, natural or compacted earth shall be shaped to the specified surface and covered immediately with a plaster coat of cement-sand mortar at least 0.95 centimeter.

Forms for the warped surfaces shall be tied securely to the floor slab and braced against spreading. In the upper surface, forms shall be butt and removed as specified in sub-paragraph (j), so as to enable ready access for placement, vibration, inspection, and repair and finishing of the concrete.

h. Forms for Bridges. Forms for girders and slabs shall be cambered as specified by the NPC Engineer.

Forms shall be constructed so that form marks will conform to the general lines of the structure. Column form marks shall be spaced symmetrically. Form bolts or clamps shall be used to fasten forms. The use of ties consisting of twisted wire loops will not be permitted. Bolts or clamps shall be positive in action and shall be of sufficient strength and number to prevent displacement of the forms. They shall be of such type that they can be entirely removed or cut back one inch or more below the finished surface of the concrete leaving no metal within one inch of the concrete surface. All forms for the outside surfaces shall be constructed with rigid wales at right angles to the studs and all form clamps shall extend through and fasten such wales.

Forms for exposed surfaces shall be constructed of plywood or material which will produce an equivalent surface. Form panels shall be furnished and placed in uniform widths of not less than 90 centimeters and in uniform lengths of not less than 1.8 meters, except where the dimensions of the member formed are less than the specified panel dimensions. Plywood panels shall be placed with the grain of the outer piles perpendicular to the studding of joists, unless otherwise permitted by the NPC Engineer. Where form panels are attached directly to the studding or joists, the panels shall not be less than 1.6 centimeters thick, and the studding or joists, shall be spaced not more than 30 centimeters center to center. Form panels less than 1.6 centimeters thick, which otherwise conform to the requirements specified in this Paragraph, may be used with a continuous backing of surfaced material 1.9 centimeters thick. Form panels more than 1.6 centimeters thick attached to studding or joists spaced at 30 centimeters center to center may be used, provided the deflection of the panel between studding or joists does not exceed that of a 1.6 centimeters panel attached to a studding or joists spaced at 30 centimeters center to center. All form panels shall be placed in a neat, symmetrical pattern subject to the approval of the NPC Engineer.

i. Falsework for Bridges and Other Superstructures

False work for the support of a bridge or other superstructure shall be designed and constructed to support the loads that would be imposed where the entire structure placed at one time. Suitable jacks, wedges or camber strips shall be used in connection with falsework or centering to set the forms to the required grade or camber and to take up any settlement in the formwork either before or during the placing of concrete.

j. Forms for Large Circular Siphons

The Contractor shall submit to NIA a detailed Drawings for a collapsible steel form to be used as inner forms of the monolithic barrels. The length of one section of the barrels is at every 9.15 meters bar length intervals as shown on the Drawings. The outer forms intervals as shown on the Drawings. The outer forms of the concrete barrels shall be made with butt joints throughout and form surfaces to be in contact with concrete shall be smooth and true. All forms shall be sufficiently tight with suitable gaskets provided at all form joints and gates to prevent leakage of mortar. Forms shall be braced and sufficiently stiff to

withstand, without detrimental deformation, all operations incidental to the proper placement of concrete within the forms. All forms shall be cleaned and oiled before pouring concrete.

k. Removal of Forms

Forms shall be removed as soon as possible to enable the earliest practicable repair of surface imperfections, but in no case shall they be removed before approval of the NPC Engineer. Any needed repair or treatment shall be performed at once, and be followed immediately by the specified curing. Forms shall be removed with care so as to avoid injuring of the concrete and any concrete so damage shall be repaired.

In field operation that are not controlled by beam or cylinder test the removal of forms and supports shall be governed by the following:

Type of Structure	Time of Removal After the Last Pouring
Arch, beam, girders and slabs-	14 days
Slab in close span of less than three meters-	7 days
Side forms for beams, railings parapets, balustrade, walls and columns-	Not less than 12 hours And more than 48 hours

CONSTRUCTION JOINTS

a) General

After the top surface of a lift is finally compacted, it shall be immediately and carefully protected from direct rays of the sun, pedestrian traffic, materials being placed thereon, running water, heavy rains, or any activity upon the surface that in any manner will affect the setting of the concrete. Unless otherwise specified, vertical and horizontal joints on exposed faces shall be chamfered as shown on standard detailed drawings and formed to produce a uniform and neat appearance.

b) Cleaning

Horizontal construction joints on lifts with relatively open and accessible surfaces may be prepared for receiving the next lift by either wet sand blasting or by cutting with an all-water jet, as specified below. If the surface of the lift is congested with reinforcements, or is relatively inaccessible or, if for any other reason the NPC Engineer considers it undesirable to disturb the surface of a lift before final set has taken place, surface cutting by means of air-water jets will not be permitted and the use of wet sand blasting or light brush hammering will be required. After approved cleaning, the surface of the construction joints shall be kept continuously wet for at least 12 hours immediately prior to placing

concrete. A mortar coating of approximately one centimeter in thickness shall be applied to all approximately horizontal surfaces immediately prior to the placing of the next lift of concrete. The mortar shall have the same cement sand ratio as the concrete. Any free water on the joint surface shall be removed prior to placing the mortar. The Contractor shall ensure that the surface of any horizontal joints (and the formwork in general) is completely clean of any dust, weed, wood showings or other deleterious material prior to the placing of concrete.

1. Air-Water Cutting

   Air-Water cutting of construction joint shall be performed after initial set has taken place but before the concrete has obtained its final set. The surface shall be cut with a high pressure air-water jet to remove all laitance and expose clean, sound aggregate, but not to undercut the edges of the larger particles of aggregate. After cutting, the surface shall be washed and rinsed as long as there is a trace of cloudiness of the wash water.

2. Wet Sandblasting

   When employed in the preparation of construction joints, wet sandblasting shall be performed immediately before placing the following lift. The operation shall be continued until all unsatisfactory concrete and laitance, coatings, stain, debris, and other foreign materials are removed. The surface of the concrete shall then be washed thoroughly to remove all loose materials.

3. Cleaning Vertical Construction Joint. The vertical construction joints shall be cleaned by wet sand blasting or by brush manner.

REPAIR OF CONCRETE

No repair of work or plaster finish of formed concrete in structures will be permitted, unless otherwise provided in these Specifications or directed by the Engineer in writing. All defective concrete shall be removed and replaced with the Contractor assuming all expenses and losses. Plastering without permission will be assumed as defective works. If directed, the Contractor shall notify the Engineer of the start of the repair work at least 24 hours in advance thereof and shall repair concrete only in the presence of the Engineer or its authorized representative, unless inspection of such repair work is waived.

Drypack shall be used for filling holes having at least one surface dimension smaller, if any greater than the hole depth; for narrow slots cut for repair of cracks for grout pipe recesses; and for tie-rod fastener recesses as specified. Drypack shall not be used for filling behind reinforcement or for filling holes that extend completely through a concrete section. Mortar filling, placed under impost by use of a mortar gun, maybe used for repairing defects on surfaces designated to receive F1 and F2 finishes where the defects are too wide for drypack filling and too shallow for concrete filling and no deeper than the far side of the reinforcement that is nearest the surface. Concrete filling shall be used for holes extending entirely through concrete sections; for holes in which no reinforcement is encountered and which

are greater in area than 900 square centimeters and deeper than 20 cm.; and for holes in reinforced concrete which are greater in area than 400 square centimeters and which extends beyond reinforcement.

Workmanship methods; preparation of concrete for repair, materials, and curing shall be as directed. Only workmen skilled in the repair of concrete shall perform such work. Repairs of defective concrete shall be made within 48 hours after removal of forms.

Surfaces to which concrete is to be bonded shall be clean and dry when coated with epoxy.

Surfaces of concrete to be repaired with sealing compound method shall be cured by the water curing method for one day before application of the sealing compound. All repair shall be sound and free from shrinkage cracks and drummy areas after they have been cured and have dried 30 days.

Surfaces of repairs which will be exposed to view shall blend inconspicuously with surrounding concrete surfaces.

Fins and encrustations shall be removed from surfaces which will be exposed to view.

FINISHES AND FINISHING

a) General

Allowable deviations from established lines, grades and dimensions are set forth in Paragraph 1521. These allowable deviations are defined as "tolerance" and are to be distinguished from surface irregularities in finish as described herein. The class of finish and the requirements for finishing concrete shall be as specified in this Paragraph.

Finishing of concrete surfaces shall be performed only by skilled workmen. The Contractor shall advise the Engineer as to when concrete will be finished. Unless inspection is waived in each specific case, finishing of concrete shall be performed only in the presence of the Engineer. Concrete surfaces will be tested by the Engineer to determine that surface irregularities are within the limits hereinafter specified.

Surface irregularities are classified as "abrupt" or "gradual". Offsets caused by displaced or misplaced form sheathing or lining or form sections or by loose knots in forms or otherwise defective form lumber will be considered abrupt irregularities, and will be tested by direct measurements. All other irregularities will be considered to be gradual irregularities, and will be measured as the departure from the testing edge of an approved template held parallel to and in contact with the surface. The template shall consist of a straight-edge or the equivalent thereof for curved surfaces.

b) Formed Surfaces. Grinding will not be required on formed surfaces except as necessary to reduce protrusions to specified limits. Recesses from removal of form ties shall be filled with dry pack or epoxy mortar at the Contractor's option: except that filling recesses in Retaining Wall surfaces will be required

only if the recesses are deeper than 2.5 centimeters in walls, less than 30 centimeters thick or if unfilled, recesses would reduce the required cover over reinforcements.

The filled recesses shall blend inconspicuously with the surrounding concrete surfaces or concrete that will be exposed to view. The classes of finish and their application are as follows: applies to formed surfaces where fill material or concrete is to be placed. The surfaces require no treatment after form removal except for repair of defective concrete and specified curing. Correction of surface irregularities will be required only for depressions which exceed 2.5 centimeters, when measured as described in sub-paragraph (a). Abrupt irregularities on surfaces to which pre-molded joint filler is to be applied shall not exceed 0.30 centimeter.

Abrupt irregularities on formed surfaces exposed to high velocity flows shall be eliminated by grinding on a bevel of 1:20 ratio of height to length. The Contractor will not be entitled to any extra payment or compensation for reducing or eliminating irregularities on formed concrete surfaces which do not meet specification limits.

CURING

a) General All concrete except interior surfaces, shall be cured for a period of not less than 14 consecutive days.

All horizontal slabs or surfaces shall be cured by water curing in accordance with sub-paragraph (c) and all inclined or vertical surfaces of concrete shall be applied with membrane curing immediately after removal of forms to prevent dehydration in accordance with sub-paragraph (b) except that membrane curing shall not be allowed for mass concrete and for construction joints. Contractor shall have all equipment needed for adequate curing and protection of the concrete on hand and ready for use before actual concrete placement begins. The curing medium and method or the combination of mediums and methods used shall be subject to the approval of the NPC Engineers.

(i) Floors, stair threads, and horizontal construction joints shall be cured for 14 days by a covering of damp sand or curing mats, except that curing of construction joints surfaces may be discontinued in less than 14 days when the surfaces are to be covered with fresh concrete. The sand or curing mats shall not be kept so wet as to allow water to drain from it and stain concrete walls. The sand or curing mats shall be removed after the expiration of the curing period.

(ii) Interior Surfaces Concrete surfaces of interior walls, including ceilings and surfaces of construction joints and vertical construction joints will require no curing other than resulting from forms being left in place for at least two days. Interior walls shall be washed during and after completion of concrete operations at higher elevations. The washing shall be sufficient to keep the

walls free from drips or runs of material that would cause streaking or staining of the concrete. Stair risers and large repairs on interior walls shall be cured for at least four days by damp mats but the mats shall not be wet enough to cause dripping of water on completed concrete. Small repairs and filled core holes on interior walls shall be cured for at least four days by masking tape or similar covering.

b) Membrane Curing Method.

The concrete shall be sprayed uniformly with sealing compound in accordance with the manufacturer's written recommendation, copies of which shall be furnished to the Engineer for approval in advance of the material being used. The sealing compound shall conform to AASHO Designation: M-148, Type II. The component shall be of uniform consistency and quality within each container of each shipment and from shipment to shipment. Sealing compound used in confined spaces shall not be toxic to workmen. The Contractor shall furnish a manufacturers certificate of compliance for the compound prior to its use on the work. The certificate shall identify the batch and include certified test results covering all requirements of the specifications for the sealing compound material.

Sealing compound shall be applied to unformed concrete surfaces immediately upon completion of moisture control measures taken as specified above. Where such measures are not required, sealing compound shall be applied as soon as the concrete is hard enough to preclude damage from application of the sealing compound. The Engineer will require that the side slopes and bottom of the canal lining be sprayed separately unless the surfaces are ready, simultaneously, to receive the sealing compound.

Sealing compound shall be applied to formed concrete surfaces immediately upon removal of the forms as specified in Paragraph 1516. The moisture control measures shall be taken until the forms have been removed. Formed surfaces shall be sprayed with water immediately after the forms have been removed until the surfaces are saturated. The sealing compound shall be applied as soon as the surface film or water has disappeared but while the surface is still damp.

Sealing compound shall be applied in one coat to provide a continuous uniform membrane. Special care shall be taken to ensure coverage of edges, corners, and rough spots of formed surfaces. The compound shall be agitated continuously in the spray pressure tank.

Concrete repair work shall be performed after the sealing compound has been applied and is dry to touch. In the event that application of sealing compound is delayed or interrupted, water shall be applied as approved, until application of sealing compound is started or resumed.

Any membrane that is damaged or is determined to be defective within 28 days after application shall be repaired or replaced without delay, as

approved. If the Contractor's operations require traffic on coated surfaces, the membrane shall be protected from damage.

Payment for membrane curing shall be included in the contract unit price for concrete in the Bill of Quantities where they are required.

c) Water Curing

d) Water curing shall start as soon as practicable after placement of the concrete and shall continue until completion of the specified curing period or until covered with fresh concrete. Concrete, if cured by water, shall be kept wet by ponding method or by covering with an approved water saturated material, or by a system of perforated pipes, mechanical sprinklers, porous hose, or by any other methods approved by the Engineer which will keep all surfaces to be cured continuously (not periodically) wet.

Water used for curing shall be free of chemicals which may have an adverse effect on the concrete. For example, water containing sulfates or chlorides is not acceptable.

FAILURE TO CURE

The NPC Engineer shall have the authority to suspend the work whole or in part, by written order, for such period as he may deem necessary for failure on the part of the Contractor to perform proper curing of the concrete work and to withhold payment for the corresponding work pending results of test, that shall subsequently be made on these concrete works. The Contractor shall immediately secure core samples of such members and from parts of the structure as shall be designated by the NPC Engineer and shall have them tested in a Testing Laboratory approved by the NPC. If the results of tests are found satisfactory, payment of the concrete in question shall be made and the work ordered resumed, but if the results of test are unsatisfactory to meet the structural requirements, the Contractor shall remove, wholly or partly, the concrete work in question at the discretion and upon written order of the Engineer and the Contractor shall replace such parts at his own expense.

FAILURE TO MEET CONCRETE REQUIREMENTS

All concrete designed, prepared and placed by the Contractor for bridges that fails to meet the specified strengths shall be removed and replaced by the Contractor at his own expense.

Concrete for all structures other than bridges which are more than twenty percent (20%) lower than the specified strength shall be removed and replaced by the Contractor at his own expense.

PROTECTION OF CONCRETE WORKS

The Contractor shall protect all concrete against injury until final acceptance by the NPC. Final acceptance shall be construed to mean acceptance of the whole work after the Contract has been completed or satisfactory terminated.

CW 6.4 MEASUREMENT AND PAYMENT

The quantity of concrete to be paid shall be the quantity shown in the Bid Schedule in cubic meter, unless changes in design are made in which case the quantity shown in the Bid Schedule will be adjusted by the amount of the change for the purpose of payment. No deduction will be made for the volume occupied by the pipe less than 101 mm (4") in diameter nor for reinforcing steel. anchors, or expansion materials.

The accepted quantities of structural concrete completed in place will be paid for at the contract unit price for cubic meter as indicated on the Bid Schedule. Such prices and payment shall be full compensation for furnishing all materials, including metal water stops, joints, joint fillers, weep holes, and rock backing and timber bumpers; for all form and false work; for mixing, placing, furnishing, and curing the concrete; and for all labor, materials, equipment, tools and incidentals necessary to complete the item.

CW 7.0 CLEARING AND DEMOBILIZATION

CW 7.1 General Scope

This item shall consist of the disposition of entire Contractor's camp facilities, clearing and cleaning at the work site.

CW 7.2 Materials

CW 7.3 Workmanship

Before moving out, the contractor shall restore the orderly state of worksite by clearing all temporary structures. Remove all excess/waste materials and store in designated areas.

Before the Contractor will demobilize its construction equipment/ tools, materials and crew, he shall secure approval from NPC and a joint inspection with the NPC Inspector and Contractor will be conducted to make sure that all his accomplishment / work that needs remedial attention or correction shall be done prior to the issuance of the Certificate of Completion.

CW 7.4 MEASUREMENT AND PAYMENT

Work prescribed herein shall not be measured and paid separately; same shall be deemed to be included in pay items for other items for work.

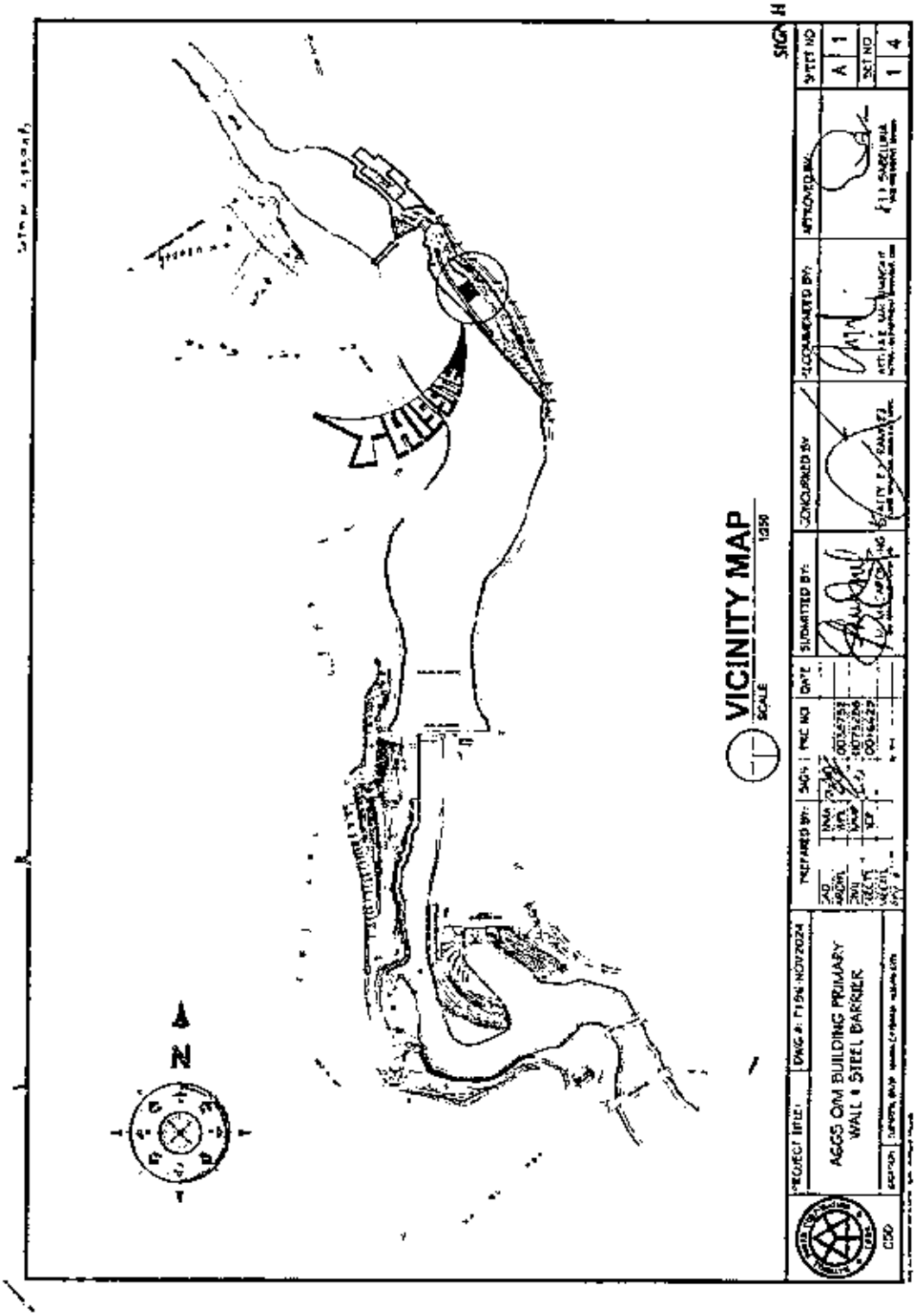
Section VII. Drawings

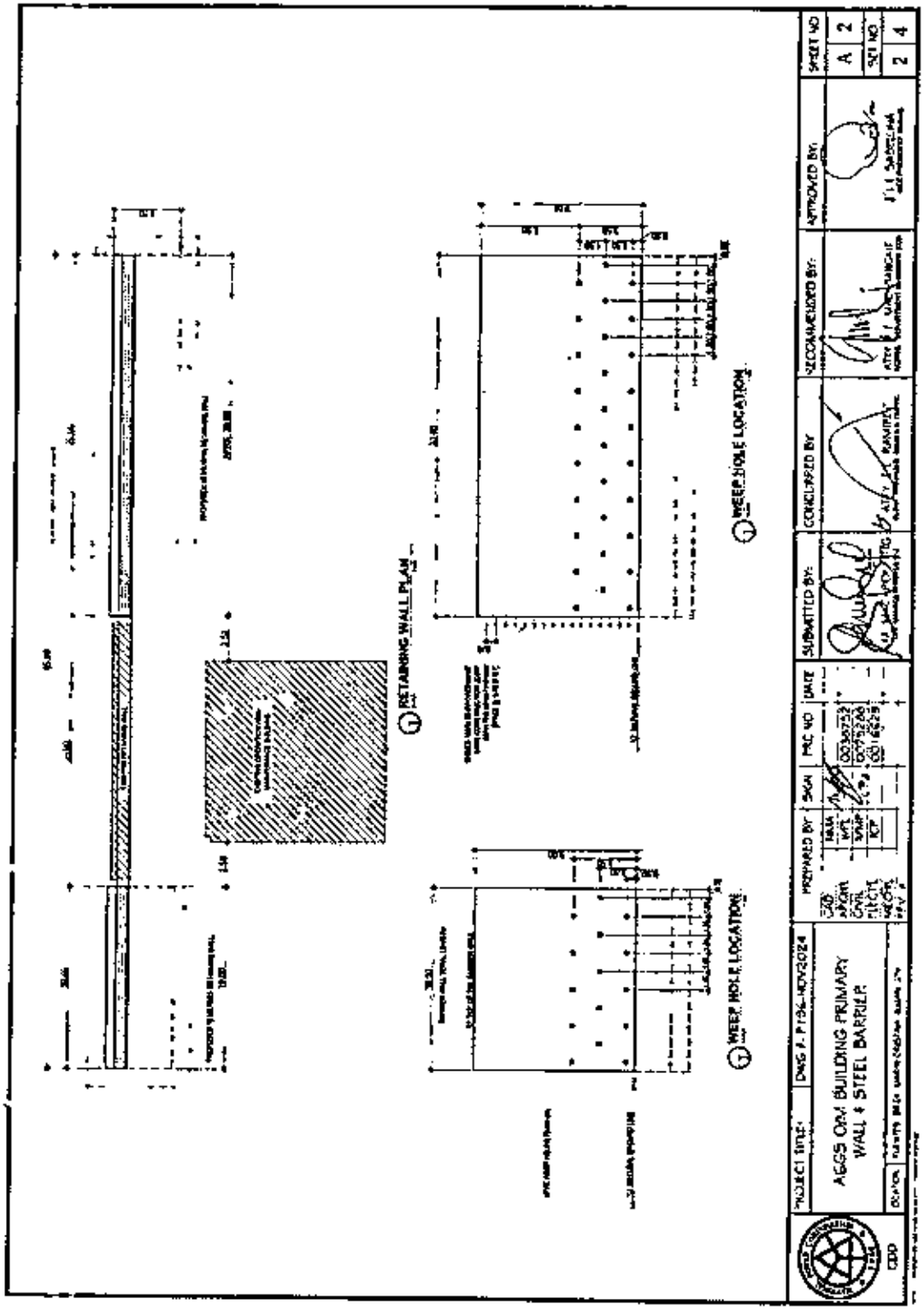
Sheet No. 1/4: Vicinity Map

Sheet No. 2/4: Retaining Wall Plan, Weep Hole Location

Sheet No. 3/4: Retaining Wall Section, Retaining Wall Reinforcement Details

Sheet No. 4/4: Retaining Wall Reinforcement Details


VICINITY MAP
SCALE
1250
N
A6GS O/M BUILDING PRIMARY WALL & STEEL BARRIER
SIGN H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WEEP HOLE LOCATION
WEEP HOLE LOCATION
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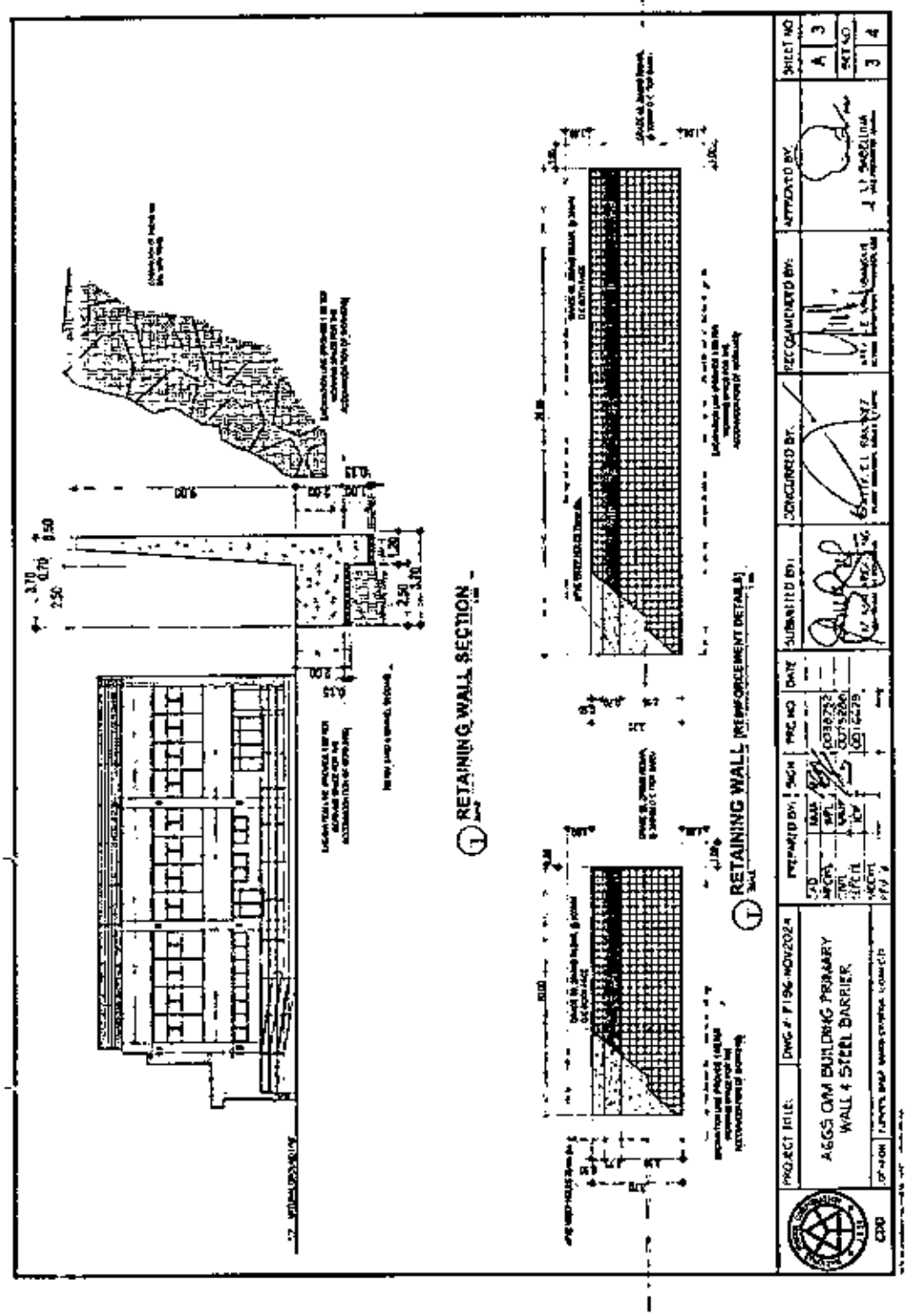
RECOMMENDED BY:
APPROVED BY:
SHEET NO
A 2
SET NO
2 4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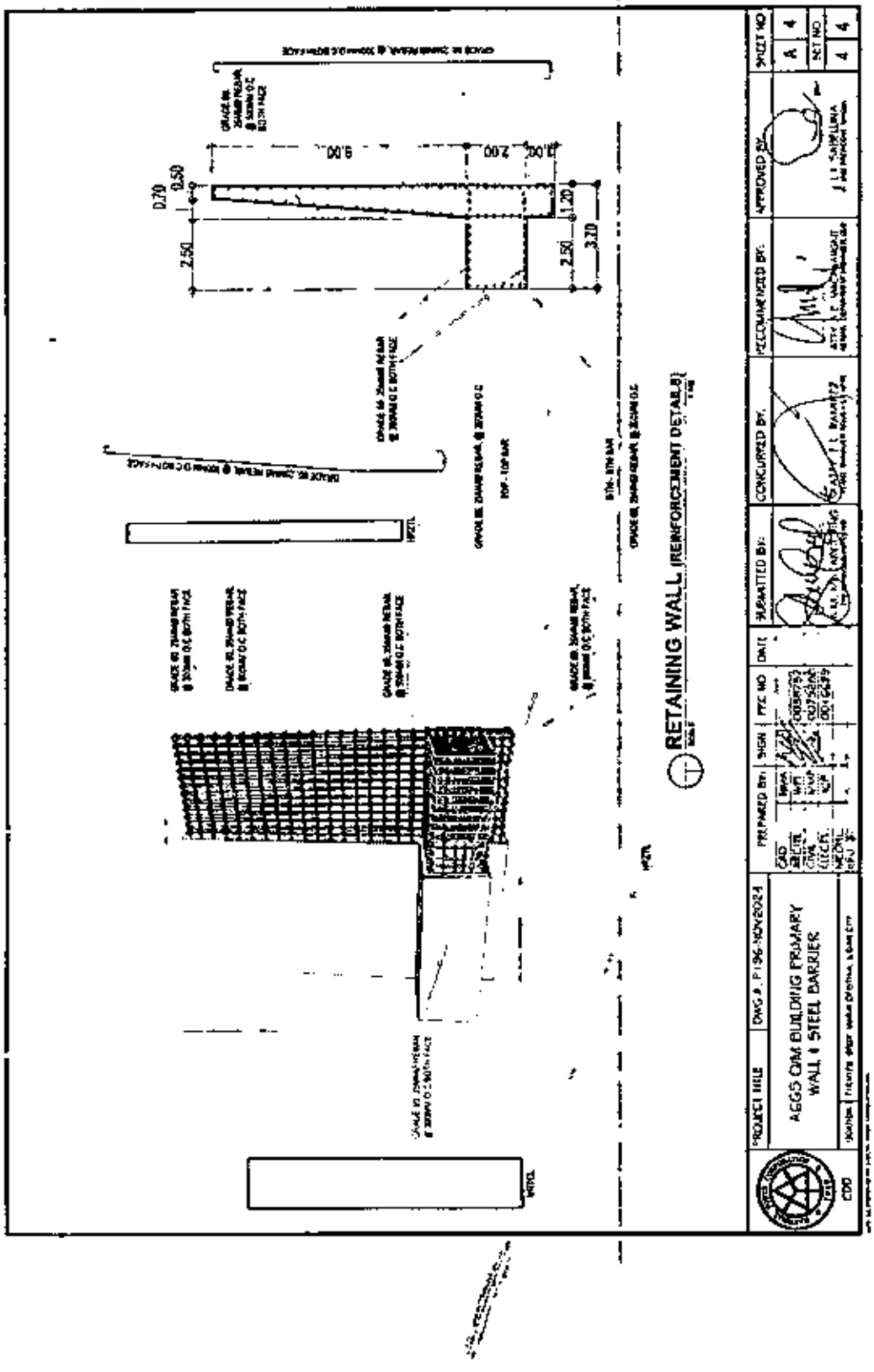
RETAINING WALL
A6GS O/M BUILDING PRIMARY WALL & STEEL BARRIER
DWG # F196-NOV2024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AGGS O/M BUILDING PRIMARY WALL & STEEL BARRIER
SHEET NO
A 4
SHT NO
4 4

Section VIII- Bill of Quantities

BILL OF QUANTITIES

Item No.	Description of Work	Estimated Quantity	Unit	Unit Price in Pesos		Total Amount
				Words	Figures	
1	CONSTRUCTION SAFETY AND HEALTH PROGRAM	1.00	LOT	_____	(PhP_____)	PhP_____
2	EARTHWORKS			_____	(PhP_____)	PhP_____
2.1	STRIPPING OF SOIL, REMOVAL OF OBSTRUCTION & DISPOSAL	1.00	LOT	_____	(PhP_____)	PhP_____
2.2	EXCAVATION	258.00	CU. M			
2.3	GRAVEL BED	8.00	CU. M	_____	(PhP_____)	PhP_____
3	REINFORCEMENT DSB WORKS, GRADE 60	28,406.00	KG	_____	(PhP_____)	PhP_____
4	CONCRETE WORKS, 3000Psi	488.00	CU. M	_____	(PhP_____)	PhP_____

Name of Firm	Name & Signature of Authorized Representative	Designation

Section IX. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE*[Submit in three (3) copies- one (1) marked Original with the understanding that the Pass/Fail evaluation will be based only on the copy marked "Original"]*

Class "A" Documents

Legal Documents

☑ (a) Valid and updated PhilGEPS Registration Certificate (Platinum Membership) (all pages)***in accordance with Section 8.5.2 of the IRR***; **or**

Technical Documents

☑ (b) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid, *using NPC-MinGen Standard Form No.* ***NPCMGNSF-INFR-01***;**and**

☑ (c) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules,*using NPC-MinGen Standard Form No.* ***NPCMGNSF-INFR-02****supported with the following documents:*

- *Contract and/or Notice to Proceed;*
- *For project completed less than one year from the scheduled date of bid opening, submit Certificate of Completion;*
- *For project completed at least one year from the scheduled date of bid opening, submit Owner's Certificate of Final Acceptance issued by the project owner other than the contractor, or a final rating of at least Satisfactory in the Constructor's Performance Evaluation System (CPES);*
- *In case of contracts with the private sector, an equivalent document (Ex. Official receipt) shall be submitted.*

and

☑ (d) Special PCAB License in case of Joint Ventures;
and registration for the type and cost of the contract to be bid; **and**

☑ (e) Original copy of Bid Security. If in the form of a Surety Bond, *using NPC-MinGen Standard Form No.* ***NPCMGNSF-INFR-03a***,submit also a certification issued by the Insurance Commission;
or
Original copy of Notarized Bid Securing Declaration using *NPC-MinGen Standard Form No.* ***NPCMGNSF-INFR-03b***; **and**

☑ (f) Project Requirements, which shall include the following:
a. Organizational chart for the contract to be bid *using NPC-MinGen*

*Standard Form No. **NPCMGNSF-INFR-04**;*

☑ b. List of contractor's key personnel (*e.g.*, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data,*using NPC-MinGen Standard Form No. **NPCMGNSF-INFR-05**;*

☑ c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project; as the case may be, *using NPC-MinGen Standard Form No. **NPCMGNSF-INFR-06** and its supporting documents;***and***

☑ (g) Original duly signed Omnibus Sworn Statement (OSS),*using any of the following NPC-MinGen Standard Forms No.:*
NPCMGNSF-INFR-07a – for Sole Proprietorship;
or
NPCMGNSF-INFR-07b – for Partnership/Cooperative/Corporation/ Joint Venture with the following supporting documents:

and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

☑ (h) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC) *using NPC-MinGen Standard Form No. **NPCMGNSF-INFR-08.***

Class "B" Documents

☑ (i) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence, using NPC-MinGen Standard Form No. ***NPCMGNSF-INFR-09***;
or
duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE*[Submit in three (3) copies- one (1) marked Original with the understanding that the Pass/Fail evaluation will be based only on the copy marked "Original"]*

☑ (j) Original of duly signed (each and every page) and accomplished Financial Bid Form,*using NPC-MinGen Standard Form No.* ***NPCMGNSF-INFR-10;*** **and**

Other documentary requirements under RA No. 9184

☑ (k) Original of duly signed (each and every page) Bid Prices in the Bill of Quantities,*using* ***given form in Section VIII;*** **and**

☑ (l) Duly signed (each and every page) and accomplished Detailed Estimates Form*using NPC-MinGen Standard Form No.* ***NPCMGNSF-INFR-11a***, including *NPC-MinGen Standard Form No.* ***NPCMGNSF-INFR-11b*****Detailed Unit Price Analysis (DUPA)** and**Summary Sheet** indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid*using NPC form* ***NPCMGNSF-INFR-12;*** ***and***

☑ (m) Duly signed each and every page Cash Flow by Quarter or Month, as applicable

STANDARD BIDDING FORMS
NPC-MINDANAO GENERATION

NPCMGNSF-INFR-01	-	List of all Ongoing Government & Private Construction Contracts Including Contracts Awarded but not yet Started
NPCMGNSF-INFR-02	-	Statement of the Bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid
NPCMGNSF-INFR-03a	-	Form of Bid Security : Surety Bond
NPCMGNSF-INFR-03b	-	Bid Securing Declaration Form
NPCMGNSF-INFR-04	-	Contractor's Organizational Chart for the Project
NPCMGNSF-INFR-05	-	List of Key Personnel Proposed to be Assigned to the Project
NPCMGNSF-INFR-06	-	List of Equipment, Owned or Leased and/or under Purchase Agreement, Pledged to the Proposed Project
NPCMGNSF-INFR-07a	-	Omnibus Sworn Statement (Sole Proprietorship)
NPCMGNSF-INFR-07b	-	Omnibus Sworn Statement (Partnership/ Cooperative/Corporation//Joint Venture)
NPCMGNSF-INFR-08	-	Computation of Net Financial Contracting Capacity (NFCC)
NPCMGNSF-INFR-09	-	Joint Venture Agreement
NPCMGNSF-INFR-10	-	Bid Form
NPCMGNSF-INFR-11a	-	Detailed Cost Estimate Form
NPCMGNSF-INFR-11b		Detailed Unit Price Analysis (DUPA)
NPCMGNSF-INFR-12	-	Summary Sheets of Materials Prices, Labor Rates and Equipment Rental Rates

Standard Form Number : NPCMGNSF-INFR-01

List of All Ongoing Government and Private Construction Contracts Including Contract Awarded But Not Yet Started

Business Name : _____

Business Address : _____

Name of Contract/Location/ Project Cost	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Contractor's Role		a. Date Awarded b. Date Started c. Date of Completion	% of Accomplishment		Value of Outstanding Works
			Description	%		Planned	Actual	
Government								
Private								
						Total Cost		

The bidder shall declare in this form all his on-going government and private contracts including contracts where the bidder (either as individual or as a Joint Venture) is a partner in a Joint Venture agreement other than his current joint venture where he is a partner. Non declaration will be a ground for disqualification of bid.

Note: This statement shall be supported with Contract and/or Notice of Award (to be presented by the winning bidder during Postqualification).

Submitted by : _____
(Printed Name & Signature)

Designation : _____

Date : _____

Standard Form Number : NPCMGNSF-INFR-02

The Statement of the Bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid

Business Name : _____

Business Address : _____

Name of Contract	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Contractor's Role		a. Amount at Award b. Amount at Completion c. Duration	a. Date Awarded b. Contract Effectivity c. Date Completed
			Description	%		

Note: The bidder must state only one (1) Single Largest Completed Contract (SLCC) similar to the contract to be bid with an amount equivalent to at least fifty percent (50%) of the ABC. This Statement shall be supported with:

1. Contract and/or Notice to Proceed
2. Certificate of Completion (for project completed within the year), or Owner's Certificate of Final Acceptance (for project completed after the lapse of one year) issued by the project owner other than the contractor, or a final rating of at least Satisfactoty in the Constructor's Performance Evaluation System (CPES). In case of the contracts with the private sector, an equivalent document (Ex. Official Receipt) shall be accepted.

Submitted by : _____

(Printed Name & Signature)

Designation : _____

Date : _____

10/29/2024

Standard Form No: NPCMGNSF-INFR-03a

FORM OF BID SECURITY (SURETY BOND)

BOND NO.: _____
DATE BOND EXECUTED: _____

By this bond, We *(Name of Bidder)* (hereinafter called "the Principal") and *(Name of Surety)* of *(Name of Country of Surety)*, authorized to transact business in the Philippines (hereinafter called "the Employer") as Obligee, in the sum of *[amount in words & figures as prescribed in the bidding documents]*, callable on demand, for the payment of which sum, well and truly to be made, we, the said Principal and Surety bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

SEALED with our seals and dated this _____ day of _____ 20_____.

WHEREAS, the Principal has submitted a written Bid to the Employer dated the _____ day of _____ 20_____, for the _____ (hereinafter called "the Bid").

NOW THEREFORE, the conditions of this obligation are:

1) If the Bidder withdraws his Bid during the period of bid validity specified in the Bidding Documents; or
2) If the Bidder does not accept the correction of arithmetical errors of his bid price in accordance with the Instructions to Bidder; or
3) If the Bidder, having determined as the LCB, fails or refuses to submit the required tax clearance, latest income and business tax returns and PhilGEPS registration certificate within the prescribed period; or
4) If the bidder having been notified of the acceptance of his bid and award of contract to him by the Entity during the period of bid validity:

    a) Fails or refuses to execute the Contact; or
    b) Fails or refuses to submit the required valid JVA, if applicable; or
    c) Fails or refuses to furnish the Performance Security in accordance with the Instruction to Bidders;

Then this obligation shall remain in full force and effect, otherwise it shall be null and void.

PROVIDED HOWEVER, that the Surety shall not be:

a) Liable for a grater sum than the specified penalty of this bond, nor

b) Liable for a greater sum that the difference between the amount of the said Principal's Bid and the amount of the Bid that is accepted by the Employer.

This Surety executing this instrument hereby agrees that its obligation shall be valid for 120 calendar 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 Surety is hereby waived.

PRINCIPAL	SURETY
SIGNATURE(S)	SIGNATURE(S)
NAME(S) AND TITLE (S)	NAME(S)
SEAL	SEAL

Standard Form No: NPCMGNSF-INFR-03b

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID SECURING DECLARATION
Project Identification No.: *[Insert number]*

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.

2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f),of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.

3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:

   a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
   b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
   c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of *[month] [year]* at *[place of execution]*.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]

Standard Form No: NPCMGNSF-INFR-04

CONTRACTOR'S ORGANIZATIONAL CHART FOR THE CONTRACT

Submit Copy of the Organizational Chart that the Contractor intends to use to execute the Contract if awarded to him. Indicate in the chart the names of the Project Manager, Project Engineer, Foreman and other Key Engineering Personnel.

Attach the required Proposed Organizational Chart for the Contract as stated above

NOTES:

1. *This organization chart should represent the "Contractor's Organization" required for the Project, and not the organizational chart of the entire firm.*
2. *Each such nominated engineer/key personnel shall comply with and submit their complete qualification and experience data only during post-qualification.*

Standard Form Number : NPCMGNSF-INFR-05

LIST OF KEY PERSONNEL PROPOSED TO BE ASSIGNED TO THE CONTRACT

(Based on the Minimum Key Personnel Required in the Bidding Documents)

Business Name : _____

Business : _____

	DESIGNATION				
1. Name					
2. Address					
3. Date of Birth					
4. Employed Since					
5. Experience (No. of Years)					
6. Previous Employment					
7. Education					
8. PRC License/NC II/COSH/Other required certificate					

Required documents to be presented during Post-qualification:

1. *Certificate of Employment and valid PRC License of the (professional) personnel*
2. ***Certificate of Employment and** Certificate of Training with accreditation from DOLE of the Construction Safety and Health Officer*
3. *Diploma and/or Service Record/Certificate of Employment of previous and/or current employer of Foreman, Welder, Plumber or Electrician, whichever is applicable*
4. *TESDA Certificate (NC II) of Welder, Plumber or Electrican, whichever is applicable. **Valid PRC License for Registered Master Plumber and Registered Master Electrician.***

Submitted by: _____

(Printed name & Signature)

Designation: _____

Date: _____

Standard Form Number : NPCMGNSF-INFR -06

LIST OF EQUIPMENT, OWNED OR LEASED AND/OR UNDER PURCHASE AGREEMENTS

(Based on the Minimum Equipment Required in the Bidding Documents)

Business Name : _____

Business : _____

Description	Model/Year	Capacity/ Performance / Size	Plate No.	Motor No. / Body No.	Location	Condition	Proof of Ownership / Lessor or Vendor
A. Owned							
i.							
ii.							
iii.							
iv.							
B. Leased							
i.							
ii.							
iii.							
iv.							
C. Under Purchased Agreements							
i.							
ii.							
iii.							
iv.							

Submitted by: _____
(Printed name & Signature)

Designation: _____

Date: _____

One of the requirements from the bidder to be included in its Technical Envelope is the list of its equipment units pledged for the contract to be bid, based on minimum equipment required in the bidding docs, which are owned (supported by proof/s of ownership), leased, and/or under purchase agreements (with corresponding engine numbers, chassis numbers and/or serial numbers), supported by certification of availability of equipment from the equipment lessor/vendor for the duration of the project.

Standard Form No: NPCMGNSF-INFR-07a

Omnibus Sworn Statement (Revised)
(SOLE PROPRIETORSHIP)

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

I,[Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

2. As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the National Power Corporation-Mindanao Generation, as shown in the attached duly notarized Special Power of Attorney;

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]*complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

   a. Carefully examining all of the Bidding Documents;
   b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
   c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
   d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

10. **In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.**

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]

Standard Form No: NPCMGNSF-INFR-07b

Omnibus Sworn Statement (Revised)
PARTNERSHIP/COOP/CORP/JOINT VENTURE

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

I,[Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the National Power Corporation-Mindanao Generation, as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable;)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. *[If a partnership or cooperative:]* None of the officers and members of *[Name of Bidder]*is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

   a. Carefully examining all of the Bidding Documents;
   b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
   c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
   d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

10. **In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.**

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]

Standard Form No: NPCMGNSF-INFR-08

NET FINANCIAL CONTRACTING CAPACITY (NFCC)

A. Summary of the Bidder's/Contractor's assets and liabilities on the basis of the income tax return and audited financial statement for the immediately preceding calendar year are:

		Year 20
1.	Total Assets	
2.	Current Assets	
3.	Total Liabilities	
4.	Current Liabilities	
5.	Net Worth (1-3)	
6.	Net Working Capital (2-4)	

B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:

NFCC = [(Current assets minus current liabilities) x 15] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started coinciding with the contract for this Project.

NFCC – P _____

Herewith attached is certified true copy of the audited financial statement, stamped "RECEIVED" by the BIR or BIR authorized collecting agent for the immediately preceding calendar year.

Submitted by:

_____
Name of Bidder/Contractor

_____
Signature of Authorized Representative

Date: _____

Standard Form No: NPCMGNSF-INFR-09

JOINT VENTURE AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

That this JOINT VENTURE AGREEMENT is entered in to by and between: _____, of legal age, _(civil status)_, authorized representative of _____ and a resident of _____.

- and -

_____, of legal age, _(civil status)_, authorized representative of _____ and a resident of _____.

That both parties agree to join together their capital, manpower, equipment, and other resources and efforts to enable the Joint Venture to participate in the Bidding and Undertaking of the hereunder stated Contract of the **National Power Corporation.**

NAME OF FIRM	CAPITAL CONTRIBUTION

That the capital contribution of each member firm:

	NAME OF FIRM	CAPITAL CONTRIBUTION
1		PHP
2		PHP

That both parties agree to be jointly and severally liable for their participation in the Bidding and Undertaking of the said contract.

That both parties agree that _____ and/or _____ shall be the Official Representative/s of the Joint Venture, and are granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the Bidding and Undertaking of the said contract, as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation.

That this Joint Venture Agreement shall remain in effect only for the above stated Contract until terminated by both parties.

Name & Signature of Authorized Representative	Name & Signature of Authorized Representative
Official Designation	Official Designation
Name of Firm	Name of Firm

Witnesses

If the bidder is a joint venture, one of the requirements is the submission of a valid joint venture agreement.

Standard Form No: NPCMGNSF-INFR-09
Page 2 of 2

ACKNOWLEDGEMENT

BEFORE ME, a Notary Public for and in _____, Philippines, this _____ day of _____, 20___, personally appeared _____, authorized representative, of _____ with Community Tax Certificate , No. _____, issued at _____, on _____, AND _____ authorized representative, of _____ with Community Tax Certificate No. _____, issued at _____, on _____ known to me to be the same person who executed the foregoing instrument consisting of two (2) pages, including the page whereon the acknowledgements are written, all pages signed by both parties and their instrumental witnesses and they acknowledged before me that the same are their free and voluntary acts and deeds and that of the Corporations they represents.

WITNESS MY HAND AND NOTARIAL SEAL, at the place and on the date first above written.

Notary Public
Until 31 December _____
PTR No. _____
Issued at: _____
Issued on: _____
TIN No. _____

Doc. No. _____
Page _____
Book _____
Series _____

If the bidder is a joint venture, one of the requirements is the submission of a valid joint venture agreement.

Standard Form No: NPCMGNSF-INFR-10

Bid Form for the Procurement of Infrastructure Projects

BID FOR Date : _____
Project Identification No. : _____

To: ***The Vice President***
National Power Corporation
Mindanao Generation
Maria Cristina, Iligan City

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, declare that:

a. We have no reservation to the PBDs, including the Supplemental or Bid Bulletins, for the Procurement Project: *[insert name of contract]*;

b. We offer to execute the Works for this Contract in accordance with the PBDs;

c. The total price of our Bid in words and figures, excluding any discounts offered below is: *[insert information]*;

d. The discounts offered and the methodology for their application are: *[insert information]*;

e. The total bid price includes the cost of all taxes, such as, but not limited to: *[specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties]*, which are itemized herein and reflected in the detailed estimates,

f. Our Bid shall be valid within the a period stated in the PBDs, and it shall remain binding upon us at any time before the expiration of that period;

g. If our Bid is accepted, we commit to obtain a Performance Security in the amount of *[insert percentage amount]*percent of the Contract Price for the due performance of the Contract, or a Performance Securing Declaration in lieu of the the allowable forms of Performance Security, subject to the terms and conditions of issued GPPB guidelines[1] for this purpose;

---

[1] currently based on GPPB Resolution No. 09-2020

Standard Form No: NPCMGNSF-INFR-10
Page 2 of 2

h. We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;

i. 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; and

j. We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.

k. We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the [Name of Project] of the National Power Corporation-Mindanao Generation.

l. We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: _____

Legal Capacity: _____

Signature: _____

Duly authorized to sign the Bid for and behalf of: _____

Date: _____

Standard Form Number : NPCMGNSF-INFR - 11a

DETAILED COST ESTIMATE FORM

Name of Bidder: _____

Item No.	Item Description	Quantity	Unit of Measure	Direct Cost			Mark-Up		VAT	Unit Price	Total Price
				Materials	Labor	Equipment	OCM	Profit			

Note: ***Bidders shall support this form with Detailed Unit Price Analysis (DUPA) using NPCMGNSF-INFR-11b***

_____ _____

Name, Signature of Authorized Representative Designation

Standard Form Number : NPCMGNSF-INFR-11b

DETAILED UNIT PRICE ANALYSIS

PAY ITEM PAY ITEM DESCRIPTION QTY UNIT

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST	REMARKS
I	MATERIALS					
1						
2						
3						
4						
5						
			TOTAL MATERIAL COST			
II	LABOR					
1						
2						
3						
4						
			TOTAL LABOR COST			
III	EQUIPMENT RENTAL					
1						
2						
3						
			TOTAL EQUIPMENT COST			
	TOTAL ESTIMATED DIRECT COST, EDC					
	OVERHEAD, CONTINGENCY & MISCELLANEOUS			%		
	VALUE ADDED TAX			12%		
	PROFIT			%		
	TOTAL INDIRECT COST, IDC					
	TOTAL COST OF PAY ITEM					
	UNIT COST OF PAY ITEM					

10.21.2024

Standard Form No: NPCMGNSF-INFR-12

SUMMARY SHEETS OF MATERIALS PRICES, LABOR RATES AND EQUIPMENT RENTAL RATES

Name of Bidder: _____

I. Unit Prices of Materials

Materials Description	Unit	Unit Price

II. Manpower Hourly Rates

Designation	Rate/Hr.

III. Equipment Hourly Rental Rates

Equipment Description	Rental Rate/Hr.

_____ _____

Name, Signature of Authorized Representative Designation

Performance Securing Declaration (Revised)
[if used as an alternative performance security but it is not required to be submitted with the Bid, as it shall be submitted within ten (10) days after receiving the Notice of Award]

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

PERFORMANCE SECURING DECLARATION

Invitation to Bid: [Insert Reference Number indicated in the Bidding Documents]
To: [Insert name and address of the Procuring Entity]

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, to guarantee the faithful performance by the supplier/distributor/manufacturer/contractor/consultant of its obligations under the Contract, I/we shall submit a Performance Securing Declaration within a maximum period of ten (10) calendar days from the receipt of the Notice of Award prior to the signing of the Contract.

2. I/We accept that: I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of one (1) year for the first offense, or two (2) years **for the second offense**, upon receipt of your Blacklisting Order if I/We have violated my/our obligations under the Contract;

3. I/We understand that this Performance Securing Declaration shall cease to be valid upon:

   a. issuance by the Procuring Entity of the Certificate of Final Acceptance, subject to the following conditions:
      i. Procuring Entity has no claims filed against the contract awardee;
      ii. It has no claims for labor and materials filed against the contractor; and
      iii. Other terms of the contract; or

   b. replacement by the winning bidder of the submitted PSD with a performance security in any of the prescribed forms under Section 39.2 of the 2016 revised IRR of RA No. 9184 as required by the end-user.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of [month] [year] at [place of execution].

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]

Contract Agreement Form for the Procurement of Infrastructure Projects (Revised)
[not required to be submitted with the Bid, but it shall be submitted within ten (10) days after receiving the Notice of Award]

CONTRACT AGREEMENT

THIS AGREEMENT, made this *[insert date]* day of *[insert month]*, *[insert year]* between *[name and address of PROCURING ENTITY]* (hereinafter called the "Entity") and *[name and address of Contractor]* (hereinafter called the "Contractor").

WHEREAS, the Entity is desirous that the Contractor execute *[name and identification number of contract]* (hereinafter called "the Works") and the Entity has accepted the Bid for *[contract price in words and figures in specified currency]* by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents as required by the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, *viz.*:

   a. Philippine Bidding Documents (PBDs);
      i. Drawings/Plans;
      ii. Specifications;
      iii. Bill of Quantities;
      iv. General and Special Conditions of Contract;
      v. Supplemental or Bid Bulletins, if any;

   b. Winning bidder's bid, including the Eligibility requirements, Technical and Financial Proposals, and all other documents or statements submitted;

   Bid form, including all the documents/statements contained in the Bidder's bidding envelopes, as annexes, and all other documents submitted (*e.g.*, Bidder's response to request for clarifications on the bid), including corrections to the bid, if any, resulting from the Procuring Entity's bid evaluation;

   c. Performance Security;

d. Notice of Award of Contract and the Bidder's conforme thereto; and

e. Other contract documents that may be required by existing laws and/or the Procuring Entity concerned in the PBDs. **Winning bidder agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as the Notice to Proceed, Variation Orders, and Warranty Security, shall likewise form part of the Contract.**

3. In consideration for the sum of *[total contract price in words and figures]* or such other sums as may be ascertained, *[Named of the bidder]* agrees to *[state the object of the contract]* in accordance with his/her/its Bid.

4. The *[Name of the procuring entity]* agrees to pay the above-mentioned sum in accordance with the terms of the Bidding.

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

[Insert Name and Signature]	*[Insert Name and Signature]*
[Insert Signatory's Legal Capacity]	*[Insert Signatory's Legal Capacity]*
for:	*for:*
[Insert Procuring Entity]	*[Insert Name of Supplier]*

Acknowledgment

[Format shall be based on the latest Rules on Notarial Practice]


Republic of the Philippines
gppb
Government Procurement Policy Board