PHILIPPINE BIDDING DOCUMENTS

PHILIPPINE MERCHANT MARINE ACADEMY

CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS

(PID NO. 2021-008)

ABC – P8,000,000.00

April, 2021

TABLE OF CONTENTS

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

Republic of the Philippines
Philippine Merchant Marine Academy
San Narciso, Zambales

INVITATION TO BID
CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS

1. The PHILIPPINE MERCHANT MARINE ACADEMY, through Fund 101 , FY 2021, intends to apply the sum of **EIGHT MILLION PESOS(Php 8,000,000.00),** being the Approved Budget for the Contract (ABC) to payments under the contract for **CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS**. Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The PMMA now invites bids for the Project "CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS". Completion of Works is required 120 Days upon receipt of notice to proceed.

3. Bidders should have completed within ten (10) years from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instruction to Bidders).

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

5. Prospective bidders may obtain further information from PHILIPPINE MERCHANT MARINE ACADEMY and inspect the Bidding Documents at the address given below 8:00 a.m. to 5:00 p.m. (Mondays- Thursday) and 8a.m. to 3p.m. during Fridays.

6. A complete set of Bidding Documents may be acquired by interested Bidders on March 30, 2021 from the PMMA Complex, Brgy. Natividad, San Narciso, Zambales and at PMMA website (www.pmma.edu.ph) and upon payment of the applicable fee for the Bidding Documents, Pursuant to the latest Guidelines issued by the GPPB , in the amount of **P10,000.00**. The Procuring Entity shall allow the bidder to present its proof of payment for the fees in person or through electronic means. It may also be downloaded free of charge from the websites of the PhilGEPS and the PMMA, provided that Bidders shall pay the applicable fee for the Bidding Documents not later than the submission of their bids.

7. The PMMA will hold a **Pre-Bid Conference on April 5, 2021 , 09:00 A.M. at Sandugat Hall, PMMA Complex San Narciso, Zambales** which shall be open to prospective bidders or via Google meet https://meet.google.com/eef-frfw-gpq.

8. Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below on or before April 19, 2021, 09:00 A.M., Late bids shall not be accepted.

9. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 16.

10. **Bid opening shall be on April 19, 2021, 09:00 A.M., at the PMMA Amphitheater., PMMA Complex, San Narciso Zambales,** and/or **via Google Meet**:

Republic of the Philippines
Philippine Merchant Marine Academy
San Narciso, Zambales

https://meet.google.com/eef-frfw-gpq. Bids will be opened in the presence of the bidder's representatives who choose to attend the activity and/or via Google Meet.

11. The PMMA reserves the right to reject any and all bids, declare a failure of bidding, or not to award the contract at any time prior to contract award in accordance with Section 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

12. For further information, please refer to:

BAC Secretariat
PMMA Complex, San Narciso, Zambales
Email-Address: pmmabac@gmail .com
PMMA Website :www.pmma.edu.ph
Contact No.(047) 913 4396

Date of Issue: March 29, 2021

ENGR. EDMUND P. SALMON
BAC CHAIRPERSON

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, ***PHILIPPINE MERCHANT MARINE ACADEMY*** invites Bids for the **CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS** , with Project Identification Number ***PID NO. 2021-008***.

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 ***FY 2021*** in the amount of ***Php8,000,000.00***.

2.2. The source of funding is:

a. NGA, the General Appropriations Act or Special Appropriations.

3. Bidding Requirements

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

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

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

implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

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

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

5. Eligible Bidders

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

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

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

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

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

6. Origin of Associated Goods

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

7. Subcontracts

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

The Procuring Entity has prescribed that:

a. Subcontracting is not allowed.

7.1. *[If Procuring Entity has determined that subcontracting is allowed during the bidding , state:]* The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criterial stated in **ITB** Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.

7.2. *[If subcontracting is allowed during the contract implementation stage, state:]* The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.

7.3. Subcontracting of any portion of the Project does not relieve the Contractor of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Contractor's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

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 **on April 5, 2021 , 09:00 A,M, at Sandagat Hall, PMMA Complex San Narciso, Zambales** and/or through Google meet https://meet.google.com/eef-frfw-gpq. as indicated in paragraph 7 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 tradeable 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 ***August 17, 2021***. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

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

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

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

17. Deadline for Submission of Bids

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

18. Opening and Preliminary Examination of Bids

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

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

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

19. Detailed Evaluation and Comparison of Bids

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

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

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

20. Post Qualification

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

21. Signing of the Contract

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

Section III. Bid Data Sheet

Bid Data Sheet

ITB Clause	
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be: *Construction/Renovation of buildings and/or Highways/Roads.*
7.1	*Subcontracting is not allowed*
10.3	*No further instructions.*
10.4	The key personnel must meet the required minimum years of experience set below: <u>Key Personnel</u> <u>General Experience</u> <u>Relevant Experience</u>
10.5	The minimum major equipment requirements are the following: <u>Equipment</u> <u>Capacity</u> <u>Number of Units</u>
12	*No further instructions.*
15.1	The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts: a. The amount of not less than ***<u>P160,000.00</u>***, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; b. The amount of not less than ***<u>P400,000.00</u>*** if bid security is in Surety Bond.
19.2	Partial bid is not allowed. The infrastructure project is packaged in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.
20	*Latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS)*
21	***Construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the Department of Labor and Employment, and PERT/CPM or other acceptable tools of project scheduling.***

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. Dayworks

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 Dayworks rates in the Contractor's Bid shall be used for small additional amounts of work only when the Procuring Entity's Representative has given written instructions in advance for additional work to be paid for in that way.

11. Program of Work

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

11.2. The Contractor shall submit to the Procuring Entity's Representative for approval an updated Program of Work at intervals no longer than the period stated in the **SCC.** If the Contractor does not submit an updated Program of Work within this period, the Procuring Entity's Representative may withhold the amount stated in the **SCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program of Work has been submitted.

12. Instructions, Inspections and Audits

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

13. Advance Payment

The Procuring Entity shall, upon a written request of the Contractor which shall be submitted as a Contract document, make an advance payment to the Contractor in an amount not exceeding fifteen percent (15%) of the total contract price, to be made in lump sum, or at the most two installments according to a schedule specified in the **SCC**, subject to the requirements in Annex "E" of the 2016 revised IRR of RA No. 9184.

14. Progress Payments

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

15. Operating and Maintenance Manuals

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

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

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	
2	*No further instructions.*
4.1	The **Procuring Entity** shall give possession of all parts of the Site to the Contractor ***from receipt of Notice to Proceed***
6	Site Inspection Certificate.
7.2	*One (1) Year*
10	a. Dayworks are applicable at the rate shown in the Contractor's original Bid.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within *ten (10)* days of delivery of the Notice of Award.
11.2	No further instructions.
13	The amount of the advance payment is ***not more than 15 percent (15%) of the Contract Price***.
14	Materials and equipment delivered on the site but not completely put in place shall be included for payment.
15.1	The date by which operating and maintenance manuals are required is *[date]*. The date by which "as built" drawings are required is *[date]*.
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 *[amount in local currency]*.

Section VI. Specifications

Project	:**CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUND**
Location	: **PMMA Complex, San Narciso, Zambales**
Owner	: **PHILIPPINE MERCHANT MARINE ACADEMY**

TECHNICAL SPECIFICATIONS

GENERAL REQUIREMENTS

This material Specification shall be used with the Drawings, and general specification which will all form part of the contract documents. In case of discrepancy between this specification and the drawings, this specification shall govern. Submit samples to INSPECTOR/ENGINEER for approval prior to implementation.

- Contract shall be Labor and Materials.
- The procedures and materials specification shall be in reference to the DPWH Blue Book Volume.2-Standard Specification for Highways, Bridges and Airports.

I. SITE WORK

A. WORK INCLUDED

1. Staking out of building, establishment of lines, grades and benchmarks.
2. All excavation work including all necessary shoring, bracing, and drainage of storm water from site.
3. All backfilling, filling and grading, removal of excess material from site.
4. Protection of Property, work and structures, workmen, and other people from damage and injury.

B. LINES, GRADES AND BENCHMARKS

1. Stake out accurately the lines of the building and of the other structures included in the contract, and establish grades therefore, after which secure approval by Architects before any excavation work is commenced.

2. Erect basic batter boards and basic reference marks, at such places where they will not be disturbed during the construction of the foundations.

C. EXCAVATION

1. Structural Excavation - Excavation shall be the depths indicated bearing values. Excavations for footings and foundation carried below require depths shall be filled with concrete, and bottom of such shall be level. All structural excavations shall extend a sufficient distance from the walls and footings to allow for proper erection and dismantling of forms, for installation of service and for inspection. All excavation shall be inspected and approved before pouring any concrete, laying underground services for placing select fill materials.

   The contractor shall control the grading in the vicinity of all excavated areas to prevent surface drainage running into excavations. Water which accumulates in excavated areas shall be removed by pumping before fill or concrete is placed therein.

(Refer to Item 102.Structure Excavation of the DPWH Blue Book Volume 2.)

D. FILLING AND BACKFILLING

1. After forms have been removed from footings, piers, foundations, walls, etc. and when concrete work is hard enough to resist pressure resulting from fill, backfilling may then be done. Materials excavated maybe used for backfilling. All filling shall be placed in layers not exceeding six (6) inches in thickness, each layer being thoroughly compacted and rammed by wetting, tamping, & rolling.

E. PLACING AND COMPACTING FILL

1. Common Fill - shall be approved site - excavated materials free from roots, stumps and other perishable or objectionable matter.

2. Select Fill - shall be placed where indicated and shall consist of crushed gravel, crushed rock, or a combination thereof. The materials shall be free from adobe, vegetable matters and shall be thoroughly tamped after placing.

3. Before placing fill materials, the surface upon which it will be placed shall be cleared of all brush roots, vegetable matter and debris, cleaned and thoroughly wetted to insure good bonding between the ground.

(Refer to Item 105.Subgrade-Preparation of the DPWH Blue Book Volume 2.)

F. DISPOSAL OF SURPLUS MATERIALS

1. Any excess material remaining after completion of the earthwork shall be disposed of by hauling and spreading in nearby spoil areas shall be graded to a uniform surface.

G. DEMOLITION OF BUILDING ELEMENTS

1. Demolition of chb wall;

The demolition, total or in part, of chb wall, by whatever means, including rendered work, of any form, thickness, height or depth of wall, including scaffolding, necessary reinforcing for the consolidation of the structure or surrounding buildings; the reparation of damages caused to third parties for breakage and normal repair in the course of work to service supplies both public and private (drainage, water, light), with the relocation of material within the worksheet, and including the provision of all requirements not specified for the satisfactory completion of the work.

The demolition by whatever means, total or in part of brickwork or pre- cast terracotta, included rendered work or tiled work, of any form, thickness height or depth of wall, including scaffolding, necessary reinforcing for the consolidation of the structure or surrounding buildings; the reparation of damages caused to third parties for breakage and normal repair in the course of work to service supplies both public and private (drainage, water, light, etc.), without allowing for salvage and cleaning of material re-use, but with the relocation of material within the worksite, and including the provision of all requirements not specified for the satisfactory completion of the work.

2. Removal of flooring;

The removal of flooring of whatever type, including the removal of bedding mortar and the location of resulting material within the worksite.

3. Removal of wall tiling;

Removal of wall tiles of whatever type, including the removal of bedding mortar, the cleaning, washing with water under pressure and the location of resulting material within the worksite, and including all requirements to prepare the surface for re-tiling.

4. Removal of windows and doors;

The removal of windows and doors of whatever type, including architrave's, beadings etc, with the storage of materials within the worksite including the eventual selection (to be decided by the Supervisor of Works) and stacking within the worksite in the specified location for re-use.

5. Removal of metal grating/catch basin;

Removal of metal grating/catch basin of whatever type and the relocation within the worksite, including eventual selection (to be decided by the Supervisor of Works) and stacking within work site of said gratings and connections secured free of clogs or debris.

II. REINFORCED CONCRETE

A. GENERAL

1. Unless otherwise specified herein, concrete work shall conform to the requirements of the ACI Building Code. Full cooperation shall be given other trades to install embedded items. Provisions shall be made for setting items not placed in the forms. Before concrete is placed, or steel erection embedded items shall have been inspected and tested for concrete aggregates or pedestal anchor bolts and other materials shall have been done.

B. MATERIALS

1. Cement for the concrete shall conform to the requirements of specifications for Portland Cement (ASTM C - 150)

2. Water used in mixing concrete shall be clean and free from other injurious amounts of oils, acids, alkaline, organic materials or other substances that may be deleterious to concrete or steel.

3. Fine Aggregates shall consist of hard, tough, durable, uncoated particles. The shape of the particles shall be generally rounded or cubicle and reasonably free from flat or elongated particles. The stipulated percentages

of fines in the sand shall be obtained either by the processing of natural sand or by the production of a suitably graded manufactured sand.

4. Coarse Aggregate shall consist of gravel, crushed gravel or rock, or a combination of gravel and rock, coarse aggregates shall consist of hard, tough, durable, clean and uncoated particles. The sizes of coarse aggregates to be used in the various parts of the work shall be in accordance with the following:

   Size - ¾" for all concreting work.

5. Reinforcing Bars shall conform to the requirements of ASTM standard specifications for Billet Steel Bars for concrete reinforcement (A 615) and to Specification for minimum requirements for the deformed steel bars for concrete reinforcement.

   All secondary ties such as stirrups, spirals and inserts shall be of a standard deformed bars. The main reinforcing bars shall be as follows:

   fy - 40,000psi for 16mm and below

   No. 4 (1/2") 12mm

   No. 3 (3/8") 10mm

   No. 5 (5/8") 16mm

   No. 5 (5/8") 20mm

Respective instructions in accordance to these technical conditions.

Class	**Cement**	**Sand**	**Gravel**
Class "A"	1	2	4
Class "B"	1	3	6
Mortar Mix	1	3	
Plaster Mix	1	2	

6. Class of Concrete - Concrete shall have a 28-day cylinder strength of 3,000 psi, for all concrete work, unless otherwise indicated in the plans.

7. Mixing-concrete - shall be machine mixed. Mixing shall begin within 30 minutes after the cement has been added to the aggregates. In the absence

of the concrete mixer, manual mixing is allowed provided that water will not be allowed to spill over. It should be done in a contained area preferably a Mixing Board.

D. FORMS

1. General - Forms shall be used wherever necessary to confine the concrete and shape it to the required lines, or to insure the concrete of contamination with materials carving from adjacent, excavated surfaces. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall be maintained rigidly in correct position. Forms shall be sufficiently fight to prevent loss of mortal from the concrete. Forms for exposed surfaces against which backfill is not be placed shall be lines with a form grade Plywood.

2. Cleaning and oiling of Forms - Before placing the concrete, the contact surfaces of the forms shall be cleansed of encrustation of mortar, the grout or other foreign material, and shall be coated with a commercial form of oil that will effectively prevent sticking and will not stain the concrete surfaces.

3. Removal of Forms - Forms shall be removed in a manner which will prevent damage to be concrete. Forms shall not be removed without approval. Any repairs of surface imperfections shall be performed at once and airing shall be as soon as the surface is sufficiently hard to permit it without further damage. See general and specification for the schedule of removal.

E. PLACING REINFORCEMENT

1. General - Steel reinforcement shall be provided as indicated, together with all necessary wires ties, chairs, spacers, supported and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from loose, flaky rust and scale, oil grease, clay and other coating and foreign substances that would reduce or destroy its bond with concrete.

   Reinforcement shall be placed accurately and secured in place by use of metal or concrete supports, spacers and ties. Such supports shall be of sufficient strength to maintain the operation. The supports shall be used in such manner that they will not be exposed or contribute in any way, to the discoloration or deterioration of the concrete.

F. CONVEYING AND PLACING CONCRETE:

1. Conveying - Concrete shall be conveyed from mixer to forms as rapidly as practicable, by methods which will prevent segregation, or loss of ingredients. There will no vertical drop greater than 1.5 meter except where suitable equipment is provided to prevent segregation and where specifically authorize.

2. Placing - Concrete shall be worked readily into the corners and angles of the forms and around all reinforcement and embedded items without permitting the material to segregate. Concrete shall be deposited as close as possible to its final position in the forms so that flow within the mass does not exceed two (2) meters and consequent segregation is reduced to a minimum near forms or embedded items, or elsewhere as directed, the discharge shall be so controlled that the concrete maybe effectively compacted into horizontal layers not exceeding 30 centimeters in depth within the maximum lateral movement specified.

3. Time interval between mixing and placing - Concrete shall be placed before initial set has occurred and before it has contained its water content for more than 45 minutes.

4. Consolidation of Concrete - Concrete shall be consolidated with the aid of mechanical vibrating equipment and supplemented by hand-spading and tamping. Vibrators shall not be inserted into lower coursed that have commenced initial set; and reinforcement embedded in concrete beginning to set or already set shall not be disturbed by vibrators. Consolidation around major embedded parts shall be by hand spading and tamping and vibrations shall not be used.

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

G. CURING

1. General - All concrete shall be moist crude for a period not less than seven (7) consecutive days by an approved method or combination applicable to local conditions.

2. Moist Curing - the surface of the concrete shall be kept continuously wet by covering with burlap plastic or other approved materials thoroughly

saturated with water and keeping the covering wet spraying or intermittent hosing.

H. FINISHING

1. Concrete surfaces - shall not be plastered unless otherwise indicated. Exposed concrete surfaces shall be formed with plywood, and after removal of forms, the surfaces shall be smooth, true to line and present or finished appearance except for minor defects which can be easily be repaired with patching with cement mortar, or can be grounded to a smooth surface to remove all joint marks of the form work.

2. Concrete slabs on Fill - The concrete slabs on fill shall be laid on a prepared foundation consisting of sub-grade and granular fill with thickness equal to the thickness of overlaying slabs as indicated otherwise.

ITEM 311 – PORTLAND CEMENT CONCRETE PAVEMENT

311.1 Description

This Item shall consist of pavement of Portland Cement Concrete, with or without reinforcement, constructed on the prepared base in accordance with this Specification and in conformity with lines, grades, thickness and typical cross section shown on the Plans.

311.2 Material Requirements

311.2.1 Portland Cement

It shall conform to the applicable requirements of Item 700, Hydraulic Cement. Only Type I Portland Cement shall be used unless otherwise provided for in the Special Provisions. Different brands or the same brands from different mills shall not be mixed nor shall they be used alternately unless the mix is approved by the Engineer. However, the use of Portland Pozzolan Cement Type IP meeting the requirements of AASHTO M 240/ASTM C 695, Specifications for Blended Hydraulic Cement shall be allowed, provided that trial mixes shall be done and that the mixes meet the concrete strength requirements, the AASHTO/ASTM provisions pertinent to the use of Portland Pozzolan Type IP shall be adopted.

Cement which for any reason, has become partially set or which contains lumps of caked cement will be rejected. Cement salvaged from discarded or used bags shall not be used.

Samples of Cement shall be obtained in accordance with AASHTO T 127.

311.2.2 Fine Aggregate

It shall consist of natural sand, stone screenings or other inert materials with similar characteristics, or combinations thereof, having hard, strong and durable particles. Fine aggregate from different sources of supply shall not be mixed or stored

in the same pile nor used alternately in the same class of concrete without the approval of the Engineer.

It shall not contain more than three (3) mass percent of material passing the 0.075 mm (No. 200 sieve) by washing nor more than one (1) mass percent each of clay lumps or shale. The use of beach sand will not be allowed without the approval of the Engineer.

If the fine aggregate is subjected to five (5) cycles of the sodium sulfate soundness test, the weighted loss shall not exceed 10 mass percent.

The fine aggregate shall be free from injurious amounts of organic impurities. If subjected to the colorimatic test for organic impurities and a color darker than the standard is produced, it shall be rejected. However, when tested for the effect of organic impurities of strength of mortar by AASHTO T 71, the fine aggregate may be used if the relative strength at 7 and 28 days is not less than 95 mass percent.

The fine aggregate shall be well-graded from coarse to fine and shall conform to Table 311.1

Table 311.1 – Grading Requirements for Fine Aggregate

Sieve Designation Mass Percent Passing
9.5 mm (3/8 in) 100
4.75 mm (No. 4) 95 – 100
2.36 mm (No. 8) -
1.18 mm (No. 16) 45 – 80 0.600 mm (No. 30) - 0.300 mm (No. 50) 5 – 30
0.150 mm (No. 100) 0 – 10

311.2.3 Coarse Aggregate

It shall consist of crushed stone, gravel, blast furnace slag, or other approved inert materials of similar characteristics, or combinations thereof, having hard, strong, durable pieces and free from any adherent coatings.

It shall contain not more than one (1) mass percent of material passing the 0.075 mm (No. 200) sieve, not more than 0.25 mass percent of clay lumps, nor more than 3.5 mass percent of soft fragments.

If the coarse aggregate is subjected to five (5) cycles of the sodium sulfate soundness test, the weighted loss shall not exceed 12 mass percent.

311.2.4 Water

Water used in mixing, curing or other designated application shall be reasonably clean and free of oil, salt, acid, alkali, grass or other substances injurious to the finished product. Water will be tested in accordance with and shall meet the requirements of Item 714, Water. Water which is drinkable may be used without test. Where the source of water is shallow, the intake shall be so enclosed as to exclude silt, mud, grass or other foreign materials.

311.2.5 Reinforcing Steel

It shall conform to the requirements of Item 404, Reinforcing Steel. Dowels and tie bars shall conform to the requirements of AASHTO M 31 or M 42, except that rail steel shall not be used for tie bars that are to be bent and restraightened during construction. Tie bars shall be deformed bars. Dowels shall be plain round bars. Before delivery to the site of work, one-half of the length of each dowel shall be painted with one coat of approved lead or tar paint.

The sleeves for dowel bars shall be metal of approved design to cover 50 mm (2 inches), plus or minus 5 mm (1/4 inch) of the dowel, with a closed end, and with a

suitable stop to hold the end of the sleeve at least 25 mm (1 inch) from the end of the dowel. Sleeves shall be of such design that they do not collapse during construction.

311.2.6 Joint Fillers

Poured joint fillers shall be mixed asphalt and mineral or rubber filler conforming to the applicable requirements of Item 705, Joint Materials.

Preformed joint filler shall conform to the applicable requirements of Item 705. It shall be punched to admit the dowels where called for in the Plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint.

311.2.7 Admixtures

Air-entraining admixture shall conform to the requirements of AASHTO M 154. Chemical admixtures, if specified or permitted, shall conform to the requirements of AASHTO M 194.

Fly Ash, if specified or permitted as a mineral admixture and as 20% partial replacement of Portland Cement in concrete mix shall conform to the requirements of ASTM C 618.

Admixture should be added only to the concrete mix to produce some desired modifications to the properties of concrete where necessary, but not as partial replacement of cement.

311.2.8 Curing Materials

Curing materials shall conform to the following requirements as specified;

a) Burlap cloth - AASHTO M 182
b) Liquid membrane forming compounds - AASHTO M 148
c) Sheeting (film) materials - AASHTO M 171

Cotton mats and water-proof paper can be used.

311.2.9 Calcium Chloride/Calcium Nitrate

It shall conform to AASHTO M 144, if specified or permitted by the Engineer, as accelerator.

311.2.10 Storage of Cement and Aggregate

All cement shall be stored, immediately upon delivery at the Site, in weatherproof building which will protect the cement from dampness. The floor shall be raised from the ground. The buildings shall be placed in locations approved by the Engineer. Provisions for storage shall be ample, and the shipments of cement as received shall be separately stored in such a manner as to allow 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 a 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 retest is ordered by the Engineer. At the time of use, all cement shall be free-flowing and free of lumps.

The handling and storing of concrete aggregates shall be such as to prevent segregation or the inclusion of foreign materials. The Engineer may require that aggregates be stored on separate platforms at satisfactory locations.

In order to secure greater uniformity of concrete mix, the Engineer may require that the coarse aggregate be separated into two or more sizes. Different sizes of aggregate shall be stored in separate bins or in separate stockpiles sufficiently removed from each other to prevent the material at the edges of the piles from becoming intermixed.

311.2.11 Proportioning, Consistency and Strength of Concrete

The Contractor shall prepare the design mix based on the absolute volume method as outlined in the American Concrete Institute (ACI) Standard 211.1, "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete".

It is the intent of this Specification to require at least 364 kg of cement per cubic meter of concrete to meet the minimum strength requirements. The Engineer shall determine from laboratory tests of the materials to be used, the cement content and the proportions of aggregate and water that will produce workable concrete having a slump of between 40 and 75 mm (1-1/2 and 3 inches) if not vibrated or between 10 and 40 mm (1/2 and 1-1/2 inches) if vibrated, and a flexural strength of not less than 3.8 MPa (550 psi) when tested by the third-point method or 4.5 MPa (650 psi) when tested by the mid-point method at fourteen (14) days in accordance with AASHTO T97 and T177, respectively; or a compressive strength of 24.1 MPa (3500 psi) for cores taken at fourteen (14) days and tested in accordance with AASHTO T24.
Slump shall be determined using AASHTO T 119.

The designer shall consider the use of lean concrete (econocrete) mixtures using local materials or specifically modified conventional concrete mixes in base course and in the lower course composite, monolithic concrete pavements using a minimum of 75 mm (3 inches) of conventional concrete as the surface course.

The mix design shall be submitted to the Engineer for approval and shall be accompanied with certified test data from an approved laboratory demonstrating the adequacy of the mix design. A change in the source of materials during the progress of work may necessitate a new design mix.

311.3 Construction Requirements

311.3.1 Quality Control of Concrete

1. General

The Contractor shall be responsible for the quality control of all materials during the handling, blending, and mixing and placement operations.

2. Quality Control Plan

The Contractor shall furnish the Engineer a Quality Control Plan detailing his production control procedures and the type and frequency of sampling and testing to insure that the concrete produces complies with the Specifications. The Engineer shall be provided free access to recent plant production records, and if requested, informational copies of mix design, materials certifications and sampling and testing reports.

3. Qualification of Workmen

Experienced and qualified personnel shall perform all batching or mixing operation for the concrete mix, and shall be present at the plant and job site to control the concrete productions whenever the plant is in operation. They shall be identified and duties defined as follows:

a. Concrete Batcher. The person performing the batching or mixing operation shall be capable of accurately conducting aggregate surface moisture determination and

establishing correct scale weights for concrete materials. He shall be capable of assuring that the proportioned batch weights of materials are in accordance with the mix design.

b. Concrete Technician. The person responsible for concrete production control and sampling and testing for quality control shall be proficient in concrete technology and shall have a sound knowledge of the Specifications as they relate to concrete production. He shall be capable of conducting tests on concrete and concrete materials in accordance with these Specifications. He shall be capable of adjusting concrete mix designs for improving workability and Specification compliance and preparing trial mix designs. He shall be qualified to act as the concrete batcher in the batcher‟s absence.

4. Quality Control Testing

The Contractor shall perform all sampling, testing and inspection necessary to assure quality control of the component materials and the concrete.

The Contractor shall be responsible for determining the gradation of fine and coarse aggregates and for testing the concrete mixture for slump, air content, water-cement ratio and temperature. He shall conduct his operations so as to produce a mix conforming to the approved mix design.

5. Documentation

The Contractor shall maintain adequate records of all inspections and tests. The records shall indicate the nature and number of observations made, the number and type of deficiencies found, the quantities approved and rejected, and nature of any corrective action taken.

The Engineer may take independent assurance samples at random location for acceptance purposes as he deems necessary.

311.3.2 Equipment

Equipment and tools necessary for handling materials and performing all parts of the work shall be approved by the Engineer as to design, capacity and mechanical condition. The equipment shall be at the jobsite sufficiently ahead of the start of construction operations to be examined thoroughly and approved.

1. Batching Plant and Equipment

a. General. The batching shall include bins, weighing hoppers, and scales for the fine aggregate and for each size of coarse aggregate. If cement is used in bulk, a bin, a hopper, and separate scale for cement shall be included. The weighing hopper shall be properly sealed and vented to preclude dusting operation. The batch plant shall be equipped with a suitable non-resettable batch counter which will correctly indicate the number of batches proportioned.

b. Bins and Hoppers. Bins with adequate separate compartments for fine aggregate and for each size of coarse aggregate shall be provided in the batching plant.

c. Scales. Scales for weighing aggregates and cement shall be of either the beam type or the springless-dial type. They shall be accurate within one-half percent (0.5%) throughout the range of

use. Poises shall be designed to be locked in any position and to prevent unauthorized change.

Scales shall be inspected and sealed as often as the Engineer may deem necessary to assure their continued accuracy.

d. Automatic Weighing Devices. Unless otherwise allowed on the Contract, batching plants shall be equipped with automatic weighing devices of an approved type to proportion aggregates and bulk cement.

2. Mixers.

a. General. Concrete may be mixed at the Site of construction or at a central plant, or wholly or in part in truck mixers. Each mixer shall have a manufacturer‟s plate attached in a prominent place showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

b. Mixers at Site of Construction. Mixing shall be done in an approved mixer capable of combining the aggregates, cement and water into a thoroughly mixed and uniform mass within the specified mixing period and discharging and distributing the mixture without segregation on the prepared grade. The mixer shall be equipped with an approved timing device which will automatically lock the discharge lever when the drum has been charged and released it at the end of the mixing period. In case of failure of the timing device, the mixer may be used for the balance of the day while it is being repaired, provided that each batch is mixed 90 seconds. The mixer shall be equipped with a suitable nonresettable batch counter which shall correctly indicate the number of the batches mixed.

c. Truck Mixer and Truck Agitators. Truck mixers used for mixing and hauling concrete, and truck agitators used for hauling central-mixed concrete, shall conform to the requirements of AASHTO M 157.

d. Non-Agitator Truck. Bodies of non-agitating hauling equipment for concrete shall be smooth, mortar-tight metal containers and shall be capable of discharging the concrete at a satisfactory controlled rate without segregation.

3. Paving and Finishing Equipment

The concrete shall be placed with an approved paver designed to spread, consolidate, screed and float finish the freshly placed concrete in one complete pass of the machine in such a manner that a minimum of hand finishing will be necessary to provide a dense and homogeneous pavement in conformance with the Plans and Specifications.

The finishing machine shall be equipped with at least two (2) oscillating type transverse screed.

Vibrators shall operate at a frequency of 8,300 to 9,600 impulses per minute under load at a maximum spacing of 60 cm.

4. Concrete Saw

The Contractor shall provide sawing equipment in adequate number of units and power to complete the sawing with a watercooled diamond edge saw blade or an abrasive wheel to the required dimensions and at the required rate. He shall provide at least one (1) stand-by saw in good working condition and with an ample supply of saw blades.

5. Forms

Forms shall be of steel, of an approved section, and of depth equal to the thickness of the pavement at the edge. The base of the forms shall be of sufficient width to provide necessary stability in all directions. The flange braces must extend outward on the base to not less than 2/3 the height of the form.

All forms shall be rigidly supported on bed of thoroughly compacted material during the entire operation of placing and finishing the concrete. Forms shall be provided with adequate devices for secure setting so that when in place, they will withstand, without visible spring or settlement, the impact and vibration of the consolidation and finishing or paving equipment.

311.3.3 Preparation of Grade

After the subgrade of base has been placed and compacted to the required density, the areas which will support the paving machine and the grade on which the pavement is to be constructed shall be trimmed to the proper elevation by means of a properly designed machine extending the prepared work areas compacted at least 60 cm beyond each edge of the proposed concrete pavement. If loss of density results from the trimming operations, it shall be restored by additional compaction before concrete is placed. If any traffic is allowed to use the prepared subgrade or base, the surface shall be checked and corrected immediately ahead of the placing concrete.

The subgrade or base shall be uniformly moist when the concrete is placed

311.3.4 Setting Forms

1. Base Support.

The foundation under the forms shall be hard and true to grade so that the form when set will be firmly in contact for its whole length and at the specified grade. (Any roadbed, which at the form line is found below established grade, shall be filled with approved granular materials to grade in lifts of three (3) cm or less, and thoroughly rerolled or tamped.) Imperfections or variations above grade shall be corrected by tamping or by cutting as necessary.

2. Form Setting Forms shall be set sufficiently in advance of the point where concrete is being placed. After the forms have been set to correct grade, the grade shall be thoroughly tamped, mechanically or by hand, at both the inside and outside edges of the base of the forms. The forms shall not deviate from true line bv more than one (1) cm at any point.

3. Grade and Alignment

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete. Testing as to crown and elevation, prior to placing of concrete can be made by means of holding an approved template in a vertical position and moved backward and forward on the forms.

When any form has been disturbed or any grade has become unstable, the form shall be reset and rechecked.

311.3.5 Conditioning of Subgrade or Base Course

When side forms have been securely set to grade, the subgrade or base course shall be brought to proper cross-section. High areas shall be trimmed to proper elevation. Low areas shall be filled and compacted to a condition similar to that of surrounding grade. The finished grade shall be maintained in a smooth and compacted condition until the pavement is placed.

Unless waterproof subgrade or base course cover material is specified, the subgrade or base course shall be uniformly moist when the concrete is placed. If it subsequently becomes too dry, the subgrade or base course shall be sprinkled, but the method of sprinkling shall not be such as to form mud or pools of water.

311.3.6 Handling, Measuring and Batching Materials

The batch plant site, layout, equipment and provisions for transporting material shall be such as to assure a continuous supply of material to the work.
Stockpiles shall be built up in layers of not more than one (1) meter in thickness. Each layer shall be completely in place before beginning the next which shall not be allowed to "cone" down over the next lower layer. Aggregates from different sources and of different grading shall not be stockpiled together.
All washed aggregates and aggregates produced or handled by hydraulic methods, shall be stockpiled or binned for draining at least twelve (12) hours before being batched.
When mixing is done at the side of the work. aggregates shall be transported from the batching plant to the mixer in batch boxes, vehicle bodies, or other containers of adequate capacity and construction to properly carry the volume required. Partitions separating batches shall be adequate and effective to prevent spilling from one compartment to another while in transit or being dumped. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, with chute, boot or other approved device, to prevent loss of cement, and to provide positive assurance of the actual presence in each batch of the entire cement content specified.
Bulk cement shall be transported to the mixer in tight compartments carrying the full amount of cement required for the batch. However, if allowed in the Special Provisions, it may be transported between the fine and coarse aggregate. When cement is placed in contact with the aggregates, batches may be rejected unless mixed within 1-1/2 hours of such contact. Cement in original shipping packages may be transported on top of the aggregates, each batch containing the number of sacks required by the job mix.
The mixer shall be charged without loss of cement. Batching shall be so conducted as to result in the weight to each material required within a tolerance of one (1) percent for the cement and two (2) percent for aggregates.

Water may be measured either by volume or by weight. The accuracy of measuring the water shall be within a range of error of not over than one (1) percent. Unless the water is to be weighed, the water-measuring equipment shall include an auxiliary tank from which the measuring tank shall be equipped with an outside tap and valve to provide checking the setting, unless other means are provided for readily and accurately determining the amount of water in the tank. The volume of the auxiliary tank shall be at least equal to that of the measuring tank.

311.3.7 Mixing Concrete

The concrete may be mixed at the site of the work in a central-mix plant, or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time will be measured from the time all materials, except water, are in the drum. Ready-mixed concrete shall be mixed and delivered in accordance with requirements of AASHTO M 157, except that the minimum required revolutions at the mixing speed for transit-mixed concrete may be reduced to not less than that recommended by the mixer manufacturer. The number of revolutions recommended by the mixer manufacturer shall be indicated on the manufacturer‟s serial plate attached to the mixer. The Contractor shall furnish test data acceptable to the Engineer verifying that the make and model of the mixer will produce uniform concrete conforming to the provision of AASHTO M 157 at the reduced number of revolutions shown on the serial plate.
When mixed at the site or in a central mixing plant, the mixing time shall not be less than fifty (50) seconds nor more than ninety (90) seconds, unless mixer performance tests prove adequate mixing of the concrete is a shorter time period.

Four (4) seconds shall be added to the specified mixing time if timing starts at the instant the skip reaches its maximum raised positions. Mixing time ends when the discharge chute opens. Transfer time in multiple drum mixers is included in mixing time.

The contents of an individual mixer drum shall be removed before a succeeding batch is emptied therein.

The mixer shall be operated at the drum speed as shown on the manufacturer"s name plate attached on the mixer. Any concrete mixed less than the specified time shall be discarded and disposed off by the Contractor at his expense. The volume of concrete mixed per batch shall not exceed the mixer"s nominal capacity in cubic metre, as shown on the manufacturer"s standard rating plate on the mixer, except that an overload up to ten (10) percent above the mixer"s nominal capacity may be permitted provided concrete test data for strength, segregation, and uniform consistency are satisfactory, and provided no spillage of concrete takes place.
The batches shall be so charged into the drum that a portion of the mixing water shall be entered in advance of the cement and aggregates. The flow of water shall be uniform and all water shall be in the drum by the end of the first fifteen (15) seconds of the mixing period. The throat of the drum shall be kept free of such accumulations as may restrict the free flow of materials into the drum.
Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators or non-agitating truck specified in Subsection 311.3.2, Equipment. The time elapsed from the time water is added to the mix until the concrete is deposited in place at the Site shall not exceed forty five (45) minutes when the concrete is hauled in non-agitating trucks, nor ninety (90) minutes when hauled in truck mixers or truck agitators, except that in hot weather or under other conditions contributing to quick hardening of the concrete, the maximum allowable time may be reduced by the Engineer.

In exceptional cases and when volumetric measurements are authorized for small project requiring less than 75 cu.m. of concrete per day of pouring, the weight proportions shall be converted to equivalent volumetric proportions. In such cases, suitable allowance shall be made for variations in the moisture condition of the aggregates, including the bulking effect in the fine aggregate. Batching and mixing shall be in accordance with ASTM C 685, Section 6 through 9.

Concrete mixing by chute is allowed provided that a weighing scales for determining the batch weight will be used.

Retempering concrete by adding water or by other means shall not be permitted, except that when concrete is delivered in truck mixers, additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements, if permitted by the Engineer, provided all these operations are performed within forty-five (45) minutes after the initial mixing operation and the water-cement ratio is not exceeded. Concrete that is not within the specified slump limits at the time of placement shall not be used. Admixtures for increasing the workability or for accelerating the setting of the concrete will be permitted only when specifically approved by the Engineer.

311.3.8 Limitation of Mixing

No concrete shall be mixed, placed or finished when natural light is insufficient, unless an adequate and approved artificial lighting system is operated.
During hot weather, the Engineer shall require that steps be taken to prevent the temperature of mixed concrete from exceeding a maximum temperature of 90^0F (32^0C)
Concrete not in place within ninety (90) minutes from the time the ingredients were charged into the mixing drum or that has developed initial set shall not be used.

Retempering of concrete or mortar which has partially hardened, that is remixing with or without additional cement, aggregate, or water, shall not be permitted.

In order that the concrete may be properly protected against the effects of rain before the concrete is sufficiently hardened, the Contractor will be required to have available at all times materials for the protection of the edges and surface of the unhardened concrete.

311.3.9 Placing Concrete

Concrete shall be deposited in such a manner to require minimal rehandling. Unless truck mixers or non-agitating hauling equipment are equipped with means to discharge concrete without segregation of the materials, the concrete shall be unloaded into an approved spreading device and mechanically spread on the grade in such a manner as to prevent segregation. Placing shall be continuous between transverse joints without the use of intermediate bulkheads. Necessary hand spreading shall be done with shovels, not rakes. Workmen shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances.

When concrete is to be placed adjoining a previously constructed lane and mechanical equipment will be operated upon the existing lane, that previously constructed lane shall have attained the strength for fourteen (14) day concrete. If only finishing equipment is carried on the existing lane, paving in adjoining lanes may be permitted after three (3) days.

Concrete shall be thoroughly consolidated against and along the faces of all forms and along the full length and on both sides of all joint assemblies, by means of vibrators inserted in the concrete. Vibrators shall not be permitted to come in contact with a joint assembly, the grade, or a side form. In no case shall the vibrator be operated longer than fifteen (15) seconds in any one location.

Concrete shall be deposited as near as possible to the expansion and contraction joints without disturbing them, but shall not be dumped from the discharge bucket or hopper into a joint assembly unless the hopper is well centered on the joint assembly. Should any concrete material fall on or be worked into the surface of a complete slab, it shall be removed immediately.

311.3.10 Test Specimens

Test specimens, 150 mm x 150 mm x 525 mm or 900 mm shall be taken from each 330 m_2 of pavement, 230 mm depth, or fraction thereof placed each day. Test specimens shall be made under the supervision of the Engineer, and the Contractor shall provide all concrete and other facilities necessary in making the test specimens and shall protect them from damage by construction operations. Cylinder samples shall not be used as substitute for determining the adequacy of the strength of concrete.

The beams shall be made, cured, and tested in accordance with AASHTO T 23 and T 97.

311.3.11 Strike-off of Concrete and Placement of Reinforcement

Following the placing of the concrete, it shall be struck off to conform to the cross-section shown on the Plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement will be at the elevation shown on the Plans. When reinforced concrete pavement is placed in two (2) layers, the bottom layer shall be struck off and consolidated to such length and depth that the sheet of fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off and screeded. Any portion of the bottom layer of concrete which has been placed more then 30 minutes without being covered with the top layer shall be removed and replaced with freshly mixed concrete at

the Contractor"s expense. When reinforced concrete is placed in one layer, the reinforcement may be firmly positioned in advance of concrete placement or it may be placed at the depth shown on the Plans in plastic concrete, after spreading by mechanical or vibratory means.

1. Longitudinal Joint

Deformed steel tie bars of specified length, size, spacing and materials shall be placed perpendicular to the longitudinal joints, they shall be placed by approved mechanical equipment or rigidly secured by chair or other approved supports to prevent displacement. Tie bars shall not be painted or coated with asphalt or other materials or enclosed in tubes or sleeves. When shown on the Plans and when adjacent lanes of pavement are constructed separately, steel side forms shall be used which will form a keyway along the construction joint. Tie bars, except those made of rail steel, may be bent at right angles against the form of the first lane constructed and straightened into final position before the concrete

Reinforcing steel shall be free from dirt, oil, paint, grease, mill scale and loose or thick rust which could impair bond of the steel with the concrete. **311.3.12 Joints**

Joints shall be constructed of the type and dimensions, and at the locations required by the Plans or Special Provisions. All joints shall be protected from the intrusion of injurious foreign material until sealed. of the adjacent lane is placed, or in lieu of bent tie bars, approved two-piece connectors may be used.

Longitudinal formed joints shall consist of a groove or cleft, extending downward from and normal to, the surface of the pavement. These joints shall be effected or formed by an approved mechanically or manually operated device to the dimensions and line indicated on the Plans and while the concrete is in a plastic state. The groove or cleft shall be filled with either a premolded strip or poured material as required.

The longitudinal joints shall be continuous, there shall be no gaps in either transverse or longitudinal joints at the intersection of the joints.

Longitudinal sawed joints shall be cut by means of approved concrete saws to the depth, width and line shown on the Plans. Suitable guide lines or devices shall be used to assure cutting the longitudinal joint on the true line. The longitudinal joint shall be sawed before the end of the curing period or shortly thereafter and before any equipment or vehicles are allowed on the pavement. The sawed area shall be thoroughly cleaned and, if required, the joint shall immediately be filled with sealer.

Longitudinal pavement insert type joints shall be formed by placing a continuous strip of plastic materials which will not react adversely with the chemical constituent of the concrete.

2. Transverse Expansion Joint

The expansion joint filler shall be continuous from form to form, shaped to subgrade and to the keyway along the form. Preformed joint filler shall be furnished in lengths equal to the pavement width or equal to the width of one lane. Damaged or repaired joint filler shall not be used.

The expansion joint filler shall be held in a vertical position. An approved installing bar, or other device, shall be used if required to secure preformed expansion joint filler at the proper grade and alignment during placing and finishing of the concrete. Finished joint shall not deviate more than 6 mm from a straight line. If joint fillers are assembled in sections, there shall be no offsets between adjacent units. No plugs of concrete shall be permitted anywhere within the expansion space.

3. Transverse Contraction Joint/Weakened Joint

When shown on the Plans, it shall consist of planes of weakness created by forming or cutting grooves in the surface of the pavement and shall include load transfer assemblies. The depth of the weakened plane joint should at all times not be less than 50 mm, while the width should not be more than 6 mm.

Transverse Strip Contraction Joint. It shall be formed by installing a parting strip to be left in place as shown on the Plans.

b. Formed Groove. It shall be made by depressing an approved tool or device into the plastic concrete. The tool or device shall remain in place at least until the concrete has attained its initial set and shall then be removed without disturbing the adjacent concrete, unless the device is designed to remain in the joint.

c. Sawed Contraction Joint. It shall be created by sawing grooves in the surface of the pavement of the width not more than 6 mm, depth should at all times not be less than 50 mm, and at the spacing and lines shown on the Plans, with an approved concrete saw. After each joint is sawed, it shall be thoroughly cleaned including the adjacent concrete surface.

Sawing of the joint shall commence as soon as the concrete has hardened sufficiently to permit sawing without excessive ravelling, usually 4 to 24 hours. All joints shall be sawed before uncontrolled shrinkage cracking takes place. If necessary, the sawing operations shall be carried on during the day or night, regardless of weather conditions. The sawing of any joint shall be omitted if crack occurs at or near the joint location prior to the time of sawing. Sawing shall be discounted when a crack develops ahead of the saw. In general, all joints should be sawed in sequence. If extreme condition exist which make it impractical to prevent erratic cracking by early sawing, the contraction joint groove shall be formed prior to initial set of concrete as provided above.

4. Transverse Construction Joint

It shall be constructed when there is an interruption of more than 30 minutes in the concreting operations. No transverse joint shall be constructed within 1.50 m of an expansion joint, contraction joint, or plane of weakness. If sufficient concrete has been mixed at the time of interruption to form a slab of at least 1.5 m long, the excess concrete from the last preceding joint shall be removed and disposed off as directed.

5. Load Transfer Device

Dowel, when used, shall be held in position parallel to the surface and center line of the slab by a metal device that is left in the pavement.

The portion of each dowel painted with one coat of lead or tar, in conformance with the requirements of Item 404, Reinforcing Steel, shall be thoroughly coated with approved bituminous materials, e.g., MC-70, or an approved lubricant, to prevent the concrete from binding to that portion of the dowel. The sleeves for dowels shall be metal designed to cover 50 mm plus or minus 5 mm (1/4 inch), of the dowel, with a watertight closed end and with a suitable stop to hold the end of the sleeves at least 25 mm (1 inch) from the end of the dowel.

In lieu of using dowel assemblies at contraction joints, dowel may be placed in the full thickness of pavement by a mechanical device approved by the Engineer.

311.3.13 Final Strike-off (Consolidation and Finishing)

1. Sequence

The sequence of operations shall be the strike-off and consolidation, floating and removal of laitance, straight-edging and final surface finish. Work bridges or other devices necessary to provide access to the pavement surface for the purpose of finishing straight-edging, and make corrections as hereinafter specified, shall be provided by the Contractor. In general, the addition of water to the surface of the concrete to assist in finishing operations will not be permitted. If the application of water to the surface is permitted, it shall be applied as fog spray by means of an approved spray equipment.

2. Finishing Joints

The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material assembly, also under and around all load transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated as required in Subsection 311.3.9, Placing Concrete.

After the concrete has been placed and vibrated adjacent to the joints as required in Subsection 311.3.9, the finishing machine shall be brought forward, operating in a manner to avoid damage or misalignment of joints. If uninterrupted operation of the finishing machine, to over and beyond the joints causes segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the front screed is approximately 20 cm (8 inches) from the joint. Segregated concrete shall be removed from in front of and off the joint. The front screed shall be lifted and set directly on top of the joint and the forward motion of the finishing machine resumed. When the second screed is close enough to permit the excess mortar in front of it to flow over the joint, it shall be lifted and carried over the joint. Thereafter, the finishing machine may be run over the joint without lifting the screeds, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.

3. Machine Finishing

a. Non-vibratory Method. The concrete shall be distributed or spread as soon as placed. As soon as the concrete has been placed, it shall be struck off and screeded by an approved finishing machine. The machine shall go over each area of pavement as many times and at such intervals as necessary to give the proper compaction and leave a surface of uniform texture. Excessive operation over a given area shall be avoided. The tops of the forms shall be kept clean by an effective device attached to the machine and the travel of the machine on the forms shall be maintained true without wobbling or other variation tending to affect the precision finish.
During the first pass of the finishing machine, a uniform ridge of concrete shall be maintained ahead of the front screed in its entire length.
b. Vibratory Method. When vibration is specified, vibrators for full width vibration of concrete paving slabs, shall meet the requirements in Subsection 311.3.2, Equipment. If uniform and satisfactory density of the concrete is not obtained by the vibratory method at joints, along forms, at structures, and throughout the pavement, the Contractor will be required to furnish equipment and method which will produce pavement conforming to the Specifications. All provisions in item (a) above not in conflict with the provisions for the vibratory method shall govern.

4. Hand Finishing

Hand finishing methods may only be used under the following conditions:
a. In the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade.

b. In narrow widths or areas of irregular dimensions where operations of the mechanical equipment is impractical, hand methods may be used.

Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used. A second screed shall be provided for striking off the bottom layer of concrete if reinforcement is used.

The screed for the surface shall be at least 60 cm (2 feet) longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and constructed either of metal or other suitable material shod with metal.

Consolidation shall be attained by the use of suitable vibrator or other approved equipment.
In operation, the screed shall be moved forward on the forms with a combined longitudinal and transverse shearing motion, moving always in the direction in which the work is progressing and so manipulated that neither end is raised from the side forms during the striking off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross-section, and free from porous areas.

5. Floating

After the concrete has been struck off and consolidated, it shall be further smoothed, trued, and consolidated by means of a longitudinal float, either by hand or mechanical method.
a. Hand Method. The hand-operated longitudinal float shall be not less than 365 cm (12 feet) in length and 15 cm (6 inches) in width, properly stiffened to prevent flexibility and warping. The longitudinal float, operated from foot bridges resting on the side forms and spanning but not touching the concrete, shall be worked with a sawing motion while held in a floating position parallel to the road center line, and moving gradually from one side of the pavement to the other. Movement ahead along the center line of the pavement shall be in successive advances of

not more than one-half the length of the float. Any excess water or soupy material shall be wasted over the side forms on each pass.
b. Mechanical Method. The mechanical longitudinal float shall be of a design approved by the Engineer, and shall be in good working condition. The tracks from which the float operates shall be accurately adjusted to the required crown. The float shall be accurately adjusted and coordinated with the adjustment of the transverse finishing machine so that a small amount of mortar is carried ahead of the float at all times. The forward screed shall be adjusted so that the float will lap the distance specified by the Engineer on each transverse trip. The float shall pass over each areas of pavement at least two times, but excessive operation over a given area will not be permitted. Any excess water or soupy material shall be wasted over the side forms on each pass.

c. Alternative Mechanical Method. As an alternative, the Contractor may use a machine composed of a cutting and smoothing float or floats suspended from and guided by a rigid frame. The frame shall be carried by four or more visible wheels riding on, and constantly in contact with the side forms. If necessary, following one of the preceding method of floating, long handled floats having blades not less than 150 cm (5 feet)

in length and 15 cm (6 inches) in width may be used to smooth and fill in opentextured areas in the pavement. Long-handled floats shall not be used to float the entire surface of the pavement in lieu of, or supplementing, one of the preceding methods of floating. When strike off and consolidation are done by the hand method and the crown of the pavement will not permit the use of the longitudinal float, the surface shall be floated transversely by means of the long-handled float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance shall be removed from the surface of the pavement by a 3-m straight-edge or more in length. Successive drags shall be lapped one-half the length of the blade.

6. Straight-edge Testing and Surface Correction

After the floating has been completed and the excess water removed, but while the concrete is still plastic, the surface of the concrete shall be tested for trueness with a 300 cm long straight-edge. For this purpose, the Contractor shall furnish and use an accurate 300-cm straight-edge swung from handles 100 cm (3 feet) longer than one-half the width of the slab. The straight-edge shall be held in contact with the surface in successive positions parallel to the road center line and the whole area gone over from one side of the slab to the other as necessary. Advances along the road shall be in successive stages of not more than one-half the length of the straightedge. Any depressions found shall be immediately filled with freshly mixed concrete, struck off, consolidated and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the requirements for smoothness. Straight-edge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straight-edge and the slab conforms to the required grade and cross-section.

7. Final Finish

If the surface texture is broom finished, it shall applied when the water sheen has practically disappeared. The broom shall be drawn from the center to the edge of the pavement with adjacent strokes slightly overlapping. The brooming operation should be so executed that the corrugations produced in the surface shall be uniform in appearance and not more than 1.5 mm in depth. Brooming shall be completed before the concrete is in such condition that the surface will be unduly roughened by the operation. The surface thus finished shall be free from rough and porous areas, irregularities, and depressions resulting from improper handling of the broom. Brooms shall be of the quality size and construction and be operated so as to produce a surface finish meeting the approval of the Engineer. Subject to satisfactory results being obtained and approval of the Engineer, the Contractor will be permitted to substitute mechanical brooming in lieu of the manual brooming herein described.

If the surface texture is belt finished, when straight-edging is complete and water sheen has practically disappeared and just before the concrete becomes non-plastic, the surface shall be belted with 2ply canvass belt not less than 20 cm wide and at least 100 cm longer than the pavement width. Hand belts shall have suitable handles to permit controlled, uniform manipulation. The belt shall be operated with short strokes transverse to the center line and with a rapid advances parallel to the center line.

If the surface texture is drag finished, a drag shall be used which consists of a seamless strip of damp burlap or cotton fabric, which shall produce a uniform of gritty texture after dragging it longitudinally along the full width of pavement. For pavement 5 m or more in width, the drag shall be mounted on a bridge which travels on the forms. The dimensions of the drag shall be such that a strip of burlap or fabric at least 100 cm wide is in contact with the full width of pavement surface while the drag is used. The drag shall consist of

not less than 2 layers of burlap with the bottom layer approximately 15 cm wider than the layer. The drag shall be maintained in such condition that the resultant surface is of uniform appearance and reasonably free from grooves over 1.5 mm in depth. Drag shall be maintained clean and free from encrusted mortar. Drags that cannot be cleaned shall be discarded and new drags be substituted.
Regardless of the method used for final finish, the hardened surface of pavement shall have a coefficient of friction of 0.25 or more. Completed pavement that is found to have a coefficient of friction less than 0.25 shall be grounded or scored by the Contractor at his expense to provide the required coefficient of friction.
8. Edging at Forms and Joints
After the final finish, but before the concrete has taken its initial set, the edges of the pavement along each side of each slab, and on each side of transverse expansion joints, formed joints, transverse construction joints, and emergency construction joints, shall be worked with an approved tool and rounded to the radius required by the Plans. A well – defined and continuous radius shall be produced and a smooth, dense mortar finish obtained. The surface of the slab shall not be unduly disturbed by tilting the tool during the use.
At all joints, any tool marks appearing on the slab adjacent to the joints shall be eliminated by brooming the surface. In doing this, the rounding of the corner of the slab shall not be disturbed. All concrete on top of the joint filler shall be completely removed.
All joints shall be tested with a straight-edge before the concrete has set and correction made if one edge of the joint is higher than the other.

311.3.14 Surface Test

As soon as the concrete has hardened sufficiently, the pavement surface shall be tested with a 3-m straight-edge or other specified device. Areas showing high spots of more than 3 mm but not exceeding 12 mm in 3 m shall be marked and immediately ground down with an approved grinding tool to an elevation where the area or spot will not show surface deviations in excess of 3 mm when tested with 3 m straight-edge. Where the departure from correct cross-section exceeds 12 mm, the pavement shall be removed and replaced by and at the expense of the Contractor.
Any area or section so removed shall be not less than 1.5 m in length and not less than the full width of the lane involved. When it is necessary to remove and replace a section of pavement, any remaining portion of the slab adjacent to the joints that is less than 1.5 m in length, shall also be removed and replaced.

311.3.15 Curing

Immediately after the finishing operations have been completed and the concrete has sufficiently set, the entire surface of the newly placed concrete shall be cured in accordance with either one of the methods described herein. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or the lack of water to adequately take care of both curing and other requirements, shall be a cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than ½ hour between stages of curing or during the curing period.
In all congested places, concrete works should be designed so that the designed strength is attained.

1. Cotton of Burlap Mats

The surface of the pavement shall be entirely covered with mats. The mats used shall be of such length (or width) that as laid they will extend at least twice the thickness of the pavement beyond the edges of the slab. The mat shall be placed so that the entire surface

and the edges of the slab are completely covered. Prior to being placed, the mats shall be saturated thoroughly with water. The mat shall be so placed and weighted down so as to cause them to remain in intimate contact with the covered surface. The mat shall be maintained fully wetted and in position for 72 hours after the concrete has been placed unless otherwise specified.

2. Waterproof Paper

The top surface and sides of the pavement shall be entirely covered with waterproof paper, the units shall be lapped at least 45 cm. The paper shall be so placed and weighted down so as to cause it to remain in intimate contact with the surface covered. The paper shall have such dimension but each unit as laid will extend beyond the edges of the slab at least twice the thickness of the pavement, or at pavement width and 60 cm strips of paper for the edges. If laid longitudinally, paper not manufactured in sizes which will provide this width shall be securely sewed or cemented together, the joints being securely sealed in such a manner that they do not open up or separate during the curing period. Unless otherwise specified, the covering shall be maintained in place for 72 hours after the concrete has been placed. The surface of the pavement shall be thoroughly wetted prior to the placing of the paper.

3. Straw Curing

When this type of curing is used, the pavement shall be cured initially with burlap or cotton mats, until after final set of the concrete or, in any case, for 12 hours after placing the concrete. As soon as the mats are removed, the surface and sides of the pavement shall be thoroughly wetted and covered with at least 20 cm of straw or hay, thickness of which is to be measured after wetting. If the straw or hay covering becomes displaced during the curing period, it shall be replaced to the original depth and saturated. It shall be kept thoroughly saturated with water for 72 hours and thoroughly wetted down during the morning of the fourth day, and the cover shall remain in place until the concrete has attained the required strength.

4. Impervious Membrane Method

The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place, or if the pavement is cured initially with jute or cotton mats, it may be applied upon removal of the mass. The curing compound shall not be applied during rain.

Curing compound shall be applied under pressure at the rate 4 L to not more than 14 m_2 by mechanical sprayers. The spraying equipment shall be equipped with a wind guard. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application, the compound shall be stirred continuously by effective mechanical means. Hand spraying of odd widths or shapes and concrete surface exposed by the removal of forms will be permitted. Curing compound shall not be applied to the inside faces of joints to be sealed, but approved means shall be used to insure proper curing at least 72 hours and to prevent the intrusion of foreign material into the joint before sealing has been completed. The curing compound shall be of such character that the film will harden within 30 minutes after application. Should the film be damaged from any cause within the 72 hour curing period, the damaged portions shall be repaired immediately with additional compound.

5. White Polyethylene Sheet

The top surface and sides of the pavement shall be entirely covered with polyethylene sheeting. The units used shall be lappedat least 45 cm. The sheeting shall

be so placed and weighted down so as to cause it to remain intimate contact with the surface covered. The sheeting as prepared for use shall have such dimension that each unit as laid will extend beyond the edges of the slab at least twice the thickness of the pavement. Unless otherwise specified, the covering shall be maintained in place for 72 hours after the concrete has been placed.

311.3.16 Removal of Forms

After forms for concrete shall remain in place undisturbed for not less than twenty four (24) hours after concrete pouring. In the removal of forms, crowbars should be used in pulling out nails and pins. Care should be taken so as not to break the edges of the pavement. In case portions of the concrete are spalled, they shall be immediately repaired with fresh mortar mixed in the proportion of one part of Portland Cement and two parts fine aggregates. Major honeycomb areas will be considered as defective work and shall be removed and replaced at the expense of the Contractor. Any area or section so removed shall not be less than the distance between weakened plane joint nor less than the full width of the lane involved.

311.3.17 Sealing Joints

Joints shall be sealed with asphalt sealant soon after completion of the curing period and before the pavement is opened to traffic, including the Contractor"s equipment. Just prior to sealing, each joint shall be thoroughly cleaned of all foreign materials including membrane curing compound and the joint faces shall be clean and surface dry when the seal is applied.

The sealing material shall be applied to each joint opening to conform to the details shown on the Plans or as directed by the Engineer. Material for seal applied hot shall be stirred during heating so that localized overheating does not occur. The pouring shall be done in such a manner that the material will not be spilled on the exposed surfaces of the concrete. The use of sand or similar material as a cover for the seal will not be permitted.

Preformed elastomeric gaskets for sealing joints shall be of the crosssectional dimensions shown on the Plans. Seals shall be installed by suitable tools, without elongation and secured in placed with an approved lubricant adhesive which shall cover both sides of the concrete joints. The seals shall be installed in a compressive condition and shall at time of placement be below the level of the pavement surface by approximately 6 mm.

The seals shall be in one piece for the full width of each transverse joint.

311.3.18 Protection of Pavement

The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by his own employees and agents. This shall include watchmen to direct traffic and the erection of and maintenance of warning signs, lights, pavement bridges or cross-overs, etc. The Plans or Special Provisions will indicate the location and type of device or facility required to protect the work and provide adequately for traffic.

All boreholes after thickness and/or strength determinations of newly constructed asphalt and concrete pavements shall be immediately filled/restored with the prescribed concrete/asphalt mix after completion of the drilling works.

Any damage to the pavement, occurring prior to final acceptance, shall be repaired or the pavement be replaced.

For method of Measurement and Basis of Payment. Refer to Item 311 of DPWH Blue Book Volume 2.

III. MASONRY WORKS

A. MATERIALS

1. Concrete Hollow Blocks shall have a minimum face thickness of 1" (.025). Nominal size shall be 6" x 8" x 16" and 4" x 8" x 16" minimum compressive strength shall be as follows:

   Class A - 900 psi

   Class B - 750 psi

   All units shall be stored for a period of not less than 28 days (including curing period) and shall not be delivered to the job site prior to that time unless the strength equal or exceed those mentioned in these specifications.

2. Wall Reinforcement shall be No. 3 (3/8) or 10mm steel bars.

3. Sand shall be river sand, well screened, clean, hard, sharp, siliceous, free from loam, silt or other impurities, composed of grains or varying sizes within the following limits:

Sieve No.		Percent
9	Passing	100
16	Retained	5
100 97	Retained	

4. Cement shall be standard Portland cement, ASTM C - 150-68 type 1

5. Mortar - Mix Mortar from 3 to 5 minutes in such quantities as needed for immediate use. Retempering will not be permitted if mortar stiffens because of premature setting. Discard such materials as well as those which have not been used within one hour after mixing.

Proportioning: Cement mortar shall be one (1) part Portland cement and two (2) parts sand by volume but not more than one (1) part Portland cement and three (3) parts sand volume.

B. ERECTION

1. All masonry shall be laid plumb, true to line, with level and accurately spaced courses, and with each course breaking joint with the source below. Bond shall be kept plumb throughout; corners and reveals shall be plumb true. Units with greater than 12 percent absorption shall be wet before laying. Work required to be built in with masonry, including anchors, wall plugs and accessories, shall be built in as the erection progresses.

2. Masonry Units - each coarse shall be solidly bedded in Portland cement mortar. All units shall be damp when laid units shall be showed into place not laid, in a full bed of unfrowned mortar. All horizontal and vertical points shall be completely filled with mortar when and as laid. Each coarse shall be bonded at corners and intersections. No cell shall be left open in face surfaces. All cells shall filled up with mortar for exterior walls. Units terminating against beam or slab soffits shall be wedge tight with mortar. Do not lay cracked, broken or defaced block.

3. Lintels - shall be of concrete and shall be enforced as shown on the drawings. Lintels shall have a minimum depth of 0.20 (8") and shall extend at least 0.20 (8") on each side of opening.

C. WORKMANSHIP AND INSTALLATION

1. Plastering - Clean and evenly wet surfaces. Apply scratch coat with sufficient force to form good keys. Cross scratch coat upon attaining its initial set; keep damp. Apply brown coat after scratch coat has set at least 24 hours after scratch coat application. Lightly scratch brown coat; keep moist for 2 days. Just before applying coat, wet brown coat again. Float finish coat to true even surface; trowel in manner that will force sand particles down into plaster, with final troweling, leave surfaces barnished smooth, free from rough areas, trowel marks, checks, other blemishes. Keep finish coat moist for at least 2 days; thereafter protect against rapid drying until properly, thoroughly cured.

D. SCAFFOLDING

Provide all scaffolding required for masonry work, including cleaning down on completion and removal.

V. ARCHITECTURAL FINISHES SCHEDULE

A. Concrete Blocks / Pavers

1. Floor finishes are as follows:

    1. PPCP for the Formation ground and Parking Area. (Refer to Item 311. Portland Cement Concrete Pavement of DPWH Blue Book Vol.2)
    2. Concrete Brick/Concrete Pavers for the access at Battalion and Quarterdeck. (Refer to Item 704. Concrete Bricks of DPWH Blue Book Vol.2)

IV. PLUMBING WORKS

A. GENERAL

1. All work shall be done under the direct supervision of a licensed plumber and in strict accordance with these specifications and of the methods as prescribed by the National Plumbing Code of the Philippines.

Manholes/Catch Basin/Inlet - This item shall consist of the construction, reconstruction or adjustment of manholes, inlets and catch basins in accordance with this Specification and in reasonably close conformity with the lines and grades shown on the Plans or as established by the Engineer.

B. MATERIALS

1. PVC Series 1000 150mm ∅ for sewer and cement drainage pipes T and G ASTM C - 14 and ASTM - 75 respectively.

2. Concrete for these structures shall meet the requirements of Item 405, Structural Concrete. Other materials shall meet the following specifications:
Corrugated Metal Units – The units shall conform to Plan dimensions and the metal to AASHTO M 36. Bituminous coating, when specified, shall conform to ASTM D 1187, Asphalt-base Emulsion for use as Protective Coating for Metal.
Sewer and manhole brick
(Made from clay or shale) AASHTO M 91
Building brick (Solid masonry units made from clay or shale) AASHTO M 114
Joint Mortar- Unless otherwise indicated on the Plans, joints mortar shall be composed of one part Portland Cement and two parts fine aggregate by volume to which hydrated lime has been added in an amount equal to 10 percent of the cement by weight. All materials for mortar shall meet the requirements of Item 405, Structural Concrete.

Frames, Gratings, Covers and Ladder Rungs – Metal units shall conform to the plan dimensions and to the following specification requirements for the designated materials.

Metal gratings and covers which are to rest on frames shall bear on them evenly. They shall be assembled before shipment and so marked that the same pieces may be reassembled readily in the same position when installed. Inaccuracy of bearings shall be corrected by machining, if necessary. A frame and a grating or cover to be used with it shall constitute one pair.

All castings shall be uniformly coated with asphalt-based emulsion meeting the requirements of ASTM D 1187, Asphalt-base Emulsion for use as Protective Coating for Metal.
Samples of the material in casting shall be taken during the casting of the units and shall be separate casting poured from the same material as the casting they represent.
Gray iron casting AASHTO M 105
Mild to medium-strength carbon steel castings

for general application AASHTO M 103

Structural steel AASHTO M 183
Galvanizing, where specified for these units,
shall conform to the requirements of AASHTO M 111
Reinforcing Steel AASHTO M 31

Pre-cast Concrete Units – These units shall be cast in substantial permanent steel forms. Structural concrete used shall attain a minimum 28-day compressive strength of 20.682 MPa (3000 psi). The pre-cast units shall be cured in accordance with AASHTO M 171. Water absorption of individual cores taken from such units shall not exceed 7 percent. Additional reinforcement shall be provided as necessary to provide for handling of the pre-cast units.

A sufficient number of cylinders shall be cast from the concrete for each unit permit compression tests at 7, 14 and 28 days, and to allow for at least 3 cylinders for each test. If the strength requirement is met at 7 or 14 days, the units shall be certified for use 14 days from the date of casting. If the strength is not met at 28 days, all units made from that batch or load will be rejected.

Cracks in units, honeycombed or patched areas in excess of 2,000 square millimeters, excessive water absorption and failure to meet strength requirements shall be the causes for rejection. Pre-cast reinforced concrete manhole risers and tops shall conform to the requirements of AASHTO M 199.

The plants will be inspected periodically for compliance with specified manufacturing methods, and material samples will be obtained for laboratory testing for compliance with material quality requirements. This may be the basis for acceptance of manufacturing lots as the quality.

All materials shall be subjected to inspection for acceptance as to condition at the latest practicable time the Engineer has the opportunity to check for compliance prior to or during incorporation of materials into the work.

V. PAINTING WORK

In reference to Item 709.Paints of DPWH Blue Book.Volume 2

ITEM 709 – PAINTS
709.1 Description

This Item covers all paint materials including Vehicles, Pigment, Pastes, Driers, Thinners and Mixed Paints for steel and wooden structures.

709.2 Material Requirements
709.2.1 General

Paint, except, aluminum paint, shall consist of pigments of the required fineness and composition ground to the desired consistency in linseed oil in a suitable grinding machine, to which shall be added additional oil, thinner and drier as required.
Aluminum paint shall consist of aluminum bronze powder or paste of the required fineness and composition to which shall be added the specified amount of vehicle.
The paint shall be furnished for use in ready mixed, paste or powder form.
All paint shall meet the following general requirements:
a. The paint shall show no excessive settling and shall easily be redispersed with a paddle to a smooth, homogenous state. The paint shall show no curdling, livering, caking or color separation and shall be free from lumps and skins.
b. The paint as received shall brush easily, possess good levelling properties and shall show no running or sagging when applied to a smooth vertical surfaces.
c. The paint shall dry to a smooth uniform finish free from roughness grit, uneveness and other imperfections.
d. The paint shall not skin within 48 hours in three quarters filled closed container.
e. The paint shall show no thickening, curdling, gelling or hard caking after six (6) months storage in full, tightly covered container at a temperature of 210C (700F).

709.2.2 The paint shall conform to the requirements of the indicated specifications as follows:
Red Lead Ready-Mixed Paint AASHTO M 72
Type I, II, III and IV
Aluminum Paint AASHTO M 69 Type I and II
White & Tinted Ready-Mixed Paint AASHTO M 70 Foliage Green Bridge Paint AASHTO M 67
Black Paint for Bridges and Timber
Structures AASHTO M 68
Basic Lead Silicon Chromate, Ready-
Mixed Primer AASHTO M 229
709.2.3 The constituents parts of the paint shall meet the following specifications:
Red Lead (97% Pb_3O_4) ASTM D 83

Iron Oxide (85% Fe_2O_3) ASTM D 84

Aluminum Powder and Paste ASTM D 962 Magnesium Silicate ASTM D 605 Mica Pigment ASTM D 607 Titanium Dioxide ASTM D 476 Chrome Yellow ASTM D 211
Calcium Carbonate ASTM D 1199
Basic Lead-Silicon Chromate ASTM D 1638
Basic Carbonate White Lead ASTM D 81
Zinc Oxide ASTM D 79
Chrome Oxide Green ASTM D 263 Carbon Black ASTM D 561 Lampblack ASTM D 209 Prussian Blue ASTM D 261 Boiled Linseed Oil ASTM D 260 Raw Linseed Oil ASTM D 234
Pale Heat Bodied Linseed Oil Fed Spec. TT-0-367
Alkyd Resin Fed. Spec. TT-R-266
Mineral Spirit ASTM D 235
Driers ASTM D 600
Turpentine ASTM D 13

709.2.4 Drier

These specifications cover both straight oil drier (material free from resins and "gums"), and Japan drier (material containing varnish "gums"). The drier shall be composed of lead manganese, or cobalt, or a mixture of any of these elements, combined with a suitable fatty oil, with or without resins of "gums" and mineral spirits of turpentine, or a mixture of these solvents. The drier shall conform to the following requirements:
a. **Appearance** – Free from sediment and suspended matter.
b. **Flash Point** – (Tag close cup) not less than 300C (860F).
c. **Elasticity** – The drier when flowed on metal and baked for 2 hours at 1000C (2120F) shall have an elastic film.
d. **Drying** – It shall mix with pure raw linseed oil in the proportion of 1 volume of drier to 19 volumes of oil without curdling, and the resulting mixture when flowed on glass shall dry in not more than 18 hours.

d. **Color** – When mixed with pure, raw linseed oil in the proportion of 1 volume of drier to 8 volumes of oil, the resulting mixture shall be darker than a solution of 6 g of potassium dichromate in 13 cc of pure sulfuric acid (sp. gr. 1.84).

709.3 Proportion for Mixing

It is the intent of these Specifications to provide a paint of proper brushing consistency, which will not run, streak or sag and which will have satisfactory drying qualities.

709.3.1 Aluminum Paint, Field Coats on Structural Steel

The paint shall be mixed in the proportion of 0.242 kg of aluminum powder of paste per litre of vehicle of long oil spar varnish (2 lb/gal) producing a paint containing 21 mass percent pigment and 79 percent vehicle. The weighed amount of powder or paste shall be placed in a suitable mixing container and the measured volume of vehicle then poured over it. The paste or powder shall be incorporated in the paint by vigorous stirring with a paddle. The powder or paste will readily disperse in the vehicle. Before removing any paint from the container, the paint shall be thoroughly stirred to insure a uniform mixture and the paint shall be suitably stirred during the use. The amount of paint enough for one day"s use only shall be mixed at one time.

When two field coats of aluminum paint are specified, the first coat shall be tinted with lampblack paste or Prussian blue paste in the quantity of 0.024 kg/L or more (1/5 lb/gal) of paints. The exact quantity used shall be sufficient to give a contrast in color which can be readily distinguished. When three field coats of aluminum paint are specified the second coat shall be tinted.

709.3.2 Aluminum Paint, Field Coats on Creosoted Timber

This paint shall be mixed as specified for Aluminum Paint for Structural Steel except that the proportions shall be 0.272 kg of aluminum powder or paste per litre of vehicle (2-1/2 lb/gal).
Other paint composition may be used when and as stipulated in the Special Provisions.

709.4 Containers and Markings

All paints shall be shipped in strong, substantial containers plainly marked with mass, color and volume in litres of the paint content, a true statement of the percentage composition of the pigment, the proportions of the pigment to vehicle, the name and address of the manufacturers and the stencil of the authorized inspecting agency. Any package or container not so marked will not be accepted for use under this Specification.

VI. STRUCTURAL METAL-STEEL PIPE

Use GI Pipe 4” Schedule 40 for Bollards, epoxy primed and painted finish and Stainless-Steel Pipe 2” – SS 304 for the PWD Railings.

Section VII. Drawings

Republic of the Philippines

Philippine Merchant Marine Academy

San Narciso, Zambales

Project Title:

CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS

Prepared by:	Reviewed by:	Recommending Approval:	Approved by:
ENGR. LESTER PAOLO S. APINO	C/E EDMUND J. SALMON	CDR VICTORIA O PARAGGUA PMMA	COMMO JUEL Y ABUTAL PMMA
TECHNICAL INSPECTOR - PROJECT ENGR	PROJECT INSPECTOR	ASST. SUPT FOR ADMIN & FINANCE	SUPERINTENDENT

1 / A-1 PERSPECTIVE
Scale NTS

TABLE OF CONTENTS

ARCHITECTURAL SHEETS

A-1 PERSPECTIVE
SITE DEVELOPMENT PLAN
VICINITY MAP

A-2 SITE PLAN

A-3 SECTION / ELEVATIONS

STRUCTURAL SHEETS

S-1 CONCRETE STRUCTURE PLAN

S-2 STRUCTURAL DETAIL
CONCRETE PLINTH
STAIR
MASONRY WALL FOOTING

PLUMBING SHEETS

P-1 DRAINAGE PLAN
DETAIL OF CATCH BASIN

REPUBLIC OF THE PHILIPPINES
Department of Public Works and Highways

OFFICE OF THE BUILDING OFFICIAL

City / District / Municipality

LAND USE AND ZONING

LINE AND GRADE

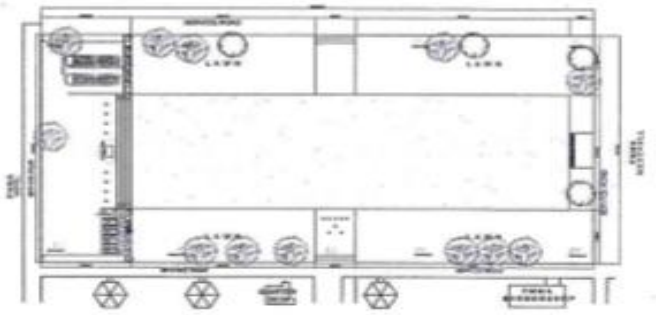
ARCHITECTURAL

STRUCTURAL

SANITARY

ELECTRICAL

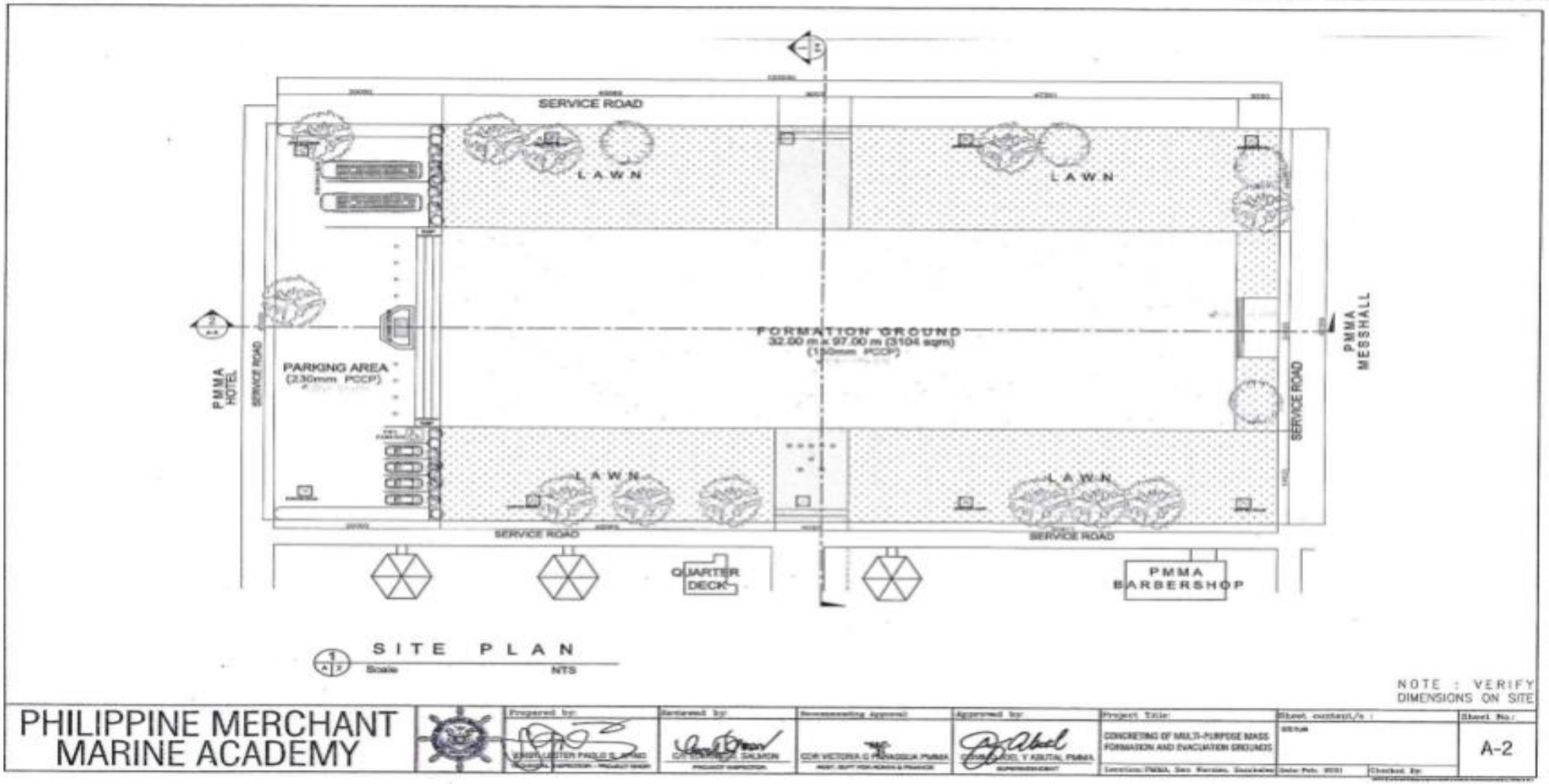
3 / A-1 VICINITY MAP
Scale NTS

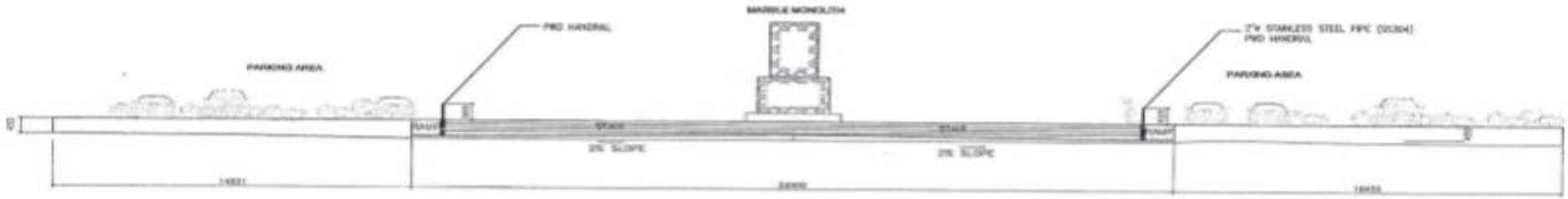


2 / A-1 SITE DEVELOPMENT PLAN
Scale NTS

PHILIPPINE MERCHANT MARINE ACADEMY

Prepared by:	Reviewed by:	Recommending Approval:	Approved by:	Project Title:	Sheet content/s :	Sheet No.:
ENGR. [illegible] PAOLO G. ARANO	GIS ESTANISLAO PALMON	CDR VICTORIA Q. ARAGGUA PMMA	COMMODORE Y ABUTAL PMMA	CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS	PERSPECTIVE VICINITY MAP SITE DEVELOPMENT PLAN	A-1
				Location: PMMA, Sta. Mesa Heights, Sinaloa	Date: Feb. 2021 Checked By:	


SERVICE ROAD
L A W N
L A W N
FORMATION GROUND
32.00 m x 97.00 m (3104 sqm)
(150mm PCCP)
PARKING AREA
(230mm PCCP)
PMMA HOTEL
SERVICE ROAD
PMMA MESSHALL
SERVICE ROAD
L A W N
L A W N
SERVICE ROAD
SERVICE ROAD
QUARTER DECK
PMMA BARBERSHOP
SITE PLAN
Scale NTS
NOTE : VERIFY DIMENSIONS ON SITE
PHILIPPINE MERCHANT MARINE ACADEMY
Prepared by:
Reviewed by:
Recommending Approval:
Approved by:
Project Title:
CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS
Sheet number/s :
Sheet No.:
A-2
Checked By:



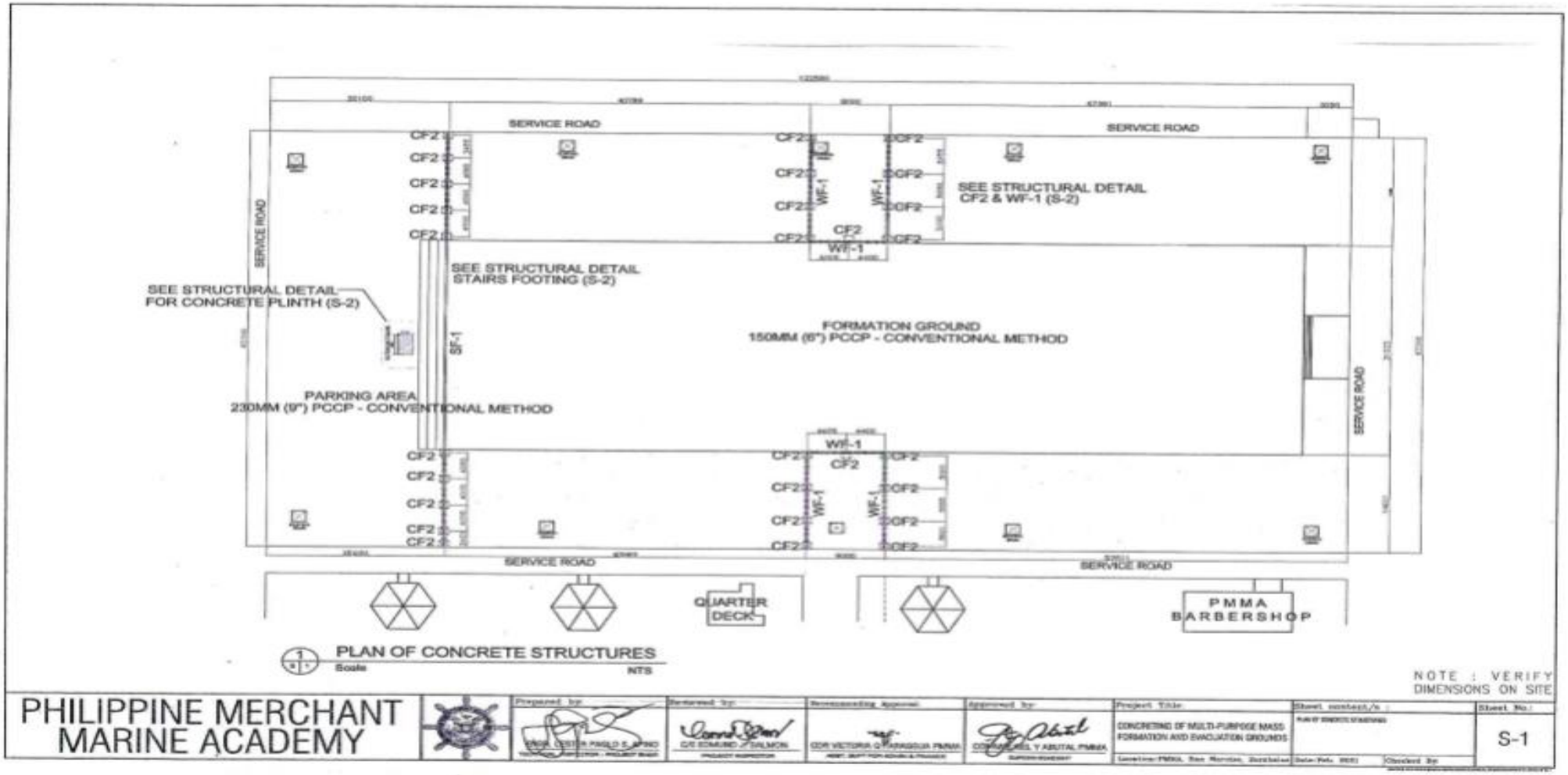
TRANSVERSE SECTION
Scale 1:100 M

LONGITUDINAL SECTION / ELEVATION
Scale 1:100 M

NOTE : VERIFY DIMENSIONS ON SITE

PHILIPPINE MERCHANT MARINE ACADEMY

Prepared by:	Reviewed by:	Recommending Approval:	Approved by:	Project Title:	Sheet content/s :	Sheet No.:
				CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS		A-3


SERVICE ROAD
SERVICE ROAD
SERVICE ROAD
SERVICE ROAD
SERVICE ROAD
SERVICE ROAD
SEE STRUCTURAL DETAIL
CF2 & WF-1 (S-2)
SEE STRUCTURAL DETAIL
STAIRS FOOTING (S-2)
SEE STRUCTURAL DETAIL
FOR CONCRETE PLINTH (S-2)
FORMATION GROUND
150MM (6") PCCP - CONVENTIONAL METHOD
PARKING AREA
230MM (9") PCCP - CONVENTIONAL METHOD
SF-1
CF2
WF-1
QUARTER DECK
PMMA BARBERSHOP
PLAN OF CONCRETE STRUCTURES
Scale NTS
NOTE : VERIFY DIMENSIONS ON SITE
PHILIPPINE MERCHANT MARINE ACADEMY
Prepared by:
Reviewed by:
Recommending Approval:
Approved by:
Project Title:
CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS
Sheet No.:
S-1
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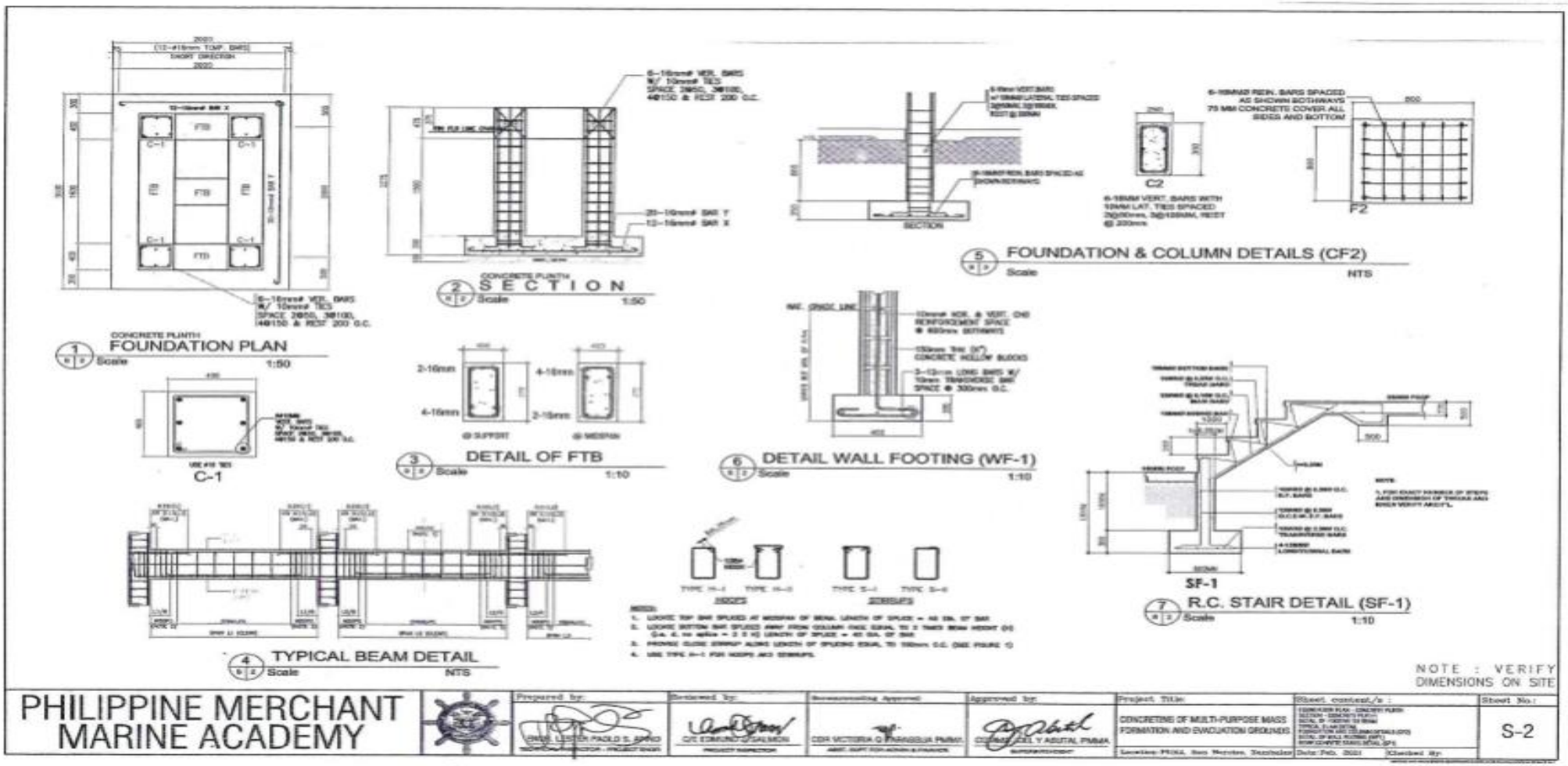
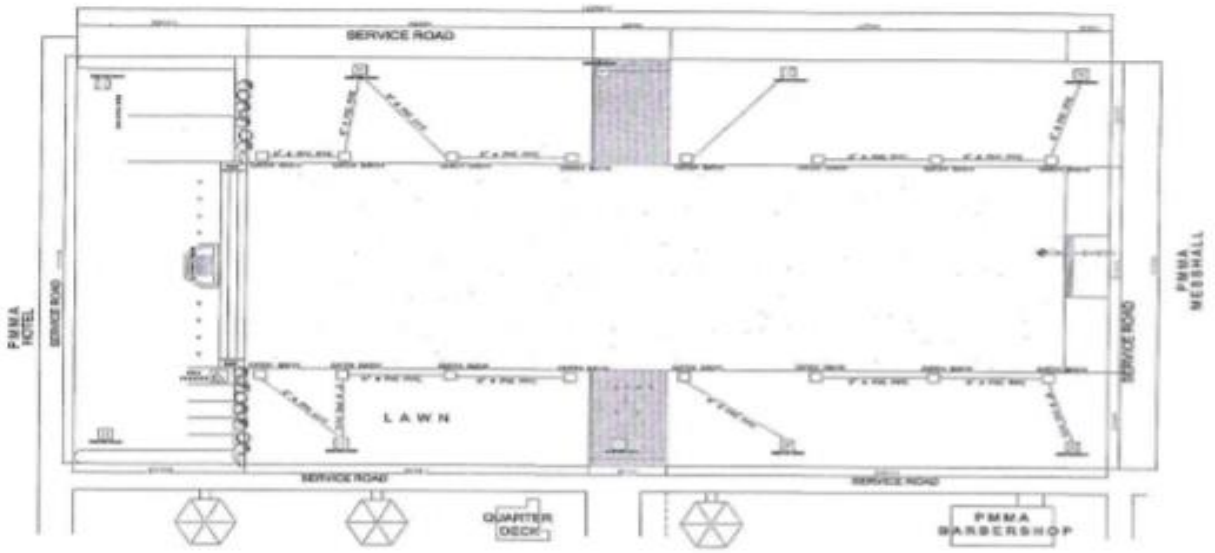
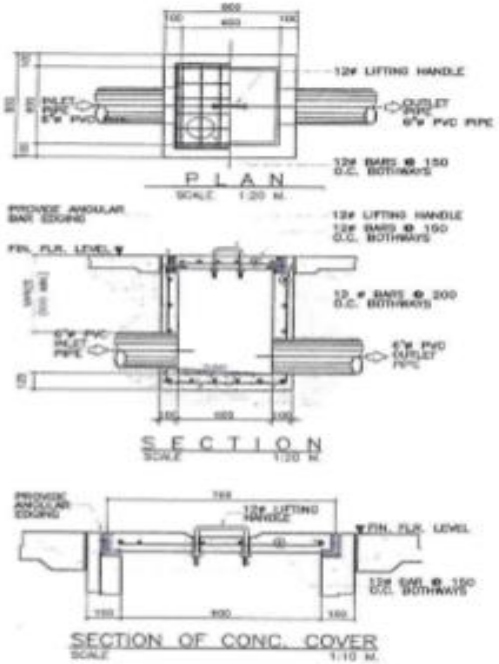

FOUNDATION PLAN
Scale 1:50
SECTION
Scale 1:50
FOUNDATION & COLUMN DETAILS (CF2)
Scale NTS
C-1
DETAIL OF FTB
Scale 1:10
DETAIL WALL FOOTING (WF-1)
Scale 1:10
SF-1
R.C. STAIR DETAIL (SF-1)
Scale 1:10
TYPICAL BEAM DETAIL
Scale NTS
NOTE : VERIFY DIMENSIONS ON SITE
PHILIPPINE MERCHANT MARINE ACADEMY
Prepared by:
Reviewed by:
Approved by:
Project Title:
CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS
Sheet No.:
S-2



1 DRAINAGE PLAN
Scale NTS



2 DETAIL OF CATCH BASIN
Scale NTS

NOTE : VERIFY DIMENSIONS ON SITE

PHILIPPINE MERCHANT MARINE ACADEMY

Prepared by:	Reviewed by:	Recommending Approval	Approved by:	Project Title:	Sheet content/s :	Sheet No.:
	CAPT. EDMUND C. SALMON			CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUND		P-1

Section VIII. Bill of Quantities

Republic of the Philippines
Philippine Merchant Marine Academy
San Narciso, Zambales

Name of Project:	**PROPOSED CONCRETING OF MULTI-PURPOSE MASS FORMATION AND EVACUATION GROUNDS**	Date:	February 21, 2020
		Road/Embank. Width:	.
		Pavement Width:	
		Bridge/Other Structures:	
Location:	PMMA Complex, San Narciso, Zambales	Type of Structures:	PCCP
Appropriation:		Type of Superstructure:	
Source of Fund:	101	No. of /Span/Storey:	
Classification:		No. of Pier/No. of Abutts:	
Limits:		Starting Time:	Upon Approval
Floor Area:	**4,370.00** sq.mts	No. of Days to Complete:	120 cal.days

Description of Work To Be Done	% of Total	EQUIPMENT		
		Description	Needed	Available
Project Billboard / Signboard	0.16%	Bulldozer	*1*	
Const. Safety and Health Program	0.91%	Payloader	*1*	
Mobilization/Demobilization	2.60%	Dumptruck	*1*	
Embankment	5.24%	Road Grader	*1*	
Structure Excavation	0.83%	Vibratory Roller	*1*	
Sub-grade Preparation	1.65%	Water Truck	*1*	
Aggregate Base Course	8.48%	Transit Mixer	*2*	
Portland Cement Concrete Pavement, 150 mm	34.23%	Bar Cutter	*1*	
Portland Cement Concrete Pavement, 230 mm	16.95%	Bar Bender	*1*	
Reinforcing Steel	3.06%	Concrete Vibrator	*1*	
Concrete Structures	5.68%	Concrete Screeder	*1*	
Formworks	1.86%	Concrete Cutter/Saw	*1*	
Manhole/Catch Basin/ Inlet	3.31%	TruckMounted Crane,25T	*1*	
Concrete Covers	0.43%	Plate Compactor	*1*	
Pavement Marking (Premix Reflectorized)(White)	0.13%			
Concrete Bricks	8.53%			
Concrete Masonry Blocks	4.34%			
Paints	0.45%			
Structural metal - Steel Pipe	1.16%			
TOTAL	100.00%			

Spec's Item No.	Description	Unit	Quantity	Estimated Cost of Project	
				Unit Cost	*Total Cost*
B.5	Project Billboard / Signboard	ea.	1.00		
B.7	Const. Safety and Health Program	l.s.	1.00		
B.9	Mobilization/Demobilization	l.s.	1.00		
104	Embankment	cu.m.	664.65		
102	Structure Excavation	cu.m.	346.52		
105	Sub-grade Preparation	sq.m.	4,370.00		
201	Aggregate Base Course	cu.m.	796.40		
311(1)a.1	Portland Cement Concrete Pavement, 150 mm	sq.m.	3,104.00		
311(1)a.3	Portland Cement Concrete Pavement, 230 mm	sq.m.	1,076.10		
404	Reinforcing Steel	kgs	3,503.85		
407	Concrete Structures	cu.m.	84.12		
407(3)13	Formworks	l.s.	1.00		
502	Manhole/Catch Basin/ Inlet	ea.	16.00		
502(4)	Concrete Covers	ea.	16.00		
606	Pavement Marking (Premix Reflectorized)(White)	sq.m.	10.65		
704.2	Concrete Bricks	sq.m.	276.76		
704.3	Concrete Masonry Blocks	sq.m.	222.10		
709	Paints	sq.m.	38.76		
712.6	Structural metal - Steel Pipe	l.s.	1.00		

TOTAL BID AMOUNT _____

Prepared by:

_____

Section IX. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);
or

☐ (b) 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;
and

☐ (c) 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;
and

☐ (e) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

☐ (f) 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; **and**

☐ (g) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules; **and**

☐ (h) Philippine Contractors Accreditation Board (PCAB) License;
or
Special PCAB License in case of Joint Ventures;
and registration for the type and cost of the contract to be bid; **and**

☐ (i) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;
or
Original copy of Notarized Bid Securing Declaration; **and**

(j) Project Requirements, which shall include the following:

☐ a. Organizational chart for the contract to be bid;

☐ 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;

☐ 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; **and**

☐ (k) Original duly signed Omnibus Sworn Statement (OSS);

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

☐ (l) 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; **and**

☐ (m) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

Class "B" Documents

☐ (n) 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;

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

☐ (o) Original of duly signed and accomplished Financial Bid Form; **and**

Other documentary requirements under RA No. 9184

☐ (p) Original of duly signed Bid Prices in the Bill of Quantities; **and**

☐ (q) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; **and**

☐ (r) Cash Flow by Quarter.

Section IX. Bidding Documents

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 Name of Supplier]*
[Insert Procuring Entity]	

Acknowledgment

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

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

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. *[Select one, delete the other:]*

   [If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

   [If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

   [If a sole proprietorship:] 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 [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

   [If a partnership, corporation, cooperative, or joint venture:] 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 [Name of the Procuring Entity], 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. *[Select one, delete the rest:]*

   [If a sole proprietorship:] 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;

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

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

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

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

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

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

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

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

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

[Jurat]

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

Bid Securing Declaration Form

[shall be submitted with the Bid if bidder opts to provide this form of bid security]

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]

Bid Form for the Procurement of Infrastructure Projects

[shall be submitted with the Bid]

BID FORM

Date : _____

Project Identification No. : _____

To: [name and address of Procuring Entity]

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

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

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

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

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

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

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

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

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;

---

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

i. We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and

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

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

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: _____

STATEMENT OF SINGLE LARGEST COMPLETED CONTRACT SIMILAR TO THE CONTRACT TO BE BID

This is to certify that_____(company)_____has the following completed contracts for the past Ten (10) years.

	Date of the Contract	Contracting Party	Name of Contract	Nature of Work	Amount of Contract	Date of Delivery/ End-user's Acceptance	Date of Official Receipt	

_____ _____

Name and Signature of Authorized Representative | Date

*Instructions:

a) Cut-off date as of:
   (i) **Up to the day before the deadline of** submission of bids.

b) In the column under "Dates", indicate the dates of Delivery/ End-user's Acceptance and Official Receipt.

c) **"Name of Contract". Indicate here the Nature/ Scope of the Contract for the Procuring Entity to determine the relevance of the entry with the Procurement at hand.** *Example: "Supply and Delivery of Generator Set"*

Note:

Please attached the following supporting documents:

a. *End-user/s Letter of Acceptance*
b. *Notice to Proceed*
c. *Letter of Award*
d. *Contract/Purchase Order*
e. *Delivery Receipt/Sales Invoice*

STATEMENT OF ONGOING GOVERNMENT& PRIVATE CONTRACTS INCLUDING CONTRACTS AWARDED BUT NOT YET STARTED

Business Name: _____
Business Address: _____

Date of the Contract	**Contracting Party**	**Name of Contract**	**Nature of Work**	**Amount of Contract**	a. Date Awarded b. Date Started c. Date of Completion	% of Accomplishment	**Value of Outstanding Works/Uncompleted Portion**
GOVERNMENT							
PRIVATE							

_____ _____
Name and Signature of Authorized Representative Total Cost

*Instructions:

a) State all ongoing contracts including those awarded but not yet started (government and private contracts which may be similar or not similar to the project called for bidding) as of:
   i. **The day before the deadline of** submission of bids.
b) If there is no ongoing contract including awarded but not yet started as of the aforementioned period, state none or equivalent term.
c) The total amount of the ongoing and awarded but not yet started contracts should be consistent with those used in the Net Financial Contracting Capacity (NFCC) in case an NFCC is submitted as an eligibility document.
d) **"Name of Contract". Indicate here the Nature/ Scope of the Contract for easier tracking of the entries/ representations**

Note: Please attached the following supporting documents:
a. Notice to Proceed
b. Letter of Award
c. Contract

FINANCIAL DOCUMENTS FOR ELIGIBILITY CHECK

Summary of the Applicant Supplier's/Distributor's/Manufacturer's assets and liabilities on the basis of the attached income tax return and audited financial statement, stamped "RECEIVED" by the Bureau of Internal Revenue or BIR authorized collecting agent, for the immediately preceding year and a certified copy of Schedule of Fixed Assets particularly the list of construction equipment.

		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)	

The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows: NFCC = [(Current assets minus current liabilities) (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 to be bid.

NFCC = P _____

Or

Commitment from a licensed bank to extend to it a credit line if awarded the contract or a cash deposit certificate in the amount of at least 10% of the proposed project to bid.
Name of Bank: _____Amount: _____

Herewith attached are certified true copies of the income tax return and audited financial statement: stamped "RECEIVED" by the BIR or BIR authorized collecting agent for the immediately preceding year and the cash deposit certificate or certificate of commitment from a licensed bank to extend a credit line.

Submitted by:

_____

Name of Supplier/Distributor/Manufacturer

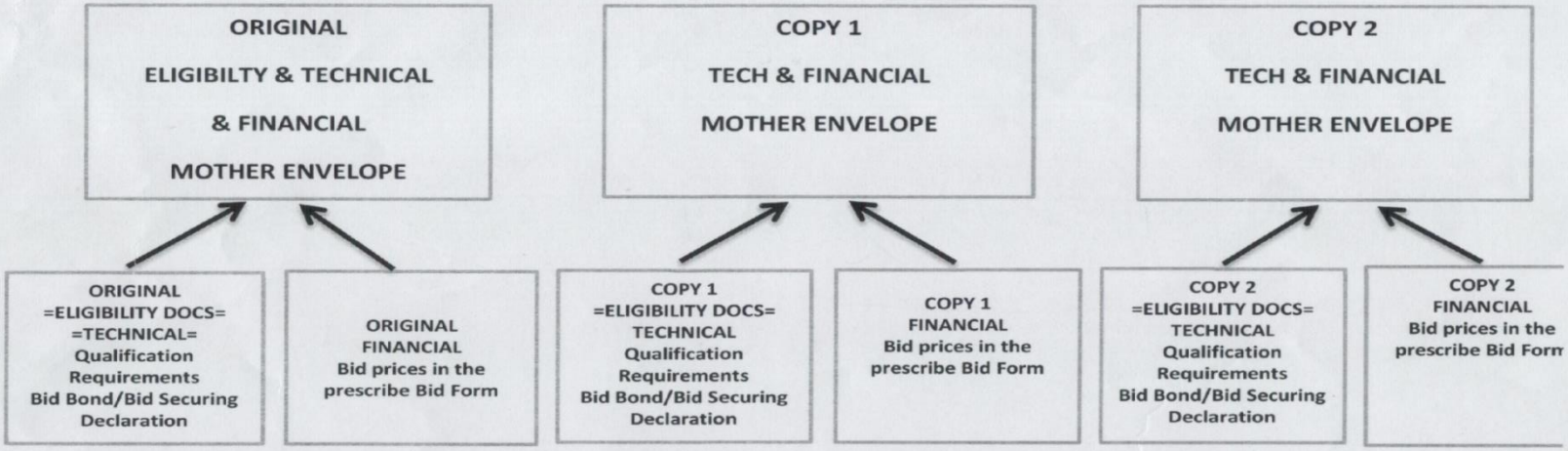
_____

Signature of Authorized Representative
Date: _____

NOTE:

If Partnership or Joint Venture, each Partner or Member Firm of Joint venture shall submit the above requirements.

SAMPLE ENVELOPE TECHNICAL & FINANCIAL



Note: All envelope must be sealed and signed.