

**PHILIPPINE BIDDING DOCUMENTS**

***Construction of Single  
Barrel Box Culvert at  
Batini Creek***

**PID NO. 2022 - 078**

Government of the Republic of the Philippines

**Sixth Edition  
July 2020**

# TABLE OF CONTENTS

<b>Glossary of Terms, Abbreviations, and Acronyms .....</b>	<b>4</b>
<b>Section I. Invitation to Bid.....</b>	<b>7</b>
<b>Section II. Instructions to Bidders .....</b>	<b>10</b>
1. Scope of Bid.....	11
2. Funding Information .....	11
3. Bidding Requirements.....	11
4. Corrupt, Fraudulent, Collusive, Coercive, and Obstructive Practices .....	11
5. Eligible Bidders.....	12
6. Origin of Associated Goods .....	12
7. Subcontracts .....	12
8. Pre-Bid Conference.....	12
9. Clarification and Amendment of Bidding Documents.....	12
10. Documents Comprising the Bid: Eligibility and Technical Components ...	13
11. Documents Comprising the Bid: Financial Component .....	13
12. Alternative Bids .....	14
13. Bid Prices .....	14
14. Bid and Payment Currencies.....	14
15. Bid Security.....	14
16. Sealing and Marking of Bids.....	14
17. Deadline for Submission of Bids .....	15
18. Opening and Preliminary Examination of Bids .....	15
19. Detailed Evaluation and Comparison of Bids.....	15
20. Post Qualification.....	15
21. Signing of the Contract .....	15
<b>Section III. Bid Data Sheet .....</b>	<b>17</b>
<b>Section IV. General Conditions of Contract.....</b>	<b>19</b>
1. Scope of Contract.....	20
2. Sectional Completion of Works .....	20
3. Possession of Site .....	20
4. The Contractor's Obligations.....	20
5. Performance Security .....	21
6. Site Investigation Reports .....	21

7.	Warranty.....	21
8.	Liability of the Contractor.....	21
9.	Termination for Other Causes.....	21
10.	Dayworks .....	21
11.	Program of Work.....	22
12.	Instructions, Inspections and Audits .....	22
13.	Advance Payment.....	22
14.	Progress Payments .....	22
15.	Operating and Maintenance Manuals.....	22
	<b>Section V. Special Conditions of Contract.....</b>	<b>24</b>
	<b>Section VI. Specifications .....</b>	<b>26</b>
	<b>Section VII. Drawings.....</b>	<b>67</b>
	<b>Section VIII. Bill of Quantities .....</b>	<b>74</b>
	<b>Section IX. Checklist of Technical and Financial Documents .....</b>	<b>75</b>

# *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  
Province of Davao de Oro  
**MUNICIPALITY OF COMPOSTELA**  
**BIDS AND AWARDS COMMITTEE**  
CP#: 0909-279-9827



## **Invitation to Bid for Construction of Single Barrel Box Culvert at Batini Creek**

1. The *Municipality of Compostela*, through the *General Fund* intends to apply the sum of *One Million Five Hundred Thousand Pesos Only (P1,500,000.00)* being the Approved Budget for the Contract (ABC) to payments under the contract for *Construction of Single Barrel Box Culvert at Batini Creek with Project Identification No. 2022-078*. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The Municipality of Compostela now invites bids for the above Procurement Project. Completion of the Works is required *90 calendar days*. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).
3. Bidding will be conducted through open competitive bidding procedures using non-discretionary "*pass/fail*" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.
4. Interested bidders may obtain further information from Municipality of Compostela and inspect the Bidding Documents at the address given below from *8:00 a.m. to 5:00 p.m.*
5. A complete set of Bidding Documents may be acquired by interested bidders on **July 18, 2022 to August 9, 2022** from given address and website below *upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of Five Thousand Pesos (P5,000.00)*. The Procuring Entity shall allow the bidder to present its proof of payment for the fees **presented in person**.
6. The Municipality of Compostela will hold a Pre-Bid Conference on **July 26, 2022 at 1:30 p.m.** at Office of the BAC, 2<sup>nd</sup> Floor, Municipal Hall Building, Dagohoy St., Purok 2, Poblacion, Compostela, Davao de Oro which shall be open to prospective bidders.
7. Bids must be duly received by the BAC Secretariat through manual submission at the office address as indicated below on **August 9, 2022 at 1:00 p.m.** Late bids shall not be accepted.
8. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 16.
9. Bid opening shall be on **August 9, 2022 at 1:30 p.m.** at the given address below. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.



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

11. For further information, please refer to:

**EDWARD FORD N. DAGATAN**

BAC Office

2<sup>nd</sup> Floor, Municipal Hall Building, Dagohoy St., Purok 2,

Poblacion, Compostela, Davao de Oro

CP#: 0909-279-9827

Email Add: compobacsec@gmail.com

12. You may visit [www.philgeps.gov.ph](http://www.philgeps.gov.ph) and search for Municipality of Compostela for downloading of Bidding Documents.

*July 18, 2022*

(Sgd.)

**LUCELIA L. PAQUEO**

BAC Chairperson

## ***Section II. Instructions to Bidders***

## **1. Scope of Bid**

The Procuring Entity, *Municipality of Compostela*, invites Bids for the *Construction of Single Barrel Box Culvert at Batini Creek* with Project Identification Number 2022-078.

*[Note: The Project Identification Number is assigned by the Procuring Entity based on its own coding scheme and is not the same as the PhilGEPS reference number, which is generated after the posting of the bid opportunity on the PhilGEPS website.]*

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

## **2. Funding Information**

2.1. The GOP through the source of funding as indicated below for *CY 2022* in the amount of *One Million Five Hundred Thousand Pesos Only (P1,500,000.00)*.

2.2. The source of funding is: LGUs, the Supplemental Budget, as approved by the Sanggunian.

## **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: *Subcontracting is not allowed.*

- 7.2. 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 at the *Office of the BAC, 2<sup>nd</sup> Floor, Municipal Hall Building, Dagohoy St., Purok 2, Poblacion, Compostela, Davao de Oro* as indicated in paragraph 6 of the **IB**.

## 9. Clarification and Amendment of Bidding Documents

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

## **10. Documents Comprising the Bid: Eligibility and Technical Components**

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.
- 10.3. A valid PCAB License is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.
- 10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.
- 10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS**.

## **11. Documents Comprising the Bid: Financial Component**

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 11.2. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

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

## **12. Alternative Bids**

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

## **13. Bid Prices**

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

## **14. Bid and Payment Currencies**

14.1. Bid prices may be quoted in the local currency or 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: *Philippine Pesos*.

## **15. Bid Security**

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

15.2. The Bid and bid security shall be valid until *One Hundred Twenty (120) days*. 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 15 shall be submitted for each contract (lot) separately.

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

## **20. Post Qualification**

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

## **21. Signing of the Contract**

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



## ***Section III. Bid Data Sheet***

# Bid Data Sheet

ITB Clause			
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be: <b><i>HORIZONTAL CONCRETE WORKS</i></b>		
7.1	<b><i>Subcontracting is not allowed.</i></b>		
10.3	<i>No further instruction.</i>		
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>
	Project Engineer	5 years	3 years
	Foreman	3 years	1 year
	Mason	3 years	1 year
	Heavy equipment operator	3 years	1 year
10.5	The minimum major equipment requirements are the following:		
	<u>Equipment</u>	<u>Capacity</u>	<u>Number of Units</u>
	Backhoe		1
	Concrete Mixer		1
	Concrete Vibrator		1
12	<i>[Insert Value Engineering clause if allowed.]</i>		
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 P 50,000.00 <i>[Two percent (2%) of ABC]</i> , 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 P 125,000.00 <i>[Five percent (5%) of ABC]</i> 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	No further instructions.		
21	Additional contract documents are the following: a. Construction schedule and S-curve b. Manpower schedule c. Construction methods d. Equipment utilization schedule e. Construction Safety and Health Program approved by the DOLE f. PERT/CPM		

## ***Section IV. General Conditions of Contract***

## 1. **Scope of Contract**

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated 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**

3.1 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.

3.2 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	<i>Not applicable.</i>
4.1	<i>The procuring entity shall give possession of all parts of the site to the contractor upon receipt of the NTP.</i>
6	The site investigation reports are: <i>none</i>
7.2	Five (5) years.
10	No dayworks are applicable to the contract.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within <i>Ten (10)</i> days of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is Fifty Thousand Pesos (P50,000.00).
13	The amount of the advance payment shall not exceed 15% of the total contract price which will only be released upon complete mobilization.
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 upon acceptance of the project.  The date by which "as built" drawings are required is prior to the release of certificate of completion.
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 <i>one percent (1%) of the contract amount.</i>

## *Section VI. Specifications*

**PROJECT NAME: CONSTRUCTION OF SINGLE BARREL BOX CULVERT @  
BATINI CREEK**

***DESCRIPTION: SINGLE BARREL RCBC: L=5M, W= 3M, H= 3 M  
WITH WINGWALL, APRON, GROUTED RIPRAP***

***LOCATION: PUROK 9, SAN AGUSTIN, NGAN, COMPOSTELA, DAVAO DE ORO***

**GENERAL CONDITION & SPECIFICATIONS**

**GENERAL CONDITION**

**1. GENERAL**

The drawing and the specifications are complementary to each other. Drawings are graphic means of showing work to be done. They are particularly suited to showing where materials are located. Thus, drawing exists essentially to show dimensions, location and placement. Not all works however can be presented in the drawings. Any doubts in the part of contractor shall be refer to the Municipal Engineer or the project engineer on site. Generalized works are usually in statement form, and hence the contractor is required to read the specifications carefully.

Specifications, on the other hand, are used to describe the materials, construction techniques, samples, shop drawings, guarantees and other contract requirements. Together, the drawing and the specifications are used to inform the contractor. In cases where the specified brand carries with it the manufacturer's specifications, the manufacturer's specifications shall hold precedence over these specifications.

**2. SPECIFICATION**

*ITEM 100 – CLEARING AND GRUBBING*

**100.1 Description**

This item shall consist of clearing, grubbing, removing and disposing all vegetation and debris as designated in the Contract, except those objects that are designated to remain in place or are to be removed in consonance with other provisions of this Specification. The work shall also include the preservation from injury or defacement of all objects designated to remain.

**100.2 Construction Requirements**

**100.2.1 General**

The Engineer will establish the limits of work and designate all trees, shrubs, plants and other things to remain. The Contractor shall preserve all objects designated to remain. Paint required for cut or scarred surface of trees or shrubs selected for retention shall be an approved asphaltum base paint prepared especially for tree surgery.

Clearing shall extend one (1) meter beyond the toe of the fill slopes or beyond rounding of cut slopes as the case maybe for the entire length of the project unless otherwise shown on the plans or as directed by the Engineer and provided it is within the right of way limits of the project, with the exception of trees under the jurisdiction of the Forest Management Bureau (FMB).

### **100.2.2 Clearing and Grubbing**

All surface objects and all trees, stumps, roots and other protruding obstructions, not designated to remain, shall be cleared and/or grubbed, including mowing as required, except as provided below:

- (1) Removal of undisturbed stumps and roots and nonperishable solid objects with a minimum depth of one (1) meter below subgrade or slope of embankment will not be required.
- (2) In areas outside of the grading limits of cut and embankment areas, stumps and nonperishable solid objects shall be cut off not more than 150 mm (6 inches) above the ground line or low water level.
- (3) In areas to be rounded at the top of cut slopes, stumps shall be cut off flush with or below the surface of the final slope line.
- (4) Grubbing of pits, channel changes and ditches will be required only to the depth necessitated by the proposed excavation within such areas.
- (5) In areas covered by cogon/talahib, wild grass and other vegetations, top soil shall be cut to a maximum depth of 150 mm below the original ground surface or as designated by the Engineer, and disposed outside the clearing and grubbing limits as indicated in the typical roadway section.

Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted to the required density.

If perishable material is burned, it shall be burned under the constant care of component watchmen at such times and in such a manner that the surrounding vegetation, other adjacent property, or anything designated to remain on the right of way will not be jeopardized. If permitted, burning shall be done in accordance with applicable laws, ordinances, and regulation.

The Contractor shall use high intensity burning procedures, (i.e., incinerators, high stacking or pit and ditch burning with forced air supplements) that produce intense burning with little or no visible smoke emission during the burning process. At the conclusion of each burning session, the fire shall be completely extinguished so that no smoldering debris remains.

In the event that the Contractor is directed by the Engineer not to start burning operations or to suspend such operations because of hazardous weather conditions, material to be burned which interferes with subsequent construction operations shall be moved by the Contractor to

temporary locations clear of construction operations and later, if directed by the Engineer, shall be placed on a designated spot and burned.

Materials and debris which cannot be burned and perishable materials may be disposed off by methods and at locations approved by the Engineer, on or off the project. If disposal is by burying, the debris shall be placed in layers with the material so disturbed to avoid nesting. Each layer shall be covered or mixed with earth material by the land-fill method to fill all voids. The top layer of material buried shall be covered with at least 300 mm (12 inches) of earth or other approved material and shall be graded, shaped and compacted to present a pleasing appearance. If the disposal location is off the project, the Contractor shall make all necessary arrangements with property owners in writing for obtaining suitable disposal locations which are outside the limits of view from the project. The cost involved shall be included in the unit bid price. A copy of such agreement shall be furnished to the Engineer. The disposal areas shall be seeded, fertilized and mulched at the Contractor's expense.

Woody material may be disposed off by chipping. The wood chips may be used for mulch, slope erosion control or may be uniformly spread over selected areas as directed by the Engineer. Wood chips used as mulch for slope erosion control shall have a maximum thickness of 12 mm (1/2 inch) and faces not exceeding 3900 mm<sup>2</sup> (6 square inches) on any individual surface area. Wood chips not designated for use under other sections shall be spread over the designated areas in layers not to exceed 75 mm (3 inches) loose thickness. Diseased trees shall be buried or disposed off as directed by the Engineer.

All merchantable timber in the clearing area which has not been removed from the right of way prior to the beginning of construction, shall become the property of the Contractor, unless otherwise provided.

Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be trimmed as directed. Branches of trees extending over the roadbed shall be trimmed to give a clear height of 6 m (20 feet) above the roadbed surface. All trimming shall be done by skilled workmen and in accordance with good tree surgery practices.

Timber cut inside the area staked for clearing shall be felled within the area to be cleared.

### **100.2.3 Individual Removal of Trees or Stumps**

Individual trees or stumps designated by the Engineer for removal and located in areas other than those established for clearing and grubbing and roadside cleanup shall be removed and disposed off as specified under Subsection 100.2.2 except trees removed shall be cut as nearly flush with the ground as practicable without removing stumps.

### **100.3 Method of Measurement**

Measurement will be by one or more of the following alternate methods:

1. Area Basis. The work to be paid for shall be the number of hectares and fractions thereof acceptably cleared and grubbed within the limits indicated on the Plans or as may be adjusted in field staking by the Engineer. Areas not within the clearing and grubbing limits shown on the Plans or not staked for clearing and grubbing will not be measured for payment.

2. Lump-Sum Basis. When the Bill of Quantities contains a Clearing and Grubbing lump-sum item, no measurement of area will be made for such item.
3. Individual Unit Basis (Selective Clearing). The diameter of trees will be measured at a height of 1.4 m (54 inches) above the ground. Trees less than 150 mm (6 inches) in diameter will not be measured for payment.

When Bill of Quantities indicates measurement of trees by individual unit basis, the units will be designated and measured in accordance with the following schedule of sizes:

Diameter at height of 1.4 m	Pay Item Designation
Over 150 mm to 900 mm	Small
Over 900 mm	Large

#### 100.4 Basis of Payment

The accepted quantities, measured as prescribed in Section 100.3, shall be paid for at the Contract unit price for each of the Pay Items listed below that is included in the Bill of Quantities, which price and payment shall be full compensation for furnishing all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
100 (1)	Clearing and Grubbing	Hectare
100 (2)	Clearing and Grubbing	Lump Sum
100 (3)	Individual Removal of Trees, Small	Each
100 (4)	Individual removal of Trees, Large	Each

### ITEM 101 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS

#### 101.1 Description

This Item shall consist of the removal wholly or in part, and satisfactory disposal of all buildings, fences, structures, old pavements, abandoned pipe lines, and any other obstructions which are not designated or permitted to remain, except for the obstructions to be removed and disposed off under other items in the Contract. It shall also include the salvaging of designated materials and backfilling the resulting trenches, holes, and pits.

#### 101.2 Construction Requirements

### **101.2.1 General**

The Contractor shall perform the work described above, within and adjacent to the roadway, on Government land or easement, as shown on the Plans or as directed by the Engineer. All designated salvable material shall be removed, without unnecessary damage, in sections or pieces which may be readily transported, and shall be stored by the Contractor at specified places on the project or as otherwise shown in the Special Provisions. Perishable material shall be handled as designated in Subsection 100.2.2. Nonperishable material may be disposed off outside the limits of view from the project with written permission of the property owner on whose property the material is placed. Copies of all agreements with property owners are to be furnished to the Engineer. Basements or cavities left by the structure removal shall be filled with acceptable material to the level of the surrounding ground and, if within the prism of construction, shall be compacted to the required density.

### **101.2.2 Removal of Existing Bridges, Culverts, and other Drainage Structures**

All existing bridges, culverts and other drainage structures in use by traffic shall not be removed until satisfactory arrangements have been made to accommodate traffic. The removal of existing culverts within embankment areas will be required only as necessary for the installation of new structures. Abandoned culverts shall be broken down, crushed and sealed or plugged. All retrieved culvert for future use as determined by the Engineer shall be carefully removed and all precautions shall be employed to avoid breakage or structural damage to any of its part. All sections of structures removed which are not designated for stockpiling or re-laying shall become the property of the Government and be removed from the project or disposed off in a manner approved by the Engineer.

Unless otherwise directed, the substructures of existing structures shall be removed down to the natural stream bottom and those parts outside of the stream shall be removed down to at least 300 mm (12 inches) below natural ground surface. Where such portions of existing structures lie wholly or in part within the limits for a new structure, they shall be removed as necessary to accommodate the construction of the proposed structure.

Steel bridges and wood bridges when specified to be salvaged shall be carefully dismantled without damaged. Steel members shall be match marked unless such match marking is waived by the Engineer. All salvaged material shall be stored as specified in Subsection 101.2.1.

Structures designated to become the property of the Contractor shall be removed from the right-of-way.

Blasting or other operations necessary for the removal of an existing structure or obstruction, which may damage new construction, shall be completed prior to placing the new work, unless otherwise provided in the Special Provisions.

### **101.2.3 Removal of Pipes Other than Pipe Culverts**

Unless otherwise provided, all pipes shall be carefully removed and every precaution taken to avoid breakage or damaged. Pipes to be relaid shall be removed and stored when necessary so that there will be no loss of damage before re-laying. The Contractor shall replace sections lost from storage or damage by negligence, at his own expense.

#### **101.2.4 Removal of Existing Pavement, Sidewalks, Curbs, etc.**

All concrete pavement, base course, sidewalks, curbs, gutters, etc., designated for removal, shall be:

- (1) Broken into pieces and used for riprap on the project, or
- (2) Broken into pieces, the size of which shall not exceed 300 mm (12 inches) in any dimension and stockpiled at designated locations on the project for use by the Government, or
- (3) Otherwise demolished and disposed off as directed by the Engineer. When specified, ballast, gravel, bituminous materials or other surfacing or pavement materials shall be removed and stockpiled as required in Subsection 101.2.1, otherwise such materials shall be disposed off as directed.

There will be no separate payment for excavating for removal of structures and obstructions or for backfilling and compacting the remaining cavity.

#### **101.3 Method of Measurement**

When the Contract stipulates that payment will be made for removal of obstructions on lump-sum basis, the pay item will include all structures and obstructions encountered within the roadway. Where the contract stipulates that payment will be made for the removal of specific items on a unit basis, measurement will be made by the unit stipulated in the Contract.

Whenever the Bill of Quantities does not contain an item for any aforementioned removals, the work will not be paid for directly, but will be considered as a subsidiary obligation of the Contractor under other Contract Items.

#### **101.4 Basis of Payment**

The accepted quantities, measured as prescribed in Section 101.3, shall be paid for at the Contract unit price or lump sum price bid for each of the Pay Items listed below that is included in the Bill of Quantities which price and payment shall be full compensation for removing and disposing of obstructions, including materials, labor, equipments, tools and incidentals necessary to complete the work prescribed in this Item. The price shall also include backfilling, salvage of materials removed, their custody, preservation, storage on the right-of-way and disposal as provided herein.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
101 (1)	Removal of Structures and Obstruction	Lump Sum
101 (2)	Removal of	Each
101 (3)	Removal of	<i>Square Meter</i>



101 (4)	Removal of	Linear Meter
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## **ITEM 103 – STRUCTURE EXCAVATION**

### **103.1 Description**

This Item shall consist of the necessary excavation for foundation of bridges, culverts, underdrains, and other structures not otherwise provided for in the Specifications. Except as otherwise provided for pipe culverts, the backfilling of completed structures and the disposal of all excavated surplus materials, shall be in accordance with these Specifications and in reasonably close conformity with the Plans or as established by the Engineer.

This Item shall include necessary diverting of live streams, bailing, pumping, **draining**, sheeting, bracing, and the necessary construction of cribs and cofferdams, and furnishing the materials therefore, and the subsequent removal of cribs and cofferdams and the placing of all necessary backfill.

It shall also include the furnishing and placing of approved foundation fill material to replace unsuitable material encountered below the foundation elevation of structures.

No allowance will be made for classification of different types of material encountered.

### **103.2 Construction Requirements**

#### **103.2.1 Clearing and Grubbing**

Prior to starting excavation operations in any area, all necessary clearing and grubbing in that area shall have been performed in accordance with Item 100, Clearing and Grubbing.

#### **103.2.2 Excavation**

(1) General, all structures. The Contractor shall notify the Engineer sufficiently in advance of the beginning of any excavation so that cross-sectional elevations and measurements may be taken on the undisturbed ground. The natural ground adjacent to the structure shall not be disturbed without permission of the Engineer.

Trenches or foundation pits for structures or structure footings shall be excavated to the lines and grades or elevations shown on the Plans or as staked by the Engineer. They shall be of sufficient size to permit the placing of structures or structure footings of the full width and length shown. The elevations of the bottoms of footings, as shown on the Plans, shall be considered as approximate only and the Engineer may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary, to secure a satisfactory foundation.

Trenches or foundation pits for structures or structure footings shall be excavated to the lines and grades or elevations shown on the Plans or as staked by the Engineer. They shall be of sufficient size to permit the placing of structures or structure footings of the full width and length shown. The elevations of the bottoms of footings, as shown on the Plans, shall be considered as approximate only and the Engineer may order, in writing, such changes in

dimensions or elevations of footings as may be deemed necessary, to secure a satisfactory foundation.

(2) Structures other than pipe culverts. All rock or other hard foundation materials shall be cleaned all loose materials, and cut to a firm surface, either level, stepped, or serrated as directed by the Engineer. All seams or crevices shall be cleaned and grouted. All loose and disintegrated rocks and thin strata shall be removed. When the footing is to rest on material other than rock, excavation to final grade shall not be made until just before the footing is to be placed. When the foundation material is soft or mucky or otherwise unsuitable, as determined by the Engineer, the Contractor shall remove the unsuitable material and backfill with approved granular material. This foundation fill shall be placed and compacted in 150 mm (6 inches) layers up to the foundation elevation.

When foundation piles are used, the excavation of each pit shall be completed before the piles are driven and any placing of foundation fill shall be done after the piles are driven. After the driving is completed, all loose and displaced materials shall be removed, leaving a smooth, solid bed to receive the footing.

(3) Pipe Culverts. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe.

Where rock, hardpan, or other unyielding material is encountered, it shall be removed below the foundation grade for a depth of at least 300 mm or 4 mm for each 100 mm of fill over the top of pipe, whichever is greater, but not to exceed three-quarters of the vertical inside diameter of the pipe. The width of the excavation shall be at least 300 mm (12 inches) greater than the horizontal outside diameter of the pipe. The excavation below grade shall be backfilled with selected fine compressible material, such as silty clay or loam, and lightly compacted in layers not over 150 mm (6 inches) in uncompacted depth to form a uniform but yielding foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, such unstable soil under the pipe and for a width of at least one diameter on each side of the pipe shall be removed to the depth directed by the Engineer and replaced with approved granular foundation fill material properly compacted to provide adequate support for the pipe, unless other special construction methods are called for on the Plans.

The foundation surface shall provide a firm foundation of uniform density throughout the length of the culvert and, if directed by the Engineer, shall be cambered in the direction parallel to the pipe centerline.

Where pipe culverts are to be placed in trenches excavated in embankments, the excavation of each trench shall be performed after the embankment has been constructed to a plane parallel to the proposed profile grade and to such height above the bottom of the pipe as shown on the Plans or directed by the Engineer.

### **103.2.3 Utilization of Excavated Materials**

All excavated materials, so far as suitable, shall be utilized as backfill or embankment. The surplus materials shall be disposed off in such manner as not to obstruct the stream or otherwise impair the efficiency or appearance of the structure. No excavated materials shall be deposited at any time so as to endanger the partly finished structure.

#### **103.2.4 Cofferdams**

Suitable and practically watertight cofferdams shall be used wherever water-bearing strata are encountered above the elevation of the bottom of the excavation. If requested, the Contractor shall submit drawings showing his proposed method of cofferdam construction, as directed by the Engineer.

Cofferdams or cribs for foundation construction shall in general, be carried well below the bottoms of the footings and shall be well braced and as nearly watertight as practicable. In general, the interior dimensions of cofferdams shall be such as to give sufficient clearance for the construction of forms and the inspection of their exteriors, and to permit pumping outside of the forms. Cofferdams or cribs which are tilted or moved laterally during the process of sinking shall be righted or enlarged so as to provide the necessary clearance.

When conditions are encountered which, as determined by the Engineer, render it impracticable to dewater the foundation before placing the footing, the Engineer may require the construction of a concrete foundation seal of such dimensions as he may consider necessary, and of such thickness as to resist any possible uplift. The concrete for such seal shall be placed as shown on the Plans or directed by the Engineer. The foundation shall then be dewatered and the footing placed. When weighted cribs are employed and the mass is utilized to overcome partially the hydrostatic pressure acting against the bottom of the foundation seal, special anchorage such as dowels or keys shall be provided to transfer the entire mass of the crib to the foundation seal. When a foundation seal is placed under water, the cofferdams shall be vented or ported at low water level as directed.

Cofferdams shall be constructed so as to protect green concrete against damage from sudden rising of the stream and to prevent damage to the foundation by erosion. No timber or bracing shall be left in cofferdams or cribs in such a way as to extend into substructure masonry, without written permission from the Engineer.

Any pumping that may be permitted from the interior of any foundation enclosure shall be done in such a manner as to preclude the possibility of any portion of the concrete material being carried away. Any pumping required during the placing of concrete, or for a period of at least 24 hours thereafter, shall be done from a suitable sump located outside the concrete forms. Pumping to dewater a sealed cofferdam shall not commence until the seal has set sufficiently to withstand the hydrostatic pressure.

Unless otherwise provided, cofferdams or cribs, with all sheeting and bracing involved therewith, shall be removed by the Contractor after the completion of the substructure. Removal shall be effected in such manner as not to disturb or mar finished masonry.

#### **103.2.5 Preservation of Channel**

Unless otherwise permitted, no excavation shall be made outside of caissons, cribs, cofferdams, or sheet piling, and the natural stream bed adjacent to structure shall not be disturbed without permission from the Engineer. If any excavation or dredging is made at the side of the structure before caissons, cribs, or cofferdams are sunk in place, the Contractor shall, after the foundation

base is in place, backfill all such excavations to the original ground surface or stream bed with material satisfactory to the Engineer.

### **103.2.6 Backfill and Embankment for Structures Other Than Pipe Culverts**

Excavated areas around structures shall be backfilled with free draining granular material approved by the Engineer and placed in horizontal layers not over 150 mm (6 inches) in thickness, to the level of the original ground surface. Each layer shall be moistened or dried as required and thoroughly compacted with mechanical tampers.

In placing backfills or embankment, the material shall be placed simultaneously in so far as possible to approximately the same elevation on both sides of an abutment, pier, or wall. If conditions require placing backfill or embankment appreciably higher on one side than on the opposite side, the additional material on the higher side shall not be placed until the masonry has been in place for 14 days, or until tests made by the laboratory under the supervision of the Engineer establishes that the masonry has attained sufficient strength to withstand any pressure created by the methods used and materials placed without damage or strain beyond a safe factor.

Backfill or embankment shall not be placed behind the walls of concrete culverts or abutments or rigid frame structures until the top slab is placed and cured. Backfill and embankment behind abutments held at the top by the superstructure, and behind the sidewalls of culverts, shall be carried up simultaneously behind opposite abutments or sidewalls.

All embankments adjacent to structures shall be constructed in horizontal layers and compacted as prescribed in Subsection 104.3.3 except that mechanical tampers may be used for the required compaction. Special care shall be taken to prevent any wedging action against the structure and slopes bounding or within the areas to be filled shall be benched or serrated to prevent wedge action. The placing of embankment and the benching of slopes shall continue in such a manner that at all times there will be horizontal berm of thoroughly compacted material for a distance at least equal to the height of the abutment or wall to the backfilled against except insofar as undisturbed material obtrudes upon the area.

Broken rock or coarse sand and gravel shall be provided for a drainage filter at weepholes as shown on the Plans.

### **103.2.7 Bedding, Backfill, and Embankment for Pipe Culverts**

Bedding, Backfill and Embankment for pipe culverts shall be done in accordance with Item 500, Pipe Culverts and Storm Drains.

## **103.3 Method of Measurement**

### **103.3.1 Structure Excavation**

The volume of excavation to be paid for will be the number of cubic metres measured in original position of material acceptably excavated in conformity with the Plans or as directed by the Engineer, but in no case, except as noted, will any of the following volumes be included in the measurement for payment:

- (1) The volume outside of vertical planes 450 mm (18 inches) outside of and parallel to the neat lines of footings and the inside walls of pipe and pipe-arch culverts at their widest horizontal dimensions.
- (2) The volume of excavation for culvert and sections outside the vertical plane for culverts stipulated in (1) above.
- (3) The volume outside of neat lines of underdrains as shown on the Plans, and outside the limits of foundation fill as ordered by the Engineer.
- (4) The volume included within the staked limits of the roadway excavation, contiguous channel changes, ditches, etc., for which payment is otherwise provided in the Specification.
- (5) Volume of water or other liquid resulting from construction operations and which can be pumped or drained away.
- (6) The volume of any excavation performed prior to the taking of elevations and measurements of the undisturbed ground.
- (7) the volume of any material rehandled, except that where the Plans indicate or the Engineer directs the excavation after embankment has been placed and except that when installation of pipe culverts by the imperfect trench method specified in Item 500 is required, the volume of material re-excavated as directed will be included.
- (8) The volume of excavation for footings ordered at a depth more than 1.5 m (60 inches) below the lowest elevation for such footings shown on the original Contract Plans, unless the Bill of Quantities contains a pay item for excavation ordered below the elevations shown on the Plans for individual footings.

### **103.3.2 Bridge Excavation**

The volume of excavation, designated on the Plans or in the Special Provisions as “Bridge Excavation” will be measured as described below and will be kept separate for pay purposes from the excavation for all structures.

The volume of bridge excavation to be paid shall be the vertical 450 mm (18 inches) outside of and parallel to the neat lines of the footing. The vertical planes shall constitute the vertical faces of the volume for pay quantities regardless of excavation inside or outside of these planes.

### **103.3.3 Foundation Fill**

The volume of foundation fill to be paid for will be the number of cubic metres measures in final position of the special granular material actually provided and placed below the foundation elevation of structures as specified, complete in place and accepted.

### **103.3.4 Shoring, Cribbing, and Related Work**

Shoring, cribbing and related work whenever included as a pay item in Bill of Quantities will be paid for at the lump sum bid price. This work shall include furnishing, constructing,

maintaining, and removing any and all shoring, cribbing, cofferdams, caissons, bracing, sheeting water control, and other operations necessary for the acceptable completion of excavation included in the work of this Section, to a depth of 1.5 m below the lowest elevation shown on the Plans for each separable foundation structure.

### 103.3.5 Basis of Payment

The accepted quantities, measured as prescribed in Section 103.3, shall be paid for at the contract unit price for each of the particular pay items listed below that is included in the Bill of Quantities. The payment shall constitute full compensation for the removal and disposal of excavated materials including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item, except as follows:

- (1) Any excavation for footings ordered at a depth more than 1.5 m below the lowest elevation shown on the original Contract Plans will be paid for as provided in Part K, Measurement and Payment, unless a pay item for excavation ordered below Plan elevation appears in the Bill of Quantities.
- (2) Concrete will be measured and paid for as provided under Item 405, Structural Concrete.
- (3) Any roadway or borrow excavation required in excess of the quantity excavated for structures will be measured and paid for as provided under Item 102.
- (4) Shoring, cribbing, and related work required for excavation ordered more than 1.5 m (60 inches ) below Plan elevation will be paid for in accordance with Part K.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
103 (1)	Structure Excavation	Cubic Meter
103 (2)	Bridge Excavation	Cubic Meter
103 (3)	Foundation Fill	Cubic Meter
103 (4)	Excavation ordered below Plan elevation	Cubic Meter
103 (5)	Shoring, cribbing, and related work	Lump sum
103 (6)	Pipe culverts and drain excavation	Cubic Meter

## ITEM 104 – EMBANKMENT

### 104.1 Description

This Item shall consist of the construction of embankment in accordance with this Specification and in conformity with the lines, grades and dimensions shown on the Plans or established by the Engineer.

### 104.2 Material Requirements

Embankments shall be constructed of suitable materials, in consonance with the following definitions:

1. Suitable Material – Material which is acceptable in accordance with the Contract and which can be compacted in the manner specified in this Item. It can be common material or rock.

Selected Borrow, for topping – soil of such gradation that all particles will pass a sieve with 75 mm (3 inches) square openings and not more than 15 mass percent will pass the 0.075 mm (No. 200) sieve, as determined by AASHTO T 11. The material shall have a plasticity index of not more than 6 as determined by ASSHTO T 90 and a liquid limit of not more than 30 as determined by AASHTO T 89.

2. Unsuitable Material – Material other than suitable materials such as:

(a) Materials containing detrimental quantities of organic materials, such as grass, roots and sewerage.

(b) Organic soils such as peat and muck.

(c) Soils with liquid limit exceeding 80 and/or plasticity index exceeding 55.

(d) Soils with a natural water content exceeding 100%.

(e) Soils with very low natural density, 800 kg/m<sup>3</sup> or lower.

(f) Soils that cannot be properly compacted as determined by the Engineer.

### **104.3 Construction Requirements**

#### **104.3.1 General**

Prior to construction of embankment, all necessary clearing and grubbing in that area shall have been performed in conformity with Item 100, Clearing and Grubbing.

Embankment construction shall consist of constructing roadway embankments, including preparation of the areas upon which they are to be placed; the construction of dikes within or adjacent to the roadway; the placing and compacting of approved material within roadway areas where unsuitable material has been removed; and the placing and compacting of embankment material in holes, pits, and other depressions within the roadway area.

Embankments and backfills shall contain no muck, peat, sod, roots or other deleterious matter. Rocks, broken concrete or other solid, bulky materials shall not be placed in embankment areas where piling is to be placed or driven.

Where shown on the Plans or directed by the Engineer, the surface of the existing ground shall be compacted to a depth of 150 mm (6 inches) and to the specified requirements of this Item.

Where provided on the Plans and Bill of Quantities the top portions of the roadbed in both cuts and embankments, as indicated, shall consist of selected borrow for topping from excavations.

#### **104.3.2 Methods of Construction**

Where there is evidence of discrepancies on the actual elevations and that shown on the Plans, a preconstruction survey referred to the datum plane used in the approved Plan shall be undertaken by the Contractor under the control of the Engineer to serve as basis for the computation of the actual volume of the embankment materials.

When embankment is to be placed and compacted on hillsides, or when new embankment is to be compacted against existing embankments, or when embankment is built one-half width at a time, the existing slopes that are steeper than 3:1 when measured at right angles to the roadway shall be continuously benched over those areas as the work is brought up in layers. Benching will be subject to the Engineer's approval and shall be of sufficient width to permit operation of placement and compaction equipment. Each horizontal cut shall begin at the intersection of the original ground and the vertical sides of the previous cuts. Material thus excavated shall be placed and compacted along with the embankment material in accordance with the procedure described in this Section.

Unless shown otherwise on the Plans or special Provisions, where an embankment of less than 1.2 m (4 feet) below subgrade is to be made, all sod and vegetable matter shall be removed from the surface upon which the embankment is to be placed, and the cleared surface shall be completely broken up by plowing, scarifying, or steeping to a minimum depth of 150 mm except as provided in Subsection 102.2.2. This area shall then be compacted as provided in Subsection 104.3.3. Sod not required to be removed shall be thoroughly disc harrowed or scarified before construction of embankment. Wherever a compacted road surface containing granular materials lies within 900 mm (36 inches) of the subgrade, such old road surface shall be scarified to a depth of at least 150 mm (6 inches) whenever directed by the Engineer. This scarified materials shall then be compacted as provided in Subsection 104.3.3.

When shoulder excavation is specified, the roadway shoulders shall be excavated to the depth and width shown on the Plans. The shoulder material shall be removed without disturbing the adjacent existing base course material, and all excess excavated materials shall be disposed off as provided in Subsection 102.2.3. If necessary, the areas shall be compacted before being backfilled.

Roadway embankment of earth material shall be placed in horizontal layers not exceeding 200 mm (8 inches), loose measurement, and shall be compacted as specified before the next layer is placed. However, thicker layer may be placed if vibratory roller with high compactive effort is used provided that density requirement is attained and as approved by the Engineer. Trial section to this effect must be conducted and approved by the Engineer. Effective spreading equipment shall be used on each lift to obtain uniform thickness as determined in the trial section prior to compaction. As the compaction of each layer progresses, continuous leveling and manipulating will be required to assure uniform density. Water shall be added or removed, if necessary, in order to obtain the required density. Removal of water shall be accomplished through aeration by plowing, blading, discing, or other methods satisfactory to the Engineer.



Where embankment is to be constructed across low swampy ground that will not support the mass of trucks or other hauling equipment, the lower part of the fill may be constructed by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers.

When excavated material contains more than 25 mass percent of rock larger than 150 mm in greatest diameter and cannot be placed in layers of the thickness prescribed without crushing, pulverizing or further breaking down the pieces resulting from excavation methods, such materials may be placed on the embankment in layers not exceeding in thickness the approximate average size of the larger rocks, but not greater than 600 mm (24 inches).

Even though the thickness of layers is limited as provided above, the placing of individual rocks and boulders greater than 600 mm in diameter will be permitted provided that when placed, they do not exceed 1200 mm (48 inches) in height and provided they are carefully distributed, with the interstices filled with finer material to form a dense and compact mass.

Each layer shall be leveled and smoothed with suitable leveling equipment and by distribution of spalls and finer fragments of earth. Lifts of material containing more than 25 mass percent of rock larger than 150 mm in greatest dimensions shall not be constructed above an elevation 300 mm ( 12 inches) below the finished subgrade. The balance of the embankment shall be composed of suitable material smoothed and placed in layers not exceeding 200 mm (8 inches) in loose thickness and compacted as specified for embankments.

Dumping and rolling areas shall be kept separate, and no lift shall be covered by another until compaction complies with the requirements of Subsection 104.3.3.

Hauling and leveling equipment shall be so routed and distributed over each layer of the fill in such a manner as to make use of compaction effort afforded thereby and to minimize rutting and uneven compaction.

### **104.3.3 Compaction**

#### **Compaction Trials**

Before commencing the formation of embankments, the Contractor shall submit in writing to the Engineer for approval his proposals for the compaction of each type of fill material to be used in the works. The proposals shall include the relationship between the types of compaction equipment, and the number of passes required and the method of adjusting moisture content. The Contractor shall carry out full scale compaction trials on areas not less than 10 m wide and 50 m long as required by the Engineer and using his proposed procedures or such amendments thereto as may be found necessary to satisfy the Engineer that all the specified requirements regarding compaction can be consistently achieved. Compaction trials with the main types of fill material to be used in the works shall be completed before work with the corresponding materials will be allowed to commence.

Throughout the periods when compaction of earthwork is in progress, the Contractor shall adhere to the compaction procedures found from compaction trials for each type of material being compacted, each type of compaction equipment employed and each degree of compaction specified.

## **Earth**

The Contractor shall compact the material placed in all embankment layers and the material scarified to the designated depth below subgrade in cut sections, until a uniform density of not less than 95 mass percent of the maximum dry density determined by AASHTO T 99 Method C, is attained, at a moisture content determined by Engineer to be suitable for such density. Acceptance of compaction may be based on adherence to an approved roller pattern developed as set forth in Item 106, Compaction Equipment and Density Control Strips.

The Engineer shall during progress of the Work, make density tests of compacted material in accordance with AASHTO T 191, T 205, or other approved field density tests, including the use of properly calibrated nuclear testing devices. A correction for coarse particles may be made in accordance with AASHTO T 224. If, by such tests, the Engineer determines that the specified density and moisture conditions have not been attained, the Contractor shall perform additional work as may be necessary to attain the specified conditions.

At least one group of three in-situ density tests shall be carried out for each 500 m of each layer of compacted fill.

## **Rock**

Density requirements will not apply to portions of embankments constructed of materials which cannot be tested in accordance with approved methods.

Embankment materials classified as rock shall be deposited, spread and leveled the full width of the fill with sufficient earth or other fine material so deposited to fill the interstices to produce a dense compact embankment. In addition, one of the rollers, vibrators, or compactors meeting the requirements set forth in Subsection 106.2.1, Compaction Equipment, shall compact the embankment full width with a minimum of three complete passes for each layer of embankment.

### **104.3.4 Protection of Roadbed During Construction**

During the construction of the roadway, the roadbed shall be maintained in such condition that it will be well drained at all times. Side ditches or gutters emptying from cuts to embankments or otherwise shall be so constructed as to avoid damage to embankments by erosion.

### **104.3.5 Protection of Structure**

If embankment can be deposited on one side only of abutments, wing walls, piers or culvert headwalls, care shall be taken that the area immediately adjacent to the structure is not compacted to the extent that it will cause overturning of, or excessive pressure against the structure. When noted on the Plans, the fill adjacent to the end bent of a bridge shall not be placed higher than the bottom of the backfill of the bent until the superstructure is in place. When embankment is to be placed on both sides of a concrete wall or box type structure, operations shall be so conducted that the embankment is always at approximately the same elevation on both sides of the structure.

### **104.3.6 Rounding and Warping Slopes**

Rounding-Except in solid rock, the tops and bottoms of all slopes, including the slopes of drainage ditches, shall be rounded as indicated on the Plans. A layer of earth overlaying rock shall be rounded above the rock as done in earth slopes.

Warping-adjustments in slopes shall be made to avoid injury in standing trees or marring of weathered rock, or to harmonize with existing landscape features, and the transition to such adjusted slopes shall be gradual. At intersections of cuts and fills, slopes shall be adjusted and warped to flow into each other or into the natural ground surfaces without noticeable break.

### **104.3.7 Finishing Roadbed and Slopes**

After the roadbed has been substantially completed, the full width shall be conditioned by removing any soft or other unstable material that will not compact properly or serve the intended purpose. The resulting areas and all other low sections, holes or depressions shall be brought to grade with suitable selected material. Scarifying, blading, dragging, rolling, or other methods of work shall be performed or used as necessary to provide a thoroughly compacted roadbed shaped to the grades and cross-sections shown on the Plans or as staked by the Engineer.

All earth slopes shall be left with roughened surfaces but shall be reasonably uniform, without any noticeable break, and in reasonably close conformity with the Plans or other surfaces indicated on the Plans or as staked by the Engineer, with no variations therefrom readily discernible as viewed from the road.

### **104.3.8 Serrated Slopes**

Cut slopes in rippable material (soft rock) having slope ratios between 0.75:1 and 2:1 shall be constructed so that the final slope line shall consist of a series of small horizontal steps. The step rise and tread dimensions shall be shown on the Plans. No scaling shall be performed on the stepped slopes except for removal of large rocks which will obviously be a safety hazard if they fall into the ditchline or roadway.

### **104.3.9 Earth Berms**

When called for in the Contract, permanent earth berms shall be constructed of well graded materials with no rocks having a diameter greater than 0.25 the height of the berm. When local material is not acceptable, acceptable material shall be imported, as directed by the Engineer.

#### ***Compacted Berm***

Compacted berm construction shall consist of moistening or drying and placing material as necessary in locations shown on the drawings or as established by the Engineer. Material shall contain no frozen material, roots, sod, or other deleterious materials. Contractor shall take precaution to prevent material from escaping over the embankment slope. Shoulder surface beneath berm will be roughened to provide a bond between the berm and shoulder when completed. The Contractor shall compact the material placed until at least 90 mass percent of

the maximum density is obtained as determined by AASHTO T 99, Method C. The cross-section of the finished compacted berm shall reasonably conform to the typical cross-section as shown on the Plans.

***Uncompacted Berm***

Uncompacted berm construction shall consist of drying, if necessary and placing material in locations shown on the Plans or as established by the Engineer. Material shall contain no frozen material, roots, sod or other deleterious materials. Contractor shall take precautions to prevent material from escaping over the embankment slope.

**104.4 Method of Measurement**

The quantity of embankment to be paid for shall be the volume of material compacted in place, accepted by the Engineer and formed with material obtained from any source.

Material from excavation per Item 102 which is used in embankment and accepted by the Engineer will be paid under Embankment and such payment will be deemed to include the cost of excavating, hauling, stockpiling and all other costs incidental to the work.

Material for Selected Borrow topping will be measured and paid for under the same conditions specified in the preceding paragraph.

**104.5 Basis of Payment**

The accepted quantities, measured as prescribed in Section 104.4, shall be paid for at the Contract unit price for each of the Pay Items listed below that is included in the Bill of Quantities. The payment shall continue full compensation for placing and compacting all materials including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
104 (1)	Embankment	Cubic Meter
104 (2)	Selected, Borrow for topping, Case 1	Cubic Meter
104 (3)	Selected Borrow for topping, Case 2	Cubic Meter
104 (4)	Earth Berm	Meter

**Item 105 – SUBGRADE PREPARATION**

**105.1 Description**

This Item shall consist of the preparation of the subgrade for the support of overlying structural layers. It shall extend to full width of the roadway. Unless authorized by the Engineer,

subgrade preparation shall not be done unless the Contractor is able to start immediately the construction of the pavement structure.

## **105.2 Material Requirements**

Unless otherwise stated in the Contract and except when the sub grade is in rock cut, all materials below sub grade level to a depth 150 mm or to such greater depth as may be specified shall meet the requirements of Section 104.2, Selected Borrow for Topping.

## **105.3 Construction Requirements**

### **105.3.1 Prior Works**

Prior to commencing preparation of the sub grade, all culverts, cross drains, ducts and the like (including their fully compacted backfill), ditches, drains and drainage outlets shall be completed. Any work on the preparation of the subgrade shall not be started unless prior work herein described shall have been approved by the Engineer.

### **105.3.2 Subgrade Level Tolerances**

The finished compacted surface of the subgrade shall conform to the allowable tolerances as specified hereunder:

Permitted variation from design LEVEL OF SURFACE	+ 20 mm
	- 30 mm
Permitted SURFACE IRREGULARITY MEASURED BY 3-m STRAIGHT EDGE	30 mm
Permitted variation from design CROSSFALL OR CAMBER	$\pm$ 0.5 %
Permitted variation from design LONGITUDINAL GRADE over 25 m length	$\pm$ 0.1 %

### **105.3.3 Subgrade in Common Excavation**

Unless otherwise specified, all materials below subgrade level in earth cuts to a depth 150 mm or other depth shown on the Plans or as directed by the Engineer shall be excavated. The material, if suitable, shall be set side for future use or, if unsuitable, shall be disposed off in accordance with the requirements of Subsection 102.2.9.

Where material has been removed from below subgrade level, the resulting surface shall be compacted to a depth of 150 mm and in accordance with other requirements of Subsection 104.3.3.

All materials immediately below subgrade level in earth cuts to a depth of 150 mm, or to such greater depth as may be specified, shall be compacted in accordance with the requirements of Subsection 104.3.3.

### **105.3.4 Subgrade in Rock Excavation**

Surface irregularities under the subgrade level remaining after trimming of the rock excavation shall be leveled by placing specified material and compacted to the requirements of Subsection 104.3.3.

### **105.3.5 Subgrade on Embankment**

After the embankment has been completed, the full width shall be conditioned by removing any soft or other unstable material that will not compacted properly. The resulting areas and all other low sections, holes, or depressions shall be brought to grade with suitable material. The entire roadbed shall be shaped and compacted to the requirements of Subsections 104.3.3. Scarifying, blading, dragging, rolling, or other methods of work shall be performed or used as necessary to provide a thoroughly compacted roadbed shaped to the cross-sections shown on the Plans.

### **105.3.6 Subgrade on Existing Pavement**

Where the new pavement is to be constructed immediately over an existing Portland Cement concrete pavement and if so specified in the Contract the slab be broken into pieces with greatest dimension of not more than 500 mm and the existing pavement material compacted as specified in Subsection 104.3.3, as directed by the Engineer. The resulting subgrade level shall, as part pavement construction be shaped to conform to the allowable tolerances of Subsection 105.3.2 by placing and compacting where necessary a leveling course comprising the material of the pavement course to be placed immediately above.

Where the new pavement is to be constructed immediately over an existing asphalt concrete pavement or gravel surface pavement and if so specified in the Contract the pavement shall be scarified, thoroughly loosened, reshaped and recompactd in accordance with Subsection 104.3.3. The resulting subgrade level shall conform to the allowable tolerances of Subsection 105.3.2.

### **105.3.7 Protection of Completed Work**

The Contractor shall be required to protect and maintain at his own expense the entire work within the limits of his Contract in good condition satisfactory to the Engineer from the time he first started work until all work shall have been completed. Maintenance shall include repairing and recompactd ruts, ridges, soft spots and deteriorated sections of the subgrade caused by the traffic of the Contractor's vehicle/equipment or that of the public.

### **105.3.8 Templates and Straight-edges**

The Contractor shall provide for use of the Engineer, approved templates and straight-edges in sufficient number to check the accuracy of the work, as provided in this Specification.

## **105.4 Method of Measurement**

### **105.4.1 Measurement of Items for payment shall be provided only for:**

1. The compaction of existing ground below subgrade level in cuts of common material as specified in Subsection 105.3.3.

2. The breaking up or scarifying, loosening, reshaping and recompacting of existing pavement as specified in Subsection 105.3.6. The quantity to be paid for shall be the area of the work specified to be carried out and accepted by the Engineer.

**105.4.2** Payment for all work for the preparation of the subgrade, including shaping to the required levels and tolerances, other than as specified above shall be deemed to be included in the Pay Item for Embankment.

**105.5 Basis of Payment**

The accepted quantities, measured as prescribed in Section 105.4, shall be paid for at the appropriate contract unit price for Pay Item listed below that is included in the Bill of Quantities which price and payment shall be full compensation for the placing or removal and disposal of all materials including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
105 (1)	Subgrade Preparation (Common Material)	Square Meter
105 (2)	Subgrade Preparation (Existing Pavement)	Square Meter
105 (3)	Subgrade Preparation (Unsuitable Material)	Square Meter

*ITEM 200 – AGGREGATE SUBBASE COURSE*

**200.1 Description**

This item shall consist of furnishing, placing and compacting an aggregate subbase course on a prepared subgrade in accordance with this Specification and the lines, grades and cross-sections shown on the Plans, or as directed by the Engineer.

**200.2 Material Requirements**

Aggregate for subbase shall consist of hard, durable particles or fragments of crushed stone, crushed slag, or crushed or natural gravel and filler of natural or crushed sand or other finely divided mineral matter. The composite material shall be free from vegetable matter and lumps or balls of clay, and shall be of such nature that it can be compacted readily to form a firm, stable subbase.

The subbase material shall conform to Table 200.1, Grading Requirements

**Table 200.1 – Grading Requirements**

Sieve Designation		Mass Percent Passing
Standard, mm	Alternate US Standard	
50	2"	100
25	1"	55 – 85
9.5	3/8"	40 – 75
0.075	No. 200	0 - 12

The fraction passing the 0.075 mm (No. 200) sieve shall not be greater than 0.66 (two thirds) of the fraction passing the 0.425 mm (No. 40) sieve.

The fraction passing the 0.425 mm (No. 40) sieve shall have a liquid limit not greater than 35 and plasticity index not greater than 12 as determined by AASHTO T 89 and T 90, respectively.

The coarse portion, retained on a 2.00 mm (No. 10) sieve, shall have a mass percent of wear not exceeding 50 by the Los Angeles Abrasion Tests as determined by AASHTO T 96.

The material shall have a soaked CBR value of not less than 25% as determined by AASHTO T 193. The CBR value shall be obtained at the maximum dry density and determined by AASHTO T 180, Method D.

### **200.3 Construction Requirements**

#### **200.3.1 Preparation of Existing Surface**

The existing surface shall be graded and finished as provided under Item 105, Subgrade Preparation, before placing the subbase material.

#### **200.3.2 Placing**

The aggregate subbase material shall be placed at a uniform mixture on a prepared subgrade in a quantity which will provide the required compacted thickness. When more than one layer is required, each layer shall be shaped and compacted before the succeeding layer is placed.

The placing of material shall begin at the point designated by the Engineer. Placing shall be from vehicles especially equipped to distribute the material in a continuous uniform layer or windrow. The layer or windrow shall be of such size that when spread and compacted the finished layer be in reasonably close conformity to the nominal thickness shown on the Plans.

When hauling is done over previously placed material, hauling equipment shall be dispersed uniformly over the entire surface of the previously constructed layer, to minimize rutting or uneven compaction.

#### **200.3.3 Spreading and Compacting**

When uniformly mixed, the mixture shall be spread to the plan thickness, for compaction.



Where the required thickness is 150 mm or less, the material may be spread and compacted in one layer. Where the required thickness is more than 150 mm, the aggregate subbase shall be spread and compacted in two or more layers of approximately equal thickness, and the maximum compacted thickness of any layer shall not exceed 150 mm. All subsequent layers shall be spread and compacted in a similar manner.

The moisture content of subbase material shall, if necessary, be adjusted prior to compaction by watering with approved sprinklers mounted on trucks or by drying out, as required in order to obtain the required compaction.

Immediately following final spreading and smoothening, each layer shall be compacted to the full width by means of approved compaction equipment. Rolling shall progress gradually from the sides to the center, parallel to the centerline of the road and shall continue until the whole surface has been rolled. Any irregularities or depressions that develop shall be corrected by loosening the material at these places and adding or removing material until surface is smooth and uniform. Along curbs, headers, and walls, and at all places not accessible to the roller, the subbase material shall be compacted thoroughly with approved tampers or compactors.

If the layer of subbase material, or part thereof, does not conform to the required finish, the Contractor shall, at his own expense, make the necessary corrections.

Compaction of each layer shall continue until a field density of at least 100 percent of the maximum dry density determined in accordance with AASHTO T 180, Method D has been achieved. In-place density determination shall be made in accordance with AASHTO T 191.

#### **200.3.4 Trial Sections**

Before subbase construction is started, the Contractor shall spread and compact trial sections as directed by the Engineer. The purpose of the trial sections is to check the suitability of the materials and the efficiency of the equipment and construction method which is proposed to be used by the Contractor. Therefore, the Contractor must use the same material, equipment and procedures that he proposes to use for the main work. One trial section of about 500 m<sup>2</sup> shall be made for every type of material and/or construction equipment/procedure proposed for use.

After final compaction of each trial section, the Contractor shall carry out such field density tests and other tests required as directed by the Engineer.

If a trial section shows that the proposed materials, equipment or procedures in the Engineer's opinion are not suitable for subbase, the material shall be removed at the Contractor's expense, and a new trial section shall be constructed.

If the basic conditions regarding the type of material or procedure change during the execution of the work, new trial sections shall be constructed.

#### **200.3.5 Tolerances**

Aggregate subbase shall be spread with equipment that will provide a uniform layer which when compacted will conform to the designed level and transverse slopes as shown on the Plans. The allowable tolerances shall be as specified hereunder:

Permitted variation from design THICKNESS OF LAYER	± 20 mm
Permitted variation from design LEVEL OF SURFACE	+10 mm -20 mm
Permitted SURFACE IRREGULARITY Measured by 3-m straight-edge	20 mm
Permitted variation from design CROSSFALL OR CAMBER	±0.3%
Permitted variation from design LONGITUDINAL GRADE over 25 m in length	±0.1%

**200.4 Method of Measurement**

Aggregate Subbase Course will be measured by the cubic meter (m<sup>3</sup>). The quantity to be paid for shall be the design volume compacted in-place as shown on the Plans, and accepted in the completed course. No allowance will be given for materials placed outside the design limits shown on the cross-sections. Trial sections shall not be measured separately but shall be included in the quantity of subbase herein measured.

**200.5 Basis of Payment**

The accepted quantities, measured as prescribed in Section 200.4, shall be paid for at the contract unit price for Aggregate Subbase Course which price and payment shall be full compensation for furnishings and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
200	Aggregate Subbase Course	Cubic Meter

7.2.

**ITEM 404 – REINFORCING STEEL**

**404.1 Description**

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

#### **404.2 Material Requirements**

Reinforcing steel shall meet the requirements of item 710, Reinforcing Steel and Wire Rope.

#### **4.4.3 Construction Requirements**

##### **404.3.1 Order Lists**

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

##### **404.3.2 Protection of Material**

Steel reinforcement shall be stored above the surface of the ground upon platforms, skids, or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the work, reinforcement shall be free from dirt, detrimental rust, loose scale, paint, grease, oil, or other foreign materials. Reinforcement shall be free from injurious defects such as cracks and laminations. Rust, surface seams, surface irregularities or mill scale will not be cause for rejection, provided the minimum dimensions, cross sectional area and tensile properties of a hand wire brushed specimen meets the physical requirements for the size and grade of steel specified.

##### **404.3.3 Bending**

All reinforcing bars requiring bending shall be cold-bent to the shapes shown on the Plans or required by the Engineer. Bars shall be bent around a circular pin having the following diameters (D) in relation to the diameter of the bar (d):

Nominal diameter, d, mm	Pin diameter (D)
10 to 20	6d
25 to 28	8d
32 and greater	10d

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

##### **404.3.4 Placing and Fastening**

All steel reinforcement shall be accurately placed in the position shown on the Plans or required by the Engineer and firmly held there during the placing and setting of the concrete. Bars shall

be tied at all intersections except where spacing is less than 300mm in each directions, in which case, alternate intersections shall be tied. Ties shall be fastened on the inside.

Distance from the forms shall be maintained by means of stays, blocks, ties, hangers, or other approved supports, so that it does not vary from the position indicated on the Plans by more than 6mm. Blocks for holding reinforcement from contact with the forms shall be precast mortar blocks of approved shapes and dimensions. Layers of bars shall be separated by precast mortar blocks or by other equally suitable devices. The use of pebbles, pieces of broken stone or brick, metal pipe and wooden blocks shall not be permitted. Unless otherwise shown on the Plans or required by the Engineer, the minimum distance between bars shall be 40mm. Reinforcement in any member shall be placed and then inspected and approved by the Engineer before the placing of concrete begins. Concrete placed in violation of this provision may be rejected and removal may be required. If fabric reinforcement is shipped in rolls, it shall be straightened before being placed. Bundled bars shall be tied together at not more than 1.8m intervals.

#### **404.3.5 Splicing**

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

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

Splice Type	Grade 40 min. lap	Grade 60 min. lap	But not less than
Tension	24 bar dia	36 bar dia	300 mm
Compression	20 bar dia	24 bar dia	300 mm

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

#### **404.3.6 Lapping of Bar Mat**

Sheets of mesh or bar mat reinforcement shall overlap each other sufficiently to maintain a uniform strength and shall be securely fastened at the ends and edges. The overlap shall not be less than one mesh in width.

#### **404.4 Method of Measurement**

The quantity of reinforcing steel to be paid for will be the final quantity placed and accepted in the completed structure.

No allowance will be made for tie-wires, separators, wire chairs and other material used in fastening the reinforcing steel in place. If bars are substituted upon the Contractor's request and approved by the Engineer and as a result thereof more steel is used than specified, only the mass specified shall be measured for payment.

No measurement or payment will be made for splices added by the Contractor unless directed or approved by the Engineer.

When there is no item for reinforcing steel in the Bill of Quantities, costs will be considered as incidental to the other items in the Bill of Quantities.

#### **404.5 Basis of Payment**

The accepted quantity, measured as prescribed in Section 404.4, shall be paid for at the contract unit price for Reinforcing Steel which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
404	Reinforcing Steel	Kilogram

### ***ITEM 405 – STRUCTURAL CONCRETE***

#### **405.1 Description**

##### **405.1.1 Scope**

This Item shall consist of furnishing, bending, placing and finishing concrete in all structures except pavements in accordance with this Specification and conforming to the lines, grades, and dimensions shown on the Plans. Concrete shall consist of a mixture of Portland Cement, fine aggregate, coarse aggregate, admixture when specified, and water mixed in the proportions specified or approved by the Engineer.

##### **405.1.2 Classes and Uses of Concrete**

Five classes of concrete are provided for in this Item, namely: A, B, C, P and Seal. Each class shall be used in that part of the structure as called for on the Plans.

The classes of concrete will generally be used as follows:

Class A – All superstructures and heavily reinforced substructures. The important parts of the structure included are slabs, beams, girders, columns, arch ribs, box culverts, reinforced abutments, retaining walls, and reinforced footings.

Class B – Footings, pedestals, massive pier shafts, pipe bedding, and gravity walls, unreinforced or with only a small amount of reinforcement.

Class C – Thin reinforced sections, railings, precast R.C. piles and cribbing and for filler in steel grid floors.

Class P – Prestressed concrete structures and members.

Seal – Concrete deposited in water.

## 405.2 Material Requirements

### 405.2.1 Portland Cement

It shall conform to all the requirements of Subsection 311.2.1.

### 405.2.2 Fine Aggregate

It shall conform to all the requirements of Subsection 311.2.2.

### 405.2.3 Coarse Aggregate

It shall conform all the requirements of Subsection 311.2.3 except that gradation shall conform to Table 405.1.

**Table 405.1 – Grading Requirements for Coarse Aggregate**

Sieve Designation		Mass Percent Passing				
Standard Mm	Alternate US Standard	Class A	Class B	Class C	Class P	Class Seal
63	2-1/2"		100			
50	2"	100	95 – 100			
37.5	1-1/2"	95 – 100	-			100
25	1"	-	35 – 70		100	95 – 100
19.0	3/4"	35 – 70	-	100	95 – 100	-
12.5	1/2"	-	10 – 30	90 – 100	-	25 – 60
9.5	3/8"	10 – 30	-	40 – 70	20 – 55	-
4.75	No.4	0 - 5	0 - 5	0 – 15*	0 – 10*	0 – 10*

\* The measured cement content shall be within plus (+) or minus (-) 2 mass percent of the design cement content.

### 405.2.4 Water

It shall conform to the requirements of Subsection 311.2.4

### 405.2.5 Reinforcing Steel

It shall conform to the requirements of Item 710, Reinforcing Steel and Wire Rope.

#### **405.2.6 Admixtures**

Admixtures shall conform to the requirements of Subsection 311.2.7

#### **405.2.7 Curing Materials**

Curing materials shall conform to the requirements of Subsection 311.2.8.

#### **405.2.8 Expansion Joint Materials**

Expansion joint materials shall be:

1. Preformed Sponge Rubber and Cork, conforming to AASHTO M 153.
2. Hot-Poured Elastic Type, conforming to AASHTO M 173.
3. Preformed Fillers, conforming to AASHTO M 213.

#### **405.2.9 Elastomeric Compression Joint Seals**

These shall conform to AASHTO M 220.

#### **405.2.10 Elastomeric Bearing Pads**

These shall conform to AASHTO M 251 or Item 412 – Elastomeric Bearing Pads.

#### **405.2.11 Storage of Cement and Aggregates**

Storage of cement and aggregates shall conform to all the requirements of Subsection 311.2.10.

### **405.3 Sampling and Testing of Structural Concrete**

As work progresses, at least one (1) sample consisting of three (3) concrete cylinder test specimens, 150 x 300mm (6 x 12 inches), shall be taken from each seventy five (75) cubic meters of each class of concrete or fraction thereof placed each day.

Compliance with the requirements of this Section shall be determined in accordance with the following standard methods of AASHTO:

Sampling of fresh concrete	T 141
Weight per cubic metre and air content (gravimetric) of concrete	T 121
Sieve analysis of fine and coarse aggregates	T 27
Slump of Portland Cement Concrete	T 119
Specific gravity and absorption of fine aggregate	T 84

Tests for strength shall be made in accordance with the following:

Making and curing concrete compressive and

flexural tests specimens in the field	T 23
Compressive strength of molded concrete Cylinders	T 22

#### 405.4 Production Requirements

##### 405.4.1 Proportioning and Strength of Structural Concrete

The concrete materials shall be proportioned in accordance with the requirements for each class of concrete as specified in Table 405.2, using 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". Other methods of proportioning may be employed in the mix design with prior approval of the Engineer. The mix shall either be designed or approved by the Engineer. A change in the source of materials during the progress of work may necessitate a new mix design.

The strength requirements for each class of concrete shall be as specified in Table 405.2.

**Table 405.2 - Composition and Strength of Concrete for Use in Structures**

Class Of Concrete	Minimum Cement Content Per m <sup>3</sup> kg (bag**)	Maximum Water/Cement Ratio kg/kg	Consistency Range in Slump mm (inch)	Designated Size of Coarse Aggregate Square Opening Std. mm	Minimum Compressive Strength of 150x300mm Concrete Cylinder Specimen at 28 days, MN/m <sup>2</sup> (psi)
A	360 (9 bags)	0.53	50 – 100 (2 – 4)	37.5 – 4.75 (1-1/2" – No. 4)	20.7 (3000)
B	320 (8 bags)	0.58	50 – 100 (2 – 4)	50 – 4.75 (2" – No. 4)	16.5 (2400)
C	380 (9.5 bags)	0.55	50 – 100 (2 – 4)	12.5 – 4.75 (1/2" – No. 4)	20.7 (3000)
P	440 (11 bags)	0.49	100 max. (4 max.)	19.0 – 4.75 (3/4" – No. 4)	37.7 (5000)
Seal	380 (9.5 bags)	0.58	100 – 200 (4 - 8)	25 – 4.75 (1" – No. 4)	20.7 (3000)

\* The measured cement content shall be within plus or minus 2 mass percent of the design cement content.



\*\* Based on 40 kg/bag

#### **405.4.2 Consistency**

Concrete shall have a consistency such that it will be workable in the required position. It shall be of such a consistency that it will flow around reinforcing steel but individual particles of the coarse aggregate when isolated shall show a coating of mortar containing its proportionate amount of sand. The consistency of concrete shall be gauged by the ability of the equipment to properly place it and not by the difficulty in mixing and transporting. The quantity of mixing water shall be determined by the Engineer and shall not be varied without his consent. Concrete as dry as it is practical to place with the equipment specified shall be used.

#### **405.4.3 Batching**

Measuring and batching of materials shall be done at a batching plant.

##### **1. Portland Cement**

Either sacked or bulk cement may be used. No fraction of a sack of cement shall be used in a batch of concrete unless the cement is weighed. All bulk cement shall be weighed on an approved weighing device. The bulk cement weighing hopper shall be properly sealed and vented to preclude dusting operation. The discharge chute shall not be suspended from the weighing hopper and shall be so arranged that cement will neither be lodged in it nor leak from it.

Accuracy of batching shall be within plus (+) or minus (-) 1 mass percent.

##### **2. Water**

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 more than 1 percent.

##### **3. Aggregates**

Stockpiling of aggregates shall be in accordance with Subsection 311.2.10. All aggregates whether produced or handled by hydraulic methods or washed, shall be stockpiled or binned for draining for at least 12 hours prior to batching. Rail shipment requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage. If the aggregates contain high or non-uniform moisture content, storage or stockpile period in excess of 12 hours may be required by the Engineer.

Batching shall be conducted as to result in a 2 mass percent maximum tolerance for the required materials.

##### **4. Bins and Scales**

The batching plant shall include separate bins for bulk cement, fine aggregate and for each size of coarse aggregate, a weighing hopper, and scales capable of determining accurately the mass of each component of the batch.

Scales shall be accurate to one-half (0.5) percent throughout the range used.

#### 5. Batching

When batches are hauled to the mixer, bulk cement shall be transported either in waterproof compartments or between the fine and coarse aggregate. When cement is placed in contact with moist aggregates, batches will be rejected unless mixed within 1-1/2 hours of such contact. Sacked cement may be transported on top of the aggregates.

Batches shall be delivered to the mixer separate and intact. Each batch shall be dumped cleanly into the mixer without loss, and, when more than one batch is carried on the truck, without spilling of material from one batch compartment into another.

#### 6. Admixtures

The Contractor shall follow an approved procedure for adding the specified amount of admixture to each batch and will be responsible for its uniform operation during the progress of the work. He shall provide separate scales for the admixtures which are to be proportioned by weight, and accurate measures for those to be proportioned by volume. Admixtures shall be measured into the mixer with an accuracy of plus or minus three (3) percent.

The use of Calcium Chloride as an admixture will not be permitted.

### **405.4.4 Mixing and Delivery**

Concrete may be mixed at the site of construction, at a central point or by a combination of central point and truck mixing or by a combination of central point mixing and truck agitating. Mixing and delivery of concrete shall be in accordance with the appropriate requirements of AASHTO M 157 except as modified in the following paragraphs of this section, for truck mixing or a combination of central point and truck mixing or truck agitating. Delivery of concrete shall be regulated so that placing is at a continuous rate unless delayed by the placing operations. The intervals between delivery of batches shall not be so great as to allow the concrete in place to harden partially, and in no case shall such an interval exceed 30 minutes.

In exceptional cases and when volumetric measurements are authorized, for small project requiring less than 75 cu.m. 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.

For batch mixing at the site of construction or at a central point, a batch mixer of an approved type shall be used. Mixer having a rated capacity of less than a one-bag batch shall not be used. The volume of concrete mixed per batch shall not exceed the mixer's nominal capacity as shown on the manufacturer's standard rating plate on the mixer except that an overload up to

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 batch shall be so charge into the drum that a portion of the water shall enter 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 15 seconds of the mixing period. Mixing time shall be measured from the time all materials, except water, are in the drum. Mixing time shall not be less than 60 seconds for mixers having a capacity of 1.5m<sup>3</sup> or less. For mixers having a capacity greater than 1.5m<sup>3</sup>, the mixing time shall not be less than 90 seconds. If timing starts, the instant the skip reaches its maximum raised position, 4 seconds shall be added to the specified mixing time. Mixing time ends when the discharge chute opens.

The mixer shall be operated at the drum speed as shown on the manufacturer's name plate on the mixer. Any concrete mixed less than the specified time shall be discarded and disposed off by the Contractor at his own expenses.

The timing device on stationary mixers shall be equipped with a bell or other suitable warning device adjusted to give a clearly audible signal each time the lock is released. In case of failure of the timing device, the Contractor will be permitted to continue operations while it is being repaired, provided he furnishes an approved timepiece equipped with minute and second hands. If the timing device is not placed in good working order within 24 hours, further use of the mixer will be prohibited until repairs are made.

Retempering concrete will not be permitted. Admixtures for increasing the workability, for retarding the set, or for accelerating the set or improving the pumping characteristics of the concrete will be permitted only when specifically provided for in the Contract, or authorized in writing by the Engineer.

#### 1. Mixing Concrete: General

Concrete shall be thoroughly mixed in a mixer of an approved size and type that will insure a uniform distribution of the materials throughout the mass.

All concrete shall be mixed in mechanically operated mixers. Mixing plant and equipment for transporting and placing concrete shall be arranged with an ample auxiliary installation to provide a minimum supply of concrete in case of breakdown of machinery or in case the normal supply of concrete is disrupted. The auxiliary supply of concrete shall be sufficient to complete the casting of a section up to a construction joint that will meet the approval of the Engineer.

Equipment having components made of aluminum or magnesium alloys, which would have contact with plastic concrete during mixing, transporting or pumping of Portland Cement concrete, shall not be used.

Concrete mixers shall be equipped with adequate water storage and a device of accurately measuring and automatically controlling the amount of water used.

Materials shall be measured by weighing. The apparatus provided for weighing the aggregates and cement shall be suitably designed and constructed for this purpose. The accuracy of all weighing devices except that for water shall be such that successive quantities can be measured to within one percent of the desired amounts. The water measuring device shall be accurate to

plus or minus 0.5 mass percent. All measuring devices shall be subject to the approval of the Engineer. Scales and measuring devices shall be tested at the expense of the Contractor as frequently as the Engineer may deem necessary to insure their accuracy.

Weighing equipment shall be insulated against vibration or movement of other operating equipment in the plant. When the entire plant is running, the scale reading at cut-off shall not vary from the weight designated by the Engineer more than one mass percent for cement, 1-1/2 mass percent for any size of aggregate, or one (1) mass percent for the total aggregate in any batch.

## 2. Mixing Concrete at Site

Concrete mixers may be of the revolving drum or the revolving blade type and the mixing drum or blades shall be operated uniformly at the mixing speed recommended by the manufacturer. The pick-up and throw-over blades of mixers shall be restored or replaced when any part or section is worn 20mm or more below the original height of the manufacturer's design. Mixers and agitators which have an accumulation of hard concrete or mortar shall not be used.

When bulk cement is used and volume of the batch is 0.5m<sup>3</sup> or more, the scale and weigh hopper for Portland Cement shall be separate and distinct from the aggregate hopper or hoppers. The discharge mechanism of the bulk cement weigh hopper shall be interlocked against opening before the full amount of cement is in the hopper. The discharging mechanism shall also be interlocked against opening when the amount of cement in the hopper is underweight by more than one (1) mass percent or overweight by more than 3 mass percent of the amount specified.

When the aggregate contains more water than the quantity necessary to produce a saturated surface dry condition, representative samples shall be taken and the moisture content determined for each kind of aggregate.

The batch shall be so charged into the mixer that some water will enter in advance of cement and aggregate. All water shall be in the drum by the end of the first quarter of the specified mixing time.

Cement shall be batched and charged into the mixer so that it will not result in loss of cement due to the effect of wind, or in accumulation of cement on surface of conveyors or hoppers, or in other conditions which reduce or vary the required quantity of cement in the concrete mixture.

The entire content of a batch mixer shall be removed from the drum before materials for a succeeding batch are placed therein. The materials composing a batch except water shall be deposited simultaneously into the mixer.

All concrete shall be mixed for a period of not less than 1-1/2 minutes after all materials, including water, are in the mixer. During the period of mixing, the mixer shall operate at the speed for which it has been designed.

Mixers shall be operated with an automatic timing device that can be locked by the Engineer. The time device and discharge mechanics shall be so interlocked that during normal operation no part of the batch will be charged until the specified mixing time has elapsed.

The first batch of concrete materials placed in the mixer shall contain a sufficient excess of cement, sand, and water to coat inside of the drum without reducing the required mortar content of the mix. When mixing is to cease for a period of one hour or more, the mixer shall be thoroughly cleaned.

### 3. Mixing Concrete at Central Plant

Mixing at central plant shall conform to the requirements for mixing at the site.

### 4. Mixing Concrete in Truck

Truck mixers, unless otherwise authorized by the Engineer, shall be of the revolving drum type, water-tight, and so constructed that the concrete can be mixed to insure a uniform distribution of materials throughout the mass. All solid materials for the concrete shall be accurately measured and charged into the drum at the proportioning plant. Except as subsequently provided, the truck mixer shall be equipped with a device by which the quantity of water added can be readily verified. The mixing water may be added directly to the batch, in which case a tank is not required. Truck mixers may be required to be provided with a means of which the mixing time can be readily verified by the Engineer.

The maximum size of batch in truck mixers shall not exceed the minimum rated capacity of the mixer as stated by the manufacturer and stamped in metal on the mixer. Truck mixing, shall, unless other-wise directed be continued for not less than 100 revolutions after all ingredients, including water, are in the drum. The mixing speed shall not be less than 4 rpm, nor more than 6 rpm.

Mixing shall begin within 30 minutes after the cement has been added either to the water or aggregate, but when cement is charged into a mixer drum containing water or surface wet aggregate and when the temperature is above 32°C, this limit shall be reduced to 15 minutes. The limitation in time between the introduction of the cement to the aggregate and the beginning of the mixing may be waived when, in the judgement of the Engineer, the aggregate is sufficiently free from moisture, so that there will be no harmful effects on the cement.

When a truck mixer is used for transportation, the mixing time specified in Subsection 405.4.4 (3) at a stationary mixer may be reduced to 30 seconds and the mixing completed in a truck mixer. The mixing time in the truck mixer shall be as specified for truck mixing.

### 5. Transporting Mixed Concrete

Mixed concrete may only be transported to the delivery point in truck agitators or truck mixers operating at the speed designated by the manufacturers of the equipment as agitating speed, or in non-agitating hauling equipment, provided the consistency and workability of the mixed concrete upon discharge at the delivery point is suitable point for adequate placement and consolidation in place.

Truck agitators shall be loaded not to exceed the manufacturer's guaranteed capacity. They shall maintain the mixed concrete in a thoroughly mixed and uniform mass during hauling.

No additional mixing water shall be incorporated into the concrete during hauling or after arrival at the delivery point.

The rate of discharge of mixed concrete from truck mixers or agitators shall be controlled by the speed of rotation of the drum in the discharge direction with the discharge gate fully open.

When a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be completed within one hour, or before 250 revolutions of the drum or blades, whichever comes first, after the introduction of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete or when the temperature of the concrete is 30°C, or above, a time less than one hour will be required.

#### 6. Delivery of Mixed Concrete

The Contractor shall have sufficient plant capacity and transportation apparatus to insure continuous delivery at the rate required. The rate of delivery of concrete during concreting operations shall be such as to provide for the proper handling, placing and finishing of the concrete. The rate shall be such that the interval between batches shall not exceed 20 minutes. The methods of delivering and handling the concrete shall be such as will facilitate placing of the minimum handling.

#### 405.5 Method of Measurement

The quantity of structural concrete to be paid for will be the final quantity placed and accepted in the completed structure. No deduction will be made for the volume occupied by pipe less than 100mm (4 inches) in diameter or by reinforcing steel, anchors, conduits, weep holes or expansion joint materials.

#### 405.6 Basis of Payment

The accepted quantities, measured as prescribed in Section 405.5, shall be paid for at the contract unit price for each of the Pay Item listed below that is included in the Bill of Quantities.

Payment shall constitute full compensation for furnishing, placing and finishing concrete including all labor, equipment, tools and incidentals necessary to complete the work prescribed in the item.

Payment will be made under

Pay Item Number	Description	Unit of Measurement
405 (1)	Structural Concrete, Class A	Cubic Meter
405 (2)	Structural Concrete, Class B	Cubic Meter
405 (3)	Structural Concrete, Class C	Cubic Meter
405 (4)	Structural Concrete, Class P	Cubic Meter
405 (5)	Seal Concrete	Cubic Meter

## **ITEM 505 – RIPRAP AND GROUTED RIPRAP**

### **505.1 Description**

This Item shall consist of the furnishing and placing of riprap with or without grout as the case may be, with or without filter backing, furnished and constructed in accordance with this Specification and to the lines and grades and dimensions shown on the Plans.

### **505.2 Material Requirements**

#### **505.2.1 Stones**

Stones for riprap shall consist of rock as nearly as rectangular in section as is practical, except that riprap of Class A may consist of round natural stones. The stones shall be sound, tough, durable, dense, resistant to the action of air and water, and suitable in all respects for the purpose intended.

Stones for riprap shall be one of the following classes as shown on the Plans or determined by the Engineer.

Class A -	Stones ranging from a minimum of 15kg to a maximum of 25kg with at least 50 percent of the stones weighing more than 20kg
Class B -	Stones ranging from minimum of 30kg to a maximum of 70kg with at least 50 percent of the stones weighing more than 50kg
Class C -	Stones ranging from minimum of 60kg to a maximum of 100kg with at least 50 percent of the stones weighing more than 80kg
Class D -	Stones ranging from minimum of 100kg to a maximum of 200kg with at least 50 percent of the stones weighing more than 150kg

Sound pieces of broken concrete obtained from the removal of bridges, culverts and other structures may be substituted for stone with the approval of the Engineer.

#### **505.2.2 Filter Materials**

When required, the riprap shall be placed on a filter layer to prevent fine embankment materials to be washed out through the voids of the face stones. The grading of the filter material shall be as specified on the Plans, or in the Special Provisions. If not so specified, it will be required that  $D_{15}$  of the filter is at least 4 times the size  $D_{85}$  for the embankment material, where  $D_{15}$  percent and 85 percent, respectively, passing (by mass) in a grain size analysis. Fine aggregate

passing grading requirements for Item 405, Structural Concrete, will satisfy foregoing requirements.

### **505.2.3Mortar**

Mortar for grouted riprap shall consist of sand, cement and water conforming to the requirements given under Item 405, Structural Concrete, mixed in the proportion of one part cement to three parts sand by volume, and sufficient water to obtain the required consistency.

The horizontal and vertical contact surface between stones shall be embedded by cement mortar having a minimum thickness of 20 mm. Sufficient mortar shall be used to completely fill all voids leaving the face of the stones exposed.

## **505.3 Construction Requirements**

### **505.3.1Excavation**

The bed for riprap shall be excavated to the required depths and properly compacted, trimmed and shaped.

The riprap shall be founded in a toe trench dug below the depth of scour as shown on the Plans or as ordered by the Engineer. The toe trench shall be filled with stone of the same class as that specified for the riprap, unless otherwise specified.

### **505.3.2Placing**

Stones placed below the water line shall be distributed so that the minimum thickness of the riprap is not less than that specified.

Stones above the water line shall be placed by hand or individually by machines. They shall be laid with close, broken joints and shall be firmly bedded into the slope and against the adjoining stones. Each stone shall be laid with its longest axis perpendicular to the slope in close contact with each adjacent stone. The riprap shall be thoroughly rammed into place as construction progresses and the finished surface shall present an even, tight surface. Interstices between stones shall be filled with small broken fragments firmly rammed into place.

Unless otherwise provided, riprap shall have the following minimum thickness, measured perpendicular to the slope:

- Class A – 300 mm
- Class B – 500 mm
- Class C – 600 mm
- Class D – 800 mm

The surface of riprap shall not vary from the theoretical surface by more than 100 mm at any point.

### **505.3.3Grouting**



When grouted riprap is specified, stones shall be placed by hand, or individually by machine as specified for riprap placed above the water line. The spaces between the stones shall then be filled with cement mortar throughout the thickness of the riprap as specified in Subsection 504.2.3, mortar. Sufficient mortar shall be used to completely fill all voids, except that the face surface of the stones shall be left exposed.

Grout shall be placed from bottom to top of the surface swept with a stiff broom. After grouting is completed, the surface shall be cured as specified in Item 405, Structural Concrete for a period of at least three days.

The stones shall also be laid in a manner that the vertical and horizontal alignments of the exposed face shall, as possible be maintained in a straight line.

#### **505.3.4 Weepholes**

All walls and abutments shall be provided with weepholes. Unless otherwise shown on the Plans or directed by the Engineer, the weepholes shall be placed horizontally at the lowest points where free outlets for water can be obtained and shall be spaced at not more than 2 m center to center in a staggered manner . The length of the weepholes shall not be less than the thickness of the walls of the abutment and shall be at least 50 mm diameter PVC or other pipe materials accepted by the Engineer. Weepholes must be provided with filter bags as specified in special provision or as directed by the Engineer, and shall be incidental to Pay Item 505.

#### **505.4 Method of Measurement**

The quantities to be measured for payment shall be the number of cubic meters of riprap or grouted riprap, as the case may be, including stones placed in the toe trench laid in position and accepted.

Filter layer of granular material, when required, shall be measured separately by the cubic meter in place and accepted.

The computation of the quantities will be based on the volume within the limiting dimensions designated on the Plans or as determined by the Engineer.

#### **505.5 Basis of Payment**

The quantities measured as provided under Subsection 505.4 shall be paid for at the contract unit price, respectively, for each of the Pay Items listed below and shown in the Bid Schedule, which price and payment shall be full compensation for excavation and preparation of the bed, for furnishing and placing all materials including backfill and all additional fill to bring the riprap bed up to the lines, grades and dimensions shown on the plans, and all labor, equipment, tools and incidentals necessary to complete the Item.

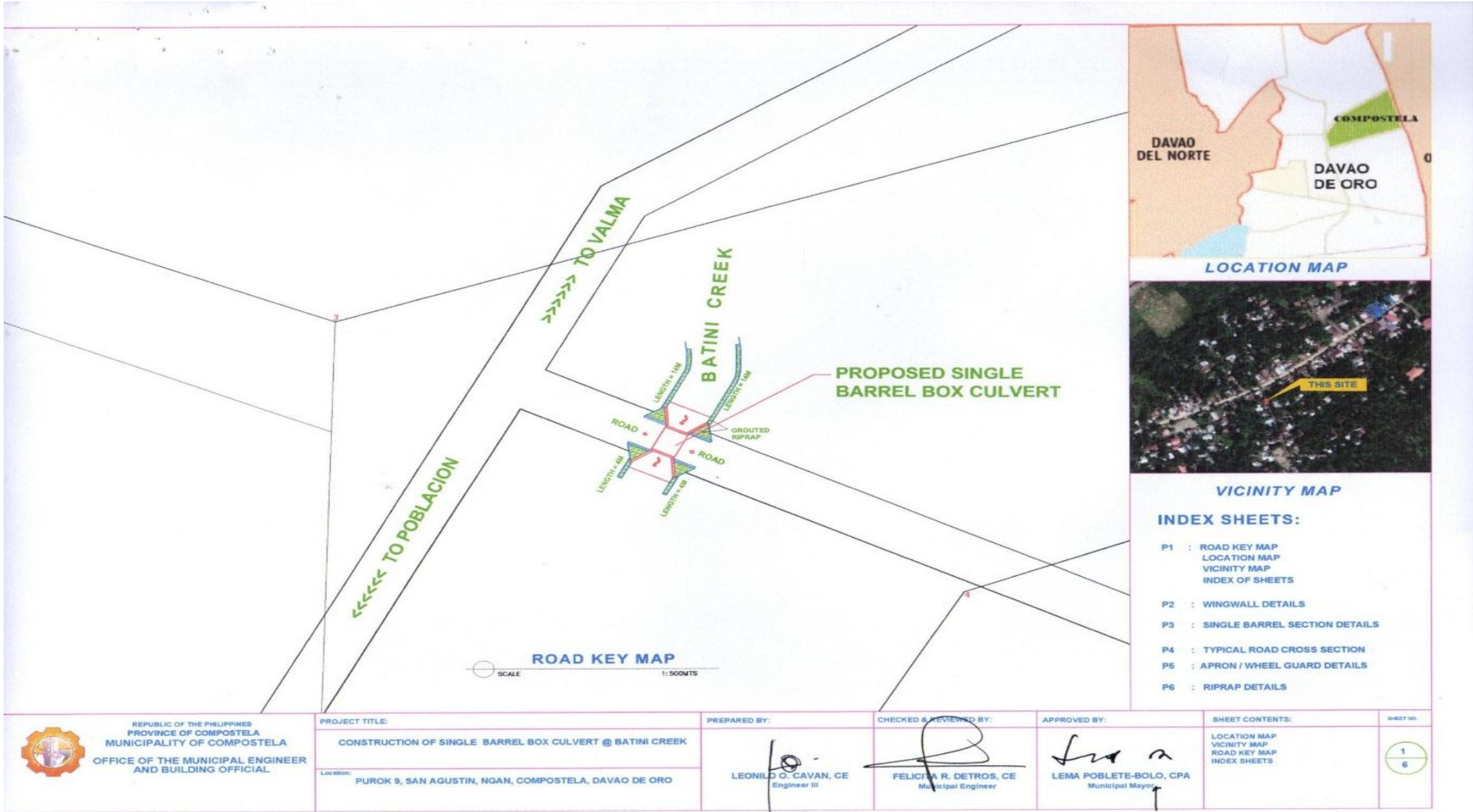
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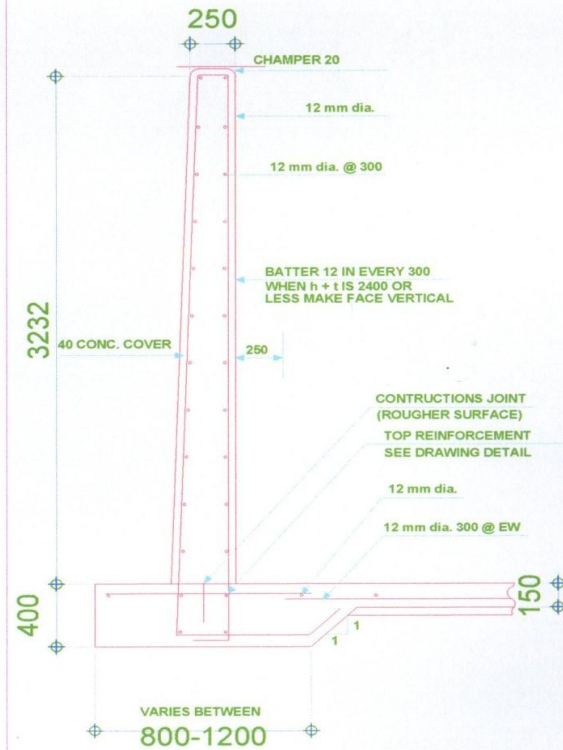
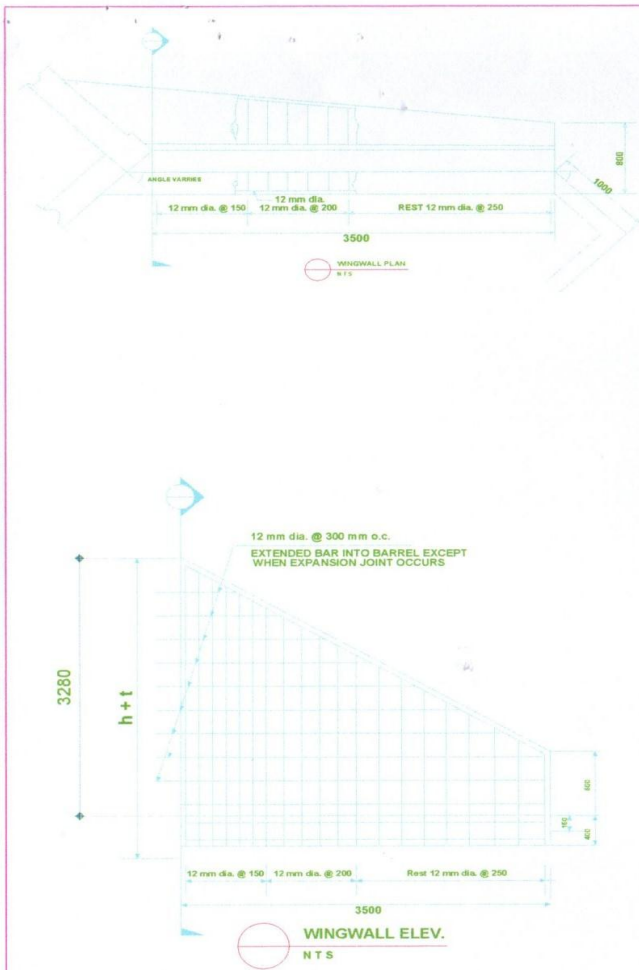
Pay Item Number	Description	Unit of Measurement

505 (1)	Riprap, Class A	Cubic Meter
505 (2)	Riprap, Class B	Cubic Meter
505 (3)	Riprap, Class C	Cubic Meter
505 (4)	Riprap, Class D	Cubic Meter
505 (5)	Grouted Riprap, Class A	Cubic Meter
505 (6)	Grouted Riprap, Class B	Cubic Meter
505 (7)	Grouted Riprap, Class C	Cubic Meter
505 (8)	Grouted Riprap, Class D	Cubic Meter
505 (9)	Filter layer of granular material	Cubic Meter

## ***Section VII. Drawings***

*[Insert here a list of Drawings. The actual Drawings, including site plans, should be attached to this section, or annexed in a separate folder.]*







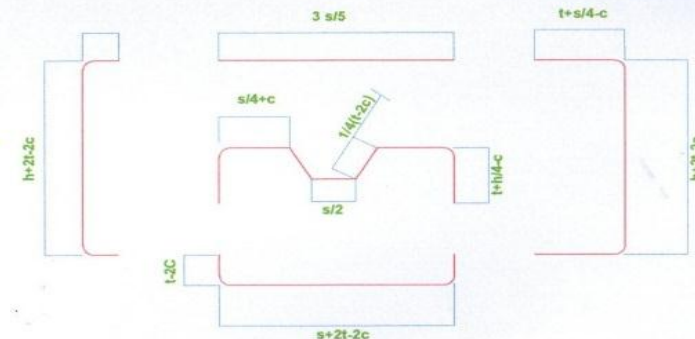
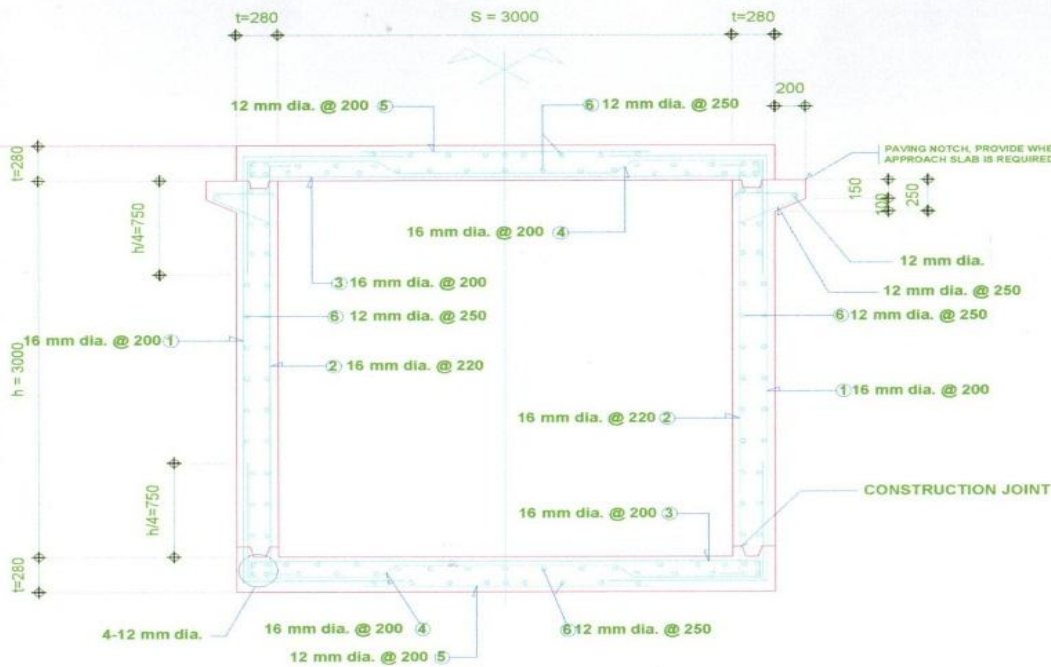


SECTION of WINGWALL  
NTS

**GENERAL NOTES**

- SPECIFICATIONS:**  
DESIGN 1977 AASHTO SPECIFICATION FOR HIGHWAYS AND BRIDGES.
- CONCRETE:**  
ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS ( $f_c = 3000$  PSI)  
DESIGN 1 ALL EXPOSED CORNERS TO BE CHAMFERED 0.019M. NO CONSTRUCTION JOINT AREA TO BE MADE EXCEPT WHERE SHOWN WHEN BOTTOM SLAB IS SUBJECT TO ABRASION ADD 0.025M TO BOTTOM SLAB TO INCREASE COVERAGE ON STEEL.
- STEEL REINFORCEMENT:**  
ALL REINFORCING STEEL TO BE INTERMEDIATE GRADE (GRADE 40) ASTM A 615 WITH DEFORMATION CONFIRMING TO ASTM A-305-49 ( $f_y = 40000$  PSI)
- GENERAL:**  
IN STATING CULVERT SIZE, GIVE WIDTH BY HEIGHT (WIDTH FIRST) PLACE 12MM. EXPANSION JOINTS WITH PRE MOULDED FILLER IN WALLS AND TOP SLAB OF BOX CULVERT AT 1230MM INTERVALS. WHEN HEIGHT OF FILL,  $H=0$ , THE TOP OF SURFACE OF THE UPPER SLAB SHALL FOLLOW THE CROWN OF FINISHED ROADWAY THE BOX CULVERT SHALL BE CONSTRUCTED ON A BLINDING LAYER OF LEAN CONCRETE 50MM MINIMUM THICKNESS.
- LIVE LOAD DISTRIBUTION REINFORCEMENT:**  
WHEN THERE IS LESS THAN 600MM. OF FILL ABOVE TOP SLAB OF CULVERT ADDITIONAL REINFORCEMENT TRANSVERSE TO THE MAIN REINFORCEMENT IS ADDED TO THE BOTTOM OF THE TOP SLAB IN ACCORDANCE WITH AASHTO 1.3.2.E.
- HEIGHT OF FILL:**  
MAXIMUM HEIGHT OF FILL IS 3000MM. ABOVE TOP SLAB FOR HEIGHT OF FILL GREATER THAN 3000 MM. SPECIAL DESIGN OF BOX CULVERT SHOULD BE DONE.

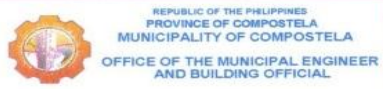
 <p>REPUBLIC OF THE PHILIPPINES PROVINCE OF COMPOSTELA MUNICIPALITY OF COMPOSTELA OFFICE OF THE MUNICIPAL ENGINEER AND BUILDING OFFICIAL</p>	<p>PROJECT TITLE: CONSTRUCTION OF SINGLE BARREL BOX CULVERT @ BATINI CREEK</p>	<p>PREPARED BY:  LEONILO O. CAVAN, CE Engineer III</p>	<p>CHECKED &amp; REVIEWED BY:  FELICITA R. DETROS, CE Municipal Engineer</p>	<p>APPROVED BY:  LEMA POBLETE-BOLO, CPA Municipal Mayor</p>	<p>SHEET CONTENTS: WINGWALL DETAILS</p>	<p>SHEET NO. 2 6</p>
	<p>Location: PUROK 9, SAN AGUSTIN, NGAN, COMPOSTELA, DAVAO DE ORO</p>					



BAR BENDING DIAGRAM-SINGLE BARREL  
NTS

CLEAR		SINGLE BARREL BOX CULVERT												
SPAN s	h	t	BAR 1		BAR 2		BAR 3		BAR 4		BAR 5		BAR 6	
			Ø	SPACING	Ø	SPACING	Ø	SPACING	Ø	SPACING	Ø	SPACING	Ø	SPACING
3000	3000	280	16	200	16	220	16	200	16	200	12	200	12	250

SECTION - SINGLE BARREL  
NTS



PROJECT TITLE:  
CONSTRUCTION OF SINGLE BARREL BOX CULVERT @ BATINI CREEK

Location:  
PUROK 9, SAN AGUSTIN, NGAN, COMPOSTELA, DAVAO DE ORO

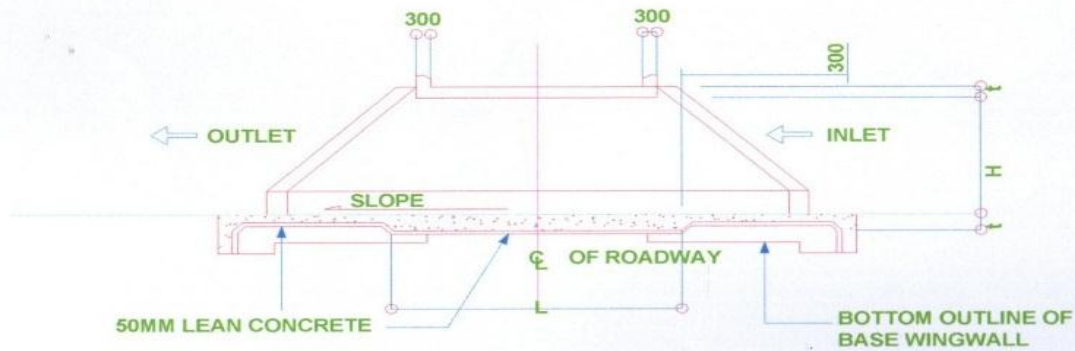
PREPARED BY:  
LEONILLO D. CAVAN, CE  
Engineer III

CHECKED & REVIEWED BY:  
FELICITA R. DETROS, CE  
Municipal Engineer

APPROVED BY:  
LEMA POBLETE-BOLO, CPA  
Municipal Mayor

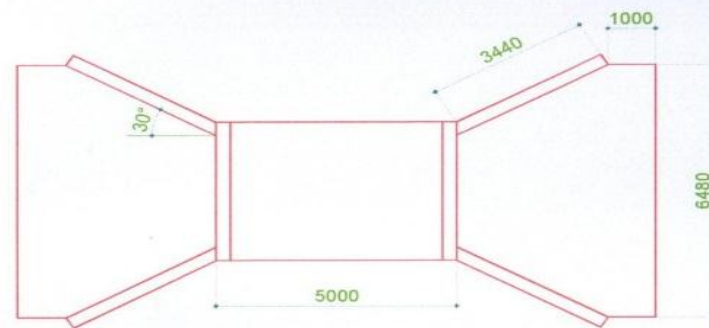
SHEET CONTENTS:  
SINGLE BARREL SECTION DETAILS

SHEET NO.  
3  
6



TYPICAL ROAD CROSS SECTION

SCALE : 1:100



PLAN

SCALE : 1:100




REPUBLIC OF THE PHILIPPINES  
PROVINCE OF COMPOSTELA  
MUNICIPALITY OF COMPOSTELA  
OFFICE OF THE MUNICIPAL ENGINEER  
AND BUILDING OFFICIAL

PROJECT TITLE:  
CONSTRUCTION OF SINGLE BARREL BOX CULVERT @ BATINI CREEK

Location:  
PUROK 9, SAN AGUSTIN, NGAN, COMPOSTELA, DAVAO DE ORO

PREPARED BY:  
  
LEONILO O. CAVAN, CE  
Engineer III

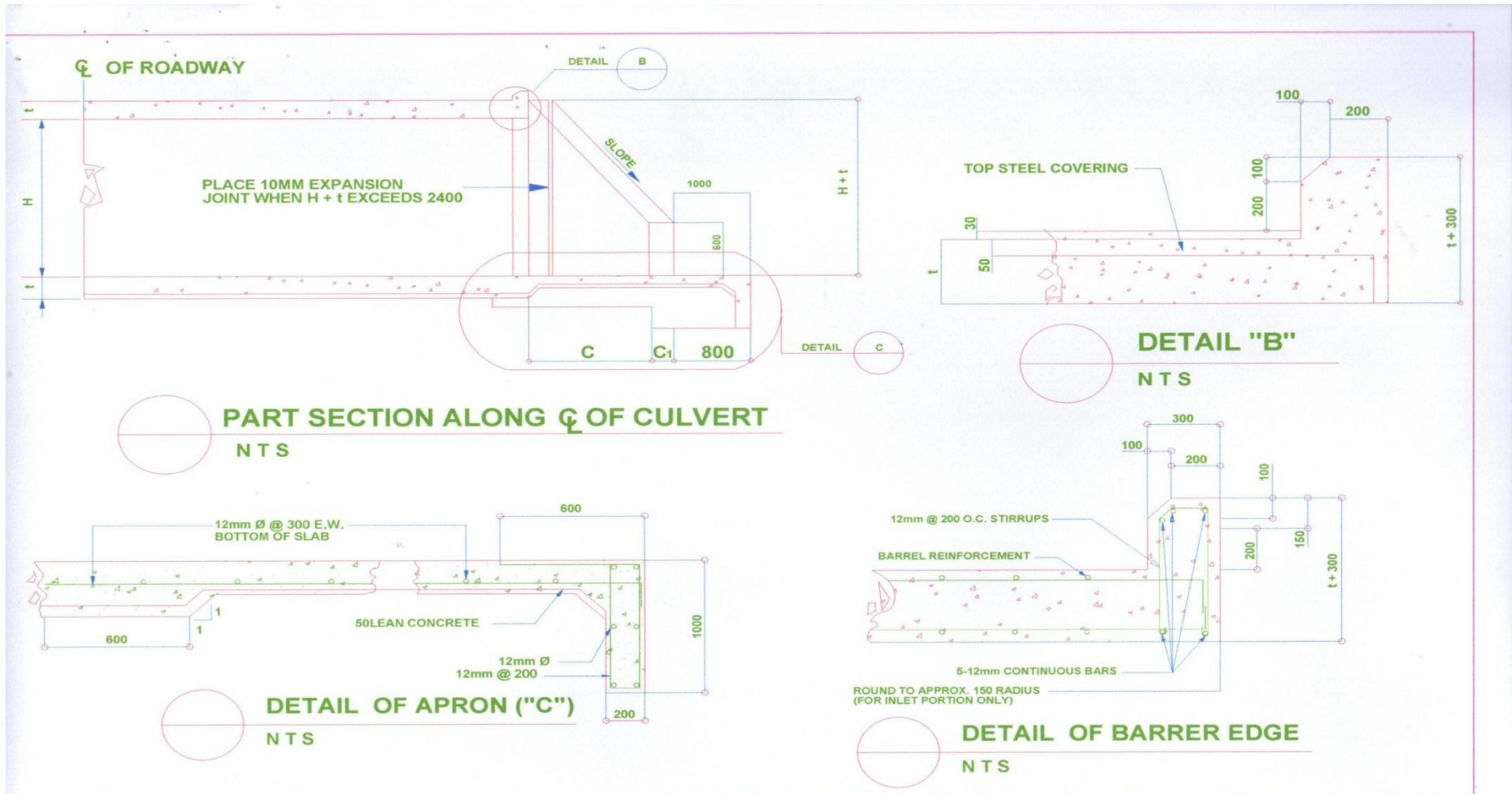
CHECKED & REVIEWED BY:  
  
FELICITA V. DETROS, CE  
Municipal Engineer

APPROVED BY:  
  
LEMA POBLETE-BOLO, CPA  
Municipal Mayor

SHEET CONTENTS:  
TYPICAL ROAD CROSS SECTION

SHEET NO.

4  
6



REPUBLIC OF THE PHILIPPINES  
 PROVINCE OF COMPOSTELA  
 MUNICIPALITY OF COMPOSTELA  
 OFFICE OF THE MUNICIPAL ENGINEER  
 AND BUILDING OFFICIAL

PROJECT TITLE:	CONSTRUCTION OF SINGLE BARREL BOX CULVERT @ BATINI CREEK
Location:	PUROK 9, SAN AGUSTIN, NGAN, COMPOSTELA, DAVAO DE ORO

PREPARED BY:  
 LEONILLO O. CAVAN, CE  
 Engineer III

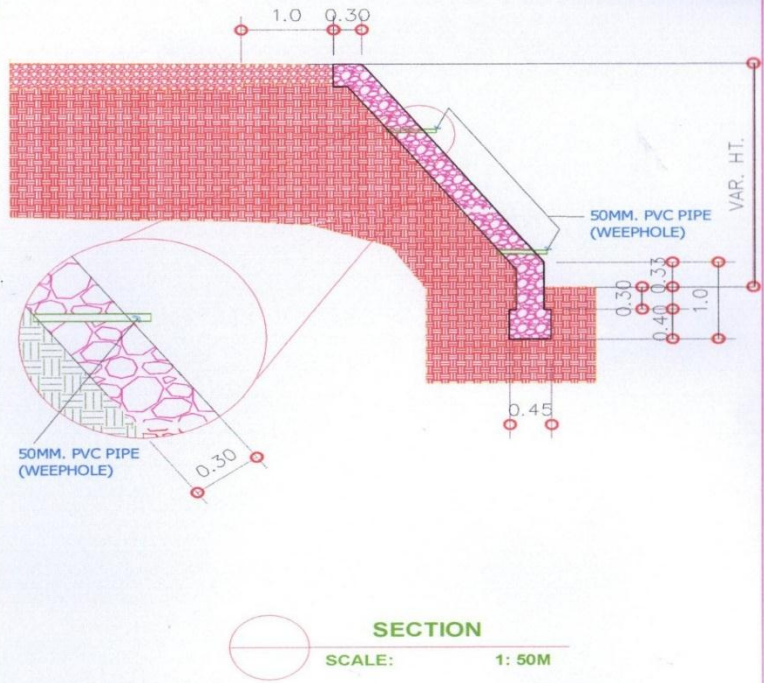
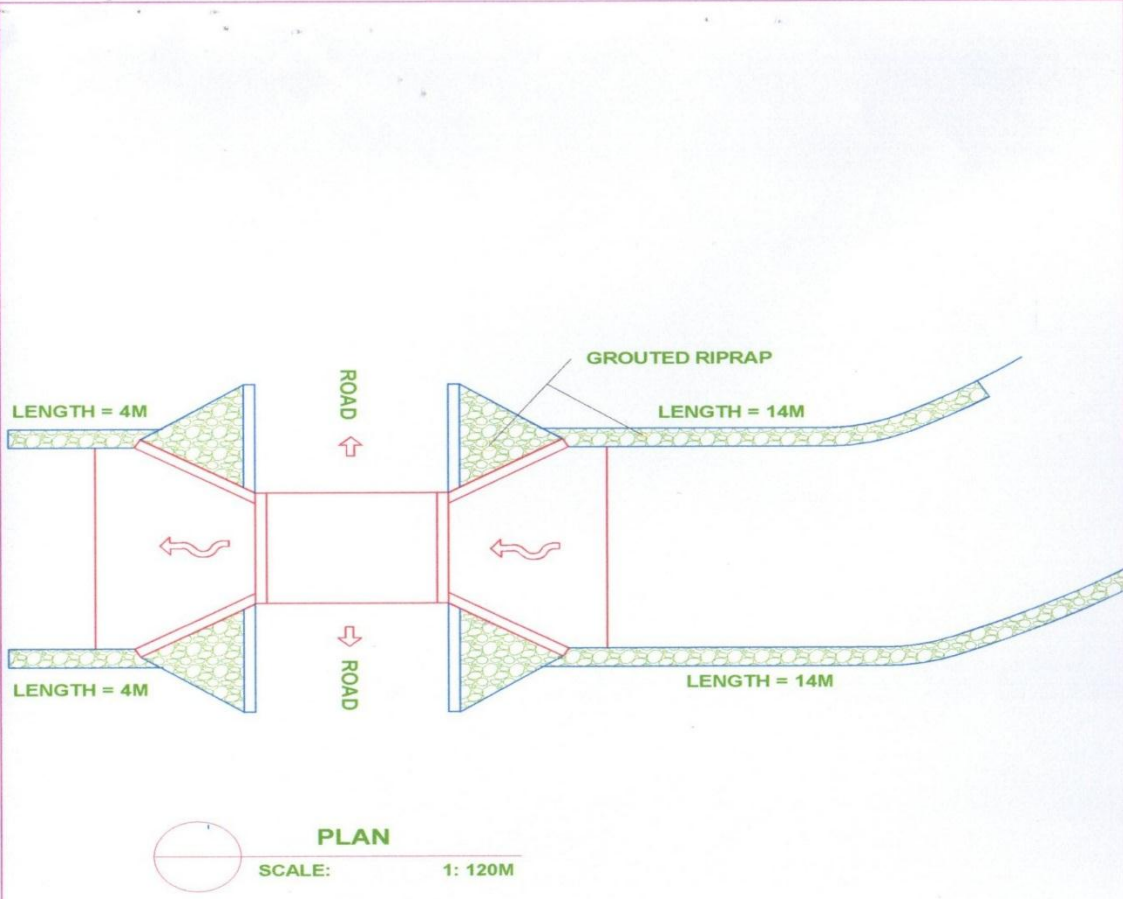
CHECKED & REVIEWED BY:  
 FELICITA R. DETROS, CE  
 Municipal Engineer

APPROVED BY:  
 LEMA POBLETE-BOLO, CPA  
 Municipal Mayor

SHEET CONTENTS:  
 APRON / WHEEL GUARD DETAILS

SHEET NO.  
 5  
 6






REPUBLIC OF THE PHILIPPINES  
PROVINCE OF COMPOSTELA  
MUNICIPALITY OF COMPOSTELA  
OFFICE OF THE MUNICIPAL ENGINEER  
AND BUILDING OFFICIAL

PROJECT TITLE:  
CONSTRUCTION OF SINGLE BARREL BOX CULVERT @ BATINI CREEK

Location: PUROK 9, SAN AGUSTIN, NGAN, COMPOSTELA, DAVAO DE ORO

PREPARED BY:  
  
LEONILO O. CAVAN, CE  
Engineer III

CHECKED & REVIEWED BY:  
  
FELICITAS R. DETROS, CE  
Municipal Engineer

APPROVED BY:  
  
LEMA POBLETE-BOLO, CPA  
Municipal Mayor

SHEET CONTENTS:  
RIPRAP DETAILS

SHEET NO.  


## *Section VIII. Bill of Quantities*

**Project Title: *Construction of Single Barrel Box Culvert at Batini Creek***  
**ABC (Php): *1,500,000.00***

Project Title: <i>Construction of Single Barrel Box Culvert at Batini Creek</i>					
ABC (Php): <i>1,500,000.00</i>					
Item No.	Description of Works	Quantity	Unit	Unit Price (In words & figures)	Total Price (In words & figures)
1.	SPL-1 - MOBILIZATION / DEMOLIZATION	1	lot		
2.	103 - STRUCTURE EXCAVATION	30	cu.m		
3.	104 - EMBANKMENT	71	cu.m		
4.	404(1) - REINFORCING STEEL BAR, GRADE 40	4,800	kgs		
5.	405(1) - STRUCTURAL CONCRETE CLASS "A"	63	cu.m		
6.	505 (5) GROUTED RIPRAP, CLASS "A"	51	cu.m		
7.	SPL-2 - SIGNAGE & WARNING DEVICE	1	lot		
<b><i>GRAND TOTAL (In words and Figures)</i></b>					

Note: Total cost of line item includes cost of Contractor's Profit, VAT Tax, others

<hr style="width: 80%; margin: 0 auto;"/> Name of Bidder	<hr style="width: 80%; margin: 0 auto;"/> Authorized Signatory	<hr style="width: 80%; margin: 0 auto;"/> Date
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***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.

- (l) Mayor's Permit (Municipality of Compostela)
- (m) Bidder's Fee (Official Receipt)

Financial Documents

- (n) 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**
- (o) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

***Class "B" Documents***

- (p) 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**

- (q) Original of duly signed and accomplished Financial Bid Form; **and**

Other documentary requirements under RA No. 9184

- (r) Original of duly signed Bid Prices in the Bill of Quantities; **and**
- (s) 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**
- (t) Cash Flow by Quarter.

# Bidding Forms

## Bid Form for the Procurement of Infrastructure Projects

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### 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 for this purpose;
- h. We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;
- i. We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and
- 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 THE BIDDER OF ALL ITS ONGOING GOVERNMENT AND PRIVATE CONTRACTS, INCLUDING CONTRACTS AWARDED BUT NOT YET STARTED**

Business Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

Name of Contract	Date of Contract	Contract Duration	Owner's Name & Address	Nature of Work	Contractor's Role		Total Contract Value at Award	Estimated Completion Time	Estimated Contract Value at Completion	% of Accomplish-ments		Value of Outstanding Works
					Description	% of Participation				Planned	Actual	
<u><b>GOVERNMENT</b></u>												
<u><b>PRIVATE</b></u>												
										<b>TOTAL</b>		

Note: This statement shall be supported with:

1. Notice of Award
2. Contract Agreement

Submitted by: \_\_\_\_\_

Printed Name and Signature

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

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

**STATEMENT OF SINGLE LARGEST COMPLETED CONTRACTS (SLCC)**

Business Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

Name of Contract	Date of Contract	Contract Duration	Owner's Name & Address	Nature of Work	Contractor's Role		Total Contract Value at Award	Date of Completion Time	Total Contract Value at Completion
					Description	% of Participation			
<u>Government</u>									
<u>Private</u>									

Note: This statement shall be supported with:

1. Notice of Award and/or Notice to Proceed
2. Contract Agreement
3. Certificate of Final Acceptance or Constructors Performance Evaluation System (CPES) of at least satisfactory rating.

Submitted by: \_\_\_\_\_

Printed Name and Signature

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

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

## NFCC COMPUTATION

- A. 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)	

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

NFCC = [(Current Asset – Current Liabilities) (15)] minus value of all outstanding works under ongoing contracts including awarded contracts yet to be started

NFCC = P \_\_\_\_\_

Submitted by:

\_\_\_\_\_  
Name of Supplier / Distributor / Manufacturer

\_\_\_\_\_  
Signature of Authorized Representative

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

## **Bid Securing Declaration Form**

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

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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]*

## Omnibus Sworn Statement (Revised)

*[shall be submitted with the Bid]*

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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]*



