



NATIONAL POWER CORPORATION

**MinGen**

**PHILIPPINE BIDDING DOCUMENTS**  
(Procurement of INFRASTRUCTURE PROJECTS)

FOR

CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS  
PLANTS

P.R. No.: MG-ISD24-001

Contracts Management Office  
Logistics Division

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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 Construction of Offsite Data Center & Equipment Storage for MinGen & Agus Plants**

The *NATIONAL POWER CORPORATION-MINDANAO GENERATION*, through the approved Corporate Budget of NPC for CY 2024 intends to apply the sum of *Nine Million Nine Hundred Ninety Nine Thousand Nine Hundred Ninety One and 42/100 Pesos (PHP 9,999,991.42)* being the Approved Budget for the Contract (ABC) to payments under the contract for *Construction of Offsite Data Center & Equipment Storage for MinGen & Agus Plants (MG-USD24-001/INFRA2024-USD-002)*. 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 *Two Hundred Four (204) 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 *November 21, 2023 to December 12, 2023* 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:*

LandbankAccount name : NPC GENCO 5 COLLECTIONS FUND  
LandbankAccount 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 *November 28, 2023 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)-222-3459 or email [cmo\\_logistics\\_afd\\_mingen@napocor.gov.ph](mailto: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 *December 12, 2023 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 *December 12, 2023 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*
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](mailto:cmo_logistics_afd_mingen@napocor.gov.ph)  
Fax No.: (063)223-8355/(063)223-4604  
[www.napocor.gov.ph](http://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  
Mindanao Generation Headquarters



**Date of PhilGEPS Publication:** *21 November 2023*

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER  
& EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO.: MG-1SD24-001/INFRA2024-1SD-002

SECTION II- INSTRUCTION TO BIDDERS

## *Section II. Instructions to Bidders*

## 1. Scope of Bid

The Procuring Entity, **NATIONAL POWER CORPORATION-MINDANAO GENERATION** invites Bids for the *Construction of Offsite Data Center & Equipment Storage for MinGen & Agus Plants, with Project Identification Number INFRA2024-ISD-002*.

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 2024 in the amount of *Ten Million Pesos (PHP10,000,000.00)*
- 2.2. The source of funding is:
  - a. GOCC and GFIs, the proposed 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 BBS.

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: <b>Construction of Vertical Structure</b>		
7.1	Subcontracting is not allowed.		
10.3	None		
10.4	The key personnel must meet the required minimum years of experience set below:		
	<u>Key Personnel</u>	<u>General Expertise</u>	<u>Relevant Experience</u>
	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)

	<p>2 – Welders NC II Certificate</p> <p>2-Electricians NC II Certificate</p> <p>2- Plumbers NC II Certificate</p>	<p>At least three (3) years' experience in welding works</p> <p>At least three (3) years' experience in electrical works</p> <p>At least three (3) years' experience in plumbing works</p>	<p><b><i>The following key personnel information indicated above must be included in Standard Form NPCMGNST-INFRA-05: List of key personnel proposed to be assigned to the Contract. Filled up Standard Form NPCMGNST-INFRA-05 must be included in the technical component envelope.</i></b></p> <p>Project Engineer or Foreman and Construction Safety &amp; 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.</p> <p>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.</p>																																	
<p>10.5</p>	<p>The minimum equipment requirements are the following:</p> <table border="1" data-bbox="430 1137 1324 1585"> <thead> <tr> <th><u>Equipment</u></th> <th><u>Capacity</u></th> <th><u>Number of Units</u></th> </tr> </thead> <tbody> <tr> <td>Back hoe with breaker</td> <td>0.8 cu.m.</td> <td>One (1)</td> </tr> <tr> <td>Mini Dump Truck</td> <td>3 cu.m.</td> <td>One (1)</td> </tr> <tr> <td>Jack Hammer</td> <td>Atleast 2000W</td> <td>One (1)</td> </tr> <tr> <td>Plate Compactor</td> <td>2.5 Tons</td> <td>One (1)</td> </tr> <tr> <td>Pumperete</td> <td>Atleast 25m</td> <td>One (1)</td> </tr> <tr> <td>Concrete Vibrator</td> <td>4 HP</td> <td>One (1)</td> </tr> <tr> <td>Concrete Mixer</td> <td>One Bagger</td> <td>One (1)</td> </tr> <tr> <td>G.I. Pipe Scaffolding with comp. acc.</td> <td></td> <td>One (1)</td> </tr> <tr> <td>Welding Machine</td> <td>300 Amp.</td> <td>Two (2)</td> </tr> <tr> <td>Cutting Outfit (Oxy-Acetylene)</td> <td></td> <td>Two (2)</td> </tr> </tbody> </table>			<u>Equipment</u>	<u>Capacity</u>	<u>Number of Units</u>	Back hoe with breaker	0.8 cu.m.	One (1)	Mini Dump Truck	3 cu.m.	One (1)	Jack Hammer	Atleast 2000W	One (1)	Plate Compactor	2.5 Tons	One (1)	Pumperete	Atleast 25m	One (1)	Concrete Vibrator	4 HP	One (1)	Concrete Mixer	One Bagger	One (1)	G.I. Pipe Scaffolding with comp. acc.		One (1)	Welding Machine	300 Amp.	Two (2)	Cutting Outfit (Oxy-Acetylene)		Two (2)
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Cutting Outfit (Oxy-Acetylene)		Two (2)																																		
<p>12</p>	<p>N/A</p>																																			
<p>15.1</p>	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <p>a. The amount of not less than PHP 199,999.83(2% of ABC), if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</p>																																			



# NATIONAL POWER CORPORATION

06 November 2023

**MR. ZAIDEN P. SABDULLAH**  
General Manager/AMO  
**ZPS CONSTRUCTION SERVICES**  
Apitong Street, DMS, Tubod, Iligan City

**SUBJECT: NOTICE OF AWARD**

Dear Mr. Sabdullah:

Pursuant to Article XI Section 37 of RA 9184, Notice of Award (NOA) is hereby served to ZPS CONSTRUCTION SERVICES for having submitted the *Lowest Calculated and Responsive Bid (LCRB)* for the SVP2023-SSD-018, REPAIR AND REPAINTING OF EXISTING GUARD POST AT MARIA CRISTINA, ILIGAN CITY under PR No. MG-ST523-020 in the total contract amount of: Five Hundred Three Thousand Seven Hundred Twenty Three & 26/100 Pesos (PHP503,723.26) only.

The price validity is one hundred twenty (120) days, completion period is within **thirty five (35) calendar days** upon receipt of Notice to Proceed.

You are hereby required to secure and submit to the Manager, Logistics Division, the Performance Security in any of the following forms within *three (3) days* from the date of receipt of this Notice of Award for review of Finance Division


- a) Cash or Cashier's/Manager's check issued by a Universal or Commercial Bank in a sum equivalent to the ten percent (10%) of the total contract price.
- b) Bank Draft/Guarantee or Irrevocable Letter of Credit issued by a Universal or Commercial Bank. Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank in a sum equivalent to ten percent (10%) of the total contract price.
- c) Surety Bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security in a sum equivalent to thirty (30%) of the total contract price


Notice to Proceed will be issued as soon as the Certificate of Acceptable Performance Security is submitted to Contracts Management Office – Logistics Division.

Failure to submit the required Certificate of Acceptable Performance Security within *Eight (8) calendar days* from receipt of Notice of Award shall constitute sufficient ground for cancellation of award and forfeiture of bid security

For any clarification, please proceed to the Contracts Management Office - Logistics Division, Administration and Finance Department, Mindanao Generation, Headquarters, Maria Cristina, Iligan City from 8:00AM to 5:00PM, Monday to Friday

Very truly yours,

  
**ATTY. ROMERO P. PACILAN**  
Department Manager, Administration and Finance  
Mindanao Generation

RECEIVED BY:   
**ZAIDEN P. SABDULLAH**  
NOVEMBER 10, 2023



NATIONAL POWER CORPORATION  
BIR Road cor. Quezon Avenue, Diliman  
Quezon City 1100, Philippines  
Tel Nos (632) 8921-3541 to 80 • Fax No (632) 8921-2468  
Website to [www.nppccor.gov.ph](http://www.nppccor.gov.ph)



	b. The amount of not less than PHP499,999.57 (5% of ABC), if bid security is in Surety Bond.
19.2	Partial bids are not allowed.
20	<p>Additional documents to be submitted during Post- Qualification:</p> <ol style="list-style-type: none"> <li>1. Other appropriate licenses and permits required by law and stated in the Bidding documents. <ol style="list-style-type: none"> <li>a. Original Bank Statement year ending prior to bid opening;</li> <li>b. Valid and updated PhilGEPS Registration (Platinum Membership) (all pages);</li> <li>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;</li> <li>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;</li> <li>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);</li> <li>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;</li> <li>g. Philippine Contractors Accreditation Board (PCAB) License;</li> <li>h. Board of Accountancy (BOA) Certificate;</li> </ol> </li> <li>2. Contract and/or Notice of Award as supporting documents for NPC MinGen Form No. NPCMGNSF-INFRA-01, if applicable;</li> <li>3. (a) Valid Professional Regulation Commission (PRC) license for professional personnel; (b) Certificate of Training with accreditation from DOLE for the Construction Safety &amp; Health Officer and (c) Diploma and/or Service Record/Certificate of Employment of previous and/or current employer for Construction Foreman - as supporting documents for NPC MinGen Form No. NPCMGNSF-INFRA-05, if applicable.</li> <li>4. Certificate of Site Inspection issued by Department Manager or his authorized representative.</li> </ol>
21	<p>Additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, <u>prior to contract signing</u>, such as:</p> <ol style="list-style-type: none"> <li>a) Approved construction schedule and S-curve</li> <li>b) Approved manpower schedule</li> <li>c) Construction methods</li> </ol>

	<ul style="list-style-type: none"><li>d) Approved equipment utilization schedule</li><li>e) Construction safety and health program approved by the DOLE</li><li>f) Approved Project Evaluation Review Technique/Critical Path Method (PERT/CPM)</li></ul>
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BID DOCUMENTS

SECTION IV- GENERAL CONDITIONS OF CONTRACT

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER  
& EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO : MG-USD24-001/INFRA2024-USD-002

## *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 issuances, 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.

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER  
& EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS

SECTION V- SPECIAL CONDITIONS OF CONTRACT

PR NO./REF. NO.: MG-1SD24-001//NFRA2024-1SD-002

## *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 <i>on the start date.</i>
6	The site investigation reports are: <b>NONE</b>
7.2	<b>Fifteen (15) years</b>
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 <u>upon contract signing</u> or within <u>three (3) days</u> of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is <b>Fifty (50) %</b> of the billed amount. The updating of Program of Work shall be done bi-monthly.
13	The amount of the advance payment is <b>15% of contract amount and paid in lump sum.</b>
14	<p>For all projects with ABC of Five Million Pesos (PHP5,000,000.00) and below, no progress payment is allowed. First and Final Payment will be made upon the completion of the project.</p> <p>For all projects with ABC of above Five Million Pesos (PHP5,000,000.00), only one (1) progress payment is allowed with an actual progress accomplishment of at least fifty percent (50%). The second payment will be made upon the completion of the project.</p>
15.1	<p>The date by which operating and maintenance manuals are required is <b>upon completion of the project.</b></p> <p>The date by which "as built" drawings are required is <b>upon completion of the project.</b></p>
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 <b>one hundred percent (100%) of the final billing.</b>

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER

EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS

PR NO./REF. NO : MG-ISD24-001/INFRA2024-ISD-002

## *Section VI. Specifications*

## PROJECT HIGHLIGHTS

### PH-1.0 GENERAL

The project is funded by NPC Mindanao Generation. This project aims to optimize the equipment that powers the information systems, delivering greater performance, faster speeds, and smoother operations while providing physical and network security and the integrity of data.

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.

The Contractor shall accept full responsibility for its work in the performance qualifications, specifications, documentation, reports, fabrication, corrosion protection, cleaning, shop testing, preparation for shipment, field testing, warranty provisions and compliance with the applicable codes and standards and the requirements of this specification.

### PH-2.0 PROJECT LOCATION

The project is located at NPC MinGen Headquarter, Maria Cristina, Iligan City.

### PH-3.0 SCOPE OF WORK

The works and services to be performed under this Contract shall essentially consist of, but not limited to the following:

- 1.0 MOBILIZATION
- 2.0 MATERIALS & STRENGTH TESTING
- 3.0 CONSTRUCTION SAFETY & HEALTH PROGRAM
- 4.0 SITE PREPARATION (Demolition of existing Canteen, Concrete Floor, Stripping, Grading Fill & Disposal)
- 5.0 EARTHWORKS
  - 5.1 Structure Excavation (Common Soil)
  - 5.2 Embankment from Structure Excavation
  - 5.3 Embankment from Structure Borrow
  - 5.4 Gravel Bed
- 6.0 REINFORCED STRUCTURAL CONCRETE (20.7 MPa at 28 days)
- 7.0 ROOF FRAMING, ROOFING SYSTEM AND BUILDING BLANKETS
  - 7.1 Steel Works (Roof Framing, Fire Exit, Sun Buffer & Canopy No. 3)
  - 7.2 Roofing System and Building Blankets
- 8.0 WALL SYSTEM & FINISHES
  - 8.1 Laying of CHB



8.2 Plain Cement Plaster Wall Finish

9.0 CEILING SYSTEM

9.1 Interior Ceiling

9.2 Exterior Ceiling

10.0 FENESTRATIONS

11.0 PLUMBING & WATER SUPPLY PIPING

11.1 Plumbing Fixtures, Fittings and Waste Pipe

11.2 Water Supply and Piping

12.0 ELECTRICAL WORKS (Supply, delivery, installation and test of complete lighting and power system)

13.0 SEPTIC TANK

14.0 WATERPROOFING (5-layer elastomeric emulsion with fiberglass mesh and Cementitious waterproofing)

15.0 CLEAN-UP WORKS & DEMOBILIZATION

**PH-4.0 CONTRACT PERIOD**

The contractor shall complete the works as specified in Clause 3 within **Two Hundred Four (204) 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 effective 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 Building** with inter-agency registration and classification of **Small B - Building or Industrial Plant**.

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-1.0 GENERAL CONSTRUCTION FACILITIES**

#### **CW-1.1 Scope**

This section covers the construction and/or maintenance of access roads, drainage systems and other appurtenant structures, moving-in of the Contractor's construction equipment, setting up the Contractor's camp facilities and the disposition of the Contractor's various facilities at the end of the Contract.

#### **CW-1.2 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.

#### **CW-1.3 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.

#### **CW-1.4 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.

#### **CW-1-5 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.

**CW-1.6 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.

**CW-1.7 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.

**CW-1.8 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.

**CW-1.9 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.

**CW-1.10 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 clear and cleaned as directed by NPC.

**CW-1.11 Measurement and Payment**

No separate measurement and payment will be made for the Contractor's Construction Facilities. The entire cost thereof shall be included in the various pay items in the Bill of Quantities.

**CW-2.0 CARE OF WATER DURING CONSTRUCTION**

**CW-2.1 Scope**

In accordance with the specifications contained in his section or otherwise directed, the Contractor shall construct and maintain all necessary temporary drainage ditches and other temporary protective works and he shall also furnish, install, maintain and operate necessary pumping equipment and other devices to protect construction operations free from water coming from any source, including rain.

**CW-2.2 Drainage and Dewatering**

The Contractor shall be responsible for dewatering foundations areas so that work can be carried out on a suitably dry condition. The Contractor shall construct drainage ditches, holes, culverts, furnish, maintain and operate at his own expense all necessary pumps and other dewatering devices to keep all work areas free from water.

After the work is completed and before it is accepted by the NPC, the Contractor shall remove all pumping equipment and shall remove, fill or plug all temporary drainage structures as directed, all at his expense.

**CW-2.3 Measurement and Payment**

No separate measurement and payment will be made for the Care of Water during Construction operations. The cost of furnishing, constructing, maintaining, operating and removing of temporary drainage structures, pumping systems and other dewatering devices necessary to keep construction operations free from water, shall be included in the various pay items in the Bill of Quantities for structures where such care of water is required.

**CW-3.0 CONSTRUCTION SAFETY, HEALTH AND ENVIRONMENTAL PROGRAM**

**CW-3.1 Scope**

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

**CW-3.2 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 and 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 (spoil disposal areas) that shall be provided with suitable drainage — equipped with sediment 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 wastes i.e. used oils, paints, thinner, etc.
- d) Limit construction activities that generate excessive noise to daytime works only to prevent nuisance to nearby residents during rest hours.
- e) As far as practicable, undertake site stripping, grading and excavations 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 vegetative cover, especially cutting of existing trees; and to re-vegetate disturbed areas.
- h) Implement biological control measures such as maintenance of vegetation buffers (i.e. sodding of grass, planting of creeping vines, herbs, shrubs and trees) to shield streams/rivers from sedimentation; planting of vegetative cover over erodible surfaces; and planting of exposed sloping areas with shallow-rooted species like grasses, herbs or creepers.
- i) Locate fill slopes and spoil heaps away from drainage routes and properly remove/dispose the same as soon as practicable.
- j) Preserve or replace, if practicable, natural drainage patterns (when disturbed by civil works) with appropriate drainage channels.
- k) Convey oil-contaminated wastewater from workshops, garages, or gas filling stations through an oil trap (i.e. improvised oil-water separator) prior to discharge.
- l) Spray water, wherever and whenever necessary, to minimize dust generation.
- m) Provide PPEs and other safety provisions required by DOLE, for its project/site works.
- n) Take all necessary steps to prevent the pollution of groundwater and/or water bodies in the vicinity of the project site.

**CW-3.3 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-4.0 SITE GRADING**

**CW-4.1 Scope**

In accordance with the specifications contained herein and in conformance with the lines, slopes, grades and extent shown on the plans or otherwise directed by the

NPC, the Contractor shall furnish all equipment, labor and materials and shall perform the required grading work.

**CW-4.2 Site Preparation**

**CW-4.2.1 Clearing and Grubbing**

The Contractor shall perform clearing and grubbing on the project site. The site shall be cleared and grubbed of all trees and brush except particular trees, which may be retained by the NPC for preservation. Particular trees to be left in place shall be protected from scarring and/or other injuries during clearing and grubbing work and other construction operations.

All stumps, roots and brush shall be removed to a depth of thirty (30) cm below original ground surface and disposed of in a place designated by the NPC. Downed timber, which may be ordered saved by the NPC for future use, shall be cut into logs as directed and neatly piled in a place designated by the NPC, otherwise they shall be disposed of same as above.

**CW-4.2.2 Demolition of existing concrete**

Where shown on the drawings or if not shown but directed by the NPC, the Contractor shall perform miscellaneous work like demolition, removal, chipping, replacement or transfer of existing structures and other miscellaneous work. All demolished structures shall be disposed of as directed by NPC.

**CW-4.3 Grading**

**CW-4.3.1 General**

The word "grading" as defined herein means bringing to required grades all areas in accordance with the lines, slopes, elevations and grades shown on the drawings or as directed by the NPC.

**CW-4.3.2 Classification of Materials**

All materials in grading work shall be unclassified regardless of the nature of materials encountered during grading excavation and of materials used in grading fill. It is on the basis of unclassified material that Contractor shall determine his unit bid price for grading excavation and grading fill.

**CW-4.3.3 Excavation and Fill**

Areas required to be brought to grade shall be excavated or filled as the case may be. Grading work shall be carried out in such a manner that the free drainage is maintained at all times and nowhere shall pondage be found in any part of the work.

The NPC may require the modification of slopes and grades according to the conditions actually encountered during excavation, but such change or modification shall not be construed to mean by the Contractor as a basis for additional compensation over and above the contract unit prices.

Any over-excavation performed by the Contractor for any purpose or reason, except as may be ordered by the NPC, shall be at the Contractor's expense and any excess of excavation shall be refilled, where required, with approved materials that shall be furnished, placed and properly compacted at the expense of the Contractor.

Unsuitable materials, as determined by the NPC, which may be encountered below established grade, shall be removed to a depth as directed and accordingly replaced with suitable materials approved by the NPC. The removal and proper disposal of such unsuitable materials shall be paid for at the contract unit price for the item, Grading Excavation, and payment for placing and compacting suitable material be made at the contract unit price for the item, Grading Fill, in the bill of quantity.

Fill work shall not be started until the area has been inspected and approved by the NPC after stripping. Grading fill shall be spread and compacted in layers of 15 cm. loose volume and compacted with approved roller weighing not less than 10 tons. Each layer shall be moistened or dried as directed for maximum compaction. No succeeding layer shall be placed thereon unless the preceding layer has been tested for compaction and approved by the NPC.

In the event that construction of concrete footing or other concrete foundations is on fill, the fill shall be compacted efficiently and thoroughly so that when the fill is tested for compaction at the required foundation elevation for the structure, the required bearing capacity is attained but in no case less than 200 KPa. In no case shall filling and compaction work to be done without the presence of NPC's inspectors. The Contractor shall be held liable for any structural instability or damage that might result in consequence to noncompliance of this requirement. The Contractor shall institute corrective measures to bring the foundation base to a condition or state that will conform to the required bearing capacity; and also, to repair and make good any damage on the structure to the satisfaction and at no cost to NPC.

**CW-4.3.4 Slides**

In the event that slides occur along excavated slopes during grading operations or after completion of grading but prior to acceptance of the work, the Contractor shall remove and dispose the slide materials and also to trim the slopes as directed to leave the slopes in a safe and neat condition all at no additional cost to NPC, unless occurrence of such slides is occasioned by causes beyond control of the Contractor. In such event, payment for the satisfactory removal and proper disposal of slide material and finishing and rounding of slopes will be paid for at the equivalent of thirty percent (30%) of the contract unit price per cubic meter for the item Grading Excavation.

**CW-4.3.5 Slip-Outs**

In the event of slip-outs in any part of the grading fill prior to final acceptance of the work, the Contractor shall rebuild such portion of the fill. In the case it is determined that the slip-outs was caused through the fault of the Contractor, the rebuilding of the fill shall be performed by the Contractor at no extra cost to NPC; otherwise, the reconstruction of the fill will be paid for thirty percent (30%) of the contract unit for the item, Grading Fill.

**CW-4.4 Disposal**

All excess materials from grading work (including excess materials in structural excavation and miscellaneous work) shall be disposed of the by the Contractor. The acquisition of the right-of-way for the area of disposal including the access thereto, permits, and other requirements, shall be the responsibility of Contractor at no cost to NPC. The Contractor shall be held solely liable for any claim by third parties that may arise from improper transport and disposal of excess materials. The cost of

acquisition of the above-mentioned right-of-way shall be included in the unit bid price for excavation.

**CW-4.5 Sources of Fill Materials**

When suitable materials from grading excavation are deficient to meet the quantity required for grading fill, additional fill materials shall be obtained from other sources proposed by the Contractor and approved by the NPC. Cost of excavating, hauling, placing and compacting additional materials from borrow sources shall be included in the unit price bid for the item, Grading Fill. Acquisition of right-of-way to these sources shall be the responsibility and account of the Contractor.

**CW-4.7 Measurement and Payment**

Measurement and payment shall be made at the contract unit price per square meter 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-5.0 STRUCTURAL EXCAVATION, FILL AND BACKFILL**

**Cw-5.1 Scope**

In accordance with the specifications contained herein and as shown on the drawings and otherwise directed, the Contractor shall perform all the required structural excavation, fill and backfill for the entire project, including the proper disposal of excess excavated materials.

**CW-5.2 Materials**

**CW-5.2.1 Structure Excavation**

No classification will be made on the materials excavated. The Contractor shall determine his/her unit bid price for structural excavation based on unclassified material regardless of the nature of the materials actually encountered and excavated.

**CW-5.2.2 Structural Fill**

**a) Sand and Gravel Fill**

The material shall be of the same classification as the sand and gravel base consisting of river sand and gravel as approved by the NPC. The composite material shall be free from vegetable matter and lumps or balls of clay, and shall be uniformly graded from coarse to fine in accordance with the grading requirements shown below:

Sieve Designation (Square Mesh Sieves)	Percentage by Weight Passing
50.0 mm (2")	100
25.4 mm (1")	55-85
9.5 mm (3/8")	35-60
4.76 mm (No. 4)	25-50
2.08 mm (No. 10)	20-40



0.42 mm (No. 40)	8-20
0.074 mm (No. 200)	2-8

- b) Structural earth fill shall consist of filling with suitable materials obtained from grading excavation or from borrow areas approved by the NPC.

**CW-5.2.3 Special Foundation, if any**

The NPC shall have the option to use one or both of the following materials for special foundations, whether or not shown on the drawings:

- a) Lean Concrete

The strength of lean concrete shall be 13.79MPa or as designated by the NPC.

- b) Selected Materials

Selected materials shall consist of compactable material which, when compacted, shall attain the required bearing capacity. The material could be a combination of earth and rock particles not greater than 8 cm including sandy clay, gravelly clay, or shale, all approved by the NPC.

Bed materials for water pipes and/or drainage culverts shall use sand fills.

**CW-5.2.4 Structural Backfill**

Backfill for Structures Other Than Pipes — Material for backfill shall consist of compactable and approved material taken from grading and structural excavations. Any additional material needed shall be obtained from borrow areas proposed by the Contractor and approved by the NPC.

Backfill for Sewerage and Drainage Pipes — The layer of backfill materials immediately above, up to 60 cm. from the top of pipe, and on the sides of the pipe shall consist of selected material consisting of clay soil and/or other fine materials that are free from stone particles, roots, debris. The upper layer shall consist of compactable materials taken from pipe trench and other structural excavation.

Backfill for Water Supply Pipes — Backfill for water supply pipes shall consist of compactable materials taken from trench excavation and approved by the NPC.

**CW-5.3 Construction**

**CW-5.3.1 Excavation**

- a) General

The Contractor shall notify the NPC sufficiently in advance before the beginning of any excavation so that a joint survey for baseline data and cross-sectional measurements can be undertaken on the undisturbed/natural ground surface. All excavation shall be carried out according to the lines, slopes and grades shown on the drawings. In case an increase or decrease in quantities occur as a result of changes made by the NPC to such lines, slopes, and grades, the provisions on Variation Orders under the General Conditions of Contract (GCC) shall apply.

After each excavation is completed or where replacement of unsuitable material below required foundation grade has been undertaken, the Contractor shall notify

the NPC so that proper inspection and confirmatory test on the bearing capacity of the foundation material can be made. In no case that concrete, sewer, drainage or water supply pipe can be placed unless a written approval has been issued by the NPC.

Over-excavation performed by the Contractor due to his carelessness shall be filled and properly compacted with the suitable material approved by NPC, at no additional cost to NPC.

b) Structural Excavation, Structure Other Than Pipes

The Contractor shall excavate the foundations to the specified side slopes and depths shown on the drawings, after which the NPC will conduct tests on the underlying material below foundation grade to determine the actual bearing capacity at such depth. If the required bearing capacity is not attained, the NPC shall instruct the Contractor to excavate further down until, in the opinion of the NPC, the bearing capacity is adequate to sustain the applied load on the foundation.

Compliance to such instruction shall not entitle the Contractor for additional compensation over and above the unit prices for excavation regardless of the nature of material excavated. For purposes of measurement, the applicable paylines for the excavation under this condition or situation shall be as shown on the drawings that show the paylines for excavation and special foundation materials.

c) Drainage and Sewerage Pipes and Cable Trench

The width of trench excavation for drainage and sewerage pipes and cable trench shall be as indicated on the drawings. All trench bottoms shall be excavated to the foundation grade indicated, regardless of the foundation material classification.

d) Water Supply Pipes

Trenches for main or feeder lines shall be excavated to the depth of no less than 0.25 meter on open ground and 0.60 meter under roadways and parking areas, both depths measured from the finished grade surface.

Service pipes shall be buried to a depth of at least 0.15 meter below grade.

**CW-5.3.2 Structural Foundation Fill**

No fill materials shall be placed in any part of the fill foundation unless the foundations have been inspected and approved by the NPC. Fill materials shall be placed and spread in layer covering the entire length and breadth of the section under construction, each layer not to exceed 15 cm. in loose volume thickness and compacted thoroughly to the desired compaction as determined by the NPC. No succeeding layer shall be placed until the previous layer has been tested and approved, as to compaction, by the NPC.

**CW-5.3.3 Special Foundations**

If unsuitable material is encountered or if the foundation material is unsuitable such that the required bearing capacity of the foundation cannot be attained at the required elevation, further excavation shall be performed by the Contractor as stated in CW-5.3.1 b.

Excavated materials below foundation grade shall be replaced at the direction of the NPC, either by lean concrete or by selected materials as mentioned in cw-5.2.3.

Selected materials shall be placed in 15-cm layers and compacted until the required bearing capacity is attained.

**CW-5.3.4**

**Backfill**

**1. Structures Other Than Pipes**

Excavated areas around structures for backfilling shall be backfilled with approved materials in horizontal layers, each not exceeding 15cm. (6") in loose volume thickness. Each layer shall either be moistened or dried as directed and thoroughly tamped with tampers having no less than 160 cm<sup>2</sup> of tamping area and weighing not less than 20 kg. The last layer shall be neatly brought up to the level of the adjoining finished grade surface.

In no case shall backfill be placed around concrete structures until after fourteen (14) days from placement of the concrete.

**2. Drainage and Sewerage Pipes**

After the pipes have been installed and grouted joints sufficiently cured, but in no case less than seven (7) days allowed for curing as specified in NSCP and the whole pipeline inspected, backfill materials specified herein shall be placed in layers as directed, each layer either dried or moistened as directed and thoroughly tamped. The backfill shall be brought up evenly on both sides of the pipe up to the top of the pipe and finally up to the finished grade surface.

**3. Water Supply Pipes**

After the pipeline has been installed and tested it shall be backfilled in layers as directed and compacted to the satisfaction of the NPC.

**CW-5.4**

**Measurement and Payment**

**CW-5.4.1**

**Structural Excavation**

Measurement for payment for structural excavation performed by the Contractor for structures (except drainage, sewerage and water supply pipes, and appurtenances of which cost of excavation and backfill is included in the cost of installed pipe and constructed appurtenances) will be based on the number of cubic meters of materials excavated.

For purpose of payment, all authorized excavation below foundation grade (like in the case of unsuitable materials encountered) shall be included in the measurement.

Payment will be made at the contract unit price for Structural Excavation in the bill of quantity, which payment shall constitute full compensation for furnishing all labor and equipment necessary for excavation work and proper disposal of excess material excavated.

**CW-5.4.2**

**Structural Foundation Fill**

Measurement for payment for Structural Foundation Fill will be based on the number of cubic meters of fill materials placed within the neat lines as shown on the drawings.

Payment will be made at the contract unit price for the item, Sand and Gravel Fill/Base, in the bill of quantity, which payment shall constitute full compensation for furnishing, placing and compacting fill materials; labor which include spreading, compacting, etc., equipment and other incidentals necessary to complete the item.

**CW-5.4.3 Special Foundations**

Measurement for payment for lean concrete and/or selected materials placed within the pay lines for excavation will be based on the number of cubic meters in-place and accepted.

Payment will be made at the contract unit price for the corresponding item shown in the bill of quantity, which payment shall cover all costs for furnishing all labor, materials, equipment and tools necessary to complete the item.

**CW-5.4.4 Structural Backfill**

Measurement for payment for Structural Backfill (except backfill for drainage and sewerage pipes, appurtenances and other structures of which cost of backfill is included in the cost of installed pipes and appurtenances) will be based on the number of cubic meters of approved materials, backfilled, satisfactorily compacted and accepted. Any backfill material placed outside the pay lines for excavation to replace slides or over-excavation will not be paid.

Payment will be made at the contract unit price for the item, Structural Backfill, in the bill of quantity, which payment shall constitute full compensation for furnishing all labor, materials and equipment necessary for backfilling work.

**CW-5.4.5 Trench Excavation and Backfill for Sewerage, Drainage and Water Supply Pipes and Cable Trench**

No separate measurement and payment will be made for trench excavation and backfill for all sewerage, drainage and water supply pipes. Payment for trench excavation and backfill for pipes shall be included in the payment pertaining to pipes as shown in the bill of quantity.

**CW-6.0 CONCRETE**

**CW-6.1 Scope**

In accordance with the specifications contained in this section, the Contractor shall furnish all materials, labor, equipment and tools and perform all concreting works in accordance with the drawings, or as otherwise directed.

**CW-6.2 Class of Concrete**

Class of concrete or strength shall be as indicated on the drawings, which shall conform to the minimum requirement for compressive strength indicated on the provision of NSCP for Concrete.

**CW-6.3 Materials**

**CW-6.3.1 Cement**

Cement for concrete works shall be furnished by the Contractor and shall conform to the requirements of the latest edition of the Standard Specifications for Portland Cement (ASTM C150).

Unless otherwise specified, cement shall be ordinary Portland Cement, Type I for general construction which concrete is not in contact with soils or ground water and Type II for concrete in contact with soil or ground water.

Changing of brand or type of cement within the same structure will not be permitted unless with prior permission and approval obtained from the NPC.

For the 2<sup>nd</sup> floor slab and beams, use Ready Mix Concrete, Class A at 28.

**CW-6.3.2 Reinforcing Steel**

The Contractor shall furnish all reinforcing steel of the sizes shown on the drawings and in accordance with the herein specifications for reinforcing steel.

**CW-6.3.3 Water**

Water for use in concrete shall be subject to the approval of the NPC. It shall not be salty and shall be reasonably clear and free from oil, acid, injurious alkali or vegetable matter.

**CW-6.3.4 Aggregates**

All coarse and fine aggregates shall consist of hard, tough, durable and clean, uncoated particles. All foreign materials and dust shall be removed by processing. Aggregates shall generally be rounded and reasonably free from thin, flat and elongated particles in all sizes and well graded from coarse to fine.

**CW-6.3.5 Formwork**

Timber, lumber and plywood to be used for falsework and formwork shall be sound and shall comply with the requirements of this specifications. Use forms where a smooth form finish is required. Lumber shall be square-edged or tongue-and-groove boards, free of raised grain, knotholes and the other surface defects. Steel when used shall conform to the requirements of the ASTM A36. Steel form surfaces shall not contain irregularities, dents, or sags.

Forms shall be wood, plywood, or steel. Wood forms for surfaces exposed to view in the finished structure and requiring a smooth form finish, shall be plywood. For unexposed surfaces, undressed square-edge lumber may be used. Forms for surfaces requiring special finishes shall be plywood, or shall be lined with plywood, a non-absorptive, hard-pressed fiberboard, absorptive-type lining or other suitable material. Plywood, other than for lining, shall be concrete-form plywood free of raised grain, torn surfaces, worn edges, patches, or other surface defects, which would impair the texture of the concrete surface. Surfaces of steel forms shall be free from irregularities, dents, and sags.

**CW-6.4 Storage of Materials**

**CW-6.4.1 Cement and Aggregates**

All cement shall be stored, immediately upon delivery at the Site, in weatherproof building that will protect the cement from dampness. The floor shall be adequately raised from the ground and in buildings placed in the locations approved by NPC.

Provisions for storage shall be ample, and the shipments of cement as received shall be separately stored in such a manner that allows the earliest deliveries to be used first and to provide easy access for identification and inspection of each shipment. Storage buildings shall have capacity for storage of sufficient quantity of cement to allow sampling at least twelve (12) days before the cement is to be used. Bulk cement, if used, shall be transferred to elevated air tight and weatherproof bins. Stored cement shall meet the test requirements at any time after storage when NPC orders retest. At the time of use, all cement shall be free flowing and free of lumps.

Handling and storing of concrete aggregates shall be such that segregation or inclusion of foreign materials is sufficiently prevented. NPC may require that aggregates be stored on separate platforms at satisfactory locations.

In order to secure greater uniformity of concrete mix, NPC may require that the coarse aggregate be separated into two or more sizes. Different sizes of aggregates shall be stored in separate bins or in separate stockpiles and relatively away from each other to prevent the material at the edges of the piles from intermixing.

**CW-6.4.2 Reinforcing Steel**

Reinforcing steel shall be stored in accordance with the specifications for reinforcing steel.

**CW-6.5 Concreting**

**CW-6.5.1 General**

The written approval of the NPC shall be secured prior to any concreting work. All concrete shall be poured on dry and cleaned surfaces.

**CW-6.5.2 Formwork Construction**

Forms shall be installed mortar and watertight, true to the dimensions, lines and grades of the structure and with the sufficient strength, rigidity, shape and surface smoothness as to leave the finished works true to the dimensions shown on the drawings or required by NPC and with the surface finish as specified.

The inside surfaces of forms shall be cleaned of all dirt, mortar and foreign material. Forms, which will subsequently be removed, shall be thoroughly coated with a release agent or coating prior to its use. The release agent shall be commercial quality form oil or other approved coating which will permit the ready release of the forms and will not discolor the concrete.

Formwork for concrete placed underwater shall be watertight.

Forms shall be constructed so that the form surface of the concrete does not undulate excessively in any direction. Undulations exceeding either 2 mm or 1/270 of the center distance between studs, joints, form stiffeners, form fasteners, or wales will be considered to be excessive. Should any form of the forming system, even though previously approved for the use, produce a concrete surface with excessive undulations, its use shall be discontinued until modifications, satisfactory to NPC's Representative, have been made.

Portions of concrete structures with surface undulations in excess of the limits herein stated may be rejected by the NPC.

Form fasteners consisting of bolts, clamps or other devices shall be used as necessary to prevent spreading of the forms during concrete placement. The use of ties consisting of twisted wire loops to hold the forms in position will not be permitted.

All formworks shall be provided with adequate clean-out openings to permit inspection and easy cleaning after all reinforcement has been placed. Where forms for continuous surfaces are placed in successive units, the forms shall be fitted over the completed surface to obtain accurate alignment of the surface and to prevent leakage of mortar. Panel forms shall be constructed so that they can be removed without damaging the concrete. All exposed joints, edges, and external corners shall be chamfered a minimum of 20 mm unless specified otherwise herein. Forms for heavy girders and similar members shall be constructed with a proper camber.

Coating: Before placing the concrete, the contact surface of forms shall be coated with a non-staining mineral oil or suitable non-staining form coating compound or shall be given two coats of nitrocellulose lacquer, except as specified otherwise. Mineral oil shall not be used on forms for surfaces, which are to be painted. For surfaces not exposed to view in the finished structure, sheathing may be wetted thoroughly with clean water. All excess coating shall be removed by wiping with cloths. Reused forms shall have the contact surfaces cleaned thoroughly. Those that have been coated shall be given an additional application of the coating. Plaster waste molds shall be layered with two coats of the thin shellac or lacquer and coated with soft or thinned non staining grease.

Tolerance and Variations: The Contractor shall set and maintain concrete forms to ensure that, after removal of the forms and prior to patching and finishing, no portion of the concrete work will exceed any of the tolerances specified. Variations in floor levels shall be measured before removal of supporting shores. The Contractor shall make the necessary corrective measures for the variations resulting from deflection, or when the latter affects concrete quality or curing. The tolerances specified shall not exceed by any portion of the concrete surfaces; the specified variation for one element of the structure shall be considered unacceptable when it permits another element of the structure to exceed its allowable variations. Except as otherwise specified herein, tolerances shall conform to ACI 347.

**CW-6.5.3 Placing Reinforcement**

Reinforcing steel and embedded items shall be properly and securely installed prior to the placing of concrete.

In no case shall concreting start without prior inspection and approval by the NPC of the placed reinforcement and other embedded items.

**CW-6.5.4 Mixing Concrete**

Mixing of concrete shall conform to the requirements of ACI Code for Concrete Construction.

**CW-6.5.5 Placing Concrete**

Concrete shall be conveyed from mixers to the forms or to the place of deposit as rapidly as possible and by methods that will prevent segregation or loss of ingredients. There shall be no vertical drop greater than 1.5 meters except where suitable equipment like metal pipe or tremie is used. The pipe or tremie shall be kept full of concrete and its end shall be kept buried in the newly placed concrete. Chutes

through which concrete is delivered to the structure in a thin, continuously exposed flow will not be permitted except for very limited or isolated sections of the work.

Earth surfaces, upon which concrete shall be placed, shall be cleaned, dry and thoroughly compacted before placing the concrete.

Rock surface, upon which concrete shall be placed, shall, be thoroughly cleaned of loose or semi-detached or unsound rock particles. Before placing concrete, all surfaces shall be wetted thoroughly to keep them in a completely moist condition, after which leveling mortar of the same cement ratio as the concrete mix complete contact between concrete and the leveled surface.

**CW-6.5.6 Finishing Concrete**

After the concrete has been deposited, distributed and vibrated, the concrete shall be struck off and screened by mechanical means approved by the NPC. The finishing machine shall be of the screening and troweling type designed and operated both to strike off and to consolidate. Hand finishing may be employed when suitable finishing machines are not available. Finishing of concrete shall be done, as directed, to the satisfaction of the NPC.

All finished surfaces shall be tested with 3 meters straight edge and any variation of the surface from the desired crown or cross section shall be properly corrected.

**CW-6.5.7 Removal of Forms**

Formwork shall not be removed without the permission of NPC; where such permission, however, shall not relieve the Contractor of its responsibility for the safety of the work. Blocks and bracing shall be removed at the time the forms are removed and in no case shall any portion of the wood forms be left in the concrete.

Falsework removal for continuous structures shall be as directed by NPC but in which case shall be temporarily supported such that the structure is gradually subjected to its working stresses. False work shall not be released in any span until the strength specified hereunder is attained.

When concrete strength tests are to be used as basis for the removal of forms and supports, the compressive strength of concrete must meet the following minimum requirements:

	Min. Time	Min. % Strength
Centering under girders and beams	14 days	80%
Sides of beams and all vertical surfaces	1 day	70%
Floor Slabs	14 days	80%

The site shall be cleared of all debris and refuse resulting from work.

**CW-6.5.8 Curing and Protection**

Concrete shall be cured for a period of not less than fourteen (14) consecutive days by keeping the surfaces of concrete continuously (not periodically) wet. Where tongue and groove forms were used and left in place of curing, they shall be kept wet at all times prevent opening at the joints and drying out of the concrete.

**CW-6.5.9 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 agency 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.

As work progresses, test cylinders shall be fabricated from the concrete samples and tested in accordance with ASTM C31 and ASTM C39. At least one set of four (4) cylinders shall be made from each 10 cu.m of the concrete placed of each class. Also at least one set shall be made per day for each class of concrete placed each day.

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 at 28 days.

The compressive strength of the concrete shall be deemed acceptable if the average of the two 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-6.5.10 Tolerances and Repair for Concrete Construction**

Concrete structures shall be constructed to the lines shown on the drawings or where so required to suit actual field requirements. Any structure that does not the Contractor at no additional cost to the Corporation.

Repairs shall be made at surface imperfections due to faulty placing of concrete and cuts on the structures due to the removal of excess concrete on the lines shown on the drawings. Such repairs shall be made immediately after early stripping of the forms, after the imperfections have been identified and the methods of repair appropriately established.

#### **CW-6.5.11 Second Stage Concrete**

The second stage of concrete finishing shall be done only after the final installation of all pertinent equipment, anchorages, pipings, conduits and other embedded items as may be required for all electromechanical works.

#### **CW-6.6 Measurement and Payment**

Measurement for payment for Concrete, except concreting works that are associated to various construction and/or installation/erection works (i.e. equipment foundation and pedestals, perimeter wall footing and posts, etc.) included in the bill of quantity under separate pay item, will be based on the volume of concrete placed and accepted within the neat lines of the structure as shown on the drawings or in

accordance with the manner of measurement set forth in the various sections of the Technical Provisions. No deduction will be made for rounded or beveled edges or space occupied by the metal items 10 sq. cm. or less in cross section, embedded in concrete.

Payment will be made at the corresponding contract unit price for the various items of concrete shown in the bill of quantity. Payment shall cover all costs for furnishing all labor, materials, including equipment and tools required for concreting work. Payment shall also include non-shrink cementitious grout and epoxy grout inside foundation block out and above engine base plate and care of water.

No separate measurement for payment will be made for formworks of which the cost shall be included in concreting works.

**CW-7.0 REINFORCING STEEL**

**CW-7.1 Description**

This work shall consist of furnishing, fabricating, and placing of steel reinforcement of the type, size, shape and grade required in accordance with these specifications and in conformity with the requirements shown on the Drawings or as directed by the NPC.

**CW-7.2 Material Requirement**

All material shall conform to the requirements hereinafter given. Certified test reports (mill test or other) shall be submitted to the NPC for all reinforcement steel used. These tests shall show the results of all chemical and physical tests made.

**CW-7.2.1 Bar Reinforcement**

Reinforcement bars for concrete shall be hot-rolled, weld able, deformed billet-steel bars conforming to the latest requirements specified in ASTM A615 and PNS 49 unless shown on the Drawings or as required by the NPC. The use of the cold twisted bars is not permitted. Bar reinforcement shall be shipped in standard bundles, tagged and marked in accordance with the Code of Standard Practice of the Concrete Reinforcement Steel Institute.

**CW-7.2.2 Sampling**

The NPC's Representative will sample reinforcement bars at the source of supply or at the point of distribution, and the Contractor shall notify the NPC in sufficient time in advance to permit sampling and testing before shipment is made. Three (3) samples from each size shall be taken at random representing five (5) tons or fraction thereof of each size.

**CW-7.3 Construction Requirement**

**CW-7.3.1 Order List for Bent Bars**

Before materials are ordered, the Contractor shall furnish all order lists and bending diagrams for the approval of the NPC. The approval of order lists and bending diagrams by the NPC shall in no way relieve the Contractor of responsibility for the correctness of such lists and such lists and diagrams. Any expenses incident to the revisions of materials furnished in accordance with such lists and diagrams to make them comply with the drawings shall be borne by the Contractor.

**Shop Drawings for Reinforcing Steel (ACI 315):** Indicate bending diagrams, assembly diagrams, splicing and laps of bars, shapes, dimensions and details of bar reinforcing, accessories and concrete cover. Do not scale dimensions from structural drawings to determine lengths of reinforcing steel.

#### CW-7.3.2 Fabrication

Bent bar reinforcement shall be cold bent as shown on the drawings or as required by the NPC. Bars shall be bent around circular pin having the following diameters (D) in relation to the diameter of the bar (d):

Bars 6mm@ to 20mm<) Inclusive	D=6d
Bars 25mm@ and 28mm@	D=8d
Bars 32mmØ and greater	D=10d

Bends and hooks in stirrups and lateral ties may be bent to the diameter of the principal bar enclosed therein.

#### CW-7.3.4 Protection of Material

Steel reinforcement shall be protected at all times from injury. When placed in the work, it shall be free from dirt, detrimental scale, paint, oil or other foreign matter. However, when steel has on its surface easily removable and detrimental rust, loose scale or dust, it shall be cleaned by a satisfactory method, approved by the NPC.

Store reinforcement of the different sizes in racks raised above the ground with accurate identification. Protect reinforcing steel from contaminants such as grease, oil and dirt.

#### CW-7.3.4 Placing and Fastening Reinforcement & Miscellaneous Material (ACI-301)

All reinforcement bars, stirrups, hanger bars, wire fabric, spirals and other reinforcing materials shall be provided as indicated in the drawing or required by the specification, together with all necessary wire ties, chairs, screws, supports, and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from rust, scale, oil, grease, clay, and other coatings, and foreign substances that would reduce or destroy the bond. Rusting of reinforcement shall not reduce the effective cross-sectional area of the reinforcement to the extent that the strength is reduced beyond specified values. Heavy, thick rust or loose, flaky rust shall be removed by rubbing with burlap or other approved method, prior to placing. Reinforcement that has bends not shown on the project drawings or on approved shop drawings, or is reduced in section by rusting such that its weight is not within permissible ASTM tolerances, shall not be used. All reinforcement shall be supported and wired together to prevent displacement by construction loads or by the placing of concrete. Unless directed otherwise by the NPC, reinforcement shall not be bent after being partially embedded in hardened concrete. Detailing of reinforcing shall conform to ACI 315. Where cover over reinforcing steel is not specified or indicated, it shall be in accordance with ACI 318.

All steel reinforcement shall be accurately placed in position shown on the drawings or as required by the NPC and firmly held there during the placing and setting of the concrete. Bars shall be tied at all intersections except where spacing is less than 30 mm in each direction, when alternate intersections shall be tied. Ties shall fasten on the inside.

Distance from the forms shall be maintained by means of stays, blocks, hangers or other approved supports. Blocks for holding reinforcement from contact with the forms shall be pre-cast mortar blocks of approved shape and dimensions or approved chairs. Layers of bars shall, be separated by pre-cast mortar blocks or by other equally suitable devices. The use of pebbles, pieces of broken stone or brick, metal pipe and wooden blocks or metal chairs shall not be permitted. Unless otherwise shown on the Drawings or required by the NPC, the minimum distance between bars shall be 40mm. Reinforcement in any member shall be placed and then inspected and approved by the NPC before the placing of concrete commences. Bundled bars shall be tied together at not more than 1.80 meters intervals.

Reinforcement shall be placed accurately and secured. It shall be supported by suitable chairs and spaces or by metal hangers. On the ground, and where otherwise subject to corrosion, concrete or other suitable non-corrodible material shall be used for supporting reinforcement. Where the concrete surface will be exposed to the weather in the finished structure or where rust would impair the appearance or finish of the structure, all reinforcement supports, within specified concrete cover, shall be galvanized or made of a suitable non-corrodible material.

All placement or movement of reinforcing steel after placement, to positions other than indicated or specified, shall be subject to the approval of the NPC.

Concrete protection for reinforcement shall be as indicated, or if not indicated, in accordance with ACI 318.

The minimum concrete cover for reinforcement specified in the bid documents shall takes precedence over all permissible reinforcement placement variations; nothing in the variations listed below is to be constructed as permitting violation or compromise thereof:

- a. Height of bottom bars  $\pm 6$ mm above form
- b. Lengthwise positioning  $\pm 50$ mm of bars
- c. Spacing bars in walls and solid slabs  $\pm 25$ mm
- d. Spacing bars in beams and footings  $\pm 6$ mm
- e. Height of top bars  $\pm 6$ mm
- f. Stirrup spacing:
  - 1) For any one stirrup  $\pm 25$ mm
  - 2) For over-all group  $\pm 25$ mm of stirrup

Anchors and bolts; including but not limited to those for the machine and equipment bases; frames or edgings, hangers and inserts, door bucks, pipe supports, pipe sleeves, pipe passing through walls, metal ties, conduits, flashing reflects, drains and all other materials in connection with the concrete construction shall, where practicable be placed and secured in position when the concrete is placed. Anchor bolts for machines shall be set to templates, shall be plumbed carefully and checked for location and elevation with an instrument, and shall be held in position rigidly to prevent displacement while concrete is being placed.

#### CW-7.3.5 Splicing

Splicing of reinforcement shall be in accordance with ACI 318, except as indicated otherwise or modified herein. Where splices in addition to those indicated on the drawings are necessary, they shall be approved by the NPC prior to their use. Splices shall not be made in beams, girders, and slabs at points of maximum stress. Butt Splicing shall preferably be used over lapping for bar sizes larger than 32 mm@. Splices to be welded shall conform to AWS D1.4; certification of weld ability of the reinforcement by the manufacturer, shall be submitted to the NPC. If the Contractor elects to use butt splicing of reinforcing, he shall submit complete details of the process to be used by the NPC. If the butt splices are used the Contractor shall ensure that the splice meets the requirements specified herein by performing at least three splices which shall be submitted for tests to a testing laboratory that has been approved for such testing by the NPC. The cost of these shall be borne by the Contractor.

All reinforcement shall be furnished in the full lengths indicated on the Drawings. Splicing of bars, except where shown on the Drawings will not be permitted without the written approval of the NPC. When allowed, 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 where shown on the Drawings.

Unless otherwise shown on the Drawings, bars shall be lapped a minimum distance of:

Splice Type	Grade 40 Min. Lap	But No Less Than
Tension	24d	300mm
Compression	20d	300mm

Where d is the diameter of the bar. In lapped splices, the bars shall be placed in contact and wired together. Lapped splices will not be permitted at locations where the concrete section is insufficient to provide a minimum clear distance of one and one-third the maximum size of coarse aggregate between the splice and the nearest adjacent bar. Welding of reinforcing steel shall only be done if detailed on the Drawings or if authorized by the NPC in writing. Spiral reinforcement shall be spliced by lapping at least one and half (1 1/2) turns or by butt-welding unless otherwise shown on the drawings.

#### CW-7.4 Measurement and Payment

The quantity to be paid for shall be the calculated theoretical number of kilograms of reinforcement steel bars as determined from the net length of the steel shown on the drawings, incorporated in the concrete and accepted. The weight of deformed bars will be computed from the theoretical weight of the same nominal size as shown in the following tabulation:

Designation	Size (mm)	Weight (kg/m)
No. 2	6	0.222
No. 3	10	0.616
No. 4	12	0.888
No. 5	16	1.579
No. 6	20	2.468
No. 8	25	3.854
No. 9	28	4.833

No. 10	32	6.313
No. 11	36	7.991

Clips, ties, separators and other and related materials used for positioning and fastening the reinforcement in place as required by the NPC shall not be included in the weight-calculated payment under this item. If bars are substituted upon the Contractor's request and as a result, more steel is used than specified — only the amount specified shall be included.

When laps are made for splices, other than those shown on the drawings or required by the NPC and for the convenience of the Contractor, the extra steel shall not be measured nor paid for.

The accepted quantity shall be paid at the corresponding unit price for the item, Reinforcing Steel as shown in the bill of quantity which price and payment shall be made in full compensation for furnishing materials, labor, equipment and incidentals necessary to complete this item.

**CW-8.0 STRUCTURAL STEEL**

**CW-8.1 General**

This section covers the fabrication, erection, and shop painting of structural steel in accordance with the AISC "Manual of Steel Construction" referred to herein. In the AISC "Manual of Steel Construction" referred to herein, the Specification for Design, Fabrication, and Erection of Structural Steel for Buildings," and "Structural Joints using A325 or A490 Bolts" shall be considered a part thereto.

**CW-8.1.1 Submittals**

Shop Drawings of all structural steel (including all connection details) in five (5) copies for approval prior to fabrication of structural steel with complete information necessary for the fabrication and erection of the component parts of the structure including the location, type and size of all bolts, welds, member sizes and lengths, camber & connector details, blocks, copes, and cuts. Include all welds by standard welding symbols.

Erection Plan consists of descriptive data to illustrate the structure steel erection procedure including the sequence of erection and temporary shoring and bracing, and written description of the detailed sequence of all welding, including each welding procedure to be performed.

Certificates of Conformance for the following:

- Bolts, Nuts and Washers
- Welding Electrodes and Rods
- Paint
- Steel
- Certified Test Reports

Chemical Analysis and Tensile Strength Test of structural steel in accordance to ASTM A53.

For bolts and nuts, the Contractor shall also submit chemical- analysis, including tensile strength and hardness tests as required by ASTM A325.

**CW-8.1.2 Delivery and Storage**

All materials shall be handled, shipped and stored in a manner that will prevent distortion or other damages. Materials shall be stored in a clean and properly drained location and out of contact with the ground. Damaged materials shall be replaced or, when permitted by NPC, may be repaired in an approved manner at no additional cost to NPC.

**CW-8.2 Materials**

All the materials shall be of the best quality of their kind, well graded and within the allowable distortions. They shall be free from flakes, corrosion, scale or fragments that could reduce the resistance and durability or injure the external appearance.

Except as modified herein, blast clean surfaces in accordance with SSPC SP6. Wash clean surfaces that become contaminated with rust, dirt, oil, grease or other contaminants with solvents until thoroughly clean. Ensure that steel to be embedded in concrete and surfaces when assembled, are free from rust, grease, dirt and other foreign matter.

**CW-8.2.1 Steel**

Materials shall conform to the respective specifications specified herein. Materials not otherwise specified herein shall conform to the AISC "Manual of Steel Construction".

Structural Steel	ASTM A992 or ASTM A36
Structural Pipe	ASTM A53, Type E or S, Grade B, ASTM A501
Structural W-Shape Piles (Soldier Piles)	ASTM A328

**CW-8.2.2 Bolts, Nuts and Washers**

All bolts, nuts and washers shall be of hot-dip galvanized steel, in accordance with the following:

Bolts: ASTM A325

Nuts: ASTM A563, Grade A, heavy hex style, except nuts less than 38mm may be provided in hex style

Washers: ANSI 818.22.1, Type B

**CW-8.2.3 Accessories**

Welding electrodes and steel structural members shall use:

Rods: E70XX electrodes

Non-shrink Grout: ASTM C827, non-metallic

**CW-8.3 Execution**

**CW-8.3.1 Fabrication**

Structural steel fabrication shall be in accordance with the applicable provisions of the Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings as set forth in the AISC "Manual of Steel Construction".

**CW-8.3.2 Welding of Structural Steel Work**

All welding works shall be as indicated in the drawings and shall conform to AWS D1.1-77 "Structural Welding Code". Unless specified on the drawings, fillet welds shall be a minimum of 5mm (3/16") and welding electrodes shall be with a tensile strength of 485 MPa.

All welding works shall be executed by the AWS D1.1 qualified welders, welding operators and trackers, whose workmanship shall be subject to the approval of NPC.

**CW-8.3.3 Shop Painting/ Field Painting**

Except as otherwise specified, shop prime surfaces of all structural steel, except steel to be embedded in concrete or mortar. Surfaces to be welded shall not be coated within 12 mm from the specified top of the weld prior to welding. Ensure that the surfaces are thoroughly dry and clean when the paint is applied. Do not paint on wet weather except under cover. Do not apply paint to steel, which is at a temperature that will cause blistering or porosity, or will otherwise be detrimental to the life of the paint. Apply paint in a workmanlike manner, and coat all joints and crevices thoroughly. Prior to assembly, paint all surfaces that will be concealed or inaccessible after assembly.

Shop prime coat surfaces as soon as possible after cleaning. Apply one coat of inorganic zinc to a minimum dry film thickness of 100 microns.

- **Field painting:** When the erection work is complete, the heads of field bolts, all welds and any surface from which the shop coat of paint has become worn off or has otherwise become defective, shall be cleaned and thoroughly covered with one coat of shop coat paint. When the paint applied for touching up bolt heads and abraded surfaces has become thoroughly dry, apply two field coats of marine epoxy paint subject to the approval of NPC.
- **Marking:** Prior to erection, members shall be provided with a painted erection mark. In addition, connecting parts assembled in the shop for remaining holes in field connections shall be matched marked with scratch and notch marks. Do not locate erection markings on areas to be welded. Do not locate erection markings in areas that will decrease member strength or cause stress concentrations.

**CW-8.3.4 Erection**

Except as modified herein, erect steel in accordance with the AISC "Manual of Steel Construction". Where parts cannot be assembled or fitted properly as a result of errors in fabrication or of deformation due to handling or transportation, report such condition immediately to the NPC's Representative and obtain approval there from for the methods of correction for straightening.

Drain Steel work properly; fill pockets in structures exposed to the weather with an approved waterproof material.

Provide safety belts and lines for workmen aloft on high structures unless safe working platforms or safety nets are provided.



When calibrated wrenches are used for tightening bolts, calibrate them at least one each working day using not less than three typical bolts of each diameter. Do not use impact torque wrenches to tighten anchor bolts set in concrete.

**Connections:** Connections shall be executed as shown on drawing. In case, connections are not detailed, it shall be designed in accordance with AISC "Manual of Steel Construction". Build connections into the existing work. Punch, sub-punch and ream, or drill bolt holes.

**Tolerances:** Structural steel shall be furnished and installed to the lines and levels as shown on the drawings.

Any structure that does not conform shall be repaired, removed and/or erected anew by the Contractor at no additional cost to NPC.

**CW-8.3.5 Tests and Inspections**

**Visual Inspection of Welding:** After the welding is completed, hand or power wires brush welds, thoroughly clean them before the inspector makes the check inspection. Inspect welds with magnifiers under strong, adequate light for surface cracking, porosity, and slag inclusions; excessive roughness; unfilled craters; gas pockets; undercuts; overlaps; size and insufficient throat and concavity. Inspect the preparation of groove welds for adequate throat opening and for snug positioning of backup bars.

**Non-Destructive Testing:** In accordance with AWS D1.1 Twenty-five percent (25%) of the total number of joints, as selected by the NPC, shall be tested. If more than 20 percent of welds contain defects identified by testing, then all welds shall be tested by radiographic or ultrasonic testing, and to be approved by the NPC. When all welds made are required to be tested, magnetic particle testing shall be used only in areas inaccessible to either radiographic or ultrasonic testing. Retest defective areas after repair.

**CQ-8.4 Measurement and Payment**

Measurement for payment for structural steel shall be based on the total kilogram of structural steel placed and accepted.

Payment will be made at the contract unit price for the item Structural Steel in the bill of quantity, which payment shall constitute full compensation for furnishing all labor, materials and equipment necessary to complete the item.

**CW-9.0 CONCRETEWALK/ SIDEWALK**

**CW-9.1 Scope**

In accordance with the plans and these specifications, the Contractor shall furnish all materials; labor, equipment, tools and construct complete the combination concrete walk.

**CW-9.2 Materials**

**CW-9.2.1 Bedding**

Aggregate bedding material for the concrete walk shall consist of pitrun gravel, talus rock, disintegrated granite, sand, shale, cinders, coral or other similar materials,

including additional filler for blending, selected under the direction of the NPC. The maximum dimensions of any particles shall not be greater than two thirds of the required thickness of the layer in which it is to be placed.

Oversized material, if present, shall be removed at the pit by screens, grizzlies, or by handpicking. When necessary to obtain proper uniformity, additional filler shall be blended by mixing on the roadway. The fraction of the aggregate bedding material, including any additional filler passing the No. 40 sieve, shall not be more than two-thirds (2/3) of that passing the No. 40, sieve shall have a liquid limit not greater than 25 and a plasticity index of not more than 8.

**CW-9.2.2 Concrete**

Concrete shall be 20.70 MPa or as indicated on the drawings.

**CW-9.2.3 Reinforcing Steel**

Reinforcing Steel Bars shall conform to the requirements of PNS 49:2002 for Grade 40 rebar minimum.

**CW-9.3 Construction**

**CW-9.3.1 Foundation Preparation**

Prior to placing the bedding for the concrete curb, gutter and sidewalk, the foundation shall be prepared by compacting and bringing it to unyielding or firm surface. Compaction shall be attended by either wetting or drying, as the case may be, to attain satisfactory compaction of the foundation.

**CW-9.3.2 Bedding**

The bedding upon which the concrete walk rest, shall be compacted to a firm, even surface.

**CW-9.3.3 Placing Concrete**

Mixing, placing, finishing and curing concrete shall conform to the requirements of ACI Code for Concrete Construction.

The concrete walk shall be constructed to the section and dimensions shown on the drawings. The concrete walk shall be constructed in uniform sections and, unless otherwise directed, each section shall not be more than five (5) meters in length except where shorter sections are required for closure, but no section shall be less than two (2) meters long. The sections shall be separated by sheet templates set perpendicular to the face and top of the concrete walk. The templates shall be approximately 3 mm in thickness, of the same.

**CW-9.4 Measurement and Payment**

**CW-9.4.1 Concrete**

Measurement for payment will be based on the cubic meters of sidewalk, completed and accepted. Payment will be made at the contract unit price for the item no.4: REINFORCED STRUCTURAL CONCRETE (20.7 Mpa at 28 days), in the bill of quantity.

**CW-9.4.2 Bedding**

Measurement for payment will be based on the number of cubic meters of bedding materials, placed, compacted and accepted. Payment will be made at the contract unit price for the item no. 3.4: Grave Bed, in the bill of quantity.

**CW-10.0 DRAINAGE SYSTEM AND APPURTENANT STRUCTURES**

**Cw-10.1 Scope**

In accordance with the specifications contained herein, the Contractor shall furnish all materials, labor, equipment and tools, perform all required excavation and backfill, install all pipes and construct canals and ditches, as the case may be, where indicated on the drawings or where directed conforming with the lines and grades as established in the field by the NPC. The Contractor shall also construct or install, where required, appurtenant structures like street inlet, street inlet-catch basin combination, manhole, catch basin for downspouts, catch basin for intersecting perforated PVC pipes, septic tank, drainage outlets, etc. as well as joints and connections as may be required to complete the system.

**CW-10.2 Materials**

**CW-10.2.1 Reinforced Concrete Drainage Pipes**

Reinforced concrete drainage pipes shall meet the design and test requirements for Class II Reinforced Concrete Pipes in accordance with ASTM C76-68 and ASTM C497-67.

One (1) pipe length shall be taken at random representing a group of fifty (50) pipes or fraction thereof of the same size and shall be submitted for test. Any group represented by corresponding test specimens that do not meet the strength and other requirements shall not be used in the work.

**CW-10.2.2 PVC Pipes**

Polyvinyl Chloride (PVC) Pipes shall be unplasticized conforming to ISO4435 or equivalent. Details/scheme of perforation shall be as indicated in the bid drawing or as directed by NPC.

**CW-10.2.3 Bedding Material**

**a. For Stable Soil and Rock Foundation**

Bedding material for sewerage and drainage pipes in a stable soil and rock foundation, as determined by NPC, shall consist of sand or natural sandy soil in which all the materials passes a 9.5 mm (3/8") sieve but not more than 10% passes a 0,074 mm (No. 200) sieve.

**b. For Unstable Foundation**

Bedding for sewerage and drainage pipes in soft and unstable foundation as determined by the NPC, shall consist of 13.79MPa concrete cradle in conformity with the dimensions shown on the drawings, pc as determined by the NPC.

**c. Foundation under Roadways and Parking Areas**

Bedding for sewerage and drainage pipes crossing under roadways and parking areas with pipe cover (excluding concrete or asphalt pavement) of 60.9 cm (2 ft.)

or less shall consist of 13.79MPa concrete cradle in conformity with the dimensions shown on the drawings, or as determined by the NPC.

**CW-10.3 Construction**

**CW-10.3.1 Appurtenant Structures**

Appurtenant structures like street inlet, street inlet-catch basin combination, manhole, catch basin for downspouts, catch basin for intersecting perforated PVC pipes, septic tank, drainage outlets, etc. shall be constructed at locations indicated on the plans or at the other convenient locations designated by the NPC. All appurtenant structures shall be of 20.7 MPa concrete unless otherwise shown on the drawings.

**CW-10.4 Pipe Installation**

**CW-10.4.1 General**

Before any drain pipe is installed, the sand or concrete bedding shall have been prepared and approved in accordance with the grade, shape, and dimensions shown on the drawings, or as directed by the NPC. No pipe over 45.7 cm (18") in diameter shall be laid on concrete bedding until seven (7) days have been elapsed after placing the concrete bedding. Pipes under 45.7 cm (18") in diameter may be laid after five (5) days elapsed after placing in the concrete bedding.

All drain pipes shall be laid carefully, hubs upgraded, ends fully and closely jointed, and true to the lines and grades given. Succeeding pipe shall be jointed to the previously laid pipe, correct in alignment and grade. Any pipe, which has been damaged during installation or before acceptance of the work, shall be replaced and laid by the Contractor at his expense.

**CW-10.4.2 Non-Reinforced and Reinforced Concrete Drainage Pipes**

Whenever possible, concrete pipes shall be handled and installed with the aid of mechanical equipment and not just rolled or pushed into the trench from the bank. For small pipes, rope slings may be placed at both ends of the pipes and the rope slowly paved out until the pipe rests on the trench bed. Proper and careful handling and laying should be observed at all times to prevent unnecessary structural damage to the pipe, especially at the pipe ends.

For pipes on sand bedding, before joining the next pipe length to the last pipe already laid, the bottom of the trench shall be excavated to the shape, size and location of the collar below the joint. The next pipe section shall then be securely attached to the previously laid pipe seeing to it the correct alignment and grade is always attained. Same procedures shall be observed for the remaining pipes.

All pipe joints shall be filled with stiff mortar composed of one (1) part cement and two (2) parts clean sand and enough water. The inside part of the joint shall be plastered properly to bring the inside surfaces of jointed pipe ends flush even. Sufficient mortar shall be placed on the outside surface of joint to form a bead around the joint. Plastering work shall be as directed and approved by the NPC. After initial set, the mortar on the outside surface shall be protected from air and sunlight with a cover thoroughly wetted earth or burlap. Curing of the joint shall be done for a period of at least seven (7) days within which no backfill shall be placed on the installed pipeline.

**CW-10.5 Measurement and Payment**

**CW-10.5.1 Concrete Drainage Pipes and PVC Pipes**

Non-reinforced and reinforced concrete drain pipes, and perforated PVC pipes in place and accepted will be measured by the linear meter along the centerline of the pipeline.

The quantities measured as provided above, completely installed and accepted, will be paid at the contract unit price for each size and kind of pipe shown in the bill of quantity. Payment shall constitute full compensation for furnishing all labor, material, equipment and tools for fabricating, hauling, installing and jointing of pipes. Payment shall also include the cost of attendant excavation, bedding and backfilling.

**CW-10.5.2 Appurtenant Structures**

Measurement for payment of appurtenant structures like street inlet, street inlet-catch basin combination, manhole, catch basin for downspouts, catch basin for intersecting perforated PVC pipes, septic tank, drainage outlets, etc. will be based on the number of structures constructed/installed and accepted.

The Contractor will be paid at the contract unit price for the pertinent item for each appurtenant structure shown in the bill of quantity. Such payment shall cover all costs for furnishing all equipment, labor, materials and tools necessary to complete the construction of the aforementioned appurtenant structures. Payment also includes the cost of attendant excavation and backfill, furnishing, scheduling, cutting, bending and placing of reinforcing steel.

**CW-10.5.3 Bedding**

Measurement for payment for sand or natural sandy soil bedding and concrete cradle will be based on the number of cubic meters of materials placed and accepted.

Payment will be made at the corresponding contract unit price for the item. Sand Bedding for Pipes, and item, Concrete Cradle for Pipes, in the bill of quantity, which payment shall constitute full compensation for furnishing all labor, materials, equipment and tools necessary to complete the items.

**AW – ARCHITECTURAL WORKS**

**AW-1.0 GENERAL ARCHITECTURAL REQUIREMENTS**

**AW-1.1 General**

The work to be done under this section shall include the furnishing of all labor, materials, equipment, tools, storage and stockyards of the pertinent materials and structural components and other incidentals for all architectural works enumerated hereunder, as shown on the accompanying drawings or as otherwise directed.

The work shall be performed and completed with high quality workmanship, in accordance with generally accepted modern practice in carpentry fenestrations, tinsmithing, plumbing, painting, landscaping and masonry work, etc. notwithstanding any omission from these Specifications or drawings.

Materials and structural parts that the Contractor shall supply and install and which will be incorporated in the structure shall be new and unused. They shall be suitable for their intended purpose and appropriately matched to each other complying with all applicable regulations, quality and dimensions standards. Defective work is not acceptable.

**AW-1.2 Submission of Samples**

At least one (1) month before the start of any installation or application of materials, the Contractor shall submit samples of materials for all sections for evaluation and approval. No work shall be done until after samples are approved by the NPC Representative in writing. All work must strictly conform to approved samples as to quality, texture, color and finish.

Failure of the Contractor to comply with the preceding stipulation shall not entitle them of any extension of time nor any claim whatsoever for any delay in the work after rectification due to disapproval of work.

To avoid unnecessary delay, it is suggested that the orders and/or purchase of imported or local materials shall be made within sufficient period in order that adequate supply is available at any time when needed.

**AW-1.3 Substitution of Materials**

The Contractor shall submit a written request for substitution of materials in lieu of those specified when deemed very necessary and urgent. Such request shall indicate the reasons for substitution. No substitute material shall be used without written authorization from the NPC Representative.

The Contractor shall submit written request for substitution at least one (1) month before such materials are actually needed. Such request shall be accompanied by samples to be substituted and corresponding certification.

No price increase will be allowed for a better kind of material

**AW-1.4 Certification of Materials**

The Contractor shall submit to the NPC Representative signed certificates from manufacturer or sole distributor of equipment and materials to be furnished and installed by the Contractor, certifying as to the kind, quality, rated capacity, quantity, performance and other descriptions of the equipment and materials delivered under a receipt number and date. No equipment or materials shall be erected, installed or applied such as electrical fixtures and accessories, concrete reinforcing steel, cement, G.I. and C.I. pipes, valves and fittings, plumbing and sanitary fixtures, building materials and finishes, paint and waterproofing, etc., without the required certificates.

**AW-1.5 Other works which even if not specifically mentioned in the Section and Bill of Quantities shall be included:**

- The measurements for the execution and payment of the Works, including provisions of the measuring equipment and the engagement of labor
- Connecting up of water, gas and electricity from the mains of the site indicated by the NPC Representative to the points of use

- Provision of small equipment and tools
- Safeguarding the Works against surface water, which shall normally be reckoned with, and its possible necessary removal Protecting the Works from heat, wind and rain
- Protection and safety measures required
- Protecting the executed works and the items handed over the execution of same from damage and theft up to the time of acceptance
- Supplying of the operational materials
- Supplying of consumable stores
- Supplying of fitting dowels
- Supplying of simple type pipe covering, e.g., in the shape of pipe sheathings with corrugated cardboard and the like
- Supplying and fitting of pipe fastening elements, e.g., pipe clips, hangers, etc.
- Installing and dismantling as well as providing all framework and scaffolds
- Making blackouts on concrete
- Chemical preservation of timber
- Instructing the operating and maintenance personnel

NOTE: The above provisions are general for all types of buildings. The Contractor shall be guided accordingly by the applicable provisions in the specifications and what is shown in the drawings for each type.

**AW-1.6 Measurement and Payment**

Measurement for payment for different items in Architectural Works will be based on the areas, lengths, volumes and quantity placed and accepted by the NPC Representative.

Payments for each architectural item will be made at the corresponding contract unit price per square meter, linear meter, cubic meter and number of pieces/sets, for the pertinent items under Architectural Works in the Bill of Quantities.

Payment shall constitute full compensation for all labor, materials, equipment, tools and incidentals necessary for the completion of each work.

**AW-2.0 CONCRETE MASONRY WORKS**

**AW-2.1 General**

The work to be done under this section shall include the furnishing of all labor, materials, equipment, tools and other incidentals to complete the work.

Concrete masonry units of the type and thickness indicated shall be provided, and shall be properly coordinated with the work of other trades. The source of supply for

material which will affect the appearance of the finished work shall not be changed after the work has started.

Masonry units shall be handled with care to prevent chipping and breakage. Storage piles shall be so located as to avoid being damaged by construction operations and traffic. Cement and lime shall be stored off the ground under watertight cover until ready for use. Damaged materials shall be rejected.

#### AW-2.2

##### Materials

Concrete Hollow Blocks shall be of standard manufacture, machine-vibrated, fine and even textured and well-defined edges.

Unless otherwise shown on the drawings, concrete hollow blocks to be used shall conform to the requirements of ASTM Specification C-129-39 Minimum Compressive Strength of not less than 4.48MPa average of the fine specimens.

##### Mortar Proportions

a) Cement mortar for laying concrete hollow blocks shall consist of one (1) part Portland cement, one-fourth (1/4) part lime and three (3) parts sand. Only sufficient water to make a workable mix will be permitted.

- 1) Masonry grout for filling cells of concrete blocks shall consist of one (1) Portland cement, one-fourth (1/4) part lime, three (3) parts sand to which three (3) parts gravel is added by volume.

Mortar materials shall be accurately measured by volume and thoroughly mixed until evenly distributed throughout the batch mechanical mix. The actual mixing time shall not be less than two minutes.

- 2) Intersecting hollow blocks walls and partitions shall be bonded by overlapping units on alternative course or by the use of 6.3mm (1/4") diameter ties at 61 Omm (24") O. C. every second course (maximum) anchored in filled cells.

b) Concrete lintel beams shall extend 305mm (12") beyond both sides of the opening and reinforced with four 12.7mm (1/2") bars placed over and below window openings.

- 1) Concrete studs, reinforced with one 12.7mm (1/2") diameter bar, shall be placed at both sides of all window and door openings.
- 2) All horizontal reinforcement shall be tied to vertical reinforcement.
- 3) Reinforcement shall be as specified in Section "Structural Steel".

Cement shall be Portland cement of approved brand conforming to ASTM Specifications C150, Type I.

Lime shall be made with pulverized and quicklime or with hydrated lime.

Sand shall be clean, washed and free from deleterious substances.

Water for mixing shall be clean and potable.

#### AW-2.3

##### Installation

Laying of all masonry units shall be plumbed, leveled and accurately spaced. All units shall be wetted before laying. The block should be laid on full mortar bedding and in such a way that no cracks are formed between the blocks and the mortar at the time



the blocks are placed. All joints should be filled with mortar at the time it is laid. Any horizontal and vertical CHB wall reinforcements shall be anchored to concrete works by means of 10mm (3/8") by 609mm (24") long dowels. Embedding of anchor bolts, expansion shields, conduits, etc. shall be done as the erection progresses.

Cutting and patching of masonry required to accommodate the work of other trades shall be performed by masonry mechanics.

Finishing of all hollow block wall surfaces to be applied with cement plaster will be cleaned and evenly wet slashed with a wash of neat cement and sand followed by 1:2 cement mortar mix 10mm (3/8") thick which shall be applied with a wooden float.

**AW-2.4 Concrete Lintel**

Unless otherwise indicated, provide concrete lintels over all openings in concrete unit masonry walls. Lintels shall be cast-in-place and reinforced with longitudinal bars at the bottom, and of sizes as indicated on the plans. Concrete works shall conform to Concrete Works of these Specifications.

**AW-2.5 Testing of CHB**

Test samples from every 500 units shall be taken at random from the CHB to be used before installation. The testing shall be performed by a laboratory approved by the NPC Representative and the cost thereof shall be charged to the account of the Contractor. Concrete hollow blocks represented by such samples, failing to meet the requirements under the latest edition ASTM 612970 shall be rejected.

**AW-2.6 Measurement and Payment**

Measurement and payment for Concrete Hollow Blocks including its reinforcing bars will be based on the area in place and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent items under Architectural Works in the Bill of Quantities.

Payment shall constitute full compensation for all labor, materials, equipment, tools and incidentals necessary for the completion of this work.

**AW-3.0 PRE-CAST CONCRETE LOUVERS**

**AW-3.1 General**

The work to be done under this section include the furnishing of materials tools and equipment and performing labor required to complete the pre-cast concrete louvers as shown on the drawings or as specified.

All accessories shall be in accordance with the applicable provisions in section AW 23.0 Finishing Hardware.

The Contractor shall furnish and install pre-cast concrete louvers as shown in with the applicable drawings and specification and manufacturer's standards.

**AW-3.2 Samples**

Samples of pre-cast concrete louvers shall be submitted by the Contractor to the NPC for approval before fabrication commences.

**AW-3.3 Workmanship**

The Contractor shall take special care in the manufacturing and assembly process of joint work. All joint works shall be done in accordance with accepted practices and shall be accurate and clean so as the joined elements fit perfectly together.

**AW-3.4 Materials**

**1. Pre-cast Concrete Louver**

- a) Warehouse Area and Engine Room — 0.25x0.25m pre-cast concrete louver window.
- b) Pre-cast concrete louvers shall be products of reputable, national known manufacturers approved by the Contracting Office.

**AW-3.5 Installations**

- a) Louvers shall be accurately fitted to its frame and hardware.
- b) Allowance shall be given for painter's finish.
- c) All louvers shall operate freely and with all hardware properly adjusted and functioning.
- d) Louvers shall be installed complete with finishing hardware, etc.
- e) Louvers shall be installed in strict accordance with the accepted manufacturers' standards, set plumb, properly aligned and securely anchored.

**AW-3.6 Measurement and Payment**

Architectural Works in the Bill of Quantities. Payment shall constitute full compensation for all labor, materials, equipment, tools and incidentals necessary for the completion of this work.

**AW-4.0 PLASTERED PLAIN CEMENT FINISH**

**AW-4.1 General**

The work to be done under this section includes furnishing of all labor, materials, equipment and other facilities and the satisfactory performance of all work necessary to complete all cement plaster finish.

Plaster mixture is applied in layers to masonry and reinforced concrete, surface to interior or exterior walls and ceilings.

**AW-4.2 Materials**

- a) Portland cement conforming to the latest edition of ASTM Standards c-150
- b) Lime - Slaked quicklime or hydrated lime to make lime putty
- c) Sand - Natural sand, white or light grey, washed and cleaned, strong and free from injurious amount of dust and flaky particles.
- d) Water - Clean and fresh contains no salt, potable and free from sulfur oil and other impurities that may cause discoloration of the finish.

Accessories for plaster work, includes nails, picture, moulds, casings, window stools, bases, etc.

**AW-4.3 Application**

The total thickness of masonry and plaster shall be 15mm (5/8"). For a three-coat plastering, the scratch coat and brown coat shall be at least 6.3mm (1/4") thick and the hard finish 3.2mm (1/8") thick with a minimum thickness of 1.6mm (1/16") at any point. For a two-coat work the base shall be 12.7mm (1/2") thick and the hard finish the same as for a three-coat work.

The lath for plastering shall be leveled, plumb and well secured to the backing material. The leveling elements installed would include grounds and screeds. For walls, a screed shall be installed at the base of the wall with its top about 102mm (4") above finish floor. The screed is run horizontally, leveled and set at the exact thickness of finished plaster. Around all openings and the intersection with the ceiling grounds are installed.

All anchorage for cabinets, furniture, stair, handrails, electrical outlets, etc., should be installed before plastering is started.

All internal corners should be reinforced by lapping wire lath.

Mixture for various coats should be checked to see that proportions are correct.

Installation. For hollow wood doors and frame, uniform application regardless of function completely reversible for R.H. or L.H. doors.

NOTE: All cement plaster finish shall be painted.

**AW-4.4 Measurement and Payment**

The measurement for payment for all Plaster Plain Cement Finish will be based on the area applied and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent item in the Bill of Quantities.

Payment shall constitute full compensation for all labor, material including metal lath, equipment, tools and incidentals necessary for the completion of this work.

**AW-4.5 CEILING SYSTEM**

**AW-4.5.1 Interior Ceiling**

**AW-4.5.1.1 General**

Acoustic units shall be provided in rooms and spaces where indicated or specified. On areas where suspended ceiling is to be provided, all piping, ducts, electrical and other works that is to be concealed by the ceiling shall be completed, tested, inspected and the proper height and level established, before acoustical work is started. The units shall be applied in any room or space before completion of all wet works and building humidity is reduced to minimum. Ceiling shall be symmetrically installed as indicated.

Acoustical units shall be delivered to the site in the manufacturer's original unopened containers with the brand name, type, sound reduction and wire absorption grades clearly marked thereon.

**AW-4.5.1.2 Materials**

Materials to be used shall be the following but not limited to:

- Gypsum Board, 3/8" thk. (Orange Texture)
- Wall Angle, 10'
- Main Tee, 12'
- Cross Tee Runner, 4'
- Full threaded rod, 1/4"
- Other consumable items

**AW-4.5.1.3 Sample**

Samples must be submitted to the Contracting Officer for approval as to quality.

**AW-4.5.1.4 Installation**

Acoustical (Gypsum) board shall be installed true to line and in even plane according to ceiling pattern shown on the drawings.

Installation of acoustic board shall be done by the manufacturer or his authorized installer in strict accordance with the specification of the manufacturer.

**AW-4.5.1.5 Measurement and Payment**

The measurement for payment for the Interior Ceiling will be based on the area applied and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent item in the Bill of Quantities.

Payment shall constitute full compensation for all labor, material including metal lath, equipment, tools and incidentals necessary for the completion of this work.

**AW-4.5.2 Outdoor Ceiling**

**AW-4.5.2.1 General**

Consist of furnishing of all, materials and other facilities for the satisfactory of all work necessary to complete the ceiling eaves.

**AW-4.5.2.2 Materials**

Materials to be used shall be the following but not limited to:

- PVC Ceiling
- Wall Angle
- U Connector, 10'
- H Connector, 10'
- Metal Furring, 5m
- Other consumable items

**AW-4.5.2.3 Sample**

Samples must be submitted to the Contracting Officer for approval as to quality.

**AW-4.5.2.4 Installation**

- Measure the perimeter of the ceiling walls and securely fasten the wall angle around the perimeter using screws, spacing them approximately 300mm apart.

Next, attach the U-connector to the wall angle and the H-connector at the corners of the eaves. Finally, position the metal furring in the center across the width of the eaves.

- Measure your ceiling length as accurately as possible and transfer your measurement onto the panels with a straight pencil line before cutting to size.
- Cut the ceiling panel with a suitable hand saw or table chop saw.
- Once your panel is cut, apply a generous amount of adhesive to the back face and secure into place on the ceiling with screws every 300mm along the tongue section of the panel.
- Repeat this procedure for each panel, locking each one into place with the tongue and groove edges.
- For ceiling spotlights, simply measure their diameter and where they're positioned on the ceiling before transferring the measurements to the relevant panel and cutting with a hole cutter.
- If needed, use a bead of white silicone around the edge of the start-finish trim to remove and fill any shadow gaps and spaces between the trim and unlevel walls.

**AW-4.5.2.5 Protection**

The Contractor shall be held accountable from the damaged materials caused by negligence mishandling.

**AW-4.5.2.6 Measurement and Payment**

The measurement for payment for the Exterior Ceiling will be based on the area applied and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent item in the Bill of Quantities.

Payment shall constitute full compensation for all labor, material including metal lath, equipment, tools and incidentals necessary for the completion of this work.

**AW-5.0 ROOFING SYSTEM AND BUILDING BLANKETS**

**AW-5.1 General**

The Contractor shall furnish all labor, materials, and operations including tools, other implements and accessories for the complete installation of roofing system and its building blankets wherever indicated in the drawings.

Installation shall be performed by skilled workmen in accordance with the construction and shop drawings and the manufacturer's standard.

Shop drawings and manufacturer's catalogue showing product standards and technical data will be provided by the Contractor to the NPC Representative for approval.

**AW-5.2 Materials**

Materials to be used shall be the following but not limited to:

- Rib Type Sheet, Ga. 26 Long Span
- Thermal Insulation, 10mm thk Polyethelene with aluminum foil on both faces above purlins
- Prefabricated Pre-painted Gutter with Flashing, Ga. 24x2.44m
- Pre-painted Wall Flashing, Ga. 24x2.44m
- Fastener
- Sealant
- Retouching Paint
- Paint Brush, 3" dia.
- 3mm thick Ravak Roofing, 1.22mx2.44m
- 2"x4" 1.5mm thk. Tubular Bar
- 16mm dia. Tensile Cable with complete brackets and bolt
- Other consumable items

**AW-5.3 Workmanship**

Installation of the roofing shall be done by the manufacturer or his authorized installer in strict accordance with the specification of the manufacturer.

**AW-5.4 Measurement and Payment**

Measurement and payment for Roofing System and Building Blankets will be based on the projected area inspected and accepted by the NPC Representative. No measurement & payment will be -made on hidden areas -covered by side-& end overlaps, the cost for these being included in the projected area.

Payment will be made at the corresponding unit price per square meter for pertinent items under Architectural Works In the Bill of Quantities.

**AW-6.0 DOWNSPOUTS AND ROOF DRAINS**

**AW-6.1 General**

The Contractor shall furnish all labor, materials, and operations including tools, other implements and accessories for the complete installation of downspouts and roof drains wherever indicated in the drawings.

Installation shall be performed by skilled workmen in accordance with the construction and shop drawings and the manufacturer's standard.

Shop drawings and manufacturer's catalogue showing product standards and technical data will be provided by the Contractor to the NPC Representative for approval.

**AW-6.2 Materials**

Materials to be used shall be the following but not limited to:

- 4"Ø uPVC Series 1000 drain pipe
- 8"Ø uPVC Series 1000 drain pipe
- Elbow, 100 mm dia. 90 deg. Bend
- Coupling, 10mm dia.

- Roof Drain, Removable Brass Scupper Stainer including Cast Iron Sump and accessories
- PVC Solvent
- Soil Pipe, 150mm diax3m
- Coupling, 150mm dia.

Downspouts shall be 150 mm diameter unplasticised PVC, or as indicated in the drawings complete with fittings and accessories down to the catch basin and water storage tank.

Roof drain shall be of high grade, strong, stainless. Casting shall be free from blowholes, porosity hard spots, excessive shrinkage, cracks, or other injurious defects shall be smooth and well cleaned both inside and outside and all fin sand roughness removed. Roof drains shall conform to the diameter of downspouts. Roof drains shall be provided at the upper end of all downspouts.

**AW-5.3 Workmanship**

The installation of downspouts and roof drains should be carried out by skilled personnel. It must be installed in strict accordance with the manufacturer's specifications. All joints should be sealed with solvent cement. After installation, testing is necessary to ensure there are no leaks in the installed downspouts and roof drains.

**AW-5.4 Measurement and Payment**

The measurement for payment for the Downspouts and Roof Drains will be based on the area applied and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent item no. 5.2.: Roofing System and Building Blankets of the Bill of Quantities.

Payment shall constitute full compensation for all labor, material including metal lath, equipment, tools and incidentals necessary for the completion of this work.

**AW-6.0 FENESTRATIONS**

**AW-6.1 GLASS**

**AW-6.1.1 General**

The work includes the furnishing of all labor and materials required to complete all glass and glazing as shown on the drawings and/or herein specified.

The Contractor is responsible for the correct sizes and grades of glass to be used. Improperly set glass or glasses which does not meet the requirements of its grade and size will not be accepted. Such glass must be replaced to the satisfaction of the NPC Representative.

The size of glass indicated is approximate only and the actual size shall be determined by measuring the frame to receive the glass. Glazing rabbets shall be rigid true, plumb, square, properly primed, clean, dry and dust free, before glazing work is started.

Each piece of glass shall have the manufacturer's label showing the type, thickness and quality of the glass. Putty and glazing compound shall be delivered to the site in unopened containers, plainly labeled with the manufacturer's name and brand.

**AW-6.1.2 Materials**

- a) Glass of all windows, doors, transoms shall be of the best quality of its respective kind and free from internal or surface defects. Thickness of glass shall be as mentioned in the plans. For other qualities and thickness refer to recognized standards.
- b) Kind FT, Fully Tempered Glass shall have minimum surface compression of 69MPa (10000 psi) or an edge compression of not less than 67Mpa (9700 psi)
- c) Thickness = 8mm. (windows and doors)
- d) Break Test Requirement for Kind FT Glass
- e) Test and interpret in accordance with ANSI Z97.1

**AW-6.1.3 Sample**

The contractor shall submit for approval duplicates sample (150mm. x 250mm.) of each type of glass bearing manufacturer's label and a can of each type of putty.

**AW-6.1.4 Installation**

- a) Safety precaution and procedure shall be taken in determining the sizes and providing the required clearances by measuring the actual opening to receive the glass. Movable items shall be kept in closed and locked position until glazing has thoroughly set.
- b) The glass shall be prevented from all contact with metal or any hard or sharp metals by using resilient shims placed at quarter points.
- c) Resilient sealant shall be used.
- d) Use stops in size permitting a "good grip" on the glass.
- e) Glass shall be installed only in openings that are rigid, plumb and square.
- f) Allow sufficient clearance at edges of glass to compensate for some settlement of the building. Clearance shall be 6.3mm (1/4") from edge to frame and 3.2mm (1/8") for face.
- g) Marking, banners, posters and other decor shall not be applied directly to glass surface as these could cause thermal stress.
- h) Glass breakage caused in executing the work or by faulty installation shall be replaced by the contractor without extra cost.
- i) Improperly set glass which does not fully meet the requirements of its grade shall not be accepted and shall be replaced without extra cost.
- j) Putty shall be neatly run in straight lines parallel with inside of glazing rebate; corners shall be carefully made; all excess putty shall be removed and surfaces left clean.



- k) Clean all glass on both sides after putty has been applied completely. Do not disturb edge of putty with scrapper. At completion of work leave glass and glazing works free from cracks and rattles and clean on both sides.

**AW-6.2 Glazing Sealant**

**AW-6.2.1 General**

The work to be done shall consist of furnishing all labor, materials and other facilities for the satisfactory performance of all work necessary to complete all glazing sealant work as shown on the drawings and specified herein.

**AW-6.2.2 Materials**

- a) Silicone Rubber should comply with Federal Specifications for silicone building sealant and Federal Specifications for one (1) component building sealant. Packaging shall be supplied at least in fl. oz. (325 ml) cartridges and two (2) gallons (7.5 liters), bulk pails, net weight. The joint width shall not be less than 3.2mm. (1/8"). The joint depths shall allow a sealant depth of 3.2mm (1/8") to a maximum of 12.7mm. (1/2"). The silicone sealant bead depth shall be less than the joint width which is about 2.1mm.
- b) Masking Tape. Areas adjacent to joint shall be masked to a sure line. Do not allow masking tape to attach clean surface to which the silicone sealant is to be adhere. Tooling shall be completed in one (1) continuous stroke immediately after sealant application and before a skin forms. Masking shall be removed immediately after tooling.

**AW-6.2.3 Method of Application**

Sealant shall be applied in a continuous operation. A positive pressure adequate to properly fill and seal the joints width shall be employed. Tool or strike the building sealant with light pressure to spread the material against the back-up material and the joint surfaces such as aluminum (sealant shall be applied above 40 O F). A tool with a concave profile is recommended to keep the building sealant with the joint. The sealant can be applied at outdoor temperature as low as 35 O F provided that surface is clean and dry. Excess sealant shall be cleaned from non-porous surfaces, before curing, before using a commercial solvent. On porous surfaces, excess sealant shall be allowed to cure and then be removed by abrasion or other mechanical means. The sealant shall not be disturbed for at least 48 hours.

**AW-6.2.4 Guarantee**

The Contractor shall guarantee the caulking work to be free from defects of materials and workmanship for a period of ten (10 years).

**AW-6.3 Aluminum Doors and Windows**

**AW-6.3.1 General**

The contractor shall furnish and install all aluminum doors and windows in accordance with the applicable drawing's specification and manufacture's standards. Samples of aluminum sections shall be submitted by the Contractor to the Contracting Offices for approval before fabrication commences.

**AW-6.3.2 Materials**

**Aluminum Glass Door**

Aluminum glass doors shall be double swing, full glass and floor hinge type complete with transom; hardware and accessories as indicated in the drawings.

**Aluminum Glass Windows**

Aluminum glass windows shall be a combination of mixed and slide type or as indicated in the drawings.

Color for both doors and windows frames and accessories shall be anodized olive brown, preferably "Analok", "Kalcolor" or approved equal.

Members, sizes, extrusion processes and other characteristics of aluminum shall be referred to "ALUMINUM WORKS" and/or Drawings.

Glass Panels shall be (8mm) thick tinted bronze or as indicated on the drawing.

Aluminum glass doors and windows shall be products of reputable, national known manufacturers approved by the Contracting Officer preferably manufactured by "Hooven Philippines", "Permaline" or approved equal.

**AW-6.3.3 Installation**

Doors and windows shall be installed in strict accordance with the accepted manufacturer.

**AW-6.4 Metal Doors**

**AW-6.4.1 General**

The work to be done shall consist of furnishing all labor, materials, equipment, tools and other accessories for the complete installation of metal doors as shown on the drawings or as specified.

**AW-6.4.2 Material**

Materials to be used shall be the following but not limited to:

- Steel doors shall be light-weight metal flush door
- Upper and vertical frame shall be special galvanized steel sheets 1.6mm thick.
- Rib shall be special galvanized steel sheet 1.6mm thick.
- Insulation shall be asbestos core PD-1, paper core (incombustible) PDQ, paper core, PD-3.
- Door edge shall be stainless sheet, 0.8mm thick.
- Hinge shall be stainless metal, loose pin.
- Height of the door knob with lock shall be 1000mm from the lower edge of the door.
- Other consumable items
- Anchor mounting position 150mm from both ends; pitch: within 500mm.
- Frame painting shall be anti-corrosive paint, baking finish.

- Door painting shall be standard color and pattern of dressed steel sheet or anti-corrosive paint, baked finish. Wood grain, beige or ivory depending on samples approved by NPC Representative.

**AW-6.5 FINISHING HARDWARE**

**AW-6.5.1 General**

This section includes furnishing and installing all finishing hardware, complete. The schedules in this section are intended to indicate the various hardware's but are not guaranteed as to quantity. The Contractor shall check the schedule and drawings for count and any item similar location elsewhere in the building.

In order to identify and establish each kind of hardware, genuine American, Japanese & European products shall be used.

**AW-6.5.2 Packaging & Marking**

Each item of finishing hardware shall be individually packed and delivered in the manufacturer's original container. Each package or box shall be clearly marked with the manufacturer's name, catalogue number and other markings required for easy identification of the hardware.

A packaging list should be furnished to clearly identify the quantity and type of hardware in every box numbered in accordance with this list.

All hardware shall have the required screws, bolts and fastening necessary for installation packed in the same package with hardware. All packages shall be legibly and adequately labeled indicating the part of the work for which it is intended.

**AW-6.5.3 Qualified Supervision**

Materials shall be procured from a source of supply approved by the NPC Representative as competent to correctly evaluate the plans, details, and specifications and be prepared at all times to promptly and satisfactorily service the hardware on the job. This supplier must be an established Contractor for builder's hardware who meets all above requirements and who operates an office in this field.

**AW-6.5.4 Material Specification**

- a) Butt Hinges shall conform to U.S. Federal Specifications unless otherwise specified.
- 1) For doors up to 914mm (3' - 0") wide or less, 90mm x 90mm (3-1/2" x 3-1/2") hinges shall be used.
  - 2) For closet doors, use long span hinges.
  - 3) Where the jamb trim projects to such an extent that the width of the leaf of butt hinges will not allow the door (in normal opening) to clear such trim, butt hinges with leaves of sufficient width shall be provided.
  - 4) Finish and Material
    - i. Hinges used for doors to receive paint shall be Bonderized and prime coating for painting.
    - ii. Hinges used for doors to receive natural finish shall be wrought steel highly finished, polished and plated.

- iii. Use only non-ferrous material butt hinges for doors exposed to the weather.
- b) Lock-sets shall conform to U.S. Federal Specifications.
- c) Hardware Selection and Door Control. To obtain satisfaction and maximum services, consideration should be given to all of the following basic factors:
  - i. Proper lock selection. Depends on expected usage (lock, series, function), climatic conditions.
  - ii. Proper installation. The use of right installation tools is recommended.
  - iii. Proper door control. To protect locks and other hardware items, the use of door closers and other control devices is vital under certain conditions.
- d) Keying and Key. Locks shall be keyed in sets and sub-sets to provide maximum expansion. All sets shall be grand master keyed, and all entrance locks shall be great-master keyed. Designation shall be by the NPC Representative.

Permanent cylinders with construction inserts are to be assembled with all locksets. Change keys are to be packed in cartons marked "packing list". On completion of the job, the NPC Representative will collect all construction keys, remove the construction inserts from the lock cylinders and distribute the lock change keys as directed. Retain Contractor and construction keys for future key system control.

#### Construction

- a) Mechanism. Wrought steel zinc plated and dischromated with coil compression springs.
- b) Exposed trim and parts. Wrought brass, bronze, aluminium or stainless.

Installation. For hollow wood doors and frame, uniform application regardless of function completely reversible for R.H. or L.H. doors.

Warranty. Locksets are engineered to meet or exceed applicable government and industry standards for strength, durability and performance. They are fully guaranteed against defects in materials for workmanship.

- Door Closers
- Push/Pull Handles
- Door Stops
- Door Catches

#### AW-6.5.5

#### Installation and Hardware

All hardware shall be installed in a neat, crafts manlike manner following the manufacturer's instruction. Fasteners supplied together with the hardware, shall be used to secure the hardware in place. Wood screws set in expansion shields, shall be used for securing hardware to concrete or masonry surfaces. Through-bolts shall be used where specified or necessary for satisfactory installation. After installation, hardware shall be protected from paint, stains, blemishes and damage until acceptance of the work. All hardware shall be properly adjusted and checked out in the presence of the NPC Representative to see that the hinges, locks, bolts and

closers operate properly. Any error in cutting or fitting, or any damage to the adjoining work shall be replaced as directed.

**AW-6.6 Measurement and Payment (Fenestrations)**

The measurement for payment for the Fenestrations will be based on the installed and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent item no. 8.0: Fenestrations of the Bill of Quantities.

Payment shall constitute full compensation for all labor, material including metal lath, equipment, tools and incidentals necessary for the completion of this work.

**AW-7.0 PLUMBING FIXTURES AND FITTINGS**

**AW-7.1 General**

The work covered by this section of the Specifications consists in furnishing all plant, labor, equipment and tools, articles, appliances and materials and in performing all operations in connections with the installation of all plumbing fixtures, fittings and accessories, complete, in strict accord with this section of the Specifications or indicated on the drawings, are included in this work.

**AW-7.2 Make**

The model numbers herein given are intended to illustrate the quality and design of fixtures that will be required. American standard fixtures specified herein and any substitution made to any item of fixtures specified must first be approved by the NPC Representative.

**AW-7.3 Trade Marks**

All plumbing fixtures and fittings must bear the trademarks of the manufacturer.

Maintenance Manual shall be submitted including complete instructions for replacing valve washers and strainers and give manufacturers recommendations as to cleaning finish fixture surfaces.

Submit samples of valves, faucets, trims and others for approval of the NPC Representative.

**AW-7.4 Materials**

**Fixtures**

- a) Water Closet, economy, white, 680mmx378mm elongated, including stainless plated fittings and bidet spray
- b) Urinal, Flush Type, white, 305mmx470mmx680mm, elongated including stainless plated fittings
- c) Lavatory, Oval, white, over-the counter, including stainless plated long spout fittings, 400mmx540mm8
- d) Lavatory, wall mounted, white, 400mmx540mm including stainless plated fittings
- e) Stainless Faucet

- f) Kitchen Sink, double tub stainless steel elongated, including gooseneck faucet and nickel-plated fittings

**Piping**

- a) 50mm dia. uPVC pipe for plumbing system (including joint fittings)
- b) 75mm dia. uPVC pipe for plumbing system (including joint fittings)
- c) 100mm dia. uPVC pipe for plumbing system (including joint fittings)
- d) 150mm dia. uPVC pipe for plumbing system (including joint fittings)

**AW-7.5**

**Installation**

Plumbing fixtures shall be installed free and open in a manner to afford access for cleaning. All brackets, cleat, plates and anchors required to support the fixtures shall be furnished in a rigidly manner. Water closets shall be set on Boll-Wax.

Installed plumbing fixtures shall be kept clean and in working order for adequate protection so as not be used by anybody until issuance of Certificate of Completion.

All fixtures shall be provided with individual control stop so that each fixture may be separately controlled without affecting any other fixture.

All flush valves shall be equipped with vacuum breaking devices.

**AW-7.6**

**Measurement and Payment**

Measurement and payment for Plumbing Fixtures will be based on the number of sets/pieces installed and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per set/piece for the pertinent item under Item 9.1: Plumbing Fixtures and Fittings in the Bill of Quantities.

Payment shall constitute full compensation for all labor, materials, equipment, tools and incidentals necessary for the completion of this work.

**AW-8.0**

**WATERPROOFING**

**AW-8.1**

**General**

The work includes the laying/ installation of waterproofing membrane at the roof deck of the building.

Waterproofing materials shall be delivered to the site in their original sealed containers or packages bearing manufacturer's name and brand designation.

The work shall be performed by the manufacturer's certified applicators and only the best quality of materials and workmanship shall be used in strict accordance with the standard practice for this type of work.

**AW-8.2**

**5-layer elastomeric emulsion with fiberglass mesh**

**AW-8.2.1**

**Scope of Works**

This includes the canopy 1 and 2, window canopy and CR's flooring.

**AW-8.2.2**

**Materials**

Materials to be used shall be the following but not limited to:

- Sealer
- Basecoat, 2 coats before & after fibermesh installation
- Fibermesh waterproof net 100gsm Fiberglass net
- Roller Brush with Basin
- Paint Brush, 4"
- Top Coat, 2 coats
- Other consumable items

The waterproofing material shall be a complete system of bitumen layers supplied by a manufacturer of reputable corporate existence.

Waterproofing materials shall be heat resistant preformed reinforced bituminous membrane which has good elongation and recovery characteristic when subjected to expansion and contraction movements.

#### **AW-8.2.3 Surface Preparation**

All concrete or masonry surfaces shall be cured for minimum of seven (7) days. It must be wood-trailed, smooth, firm, dry, clean and free from rubbish, loose or foreign materials and imperfections.

Installation of metal fittings and similar works shall be completed before application of waterproofing is done.

Surfaces shall be properly graded to drain water freely into drain lines. Drainage connections shall be set up to permit free flow of water. There shall be provisions for mortar cants in the angle formed by the area. If required, reglets of about 40mm deep and 40mm wide at 250mm above floor finish shall be provided along walls or parapet walls for the waterproofing system.

#### **AW-8.2.4 Execution of Work**

The waterproofing membrane shall be installed according to the manufacturer's instruction. Apply material "patching compound" reinforced with "patching fabric" on cracks and other surface imperfections.

The membrane application shall be commenced from the lowest point when applied on a surface to fall line to ensure weathered overlaps.

After installation of membrane, careful inspection shall be made for accidental damage. Damaged area shall be cleaned and patched with fresh membrane waterproofing (minimum patching material of 152mm x 152mm).

Prior to acceptance of the job, all waterproofed surfaces shall be given a 48hour flooding and the Contractor shall remedy at once any evidence of leakage. Flooding test shall be done by plugging all drains, building temporary dams at opening so that water will be 25.4mm (1") deep at high point of waterproofing.

Concrete topping to be used shall be 20.70MPa as per ACI specifications and 50mm (2") thick (minimum) excluding the finish and reinforced with welded steel wire fabric as per ASTM A1 85-73 specifications.

In particular, the Contractor shall verify conditions such as the following do not exist:

- extensive unevenness of the bed
- too rough, too porous, too smooth surfaces
- sharp edges of boarding and ridges
- variation from the horizontal or fall stipulated in the Specifications or dictated by circumstances
- incorrect level of the surface of the bed
- non-rounded corners, edges and channeling
- stress and settlement cracks, holes
- too moist surface
- non-sealing of voids (e.g., in concrete)
- inadequate firmness of the bed
- oily surface
- unsuitable type or portion of penetrating structural members
- lack of parts for connecting structural members which penetrate the waterproofing

**AW-8.2.5 Guarantee**

The Contractor shall guaranty that the work specified in this section will be free from defects of materials, workmanship and leakage for a period of five (5) years from the date of final acceptance. This obliges the Contractor to make good the defective work.

**AW-8.2.6 Measurement and Payment**

Measurement of payment for Membrane Waterproofing will be based on the area applied and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent items under Architectural Works in the Bill of Quantities.

Payment shall constitute full compensation for all labor, materials, equipment, tools and incidentals necessary for the completion of this work.

**AW-8.3 Cementitious Waterproofing**

**AW-8.3.1 Scope of Works**

This includes all parapet walls and all exterior parts of the concrete wall, including beams, columns, and any other areas not specified herein that require cementitious waterproofing.

**AW-8.3.2 Materials**

Materials to be used shall be the following but not limited to:

- Cementitious Waterproofing
- Portland Cement
- Textured Roller Brush with Basin
- Paint Brush, 4"



- Other consumable items

#### **AW-8.3.3 Surface Preparation**

- Surface should be clean, dry, free from oil, grease, dust, dirt, loose materials and other contaminants.
- Remove dirt, dust, lose or excess grit or mortar with stiff brush and clean surface by high pressure water hosing.
- The loosening or fallen of concrete have to be removed and the large holes, cracks should be repaired first.
- All structural cracks must be repaired prior to waterproofing application. Use the required sealants and structural bonding agents.

#### **AW-8.3.4 Product Preparation and Application**

- Sieve separately the sand and cement to eliminate lumps and mix thoroughly.
- While mixing the cementitious product , add the cement/sand mixture and continue mixing for 3-5 minutes until the desired consistency obtained (refer to Product Preparation Table) Do not add water.

Mixing Ratio:

Waterproofing for Verticals Surfaces

- Mix 4 liters of DAVIES® MORTAFLEX® to 5.5 kg of ordinary Portland cement
- Apply 2-3 coats using a brush or roller

Application Method:

- Before application, wet masonry surfaces with water thoroughly.
- Refer to Product Preparation for Sand Mixture for the correct application method.
- For maximum durability, paint application is recommended. Cure the applied product for 3 days before the desired painting system. Cementitious Waterproofing Membrane is highly recommended for the exterior face (positive side) to prevent moisture infiltration to the substrate from the exterior environment.

Drying Time:

- Dry to touch- 10-15 minutes Flash-off (in between coats): 30 minutes
- Dry hard (paint-ready): 3 days

### **MW- MECHANICAL WORKS**

#### **MW-.1.0 GENERAL MECHANICAL REQUIREMENTS**

**MW-1.1 General**

The requirements specified herein shall apply to all equipment and materials to be supplied by the Contractor.

The work shall be performed and completed in a high-quality workmanship, in accordance with generally modern accepted practice in the fabrication, assembly, installation and test of all equipment and materials supplied by the Contractor, notwithstanding any omission from these Specifications or drawings.

Defect and damages to the equipment resulting from faulty installation works shall be repaired and/or replaced by the Contractor at no cost to the NPC.

**MW-1.2 Materials and Equipment**

All materials and equipment to be supplied by the Contractor under this Contract shall be new and unused, free from defects and imperfections and best suited for the purpose intended. All materials shall comply with the latest revisions or editions of the specified standards for each equipment specification unless otherwise specified or permitted by NPC. The names of manufacturers of equipment and articles contemplated for incorporation in the work together with performance capacities and other significant information pertaining to the equipment shall be furnished for approval. Equipment or articles installed or used without such approval shall be at the Contractor's risk of subsequent rejections.

All materials or parts used in the equipment to be supplied shall be tested in conformance with applicable specifications and shall be purchased with certified mechanical and chemical properties.

The materials and components to be supplied shall essentially be the standard product of the manufacturer as best meets the conditions of sound engineering economy of manufacture and procurement.

Brochures, catalogs and other related technical data of materials and equipment to be supplied by the Contractor under this contract shall be submitted by the Contractor for NPC's review and approval prior to fabrication.

From the commencement of the works until the date of Final Completion, the Contractor will be fully responsible for the care of the works and all materials and equipment, whether supplied by the Contractor or Corporation, and for all temporary works. Should any damage, loss or injury happen to the works, materials or equipment or to any part thereof from any cause attributable to the fault of the Contractor, the Contractor shall at his own expense, repair, replace and make good the damage, loss or injury so that at completion, the works shall be in good order and condition and in conformity in every respect with the requirements of the Contract.

**MW-1.3 Applicable Codes and Standards**

The design, materials, equipment, manufacturing, construction, installation, and testing of all works under this contract shall be in strict accordance with the latest edition of all applicable codes and standards, national and local laws, codes and regulations, statutes and ordinances.

The latest edition of each standard shall mean the latest edition available at the date of contract signing.

All units, dimensions and calculations shall be in metric system.

**MW-1.4 Equipment Foundation**

All equipment shall be installed in accordance with the manufacturer's recommendations and applicable codes and standards. Requirements for concrete foundations where the equipment is to be mounted shall be referred to the relevant Civil Works Specifications.

The Contractor shall be responsible for the correct positioning and leveling of the equipment and auxiliaries, and any checking made by the NPC during the work shall not relieve the Contractor from his responsibility. During installation works, electro-mechanical equipment shall be carefully lifted or glided on the foundation by using only approved methods and equipment, and in a manner that will prevent damage to the equipment and foundation. The equipment shall be positioned on a location as shown on the drawings and shall be leveled and checked true to grade and alignment before final grouting. The Contractor shall strictly adhere to the installation procedures/manuals provided by Manufacturers of the equipment.

Prior to equipment mounting and grouting, the surface area and blackouts of concrete foundation shall be cleaned of all dirt by any approved means. Chipping of concrete surface to the required thickness shall be done by any approved methods without damaging the concrete structure as a whole.

The pouring of concrete to secure in place any equipment on its concrete foundation shall not be made until the NPC has verified the correct location of the foundation. Should incorrect positioning be ascertained after the concrete pouring, the Contractor shall make the correction at his own expense.

The concrete foundation surfaces shall be free of any loose materials, oil, water or any other contaminant that would prevent the grout from bonding. The concrete shall be chipped to expose a minimum aggregate so as to remove all laitance and provide a rough surface for bonding. The exposed surface shall be blown with compressed air free of oil to remove dust.

**MW-2.0 Piping System**

**MW-2.1 General**

The Contractor shall supply and install all the piping system as required and specified to provide a complete and acceptable installation necessary for the safe and efficient operation of the equipment. All required piping shall be furnished complete with flanges, joints, gaskets, packing, drains, vents, insulation if required, hangers, guides, and all auxiliary steel and anchors required to complete the pipe supports.

The Contractor shall submit, if required to suit actual site conditions, for NPC's review and approval detailed drawings covering the arrangement, actual layout, route and interface connections. Any required modification from the approved drawings or specification to suit actual site conditions, shall be permitted only with prior consent of NPC.

Piping shall be properly arranged such that it will result in neat appearance and convenient to operate and maintain. Items requiring periodic attention shall be readily accessible from floors or platforms. Pipe shall neither obstruct passageways of any kind nor interfere with access to other valves or equipment.

The Contractor shall install the piping system in a thorough manner and with good workmanship, in accordance with the construction drawings and specifications or as directed by NPC.

All pipes, fittings, valves and appurtenances shall be free from dirt or other foreign matters before laying. In the installation of the pipes, care shall be taken to prevent the pipes from becoming clogged during the progress of the work; should any pipe become either partially or wholly clogged before final acceptance of the work, it shall be cleaned out by the Contractor in a manner satisfactory to NPC or shall be replaced by and at the expense of the Contractor. Open ends shall be temporarily plugged, otherwise, suitably closed when necessary. Special care shall be taken in carrying out the installation of joints, branches, valves and other fittings.

Pipe sleeves shall be provided for pipe and tubing which penetrates platforms, floors, roofs and partitions. Proper flashing shall be provided to ensure tightness and water-proofing, where required.

A minimum of 2.0 m headroom shall be maintained to the bottom of all piping components or insulation in walking areas.

Instrument and sampling nozzle connections and valves shall be of 15 mm Ø.

A minimum of 50 mm clearance shall be provided between piping including insulation and any point of adjacent equipment or piping.

A 200 mm minimum clear space shall be provided from the bottom surface of pipe to trench bottom or finished grade. Metric flanges shall be used throughout. Welded flanges shall be weld-neck or slip-on flanges. The raised face shall be machined.

Joints between stainless and steel flanges shall be of the Insulated type.

Piping installation shall be sloped to prevent trapping of air bubbles. . Where required, suitable venting system with valve shall be provided.

Pressurized pipes shall generally not be embedded in concrete. When embedding such pipes is necessary, approval by NPC is required.

Unless otherwise stated, all piping shall be designed for a Nominal Pressure of 10kg/cm<sup>2</sup>.

Where pipeline is laid, the trench shall be provided with a cushion pad of at least 150 mm sand and sandy soil bedding materials prior to pipe laying, unless otherwise shown on the drawings.

Asphalt jute of 6 mm thickness or approved equivalent shall be applied to the external surface of pipes laid underground. Prior to application of asphalt jute, the external surfaces shall be primed with two (2) coats of Coal Tar epoxy polyamide of 170 microns DFT each coat. Galvanized pipes need not be required to be primed and shall be applied directly with asphalt jute or approved equivalent.

All pipeline excavation shall be backfilled up to the level of the finished grade surface in layers of 150 mm and thoroughly compacted, unless otherwise shown on the drawing. Backfill materials shall be compactable soil taken from trench excavation and approved by NPC. Trench excavation, backfilling, concrete works and construction of valve manhole shall be done in accordance with the pertinent provisions of the Civil Works Specifications.

Pipes to be placed underground shall not be covered prior to the approval of NPC. Underground pipes shall be embedded as shown on the drawings.

All pipes that cross roadways or concrete pavement shall be provided with pipe sleeve of steel material or reinforced concrete pipe to protect the pipe from various load imposed by passing vehicles, unless otherwise shown on the drawing. The pipe sleeves shall extend 600 mm beyond shoulder of each pavement side.

After considering site conditions, and in case execution cannot be done according to the piping route in the design drawings, on-site changes may be acceptable subject to the approval of NPC.

Flexible joints as well as vibration isolation joints shall be installed as near as possible to equipment and devices and shall not be forced to expand, extend and compressed. In case flexible joints are long and sagging due to own weight, it shall be suspended or supported.

Pipe fittings and unions for screwed piping are to be installed in such a way as to be easily accessible for repair and maintenance.

For water piping, after installation, pipe insides shall be washed thoroughly using high pressure cleaning pump. Water for washing must be clean enough not to damage the equipment.

For oil pipes, after installation, pipe insides shall be soaked thoroughly using acid solution to remove all dirt, rust and the likes. All equipment shall be disconnected from the pipes to be washed to avoid damage to the units. Acid solution shall be disposed in a manner that will not pose hazard to the environment. Thoroughly flush the pipe insides with a clean water to wash away all acid solutions and let dry before re-connecting the pipes.

All existing facilities, if applicable, which are affected and damaged during the installation of piping shall be replaced and/or restored to its original appearance by the Contractor at its own expense.

The Contractor shall strictly observe the safety requirements/regulations of existing facilities during the performance of the work.

All piping works shall be coordinated with other works at site and with existing installation so that interference between piping and other structural features will be avoided. In case interference occurs, NPC will decide which work is to be relocated.

## **MW-2.2 Pipe and Fittings**

Unless otherwise specified, all pipes to be used shall generally conform to ASTM A 53, Grade B, seamless with a minimum wall thickness equivalent to schedule 40. Only specified pipes shall be used for interconnection piping between the diesel engines and its auxiliary equipment including fuel oil transfer piping system. Pipes used for Domestic water supply and distribution systems shall be as specified in the relevant sections of this specification.

All steel piping, 65 mm and above, shall be butt-welded or flanged. All piping, 50 mm and under shall be joined by socket welded or screwed where specified.

Steel pipe fittings for 65 mm pipes and above shall be seamless, butt weld, minimum of schedule 40 conforming to ASTM A 234 Gr. WPB with dimensions to ANSI B16.9. Fittings for 50 mm pipe and below shall be forged, socket weld or threaded and conforming to ASTM 105 with dimensions to ANSI B16.11.

Malleable iron galvanized screwed fittings conforming to ANSI B16.3 (Malleable iron threaded fittings, Class 150) may be used for Potable Water System.

Flanges for steel piping shall be forged, weld neck for 65mm and larger or socket weld for 50mm and smaller, 150 1b raised face and conforming to ASTM A181 Class 60. Galvanized flanges shall be used for fire protection and potable water supply systems.

Gaskets shall be selected based on the nature of the fluid or its temperature to be handled, Gasket materials shall not contain asbestos in any form.

Flanged bolts shall be hexagonal head machine bolts conforming to ASTM A 307 Gr. B with dimensions in accordance with ANSI B18.2.1 and complete with heavy semi-finished head nuts conforming to ASTM A 194, Gr. 2H and ANSI B18.2.2.

Equipment and auxiliaries shall be furnished with all required bolts, screws, anchor bolts with sleeves, nuts, washers, locking devices, washers, gaskets, and other accessories to complete the piping system.

Generally, all gaskets, bolts, nuts and washers to be used in the various piping systems shall be new and free from defects and imperfections. Materials to be used shall be suitable for the liquid to be handled.

Threads shall be metric. Where required they shall be adequately treated against corrosion before dispatch from the works. All threads shall be greased carefully during installation except where otherwise specified. Split pins or other approved locking devices generally shall be provided for nuts which may become loose due to vibration, etc.

Any such rivets, bolts, screws, gaskets, etc., which are considered surplus, but not more than 10% of the permanent installation, after the installation of the equipment has been completed shall become spare parts and shall be wrapped, marked and handed over to NPC.

### MW-2.3

#### Drains and Vents

Not all piping system vents and drains may be shown on the piping drawings. The Contractor shall provide and install vent and drain connections at all high and low points, respectively, and as required for suitable operation.

Where practicable, all pipelines shall be sloped in the direction of flow and shall be adequately trapped at low points and vented at high points in the pipe runs.

The minimum valve size for vents and drains shall be 20 mm nominal diameter. In general, the piping for drain and vents shall be the same material as the main lines.

All piping shall be arranged to permit complete drainage when a particular unit or system is shut down for maintenance.

All vent lines which are normally operated shall be terminated at least 3 m or higher above the highest service platform.

All drain lines which run to waste shall be routed to a suitable drain trench, floor drain or sewer.

#### MW-2.4

##### Pipe Supports

Pipe supports shall be fabricated and installed as shown on the drawings. If pipe supports required are not shown on the accompanying drawings the Contractor shall provide detailed drawings and submit to NPC for review and approval.

Pipe supports shall be fabricated and assembled to permit the free movement of piping caused by thermal expansion and contraction. The design of elements for supporting or restraining piping systems, or components thereof, shall be based on all the concurrently acting loads transmitted into the supporting elements. Where resonance with imposed vibration and shocks occur during operation, suitable dampers, -restraints, anchors, etc., shall be added to remove these effects. Pipe supports shall be spaced as far apart as economically possible, with due consideration to assure that the sag of the pipe between supports is within limits that will permit drainage and also avoid excessive bending stresses from concentrated loads.

All piping shall be installed with supporting devices selected and located to ensure that the finished system will provide uniform continuous slope for draining, that expansion will be so directed as to minimize stresses in the piping material, and that all elements will be suitably and substantially supported, guided and anchored. Supports at floor or wall sleeves will not be permitted.

Riser pipes shall be individually supported. To reduce riser loads, the riser supports may be supplemented by the nearest support on a horizontal pipe. The horizontal length of pipe between the nearest support and risers shall be no longer than the length of the riser supplemented by the nearest support. Bends shall have the supports no further away from the riser than the radius. Where two rods are used in a solid rod riser hanger, each rod shall be capable of taking the entire load.

Piping systems, where flexibility is not required, shall be supported by rigid hangers. It shall be designed and fabricated so that they will not become disengaged by pipe movement.

Hanger rods shall be provided with suitable sockets or eyes to permit lateral piping movement without imposing a bending moment on the hanger rod. The eyes in the rods shall be welded shut. Safe loads for hanger rods shall be calculated on the root area of the threads. In no case shall hanger rods of less than 10 mm diameter be used for support of piping 50 mm and smaller or less than 15 mm diameter rod for supporting pipe 65 mm and larger.

When the pipe is covered with insulation and is to rest on the support, protection saddles shall be used whenever possible. Protection saddles shall be welded to the piping to prevent slipping and/or falling. The saddle material shall be the same as the pipe material, however, alloy saddles shall not be welded to alloy piping in the field. On lines of 50 mm diameter and below where service temperatures are 100 °C and under, the pipe shall slide or rest directly on the support and shall be left bare of insulation at such locations.

The location and provision of temporary supports required during hydrostatic testing shall be the responsibility of the Contractor.

Temporary construction supports shall not be welded to the pipe except with approval of NPC and shall be attached in a manner that will not damage the pipe. These supports shall be completely removed upon completion of construction.

Equipment connections shall not be used to support piping either for temporary or permanent support.

#### MW-2.5

##### Welding

All welding shall be performed by qualified -in accordance with the requirements of ANSI Code B31.1 "Power Piping" or, where applicable, ASME Boiler and Pressure Vessel Code, Section IX.

All welding shall penetrate to the full depth of the pipe. The slag shall be cleaned from each weld bead and any defects be removed before the next bead is applied. The completed weld shall be cleaned of slag and spatter metal on all surfaces.

Welding, preheat and post-weld heat treatment for piping shall be in accordance with the requirements of ANSI B31.1 or where applicable, the ASME Boiler and Pressure Vessel Code.

All welding, except for small pipe, shall be performed by the electric-arc method and where practical, with process controlled automatic machines. All pipe weld joints for piping 50 mm and smaller shall be socket weld or other method as approved by NPC.

Where weld metal is deposited in successive layers, each layer shall be thoroughly peened before the next layer is applied.

Particular care shall be taken in aligning and separating the edges of the members to be joined by butt welding so that complete penetration and fusion at the bottom of the joint will be ensured.

Pipe and tubing shall be accurately cut to measurements shown on the drawings by proper means such as machining, grinding or by thermal cutting. Burrs shall be removed by reaming.

Welding fittings shall be of the same material and wall thickness as the pipe to which they are attached. Where there is a difference in wall thickness, the component shall have a gradual transition in accordance with the applicable standard.

Nozzles or branch pipes shall be carefully shaped and welded to the header or run pipe in such a manner that the nozzle, the branch pipe, or any weld material shall not extend into the run pipe to cause obstruction of flow.

All surfaces for welding shall be clean and free from paint, oil, rust, scale and other materials detrimental to welding.

All filler materials including consumable insert materials and shield gases shall comply with requirements of the Applicable Codes and Standards. All welding rods shall be stored in accordance with the Contractor's instructions. The electrodes for arc-welding shall be classified on the basis of mechanical properties of the as-welded deposited weld-metal, type of covering, hydrogen absorption, welding position of the electrodes and type of current.

Steel piping shall be fusion welded using manual, automatic and semiautomatic welding processes whereby the arc and the deposited weld are protected from



atmospheric conditions during welding. Pipes shall be properly aligned using line-up clamps or alignment jigs prior to butt welding.

#### MW-2.6 Valves and Accessories

All valves and accessories to be supplied under this contract shall generally conform with the requirements in this specification. All valves supplied by NPC shall be installed in accordance with the requirements specified herein.

The Contractor shall select valves, valve drives and accessories which are suitable for the operating conditions of the systems in which they are to be used, and shall be responsible for the pressure and temperature ratings of the selected components. The selected components shall meet the requirements of trouble free and safe operation under maximum load, part load and transient conditions.

Generally, all valves shall be leak-proof in either flow direction (except for non-return valves) when the nominal pressure is applied.

Valves, valve drives and accessories which are of similar make, size and type shall be interchangeable with one another. The Contractor shall standardize the types and the sizes of the valves as far as possible, in order to facilitate maintenance and limit the stock of spare parts. The manufacturer of valves shall be well known.

All regularly operated isolation valves and control valves shall be accessible from a permanent floor or access platform.

All valve bodies shall be of the same nominal size as the adjacent piping, unless otherwise specified. The internal diameter of valve ends adjacent to the pipe work shall be the same as the internal diameter of the connecting pipe.

All valves shall be located and designed so that the maintenance and change of valve internals is possible without removing the valve casing from the pipe.

The stems of all valves for outdoor service shall have weatherproof protection covers of approved construction.

Valves other than outside screw and yoke type, in size larger than 50 mm are to be provided with gate position indicators. Valves shall close clockwise.

The drive units of motor-driven valves shall also be provided with handwheels for manual operation. The handwheel shall be operable under all conditions and shall be independent of the motor drive. It shall not be rigidly coupled to the motor drive and shall not compulsorily turn when the motor is energized.

All valves 65mm and larger shall have a body and bonnet material of at least cast iron. Cast steel material shall be used for high pressure or temperature applications. Stem, seat ring & seat, wedge or disc shall be made of bronze, for high pressure or temperature applications stainless steel shall be used. Valves 50mm and below shall be made of bronze unless otherwise other materials are approved by NPC.

Gate or globe valves shall generally be used for isolation in the piping system. Ball valves or butterfly valves may be used if specified or shown on the drawings.

All gate and globe valves, 65mm and over shall be of OS & Y or rising stem, solid wedge type disc for gate valves and plug type disc for globe valves, bolted bonnet, bolted gland and the following materials of components:

- a) Body & bonnet-Cast iron

- b) Stem-Bronze or brass
- c) Seat ring & seat -Bronze or bronze faced
- d) Wedge or disc-Bronze or bronze faced

Gate and globe valves, 50mm and smaller shall be made of bronze or stainless steel, rising stem, union bonnet, inside screw, solid wedge or plug type disc, with screwed or flanged ends. Valves installed in valve boxes shall have flanged ends for easy replacement or if valves with screwed ends are used, appropriate unions shall be installed.

Valves of all sizes shall have a rating of not less than class 150.

Garden hose connection valves or hose bibbs shall be of bronze material, 20mm size and outfitted with male thread hose connections.

**MW-3.0 Domestic Water Supply Piping System**

**MW-3.1 Scope of Work**

The Contractor shall supply, install and test the Domestic Water Piping to be used for the hydro-pneumatic unit piping system and Distribution Piping System including piping supports, fittings, all required excavation and backfill of pipe trenches.

The work shall include the installation of valves, valve boxes if necessary, gauges and other accessories to complete and make ready for safe and reliable operation of the system.

**MW-3.2 Pipe, Fittings and Accessories**

Domestic- water piping shall be constructed from Unplasticized Polyvinyl Chloride (uPVC) pipe schedule 80 or class 150, conforming to ASTM D-1784/ PNS 65 or approved equivalent.

Unplasticized PVC pipe connection joints 80 mm (3") Ø and above shall be joined by rubber ring or solvent cement type connection. Smaller sizes shall be of solvent cement type connection.

Flanged connections may be used for connecting to flanged surfaces and shall be of the same material with the connected pipe with a rating of class 150 or ANSI 150. Flanged joints may use flat gaskets with serrated flange faces or O-rings with corresponding grooves. Gaskets and O-rings shall not be fabricated from plasticized PVC.

Union joints shall not be used with pipe diameters of more than 63 mm O.D. (2"). Joints between metal pipes and PVC pipes should be flanged type using a PVC flange on the PVC pipe and full-face gasket.

Flange bolts shall be hexagonal head machine bolts with heavy semi-finished head nuts having dimensions in accordance with ANSI B18.2.

All pipes that cross roadways shall be provided with pipe sleeve of steel material or RCP pipe to protect the pipe from various loads imposed by vehicles and shall extend 600mm beyond shoulder of each pavement side. Embedded water supply pipes shall be laid not less than 400mm from the ground surface to the bottom of pipe.

PVC pipe installed aboveground shall be properly supported to avoid pipe sagging. Pipe covering made of steel or metal shall be provide & in case there is high risk of damaging the pipe during normal operation and maintenance.

All trench excavation and backfill works shall be done in accordance with pertinent provisions specified in the Civil Works Specifications

All gate and globe valves, 65mm and over shall be of OS & Y with rising stem, solid wedge type disc for gate valves and plug type disc for globe valves, bolted, bonnet, bolted gland and have flanged ends with the following materials of components:

- a) Body & bonnet —Cast iron
- b) Stem—Bronze or brass
- c) Seat ring & seat—Bronze or bronze faced
- d) Wedge or disc—Bronze or bronze faced

Gate and globe valves, 50mm and smaller shall be made of bronze material, rising stem, union bonnet, inside screw, solid wedge or plug type disc, and screwed ends. Valves installed in valve boxes shall have flanged ends for easy replacement or if valves with screwed ends are used, appropriate unions shall be installed.

Valves of all sizes shall have a rating of not less than Class 150.

Garden hose connection valves or hose bibbs shall be of bronze material, 20mm size and outfitted with male thread hose connections.

Strainers, if required, shall be of Y-type with cast iron or PVC body material and flanged or screwed ends. Screen elements shall be of stainless-steel construction with minimum of 40-mesh size.

### MW-3.3

#### Installation

The Contractor shall install the piping system in a thorough manner and with good workmanship in accordance with the construction drawings and specification or as directed by NPC. No installation work for underground pipe shall commence unless trench excavation has been approved by NPC.

All pipes, fittings, valves and appurtenances shall be free from dirt or other foreign matters before laying. In the installation of the pipes, care shall be taken to prevent the pipes from becoming clogged during the progress of the work. Should any pipe become either partially or wholly clogged before final Completion of the work, it shall be cleaned out by the Contractor in a manner satisfactory to NPC or shall be replaced by and at the expense of the Contractor. Open ends shall be temporarily plugged, otherwise suitably closed when necessary.

Special care shall be taken in carrying out the installation of joints, branches, valves and other fittings.

All piping works shall be coordinated with any other work at site and with existing installation so that interference between piping and other structural features will be avoided. In case interferences occur, NPC will decide which work is to be relocated.

Where pipeline is laid, the trench shall be provided with a cushion pad of at least 100 mm sand and sandy soil bedding materials.

Embedded water supply pipes in open areas shall be laid not less than 300mm from the ground surface to the bottom of pipe.

All pipeline excavation shall be backfilled up to the level of the finished grade surface in layers of 150 mm and thoroughly compacted. Backfill materials shall be compactable soil taken from trench excavation and approved by NPC. Trench excavation and backfilling works shall be done in accordance with the pertinent provisions of the Civil Works Technical Specifications.

All pipes that cross roadways shall be provided with pipe sleeve of steel material or reinforced concrete pipe to protect the pipe from various loads imposed by vehicles and shall extend 600mm beyond shoulder of each pavement side.

PVC pipe installed aboveground shall be properly supported to avoid pipe sagging. Pipe covering made of steel or metal shall be provided in case there is high risk of damaging the pipe during normal operation and maintenance.

All existing facilities affected and damaged during the installation of piping shall be replaced and/or restored to its original appearance by the Contractor at his own expense.

Transportation, storage and erection shall be in strict accordance with manufacturer's recommendations. Erection shall be such as to prevent stress in the piping.

All trench excavation and backfill works shall be done in accordance with pertinent provisions specified in the Civil Works Specifications.

#### MW-3.4 Testing and Cleaning

The piping system shall be hydrostatically tested at a pressure 1.5 times the design pressure or maximum working pressure of the system for a period of not less than 30 minutes. Test may be applied to whole assembly of the entire piping system. During the test, valves shall be opened and closed.

Before any tests are made, the Contractor shall notify NPC so that such test may be witnessed by NPC or his duly authorized representative. All expenses incurred during the test shall be borne by the Contractor.

If applicable, test shall also include visual check on welded parts of the modified tapping points during actual operation of each system to ensure that no leakage is observed on the welded joints.

Before starting the test procedure, the piping shall be flushed and cleaned thoroughly. When filling the line with water, all air shall be removed.

Tests may be applied to sections or the entire system. The test shall be made between valves and sections of not more than 305m' (1000 ft) in accordance with the American Water Works Association (AWWA).

There shall be no leakage whatsoever from the pipes, fittings and connections for each section tested while the system is under the test pressure for the period of not less than thirty (30) minutes of the total time to inspect all portions of the waterline under test, whichever is longer.

Any leakage or defect disclosed by the test prior to the acceptance shall be corrected and repaired by the Contractor at his own expense and to the satisfaction of NPC.

The water piping system shall be disinfected after testing and before being put into use. Before disinfections, the piping should be drained, flushed, re drained and refilled. In refilling, care must be taken to avoid entraining or entrapping air in the piping. The Contractor may use any of the methods of disinfections as recommended by the American Water Works Association (AWWA) or any of the following kinds of treatment:

- a) Chlorine Gas-Water Mixture;
- b) Calcium-Hypochlorite or equal; or
- c) Dry Calcium Hypochlorite or Chlorinated Lime and Water Mixture.

Retention period shall be at least 24 hours and shall produce not less than 10 ppm at extreme end of the lines at the end of the retention period. After flushing, residual chlorine must be reduced to less than 1 ppm.

The Contractor shall submit the following for review and/or approval by NPC:

- a) Test procedures prior to test; and
- b) Test and inspection reports.

## **EW- ELECTRICAL WORKS**

### **EW-1.0 GENERAL**

This section covers the technical and associated requirements for the Construction of Offsite Data Center and Equipment Storage for MinGen and Agus Plants

All electrical equipment shall be installed in accordance with the relevant sections of this specification. The Contractor shall submit all related drawings and document deemed necessary, prior to the execution of the work, subject to the approval of NPC.

The works shall be performed and completed in a satisfactory manner in accordance with generally accepted modern engineering practice.

### **EW-2.0 SCOPE OF WORKS**

The scope of electrical work covers the furnishing of all labor, materials, equipment, tools and other necessary incidentals required which shall essentially consist of all electrical equipment and materials enumerated herein:

1. Supply, Installation and Test of Complete Lighting and Power System; and
2. All other works and services including those not specifically detailed herein but are required to fully complete the project.

### **EW-3.0 STANDARD OF MATERIALS**

All materials to be used in the work shall be new, of high quality, free from all defects and of proven acceptability for the purpose of intended. Unless otherwise specified, materials shall conform to the latest applicable standard issued by the following authorities:

1. American National Standards Institute (ANSI)
2. Institute of Electrical and Electronic Engineers (IEEE)
3. Underwriter's Laboratory (UL)
4. National Electrical Manufacturer's Association (NEMA)
5. National Electrical Code (NEC)
6. Philippine Electrical Code (PEC)
7. Philippine Electronics Code (PEC)

Other recognized national standards maybe accepted if, in the opinion of NPC representatives, such will guarantee a quality not inferior to that guaranteed by the above standards.

In case of conflicting requirements between authorities cited above and those specified, such disagreement shall be resolved by representative of which his decision shall be final.

**EW-4.0 LIGHTING & POWER SYSTEMS**

The lighting and power system covered by this specification includes lighting fixtures, switches, outlets and associated conduits, conductors, fittings, etc.

The devices/materials furnished shall be in accordance with, but not limited to, the latest issues of the Applicable Codes and Standards, including all addenda, in effect at time of purchase order unless otherwise stated in this specification.

All materials and parts which are not specifically mentioned herein but are necessary for the proper installation and safe operation of the lighting system shall be identified by the Contractor and shall be furnished at no additional cost to NPC.

**EW-4.1 Technical Requirements and Characteristics**

Circuits shall be wired separately for lighting and outlets. Lighting fixtures shall be controlled and switched locally approximately as shown on the drawings.

Replacement of fixture bulbs or tubes shall be possible without disconnecting any part of the power supply and risk of touching live parts of the installation.

**EW-4.2 Lighting and Power Panelboard**

The lighting and power panelboard shall be flush mounted rated at 240V, 60Hz, operating on a three-phase system.

Circuit breaker to be installed for the lighting and power panelboard shall be molded case type with instantaneous magnetic trip and thermal overcurrent trip.

Panelboard Nameplate shall be black plastic with engraved white letter. All branch circuits, especially for ACU's, motors, heaters, etc., shall be labeled to easily identify and locate the connected loads during maintenance.

**EW-4.3 Lighting Fixtures, Luminaires and Accessories**

Lighting Fixtures

All lighting fixtures when installed shall be free of leaks, warps, dents and other irregularities.

The hangers and brackets of all kinds for safety and proper installation of lighting fixtures shall be furnished and installed by the Contractor at his own expense.

The housing of lighting fixture shall be fabricated of steel sheet, corrosion resistant, good ventilation and easy installation.

All lighting fixtures, samples and catalogues shall be submitted for NPC's review and approval prior to the order. No lighting fixtures shall be installed without approval of NPC.

Lighting fixtures shall be wired with approved fixture wire, 90 0 C insulation. Each fixture shall be wired to a single point with an adequate slack for proper connection. All lighting fixtures shall be protected from damage during installation. Any broken lighting fixtures, receptacles, stems and the like, shall be replaced with new parts, at no cost to NPC.

#### Lighting Luminaires

a. LED Tube Type Lighting Fixture with Louvres

IP20 Recessed Mounted Lighting Fixture with mirror finish aluminum reflector and satin finish aluminum louvres, 1200mm x 600mm zinc phosphate steel sheet housing with white powder coat paint finish, and high output, 2x18W G13 base LED tube lamp.

b. Recessed Vertical Profile Downlight

IP44 Recessed Mounted Vertical Profile Downlight with Aluminum Reflector and Powder Coated Rim Fitted with Vertically Placed E27 Base 1 x 12 Watts, Compact LED Lamp.

c. Surface Vertical Profile Downlight

IP20 Surface Mounted Vertical Profile Downlight with Aluminum Reflector and Powder Coated Rim Fitted with Vertically Placed E27 Base 1 x 9 Watts, Compact LED Lamp.

d. Emergency Lighting Fixture

The Contractor shall supply and install the automatic stand-alone emergency lamp with self-contained battery unit as specified herein.

When the AC main supply is interrupted, the lamps shall be automatically switched ON with a time delay of 1 second to the battery powered operation. Lamps shall be switched OFF when the batteries are discharged at the low-level voltage (below 7.5V). The charging system of both maximum-constant voltage and constant current shall be able to recharge the completely discharged batteries to their full capacity within 20 hours or less. The charging system shall cut-off automatically and instantaneously upon reaching fully charged state.

Under normal supply, the charging system shall ensure and maintain the batteries in a fully charged state ready to supply power and shall be equipped with a reliable protective device to protect the batteries against overload and short circuit.

Batteries shall be of long life, maintenance free, sealed lead acid type. The batteries shall have sufficient capacity to operate the lamps at full luminous efficiency for up to 3 hours after failure of the main supply.

Rated input voltage of the automatic stand-alone emergency lamps shall be 230 VAC, 1-phase, 60 Hz.

e. Exit Lights

IP30 LED Emergency Exit Sign Light shall be Non-Maintained, Low Heat, Low Maintenance and Low Volt Cut-off preventing battery over discharge. It shall be complete with High Temperature Nickel Cadmium Battery, IC Controlled Dual-Rate Charger, Fire Retardant Molded Acrylic Diffuser and Electro Galvanized Steel with Epoxy Powder Coated Fittings.

**EW-4.4**

**Conductors**

Conductors shall be stranded annealed copper conductor suitable for continuous temperature of 90 0 C when used in wet or dry location and 75 0 C when exposed to oil or coolant. The minimum size of conductor to be used shall be 3.5mm<sup>2</sup> .

Insulation shall be suitable for wet and dry location, fungi resistant and ultraviolet stable.

All conductors shall be moisture and heat resistant, flame-retardant polyvinyl chloride insulation, chemical and abrasion resistant nylon sheath.

The conductor specification shall meet ASTM specification, PNS 35, UL standard 83 and requirements of PEC.

The contractor shall submit catalogues and/or brochures showing details of insulation and ampacity ratings of all types of conductors to be supplied for approval of NPC.

**EW-4.4.1**

**Conductor Installation**

Conductors pulled through conduits shall be supported in an approved manner to avoid damage to the insulation. Grease or oily substances shall not be used to facilitate the passage of the conductor in conduits.

The pull shall be applied only by means of approved grips and the end portion, which has been marked or deformed by the grip, shall be cut-off by the Contractor.

All cable runs shall be continuous, and all termination shall be at the terminal boards, equipment, etc. No splices are allowed in conduit or cable tray.

Prior to installation of conductors, conduits and cable trays shall be thoroughly cleaned to prevent damage to conductors during installation. After conductors have been installed, it shall be tested for continuity and insulation resistance and shall be tagged with respective conductor number.

**EW-4.5**

**Conduit**

All embedded and concealed in ceiling conduits, boxes and fitting required for the power and control conductors including all necessary hardware and accessories such as screws, bolts, concrete inserts, clamps, locknuts, couplings shall be furnished by the Contractor. The required quantities of various items of conduits and



associated materials shall be furnished in accordance with the installation requirements.

During installation, due precaution shall be taken to protect the conduit and threads from mechanical injury. The ends of the conduit shall be sealed in an approved manner. Conduit runs shall be sealed using caps and discs or plugs. The seals shall be maintained, except during inspection and tests, until the conductor is pulled in. Conduit shall be checked to be free from obstructions by pulling a wooden mandrel of appropriate size through the conduit.

Conduits running in floors and terminating at equipment mounted on concrete bases shall be brought up to the equipment within the concrete bases, wherever possible.

All joints between lengths of conduits and threaded connection to boxes, fittings and equipment enclosures shall be made watertight.

Conduits installed outdoors running underground shall be buried to a minimum of 0.6 m.

#### Non-Metallic Conduits

Non-metallic conduit shall be made of un-plasticized polyvinyl chloride (uPVC) smooth walled inside and outside, colored red-orange, schedule 40.

The uPVC conduits shall be non-corrosive and weatherproof, resistant to the attacks of acids and alkalis and must have a self-extinguishing property hence shall not support combustion. It shall resist corrosion, rust and scale.

#### Metallic Conduits

Metallic conduit shall be made of Electrical Metallic Tubing (EMT), galvanized on the outside for corrosion protection and shall have an approved corrosion-resistant organic coating on the inside. EMT shall be installed using setscrew or compression-type couplings and connectors.

EW-4.6

#### **Junction/Utility and Pull Boxes**

##### Junction / Utility Boxes

All junction/utility boxes for concealed work shall be of hot dip galvanized steel or un-plasticized polyvinyl Chloride. All wall boxes on exposed work shall be of aluminum blasted cast iron.

Utility boxes shall be firmly anchored in place and where required provided with fixture supports. The Contractor shall provide special supports for recessed lighting fixtures, etc. Suitable expansion screws shall be used for securing boxes to solid masonry and approved type toggles for securing to hollow masonry units.

##### Pull Boxes

Pull boxes shall be installed at all necessary points, to prevent damage to the insulation or other damage that might result from pulling resistance or for other reasons related to improper installation. All pull boxes shall be made of galvanized sheet steel not less than 2mm or unplasticized polyvinyl chloride.

Where pull boxes are used in connection with exposed conduits, plain covers attached to the pull box with a suitable number of countersunk flathead machine screws may be used.

**EW-4.7 Grounding System**

All equipment to be used shall be properly grounded in accordance with the latest electrical and electronics industry standards.

**EW-5.0 Measurement of Payment**

Measurement of payment for all electrical works shall be based on the bid price of each item as shown in the Bill of Quantities — Electrical Works, Section VII of the Bid Document. The cost of each item shall cover all works required and described in the pertinent provisions of the specifications.

**CLEARING AND DEMOBILIZATION**

**General Scope**

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

**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.

**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

BID DOCUMENTS

SECTION VII- DRAWINGS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO : MG-ISD24-001/INFRA2024-ISD-002

## *Section VII. Drawings*

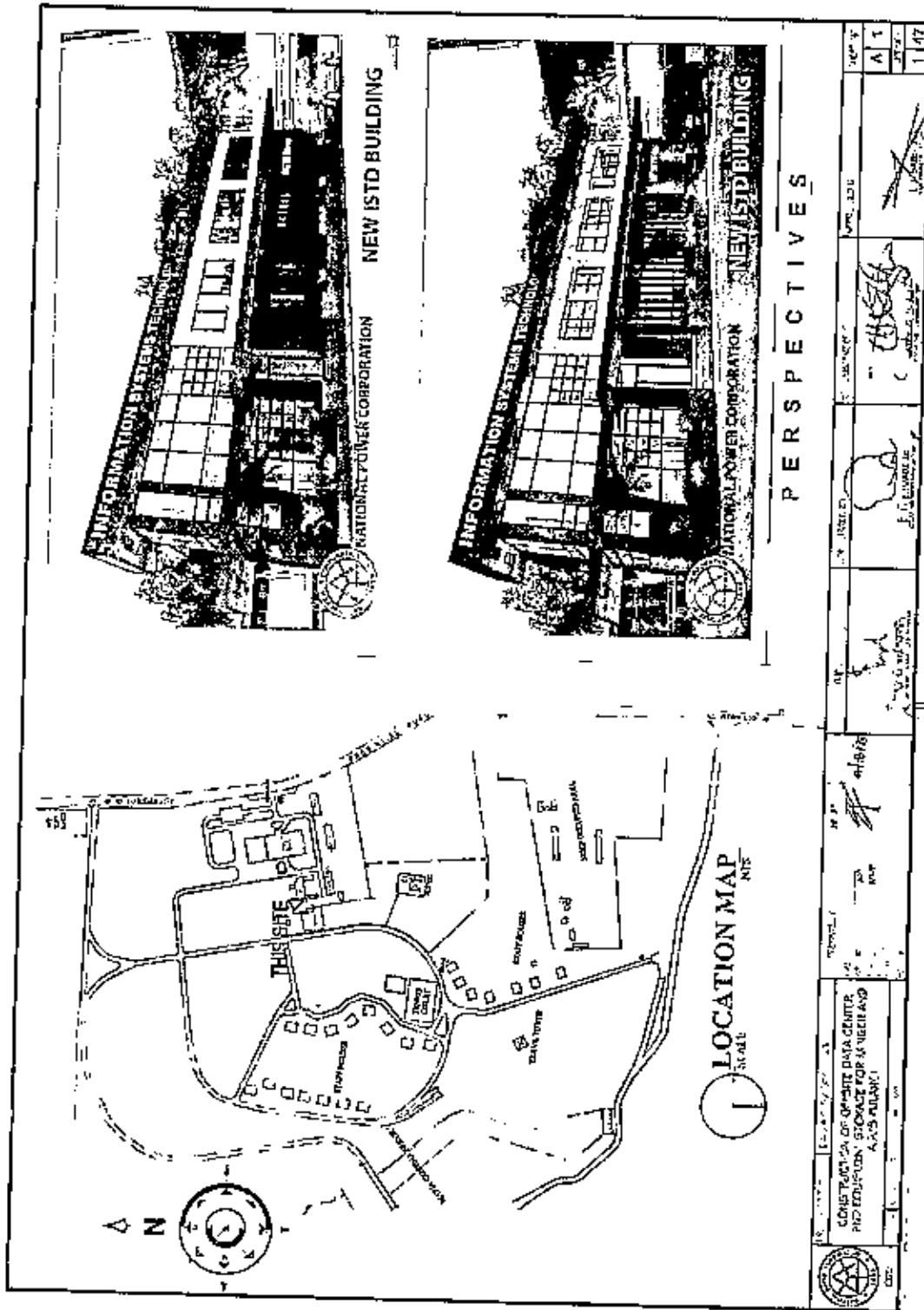
## SECTION VII- DRAWINGS

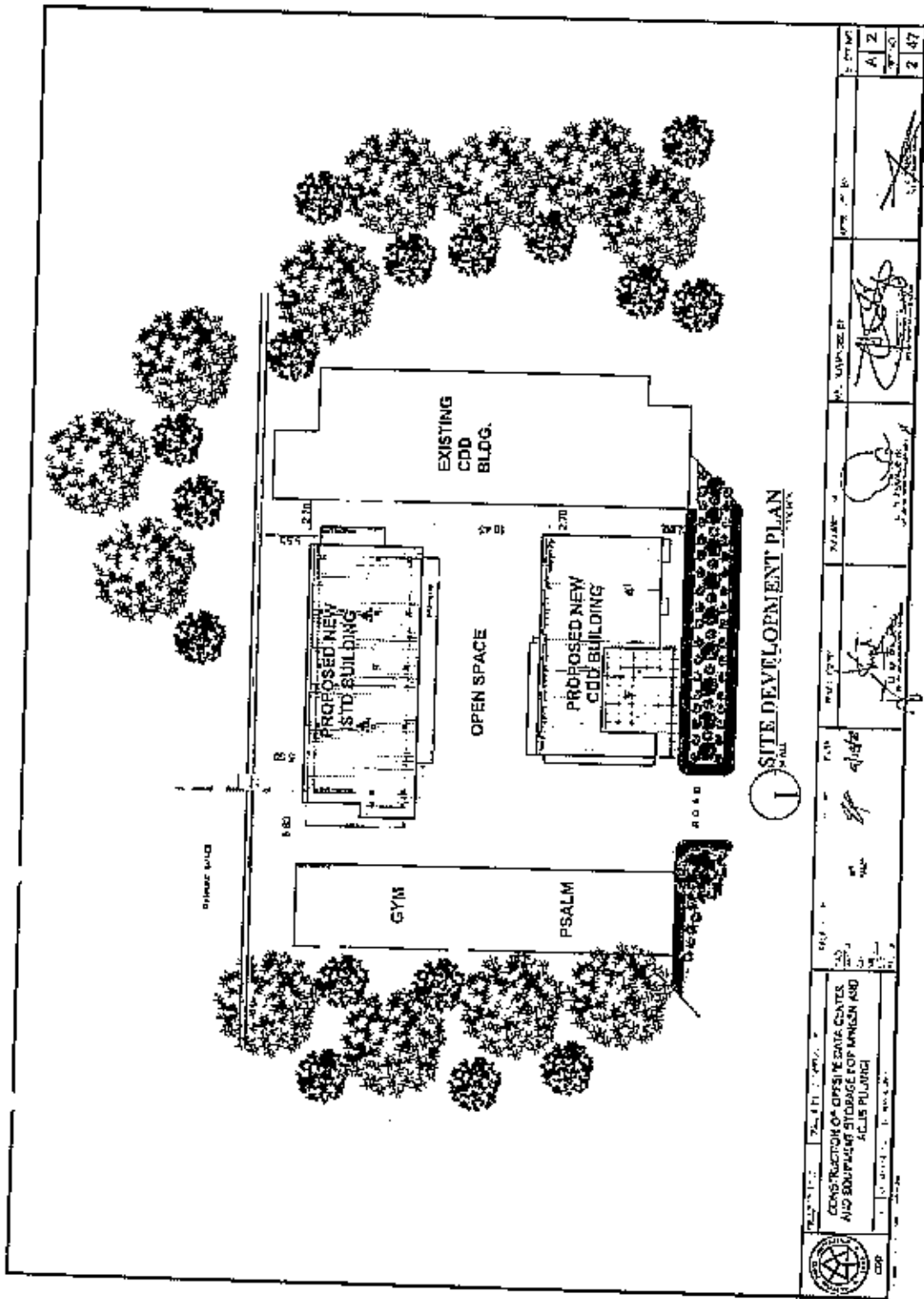
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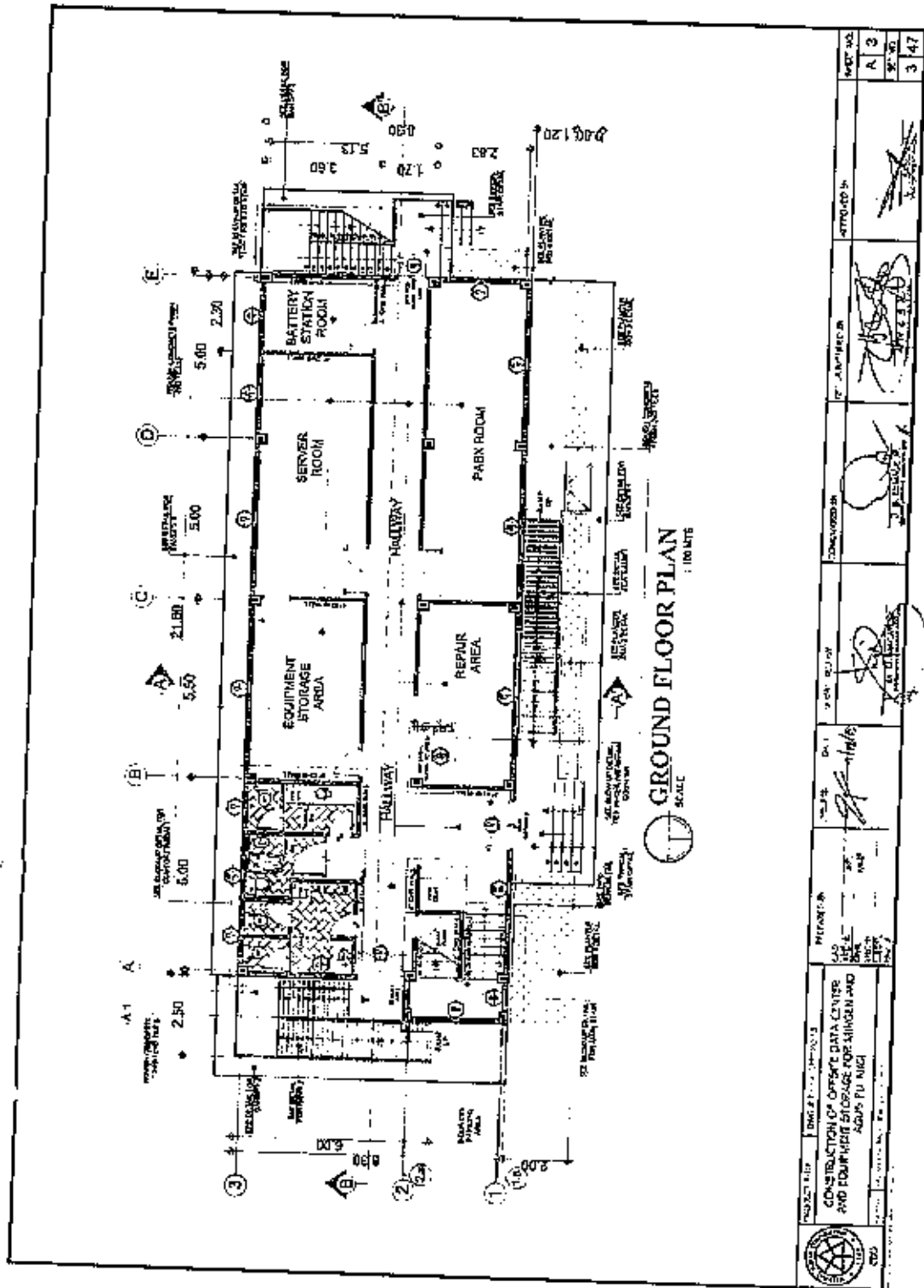
- Sheet No. 1/47 - Location Map & Perspectives
- Sheet No. 2/47 - Site Development Plan
- Sheet No. 3/47 - Ground Floor Plan
- Sheet No. 4/47 - Second Floor Plan
- Sheet No. 5/47 - Roof Plan
- Sheet No. 6/47 - Front View Perspective & Front Elevation
- Sheet No. 7/47 - Rear View Perspective & Rear Elevation
- Sheet No. 8/47 - Left View Perspective & Left Side Elevation and Right View Perspective & Right-Side Elevation
- Sheet No. 9/47 - Transverse Section (A-A') and Longitudinal Section (B-B')
- Sheet No. 10/47 - 1<sup>st</sup> & 2<sup>nd</sup> Floor Reflected Ceiling Plan, Ceiling Frame Blow-up Details and Ceiling Perspective
- Sheet No. 11/47 - Windows & Doors Schedule Details
- Sheet No. 12/47 - Comfort Room 1 Details and Section A to Section G
- Sheet No. 13/47 - Plan View and Section H to Section L
- Sheet No. 14/47 - Planters Wall Footing Details and Plan, Front, and Side View and Plater Box 1 Details
- Sheet No. 15/47 - Plater Box 2 Details: Plan, Front and Side View and Section B
- Sheet No. 16/47 - Plater Box 3 Details: Plan, Front and Side View and Section C
- Sheet No. 17/47 - Plater Box 4 Details: Plan, Front and Side View and Section D
- Sheet No. 18/47 - Sun Buffer 2 Front & Side view and Sun Buffer 2 Detail
- Sheet No. 19/47 - Receiving Repair Counter Detail
- Sheet No. 20/47 - Pantry/Kitchen Counter Top Details: Plan and Section View
- Sheet No. 21/47 - Foundation Plan
- Sheet No. 22/47 - Wall Footing Plan and Slab Layout
- Sheet No. 23/47 - Second Floor Framing and Slab Layout
- Sheet No. 24/47 - Roof Beam Layout
- Sheet No. 25/47 - Roof Framing Plan
- Sheet No. 26/47 - Schedule of Footings, Wall (W1), Wall Footing (WF1) and Wall Footing (WF2) Details
- Sheet No. 27/47 - Typical Column Detail
- Sheet No. 28/47 - Schedule of concrete Girder/ Beam Reinforcements
- Sheet No. 29/47 - Typical RC Slab Section
- Sheet No. 30/47 - Rafter Truss Detail 1 (RT-1) and Rafter Truss Detail 2 (RT-2)
- Sheet No. 31/47 - Parapet/ Gutter Details, HS-1, HS-2 and HS-3
- Sheet No. 32/47 - Detail Connection of Cross Bracing at Cross Apex
- Sheet No. 33/47 - Main Stair, Typical Cantilever Beam/ Canopy and Canopy 4 Details
- Sheet No. 34/47 - Typical Stair, Canopy 3 Details
- Sheet No. 35/47 - Typical Concrete Ramp, Ramp 1 & Ramp 2 Details
- Sheet No. 36/47 - Typical Door & Window Framing and Fire Exit Stair Details


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- Sheet No. 37/47 - Fire Exit Stair Blow-up and Pedestal Column Details
- Sheet No. 38/47 - 1<sup>st</sup> & 2<sup>nd</sup> Floor Water Distribution Layout
- Sheet No. 39/47 - 1<sup>st</sup> & 2<sup>nd</sup> Floor Sanitary Drainage Layout and Kitchen Sink Blow-up Details
- Sheet No. 40/47 - Plumbing Layout (Isometric View)
- Sheet No. 41/47 - Septic Tank Details and Standard Soil Pipe Connections
- Sheet No. 42/47 - Down Spout Layout
- Sheet No. 43/47 - 1<sup>st</sup> Floor Lighting Layout Plan & 1<sup>st</sup> Floor Power Layout Plan
- Sheet No. 44/47 - 2<sup>nd</sup> Floor Lighting Layout Plan & 2<sup>nd</sup> Floor Power Layout Plan and Service Entrance Details
- Sheet No. 45/47 - Riser Line Diagram (PB1)
- Sheet No. 46/47 - Riser Line Diagram (PB2)
- Sheet No. 47/47 - Riser Line Diagram (MPB) and 1<sup>st</sup> & 2<sup>nd</sup> Floor UTP Layout Plan

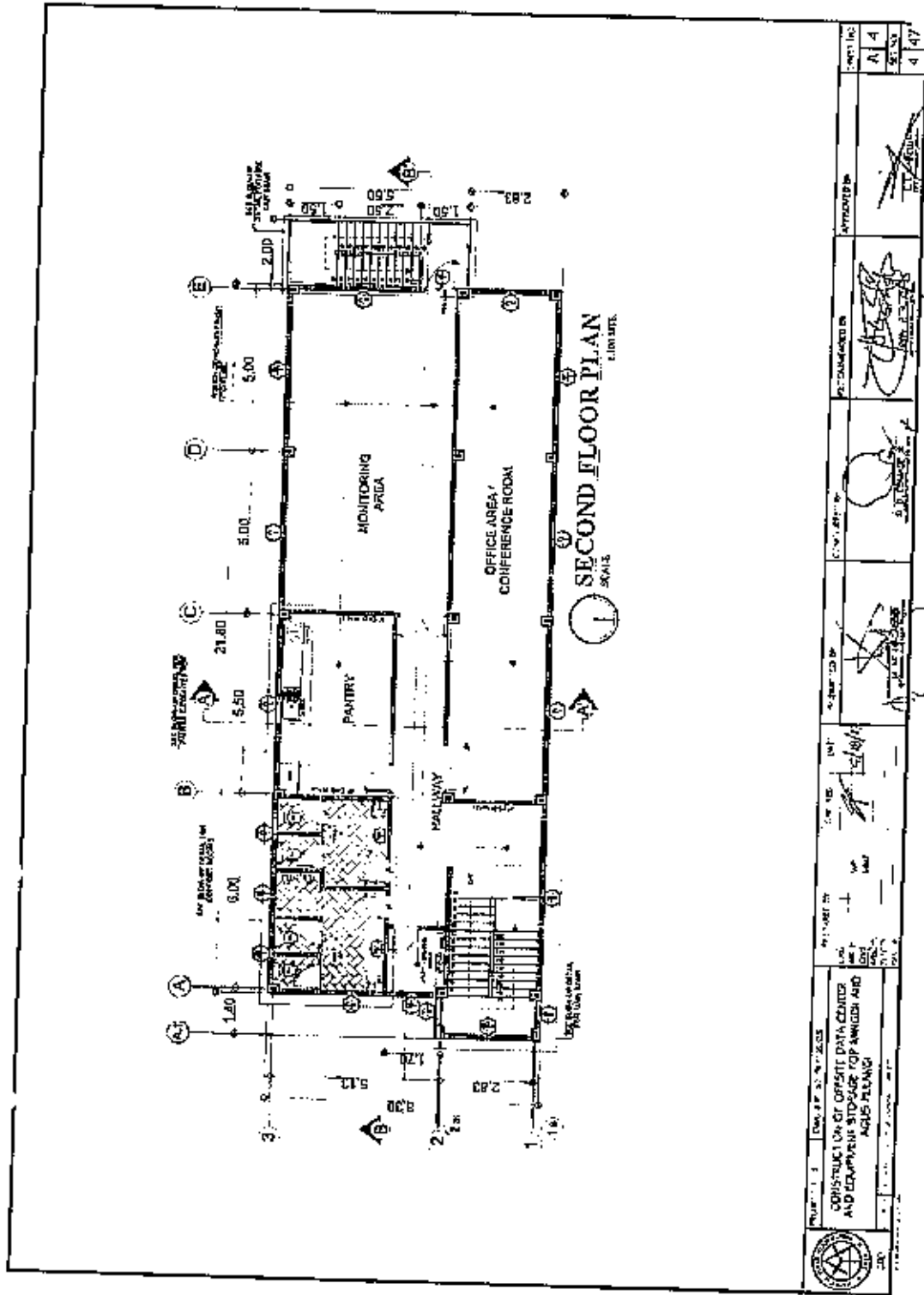


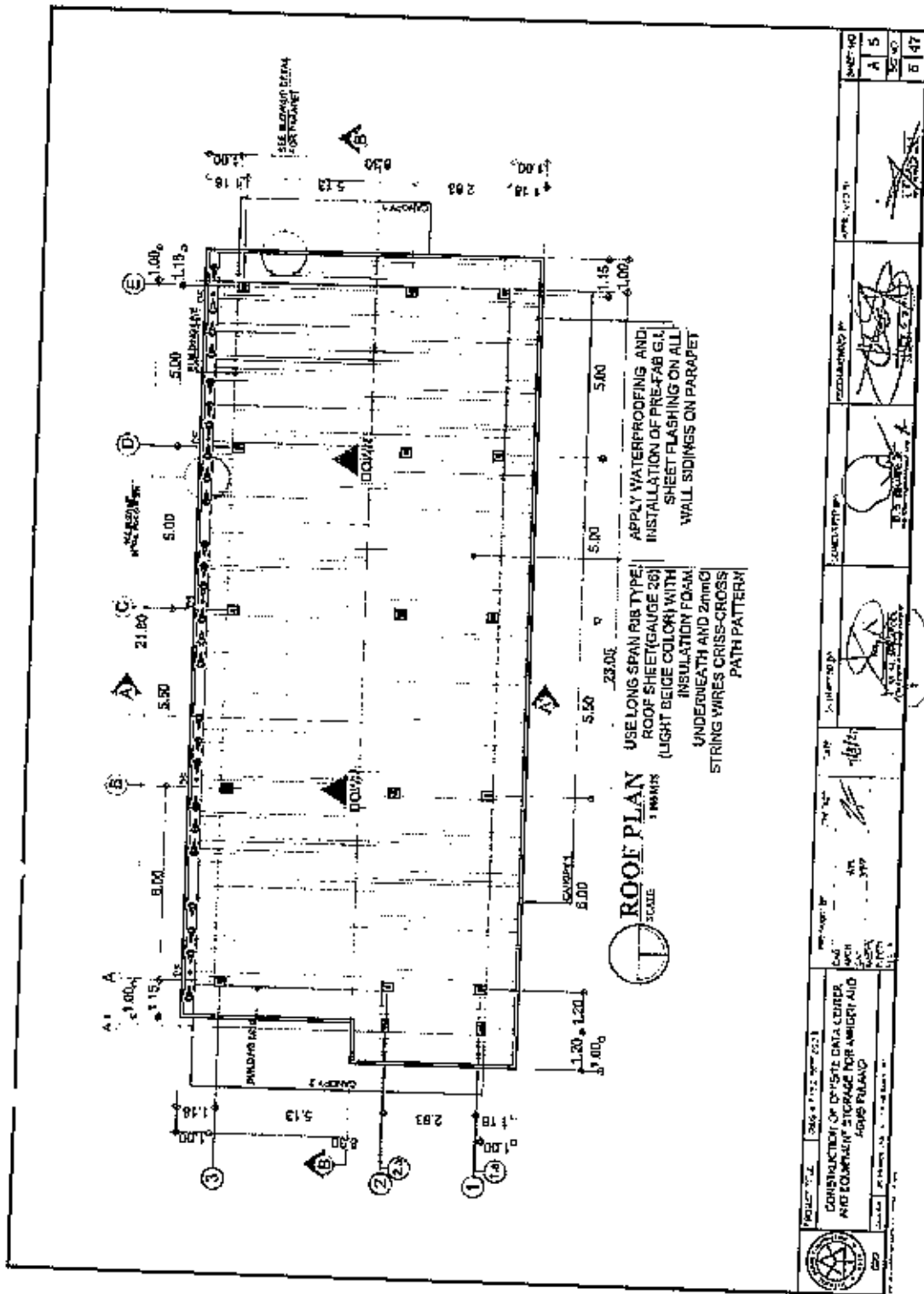


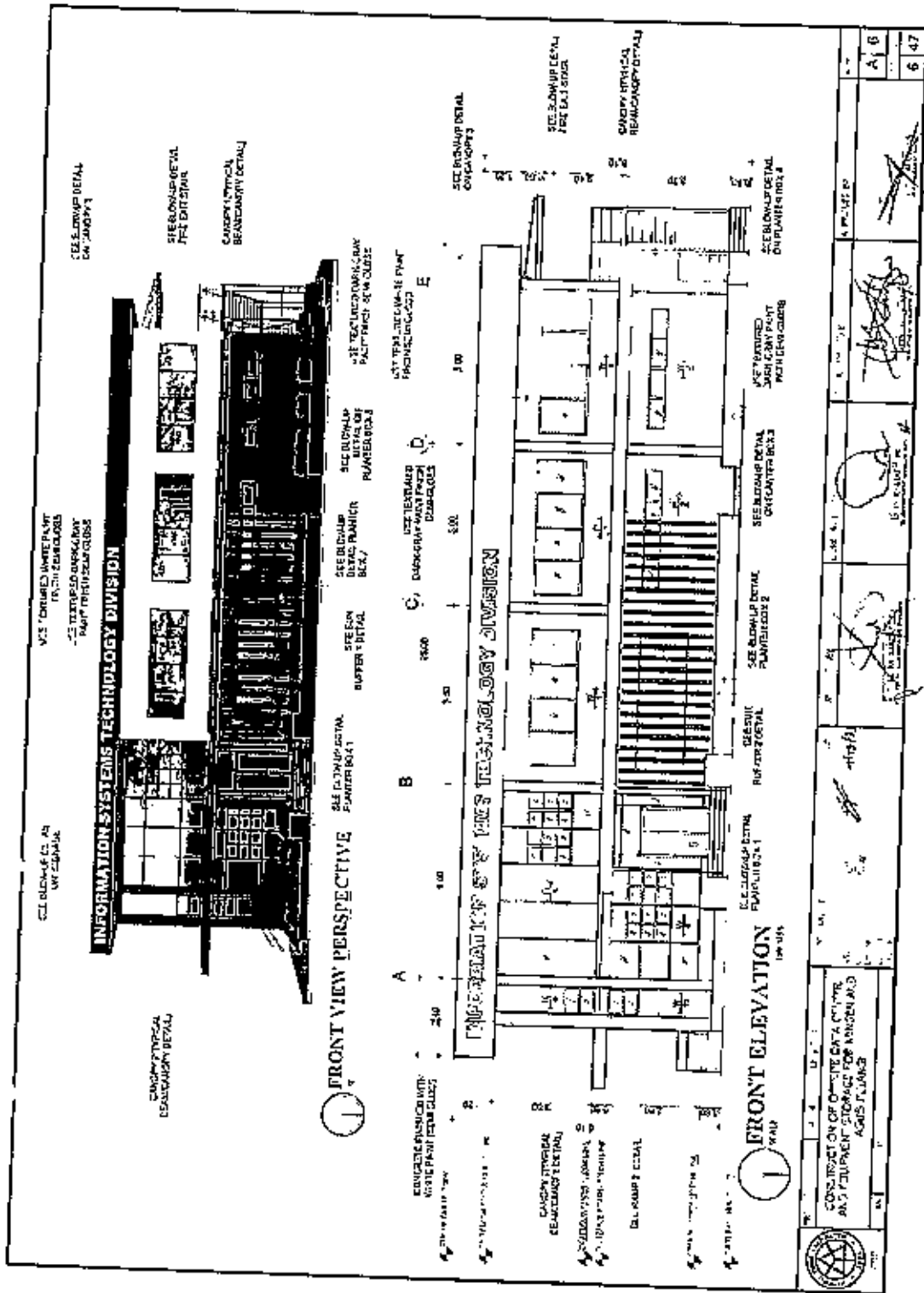


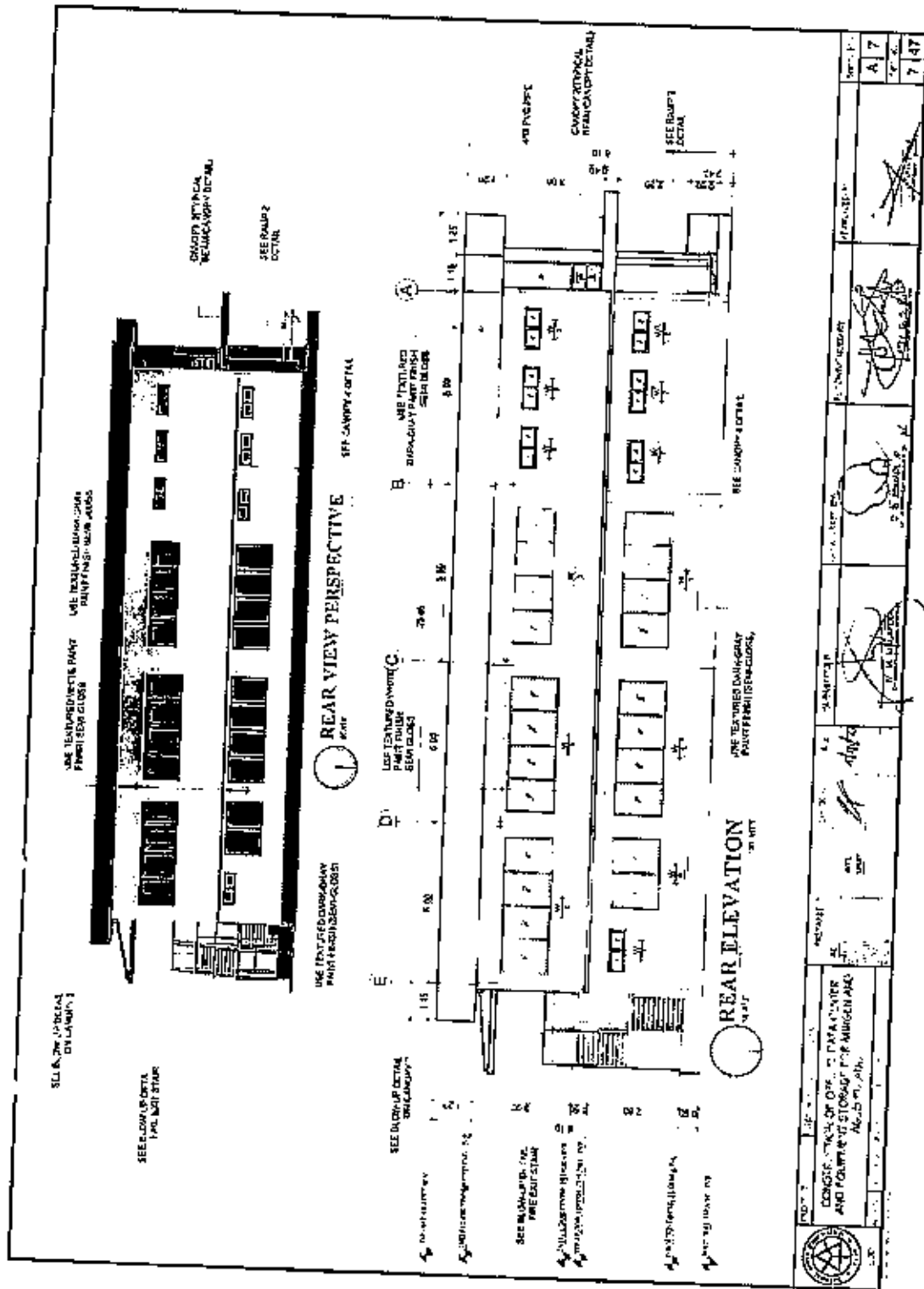
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	CLIENT PT. ARABIAN BINA	DATE 11/16/24	DRAWN BY [Signature]
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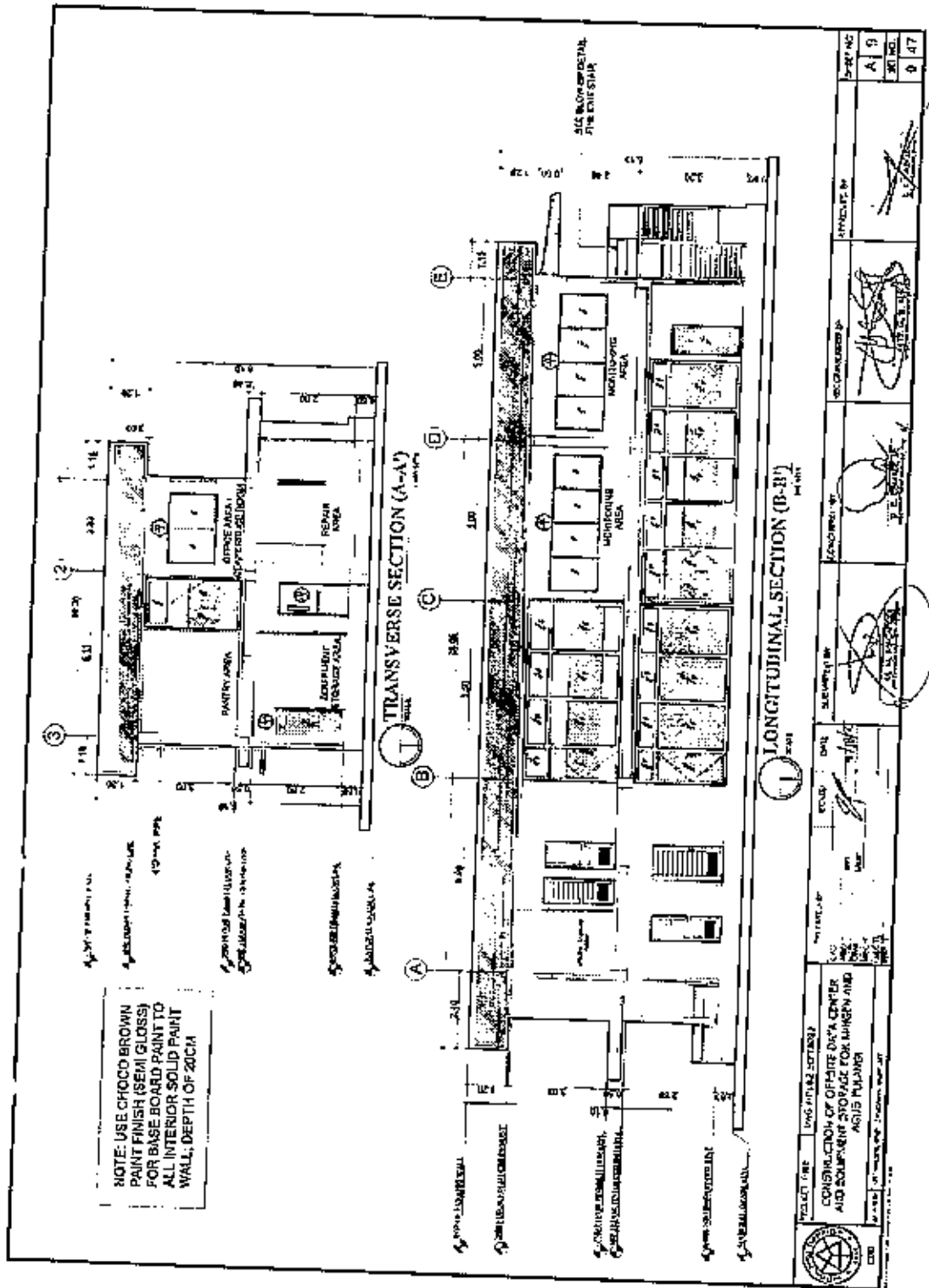




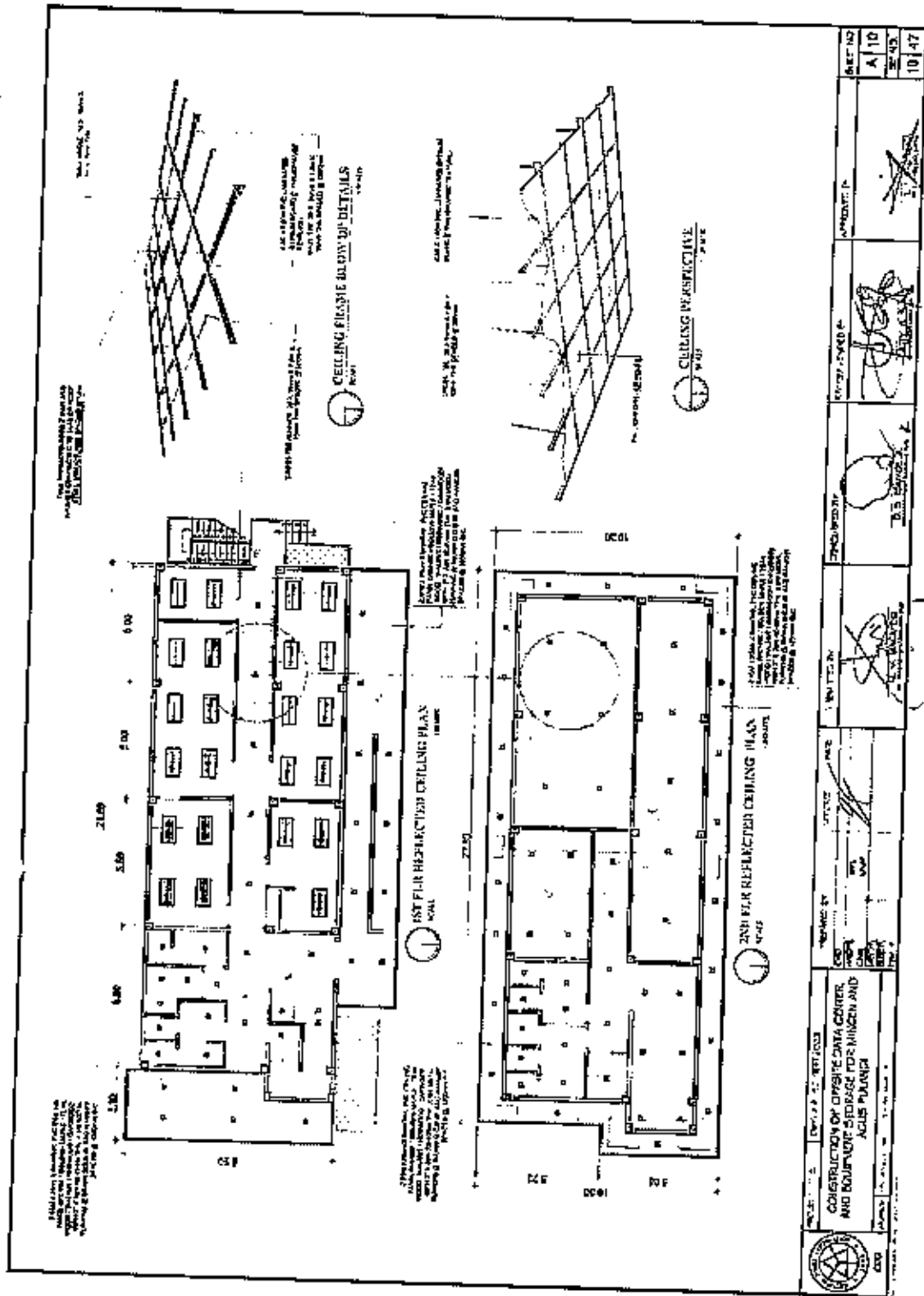




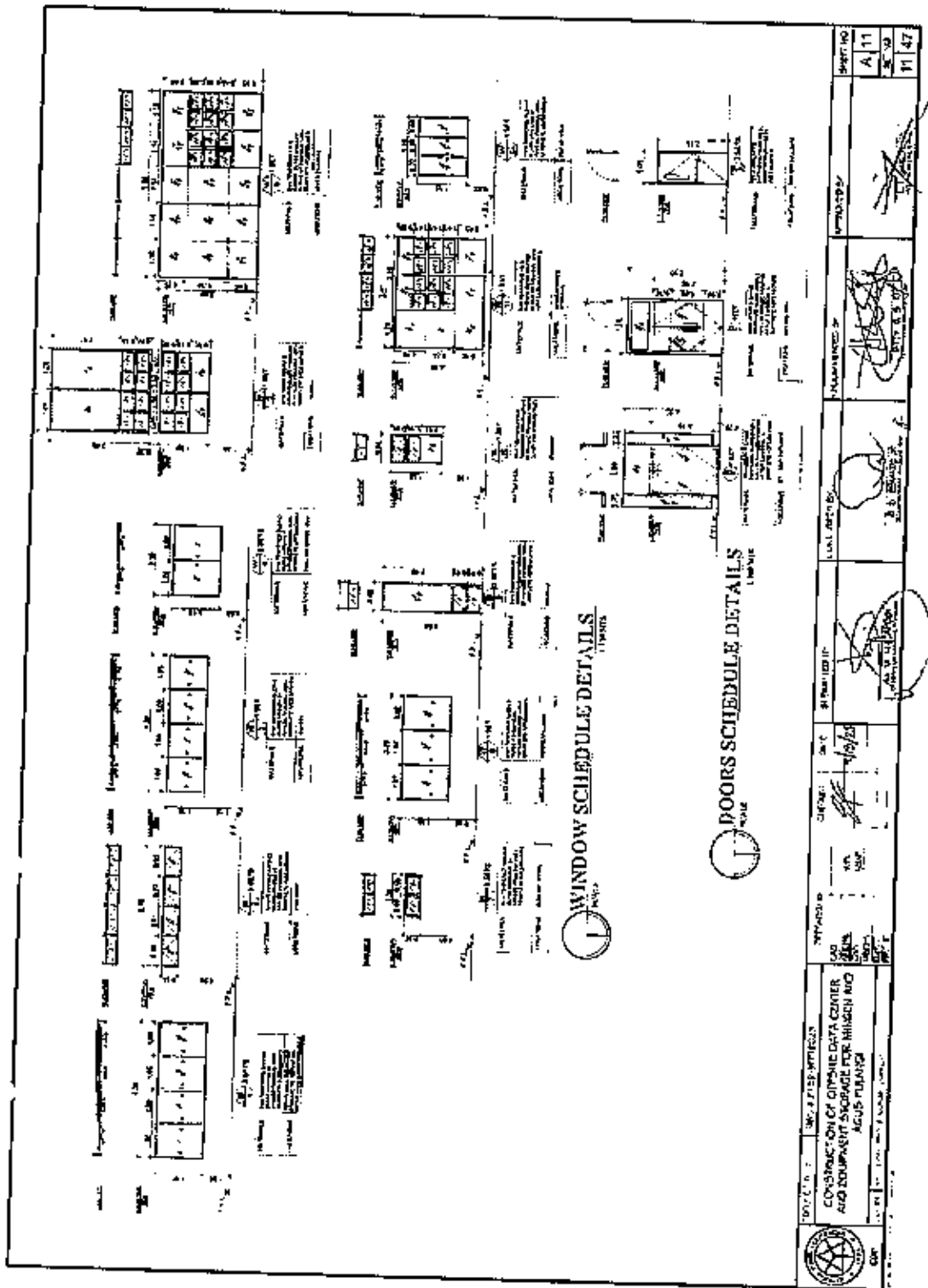




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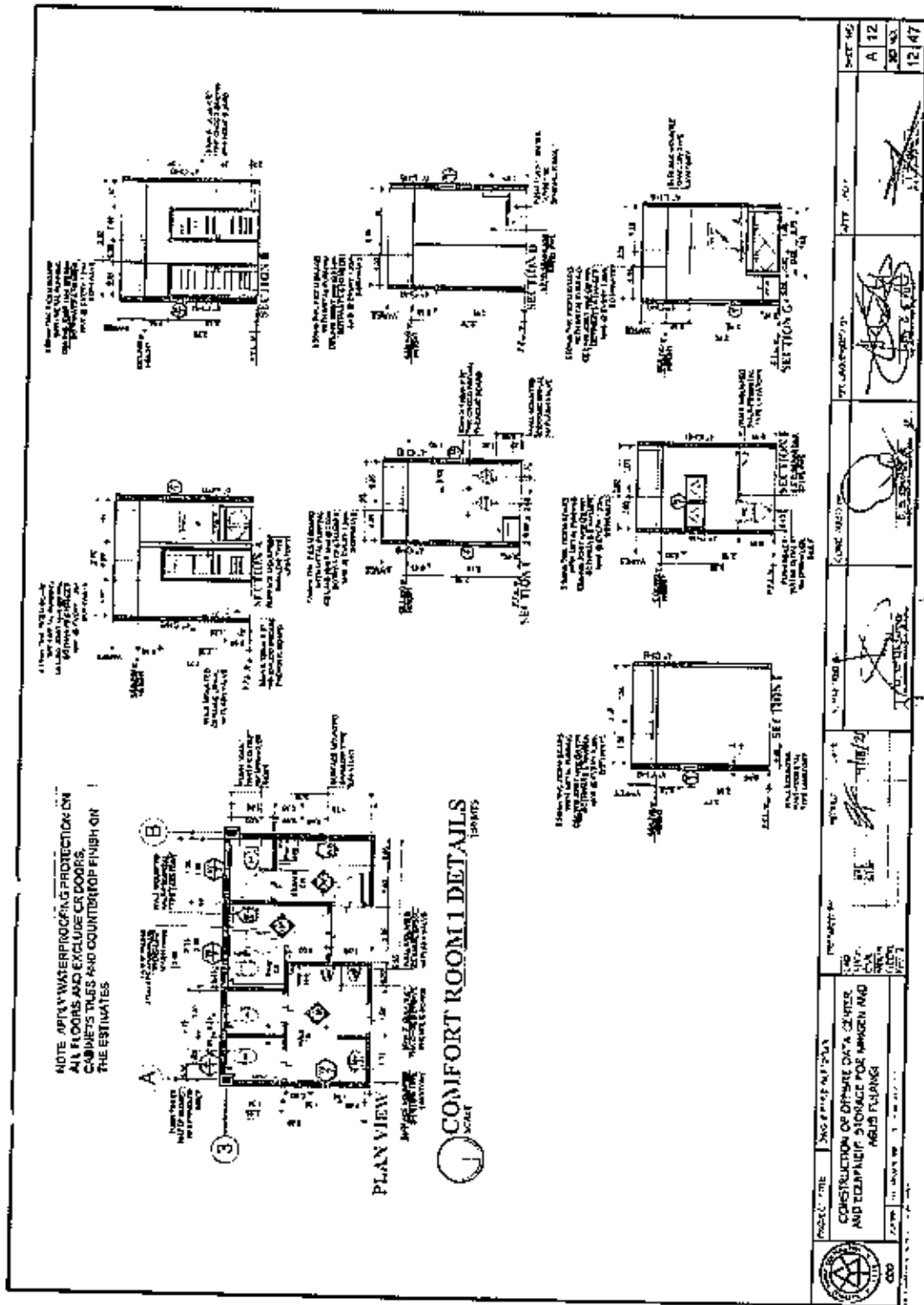
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	NO. 2118-1/2024 CONSTRUCTION OF OFFSITE DATA CENTER AND EQUIPMENT STORAGE FOR MINGEN AND AGUS PLANTS	APPROVED (Signature) DATE: 11/11/2024	\$ PREPARED BY (Signature) DATE: 11/11/2024	\$ CHECKED BY (Signature) DATE: 11/11/2024	\$ DRAWN BY (Signature) DATE: 11/11/2024	\$ REVISION (Signature) DATE: 11/11/2024	\$ PART NO A/11 11/47
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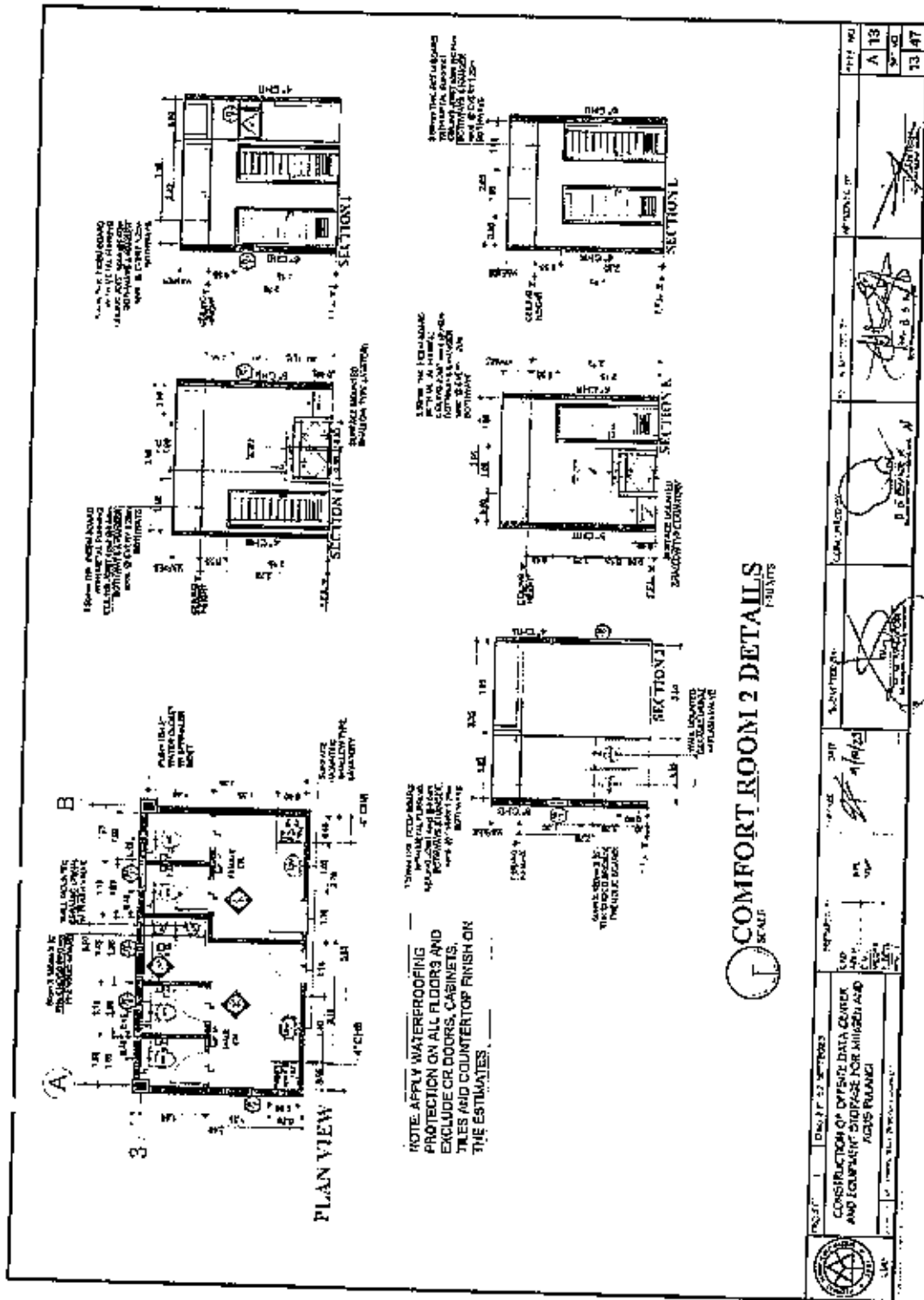


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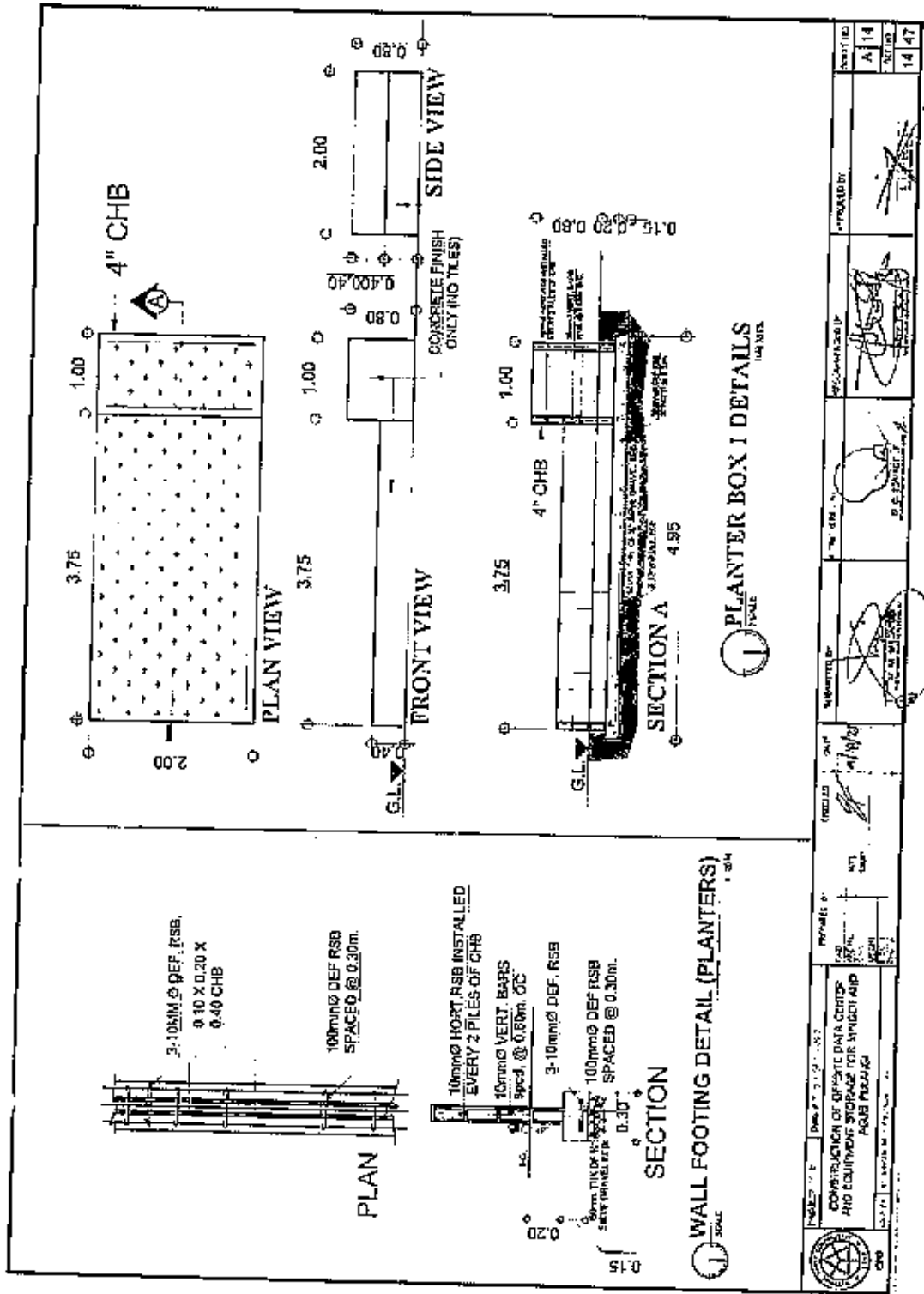


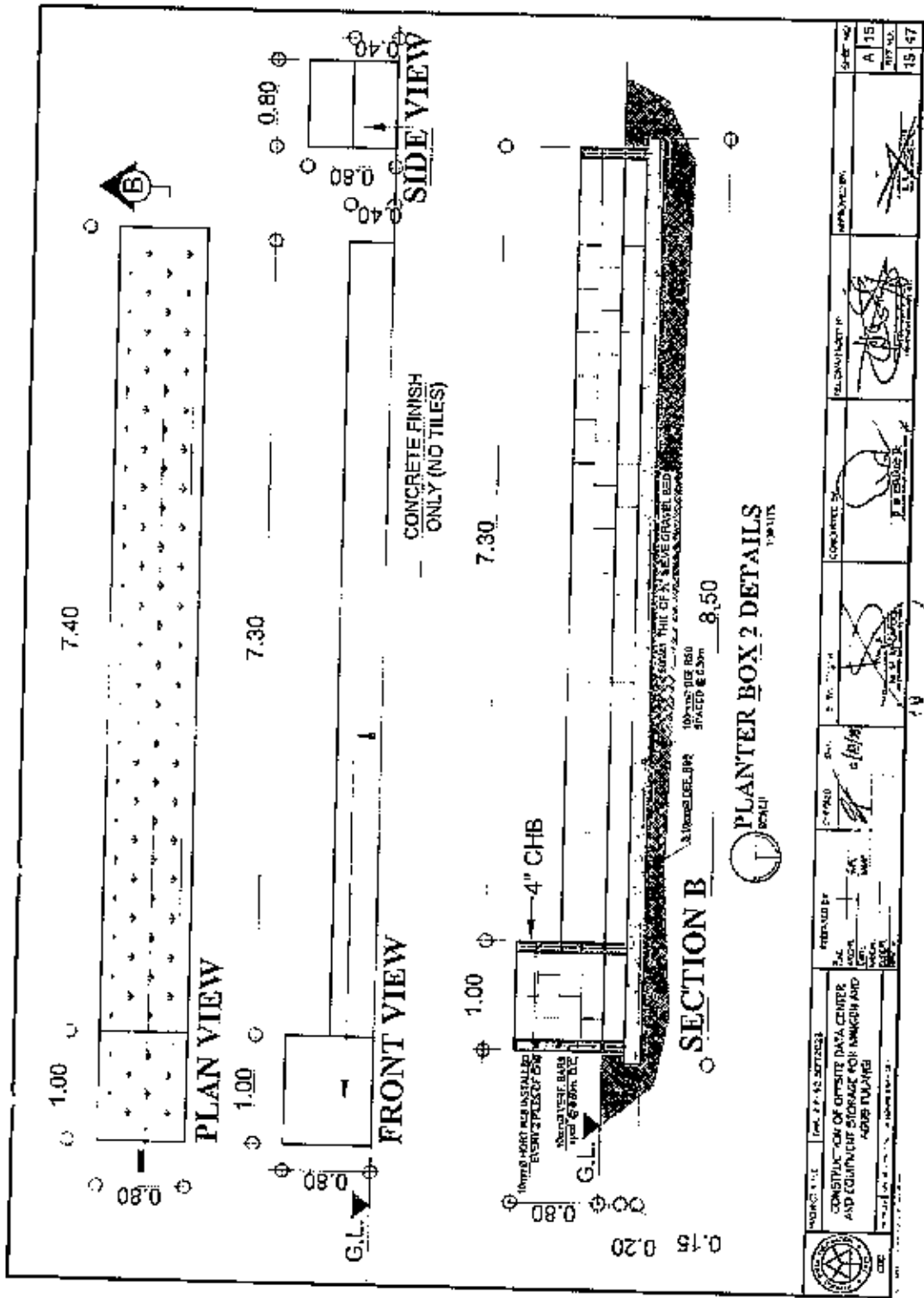
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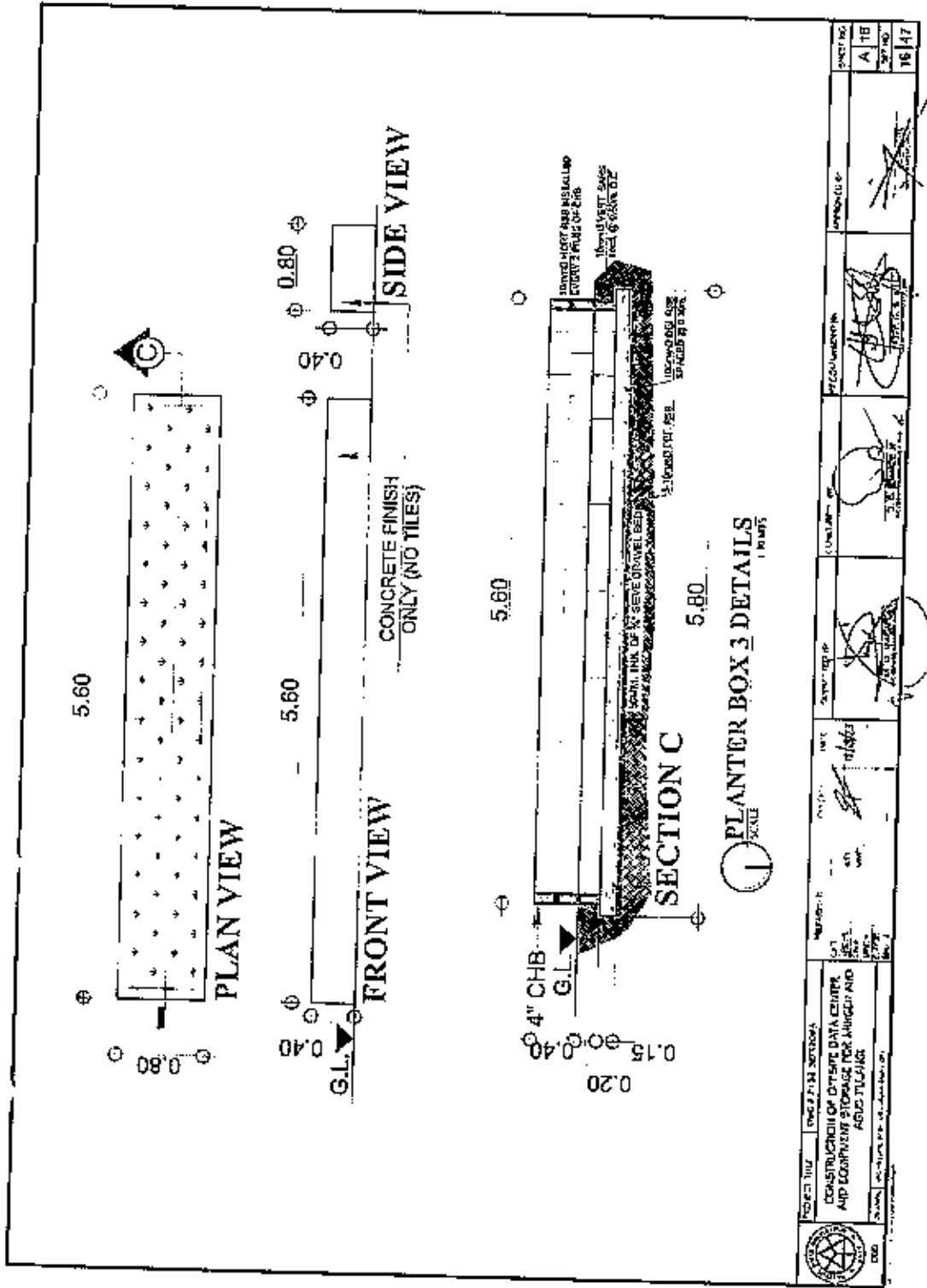


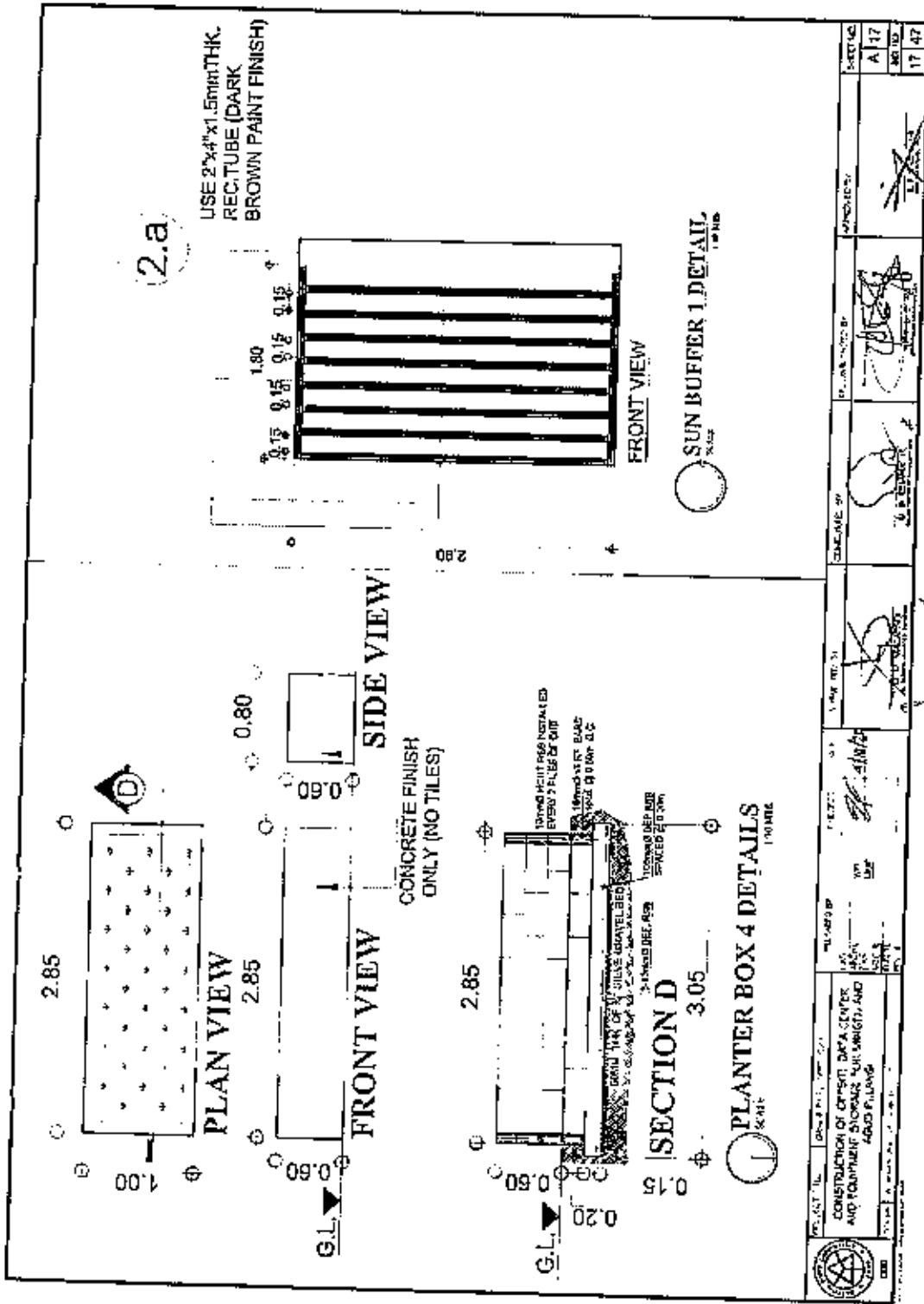
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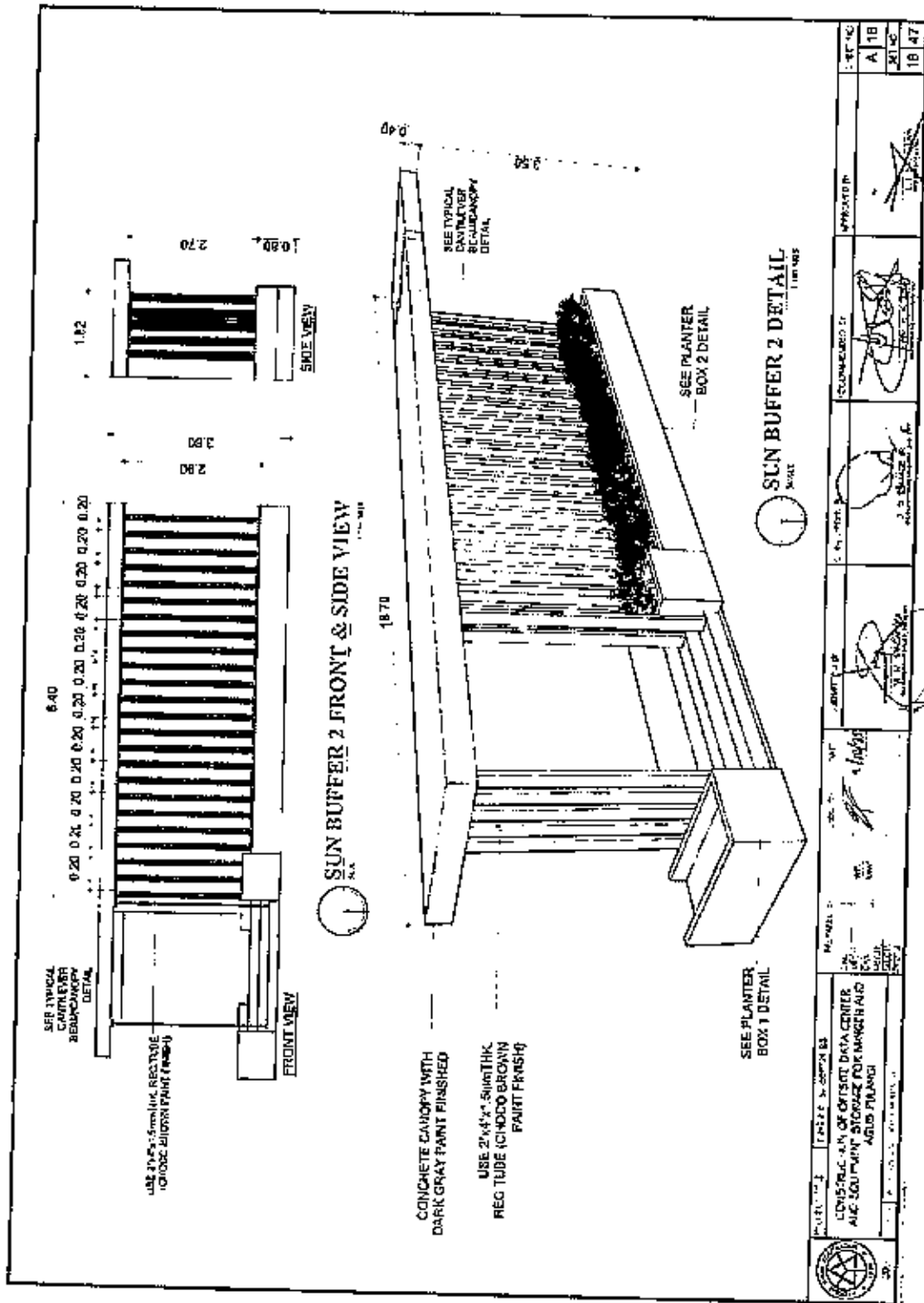


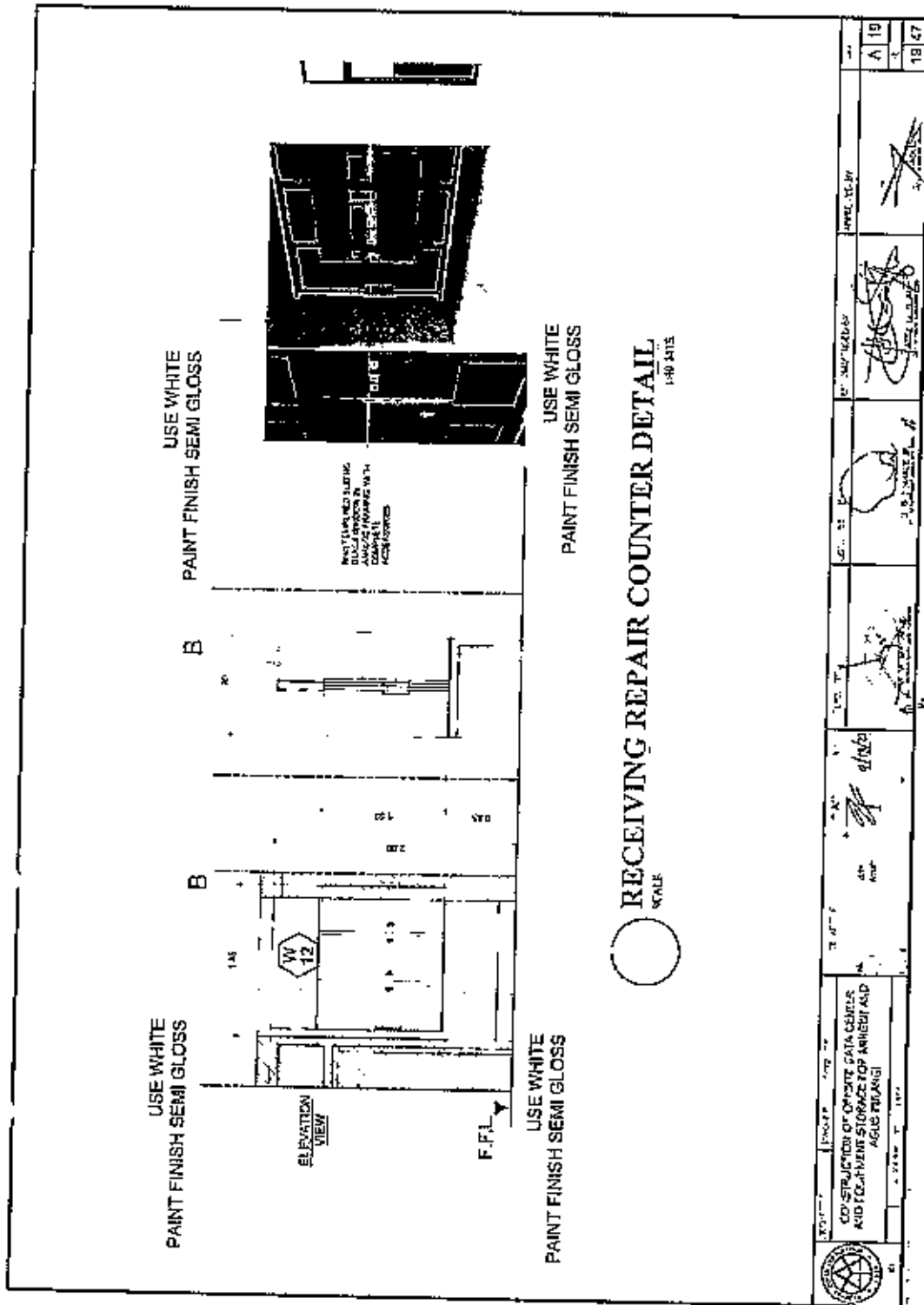
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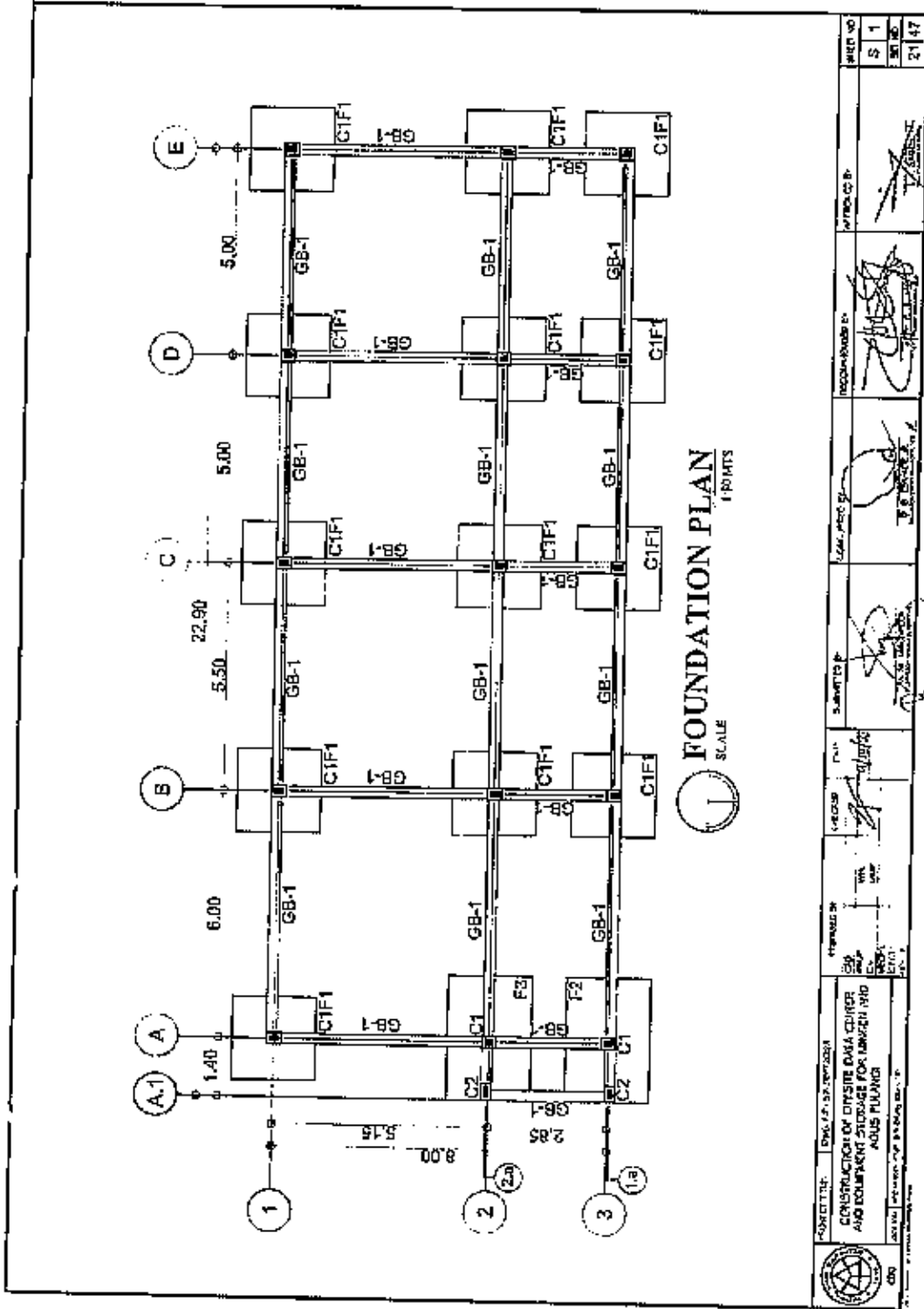






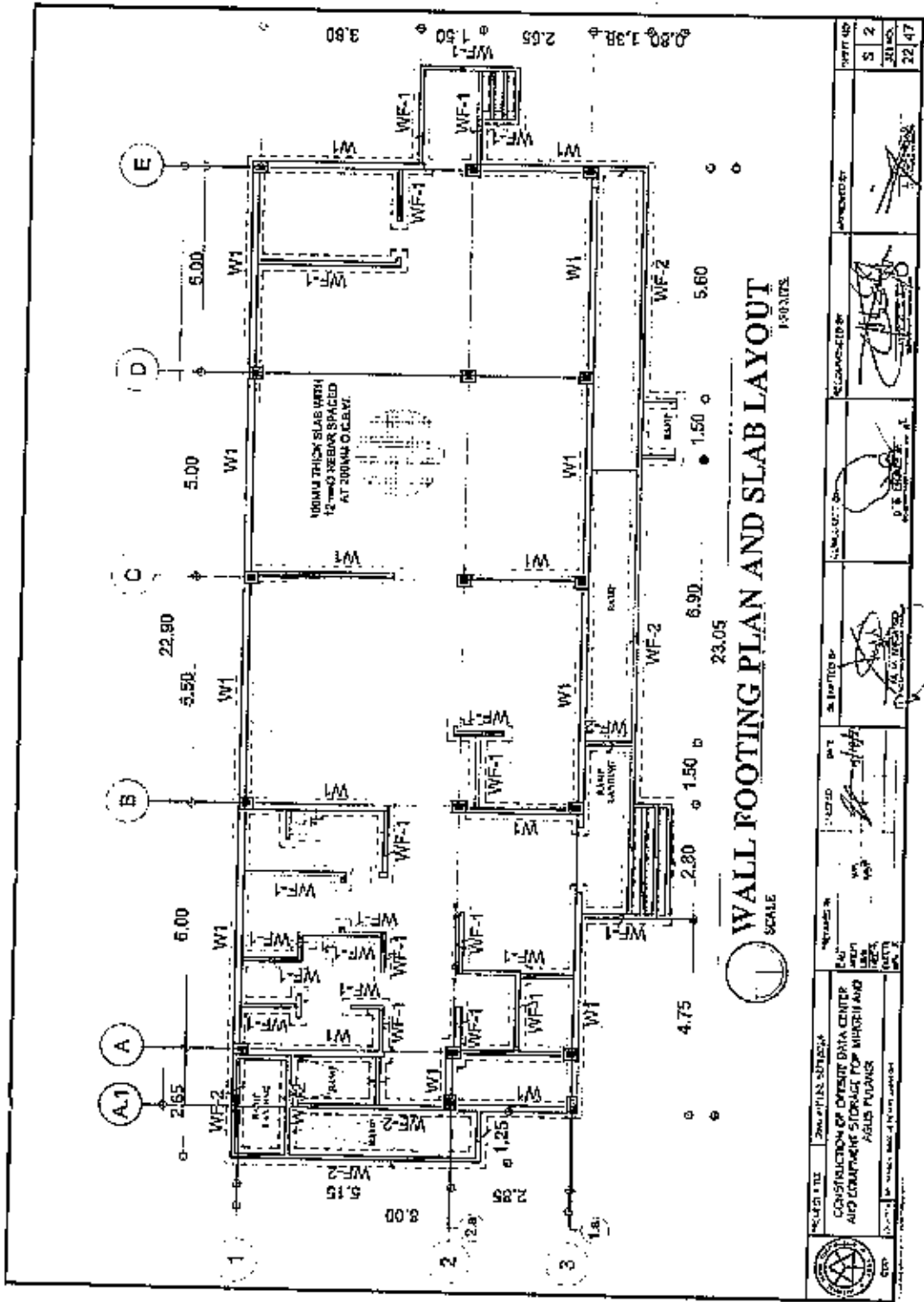


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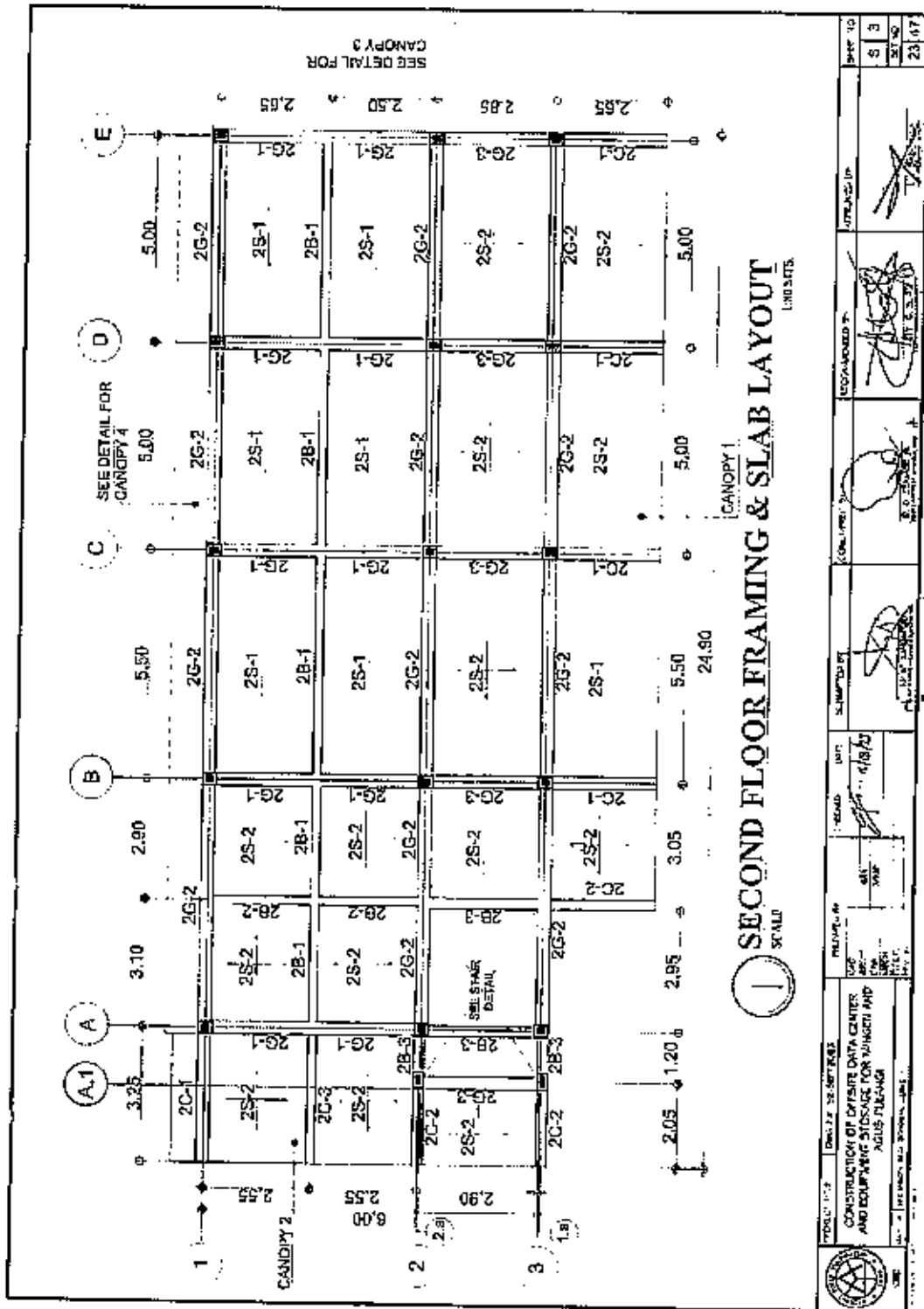


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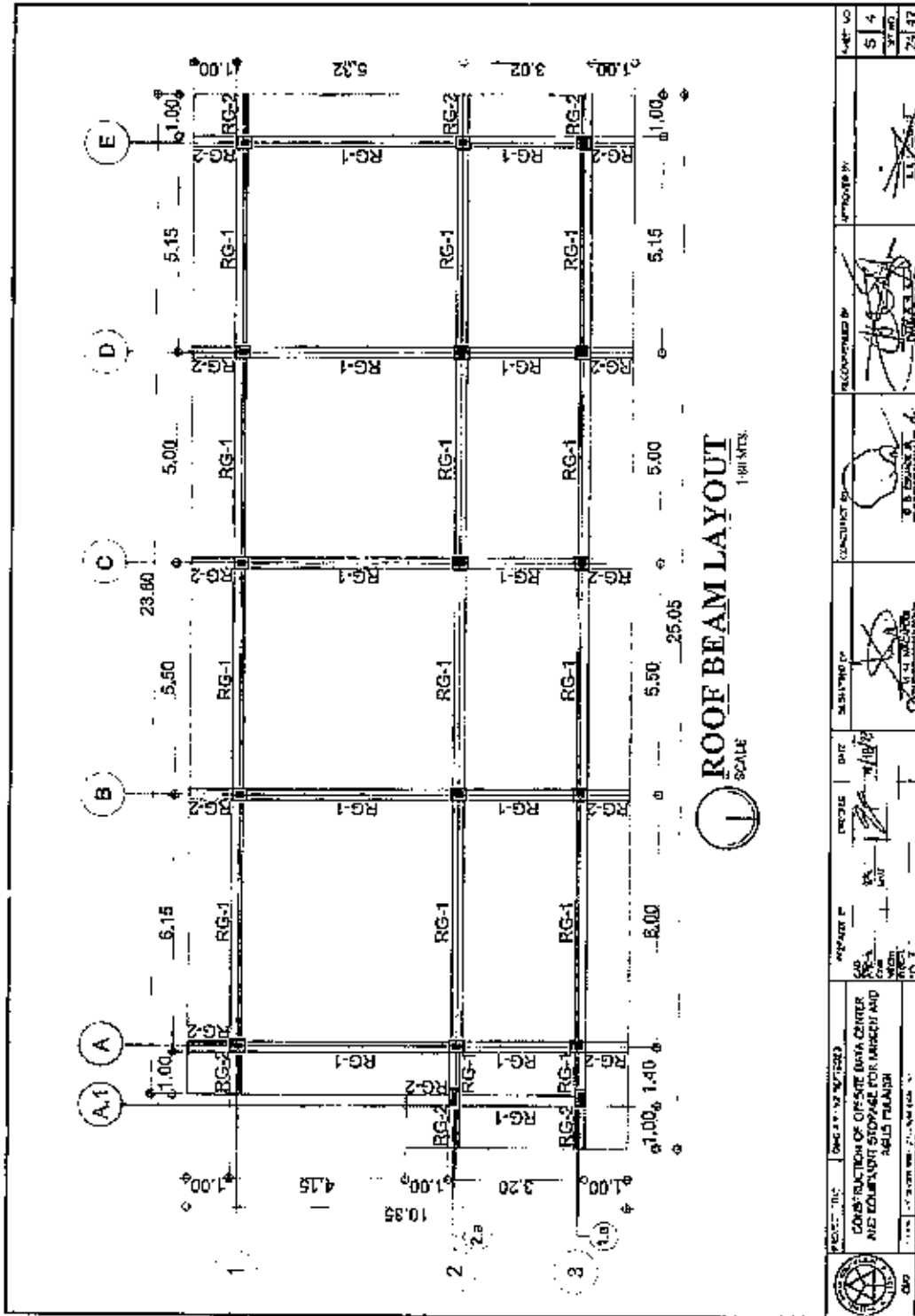
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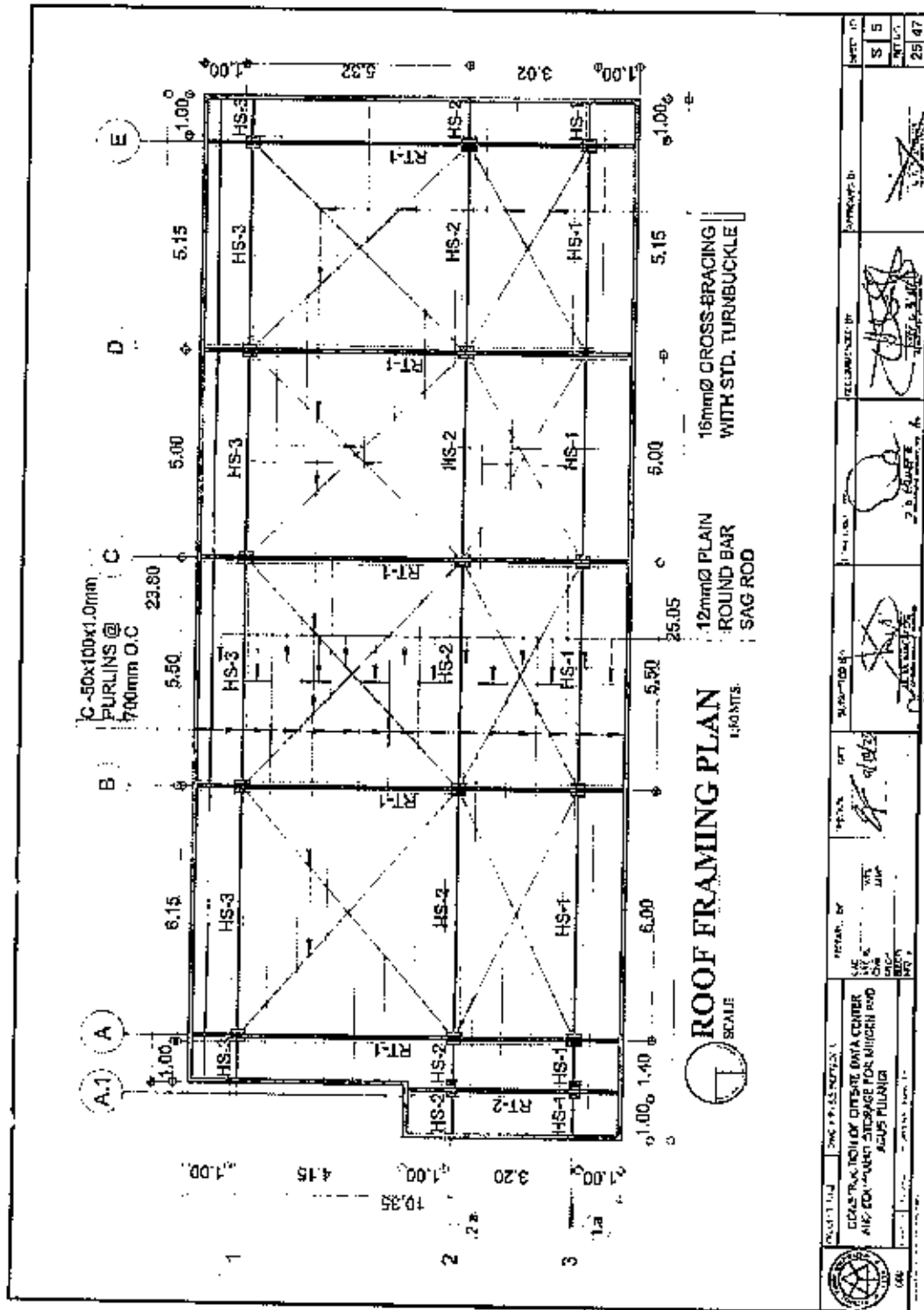


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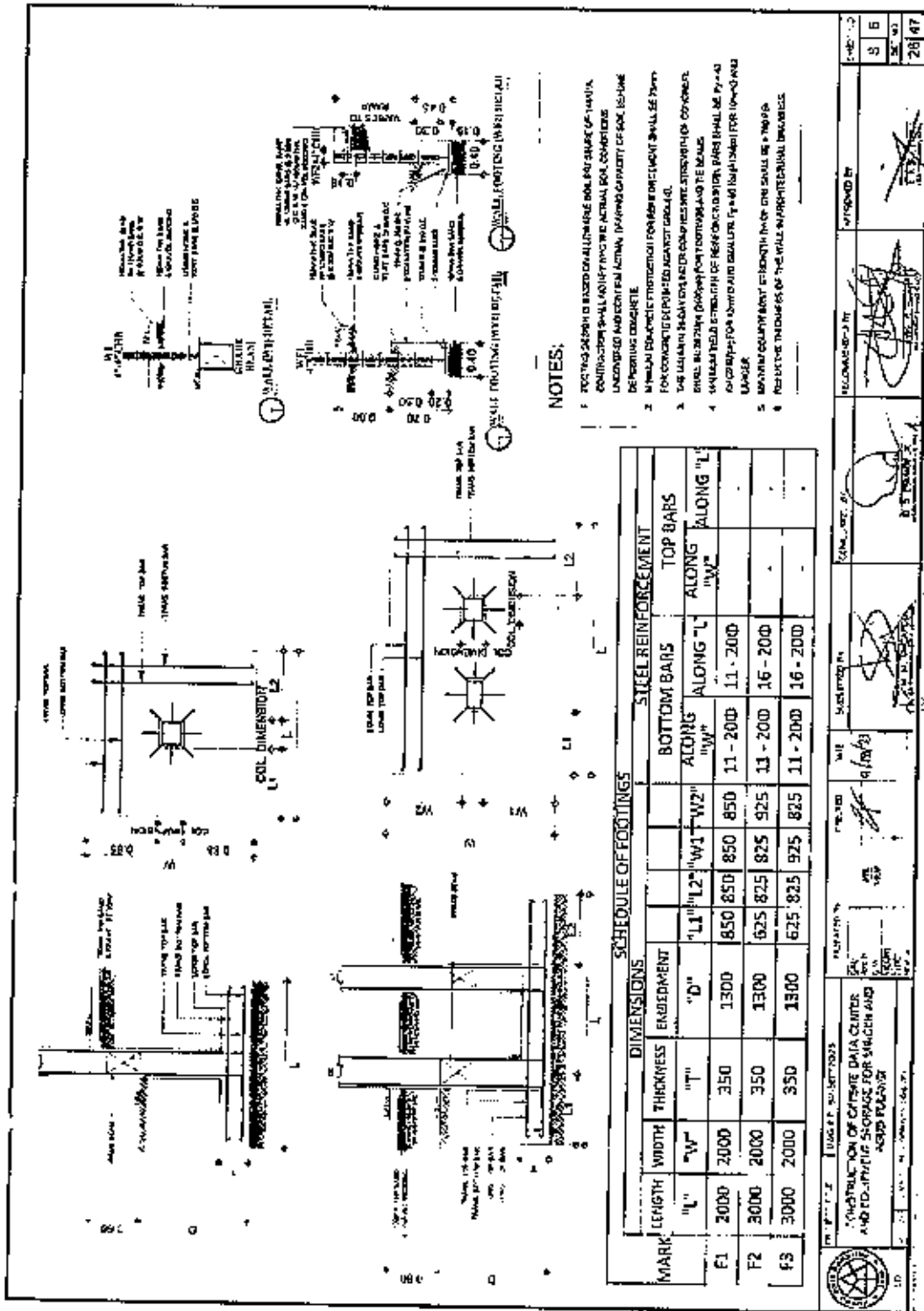


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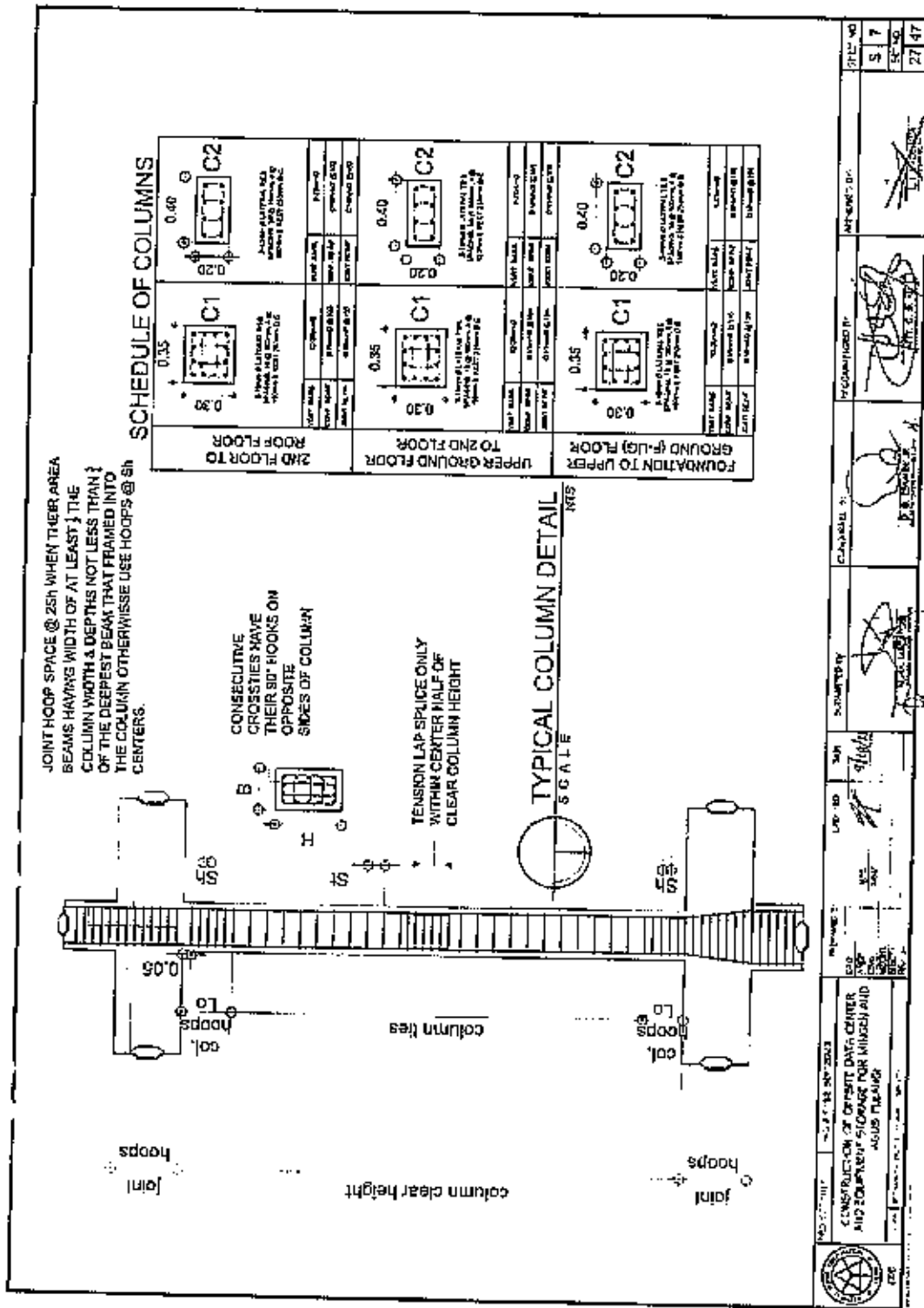




SECTION VII- DRAWINGS



SECTION VII- DRAWINGS





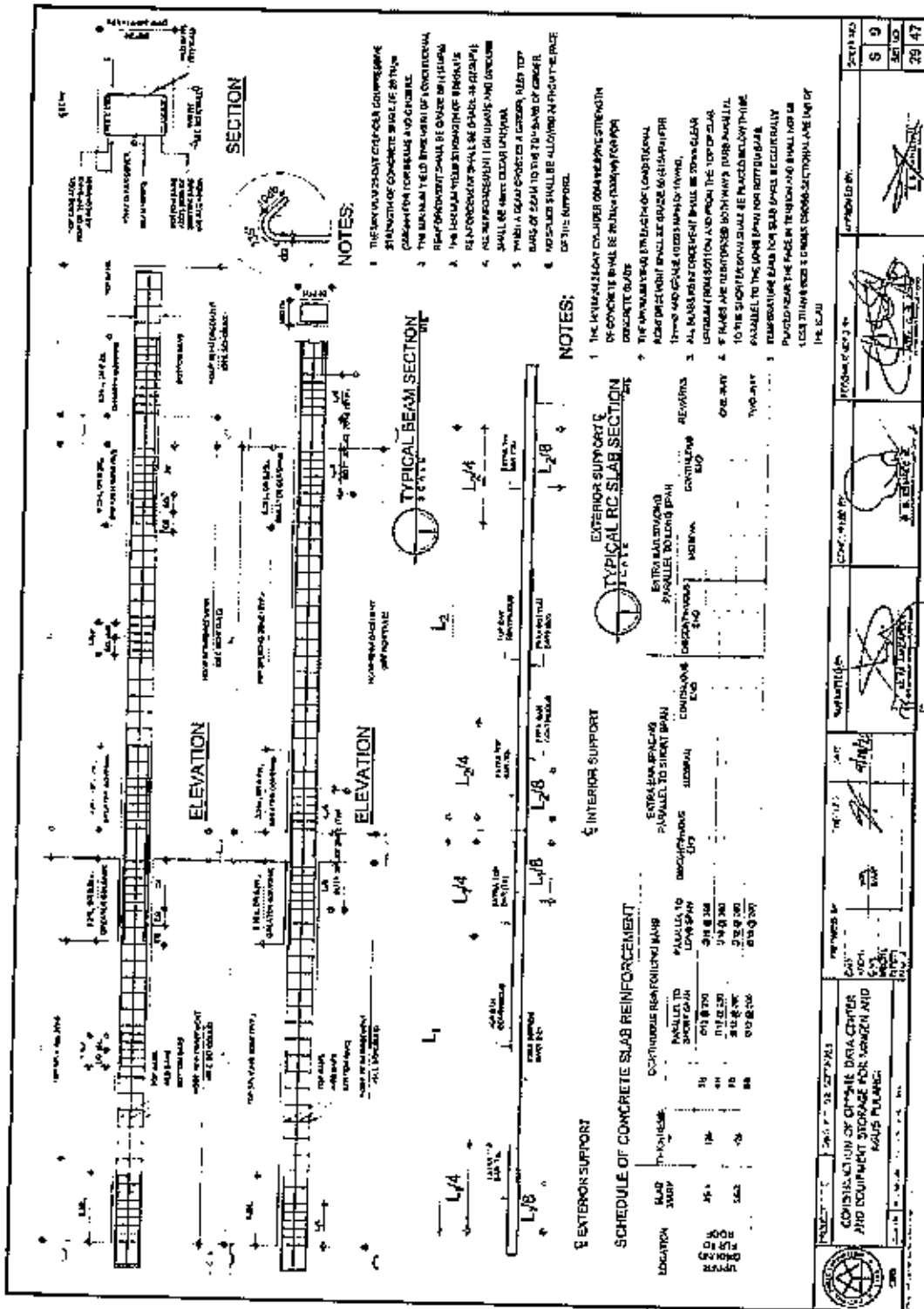
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SCHEDULE OF CONCRETE GIRDER/BEAM REINFORCEMENTS

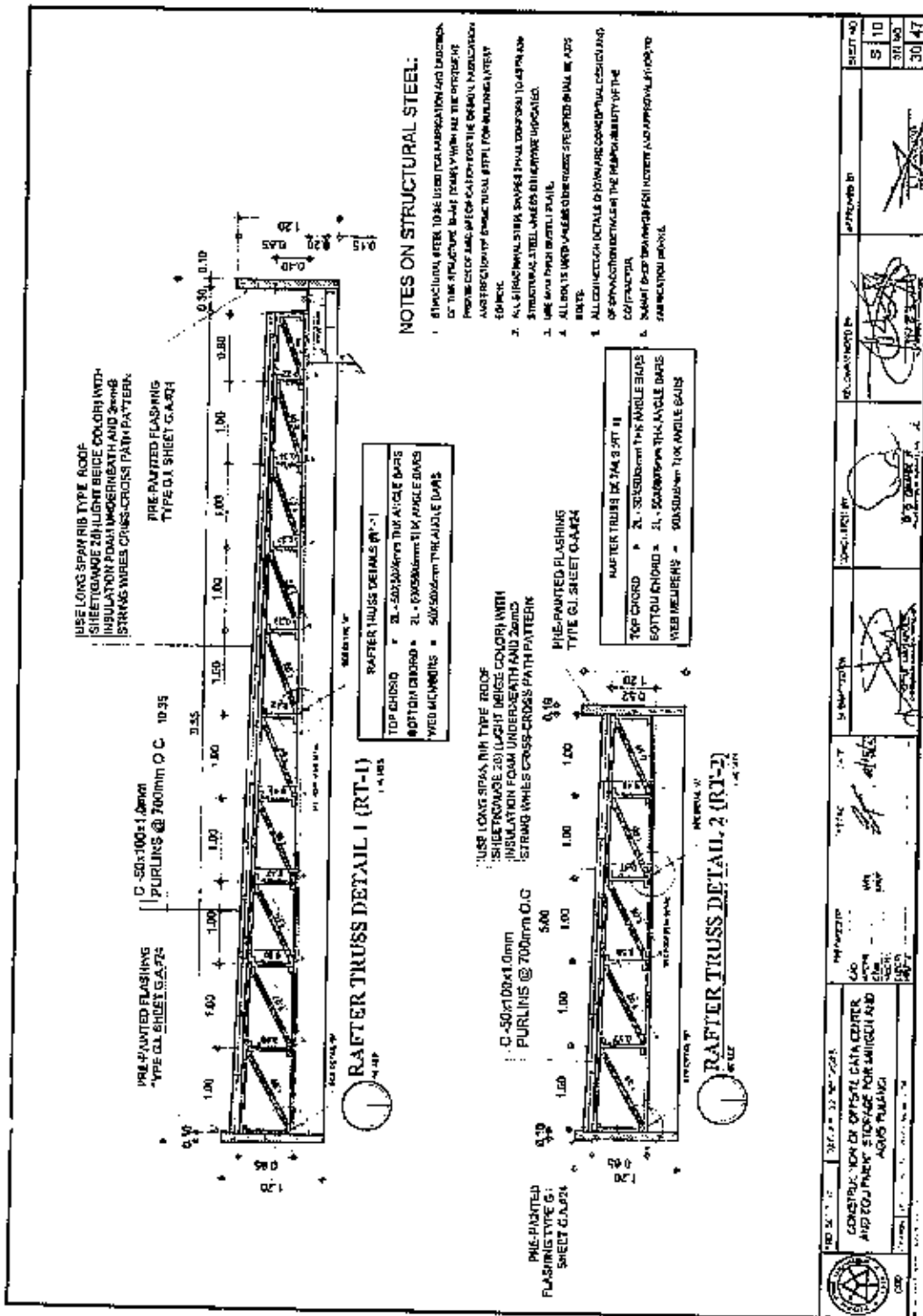
FLOOR LEVEL	BEAM MARK	DIMENSIONS (mm)		STEEL REINFORCEMENTS												WE BARS EACH FACE CONTINUOUS	DIMENSIONS (mm) 10mm STRIPS/RS 6mm STRIPS/RS
		B	H	BAR DIAMETER	LEFT		MIDSPAN		RIGHT		TOP		BOTTOM				
					TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM					
GROUND BEAM	GB-1	250	400	20mmØ	2	2	2	2	2	2	2	2	2	2	2	1-16Ø	3Ø50, 5Ø100, REST@200
	2G-1	300	500	20mmØ	4	2	2	2	4	4	2	2	2	2	2	1-16Ø	5Ø50, 9Ø100, REST@175
	2G-2	300	400	20mmØ	4	2	2	2	3	4	2	2	2	2	2	1-16Ø	5Ø50, 8Ø100, REST@175
SECOND FLOOR	2G-3	300	400	20mmØ	3	2	2	2	3	3	2	2	2	2	2	1-16Ø	2Ø50, 4Ø100, REST@175
	2B-1	200	300	20mmØ	3	2	2	2	3	3	2	2	2	2	-	-	4Ø50, 6Ø100, REST@200
	2B-2	200	400	16mmØ	3	2	2	2	3	4	2	2	2	2	-	-	3Ø50, 6Ø100, REST@200
	2B-3	250	400	16mmØ	3	2	2	2	4	4	2	2	2	2	-	-	3Ø50, 6Ø100, REST@200
	2C-1	250	300	16mmØ	3	3	3	3	3	3	3	3	3	3	1-16Ø	5Ø50, 6Ø100, REST@175	
	2C-2	250	300	16mmØ	3	3	3	3	3	3	3	3	3	3	-	-	5Ø50, 6Ø100, REST@175
ROOF LEVEL	2C-3	200	300	16mmØ	3	3	3	3	3	3	3	3	3	3	-	-	5Ø50, 6Ø100, REST@175
	RG-1	250	350	16mmØ	3	3	3	3	3	3	3	3	3	3	1-12Ø	5Ø50, 6Ø100, REST@200	
	RG-2	250	200	16mmØ	3	3	3	3	3	3	3	3	3	3	1-12Ø	5Ø50, 6Ø100, REST@200	

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	CONSTRUCTION OF OFFSITE DATA CENTER AND EQUIPMENT STORAGE FOR MINGEN AND AGUS PLANTS	PROJECT NO. 11/186 DATE 11/186 DRAWN BY CHECKED BY APPROVED BY DATE	PROJECT NO. 11/186 DATE 11/186 DRAWN BY CHECKED BY APPROVED BY DATE	PROJECT NO. 11/186 DATE 11/186 DRAWN BY CHECKED BY APPROVED BY DATE

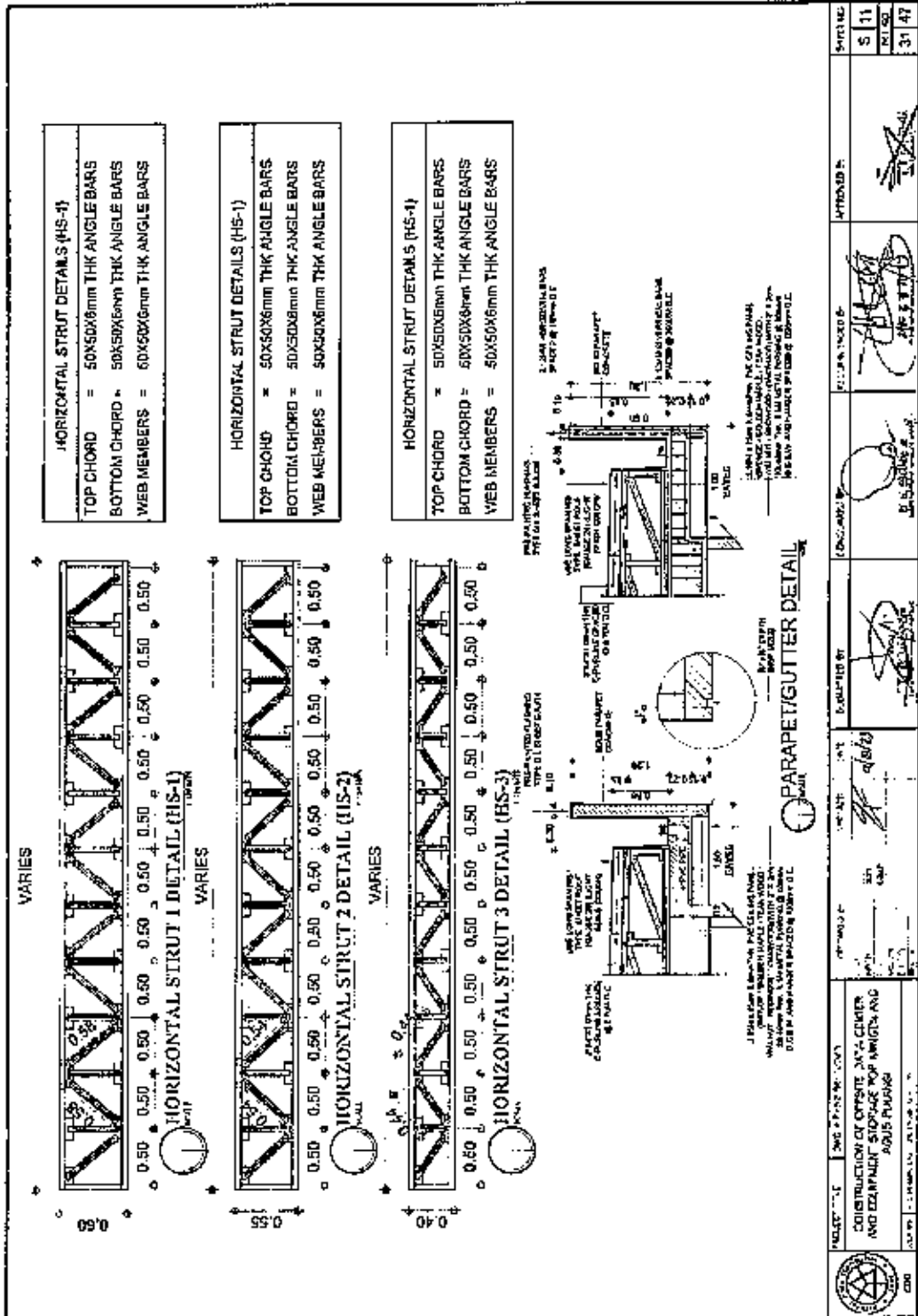
SECTION VII- DRAWINGS

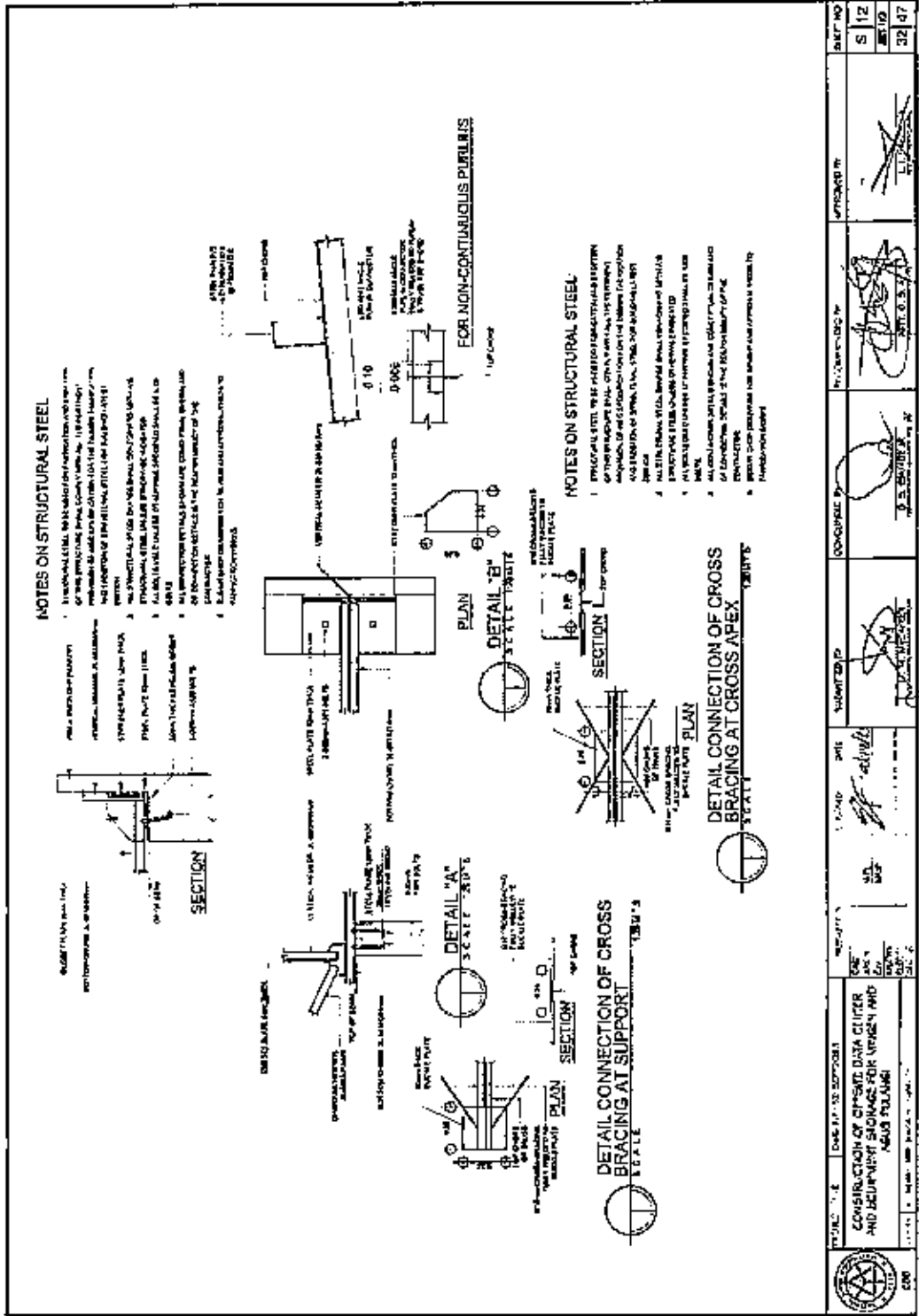


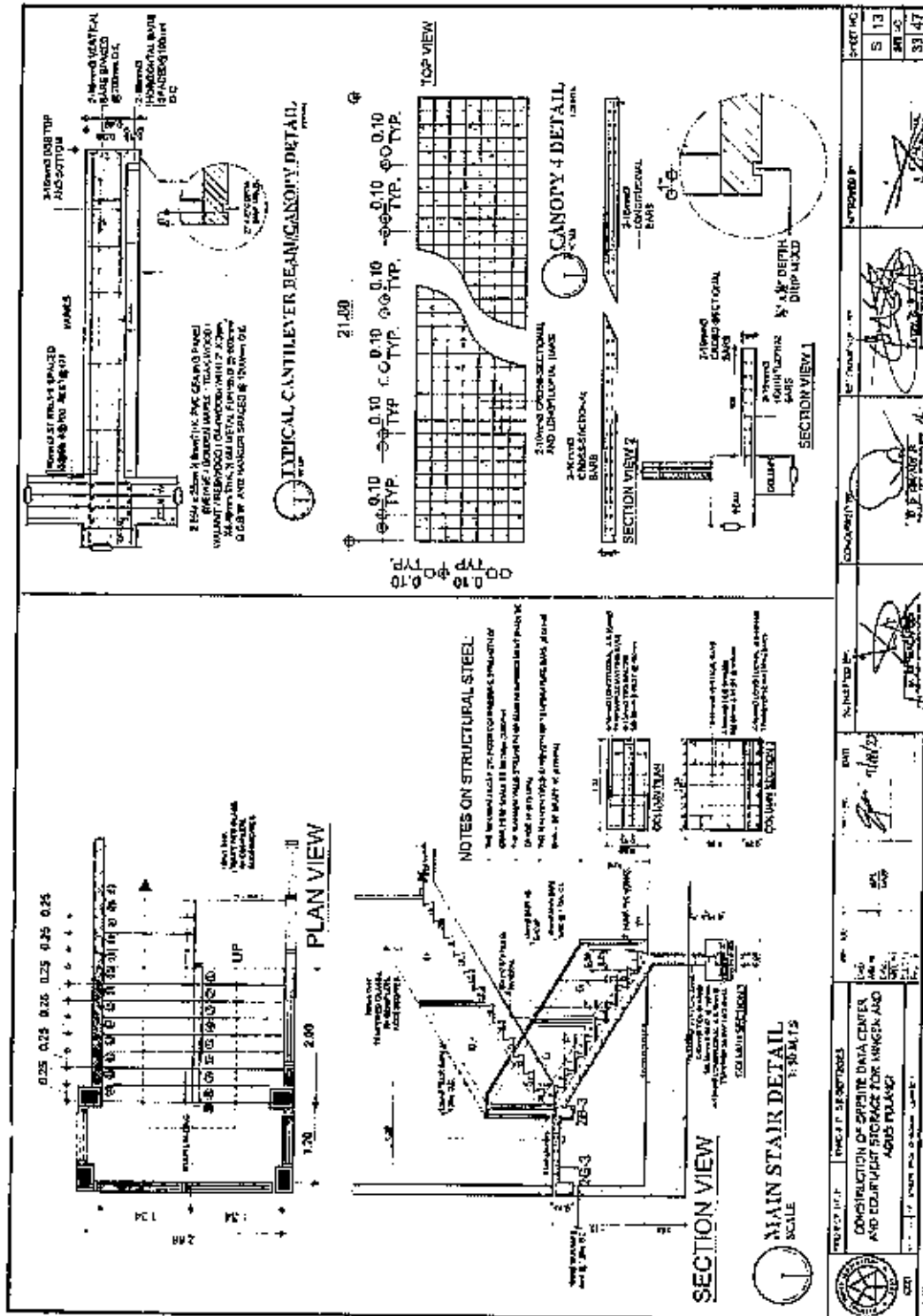
SECTION VII- DRAWINGS

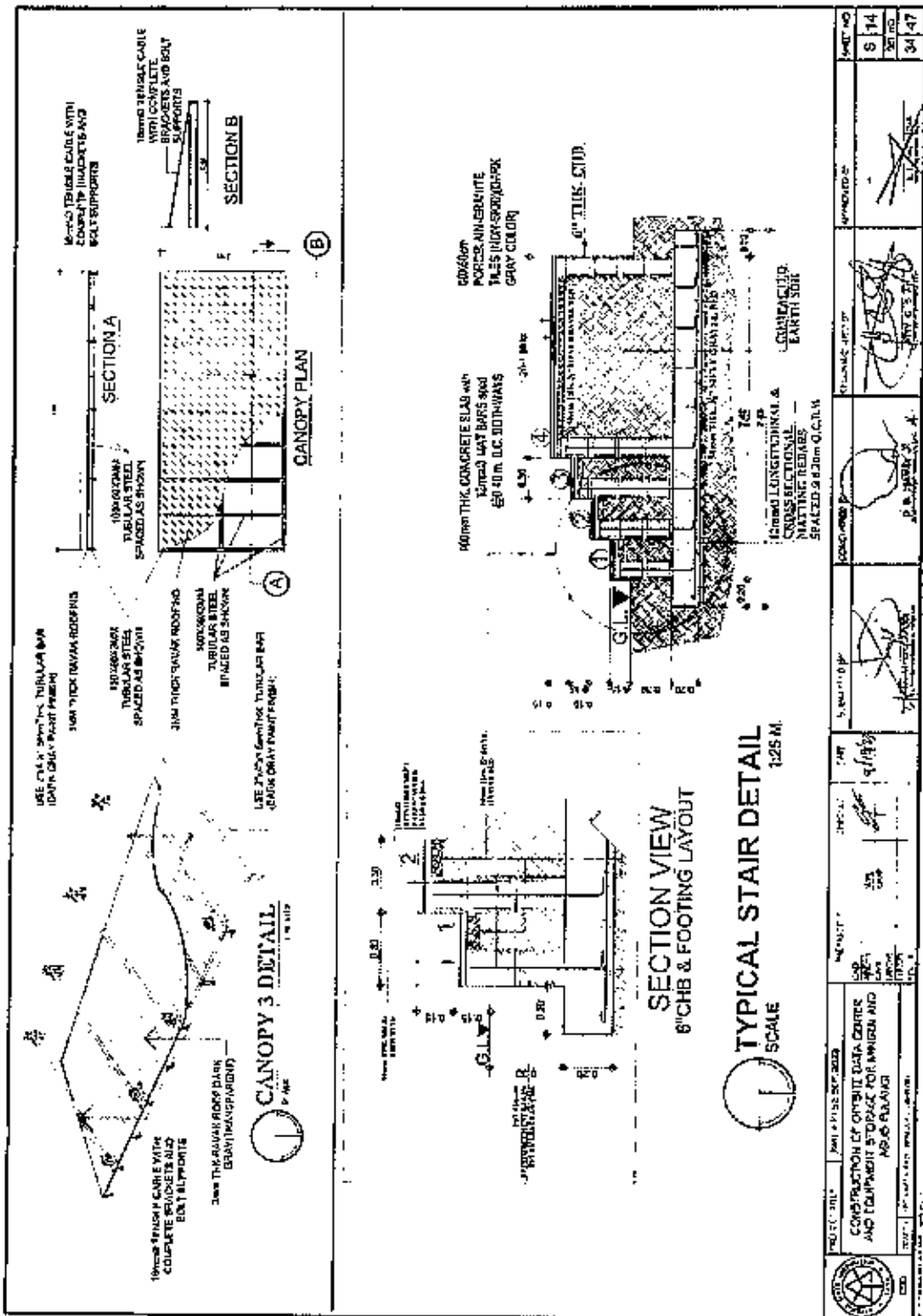


SECTION VII- DRAWINGS

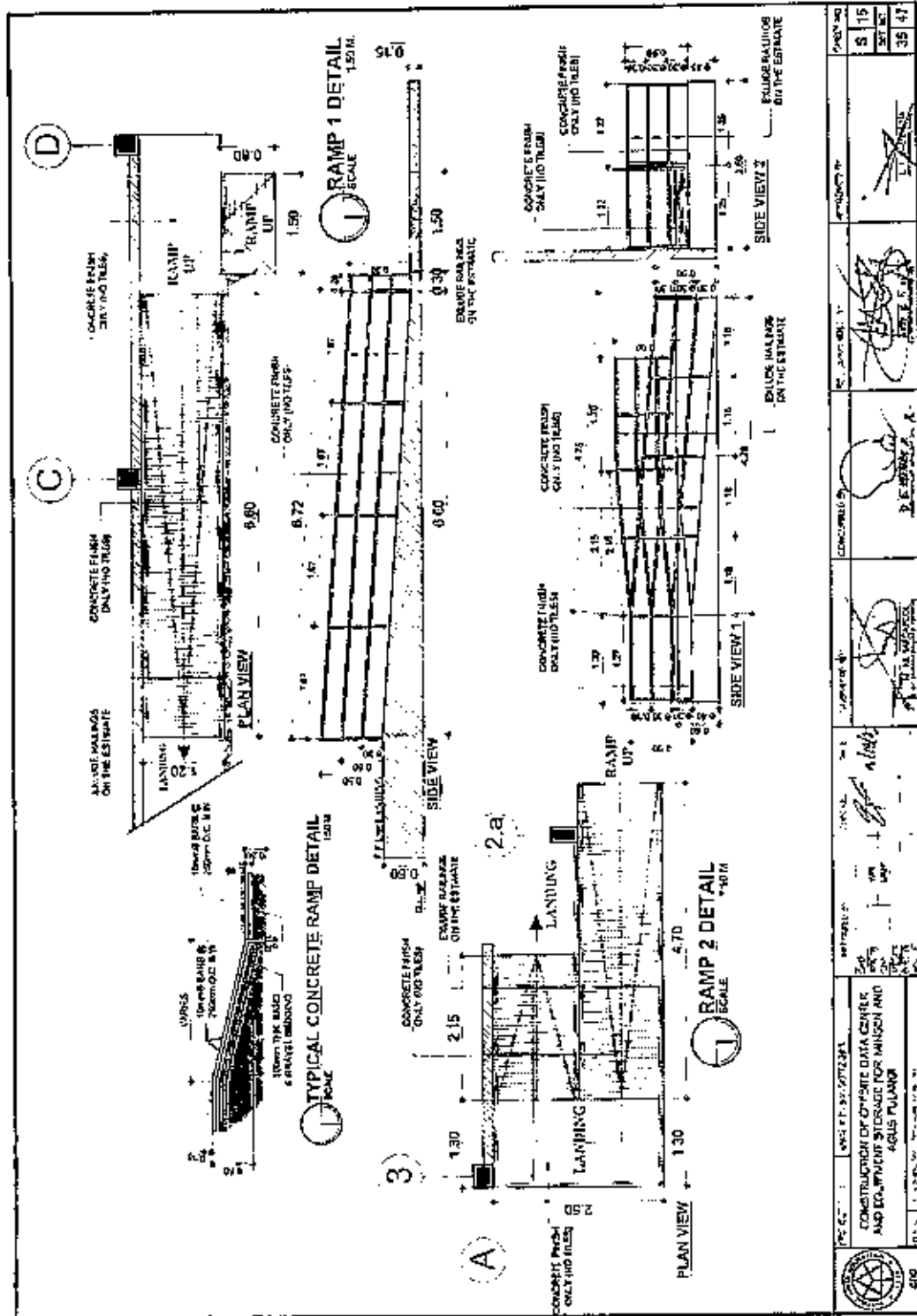








SECTION VII- DRAWINGS



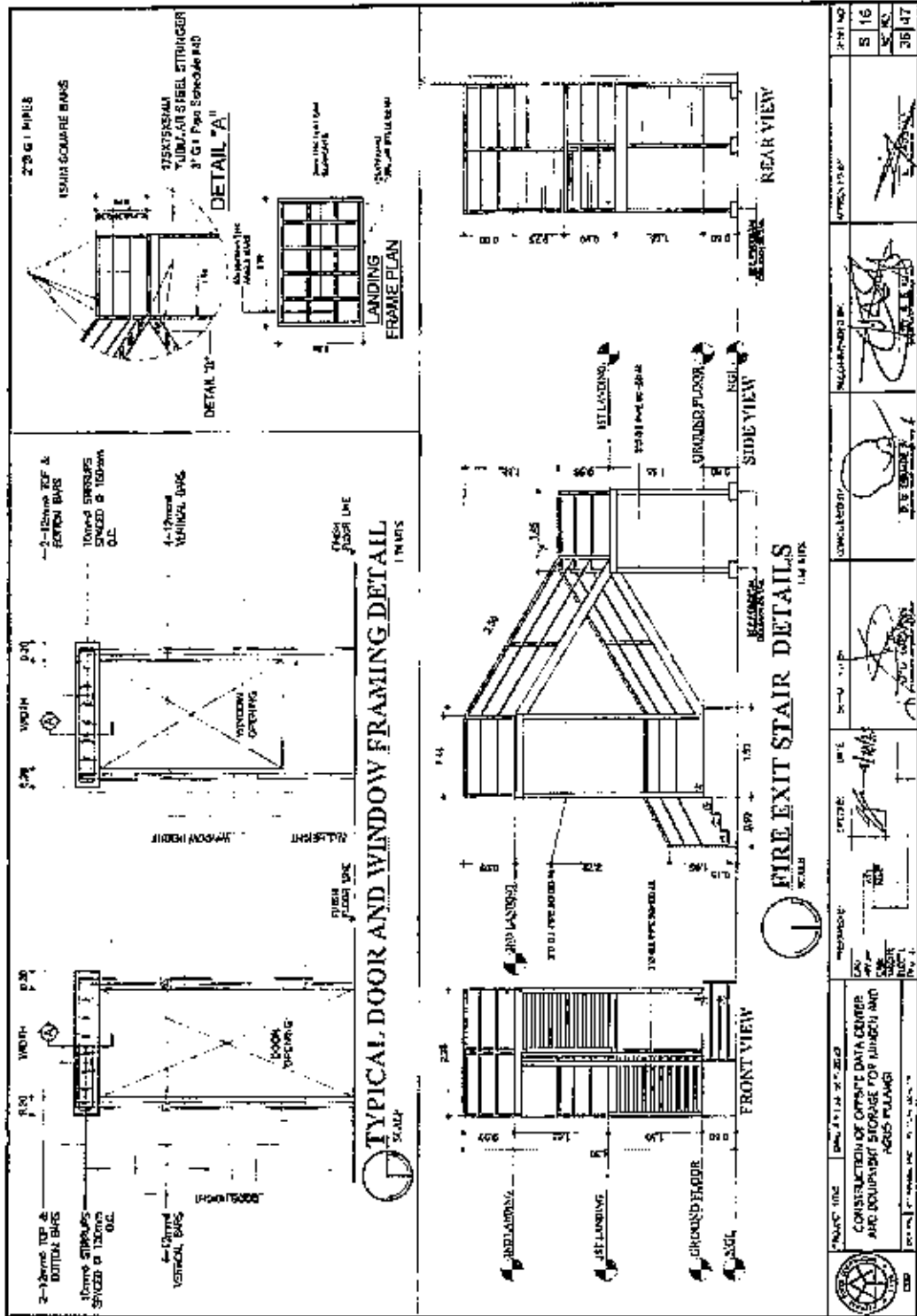
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1						
2						
3						

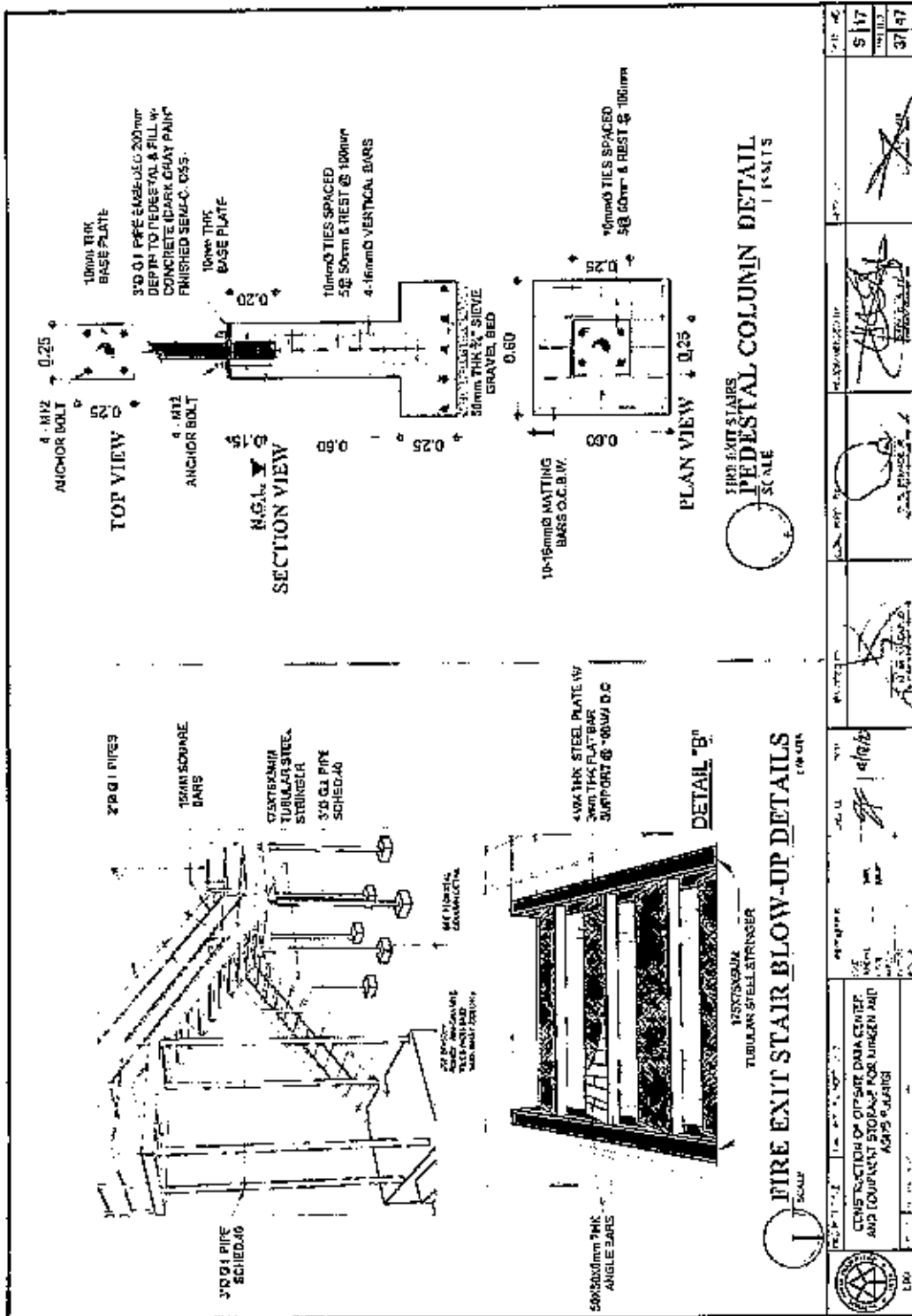
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	DATE 2024	SHEET NO. 35/47
DESIGNED BY P. E. S. S. S. S.	CHECKED BY P. E. S. S. S. S.	APPROVED BY P. E. S. S. S. S.



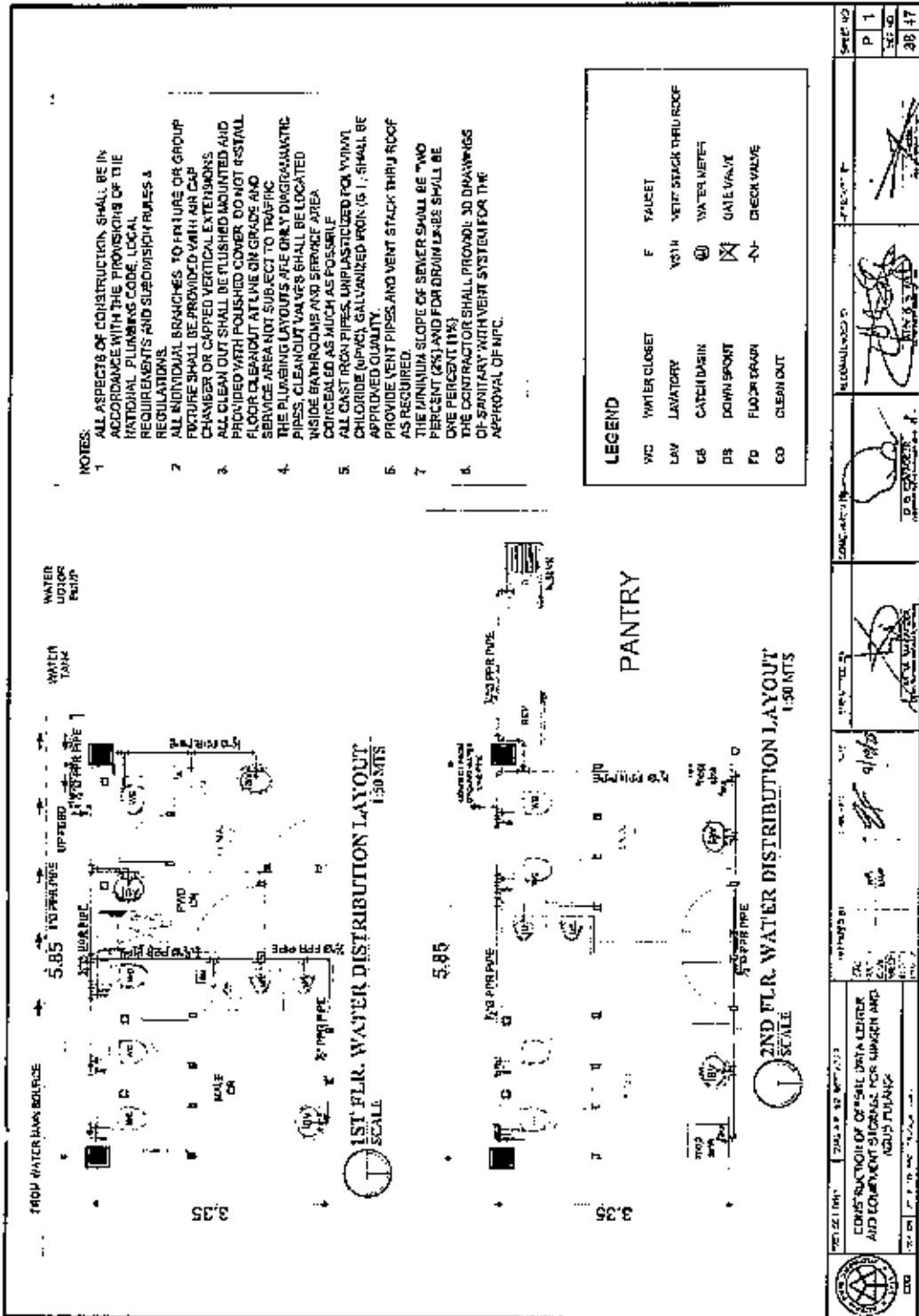
SECTION VII - DRAWINGS

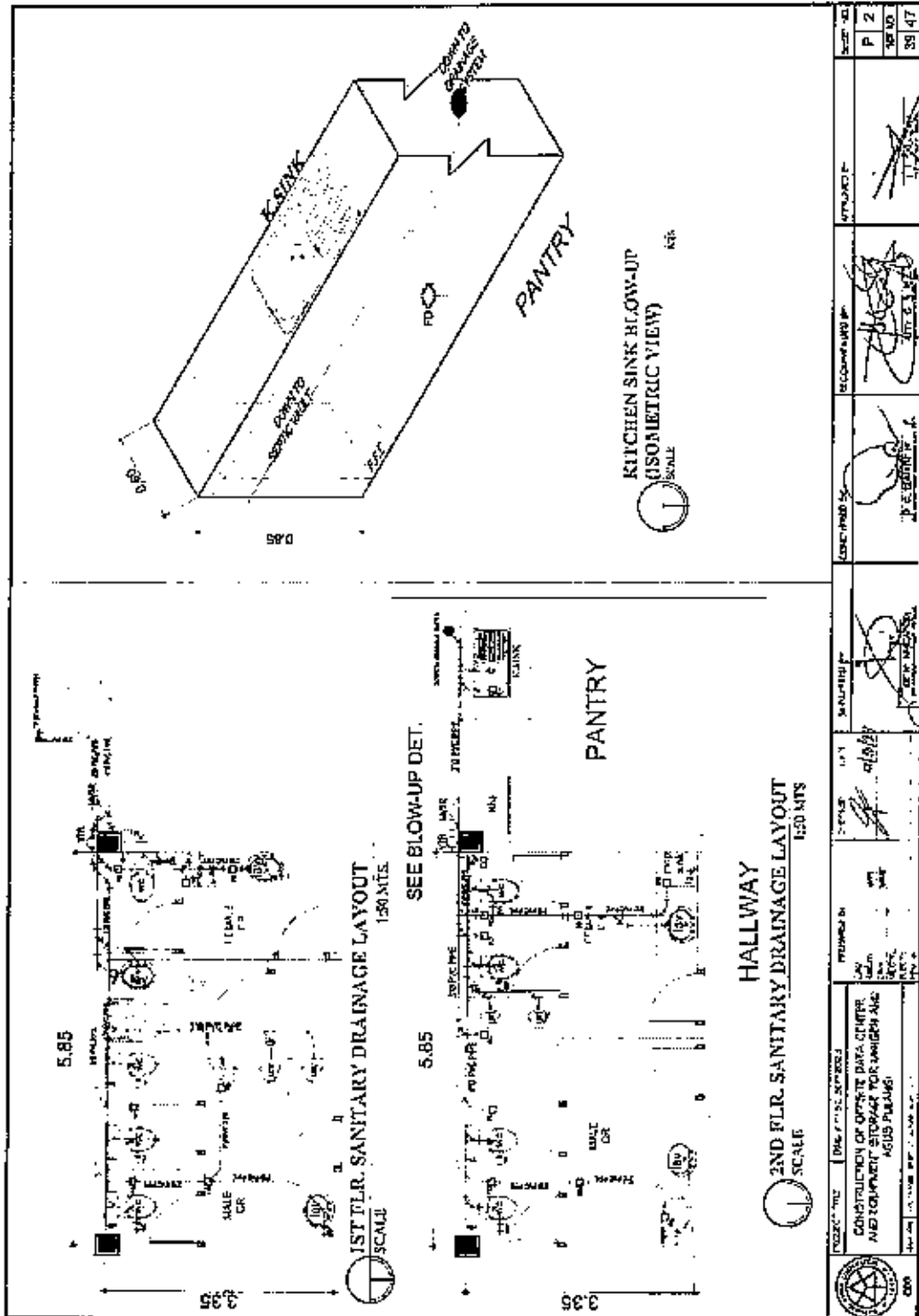


SECTION VII- DRAWINGS

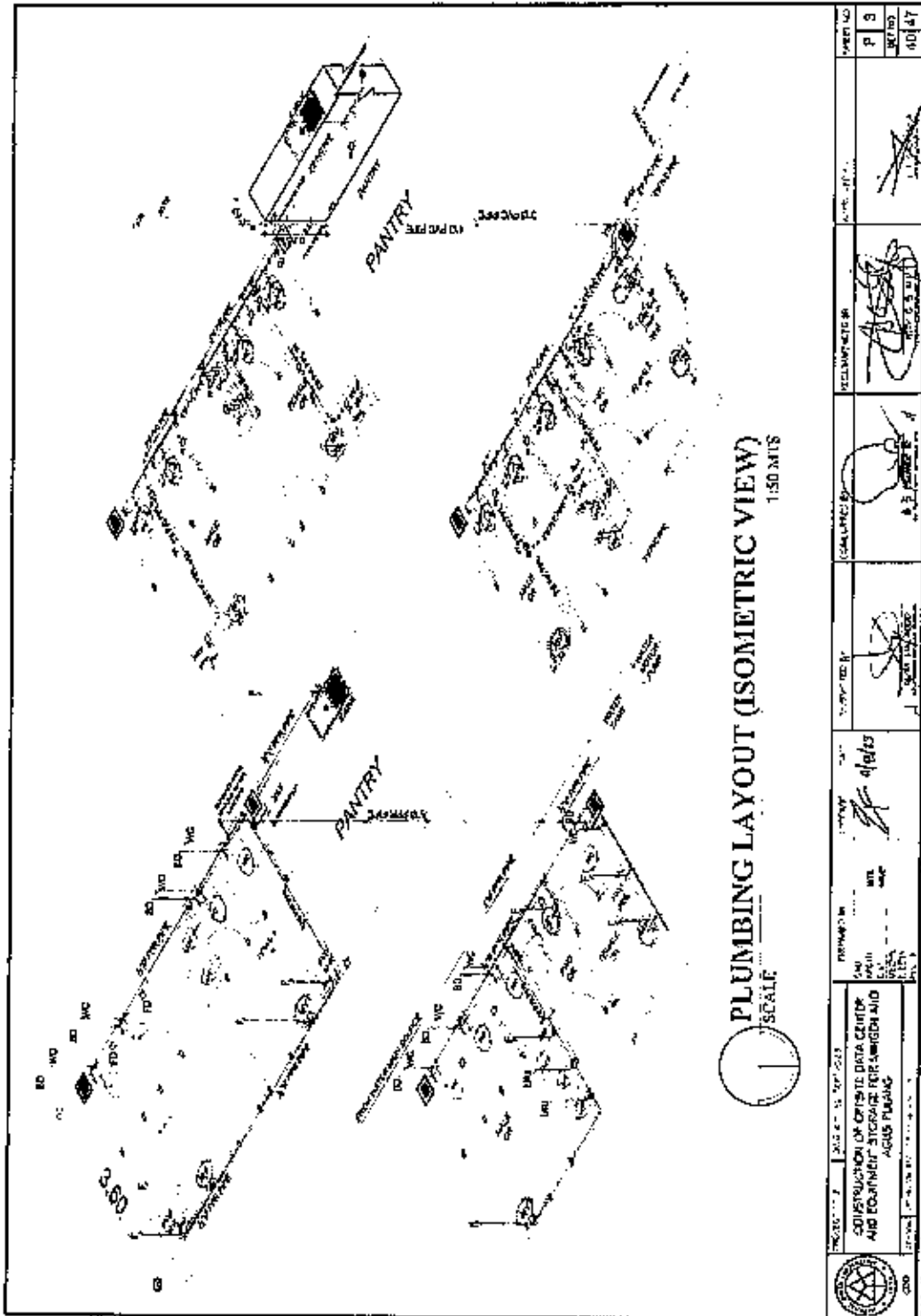


SECTION VII- DRAWINGS



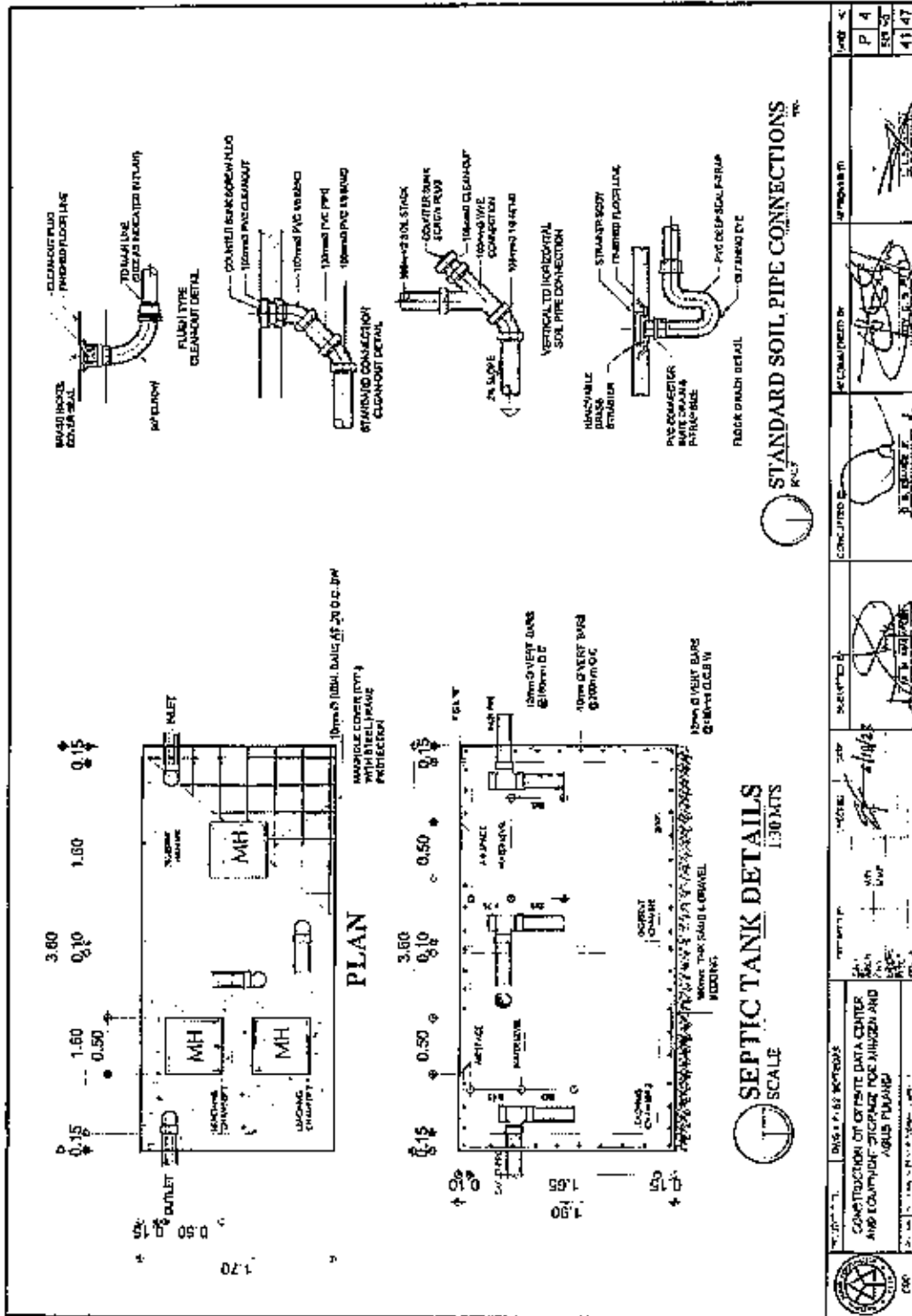


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	SHEET NO.:	TOTAL SHEETS:	DATE:	DATE:	DATE:	DATE:	SHEET NO.:



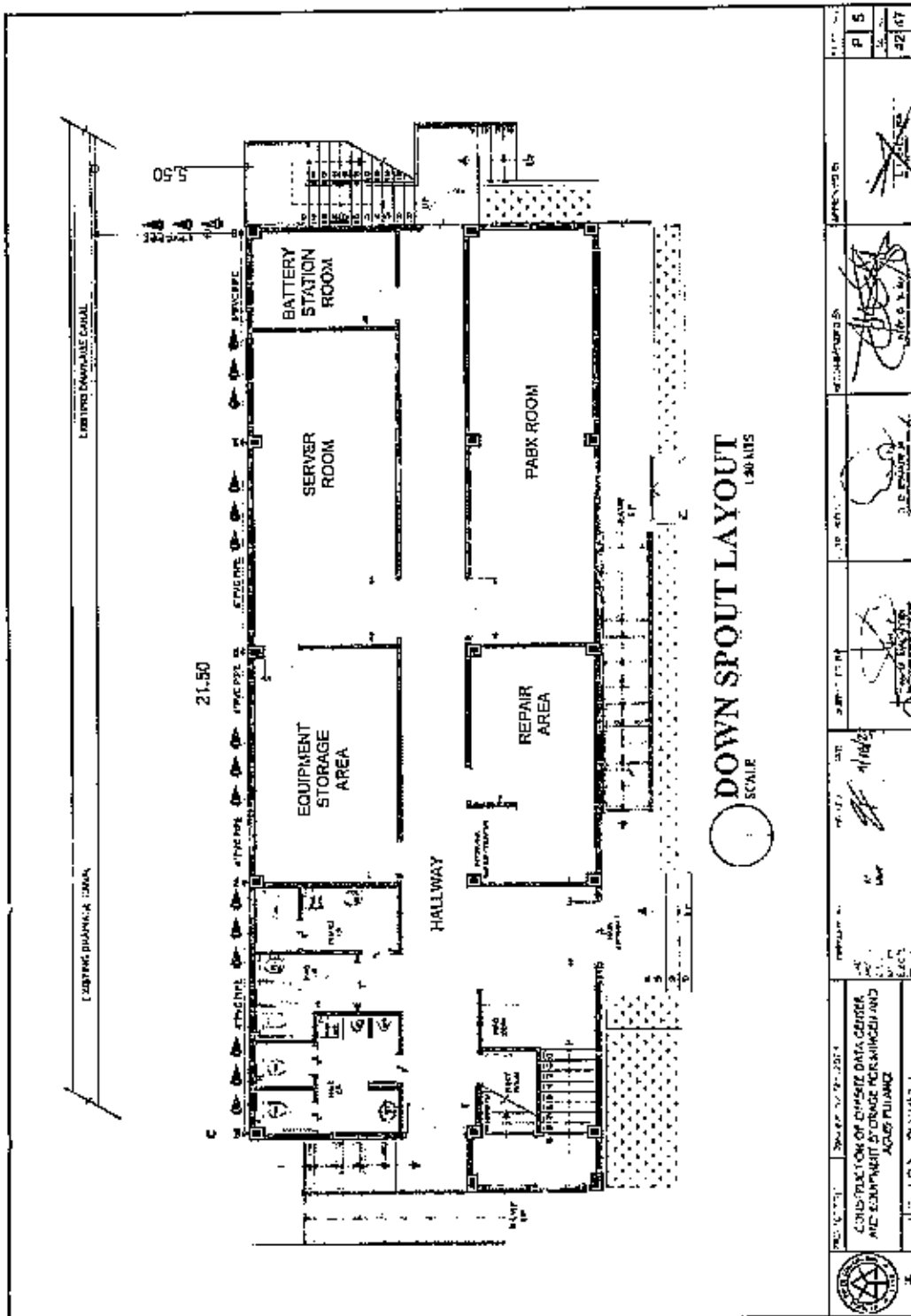
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	PROJECT NAME: CONSTRUCTION OF OFFSITE DATA CENTER AND EQUIPMENT STORAGE FOR MINGEN AND AGUS PLANTS	DRAWN BY: [Signature] CHECKED BY: [Signature] DATE: 4/16/23	DESIGNED BY: [Signature] CALCULATED BY: [Signature]	REVISIONS BY: [Signature] DATE: 4/16/23	SHEET NO. 401/47 P. 3 REV. NO.


SECTION VII-DRAWINGS



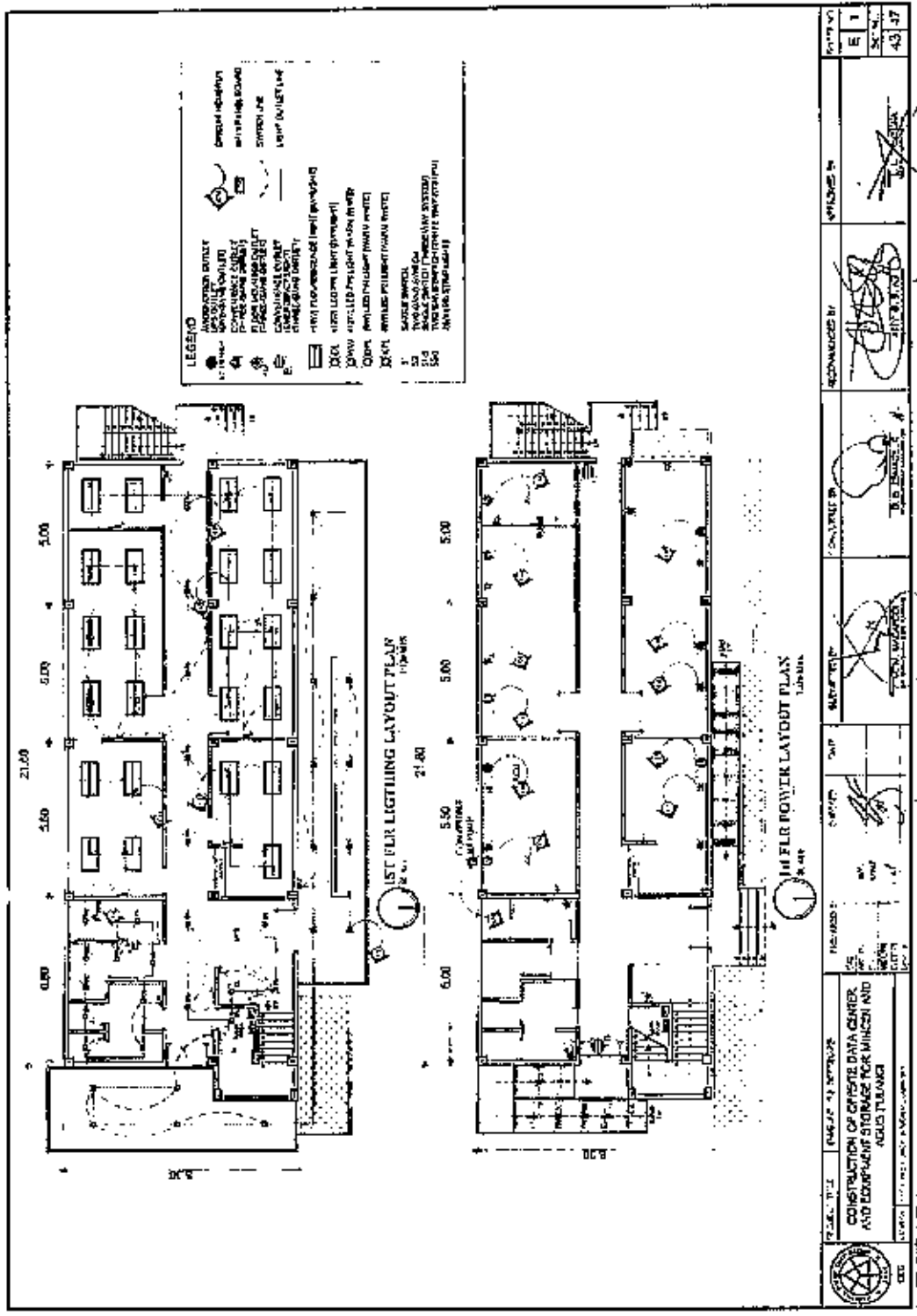
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	PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER AND EQUIPMENT STORAGE FOR MINGEN AND AGUS PLANTS	DATE: 15/07/2024

SECTION VII- DRAWINGS



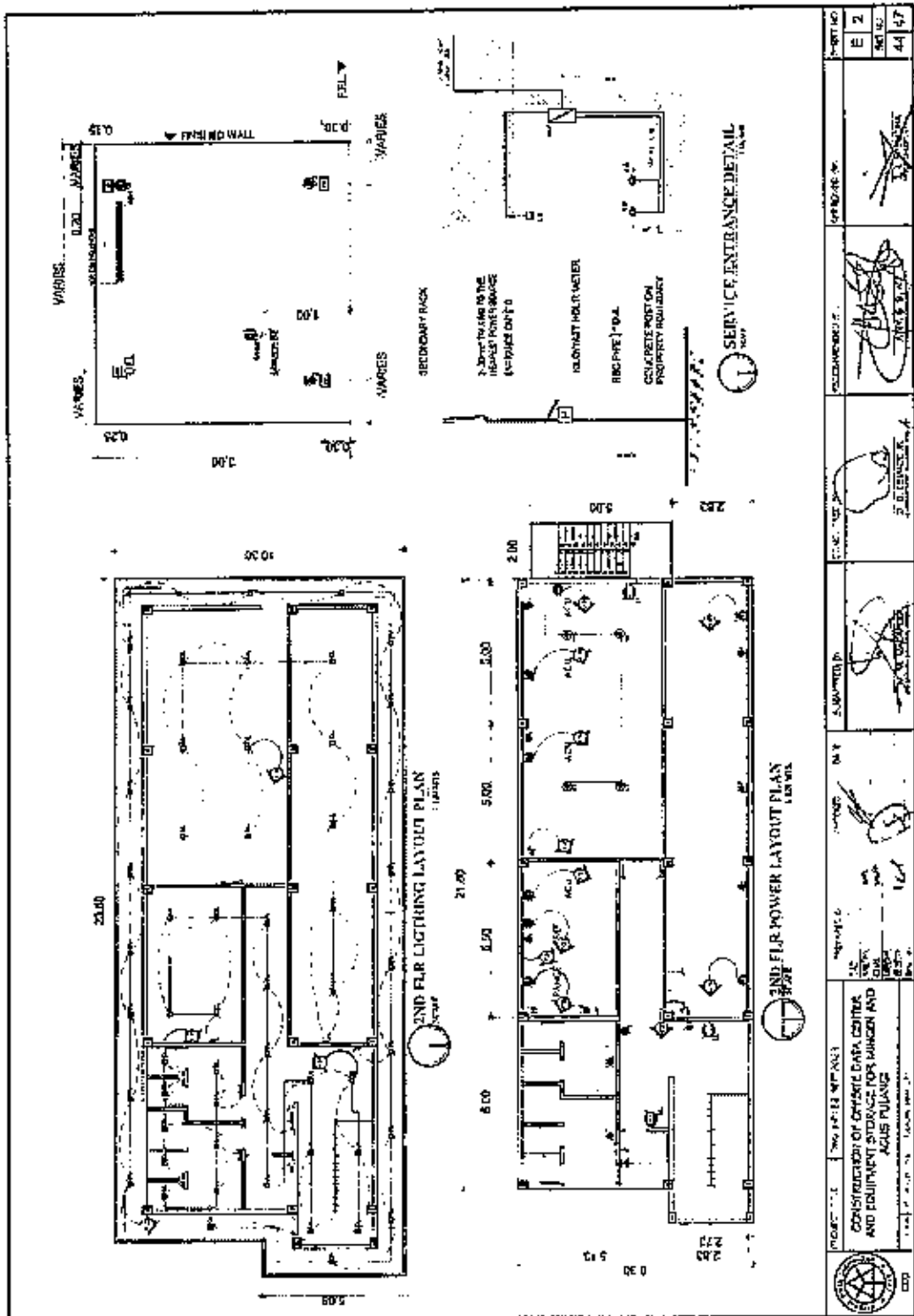
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SECTION VII- DRAWINGS



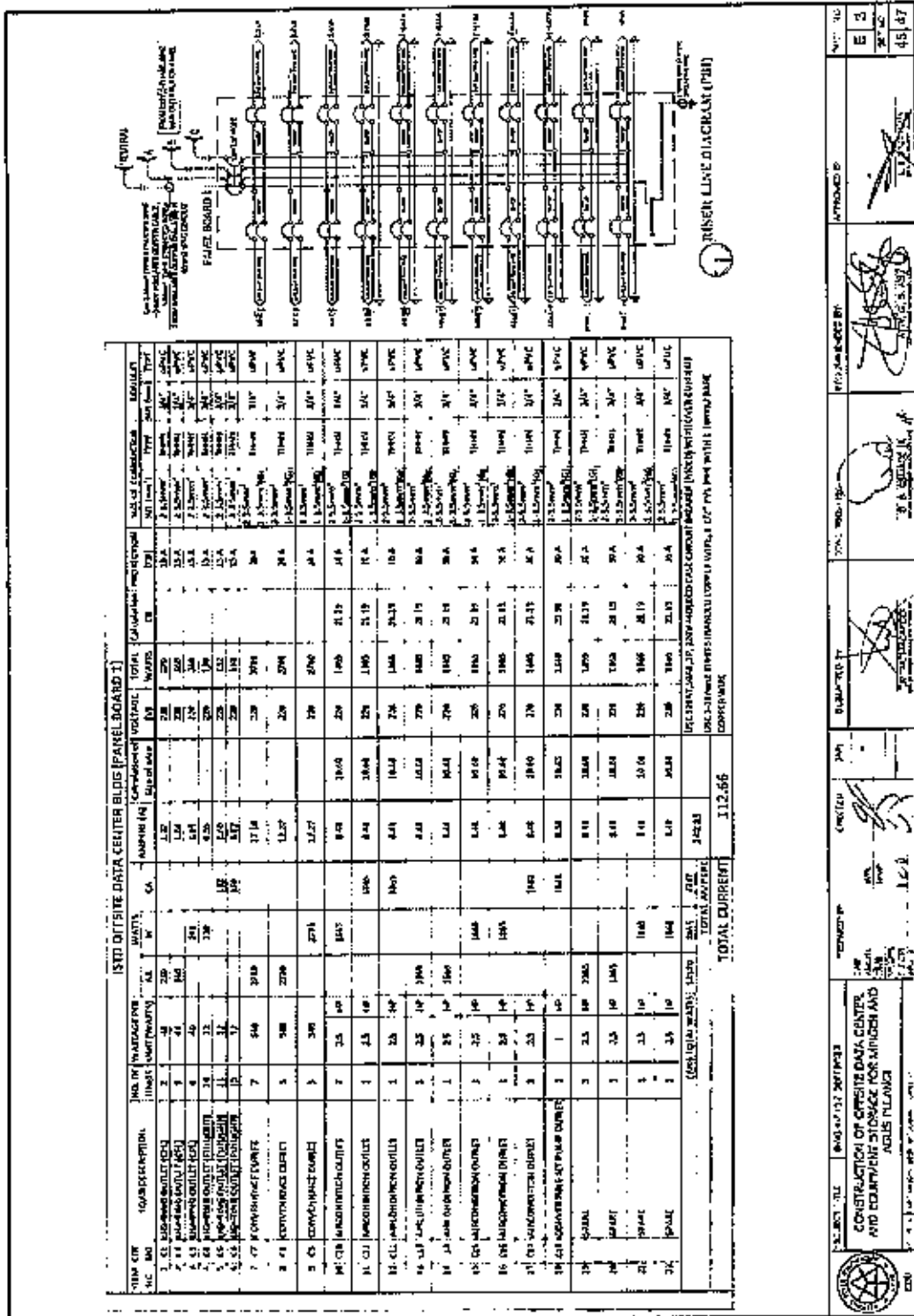


SECTION VII- DRAWINGS



	PROJECT NO.	2	DATE	4/17
	CONTRACT NO.		SCALE	AS SHOWN
DESIGNED BY	APPROVED BY	DATE	DATE	DATE
PROJECT NO.	CONTRACT NO.	SCALE	DATE	DATE

SECTION VII- DRAWINGS



**ISTD OFFSITE DATA CENTER BLDG (PANEL BOARD 1)**

ITEM NO.	DESCRIPTION	NO. OF UNIT	UNIT PRICE	TOTAL PRICE	AMOUNT (Rp)	UNIT PRICE (Rp)	NO. OF UNIT	TOTAL PRICE	AMOUNT (Rp)	UNIT PRICE (Rp)	NO. OF UNIT	TOTAL PRICE	AMOUNT (Rp)
1	1000VA 1P/2P	1	1000	1000	1000	1000	1	1000	1000	1000	1	1000	1000
2	2000VA 1P/2P	1	2000	2000	2000	2000	1	2000	2000	2000	1	2000	2000
3	3000VA 1P/2P	1	3000	3000	3000	3000	1	3000	3000	3000	1	3000	3000
4	4000VA 1P/2P	1	4000	4000	4000	4000	1	4000	4000	4000	1	4000	4000
5	5000VA 1P/2P	1	5000	5000	5000	5000	1	5000	5000	5000	1	5000	5000
6	6000VA 1P/2P	1	6000	6000	6000	6000	1	6000	6000	6000	1	6000	6000
7	7000VA 1P/2P	1	7000	7000	7000	7000	1	7000	7000	7000	1	7000	7000
8	8000VA 1P/2P	1	8000	8000	8000	8000	1	8000	8000	8000	1	8000	8000
9	9000VA 1P/2P	1	9000	9000	9000	9000	1	9000	9000	9000	1	9000	9000
10	10000VA 1P/2P	1	10000	10000	10000	10000	1	10000	10000	10000	1	10000	10000
<b>TOTAL CURRENT</b>										112.66			

NO. OF SHEET	1	NO. OF SHEET	1
DATE	10/10/2024	DATE	10/10/2024
PROJECT NAME	CONSTRUCTION OF OFFSITE DATA CENTER AND EQUIPMENT STORAGE FOR MINGEN AND AGUS PLANTS	PROJECT NAME	CONSTRUCTION OF OFFSITE DATA CENTER AND EQUIPMENT STORAGE FOR MINGEN AND AGUS PLANTS
DESIGNED BY	[Signature]	DESIGNED BY	[Signature]
CHECKED BY	[Signature]	CHECKED BY	[Signature]
APPROVED BY	[Signature]	APPROVED BY	[Signature]
DATE	10/10/2024	DATE	10/10/2024





*Section VIII. Bill of Quantities*

**BID DOCUMENTS**

SECTION VIII – BILL OF QUANTITIES

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER & EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS

PR NO./REF. NO MG-ISD24-001/INFRA2024-ISD-002

<b>BIDS AND AWARD COMMITTEE NATIONAL POWER CORPORATION, MINGEN</b>	<b>NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER AND EQUIPMENT STORAGE FOR MINGEN PLANTS (PHASE 1)</b>
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<b>SECTION VIII- BILL OF QUANTITIES</b>	<b>PR NO.: MG-ISD2024-001</b>
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BILL OF QUANTITIES					
Item No.	Description	Estimated Quantity	Unit	Unit Price in Pesos (Word and Figure)	Total Amount (Php)
1.0	CONSTRUCTION SAFETY & HEALTH PROGRAM	1.00	lot		
2.0	SITE PREPARATION (Demolition of existing Canteen, Concrete Floor, Stripping, Grading, Fill & Disposal)	180.94	sq.m.		
3.0	EARTHWORKS				
3.1	Structure Excavation (Common Soil)	108.09	cu.m.		
3.2	Embankment from Structure Excavation	65.34	cu.m.		
3.3	Embankment from Structure Borrow	68.80	cu.m.		
3.4	Gravel Bed	32.00	cu.m.		
4.0	REINFORCED STRUCTURAL CONCRETE (20.7 Mpa at 28 days)	148.00	cu.m.		
5.0	ROOF FRAMING, ROOFING SYSTEM AND BUILDING BLANKETS				
5.1	Steel Works (Roof Framing, Fire Exit Sun Buffer & Canopy No. 3)	4,900.00	kgs.		
5.2	Roofing System and Building Blankets	251.53	sq.m		
6.0	WALL SYSTEM & FINISHES				
6.1	Laying of CHB	542.00	sq.m.		
6.2	Plain Cement Plaster Wall Finish	970.00	sq.m.		
7.0	CEILING SYSTEM				
7.1	Interior Ceiling	391.04	sq.m		

BID DOCUMENTS

SECTION VIII – BILL OF QUANTITIES

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER & EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
 PR NO/REF. NO : MS-ISO24-001/INFRA2024-1SD-002

7.2	Exterior Ceiling	135.69	sq.m.	
8.0	FENESTRATIONS	1.00	lot	
9.0	PLUMBING & WATER SUPPLY PIPING			
9.1	Plumbing Fixtures, Fittings and Waste Pipe	1.00	lot	
9.2	Water Supply Piping	1.00	lot	
10.0	ELECTRICAL WORKS (Lighting and Power Panelboard, Lighting Fixtures, Outlets and Switches including Plate Cover Flush-Mounted, Insulated Copper Conductors including Terminal Lugs, Connectors, Cable Ties, Identification Tags, Etc., Embedded And/Or Non-Embedded Conduits including Boxes, Locknuts, Elbows, Bolts, UTP and other Fittings and Grounding Materials	1.00	lot	
11.0	SEPTIC TANK	11.63	cu.m.	
12.0	WATERPROOFING	204.16	sq.m	

Name of Firm

Name and Signature of Authorized Representative

Designation

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

PR NO./REF. NO : MG-ISD24-001/(NFRA2024-ISD-002

## *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;

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

- 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 (NECC) 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 Formusing *NPC-MinGen Standard Form No. NPCMGNSF-INFR-11*, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bidusing *NPC form NPCMGNSF-INFR-12*; and
- (m) Cash Flow by Quarter or Month, as applicable (duly signed each and every page)

## 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-11 - Detailed Cost Estimate Form
- NPCMGNSF-INFR-12 - Summary Sheets of Materials Prices, Labor Rates and Equipment Rental Rates

**BID DOCUMENTS**

**NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &**

**EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS**

**PR NO./REF. NO.: MG-USD24-001/MNFRA2024-USD-002**

**SECTION IX- CHECKLIST OF TECHNICAL &**

**FINANCIAL DOCUMENTS**

*Standard Form Number : NPCMGNSE- 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** : \_\_\_\_\_

**BID DOCUMENTS**

**NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER & EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS**

**SECTION IX- CHECKLIST OF TECHNICAL & FINANCIAL DOCUMENTS**

**PR. NO./REF. NO : MG-USD24-001/INFRA2024-USD-002**

**Standard Form Number : APC/MGNSF-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 No.	Nature of Work	Contractor's Bid		a. Amount of 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. Starting two (2) or more will disqualify his bid. This SLCC shall be supported with:

1. Contract and 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 Satisfactory in the Contractor's Performance Evaluation System (CPES). In case of contracts in the private sector, an equivalent document (Ex. Official Receipt) shall be accepted.

Submitted by : \_\_\_\_\_  
(Printed Name & Signature)

Designation : \_\_\_\_\_

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

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO.: MG-1SD24-001/INFRA2024-1SD-002

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

Standard Form No: NPCMGNSF-INFRA-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 Contract; 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 greater sum than the specified penalty of this bond, nor
- b) Liable for a greater sum than the difference between the amount of the said Principal's Bid and the amount of the Bid that is accepted by the Employer.

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

PR NO./REF. NO : MG-USD24-001/INFRA2024-USD-002

*Standard Form No: NPCMGNSF-INFR-03a*

*Page 2 of 2*

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



BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO : MG-ISD24-001/INFRA2024-ISD-002

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

*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.*
3. *All these are required to be in the Technical Envelope of the Bidder.*

**BID DOCUMENTS**

**NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &**

**EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS**

**PR NO /REF NO MG-USD24-001/RNFRA2024-USD-002**

**SECTION IX- CHECKLIST OF TECHNICAL & FINANCIAL DOCUMENTS**

**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/NCI/OSW/Other required certificate				

**Required Attachments During Past Qualification:**

1. Certificate of Employment and valid PRC license of the (professional) personnel
2. Certificate of Training with accreditation from DOLE of the Construction Safety and Health Officer
3. Copy of 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 Training Certificate (NC II) of Welder or Electrician, whichever is applicable

Submitted by: \_\_\_\_\_  
(Printed name & Signature)

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

One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (based on the minimum key personnel required in the bidding documents) to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).

Standard Form No: NPCMGNSF-INFR-06a

**KEY PERSONNEL'S CERTIFICATE OF EMPLOYMENT  
(PROFESSIONAL PERSONNEL)**

\_\_\_\_\_  
Issuance Date

**THE VICE PRESIDENT**  
National Power Corporation  
Mindanao Generation  
Maria Cristina, Iligan City

Dear Sir:

I am (Name of Nominee) a Licensed \_\_\_\_\_ Engineer with Professional License No. \_\_\_\_\_ Issued on \_\_\_\_\_ at \_\_\_\_\_ (date of issuance) \_\_\_\_\_ (place of issuance) \_\_\_\_\_

I hereby certify that (Name of Bidder) Has engaged my services as (Designation) for the (Name of Project) , if awarded to it.

As (Designation) , I supervised the following completed projects Similar to the contract under bidding:

NAME OF PROJECT	OWNER	COST	DATE COMPLETED
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

At present, I am supervising the following projects:

NAME OF PROJECT	OWNER	COST	DATE COMPLETED
_____	_____	_____	_____
_____	_____	_____	_____

In case of my separation for any reason whatsoever from the above-mentioned Contractor, I shall notify the National Power Corporation at least twenty one (21) days before the effective date of separation.

As (Designation) , I know I will have to stay in the job site all the time to supervise and manage the Contract works to the best of my ability, and aware that I am authorized to handle only one (1) contract at a time,

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Safety & Health Practitioner, Foremen, etc.), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract)*

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &

EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

PR NO./REF. NO : MG-ISO24-001/INFRA2024-ISO-002

Standard Form No: NPCMGNSF-INFRA-06a

Page 2 of 2

I do not allow the use of my name for the purpose of enabling the above-mentioned Contractor to qualify for the Contract without any firm commitment on my part to assume the post of (Designation) therefore, if the contract is awarded to him since I understand that to do so will be a sufficient ground for my disqualification as (Designation) in any future National Power Corporation bidding or employment with any Contractor doing business with the National Power Corporation.

\_\_\_\_\_  
(Name and Signature)  
AFFIANT

REPUBLIC OF THE PHILIPPINES )  
City/Municipality of \_\_\_\_\_ )S.S.

SUBSCRIBED AND SWORN TO before me this \_\_\_\_\_, day of \_\_\_\_\_ 20\_\_\_\_,  
affiant exhibiting to me his/her Community Tax Certificate No. \_\_\_\_\_ issued on  
\_\_\_\_\_ at \_\_\_\_\_, Philippines.

Notary Public  
Until 31 December 20 \_\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Safety & Health Practitioner, Foreman, etc.), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).*

Standard Form No: NPCMGNSF-INFR-06b

**KEY PERSONNEL'S CERTIFICATE OF EMPLOYMENT  
(CONSTRUCTION SAFETY AND HEALTH PRACTITIONER)**

\_\_\_\_\_  
Issuance Date

**THE VICE PRESIDENT**  
National Power Corporation  
Mindanao Generation  
Maria Cristina, Iligan City

Dear Sir:

I am (Name of Nominee) a Licensed \_\_\_\_\_ Engineer with  
Professional License No. \_\_\_\_\_ Issued on \_\_\_\_\_ at \_\_\_\_\_  
\_\_\_\_\_  
(date of issuance) (place  
of issuance)

I hereby certify that (Name of Bidder) Has engaged my services as  
(Designation) \_\_\_\_\_ for the (Name of Project) \_\_\_\_\_, if awarded to it.

As (Designation) \_\_\_\_\_, I supervised the following completed projects  
Similar to the contract under bidding:

NAME OF PROJECT	OWNER	COST	DATE COMPLETED
_____	_____	_____	_____
_____	_____	_____	_____

At present, I am supervising the following projects:

NAME OF PROJECT	OWNER	COST	DATE COMPLETED
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

In case of my separation for any reason whatsoever from the above-mentioned Contractor, I shall notify the National Power Corporation at least twenty one (21) days before the effective date of separation.

As Safety and Health Practitioner, I know I will have to stay in the job site all the time and aware that I am authorized to handle only one (1) contract at a time.

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz Project Manager, Project Engineer, Safety & Health Practitioner, Foremen, etc.), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract)*

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO: MG-ISD24-001/INFRA2024-ISD-002

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

Standard Form No: NPCMGNSF-INFR-06b  
Page 2 of 2

I do not allow the use of my name for the purpose of enabling the above-mentioned Contractor to qualify for the Contract without any firm commitment on my part to assume the post of Safety and Health Practitioner, if the contract is awarded to him since I understand that to do so will be a sufficient ground for my disqualification as Safety and Health Practitioner in any future National Power Corporation bidding or employment with any Contractor doing business with the National Power Corporation.

\_\_\_\_\_  
(Name and Signature)  
AFFIANT

REPUBLIC OF THE PHILIPPINES )  
City/Municipality of \_\_\_\_\_ )S.S.

SUBSCRIBED AND SWORN TO before me this \_\_\_\_\_, day of \_\_\_\_\_ 20\_\_\_\_,  
affiant exhibiting to me his/her Community Tax Certificate No. \_\_\_\_\_ issued on  
\_\_\_\_\_ at \_\_\_\_\_, Philippines.

Notary Public  
Until 31 December 20 \_\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz Project Manager, Project Engineer, Safety & Health Practitioner, Foremen, etc.), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract)*

Standard Form No: NPCMGNSF-INFR-07

**KEY PERSONNEL  
(FORMAT OF BIO-DATA)**

Give the detailed information of the following personnel who are scheduled to be assigned as full-time staff for the project. Fill up a form for each person.

- 1. Name : \_\_\_\_\_
- 2. Date of Birth : \_\_\_\_\_
- 3. Nationality : \_\_\_\_\_
- 4. Education and Degrees : \_\_\_\_\_
- 5. Specialty : \_\_\_\_\_
- 6. Registration : \_\_\_\_\_
- 7. Length of Service with the Firm : \_\_\_\_\_  

Year			
from	_____	(months)	_____ (year)
To	_____	(months)	_____ (year)
- 8. Years of Experience : \_\_\_\_\_

9. If item 7 is less than the required number of years stated in BDS Section III- ITB Clause 10.4, give name and length of service with previous employers to satisfy the required number of years of experience within the last ten (10) years (attached additional sheet/s), if necessary:

<u>Name and Address of Employer</u>	<u>Length of Service</u>
	Year(s) from _____ to _____
	Year(s) from _____ to _____
	Year(s) from _____ to _____

**10. Experience:**

This should cover the past ten (10) years of experience. (Attached as many pages as necessary to show involvement of personnel in projects using the format below).

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Safety & Health Practitioner, Foremen, etc.), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).*



SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

Standard Form No: NPCMGNSF-INFR-07  
Page 2 of 2

- 1. Name : \_\_\_\_\_
- 2. Name and Address of Owner : \_\_\_\_\_
- 3. Name and Address of the Owner's Engineer (Consultant) : \_\_\_\_\_
- 4. Indicate the Features of Project (particulars of the project components and any other particular interest connected with the project) : \_\_\_\_\_
- 5. Contract Amount Expressed in Philippine Currency : \_\_\_\_\_
- 6. Position : \_\_\_\_\_
- 7. Structures for which the employee was responsible : \_\_\_\_\_
- 8. Assignment Period : from \_\_\_\_\_ (months) \_\_\_\_\_ (years)  
to \_\_\_\_\_ (months) \_\_\_\_\_ (years)

\_\_\_\_\_  
Name and Signature of  
Employee

It is hereby certified that the above personnel can be assigned to this project, if the contract is awarded to our company.

\_\_\_\_\_  
(Place and Date)

\_\_\_\_\_  
(The Authorized Representative)

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Safety & Health Practitioner, Foreman, etc.), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract)*

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGLIS PLANTS  
PR NO./REF. NO : MG-USD24-001/INFRA2024-USD-002

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

Standard Form Number : NPCMGENSF-INFRA - 08

**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
<b>A. Owned</b>							
i.							
ii.							
iii.							
iv.							
<b>B. Leased</b>							
i.							
ii.							
iii.							
iv.							
<b>C. Under Purchased Agreements</b>							
i.							
ii.							
iii.							
iv.							

Submitted by: \_\_\_\_\_ (Printed name & Signature)  
Designation: \_\_\_\_\_  
Date: \_\_\_\_\_

*One of the requirements from the bidder to be included in his 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 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-09a

### 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;

Standard Form No: NPCMGNSF-INFR-09a

Page 2 of 2

- 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-09b

**Omnibus Sworn Statement (Revised)**  
PARTNERSHIP/COOP/CORP/JOINT VENTUREREPUBLIC 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]'s 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]'s 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;

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- 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-10

**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: \_\_\_\_\_

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO: MG-ISO24-D01/INFRA2024-ISO-002

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

Standard Form No: NPCMGNSF-INFR-11

### 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	DHP
2	DHP

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 as 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-11

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 20 \_\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No \_\_\_\_\_  
Page No \_\_\_\_\_  
Book No \_\_\_\_\_  
Series of \_\_\_\_\_

*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-12

**Bid Form for the Procurement of Infrastructure Projects****BID FORM**

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<sup>1</sup> for this purpose;
- 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

<sup>1</sup> currently based on GPPB Resolution No. 09-2020

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO.: MG-1SD24-001/INFRA2024-1SD-002

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

*Standard Form No: NPCMGNSF-INFR-12*

*Page 2 of 2*

- 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: \_\_\_\_\_

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER & EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS

SECTION IX- CHECKLIST OF TECHNICAL & FINANCIAL DOCUMENTS

PR NO./REF. NO : MG-USD24-001/INFRA2024-USD-002

Standard Form Number : NPCMGNSE-INTR : 13

DETAILED COST ESTIMATE FORM

Name of Bidder :

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

\_\_\_\_\_  
Name, Signature of Authorized Representative

\_\_\_\_\_  
Designation

BID DOCUMENTS

NAME OF PROJECT: CONSTRUCTION OF OFFSITE DATA CENTER &  
EQUIPMENT STORAGE FOR MINGEN & AGUS PLANTS  
PR NO./REF. NO. MG-ISD24-001/INFRA2024-ISD-002

SECTION IX- CHECKLIST OF TECHNICAL &  
FINANCIAL DOCUMENTS

Standard Form No: NPCMGNSF-INFR-14

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

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

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**I. Unit Prices of Materials**

Materials Description	Unit	Unit Price
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**II. Manpower Hourly Rates**

Designation	Rate/Hr.
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**III. Equipment Hourly Rental Rates**

Equipment Description	Rental Rate/Hr.
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Name, Signature of Authorized Representative

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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]*



