PHILIPPINES

PROVINCIAL ROAD MANAGEMENT FACILITY

REHABILITATION AND MINOR IMPROVEMENT OF AGUSAN DEL SUR PROVINCIAL GRAVEL ROADS – PACKAGE 2 (Ref. Code: PW-ADS-13-04)

BIDDING DOCUMENTS

November 2014

19th Floor Salcedo Towers, 169 HV dela Costa Street, Salcedo Village, Makati City, 1227 Philippines
Telephone No. (+632) 753 1241 I Fax No. (+632) 753 2150 I Website: www.prmf.org.ph

TABLE OF CONTENTS

Section 1: Invitation to Negotiate

Invitation to Negotiate for Identified Bidders for

The Rehabilitation and Minor Improvement of NRJ Bayugan – San Luis Road (Bucac-Marcelina Section)

(Ref. Code: PW-ADS-13-04)

1. The Department of the Interior and Local Government (DILG) XIII Regional Office, through the Philippines Provincial Road Management Facility (PRMF) and the Australian Agency for International Development (AusAID), intends to apply the sum of Six Million Two Hundred Fifty Nine Thousand One Hundred Forty One Pesos and Thirty Centavos (PhP 6,259,141.30) being the Approved Budget for the Contract (ABC) to payments under the contract for the Rehabilitation and Minor Improvement of Agusan del Sur Provincial Gravel Roads – Package 2. Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The DILG XIII Regional Office now invites proposals for the Rehabilitation and Minor Improvement of the NRJ Bayugan – San Luis Road (Bucac – Marcelina Section) with a total length of 3.98 kms. The Project will involve earthworks, preparation of sub-base and base courses, drainage works and slope protection structures, and mmiscellaneous structures. Completion of the Works is required within five (5) months exclusive of 78 rainy/unworkable days. The Bidders must have an experience of having completed at least one (1) contract that is similar to this Project, equivalent to at least 50% of the ABC adjusted to current prices using the National Statistics Office consumer price index. The description of an eligible bidder is contained in the Bidding Documents, particularly in Section II. Instructions to Bidders.

3. Procurement will be conducted through negotiated procurement procedures using non-discretionary pass/fail criterion as specified in the Implementing Rules and Regulations (IRR) of Republic Act 9184 (RA 9184), otherwise known as the "Government Procurement Reform Act", with some exceptions/amendments as stipulated in the approved Memorandum of Subsidiary Arrangement (MSA) between the Government of the Philippines (GOP), thru the DILG, and the Government of Australia (GOA).

4. Interested bidders may obtain further information from the Special Bids and Awards Committee (SBAC) and inspect the Bidding Documents at the address given below from 8:00 a.m. to 5:00 p.m. during work days.

5. A complete set of Bidding Documents in CD format (soft copy) may be secured free of charge by interested Bidders from the address below. It may also be downloaded free of charge from the website of the Philippine Government Electronic Procurement System (PhilGEPS) and the website of the Procuring Entity.

7. All Eligibility and Technical Documents/Bids must be delivered to the address below on or before 9 December 2014, 1:00 pm while Financial Documents must be delivered on the same address on or before 10 December 2014, 9:00 a.m. All bids must be accompanied by a bid security in any of the acceptable forms and amount, or a Bid Securing Declaration as stated in ITB Clause 18.3.

8. Eligibility and Technical Documents will be opened on 9 December 2014, 1:30 pm. While Financial Documents of Eligible Bidders will be opened on 10 December 2014 9:30 a.m., at the LGRRC, DILG Regional Office XIII (CARAGA), 1559 Aquino Avenue, Km. 4, Libertad, Butuan City, in the presence of the bidders' representatives who choose to attend. Late bids shall not be accepted.

9. The DILG Regional Office XIII reserves the right to accept or reject any bid, to annul the bidding process, and to reject all bids at any time prior to contract award, without thereby incurring any liability to the affected bidder or bidders.

10. For further information, please refer to:

MS. JOCELYN C. JAYOMA
Head, SBAC Secretariat
DILG Regional Office XIII (CARAGA)
1559 Aquino Avenue, Km. 4, Libertad
Butuan City
Tel. No. (085) 342 77 02; Fax No. (085) 342 12 34

(Sgd.) DONALD A. SERONAY
SBAC Chairperson

Section II: Instructions to Bidders (ITB)

TABLE OF CONTENTS

A. General

1. Scope of Bid

1.1 The Procuring Entity as defined in the **BDS**, invites bids for the construction of Works, as described in **ITB**. The name and identification number of the Contract is provided in the **BDS**.

1.2 The successful bidder will be expected to complete the Works by the intended completion date specified in **SCC** Clause 1.16.

2. Source of Funds

The Procuring Entity has a budget or has applied for or received funds from the Funding Source named in the **BDS**, and in the amount indicated in the **BDS**. It intends to apply part of the funds received for the Project, as defined in the **BDS**, to cover eligible payments under the Contract for the Works.

3. Corrupt, Fraudulent, Collusive, and Coercive Practices

3.1 Unless otherwise specified in the **BDS**, the Procuring Entity, as well as bidders and contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. In pursuance of this policy, the Funding Source:

(a) defines, for purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves, others, or induce others to do so, by misusing the position in which they are placed, and includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; entering, on behalf of the Procuring Entity, into any contract or transaction manifestly and grossly disadvantageous to the same, whether or not the public officer profited or will profit thereby, and similar acts as provided in Republic Act 3019;

(ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Procuring Entity, and includes collusive practices among Bidders (prior to or after Bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the Procuring Entity of the benefits of free and open competition;

(iii) “collusive practices” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Procuring

Entity, designed to establish bid prices at artificial, non-competitive levels; and

(iv) "coercive practices" means harming or threatening to harm, directly or indirectly, persons, or their property to influence their participation in a procurement process, or affect the execution of a contract;

(v) "obstructive practice" is:

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to an administrative proceedings or investigation or making false statements to investigators in order to materially impede an administrative proceedings or investigation of the Procuring Entity or any foreign government/foreign or international financing institution into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the administrative proceedings or investigation or from pursuing such proceedings or investigation; or

(bb) acts intended to materially impede the exercise of the inspection and audit rights of the Procuring Entity or any foreign government/foreign or international financing institution herein.

(b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the Contract; and

(c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded Contract funded by the Funding Source if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing or, or in executing, a Contract funded by the Funding Source.

3.2 Further, the Procuring Entity will seek to impose the maximum civil, administrative, and/or criminal penalties available under the applicable laws on individuals and organizations deemed to be involved in any of the practices mentioned in **ITB** Clause 3.1 (a).

3.3 Furthermore, the Funding Source and the Procuring Entity reserve the right to inspect and audit records and accounts of a contractor in the bidding for and performance of a contract themselves or through independent auditors as reflected in the **GCC** Clause 34.

4. Conflict of Interest

4.1 All bidders found to have conflicting interests shall be disqualified to participate in the procurement at hand, without prejudice to the imposition of appropriate administrative, civil, and criminal sanctions. A Bidder may be considered to have conflicting interests with another Bidder in any of the events described in paragraphs (a) through (c) and a general conflict of interest in any of the circumstances set out in paragraphs (d) through (g) below:

(a) A Bidder has controlling shareholders in common with another Bidder;

(b) A Bidder receives or has received any direct or indirect subsidy from any other Bidder;

(c) A Bidder has the same legal representative as that of another Bidder for purposes of this Bid;

(d) A Bidder has a relationship, directly or through third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder or influence the decisions of the Procuring Entity regarding this bidding process. This will include a firm or an organization who lends, or temporarily seconds, its personnel to firms or organizations which are engaged in consulting services for the preparation related to procurement for or implementation of the project if the personnel would be involved in any capacity on the same project;

(e) A Bidder submits more than one bid in this bidding process. However, this does not limit the participation of subcontractors in more than one bid;

(f) A Bidder who participated as a consultant in the preparation of the design or technical specifications of the goods and related services that are the subject of the bid; or

(g) A Bidder who lends, or temporary seconds, its personnel to firms or organizations which are engaged in consulting services for the preparation related to procurement for or implementation of the project, if the personnel would be involved in any capacity on the same project.

4.2 In accordance with Section 47 of the IRR of RA 9184, all Bidding Documents shall be accompanied by a *sworn affidavit* of the Bidder that it is not related to the Head of the Procuring Entity, or any of the members of the Special Bids and Awards Committee (SBAC), members of the Special Technical Working Group (TWG), members of the SBAC Secretariat, the Head of the Project Management Office (PMO) or the end-user unit, and the project consultants, by consanguinity or affinity up to the third civil degree. On the part of the bidder, this Clause shall apply to the following persons:

(a) If the Bidder is an individual or a sole proprietorship, to the Bidder himself;

(b) If the Bidder is a partnership, to all its officers and members;

(c) If the Bidder is a corporation, to all its officers, directors, and controlling stockholders; and

(d) If the Bidder is a joint venture (JV), the provisions of items (a), (b), or (c) of this Clause shall correspondingly apply to each of the members of the said JV, as may be appropriate.

Relationship of the nature described above or failure to comply with this Clause will result in the automatic disqualification of a Bidder.

5. Eligible Bidders

5.1 Unless otherwise indicated in the **BDS**, the following persons shall be eligible to participate in this Bidding:

(a) Duly licensed Filipino citizens/sole proprietorships;

(b) Partnerships duly organized under the laws of the Philippines and of which at least seventy five percent (75%) of the interest belongs to citizens of the Philippines;

(c) Corporations duly organized under the laws of the Philippines, and of which at least seventy five percent (75%) of the outstanding capital stock belongs to citizens of the Philippines;

(d) Cooperatives duly organized under the laws of the Philippines, and of which at least seventy five percent (75%) of the interest belongs to citizens of the Philippines; and

(e) Persons/entities forming themselves into a JV, i.e., a group of two (2) or more persons/entities that intend to be jointly and severally responsible or liable for a particular contract: Provided, however, that, in accordance with Letter of Instructions No. 630, Filipino ownership or interest of the joint venture concerned shall be at least seventy five percent (75%): Provided, further, that joint ventures in which Filipino ownership or interest is less than seventy five percent (75%) may be eligible where the structures to be built require the application of techniques and/or technologies which are not adequately possessed by a person/entity meeting the seventy five percent (75%) Filipino ownership requirement: Provided, finally, that in the latter case, Filipino ownership or interest shall not be less than twenty five percent (25%). For this purpose Filipino ownership or interest shall be based on the contributions of each of the members of the joint venture as specified in their JVA.

5.2 The Procuring Entity may also invite foreign bidders when provided for under any Treaty or International or Executive Agreement as specified in the **BDS**.

5.3 Government Corporate Entities may be eligible to participate only if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law, and (c) are not dependent agencies of the GOP or the Procuring Entity.

5.4 (a) Unless otherwise provided in the BDS, the Bidder must have an experience of having completed at least one (1) contract that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC adjusted to current prices using the National Statistics Office consumer price index. However contractors under Small A and Small B categories without similar experience on the contract to be bid may be allowed to bid if the cost of such contract is not more than fifty percent (50%) of the Allowable Range of Contract Cost (ARCC) of their registration based on the guidelines as prescribed by the PCAB.

(b) 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 **BDS**.

For this purpose, contracts similar to the Project shall be those described in the **BDS**, and completed within the period stated in the Invitation to Bid and **ITB** Clause 12.1(a)(iii).

5.5 The Bidder must submit a computation of its Net Financial Contracting Capacity (NFCC) which must be at least equal to the ABC to be bid, calculated as follows:

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

Where:

K = 10 for a contract duration of one year or less, 15 for a contract duration of more than one year up to two years, and 20 for a contract duration of more than two years.

The values of the bidder's current assets and current liabilities shall be based on the data submitted to the BIR, through its Electronic Filing and Payment System (EFPS).

6. Bidder's Responsibilities

6.1 The Bidder or its duly authorized representative shall submit a sworn statement in the form prescribed in Section IX: Bidding Forms as required in **ITB** Clause 12.1(b)(iii).

6.2 The Bidder is responsible for the following:

(a) Having taken steps to carefully examine all of the Bidding Documents;

(b) Having acknowledged all conditions, local or otherwise, affecting the implementation of the contract;

(c) Having made an estimate of the facilities available and needed for the contract to be bid, if any;

(d) Having complied with its responsibility to inquire or secure Supplemental/Bid Bulletin/s as provided under **ITB** Clause 10.3.

(e) Ensuring that it is not "blacklisted" or barred from bidding by the GOP or any of its agencies, offices, corporations, or LGUs, including foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the GPPB;

(f) Ensuring that 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;

(g) Authorizing the Head of the Procuring Entity as specified in the **BDS** or its duly authorized representative/s to verify all the documents submitted;

(h) Ensuring that the signatory is the duly authorized representative of the Bidder, and granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Bidder in the bidding, with the duly notarized Secretary's Certificate attesting to such fact, if the Bidder is a corporation, partnership, cooperative, or joint venture;

(i) Complying with the disclosure provision under Section 47 of the Act in relation to other provisions of Republic Act 3019; and

(j) Complying with existing labor laws and standards, if applicable.

Failure to observe any of the above responsibilities shall be at the risk of the Bidder concerned.

6.3 The Bidder, by the act of submitting its bid, shall be deemed to have inspected the site, determined the general characteristics of the contract works and the conditions for this Project and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

6.4 It shall be the sole responsibility of the prospective bidder to determine and to satisfy itself by such means as it considers necessary or desirable as to all matters pertaining to this Project, including: (a) the location and the nature of the contract, project, or 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.

6.5 The Procuring Entity shall not assume any responsibility regarding erroneous interpretations or conclusions by the prospective or eligible bidder out of the data furnished by the procuring entity.

6.6 Before submitting their bids, the Bidders are deemed to have become familiar with all existing laws, decrees, ordinances, acts and regulations of the Philippines which may affect the contract in any way.

6.7 The Bidder shall bear all costs associated with the preparation and submission of his bid, and the Procuring Entity will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

7. Origin of Goods and Services

There is no restriction on the origin of Goods, or Contracting of Works or Services other than those prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations.

8. Subcontracts

8.1 Unless otherwise specified in the **BDS**, the Bidder may subcontract portions of the Works to an extent as may be approved by the Procuring Entity and stated in the **BDS**. However, subcontracting of any portion shall not relieve the Bidder from any liability or obligation that may arise from the contract for this Project.

8.2 Subcontractors must submit the documentary requirements under **ITB** Clause 12 and comply with the eligibility criteria specified in the **BDS**. In the event that any subcontractor is found by the Procuring Entity to be ineligible, the subcontracting of such portion of the Works shall be disallowed.

8.3 The Bidder may identify the subcontractor to whom a portion of the Works will be subcontracted at any stage of the bidding process or during contract implementation. If the Bidder opts to disclose the name of the subcontractor during bid submission, the Bidder shall include the required documents as part of the technical component of its bid.

B. Contents of Bidding Documents

9. Pre-Bid Conference

9.1 (a) If so specified in the **BDS**, a pre-bid conference shall be held at the venue and on the date indicated therein, to clarify and address the Bidders' questions on the technical and financial components of this Project.

(b) The pre-bid conference shall be held at least twelve (12) calendar days before the deadline for the submission of and receipt of bids. If the Procuring Entity determines that, by reason of the method, nature, or complexity of the contract to be bid, or when international participation will be more advantageous to the GOP, a longer period for the preparation of bids is necessary, the pre-bid conference shall be held at least thirty (30) calendar days before the deadline for the submission and receipt of bids, as specified in the **BDS**.

9.2 Bidders are encouraged to attend the pre-bid conference to ensure that they fully understand the Procuring Entity's requirements. Non-attendance of the Bidder will in no way prejudice its bid; however, the Bidder is expected to know the changes and/or amendments to the Bidding Documents as recorded in the minutes of the pre-bid conference and the Supplemental/Bid Bulletin.

9.3 Any statement made at the pre-bid conference shall not modify the terms of the bidding documents unless such statement is specifically identified in writing as an amendment thereto and issued as a Supplemental/Bid Bulletin.

10. Clarification and Amendment of Bidding Documents

10.1 Bidders who have secured the Bidding Documents may request for clarification(s) on any part of the Bidding Documents or for an interpretation. Such a request must be in writing and submitted to the Procuring Entity at the address indicated in the **BDS** at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10.2 Supplemental/Bid Bulletins may be issued upon the Procuring Entity's initiative for purposes of clarifying or modifying any provision of the Bidding Documents not later than seven (7) calendar days before the deadline for the submission and receipt of Bids. Any modification to the Bidding Documents shall be identified as an amendment.

10.3 Any Supplemental/Bid Bulletin issued by the SBAC shall also be posted on the Philippine Government Electronic Procurement System (PhilGEPS) and the website of the Procuring Entity concerned, if available. Unless otherwise provided in the **BDS**, it shall be the responsibility of all Bidders who secured the Bidding Documents to inquire and secure Supplemental/Bid Bulletins that may be issued by the SBAC. However, bidders who have submitted bids before the issuance of the Supplemental/Bid Bulletin must be informed and allowed to modify or withdraw their bids in accordance with **ITB** Clause 23.

C. Preparation of Bids

11. Language of Bids

The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Procuring Entity, shall be written in English. Supporting documents and printed

literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation in English certified by the appropriate embassy or consulate in the Philippines, in which case the English translation shall govern, for purposes of interpretation of the Bid.

12. Documents Comprising the Bid: Eligibility and Technical Components

12.1 Unless otherwise indicated in the **BDS**, the first envelope shall contain the following eligibility and technical documents:

(a) Eligibility Documents –

Class "A" Documents:

(i) Registration certificate from the Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives, or any proof of such registration as stated in the **BDS**;

(ii) Mayor's permit issued by the city or municipality where the principal place of business of the prospective bidder is located;

(iii) Statement of all of its ongoing and completed government and private contracts, including contracts awarded but not yet started, if any. The statement shall include, for each contract, the following:

(iii.1) name of the contract;

(iii.2) date of the contract;

(iii.3) contract duration;

(iii.4) owner's name and address;

(iii.5) nature of work;

(iii.6) contractor's role (whether sole contractor, subcontractor, or partner in a JV) and percentage of participation;

(iii.7) total contract value at award;

(iii.8) date of completion or estimated completion time;

(iii.9) total contract value at completion, if applicable;

(iii.10) percentages of planned and actual accomplishments, if applicable;

(iii.11) value of outstanding works, if applicable;

(iii.12) the statement shall be supported by the notices of award and/or notices to proceed issued by the owners; and

(iii.13) the statement shall be supported by the Owner's Certificate of Final Acceptance or the Certificate of Completion and, whenever applicable, *Constructors Performance Evaluation System (CPES) final* rating which must be at least satisfactory.

(iv) Unless otherwise provided in the **BDS**, valid Philippine Contractors Accreditation Board (PCAB) license and registration for the type and cost of the contract for this Project;

(v) Audited financial statements, showing, among others, the prospective 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;

(vi) **NFCC** computation in accordance with ITB Clause 5.5; and

(vii) Tax Clearance per Executive Order 398, Series of 2005, as finally reviewed and approved by the BIR.

Class "B" Document:

(i) If applicable, valid Joint Venture Agreement (JVA) or, in lieu thereof, 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 shall be included in the bid.

(b) Technical Documents

(i) Bid security as prescribed in **ITB** Clause 18. If the Bidder opts to submit the bid security in the form of:

(i.1) a bank draft guarantee or an irrevocable letter of credit issued by a foreign bank, it shall be accompanied by a confirmation from a Universal or Commercial Bank; or

(i.2) a surety bond accompanied by a certification coming from the Insurance Commission that a surety or insurance company is authorized to issue such instrument; or

(i.3) in lieu of a bid security, a Bid Securing Declaration, which states that the bidders shall enter into contract with the procuring entity and furnish the required performance

security within ten (10) days or less from the receipt of Notice of Award (NOA), penalties are indicated in Clause 18.3.

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

(ii.1) Organizational chart for the contract to be bid;

(ii.2) List of contractor's personnel (such as, but not limited to, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data; and

(ii.3) List of contractor's 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 which must meet the minimum requirements for the contracts set in the **BDS**; and

(iii) Sworn statement in accordance with Section 25.2(b)(iv) of the IRR of RA 9184 and using the form prescribed in Section IX: Bidding Forms.

13. Documents Comprising the Bid: Financial Component

13.1 Unless otherwise stated in the **BDS**, the financial component of the bid shall contain the following:

(a) Financial Bid Form in accordance with the form prescribed in Section IX: Bidding Forms; and

(b) Any other document related to the financial component of the bid as stated in the **BDS**.

13.2 (a) Unless indicated in the **BDS**, all Bids that exceed the ABC shall not be accepted.

(b) Unless otherwise indicated in the **BDS**, for foreign-funded procurement, a ceiling may be applied to bid prices provided the following conditions are met:

(i) Bidding Documents are obtainable free of charge.

(ii) The procuring entity through PRMF has procedures in place to ensure that the ABC is based on recent estimates made by the engineer or the responsible unit of the procuring entity and that the estimates are based on adequate detailed engineering (in the case of works) and reflect the quality, supervision and risk and inflationary factors, as well as prevailing market prices, associated with the types of works or goods to be procured.

(iii) The procuring entity through PRMF has trained cost estimators on estimating prices and analyzing bid variances. In the case of infrastructure projects, the procuring entity must also have trained quantity surveyors.

(iv) The procuring entity through PRMF has established a system to monitor and report bid prices relative to ABC and engineer's/procuring entity's estimate.

(v) The procuring entity through PRMF has established a monitoring and evaluation system for contract implementation to provide a feedback on actual total costs of goods and works.

14. Alternative Bids

14.1 Alternative Bids shall be rejected. For this purpose, alternative bid is an offer made by a Bidder in addition or as a substitute to its original bid which may be included as part of its original bid or submitted separately therewith for purposes of bidding. A bid with options is considered an alternative bid regardless of whether said bid proposal is contained in a single envelope or submitted in two (2) or more separate bid envelopes.

14.2 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.

14.3 Each Bidder shall submit only one Bid, either individually or as a partner in a JV. A Bidder who submits or participates in more than one bid (other than as a subcontractor if a subcontractor is permitted to participate in more than one bid) will cause all the proposals with the Bidder's participation to be disqualified. This shall be without prejudice to any applicable criminal, civil and administrative penalties that may be imposed upon the persons and entities concerned.

15. Bid Prices

15.1 The contract shall be for the whole Works, as described in **ITB** Clause 1.1, based on the priced Bill of Quantities submitted by the Bidder.

15.2 The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Bids not addressing or providing all of the required items in the Bidding Documents including, where applicable, bill of quantities, shall be considered non-responsive and, thus, automatically disqualified. In this regard, where a required item is provided, but no price is indicated, the same shall be considered as non-responsive, but specifying a "0" (zero) for the said item would mean that it is being offered for free to the Procuring Entity.

15.3 All duties, taxes except Value-Added Tax (VAT), and other levies payable by the Contractor under the Contract, or for any other cause, prior to the deadline for submission of bids, shall be included in the rates, prices, and total bid price submitted by the Bidder.

15.4 All bid prices for the given scope of work in the contract as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as specified in GCC Clause 49. Price escalation may be allowed in extraordinary circumstances as may be determined by the National Economic and Development Authority in accordance with the Civil Code of the Philippines, and upon the recommendation of the Procuring Entity. Furthermore, in cases where the cost of the awarded contract is affected by any applicable new laws, ordinances, regulations, or other acts of the GOP, promulgated after the date of bid opening, a contract price adjustment shall be made or appropriate relief shall be applied on a no loss-no gain basis.

16. Bid Currencies

16.1 All bid prices shall be quoted in Philippine Pesos unless otherwise provided in the **BDS**. However, for purposes of bid evaluation, bids denominated in foreign currencies shall be converted to Philippine currency based on the exchange rate prevailing on the day of the Bid opening.

16.2 If so allowed in accordance with **ITB** Clause 16.1, the Procuring Entity for purposes of bid evaluation and comparing the bid prices will convert the amounts in various currencies in which the bid price is expressed to Philippine Pesos at the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

16.3 Unless otherwise specified in the **BDS**, payment of the contract price shall be made in Philippine Pesos.

17. Bid Validity

17.1 Bids shall remain valid for the period specified in the **BDS** which shall not exceed one hundred twenty (120) calendar days from the date of the opening of bids.

In exceptional circumstances, prior to the expiration of the bid validity period, the Procuring Entity may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. The bid security described in ITB Clause 18 should also be extended corresponding to the extension of the bid validity period at the least. A Bidder may refuse the request without forfeiting its bid security, but his bid shall no longer be considered for further evaluation and award. A Bidder granting the request shall not be required or permitted to modify its bid.

18. Bid Security

18.1 The Procuring Entity shall prescribe in the BDS the acceptable forms of bid security that the bidders may opt to use, which shall include the Bid Securing Declaration and at least one (1) other form, the amount of which shall be equal to the percentage of the ABC in accordance with the following schedule:

Form of Bid Security	**Amount of Bid Security (Equal to Percentage of the ABC)**
Cash or cashier's/manager's check issued by a Universal or Commercial Bank.	Two percent (2%)
Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.	
Surety bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security; and/or	Five percent (5%)
Any combination of the foregoing.	Proportionate to share of form with respect to total amount of security
Bid Securing Declaration	No percentage required.

The Bid Securing Declaration mentioned above is an undertaking which states, among others, that the bidder shall enter into contract with the Procuring Entity and furnish the performance security required under ITB 32.2 from receipt of Notice of Award, and committing to pay the corresponding fine, and be suspended for a period of time from being qualified to participate in any government procurement activity in the event it violates any of the conditions stated therein as provided in the guidelines issued by the GPPB.

18.2 The bid security should be valid for the period specified in the **BDS**. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

18.3 No bid securities shall be returned to bidders after the opening of bids and before contract signing, except to those that failed or declared as post-disqualified, upon submission of a written waiver of their right to file a motion for reconsideration and/or protest. Without prejudice on its forfeiture, Bid Securities shall be returned only after the bidder with the Lowest Calculated Responsive Bid has signed the contract and furnished the Performance Security, but in no case later than the expiration of the Bid Security validity period indicated in **ITB** Clause 18.2.

18.4 Upon signing and execution of the contract, pursuant to **ITB** Clause 31, and the posting of the performance security, pursuant to **ITB** Clause 32, the successful Bidder's Bid

security will be discharged, but in no case later than the Bid security validity period as indicated in **ITB** Clause 18.2.

18.5 The bid security may be forfeited:

(a) if a Bidder:

(i) withdraws its bid during the period of bid validity specified in **ITB** Clause 17;

(ii) does not accept the correction of errors pursuant to **ITB** Clause 27.3(b);

(iii) fails to submit the requirements within the prescribed period, or a finding against their veracity, as stated in ITB Clause 28.2;

(iv) submission of eligibility requirements containing false information or falsified documents;

(v) submission of bids that contain false information or falsified documents, or the concealment of such information in the bids in order to influence the outcome of eligibility screening or any other stage of the public bidding;

(vi) allowing the use of one's name, or using the name of another for purposes of public bidding;

(vii) withdrawal of a bid, or refusal to accept an award, or enter into contract with the Government without justifiable cause, after the Bidder had been adjudged as having submitted the Lowest Calculated and Responsive Bid;

(viii) refusal or failure to post the required performance security within the prescribed time;

(ix) refusal to clarify or validate in writing its bid during post-qualification within a period of seven (7) calendar days from receipt of the request for clarification;

(x) any documented attempt by a bidder to unduly influence the outcome of the bidding in his favor;

(xi) failure of the potential joint venture partners to enter into the joint venture after the bid is declared successful; or

(xii) all other acts that tend to defeat the purpose of the competitive bidding, such as habitually withdrawing from bidding, submitting late

Bids or patently insufficient bid, for at least three (3) times within a year, except for valid reasons.

(b) if the successful Bidder:

(i) fails to sign the contract in accordance with **ITB** Clause 31;

(ii) fails to furnish performance security in accordance with **ITB** Clause 32.

19. Format and Signing of Bids

19.1 Bidders shall submit their bids through their duly authorized representative using the appropriate forms provided in Section IX: Bidding Frorms on or before the deadline specified in the **ITB** Clause 21 in two (2) separate sealed bid envelopes, and which shall be submitted simultaneously. The first shall contain the technical component of the bid, including the eligibility requirements under **ITB** Clause 12.1, and the second shall contain the financial component of the bid.

19.2 Forms as mentioned in **ITB** Clause 19.1 must be completed without any alterations to their format, and no substitute form shall be accepted. All blank spaces shall be filled in with the information requested.

19.3 The Bidder shall prepare an original of the first and second envelopes as described in **ITB** Clauses 12 and 13. In addition, the *Bidder* shall submit copies of the first and second envelopes. In the event of any discrepancy between the original and the copies, the original shall prevail.

19.4 The bid, except for unamended printed literature, shall be signed, and each and every page thereof shall be initialed, by the duly authorized representative/s of the Bidder.

19.5 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the duly authorized representative/s of the Bidder.

20. Sealing and Marking of Bids

20.1 Bidders shall enclose their original eligibility and technical documents described in **ITB** Clause 12, in one sealed envelope marked "ORIGINAL - TECHNICAL COMPONENT", and the original of their financial component in another sealed envelope marked "ORIGINAL - FINANCIAL COMPONENT", sealing them all in an outer envelope marked "ORIGINAL BID".

20.2 Each copy of the first and second envelopes shall be similarly sealed duly marking the inner envelopes as "COPY NO. _____ - TECHNICAL COMPONENT" and "COPY NO. – FINANCIAL COMPONENT" and the outer envelope as "COPY NO. _____ ", respectively. These envelopes containing the original and the copies shall then be enclosed in one single envelope.

20.3 The original and the number of copies of the Bid as indicated in the **BDS** shall be typed or written in indelible ink and shall be signed by the bidder or its duly authorized representative/s.

20.4 All envelopes shall:

(a) contain the name of the contract to be bid in capital letters;

(b) bear the name and address of the Bidder in capital letters;

(c) be addressed to the Procuring Entity's SBAC identified in **ITB** Clause 10.1;

(d) bear the specific identification of this bidding process indicated in the Invitation to Bid; and

(e) bear a warning "DO NOT OPEN BEFORE…" the date and time for the opening of bids, in accordance with **ITB** Clause 21.

20.5 If bids are not sealed and marked as required, the Procuring Entity will assume no responsibility for the misplacement or premature opening of the bid.

D. Submission and Opening of Bids

21. Deadline for Submission of Bids

Bids must be received by the Procuring Entity's SBAC at the address and on or before the date and time indicated in the **BDS**.

22. Late Bids

Any bid submitted after the deadline for submission and receipt of bids prescribed by the Procuring Entity, pursuant to **ITB** Clause 21, shall be declared "Late" and shall not be accepted by the Procuring Entity.

23. Modification and Withdrawal of Bids

23.1 The Bidder may modify its bid after it has been submitted; provided that the modification is received by the Procuring Entity prior to the deadline prescribed for submission and receipt of bids. The Bidder shall not be allowed to retrieve its original bid, but shall be allowed to submit another bid equally sealed, properly identified, linked to its original bid marked as "TECHNICAL MODIFICATION" or "FINANCIAL MODIFICATION" and stamped "received" by the SBAC. Bid modifications received after the applicable deadline shall not be considered and shall be returned to the Bidder unopened.

23.2 A Bidder may, through a letter of withdrawal, withdraw its bid after it has been submitted, for valid and justifiable reason; provided that the letter of withdrawal is

received by the Procuring Entity prior to the deadline prescribed for submission and receipt of bids.

23.3 Bids requested to be withdrawn in accordance with **ITB** Clause 23.1 shall be returned unopened to the Bidders. A Bidder may also express its intention not to participate in the bidding through a letter which should reach and be stamped by the SBAC before the deadline for submission and receipt of bids. A Bidder that withdraws its bid shall not be permitted to submit another bid, directly or indirectly, for the same contract.

No bid may be modified after the deadline for submission of bids. No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Financial Bid Form. Withdrawal of a bid during this interval shall result in the forfeiture of the Bidder's bid security, pursuant to **ITB** Clause 18.5, and the imposition of administrative, civil, and criminal sanctions as prescribed by RA 9184 and its IRR.

24. Opening and Preliminary Examination of Bids

24.1 The SBAC shall open the first bid envelopes of Bidders in public as specified in the **BDS** to determine each Bidder's compliance with the documents prescribed in **ITB** Clause 12. For this purpose, the SBAC shall check the submitted documents of each bidder against a checklist of required documents to ascertain if they are all present, using a non-discretionary ***"pass/fail***" criterion. If a bidder submits the required document, it shall be rated "passed" for that particular requirement. In this regard, bids that fail to include any requirement or are incomplete or patently insufficient shall be considered as "failed". Otherwise, the SBAC shall rate the said first bid envelope as "passed".

24.2 Unless otherwise specified in the **BDS**, immediately after determining compliance with the requirements in the first envelope, the SBAC shall forthwith open the second bid envelope of each remaining eligible bidder whose first bid envelope was rated "passed". The second envelope of each complying bidder shall be opened within the same day. In case one or more of the requirements in the second envelope of a particular bid is missing, incomplete or patently insufficient, and/or if the submitted total bid price exceeds the ABC unless otherwise provided in **ITB** Clause 13.1(b), the SBAC shall rate the bid concerned as "failed". Only bids that are determined to contain all the bid requirements for both components shall be rated "passed" and shall immediately be considered for evaluation and comparison.

24.3 Letters of withdrawal shall be read out and recorded during bid opening, and the envelope containing the corresponding withdrawn bid shall be returned to the Bidder unopened. If the withdrawing Bidder's representative is in attendance, the original bid and all copies thereof shall be returned to the representative during the bid opening. If the representative is not in attendance, the Bid shall be returned unopened by registered mail. The Bidder may withdraw its bid prior to the deadline for the submission and receipt of bids, provided that the corresponding letter of withdrawal

contains a valid authorization requesting for such withdrawal, subject to appropriate administrative sanctions.

24.4 If a Bidder has previously secured a certification from the Procuring Entity to the effect that it has previously submitted the above-enumerated Class "A" Documents, the said certification may be submitted in lieu of the requirements enumerated in **ITB** Clause 12.1(a), items (i) to (vi).

24.5 In the case of an eligible foreign Bidder as described in **ITB** Clause 5, the Class "A" Documents enumerated in **ITB** Clause 12.1(a) may be substituted with the appropriate equivalent documents, if any, issued by the country of the foreign Bidder concerned.

24.6 Each partner of a joint venture agreement shall likewise submit the documents required in **ITB** Clauses 12.1(a)(i) and 12.1(a)(ii). Submission of documents required under **ITB** Clauses 12.1(a)(iii) to 12.1(a)(vi) by any of the joint venture partners constitutes compliance.

E. Evaluation and Comparison of Bids

25. Process to be Confidential

25.1 Members of the SBAC, including its staff and personnel, as well as its Secretariat and TWG, are prohibited from making or accepting any kind of communication with any bidder regarding the evaluation of their bids until the issuance of the Notice of Award, unless in the case of **ITB** Clause 26.

25.2 Any effort by a bidder to influence the Procuring Entity in the Procuring Entity's decision in respect of Bid evaluation, Bid comparison or contract award will result in the rejection of the Bidder's Bid.

26. Clarification of Bids

To assist in the evaluation, comparison and post-qualification of the bids, the Procuring Entity may ask in writing any Bidder for a clarification of its bid. All responses to requests for clarification shall be in writing. Any clarification submitted by a Bidder in respect to its bid and that is not in response to a request by the Procuring Entity shall not be considered.

27. Detailed Evaluation and Comparison of Bids

27.1 The Procuring Entity will undertake the detailed evaluation and comparison of Bids which have passed the opening and preliminary examination of Bids, pursuant to **ITB** Clause 24, in order to determine the Lowest Calculated Bid.

27.2 In evaluating the Bids to get the Lowest Calculated Bid, the Procuring Entity shall undertake the following:

(a) The detailed evaluation of the financial component of the bids, to establish the correct calculated prices of the bids; and

(b) The ranking of the total bid prices as so calculated from the lowest to highest. The bid with the lowest price shall be identified as the Lowest Calculated Bid.

27.3 The Procuring Entity's SBAC shall immediately conduct a detailed evaluation of all bids rated "passed," using non-discretionary "pass/fail" criterion. The SBAC shall consider the following in the evaluation of bids:

(a) **Completeness of the bid**. Unless the ITB specifically allows partial bids, bids not addressing or providing all of the required items in the Schedule of Requirements including, where applicable, bill of quantities, shall be considered non-responsive and, thus, automatically disqualified. In this regard, where a required item is provided, but no price is indicated, the same shall be considered as non-responsive, but specifying a "0" (zero) for the said item would mean that it is being offered for free to the Procuring Entity; and

(b) **Arithmetical corrections**. Consider computational errors and omissions to enable proper comparison of all eligible bids. It may also consider bid modifications if expressly allowed in the **BDS**. Any adjustment shall be calculated in monetary terms to determine the calculated prices.

27.4 Based on the detailed evaluation of bids, those that comply with the above-mentioned requirements shall be ranked in the ascending order of their total calculated bid prices, as evaluated and corrected for computational errors, discounts and other modifications, to identify the Lowest Calculated Bid. Total calculated bid prices, as evaluated and corrected for computational errors, discounts and other modifications, which exceed the ABC, shall not be considered, unless otherwise indicated in the **BDS**.

27.5 The Procuring Entity's evaluation of bids shall only be based on the bid price quoted in the Financial Bid Form

27.6 Bids shall be evaluated on an equal footing to ensure fair competition. For this purpose, all bidders shall be required to include in their bids the cost of all taxes, such as, but not limited to, income tax, local taxes, and other fiscal levies and duties which shall be itemized in the bid form and reflected in the detailed estimates. Such bids, including said taxes, shall be the basis for bid evaluation and comparison.

27.7 The SBAC shall submit its Bid Evaluation Report (BER) to **PRMF-FMG through the FD** and request for a No Objection Letter (NOL) on the recommendation contained therein.

28. Post Qualification

28.1 The Procuring Entity shall determine to its satisfaction whether the Bidder that is evaluated as having submitted the Lowest Calculated Bid (LCB) complies with and is

responsive to all the requirements and conditions specified in **ITB** Clauses 5, 12, and 13.

28.2 Within a non-extendible period of three (3) calendar days from receipt by the Bidder of the notice from the SBAC that it submitted the LCB, the Bidder shall submit the following documentary requirements:

(a) Latest income and business tax returns in the form specified in the **BDS**;

(b) Certificate of PhilGEPS Registration; and

(c) Other appropriate licenses and permits required by law and stated in the **BDS**.

Failure of the Bidder declared as LCB to duly submit the requirements under this Clause or a finding against the veracity of such shall be ground for forfeiture of the bid security and disqualification of the Bidder for award.

28.3 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted pursuant to **ITB** Clauses 12 and 13, as well as other information as the Procuring Entity deems necessary and appropriate, using a non-discretionary "pass/fail" criterion.

28.4 If the SBAC determines that the Bidder with the Lowest Calculated Bid passes all the criteria for post-qualification, it shall declare the said bid as the Lowest Calculated Responsive Bid, and recommend to the Head of the Procuring Entity the award of contract to the said Bidder at its submitted price or its calculated bid price, whichever is lower, subject to **ITB** Clause 30.3.

28.5 A negative determination shall result in rejection of the Bidder's Bid, in which event the Procuring Entity shall proceed to the next Lowest Calculated Bid to make a similar determination of that Bidder's capabilities to perform satisfactorily. If the second Bidder, however, fails the post qualification, the procedure for post qualification shall be repeated for the Bidder with the next Lowest Calculated Bid, and so on until the Lowest Calculated and Responsive Bid is determined for contract award.

28.6 Within a period not exceeding seven (7) calendar days from the date of receipt of the recommendation of the SBAC, the Head of the Procuring Entity shall approve or disapprove the said recommendation.

29. Reservation Clause

29.1 Notwithstanding the eligibility or post-qualification of a bidder, the Procuring Entity concerned reserves the right to review its qualifications at any stage of the procurement process if it has reasonable grounds to believe that a misrepresentation has been made by the said bidder, or that there has been a change in the Bidder's capability to undertake the project from the time it submitted its eligibility requirements. Should such review uncover any misrepresentation made in the

eligibility and bidding requirements, statements or documents, or any changes in the situation of the Bidder which will affect its capability to undertake the project so that it fails the preset eligibility or bid evaluation criteria, the Procuring Entity shall consider the said Bidder as ineligible and shall disqualify it from submitting a bid or from obtaining an award or contract.

29.2 Based on the following grounds, the Procuring Entity reserves the right to reject any and all Bids, declare a Failure of Bidding at any time prior to the contract award, or not to award the contract, without thereby incurring any liability, and make no assurance that a contract shall be entered into as a result of the bidding:

(a) if there is *prima facie* evidence of collusion between appropriate public officers or employees of the Procuring Entity, or between the SBAC and any of the bidders, or if the collusion is between or among the bidders themselves, or between a bidder and a third party, including any act which restricts, suppresses or nullifies or tends to restrict, suppress or nullify competition;

(b) if the Procuring Entity's SBAC is found to have failed in following the prescribed bidding procedures; or

(c) for any justifiable and reasonable ground where the award of the contract will not redound to the benefit of the Government as follows:

(i) If the physical and economic conditions have significantly changed so as to render the project no longer economically, financially or technically feasible as determined by the head of the procuring entity;

(ii) If the project is no longer necessary as determined by the head of the procuring entity; and

(iii) If the source of funds for the project has been withheld or reduced through no fault of the Procuring Entity.

29.3 In addition, the Procuring Entity may likewise declare a failure of bidding when:

(a) No bids are received;

(b) All prospective bidders are declared ineligible;

(c) All bids fail to comply with all the bid requirements or fail post-qualification; or

(d) The bidder with the Lowest Calculated Responsive Bid refuses, without justifiable cause to accept the award of contract, and no award is made.

F. Award of Contract

30. Contract Award

30.1 Prior to the award of the Contract, the SBAC shall request for a No Objection Letter (NOL) from the **PRMF-FMG through the FD**. As soon as the NOL has been issued, subject to **ITB** Clause 28, the Procuring Entity shall award the contract to the Bidder who's Bid has been determined to be the Lowest Calculated and Responsive Bid (LCRB).

If such request for NOL is denied and, due to justifiable reason will result in the disqualification of the LCRB, the SBAC shall notify the bidder and shall proceed with the post-qualification of the next LCB.

30.2 Prior to the expiration of the period of Bid validity, the Procuring Entity shall notify the successful Bidder in writing that its Bid has been accepted, through a Notice of Award received personally or sent by registered mail or electronically, receipt of which must be confirmed in writing within two (2) days by the LCRB and submitted personally or sent by registered mail or electronically to the Procuring Entity.

30.3 Notwithstanding the issuance of the Notice of Award, award of contract shall be subject to the following conditions:

(a) Submission of the following documents within the prescribed period from receipt by the Bidder of the notice that it has the Lowest Calculated and Responsive Bid:

(i) Valid JVA, if applicable, within ten (10) calendar days;

(ii) Valid PCAB license and registration for the type and cost of the contract to be bid for foreign bidders, within thirty (30) calendar days, if allowed under a Treaty or International or Executive Agreement mentioned in **ITB** Clause 12.1(a)(iii.13);

(b) Posting of the performance security in accordance with **ITB** Clause 32;

(c) Signing of the contract as provided in **ITB** Clause 31; and

(d) Approval by higher authority, if required.

31. Signing of the Contract

31.1 At the same time as the Procuring Entity notifies the successful Bidder that its Bid has been accepted, the Procuring Entity shall send the Contract Form to the Bidder, which Contract has been provided in the Bidding Documents, incorporating therein all agreements between the parties.

31.2 Within ten (10) calendar days from receipt of the Notice of Award, the successful Bidder shall post the required performance security, sign and date the contract and return it to the Procuring Entity.

31.3 The Procuring Entity shall enter into contract with the successful Bidder within the same ten (10) calendars day period provided that all the documentary requirements are complied with.

31.4 The following documents shall form part of the contract:

(a) Contract Agreement;

(b) Bidding Documents;

(c) Winning bidder's bid, including the Technical and Financial Proposals, and all other documents/statements submitted;

(d) Performance Security;

(e) Notice of Award of Contract; and

(f) Other contract documents that may be required by existing laws and/or specified in the **BDS**.

32. Performance Security

32.1 To guarantee the faithful performance by the winning Bidder of its obligations under the contract, it shall post a performance security within a maximum period of ten (10) calendar days from the receipt of the Notice of Award from the Procuring Entity and in no case later than the signing of the contract.

The Procuring Entity shall prescribe at least two (2) acceptable forms of performance security taken from two (2) categories below that bidders may opt to use, denominated in Philippine Peso and posted in favor of the Procuring Entity in an amount equal to the percentage of the total contract price as stated in the BDS in accordance with the following schedule:

Form of Performance Security	Amount of Performance Security (Equal to Percentage of the Total Contract Price)
Cash or cashier's/manager's check issued by a Universal or Commercial Bank.	Ten percent (10%)
Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.	Ten percent (10%)

Surety Bond is excluded as a form of Performance Security.

32.2 Failure of the successful Bidder to comply with the above-mentioned requirement shall constitute sufficient ground for the annulment of the award and forfeiture of the bid security, or in the case of bid securing declaration, corresponding penalties shall be imposed upon the bidder in accordance with the provisions in the GPPB Resolution No. 03-2012; in which event the Procuring Entity shall initiate and complete the post qualification of the second Lowest Calculated Bid. The procedure shall be repeated until the Lowest Calculated and Responsive Bid is identified and selected for contract award. However if no Bidder passed post-qualification, the SBAC shall declare the bidding a failure and conduct a re-bidding with re-advertisement.

33. Notice to Proceed

33.1 Within three (3) calendar days from the date of approval of the Contract by the appropriate government approving authority, the Procuring Entity shall issue its Notice to Proceed (NTP) to the Bidder.

33.2 The contract effectivity date shall be provided in the Notice to Proceed (NTP) by the Procuring Entity, which date shall not be later than seven (7) calendar days from the issuance of the Notice to Proceed.

34. Protest Mechanism

Decision of the Procuring Entity at any stage of the procurement process maybe questioned in accordance with Section 55 of the Revised Implementing Rules and Regulations of RA 9184.

Section III: Bid Data Sheet

ITB Clause	
1.1	The Procuring Entity is the **Department of the Interior and Local Government (DILG) Regional Office XIII.** The name of the Contract is the **Rehabilitation and Minor Improvement of the NRJ Bayugan – San Luis Road (Bucac – Marcelina Section).** The identification number of the Contract is **PW-ADS-13-04.**
2	The Funding Sources are the Australian Agency for International Development (AusAID) through a Grant in the amount of A$ 100.00 million and the Provincial Government of **Agusan Del Sur.** The name of the Project is Provincial Road Management Facility (PRMF)
3.1	Entities or individuals listed in the ***Asian Development Bank Sanction List*** or on ***the World Bank's "Listing of Ineligible Firms" or "Listing of Firms***, Letters of Reprimand" as posted at *www.worldbank.org* will not be eligible to tender for work under PRMF. The Facility Director (FD) of the Facility Management Group (FMG) may at its sole discretion, object to the participation of any entity or individual that it finds has previously breached contract conditions under any AusAID procurement. Such objection may be given at the start of the procurement process.
5.1	No further instructions.
5.2	Bidding is restricted to eligible bidders as defined in ITB Clause 5.1.
5.4a	No further instructions.
5.4(b)	For this purpose, similar contract shall refer to construction, improvement, rehabilitation, repair, or maintenance of roads and highway pavements.
6.2(g)	The Head of the Procuring Entity (HOPE) is the Regional Director of the DILG Regional Office XIII.
8.1	Subcontracting is not allowed.
8.2	Not applicable.
9.1.a	Not applicable / mandatory.

ITB Clause	
9.1.b	Not applicable
10.1	The Procuring Entity's address is: **DILG Regional Office XIII (CARAGA)** 1559 JC. Aquino Avenue Km. 4, Libertad, Butuan City The Contact Person is: **JOCELYN C. JAYOMA** Head, SBAC Secretariat DILG Regional Office XIII (CARAGA) 1559 JC Aquino Avenue, Km. 4, Libertad, Butuan City Tel No. (085) 342 7702; fax no. (085) 342 1234
10.3	No further instructions.
12.1	No further instructions.
12.1(a)(i)	No other acceptable proof of registration is recognized.
12.1(a)(iii.13)	No further instructions.
12.1(b)(ii.3)	The minimum equipment requirements are the following: 1. Motor Grader, 135 hp ---------- 1 unit 2. Wheel loader,1.91 cum.---------- 1 unit 3. Dump truck, 9 cum. ---------- 5 units 4. Water truck, 500-1000 gal. ----------1 unit 5. Backhoe, 0.60-0.90 cum. ---------- 1 unit 6. Vibratory Roller, 10 tons ---------- 1 unit 7. Stake truck, 10 tons ---------- 1 unit 8. Crawler Dozer, D6H PS/DD/PSDS ------- 1 unit
12.1(b)(iii)	No further instructions.
13.1	No further instructions.
13.1.b	The financial component of the bid, which shall not include Value–Added Tax (VAT), shall contain:

ITB Clause	
	1. Bid prices in the Bill of Quantities in the prescribed Bid Form; 2. Detailed Estimates in coming up with the bid; and 3. Monthly cash flow and payments schedule.
13.2.a	The ABC **is PhP 6,259,141.30.** Any bid with a financial component exceeding this amount shall not be accepted.
13.2.b	No further instructions
14.2	No further instructions.
16.1	The bid prices shall be quoted in Philippine Peso.
16.3	Payment of the contract price shall be made in Philippine Peso.
17.1	Bids will be valid until 120 days from the bid opening.
18.1	The Bid Security may be a Bid Securing Declaration (BSD), or any of the following acceptable forms and amounts (*rounded-off to the nearest higher peso*): 1. The amount of **PhP 125,183.00**, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; 2. The amount of **PhP312,958.00** if bid security is in surety bond.
0	The bid security shall be valid until one hundred twenty days (120) from opening of bids.
20.3	Each Bidder shall submit one (1) original and two (2) copies of the first and second components of its bid.
21.0	The address for submission of bids is Office of the SBAC Secretariat, DILG Regional Office XIII (CARAGA), 1559 JC. Aquino Avenue, Km. 4, Libertad, Butuan City. The deadline for submission of Eligibility and Technical Documents is 1:00 pm on December 9, 2014 and 9:00 a.m. on December 10, 2014 for the Financial Component.
24.1	The place of bid opening is at the LGRRC, DILG Regional Office XIII (CARAGA), 1559 JC. Aquino Avenue, Km. 4, Libertad, Butuan City. The date and time of bid opening of Eligibility and Technical Documents is 1:30 pm on December 9, 2014 and 9:30 a.m. of December 10, 2014 for the Financial Component.
24.2	No further instructions.
27.3(b)	Bid modification is not allowed.
27.4	No further instructions.

ITB Clause	
28.2(a)	Only tax returns filed and taxes paid through the BIR Electronic Filing and Payments System (EFPS) shall be accepted.
28.2(a)	None.
31.4(f)	Additional contract documents required per component are the following: 1. Construction schedule and S-curve; 2. Workforce schedule; 3. Construction methods; 4. Equipment utilization schedule; 5. Construction Safety and Health Program; and 6. Network Schedule (PERT/CPM)
32.2	Performance Security shall be in the following amount: The amount of _____ (10% of the contract price) if performance security is in ***cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit.***

Section IV: General Conditions of Contract (GCC)

B. TABLE OF CONTENTS

1. Definitions

For purposes of this Clause, boldface type is used to identify defined terms.

1.1. The **Arbiter** is the person appointed jointly by the Procuring Entity and the Contractor to resolve disputes in the first instance, as provided for in **GCC** Clause 21.

1.2. **Bill of Quantities** refers to a list of the specific items of the Work and their corresponding unit prices, lump sums, and/or provisional sums.

1.3. The **Completion Date** is the date of completion of the Works as certified by the Procuring Entity's Representative, in accordance with **GCC** Clause 50.

1.4. The **Contract** is the contract between the Procuring Entity and the Contractor to execute and complete the Works.

1.5. The **Contract Price** is the price stated in the Letter of Acceptance and thereafter to be paid by the Procuring Entity to the Contractor for the execution of the Works in accordance with this Contract.

1.6. **Contract Time Extension** is the allowable period for the Contractor to complete the Works in addition to the original Completion Date stated in this Contract.

1.7. The **Contractor** is the juridical entity whose proposal has been accepted by the Procuring Entity and to whom the Contract to execute the Work was awarded.

1.8. The **Contractor's Bid** is the signed offer or proposal submitted by the Contractor to the Procuring Entity in response to the Bidding Documents.

1.9. **Days** are calendar days; **months** are calendar months.

1.10. **Dayworks** are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.

1.11. A **Defect** is any part of the Works not completed in accordance with the Contract.

1.12. The **Defects Liability Certificate** is the Certificate issued by the Procuring Entity Representative upon correction of defects by the contractor.

1.13. The **Defects Liability Period** is the one year period after the completion of the Works as defined in SCC Clause 2.2, as certified and approved by the procuring entity.

1.14 **Drawings** are graphical presentations of the Works. They include all supplementary details, shop drawings, calculations, and other information provided or approved for the execution of this Contract.

1.15 **Equipment** refers to all facilities, supplies, appliances, materials or things required for the execution and completion of the Work provided by the Contractor and which shall not form or are not intended to form part of the Permanent Works.

1.16 The **Intended Completion Date** refers to the date specified in the **SCC** when the Contractor is expected to have completed the Works. The Intended Completion Date may be revised only by the Procuring Entity's Representative by issuing an extension of time or an acceleration order.

1.17 **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works.

1.18 The **Notice to Proceed** is a written notice issued by the Procuring Entity or the Procuring Entity's Representative to the Contractor requiring the latter to begin the commencement of the work not later than a specified or determinable date.

1.19 **Permanent Works** refers to all permanent structures and all other project features and facilities required be constructing and completed in accordance with this Contract which shall be delivered to the Procuring Entity and which shall remain at the Site after the removal of all Temporary Works.

1.20 **Plant** refers to the machinery, apparatus, and the like intended to form an integral part of the Permanent Works.

1.21 The **Procuring Entity,** as stated in the **SCC,** is the party who employs the Contractor to carry out the Works.

1.22 The **Procuring Entity's Representative** refers to the Head of the Procuring Entity or his duly authorized representative, identified in the **SCC,** who shall be responsible for supervising the execution of the Works and administering this Contract.

1.23 The **Site** is the place provided by the Procuring Entity where the Works shall be executed and any other place or places which may be designated in the **SCC**, or notified to the Contractor by the Procuring Entity's Representative as forming part of the Site.

1.24 **Site Investigation Reports** are those that were included in the Bidding Documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.

1.25 **Slippage** is a delay in work execution occurring when actual accomplishment falls below the target as measured by the difference between the scheduled and actual accomplishment of the Work by the Contractor as established from the work schedule. This is actually described as a percentage of the whole Works.

1.26 **Specifications** means the description of Works to be done and the qualities of materials to be used, the equipment to be installed and the mode of construction.

1.27 The **Start Date**, as specified in the **SCC**, is the date when the Contractor is obliged to commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

1.28 A **Subcontractor** is any person or organization to whom a part of the Works has been subcontracted by the Contractor, as allowed by the Procuring Entity, but not any assignee of such person.

1.29 **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Permanent Works.

1.30 **Work(s)** refer to the Permanent Works and Temporary Works to be executed by the Contractor in accordance with this Contract, including (i) the furnishing of all labor, materials, equipment and others incidental, necessary or convenient to the complete execution of the Works; (ii) the passing of any tests before acceptance by the Procuring Entity's Representative; (iii) and the carrying out of all duties and obligations of the Contractor imposed by this Contract as described in the **SCC.**

2. Interpretation

2.1. In interpreting the Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of this Contract unless specifically defined. The Procuring Entity's Representative will provide instructions clarifying queries about the Conditions of Contract.

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

2.3. The Documents forming this contract shall be interpreted in the following order of priority;

(a) Contract Agreement:

(b) Instructions to Bidders;

(c) Addenda to the Bidding Documents;

(d) Special Conditions of Contract;

(e) General Conditions of Contract;

(f) Specifications;

(g) Bill of Quantities; and

(h) Drawings.

3. Governing Language and Law

3.1. This Contract has been executed in the English language, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract. All correspondence and other documents pertaining to this Contract which are exchanged by the parties shall be written in English.

3.2. This Contract shall be interpreted in accordance with the laws of the Republic of the Philippines.

4. Communications

Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is received by the concerned party.

5. Possession of Site

5.1. On the date specified in the **SCC**, the Procuring Entity through the Project Owner as defined in the **SCC**, shall grant the Contractor possession of so much of the Site as may be required to enable it to proceed with 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.

5.2. If possession of a portion is not given by the date stated in the **SCC** Clause 5.1, the Procuring Entity will be deemed to have delayed the start of the relevant activities. The resulting adjustments in contact time to address such delay shall be in accordance with **GCC** Clause 48.

5.3. The Contractor shall bear all costs and charges for special or temporary right-of-way required by it in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by it for purposes of the Works.

The Contractor shall allow the Procuring Entity's Representative and any person authorized by the Procuring Entity's Representative access to the Site and to any place where work in connection with this Contract is being carried out or is intended to be carried out.

6. The Contractor's Obligations

6.1. The Contractor shall carry out the Works properly and in accordance with this Contract. The Contractor shall provide all supervision, labor, Materials, Plant and Contractor's Equipment, which may be required. All Materials and Plant on Site shall be deemed to be the property of the Procuring Entity.

6.2. The Contractor shall commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program of Work submitted by the Contractor, as updated with the approval of the Procuring Entity's Representative, and complete them by the Intended Completion Date.

6.3. The Contractor shall be responsible for the safety of all activities on the Site. The contractor shall take all reasonable steps to protect the environment on the site and avoid damages to person or adjacent properties and infrastructure, including overhead and underground utilities and services as a consequence of its method of operation.

6.4. The Contractor shall carry out all instructions of the Procuring Entity's Representative that comply with the applicable laws where the Site is located.

6.5. The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the **SCC**, 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.

6.6. If the Procuring Entity's Representative asks the Contractor to remove a member of the Contractor's staff or work force, for justifiable cause, the Contractor shall ensure that the person leaves the Site within seven (7) days and has no further connection with the Work in this Contract.

6.7. During Contract implementation, the Contractor and his subcontractors shall abide at all times by all labor laws, including child labor related enactments, and other relevant rules. Unskilled labor shall substantially be drawn from the communities where the project is located.

6.8. The Contractor shall submit to the Procuring Entity for consent the name and particulars of the person authorized to receive instructions on behalf of the Contractor.

6.9. The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Procuring Entity between the dates given in the schedule of other contractors particularly when they shall require access to the Site. The Contractor shall also provide facilities and services for them during this period. The Procuring Entity may modify the schedule of other contractors, and shall notify the Contractor of any such modification thereto.

6.10. Should anything of historical or other interest or of significant value be unexpectedly discovered on the Site, it shall be the property of the Procuring Entity. The Contractor shall notify the Procuring Entity's Representative of such discoveries and carry out the Procuring Entity's Representative's instructions in dealing with them.

7. Performance Security

7.1. 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 Contractor shall furnish the performance security in any the forms prescribed in **ITB** Clause 32.2.

7.2. The Performance Security posted in favor of the Procuring Entity shall be forfeited in the event it is established that the Contractor is in default in any of its obligations under the Contract.

7.3. The performance security shall remain valid until issuance by the Procuring Entity of the Certificate of Final Acceptance.

7.4. The performance security may be released by the Procuring Entity and returned to the Contractor after the issuance of the Certificate of Final Acceptance subject to the following conditions:

(a) There are no pending claims against the Contractor filed by the Procuring Entity;

(b) The Contractor has no pending claims for labor and materials filed against it; and

(c) Other terms specified in the **SCC**.

7.5. The Contractor shall post an additional performance security following the amount and form specified in in **ITB** Clause **32.2** to cover any cumulative increase of more than ten percent (10%) over the original value of the contract as a result of amendments to order or change orders, extra work orders and supplemental agreements, as the case may be. The Contractor shall cause the extension of the validity of the performance security to cover approved contract time extensions.

7.6. In case of a reduction in the contract value or for partially completed Works under the contract which are usable and accepted by the Procuring Entity the use of which, in the judgment of the implementing agency or the Procuring Entity, will not affect the structural integrity of the entire project, the Procuring Entity shall allow a proportional reduction in the original performance security, provided that any such reduction is more than ten percent (10%) and that the aggregate of such reductions is not more than fifty percent (50%) of the original performance security.

7.7. Unless otherwise indicated in the **SCC**, the Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to Act 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.

8. Subcontracting

8.1. Unless otherwise indicated in the **SCC**, the Contractor cannot subcontract Works more than the percentage specified in **ITB** Clause 8.1.

8.2. Subcontracting of any portion of the Works does not relieve the Contractor of any liability or obligation under this Contract. The Contractor 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.

8.3. Subcontractors disclosed and identified during the bidding may be changed during the implementation of this Contract, subject to compliance with the required qualifications and the approval of the Procuring Entity.

9. Liquidated Damages

9.1. The Contractor shall pay liquidated damages to the Procuring Entity for each day that the Completion Date is later than the Intended Completion Date. The applicable liquidated damages is at least one-tenth (1/10) of a percent of the cost of the unperformed portion for every day of delay. The total amount of liquidated damages shall not exceed ten percent (10%) of the amount of the contract. The Procuring Entity shall deduct liquidated damages from payments due to the Contractor. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of this Contract, the Procuring Entity shall rescind this Contract, without prejudice to other courses of action and remedies open to it.

9.2. If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer of the Procuring Entity shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate.

10. 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.

11. The Procuring Entity, Licenses and Permits

The Procuring Entity shall, if requested by the Contractor, assist him in applying for permits, licenses or approvals, which are required for the Works.

12. Contractor's Risk and Warranty Security

12.1. The Contractor shall assume full responsibility for the Works from the time project construction commenced up to final acceptance by the Procuring Entity and shall be held responsible for any damage or destruction of the Works except those occasioned by *force majeure*. The Contractor shall be fully responsible for the safety, protection, security, and convenience of his personnel, third parties, and the public at large, as

well as the Works, Equipment, installation, and the like to be affected by his construction work.

12.2. Unless otherwise indicated in the **SCC**, the defects liability period for infrastructure projects shall be one year from contract completion up to final acceptance by the Procuring Entity. During this period, the Contractor shall undertake the repair works, at his own expense, of any damage to the Works on account of the use of materials of inferior quality within ninety (90) days from the time the Head of the Procuring Entity has issued an order to undertake repair. In case of failure or refusal to comply with this mandate, the Procuring Entity shall undertake such repair works and shall be entitled to full reimbursement of expenses incurred therein upon demand.

12.3. Unless otherwise indicated in the **SCC**, in case the Contractor fails to comply with the preceding paragraph, 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.

12.4. After final acceptance of the Works by the Procuring Entity, the Contractor shall be held responsible for "Structural Defects", *i.e.*, major faults/flaws/deficiencies in one or more key structural elements of the project which may lead to structural failure of the completed elements or structure, or "Structural Failures", *i.e.*, where one or more key structural elements in an infrastructure facility fails or collapses, thereby rendering the facility or part thereof incapable of withstanding the design loads, and/or endangering the safety of the users or the general public:

(a) **Contractor** – Where Structural Defects/Failures arise due to faults attributable to improper construction, use of inferior quality/substandard materials, and any violation of the contract plans and specifications, the contractor shall be held liable;

(b) **Consultants** – Where Structural Defects/Failures arise due to faulty and/or inadequate design and specifications as well as construction supervision, then the consultant who prepared the design or undertook construction supervision for the project shall be held liable;

(c) **Procuring Entity's Representatives/Project Manager/Construction Managers and Supervisors** – The project owner's representative(s), project manager, construction manager, and supervisor(s) shall be held liable in cases where the Structural Defects/Failures are due to his/their willful intervention in altering the designs and other specifications; negligence or omission in not approving or acting on proposed changes to noted defects or deficiencies in the design and/or specifications; and the use of substandard construction materials in the project;

(d) **Third Parties** - Third Parties shall be held liable in cases where Structural Defects/Failures are caused by work undertaken by them such as leaking pipes, diggings or excavations, underground cables and electrical wires, underground tunnel, mining shaft and the like, in which case the applicable warranty to such structure should be levied to third parties for their construction or restoration works.

(e) **Users** - In cases where Structural Defects/Failures are due to abuse/misuse by the end user of the constructed facility and/or non–compliance by a user with the technical design limits and/or intended purpose of the same, then the user concerned shall be held liable.

12.5. The warranty against Structural Defects/Failures, except those occasioned on force majeure, shall cover the period specified in the **SCC** reckoned from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity.

12.6. The Contractor shall be required to put up a warranty security in the form of cash, bank guarantee or letter of credit in accordance with the following schedule and as provided in the **SCC** :

Form of Warranty	Minimum Amount in Percentage (%) of Total Contract Price
(a). Cash or letter of credit issued by Universal or Commercial bank: provided, however, that the letter of credit shall be confirmed or authenticated by a Universal or Commercial bank, if issued by a foreign bank	Five Percent (5%)
(b). Bank guarantee confirmed by Universal or Commercial bank: provided, however, that the letter of credit shall be confirmed or authenticated by a Universal or Commercial bank, if issued by a foreign bank	Ten Percent (10%)

12.7. The warranty security shall be stated in Philippine Pesos and shall remain effective for one year from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity, and returned only after the lapse of said one year period.

12.8. In case of structural defects/failure occurring during the applicable warranty period provided in **GCC** Clause 12.5, the Procuring Entity shall undertake the necessary restoration or reconstruction works and shall be entitled to full reimbursement by the parties found to be liable for expenses incurred therein upon demand, without prejudice to the filing of appropriate administrative, civil, and/or criminal charges

against the responsible persons as well as the forfeiture of the warranty security posted in favor of the Procuring Entity.

13. 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.

14. Procuring Entity's Risk

14.1. From the Start Date until the Certificate of Final Acceptance has been issued, the following are risks of the Procuring Entity:

(a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to:

(i) any type of use or occupation of the Site authorized by the Procuring Entity after the official acceptance of the works; or

(ii) Negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity or by any person employed by or contracted to him except the Contractor.

(b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Procuring Entity or in the Procuring Entity's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

15. Insurance

15.1. The Contractor shall, under his name and at his own expense, obtain and maintain, for the duration of this Contract, the following insurance coverage:

(a) Contractor's All Risk Insurance;

(b) Transportation to the project Site of Equipment, Machinery, and Supplies owned by the Contractor;

(c) Personal injury or death of Contractor's employees; and

(d) Comprehensive insurance for third party liability to Contractor's direct or indirect act or omission causing damage to third persons.

15.2. The Contractor shall provide evidence to the Procuring Entity's Representative that the insurances required under this Contract have been effected and shall, within a reasonable time, provide copies of the insurance policies to the Procuring Entity's Representative. Such evidence and such policies shall be provided to the Procuring Entity's through the Procuring Entity's Representative.

15.3. The Contractor shall notify the insurers of changes in the nature, extent, or program for the execution of the Works and ensure the adequacy of the insurances at all times in accordance with the terms of this Contract and shall produce to the Procuring Entity's Representative the insurance policies in force including the receipts for payment of the current premiums.

The above insurance policies shall be obtained from any reputable insurance company approved by the Procuring Entity's Representative.

15.4. If the Contractor fails to obtain and keep in force the insurances referred to herein or any other insurance which he may be required to obtain under the terms of this Contract, the Procuring Entity may obtain and keep in force any such insurances and pay such premiums as may be necessary for the purpose. From time to time, the Procuring Entity may deduct the amount it shall pay for said premiums including twenty five percent (25%) therein from any monies due, or which may become due, to the Contractor, without prejudice to the Procuring Entity exercising its right to impose other sanctions against the Contractor pursuant to the provisions of this Contract.

15.5. In the event the Contractor fails to observe the above safeguards, the Procuring Entity may, at the Contractor's expense, take whatever measure is deemed necessary for its protection and that of the Contractor's personnel and third parties, and/or order the interruption of dangerous Works. In addition, the Procuring Entity may refuse to make the payments under **GCC** Clause 40 until the Contractor complies with this Clause.

15.6. The Contractor shall immediately replace the insurance policy obtained as required in this Contract, without need of the Procuring Entity's demand, with a new policy issued by a new insurance company acceptable to the Procuring Entity for any of the following grounds:

(a) The issuer of the insurance policy to be replaced has:

(i) become bankrupt;

(ii) been placed under receivership or under a management committee;

(iii) been sued for suspension of payment; or

(iv) been suspended by the Insurance Commission and its license to engage in business or its authority to issue insurance policies cancelled; or

(v) Where reasonable grounds exist that the insurer may not be able, fully and promptly, to fulfill its obligation under the insurance policy.

16. Termination for Default of Contractor

16.1. The Procuring Entity shall terminate this Contract for default when any of the following conditions attend its implementation:

(a) Due to the Contractor's fault and while the project is on-going, it has incurred negative slippage of fifteen percent (15%) or more in accordance with Presidential Decree 1870, regardless of whether or not previous warnings and notices have been issued for the Contractor to improve his performance;

(b) Due to its own fault and after this Contract time has expired, the Contractor incurs delay in the completion of the Work after this Contract has expired; or

(c) The Contractor:

(i) abandons the contract Works, refuses or fails to comply with a valid instruction of the Procuring Entity or fails to proceed expeditiously and without delay despite a written notice by the Procuring Entity;

(ii) does not actually have on the project Site the minimum essential equipment listed on the Bid necessary to prosecute the Works in accordance with the approved Program of Work and equipment deployment schedule as required for the project;

(iii) does not execute the Works in accordance with this Contract or persistently or flagrantly neglects to carry out its obligations under this Contract;

(iv) neglects or refuses to remove materials or to perform a new Work that has been rejected as defective or unsuitable; or

(v) Sub-lets any part of this Contract without approval by the Procuring Entity.

16.2 All materials on the Site, Plant, Equipment, and Works shall be deemed to be the property of the Procuring Entity if this Contract is rescinded because of the Contractor's default.

17. Termination for Default of Procuring Entity

The Contractor may terminate this Contract with the Procuring Entity if the works are completely stopped for a continuous period of at least sixty (60) calendar days through no fault of its own, due to any of the following reasons:

(a) Failure of the Procuring Entity to deliver, within a reasonable time, supplies, materials, right-of-way, or other items it is obligated to furnish under the terms of this Contract; or

(b) The prosecution of the Work is disrupted by the adverse peace and order situation, as certified by the Armed Forces of the Philippines Provincial Commander and approved by the Secretary of National Defense.

18. Termination for Other Causes

18.1. The Procuring Entity may terminate this Contract, in whole or in part, at any time for its convenience. The Head of the Procuring Entity may terminate this Contract for the convenience of the Procuring Entity if he has determined the existence of conditions that make Project Implementation economically, financially or technically impractical and/or unnecessary, such as, but not limited to, fortuitous event(s) or changes in law and National Government policies.

18.2. The Procuring Entity or the Contractor may terminate this Contract if the other party causes a fundamental breach of this Contract.

18.3. Fundamental breaches of Contract shall include, but shall not be limited to, the following:

(a) The Contractor stops work for twenty eight (28) days when no stoppage of work is shown on the current Program of Work and the stoppage has not been authorized by the Procuring Entity's Representative;

(b) The Procuring Entity's Representative instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within twenty eight (28) days;

(c) The Procuring Entity shall terminate this Contract if the Contractor is declared bankrupt or insolvent as determined with finality by a court of competent jurisdiction. In this event, termination will be without compensation to the Contractor, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Procuring Entity and/or the Contractor. In the case of the Contractor's insolvency, any Contractor's Equipment which the Procuring Entity instructs in the notice is to be used until the completion of the Works;

(d) A payment certified by the Procuring Entity's Representative is not paid by the Procuring Entity to the Contractor within eighty four (84) days from the date of the Procuring Entity's Representative's certificate;

(e) The Procuring Entity's Representative gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Procuring Entity's Representative;

(f) The Contractor does not maintain a Security, which is required;

(g) The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the **GCC** Clause 9; and

(h) 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, the following:

(i) corrupt, fraudulent, collusive, coercive, and obstructive practices as defined in **ITB** Clause 3.1(a), unless otherwise specified in the **SCC**

(ii) drawing up or using forged documents;

(iii) using adulterated materials, means or methods, or engaging in production contrary to rules of science or the trade; and

(iv) any other act analogous to the foregoing.

18.4. The Funding Source or the Procuring Entity, as appropriate, will seek to impose the maximum civil, administrative and/or criminal penalties available under the applicable law on individuals and organizations deemed to be involved with corrupt, fraudulent, or coercive practices.

18.5. When persons from either party to this Contract gives notice of a fundamental breach to the Procuring Entity's Representative in order to terminate the existing contract for a cause other than those listed under **GCC** Clause 18.3, the Procuring Entity's Representative shall decide whether the breach is fundamental or not.

18.6. If this Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

19. Procedures for Termination of Contracts

19.1. The following provisions shall govern the procedures for the termination of this Contract:

(a) Upon receipt of a written report of acts or causes which may constitute ground(s) for termination as aforementioned, or upon its own initiative, the Procuring Entity shall, within a period of seven (7) calendar days, verify the existence of such ground(s) and cause the execution of a Verified Report, with all relevant evidence attached;

(b) Upon recommendation by the Procuring Entity, the Head of the Procuring Entity shall terminate this Contract only by a written notice to the Contractor conveying the termination of this Contract. The notice shall state:

(i) that this Contract is being terminated for any of the ground(s) aforementioned, and a statement of the acts that constitute the ground(s) constituting the same;

(ii) the extent of termination, whether in whole or in part;

(iii) an instruction to the Contractor to show cause as to why this Contract should not be terminated; and

(iv) special instructions of the Procuring Entity, if any.

The Notice to Terminate shall be accompanied by a copy of the Verified Report;

(c) Within a period of seven (7) calendar days from receipt of the Notice of Termination, the Contractor shall submit to the Head of the Procuring Entity a verified position paper stating why the contract should not be terminated. If the Contractor fails to show cause after the lapse of the seven (7) day period, either by inaction or by default, the Head of the Procuring Entity shall issue an order terminating the contract;

(d) The Procuring Entity may, at any time before receipt of the Bidder's verified position paper described in item (c) above withdraw the Notice to Terminate if it is determined that certain items or works subject of the notice had been completed, delivered, or performed before the Contractor's receipt of the notice;

(e) Within a non-extendible period of ten (10) calendar days from receipt of the verified position paper, the Head of the Procuring Entity shall decide whether or not to terminate this Contract. It shall serve a written notice to the Contractor of its decision and, unless otherwise provided in the said notice, this Contract is deemed terminated from receipt of the Contractor of the notice of decision. The termination shall only be based on the ground(s) stated in the Notice to Terminate; and

(f) The Head of the Procuring Entity may create a Contract Termination Review Committee (CTRC) to assist him in the discharge of this function. All decisions recommended by the CTRC shall be subject to the approval of the Head of the Procuring Entity.

19.2. Pursuant to Section 69(f) of RA 9184 and without prejudice to the imposition of additional administrative sanctions as the internal rules of the agency may provide and/or further criminal prosecution as provided by applicable laws, the procuring entity shall impose on contractors after the termination of the contract the penalty of suspension for one (1) year for the first offense, suspension for two (2) years for the second offense from participating in the public bidding process, for violations

committed during the contract implementation stage, which include but not limited to the following:

(a) Failure of the contractor, due solely to his fault or negligence, to mobilize and start work or performance within the specified period in the Notice to Proceed ("NTP");

(b) Failure by the contractor to fully and faithfully comply with its contractual obligations without valid cause, or failure by the contractor to comply with any written lawful instruction of the procuring entity or its representative(s) pursuant to the implementation of the contract. For the procurement of infrastructure projects or consultancy contracts, lawful instructions include but are not limited *to* the following:

(i) Employment of competent technical personnel, competent engineers and/or work supervisors;

(ii) Provision of warning signs and barricades in accordance with approved plans and specifications and contract provisions;

(iii) Stockpiling in proper places of all materials and removal from the project site of waste and excess materials**,** including broken pavement and excavated debris in accordance with approved plans and specifications and contract provisions;

(iv) Deployment of committed equipment, facilities, support staff and manpower; and

(v) Renewal of the effectivity dates of the performance security after its expiration during the course of contract implementation.

(c) Assignment and subcontracting of the contract or any part thereof or substitution of key personnel named in the proposal without prior written approval by the procuring entity.

(d) Poor performance by the contractor or unsatisfactory quality and/or progress of work arising from his fault or negligence as reflected in the Constructor's Performance Evaluation System ("CPES") rating sheet. In the absence of the CPES rating sheet, the existing performance monitoring system of the procuring entity shall be applied. Any of the following acts by the Contractor shall be construed as poor performance:

(i) Negative slippage of 15% and above within the critical path of the project due entirely to the fault or negligence of the contractor; and

(ii) Quality of materials and workmanship not complying with the approved specifications arising from the contractor's fault or negligence.

(e) Willful or deliberate abandonment or non-performance of the project or contract by the contractor resulting to substantial breach thereof without lawful and/or just cause.

In addition to the penalty of suspension, the performance security posted by the contractor shall also be forfeited.

20. Force Majeure, Release from Performance

20.1. For purposes of this Contract the terms "*force majeure*" and "fortuitous event" may be used interchangeably. In this regard, a fortuitous event or *force majeure* shall be interpreted to mean an event which the Contractor could not have foreseen, or which though foreseen, was inevitable. It shall not include ordinary unfavorable weather conditions; and any other cause the effects of which could have been avoided with the exercise of reasonable diligence by the Contractor.

20.2. If this Contract is discontinued by an outbreak of war or by any other event entirely outside the control of either the Procuring Entity or the Contractor, the Procuring Entity's Representative shall certify that this Contract has been discontinued. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works carried out before receiving it and for any Work carried out afterwards to which a commitment was made.

20.3. If the event continues for a period of eighty four (84) days, either party may then give notice of termination, which shall take effect twenty eight (28) days after the giving of the notice.

20.4. After termination, the Contractor shall be entitled to payment of the unpaid balance of the value of the Works executed and of the materials and Plant reasonably delivered to the Site, adjusted by the following:

(a) any sum to which the Contractor is entitled under **GCC** Clause 28;

(b) the cost of his suspension and demobilization;

(c) any sum to which the Procuring Entity is entitled.

20.5. The net balance due shall be paid or repaid within a reasonable time period from the time of the notice of termination.

21. Resolution of Disputes

21.1. If any dispute or difference of any kind whatsoever shall arise between the parties in connection with the implementation of the contract covered by the Act and this IRR,

the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

21.2. If the Contractor believes that a decision taken by the Procuring Entity's Representative was either outside the authority given to the Procuring Entity's Representative by this Contract or that the decision was wrongly taken, the decision shall be referred to the Arbiter indicated in the **SCC** within fourteen (14) days of the notification of the Procuring Entity's Representative's decision.

21.3. Any and all disputes arising from the implementation of this Contract covered by the R.A. 9184 and its IRR shall be submitted to arbitration in the Philippines according to the provisions of Republic Act No. 876, otherwise known as the " Arbitration Law" and Republic Act 9285, otherwise known as the "Alternative Dispute Resolution Act of 2004": *Provided, however*, That, disputes that are within the competence of the Construction Industry Arbitration Commission to resolve shall be referred thereto. The process of arbitration shall be incorporated as a provision in this Contract that will be executed pursuant to the provisions of the Act and its IRR: *Provided, further,* That, by mutual agreement, the parties may agree in writing to resort to other alternative modes of dispute resolution.

22. Suspension of Loan, Credit, Grant, or Appropriation

In the event that the Funding Source suspends the Loan, Credit, Grant, or Appropriation to the Procuring Entity, from which part of the payments to the Contractor are being made:

(a) The Procuring Entity is obligated to notify the Contractor of such suspension within seven (7) days of having received the suspension notice.

(b) If the Contractor has not received sums due it for work already done within forty five (45) days from the time the Contractor's claim for payment has been certified by the Procuring Entity's Representative, the Contractor may immediately issue a suspension of work notice in accordance with **GCC** Clause 46.2.

23. Procuring Entity's Representative's Decisions

23.1. Except where otherwise specifically stated, the Procuring Entity's Representative will decide contractual matters between the Procuring Entity and the Contractor in the role representing the Procuring Entity.

The Procuring Entity's Representative may delegate any of his duties and responsibilities to other people except to the Arbiter, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.

24. Approval of Drawings and Temporary Works by the Procuring Entity's Representative

24.1. All Drawings prepared by the Contractor for the execution of the Temporary Works, are subject to prior approval by the Procuring Entity's Representative before its use.

24.2. The Contractor shall be responsible for design of Temporary Works.

24.3. The Procuring Entity's Representative's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

24.4. The Contractor shall obtain approval of third parties to the design of the Temporary Works, when required by the Procuring Entity.

25. Acceleration and Delays Ordered by the Procuring Entity's Representative

25.1. When the Procuring Entity wants the Contractor to finish before the Intended Completion Date, the Procuring Entity's Representative will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Procuring Entity accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the Procuring Entity and the Contractor.

25.2. If the Contractor's Financial Proposals for acceleration are accepted by the Procuring Entity, they are incorporated in the Contract Price and treated as a Variation.

26. Extension of the Intended Completion Date

26.1. The Procuring Entity's Representative shall extend the Intended Completion Date if a Variation is issued which makes it impossible for the Intended Completion Date to be achieved by the Contractor without taking steps to accelerate the remaining work, which would cause the Contractor to incur additional costs. No payment shall be made for any event which may warrant the extension of the Intended Completion Date.

The Procuring Entity's Representative shall decide whether and by how much to extend the Intended Completion Date within twenty one (21) days of the Contractor asking the Procuring Entity's Representative for a decision thereto after fully submitting all supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

27. Right to Vary

27.1. The Procuring Entity's Representative with the prior approval of the Procuring Entity may instruct Variations, up to a maximum cumulative amount of ten percent (10%) of the original contract cost.

27.2. Variations shall be valued as follows:

(a) At a lump sum price agreed between the parties;

(b) where appropriate, at rates in this Contract;

(c) in the absence of appropriate rates, the rates in this Contract shall be used as the basis for valuation; or failing which

(d) at appropriate new rates, equal to or lower than current industry rates and to be agreed upon by both parties and approved by the Head of the Procuring Entity.

28. Contractor's Right to Claim

If the Contractor incurs cost as a result of any of the events under **GCC** Clause 13, the Contractor shall be entitled to the amount of such cost. If as a result of any of the said events, it is necessary to change the Works, this shall be dealt with as a Variation.

29. Dayworks

29.1. Subject to **GCC** Clause 43 on Variation Order, 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.

29.2. All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Procuring Entity's Representative. Each completed form shall be verified and signed by the Procuring Entity's Representative within two days of the work being done.

29.3. The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

30. Early Warning

30.1. The Contractor shall warn the Procuring Entity's Representative at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Procuring Entity's Representative may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.

30.2. The Contractor shall cooperate with the Procuring Entity's Representative in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Procuring Entity's Representative.

31. Program of Work

31.1. Within the time stated in the **SCC**, the Contractor shall submit to the Procuring Entity's Representative for approval a Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works.

31.2. An update of the Program of Work shall show the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

31.3. 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.

31.4. The Procuring Entity's Representative's approval of the Program of Work shall not alter the Contractor's obligations. The Contractor may revise the Program of Work and submit it to the Procuring Entity's Representative again at any time. A revised Program of Work shall show the effect of any approved Variations.

31.5. When the Program of Work is updated, the Contractor shall provide the Procuring Entity's Representative with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.

31.6. All Variations shall be included in updated Program of Work produced by the Contractor.

32. Management Conferences

32.1. Either the Procuring Entity's Representative or the Contractor may require the other to attend a Management Conference. The Management Conference shall review the plans for remaining work and deal with matters raised in accordance with the early warning procedure.

32.2. The Procuring Entity's Representative shall record the business of Management Conferences and provide copies of the record to those attending the Conference and to the Procuring Entity. The responsibility of the parties for actions to be taken shall be decided by the PROCURING ENTITY's Representative either at the Management Conference or after the Management Conference and stated in writing to all who attended the Conference.

33. Bill of Quantities

33.1. The Bill of Quantities shall contain items of work for the construction, installation, testing, and commissioning of work to be done by the Contractor.

33.2. The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

33.3. If the final quantity of any work done differs from the quantity in the Bill of Quantities for the particular item and is not more than twenty five percent (25%) of the original quantity, provided the aggregate changes for all items do not exceed fifteen percent (15%) of the Contract price, the Procuring Entity's Representative shall make the necessary adjustments to allow for the changes subject to applicable laws, rules, and regulations.

33.4. If requested by the Procuring Entity's Representative, the Contractor shall provide the Procuring Entity's Representative with a detailed cost breakdown of any rate in the Bill of Quantities.

34. Instructions, Inspections and Audits

34.1. The Procuring Entity's and the funding source personnel shall at all reasonable times during construction of the Work be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of the construction.

34.2. If the Procuring Entity's Representative instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect, the test shall be a Compensation Event as stated in the **SCC.**

34.3 The Contractor shall permit the Funding Source named in the **SCC** to inspect at any time the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Funding Source, if so required by the Funding Source.

35. Identifying Defects

The Procuring Entity's Representative shall check the Contractor's work and notify the Contractor of any defects that are found. Such checking shall not affect the Contractor's responsibilities. The Procuring Entity's Representative may instruct the Contractor to search uncover defects and test any work that the Procuring Entity's Representative considers below standards and defective.

36. Cost of Repairs

Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability Period shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

37. Correction of Defects

37.1. The Procuring Entity's Representative shall give notice to the Contractor of any defects before the end of the Defects Liability Period which is One (1) year from its completion up to final acceptance by the Procuring Entity.

37.2. Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified in the Procuring Entity's Representative's notice.

37.3. The Contractor shall correct the defects which he notices himself before the end of the Defects Liability Period.

37.4. The Procuring Entity shall certify that all defects have been corrected. If the Procuring Entity considers that correction of a defect is not essential, he can request the Contractor to submit a quotation for the corresponding reduction in the Contract Price. If the Procuring Entity accepts the quotation, the corresponding change in the SCC is a Variation.

38. Uncorrected Defects

38.1. The Procuring Entity shall give the Contractor at least fourteen (14) days' notice of his intention to use a third party to correct a Defect. If the Contractor does not correct the Defect himself within the period, the Procuring Entity may have the Defect corrected by the third party. The cost of the correction will be deducted from the Contract Price.

38.2. The use of a third party to correct defects that are uncorrected by the Contractor will in no way relieve the Contractor of its liabilities and warranties under the Contract.

39. Advance Payment

39.1. The Procuring Entity through **PRMF-SC** shall, upon a written request of the contractor which shall be submitted as a contract document, make 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**.

39.2. The Advance payment shall be made only upon the submission to and acceptance by the **PRMF-SC** of an irrevocable standby letter of credit of equivalent value from a commercial bank, or a bank guarantee.

39.3. The Advance payment shall be repaid by the Contractor by an amount equal to the percentage of the total contract price used for the advance payment.

39.4. The contractor may reduce his standby letter of credit or guarantee instrument by the amounts refunded by the Monthly Certificates in the Advance payment.

39.5. The Procuring entity through **PRMF-SC** will provide Advance Payment on the Contract Price as stipulated in the Conditions of Contract, subject to the maximum amount stated in **SCC** Clause 39.1.

40. Progress Payments

40.1. The Contractor may submit a request for payment for Work accomplished. Such request for payment shall be verified and certified by the Procuring Entity's Representative. 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.

40.2. The **PRMF-SC** shall deduct the following from the certified gross amounts to be paid to the contractor as progress payment:

(a) Cumulative value of the work previously certified and paid for.

(b) Portion of the advance payment to be recouped for the month.

(c) Retention money in accordance with the condition of contract.

(d) Amount to cover third party liabilities.

(e) Amount to cover uncorrected discovered defects in the works.

40.3. Payments shall be adjusted by deducting therefrom the amounts for advance payments and retention. The Procuring Entity through **PRMF-SC** shall pay the Contractor the amounts certified by the Procuring Entity's Representative within **thirty (30) days** from the date each certificate was issued. No payment of interest for delayed payments and adjustments shall be made by the Procuring Entity through **PRMF-SC.**

40.4. The first progress payment may be paid by the Procuring Entity through **PRMF-SC** to the Contractor provided that at least twenty percent (20%) of the work has been accomplished as certified by the Procuring Entity's Representative.

40.5. Items of the Works for which a price of "0" (zero) has been entered will not be paid for by the Procuring Entity through **PRMF-SC** and shall be deemed covered by other rates and prices in the Contract.

41. Payment Certificates

41.1. The Contractor shall submit to the Procuring Entity's Representative monthly statements of the estimated value of the work executed less the cumulative amount certified previously.

41.2. The Procuring Entity's Representative shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.

41.3. The value of Work executed shall:

(a) be determined by the Procuring Entity's Representative;

(b) comprise the value of the quantities of the items in the Bill of Quantities completed; and

(c) Include the valuations of approved variations.

41.4. The Procuring Entity's Representative may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

42. Retention

42.1. The Procuring Entity through **PRMF-SC** shall retain from each payment due to the Contractor an amount equal to a percentage thereof using the rate as specified in **GCC** Sub-Clause 42.2.

42.2. Progress payments are subject to retention of ten percent (10%), referred to as the "retention money." Such retention shall be based on the total amount due to the Contractor prior to any deduction and shall be retained from every progress payment until fifty percent (50%) of the value of Works, as determined by the Procuring Entity, are completed. If, after fifty percent (50%) completion, the Work is satisfactorily done and on schedule, no additional retention shall be made; otherwise, the ten percent (10%) retention shall again be imposed using the rate specified therefor.

42.3. Unless otherwise provided in the **SCC** , the total "retention money" shall be due for release upon final acceptance of the Works. The Contractor may, however, request the substitution of the retention money for each progress billing with irrevocable standby letters of credit from a commercial bank, and bank guarantees of amounts equivalent to the retention money substituted for and acceptable to the Procuring Entity through **PRMF-SC** provided that the project is on schedule and is satisfactorily undertaken. Otherwise, the ten (10%) percent retention shall be made. Said irrevocable standby letters of credit, and/or bank guarantees, to be posted in favor of the Procuring Entity shall be valid for a duration to be determined by the concerned implementing office/agency or Procuring Entity and will answer for the purpose for which the ten (10%) percent retention is intended, *i.e.*, to cover uncorrected discovered defects and third party liabilities.

42.4. On completion of the Works, the Contractor may substitute retention money with an "on demand" Bank guarantee in a form acceptable to the Procuring Entity.

43. Variation Orders

43.1 Variation Orders may be issued by the Procuring Entity to cover any increase/decrease in quantities, including the introduction of new work items that are not included in the

original contract or reclassification of work items that are either due to change of plans, design or alignment to suit actual field conditions resulting in disparity between the preconstruction plans used for purposes of bidding and the "as staked plans" or construction drawings prepared after a joint survey by the Contractor and the Procuring Entity after award of the contract. All contracts including variations/ amendments will be subject to prior review and issuance of a No objection Letter (NOL) by the FMG-FD through the PRMF-SC, The FMG-FD will carry out the review of documents and provide the NOL to the Procuring Entity. The addition/deletion of Works should be within the general scope of the project as bid and awarded. The scope of works shall not be reduced so as to accommodate a positive Variation Order. A Variation Order may either be in the form of a Change Order or Extra Work Order.

43.2 A Change Order may be issued by the Procuring Entity to cover any increase/decrease in quantities of original Work items in the contract.

43.3 An Extra Work Order may be issued by the Procuring Entity to cover the introduction of new work necessary for the completion, improvement or protection of the project which were not included as items of Work in the original contract, such as, where there are subsurface or latent physical conditions at the site differing materially from those indicated in the contract, or where there are duly unknown physical conditions at the site of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the Work or character provided for in the contract.

43.4 Any cumulative Variation Order beyond ten percent (10%) shall be subject of another contract to be bid out if the works are separable from the original contract. In exceptional cases where it is urgently necessary to complete the original scope of work, the Head of the Procuring Entity may authorize a positive Variation Order go beyond ten percent (10%). *Provided, however,* that appropriate sanctions shall be imposed on the designer, consultant or official responsible for the original detailed engineering design which failed to consider the Variation Order beyond ten percent (10%).

43.5 In claiming for any Variation Order, the Contractor shall, within seven (7) calendar days after such work has been commenced or after the circumstances leading to such condition(s) leading to the extra cost, and within twenty-eight (28) calendar days deliver a written communication giving full and detailed particulars of any extra cost in order that it may be investigated at that time. Failure to provide either of such notices in the time stipulated shall constitute a waiver by the contractor for any claim. The preparation and submission of Variation Orders are as follows:

(a) If the Procuring Entity's representative/Project Engineer believes that a Change Order or Extra Work Order should be issued, he shall prepare the proposed Order accompanied with the notices submitted by the Contractor, the plans therefor, his computations as to the quantities of the additional works involved per item indicating the specific stations where such works are needed, the date of his inspections and investigations thereon, and the log book thereof, and a detailed estimate of the unit cost of such items of work, together with his justifications for the need of such Change Order or Extra

Work Order, and shall submit the same to the Head of the Procuring Entity for approval.

(b) The Head of the Procuring Entity or his duly authorized representative, upon receipt of the proposed Change Order or Extra Work Order shall immediately instruct the technical staff of the Procuring Entity's to conduct an on-the-spot investigation to verify the need for the Work to be prosecuted. A report of such verification shall be submitted directly to the Head of the Procuring Entity or his duly authorized representative.

(c) The Head of the Procuring Entity or his duly authorized representative, after being satisfied that such Change Order or Extra Work Order is justified and necessary shall review the estimated quantities and prices and forward the proposal with the supporting documentation to the Head of Procuring Entity for consideration.

(d) If, after review of the plans, quantities and estimated unit cost of the items of work involved, the proper office of the procuring entity empowered to review and evaluate Change Orders or Extra Work Orders recommends approval thereof, Head of the Procuring Entity or his duly authorized representative, believing the Change Order or Extra Work Order to be in order, shall approve the same.

The timeframe for the processing of Variation Orders from the preparation up to the approval by the Head of the Procuring Entity concerned shall not exceed thirty (30) calendar days.

44. Contract Completion

45. Once the project reaches an accomplishment of ninety five percent (95%) of the contract cost, the Procuring Entity may create an inspectorate team to make preliminary inspection and submit a punch-list to the Contractor. Said punch-list will contain, among others, the remaining Works, Work deficiencies for necessary corrections, and the specific duration/time to fully complete each project component considering the approved remaining contract time. This, however, shall not preclude the claim of the Procuring Entity for liquidated damages.

46. Suspension of Work

46.1. The Procuring Entity shall have the authority to suspend the work wholly or partly by written order for such period as may be deemed necessary, due to *force majeure* or any fortuitous events or for failure on the part of the Contractor to correct bad conditions which are unsafe for workers or for the general public, to carry out valid orders given by the Procuring Entity or to perform any provisions of the contract, or due to adjustment of plans to suit field conditions as found necessary during construction. The Contractor shall immediately comply with such order to suspend the work wholly or partly.

46.2. The Contractor or its duly authorized representative shall have the right to suspend work operation on any or all projects/activities along the critical path of activities after fifteen (15) calendar days from date of receipt of written notice from the Contractor to the district engineer/regional director/consultant or equivalent official, as the case may be, due to the following:

(a) There exist right-of-way problems which prohibit the Contractor from performing work in accordance with the approved construction schedule.

(b) Requisite construction plans which must be owner-furnished are not issued to the contractor precluding any work called for by such plans.

(c) Peace and order conditions make it extremely dangerous, if not possible, to work. However, this condition must be certified in writing by the Philippine National Police (PNP) station which has responsibility over the affected area and confirmed by the Department of Interior and Local Government (DILG) Regional Director.

(d) There is failure on the part of the Procuring Entity to deliver government-furnished materials and equipment as stipulated in the contract.

(e) Delay in the payment of Contractor's claim for progress billing **beyond thirty (30)** calendar days from the time the Contractor's claim has been certified to by the procuring entity's authorized representative that the documents are complete unless there are justifiable reasons thereof which shall be communicated in writing to the Contractor.

46.3. In case of total suspension, or suspension of activities along the critical path, which is not due to any fault of the Contractor, the elapsed time between the effective order of suspending operation and the order to resume work shall allow the Contractor by adjusting the contract time accordingly.

47. Payment on Termination

47.1. If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Procuring Entity's Representative shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the **SCC**. Additional Liquidated Damages shall not apply. If the total amount due to the Procuring Entity exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Entity.

47.2. If the Contract is terminated for the Procuring Entity's convenience or because of a fundamental breach of Contract by the Procuring Entity, the Procuring Entity's Representative shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of

protecting and securing the Works, and less advance payments received up to the date of the certificate.

47.3. The net balance due shall be paid or repaid within twenty eight (28) days from the notice of termination.

47.4. If the Contractor has terminated the Contract under **GCC** Clauses 17 or 18, the Procuring Entity shall promptly return the Performance Security to the Contractor.

48. Extension of Contract Time

48.1. Should the amount of additional work of any kind or other special circumstances of any kind whatsoever occur such as to fairly entitle the contractor to an extension of contract time, the Procuring Entity shall determine the amount of such extension; provided that the Procuring Entity is not bound to take into account any claim for an extension of time unless the Contractor has, prior to the expiration of the contract time and within thirty (30) calendar days after such work has been commenced or after the circumstances leading to such claim have arisen, delivered to the Procuring Entity notices in order that it could have investigated them at that time. Failure to provide such notice shall constitute a waiver by the Contractor of any claim. Upon receipt of full and detailed particulars, the Procuring Entity shall examine the facts and extent of the delay and shall extend the contract time completing the contract work when, in the Procuring Entity's opinion, the findings of facts justify an extension.

48.2. No extension of contract time shall be granted the Contractor due to (a) ordinary unfavorable weather conditions and (b) inexcusable failure or negligence of Contractor to provide the required equipment, supplies or materials.

48.3. Extension of contract time may be granted only when the affected activities fall within the critical path of the PERT/CPM network.

48.4. No extension of contract time shall be granted when the reason given to support the request for extension was already considered in the determination of the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection.

47.5 Extension of contract time shall be granted for rainy/unworkable days considered unfavorable for the prosecution of the works at the site, based on the actual conditions obtained at the site, in excess of the number of rainy/unworkable days pre-determined by the Procuring Entity in relation to the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection, and/or for equivalent period of delay due to major calamities such as exceptionally destructive typhoons, floods and earthquakes, and epidemics, and for causes such as non-delivery on time of materials, working drawings, or written information to be furnished by the Procuring Entity, non-acquisition of permit to enter private properties within the right-of-way resulting in complete stoppage of construction activities, and other meritorious

causes as determined by the Procuring Entity's Representative and approved by the Head of the Procuring Entity.

47.6 Shortage of construction materials, general labor strikes, and peace and order problems that disrupt construction operations through no fault of the Contractor may be considered as additional grounds for extension of contract time provided they are publicly felt and certified by appropriate government agencies such as DTI, DOLE, DILG, and DND, among others. The written consent of bondsmen must be attached to any request of the Contractor for extension of contract time and submitted to the Procuring Entity for consideration and the validity of the Performance Security shall be correspondingly extended.

49. Price Adjustment

Except for extraordinary circumstances as determined by NEDA and approved by the GPPB, no price adjustment shall be allowed. Nevertheless, in cases where the cost of the awarded contract is affected by any applicable new laws, ordinances, regulations, or other acts of the GOP, promulgated after the date of bid opening, a contract price adjustment shall be made or appropriate relief shall be applied on a no loss-no gain basis.

50. Completion

The Contractor shall request the Procuring Entity's Representative to issue a certificate of Completion of the Works, and the Procuring Entity's Representative will do so upon deciding that the work is completed.

51. Taking Over

The Project Owner, as defined in the **SCC**, shall take over the Site within seven (7) days from the date the Procuring Entity's Representative issues a certificate of completion and acceptance of the project.

52. Operating Manual

52.1. If "as built" Drawings and/or operating manual are required, the Contractor shall supply them by the dates stated in the **SCC**.

52.2. If the Contractor does not supply the Drawings and or Manuals by the dates stated in **SCC**, or they do not receive the Procuring Entity's Representative's approval, the Procuring Entity's Representative shall withhold the amount stated in the **SCC** from payments due to the Contractor.

Section V: Special Conditions of Contract (SCC)

GCC Clause	
1.16	The **Intended Completion Date** shall be within 5 months, exclusive of 78 **days** rainy/unworkable days, after the effectivity date.
1.21	The **Procuring Entity** is: the Department of the Interior and Local Government (DILG) Regional Office No. XIII.
1.22	The **Procuring Entity's** Representative will be the person designated by HOPE**.**
1.23	The **Site** is located in **Bayugan City, Agusan Del Sur,** and is defined in drawings *No. **G-02.***
1.27	The **Start Date** is the effectivity date indicated in the Notice to Proceed.
1.30	The **Works** consist of the following earthworks, preparation of sub base and surface courses, drainage works, and miscellaneous structures.
2.2	Sectional completion is not required.
5.1	The **Procuring Entity,** through the Project Owner, the Provincial Local Government Unit (PLGU) of Agusan Del Sur**,** shall give possession of all parts of the Site to the Contractor on the start date.
6.5	The Contractor shall employ the following Key Personnel who shall be assigned exclusively to the Project for the duration of the Contract: **Project Manager** *(with at least 5 years similar experience),* **Project Engineer** *(must be a licensed Civil Engineer with at least 3 years similar experience),* **Materials Engineer** *(must be a licensed Engineer accredited with the DPWH and with at least 1 year similar experience),* **Survey Engineer** *(with at least 2 years similar experience)* **Safety Officer** *(with at least 2 years similar experience and with Certificate of Training on Occupational Safety and Health or other related training) and a* **Foreman** *(with at least 5 years similar experience).* **Each Key Position shall be filled-up by different individuals.**
7.4(c)	No further instructions.
7.7	No further instructions.
8.1	Subcontracting is not allowed.
10	The site investigation reports are: **none**
12.2	The Defects Liability Period (DLP) shall be 12 months from completion of the Works.
12.3	No further instructions.

GCC Clause	
12.5	The warranty period for Semi-permanent Structures such as box culvert, pipe culvert, drainage lined canal, slope protection, and PCCP, is five (5) years.
12.6	Warranty Security shall apply only to Semi-permanent structures.
13	No additional provision.
18.3(h)(i)	No further instructions.
21.2	The Arbiter is: Construction Industry Arbitration Commission 2nd Floor, Executive Building Center 369 Sen. Gil Puyat Avenue corner Makati Avenue Makati City
29.1	Dayworks are not applicable.
31.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within seven *(7)* days from receipt of Notice of Award (NOA) by the bidder.
31.3	The submission of an updated Program of Work, including Construction Schedule and Quality Control Plan, due to contract amendments shall be within seven (7 days after Contractor's receipt of Notice from Procuring Entity The amount to be withheld for late submission of an updated Program of Work is Php 100,000.00.
34.2	The compensation event may result in contract price increase and/ or extension of contract time.
34.3	The Funding Sources are the Australian Agency for International Development *(AusAID*) and the Provincial Government of Agusan Del Sur**.**
39.1	The amount of the Advance payment is not to exceed 15% of the total contract amount to be made in lump sum.
40.1	No further instructions.
42.3	The retention money shall be due for release after the defects liability period and issuance of the Certificate of Final Acceptance by the Procuring Entity
50.0	The Project Owner is the Provincial Government of Agusan Del Sur.

GCC Clause	
52.1	The date by which "as built" drawings are required is **not later than seven (7) calendar days** from the issuance of Certificate of Completion.
51.2	The amount to be withheld for failing to produce "as built" drawings and/or operating manual by the date required is equivalent to the final payment for the Works.

Section VI: Specifications

Technical Specifications is annexed in separate folder

Section VII: Drawings

The actual Drawings, including site plans, are annexed in a separate folder.

C. Section VIII: Bill of Quantities

Project	:	**Rehabilitation and Minor Improvement of NRJ Bayugan-San Luis Road(Bucac-Marcelina Section)**
Contract Reference	:	**PW-ADS-13-04**
Location	:	**Agusan Del Sur**
Length	:	**3.98 kms** .
Duration	:	5 months exclusive of 78 rainy/unworkable days

PAY ITEM NO.	DESCRIPTION	UNIT	QTY	UNIT COST	BID PRICE
(1)	(2)	(3)	(4)	(5)	(6)
Part B – Other General Requirements					
B.1	Mobilization and Demobilization	Lump sum	1.00		
B.2	Setting Out and Staking	Lump sum	1.00		
B.3	Construction Health and Safety Requirements and Environmental Monitoring	Lump sum	1.00		
B.4	Monthly Progress Report and Schedule of Works	Lump sum	1.00		
B.5	Project Sign Board	Each	2.00		
	Sub-total				
Part C – Earthworks					
100(1)	Clearing and Grubbing	Hectare	1.07		
100(1)	Removal of Existing Guardrails	Linear meter	137.16		
103(6)	Pipe Culvert and Drain Excavation	Cubic Meter	75.82		
105(2)	Subgrade preparation (existing pavement)	Square Meter	25,855.18		
	Sub-total				
Part D – Subbase and Base Course					
200	Aggregate Subbase Course	Cubic Meter	4,777.63		
	Sub-total				
Part G-Drainage and Slope Protection Structures					
500(1)c	RCPC, 910mm dia. Class II	Linear Meter	16.00		
504(3)a	Cleaning culvert in placed (760 mm dia. & below)	Linear Meter	120.00		
504(3)b	Cleaning culvert in placed (910 mm dia. and up)	Linear Meter	63.00		
504 (4)	Cleaning/Reconditioning of existing RCBC	Linear Meter	14.00		

PAY ITEM NO.	DESCRIPTION	UNIT	QTY	UNIT COST	BID PRICE
505(5)	Grouted Riprap (ditch and headwall) Class A	Cubic meter	214.33		
	Sub-total				
	Part H – Miscellaneous Structures				
603(3)a	Metal Guardrail – Class A, Type I (Metal Beam) , including concrete post	Linear Meter	167.64		
603(3)b	Metal Guardrail End Piece	Piece	16.00		
605(4)	Project Information Sign	Each	1.00		
	Sub-total				
	Total				
	SUMMARY				
1	**Other General Requirements (Part B)**				
2	**Civil Works (Part C to H)**				
	TOTAL COST (PhP)				

Section IX: Bidding Forms

TABLE OF CONTENTS

Bid Form

Date: _____

To: **DIRECTOR DONALD A. SERONAY**
Chairperson
Special Bids and Awards Committee
DILG Regional Office XIII (CARAGA)

Address*:* 1559 Aquino Avenue
Km. 4, Libertad, Butuan City

We, the undersigned, declare that:

(a) We have examined and have no reservation to the Bidding Documents, including Addenda, for the **Rehabilitation and Minor Improvement of NRJ Bayugan-San Luis Road (Bucac-Marcelina Section) (PW-ADS-13-04);**

(b) We offer to execute the Works for this Contract in accordance with the Bid and Bid Data Sheet, General and Special Conditions of Contract accompanying this Bid;

The total price of our Bid is: *[insert information]*;

(c) Our Bid shall be valid for a period of 120 days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(d) 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;

(e) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from the following eligible countries: *[insert information]*;

(f) 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;

(g) Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, has not been declared ineligible by the Funding Source;

(h) 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

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

Name: _____
In the capacity of: _____
Signed: _____
Duly authorized to sign the Bid for and on behalf of: _____
Date: _____

Form of Contract Agreement

THIS AGREEMENT, made this [insert date] day of [insert month], [insert year] between the DEPARTMENT OF THE INTERIOR AND LOCAL GOVERNMENT (DILG) REGION XIII, represented by DIRECTOR _____ _, with Office address at _____, hereinafter called the "**ENTITY"**, and _____, represented by _____, with address at _____, hereinafter called the "**CONTRACTOR**".

WHEREAS, the **Entity** is desirous that the **Contractor** execute The Rehabilitation and Minor Improvement of NRJ Bayugan-San Luis Road (Bucac-Marcelina Section) (PW-ADS-13-04) and the **Entity** has accepted the Bid for *[insert the amount in specified currency in numbers and words]* by the **Contractor** for the execution and completion of such Works and the remedying of any defects therein.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

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

2. The following documents shall be attached, deemed to form, and be read and construed as part of this Agreement, to wit:

   (a) General and Special Conditions of Contract;

   (b) Drawings/Plans;

   (c) Specifications;

   (d) Invitation to Bid;

   (e) Instructions to Bidders (ITB);

   (f) Bid Data Sheet (BDS)

   (g) Addenda and/or Supplemental/Bid Bulletins, if any;

   (h) Bid form, including all the documents/statements contained in the Bidder's bidding envelopes, as annexes;

   (i) Eligibility requirements, documents and/or statements;

   (j) Performance Security;

   (k) Notice of Award of Contract and the Bidder's conforme thereto;

   (l) Other contract documents that may be required by existing laws and/or the Entity.

3. In consideration of the payments to be made by the PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF) to the CONTRACTOR as hereinafter mentioned, the CONTRACTOR hereby covenants with the ENTITY to execute and complete the Works

and remedy any defects therein in conformity with the provisions of this Contract in all respects.

4. The ENTITY hereby covenants to review and sign billings for satisfactory works claimed by the CONTRACTOR in consideration of the execution and completion of the Works and the remedying of defects wherein, the Contract Price or such other sum as may become payable under the provisions of this Contract at the times and in the manner prescribed by this Contract, for payment by the PRMF in accordance with the Memorandum of Subsidiary Arrangement (MSA) signed between the Philippine Government, represented by the DILG, and the Government of Australia and as provided for in Section 7 of Memorandum Circular No. 14, series of 2013.

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

Binding Signature of PROCURING ENTITY	Binding Signature of CONTRACTOR
_____	_____
Regional Director/Head of the Procuring Entity	
_____	_____
Witness	Witness

Omnibus Sworn Statement

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

A F F I D A V I T

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 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 of *[Name of Bidder]*, I have full power and authority to do, execute and perform any and all acts necessary to represent it in the bidding for *[Name of the Project]* of the *[Name of the Procuring Entity]*;

   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 and/or to represent the *[Name of Bidder]* in the bidding as shown in the attached *[state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate issued by the corporation or the members of the joint venture)]*;

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;

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: I am not related to the Head of the Procuring Entity, members of the Special Bids and Awards Committee (SBAC), the Special Technical Working Group, and the SBAC 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 Special Bids and Awards Committee (SBAC), the Special Technical Working Group, and the SBAC 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 Special Bids and Awards Committee (SBAC), the Special Technical Working Group, and the SBAC 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 following responsibilities as a Bidder:

   a) Carefully examine all of the Bidding Documents;

   b) Acknowledge all conditions, local or otherwise, affecting the implementation of the Contract;

   c) Made an estimate of the facilities available and needed for the contract to be bid, if any; and

   d) Inquire or secure Supplemental/Bid Bulletin(s) issued for the *Rehabilitation and Minor Improvement of* NRJ Bayugan – San Luis Road (Bucac-Marcelina Section)
9. [Name of Bidder} did not give or pay directly or indirectly, any commission, amount, fee, or any form of considerations, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

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

_____
Bidder's Representative/Authorized Signatory

[JURAT]

BID-SECURING DECLARATION

(REPUBLIC OF THE PHILIPPINES)

CITY OF _____) S.S.

x----------x

Invitation to Bid [*Insert reference number]*

To: DIRECTOR DONALD A. SERONAY
Chairperson
Special Bids and Awards Committee
DILG Regional Office XIII (CARAGA)
1559 Aquino Avenue, Km. 4, Libertad
Butuan City

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 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, if I/we have committed any of the following actions:

   (i) Withdrawn my/our Bid during the period of bid validity required in the Bidding Documents; or

   (ii) Fail or refuse to accept the award and enter into contract or perform any and all acts necessary to the execution of the Contract, in accordance with the Bidding Documents after having been notified of your acceptance of our Bid during the period of bid validity.

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;

   (c) I am/we are declared as the bidder with the Lowest Calculated and 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'S AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]

Affiant

SUBSCRIBED AND SWORN to before me this __ day of *[month] [year]* at *[place of execution]*, Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her *[insert type of government identification card used]*, with his/her photograph and signature appearing thereon, with no. _____ and his/her Community Tax Certificate No. _____ issued on _____ at _____.

Witness my hand and seal this ___ day of *[month] [year].*

NAME OF NOTARY PUBLIC

Serial No. of Commission _____

Notary Public for _____ until _____

Roll of Attorneys No. _____

PTR No. __ , *[date issued], [place issued]*

IBP No. ___ , *[date issued], [place issued]*

Doc. No. ___

Page No. ___
Book No. ___
Series of ____.

Philippines Provincial Road Management Facility

TECHNICAL SPECIFICATIONS

REHABILITATION OF NRJ BAYUGAN – SAN LUIS ROAD

Province of Agusan del Sur

REHABILITATION COMPONENT:

Part B. GENERAL REQUIREMENTS

1.1 Local Hiring and Fair Wages

The Contractor shall give first priority to local residents when hiring laborers and skilled workers.

The Contractor shall pay not less than fair wages to laborers engaged by him on the work as revised from time to time by the Government of the Philippines.

1.2 Housing for Labor and Contractor's facilities

The Contractor at his own expense shall provide and maintain, in a clean and sanitary condition, living accommodations for those employed by him on the subproject. Each building for living accommodation shall be provided with lights, water supply, and sanitary facilities and be properly furnished.

The Contractor shall supply, equip and maintain for the Contract period all his required sheds and stores necessary for the execution of the Work, and shall make his own arrangements, subject to the approval of the Engineer, with the owner of any land required and, if necessary, pay for its use.

1.2.1 Measurement and Payment

Living Quarters, sheds, stores and temporary facilities including provisions for the Contractor's workshop in accordance with this Specification section shall be considered as included in the lump sum payment as provided for under "Mobilization".

1.3 Insurance

a) In accordance with the Conditions of Contract, the Contractor shall provide insurance as stipulated.

b) The Contractor shall provide evidence of insurance policies prior to the start of work in accordance with the provisions of the General Conditions of Contract.

c) With each interim payment request, the Contractor shall submit evidence consisting of receipts of payment or other verification as approved by the Engineer that insurance policies are in effect.

d) Insurance and Bonds as required by Contract Documents shall not be measured for payment. All necessary and required costs shall be included in the Unit Prices of the Bid Price Schedule.

1.4 Health and Pests

The Contractor shall, at his own expense and throughout the period of the Contract ensure that suitable arrangements are made for the prevention of epidemics and for all necessary welfare and hygiene requirements for his staff and labor, and shall comply with all the regulations and requirements of the local health authorities with respect to disease prevention and control. He shall warn his staff and labor of the dangers of communicable diseases including those transmitted by insects, water, fecal or oral contact, and sexual activity. The Contractor shall take the precautions necessary to protect all staff and laborers employed on the Site from insect nuisance, rats and other pests, and minimize the dangers to health and the general nuisance caused by the same. Should malaria or other insect-borne diseases be prevalent in the area, he shall provide his staff and labor with suitable prophylactics, equip living accommodation with screens and bed-nets, and carry out spraying with approved insecticides, as appropriate and to the Engineer's satisfaction.

1.5 Supply of Drinking Water, Sanitation

The Contractor shall, so far as reasonable and having regard to local conditions, provide on the Site and at his expense an adequate supply of drinking water for the use of Contractor's staff and work people, together with sanitary facilities (portable toilets or latrines), to the satisfaction of the Engineer.

1.6 Working Hours

Subject to any provision to the contrary contained in the Contract, none of the Permanent Works shall, save as hereinafter provided, be carried out during the night, on Sundays, on locally recognized days of rest, or their locally recognized equivalent, without the permission in writing of the Engineer, except when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the Works. In this case, the Contractor shall immediately advise the Engineer. The Contractor shall in all dealings with labor in his employment have due regard to all recognized festivals, days of rest, and religious or other customs.

1.7 Disorderly Conduct

The Contractor shall at all times take reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his employees and see to the preservation of peace and protection of persons and property in the neighborhood of the Works. "Disorderly Conduct" shall include but not be limited to harvesting of natural resources such as firewood or fish by the Contractor's labor when this is done to the detriment of pre-existing local interests.

1.8 Records of Labor and Accidents

The Contractor shall maintain full records of numbers, working hours and wages of labor, safety, health and welfare of persons, accidents, and damage to property and make such reports on these matters immediately available to the Engineer whenever requested.

1.9 Relations with Local Communities and Authorities

In setting and operating his plant and facilities and in executing the Works, the Contractor shall at all times bear in mind and to the extent practicable minimize the impact of his activities on existing communities. Where communities are likely to be affected by major activities such as road widening or the establishment of a camp, large borrow pit or haul road, he shall liaise closely with the concerned communities and their representatives and if so directed, shall attend meetings arranged by the Engineer or Employer to resolve issues and minimize impacts on local communities.

1.10 Fire Prevention

The Contractor shall take all precautions necessary to ensure that no vegetation along the road, whether inside or outside the area of the permanent works is affected by fires arising from the execution of the Works. The Contractor shall obtain and follow any instructions of competent authorities with respect to fire hazard when working in the vicinity of gas installations. Should a fire occur in the natural vegetation or plantations adjacent to the road for any reason, the Contractor shall immediately suppress it. In the event of any other fire emergency in the vicinity of the Works, the Contractor shall render assistance to the civil authorities to the best of his ability. Areas of forest, scrub, or plantation damaged by fire considered by the Engineer to have been initiated by the Contractor's staff or labor shall be replanted and otherwise restored to the satisfaction of the Engineer at the Contractor's expense.

1.11 Fossils

The Contractor shall make his staff available for briefing on archaeological matters as directed by the Engineer.

1.12 Interference with Traffic and Adjoining Properties

In case any operation connected with the Works necessitates diversion, obstruction or closure of any road, railway, waterway, or any other right of way, the approval of the Engineer or the Engineer’s Representative and the respective competent authorities shall be obtained well in advance by the Contractor. In case the Contractor’s operations obstruct access to adjacent properties, the Contractor shall be responsible to provide reasonable temporary access to the affected properties.

1.13 Transport of Contractor's Equipment or Temporary Works

Where the Contractor intends to use a particular route for the haulage of large quantities of materials, he shall consult well in advance with any affected communities and submit in advance for the Engineer's approval a plan including but not limited to the proposed route, the existing condition of the pavement and bridges, the estimated number and type of vehicle movements per day, a program for monitoring the condition of the pavement and structures, and measures for limiting vehicle speeds and dust nuisance in built-up areas. The

Engineer reserves the right to disallow certain haul routes should these in his opinion cause or be likely to cause unreasonable nuisance or hazards to the public. The Engineer's approval will not remove the Contractor's obligations under this Sub-Clause to prevent and repair damage to roads at his expense or his liability for compensation for any accidents caused by his vehicles.

1.14 Maintenance of Existing Drainage Systems and Water Inflow Control

The Contractor shall maintain the existing drainage entering, crossing or affecting the Works. This shall include, where required by the Engineer, the cleaning of all existing channels, ditches, drainage structures and pipes upstream and down-stream to an extent of 100 m beyond the construction limits and the right-of-way of the project.

The Contractor shall take all necessary measures to remove water including ground water flows from the area of his work when necessary and/or as required by the Engineer to allow satisfactory execution of work in progress or for the protection of completed work.

Measurement and Payment

All costs necessary for and associated with the maintenance of existing drainage systems and water inflow control in accordance with the requirements of the General Conditions of Contract shall not be measured for payment, but shall be considered to be included in the unit rates of the Bid Price Schedule.

1.15 Protection of Works from the Weather

The Contractor shall carefully protect all work and materials from injury from any type and/or magnitude of weather.

Damage to constructed components of the project due to weather will not be entitled to additional payment.

Measurement and Payment

Protection of work and materials in accordance with requirements of this Specification shall be considered as included in the lump sum payment as provided for under “Mobilization”.

1.16 Warranty Cost

The Contractor shall be responsible for all costs for and associated with the warranty period of the Works in accordance with the provisions of the General Conditions of Contract**.**

Measurement and Payment

All costs necessary for and associated with the warranty period of the Works in accordance with the requirements of the General Conditions of Contract shall not be measured for payment, but shall be considered to be included in the unit rates of the Bid Price Schedule.

1.17 Mobilization and Demobilization

Scope of Work

This Section includes mobilization, demobilization, assembly, and disassembly of equipment/plants including incidentals necessary to complete the work.

Mobilization

a) The Contractor shall mobilize and put into operation all equipment and plants required to undertake the Bid Documents, which is the Bill of Quantities and all associated work items.

b) Mobilization shall include the transferring to the job-sites of all equipment, plants, supplies and materials, personnel, and all items necessary for the execution and completion of the work, and shall also include all utilities, supplies, staffing etc., and also include the setting up of all equipment, instruments and all other plants until rendered operable, subject to the confirmation of the Engineer. Mobilization of certain items identified by the Engineer will also be a basis for release of the advance payment.

c) Sufficient supply of spares for the equipment and plants shall be mobilized to the site and be carried on board the towing/carrying vessels. Equipment/plants encountering breakdowns must be repaired on each site by the most expeditious method possible at no cost to the Employer. In the event that the equipment/plants call for major repair works that cannot be undertaken at the site, the Contractor shall replace such equipment/plants with equal or better performance capacity at no additional mobilization costs to the Employer, and the Contractor shall not be entitled to any time extension.

d) Contractor shall provide all power for operation of his plant and equipment, or for any other use, including building cooling and lighting. The Contractor shall arrange with the utility company to provide and pay for the service required for power and lighting. All electrical installations shall be complete with an appropriate number of emergency shutoff devices and include grounding systems in accordance with Philippine Electric Standards.

e) The Contractor shall provide temporary lighting for the worksites to protect the Works and maintain suitable working conditions. Temporary lighting shall be maintained until the Employer has accepted the Works.

f) The Contractor shall make all necessary arrangements and pay all installation and usage charges for his office at the Site.

g) The Contractor shall furnish temporary sanitary facilities at the Site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project.

h) The Contractor (until completion of the Works) shall maintain all existing fences affected by the Works. Fences that interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the fence owner.

i) The Contractor will be held responsible for any damage to existing structures, works, materials, or equipment because of his operations or the operations of any of his subcontractors. The Contractor shall repair or replace any damaged structures, works, materials, or equipment to the satisfaction of the Engineer, and at no additional cost to the Employer.

j) The Contractor shall be responsible for all damage to streets, roads, railroads, curbs, sidewalks, highways, shoulders, ditches, embankment, culverts, bridges, or other public or private property, which may be caused by the transport of equipment, materials, or people to or from the Works.

k) The Contractor shall be responsible for the protection of the Site, and all work, materials, equipment, and all existing or completed facilities thereon, against vandals and other unauthorized persons.

l) The Contractor shall construct suitable entry and exit roads to, from and around all temporary facilities.

m)Suitable fencing shall be constructed around all temporary facilities.

n) Suitable external lighting shall be provided at the entrance to all buildings.

o) All sanitary facilities shall be connected to a suitable sewage system.

p) During the performance of the works the Contractor shall maintain all temporary facilities in a suitable manner to the satisfaction of the Engineer.

q) All construction plant and equipment provided by the Contractor shall, when brought on to the Site, be deemed to be exclusively intended for the construction and completion of the Works and the Contractor shall not remove the same or any part thereof without the approval of the Engineer.

r) The Employer shall not at any time be liable for the loss or damage to any of the said construction plant and equipment provided by the Contractor or any subcontractor or supplier.

Demobilization upon request of the Contractor and approved by the Engineer shall include the following:

a) The dismantling, preparation and loading for removal and shipment of all Contractor's (and Subcontractor's) plant, equipment, and personnel at each site after completion of the works.

b) Transportation of all the above plant, equipment, and materials from each site to the Contractor's home station or somewhere else outside the sites.

c) Removal of all supplementary markers furnished and installed by the Contractor, provided that the Engineer has not taken the option to retain the markers.

d) The clean-up of the Site and the removal of materials, debris, waste, etc., and making good damages or temporary alterations, to the satisfaction of the Engineer.

e) The restoration, up to a degree acceptable to the Engineer, of damage to the surrounding area (including vegetation, minor structures etc) resulting from the construction or construction-related activities

Measurement

The Lump sum price shall provide for the mobilization and demobilization of all Contractor's plant/equipment and personnel to cover all costs for mobilization and demobilization, transportation, insurance during transportation, port fees, taxes, utilities, support staffs and all other incidentals.

The payment shall cover the dismantling of the work site by the Contractor, with removal of all the alterations, constructional plant and equipment, so that the site is restored to the state it was in before the installations, plant and equipment were placed there.

Payment

No additional payment will be made for any additional mobilization of personnel, plant, equipment and materials.

All costs associated with and necessary for compliance with this Specification shall be included in the Lump Sum price. No additional or separate payment will be made in this regard.

The Engineer may at any time withhold payment if (in the opinion of the Engineer) requirements of this Specification section are not provided.

Pay Item	Description	Unit
B.1	**Mobilization and Demobilization**	**Lump Sum**

1.18 Contractor Submissions

All submissions and correspondence including drawings shall be in English and are to be in hard copy and (if required by the Engineer) on computer disk. The standard submission requirements are:

A. General

a) General correspondence - 1 copy

b) Latest edition copy of all standard regulations, guidelines, specifications, technical papers, monographs, catalogues, and other technical documents which are required - 1 copy

c) Drawings A1 size - 1 copy

d) Documents - 1 copy

e) Schedule of Works - 2 copies

f) Testing Results, Other Technical Correspondence – 1 copy

g) Monthly Report - 1 copy

B. Submittal of "As-Built" Drawings

"As-Built drawings on approved reproducible film shall be prepared by the Contractor in Auto CADD for the whole of the Works. The drawing shall be kept up-to-date as the work proceeds with details completed for each item of the Works immediately after work has been completed. Two (2) copies of "As-Built" drawings shall be submitted by the Contractor together with the electronic file within 14 calendar days after the first day of the Defects Liability Period.

No final Certificate shall be issued to the Contractor by the Engineer unless the "As-Built" drawings has been submitted to and approved by the Engineer.

Measurement and Payment

All costs necessary for and associated with the Contractor's Submissions in accordance with the requirements of these specifications shall not be measured for payment, but shall be considered to be included in the unit rates of the Bid Price Schedule.

1.19 Receiving, Handling and Storage of Materials and Equipment

This section covers packing, shipping, delivery, receiving, storage, and handling of materials and equipment.

Delivery

1.19.1 The Contractor shall bear the responsibility for delivery of equipment, spare parts, special tools, and materials to the job site and shall comply with the requirements specified herein and shall provide the required information concerning delivery of the materials.

1.19.2 The Contractor shall, either directly or through contractual arrangements with others, accept responsibility for the safe handling and protection of the equipment and materials furnished under this Contract before and after receipt at the site. Acceptance of the equipment or materials shall be made after it is installed, tested and placed in operation and found to comply with all the specified requirements.

Storage

a. Upon delivery all equipment and materials shall immediately be stored and protected until installation at the Site and incorporation into the Works.

b. Stacked items shall be suitably protected from damage by spacers or load distributing supports that are safely arranged.

c. No metalwork (sheet pilings, reinforcing steel, etc.) shall be stored directly on the ground.

d. Bulk cement shall be stored in containers shutting out moisture.

e. Packed cement shall be stored in container boxes to keep from moisture.

f. PVC pipe, geotextile membranes, plastic liner and other plastic materials shall be stored off the ground on pallets and protected from direct sunlight.

Measurement and Payment

Receiving, handling and storage of materials and equipment in accordance with this Specification section shall not be measured for payment. All necessary and required costs shall be included in appropriate Unit Prices in the Bid Price Schedule.

1.20 Setting Out and Staking

I. Construction Requirements

a. General

Staking activities shall be included in the construction schedule to be submitted by the Contractor. Dates and sequence of each staking activity shall be included.

The Engineer shall set initial reference lines, horizontal and vertical control points, and shall furnish the data for use in establishing control for the completion of each element of the work. Data relating

to the horizontal and vertical alignments, theoretical slope stake catch points, and other design data shall be furnished.

The Contractor shall be responsible for the true setting of the works or improvements and for correctness of positions, levels, dimensions and alignment of all parts of the works. He shall provide all necessary instruments, appliances, materials and supplies, and labor in connection therewith. The Contractor shall provide a survey crew supervisor at the project whenever surveying/staking activity is in progress.

Prior to construction, the PRMF shall be notified of any missing initial reference lines, control points, or stakes. The PRMF shall re-establish missing initial reference lines, control points, or stakes.

The Contractor for convenient use of Government furnished data shall perform additional calculations. Immediate notification of apparent errors in the initial staking or in the furnished data shall be provided.

All initial reference and control points shall be preserved. At the start of construction, all destroyed or disturbed initial reference or control points necessary to the work shall be replaced.

Before surveying and staking, the Contractor shall discuss and coordinate the following with the PRMF:

1. Surveying and staking methods
2. Stake marking/ concrete monuments (establishment of TBMs)
3. Grade control for courses of material
4. Referencing
5. Structure control
6. Any other procedures and controls necessary for the work.

Established controls shall be within the tolerances shown in Table 1.

Table 1
Construction Survey and Staking Tolerances [(1)]

Staking Phase	Horizontal	Vertical
Existing Government network control points	± 20mm	± 8mm x √K[(2)]
Local supplemental control points set from existing Government network points	± 10mm	± 3mm x √N[(3)]
Centerline points[(4)] – (PC),(PT),(POT), and (POC) including references	± 10mm	± 10mm
Other centreline points	± 50mm	± 50mm
Cross-section points and slope stakes[(5)]	± 50mm	± 50mm
Slope stakes references	± 50mm	± 50mm
Culverts, ditches, and minor drainage structures	± 50mm	± 20mm

Staking Phase	Horizontal	Vertical
Retaining walls and curb and gutter	± 20mm	± 10mm
Bridge substructures	± 10mm(6)	± 10mm
Bridge superstructures	± 10mm(6)	± 10mm
Clearing and grubbing limits	± 500mm	-
Roadway subgrade finish stakes(7)	± 50mm	± 10mm
Roadway finish grade stakes(7)	± 50mm	± 10mm

(1) At 95% confidence level. Tolerances are relative to existing Government network control points.

(2) K is the distance in kilometres

(3) N is the number of instrument setups.

(4) Centerline points: PC- point of curve, PT- point on tangent, POC-point on curve.

(5) Take the cross sections normal to the centreline + 1 degree.

(6) Bridge control is established as a local network and the tolerances are relative to that network.

(7) Include paved ditches.

The Contractor shall prepare field notes in an approved format. All field notes and supporting documentation shall become the property of the Government upon completion of the work.

Work shall be only started after staking for the affected work is accepted and approved.

The construction survey and staking work may be spot-checked by the Engineer for accuracy (Engineer to be represented during conduct of as-stake survey by the Contractor), and unacceptable portions of work may be rejected. Rejected work shall be resurveyed, and work that is not within the tolerances specified in Table 1 shall be corrected. Acceptance of the construction staking shall not relieve the Contractor of responsibility for correcting errors discovered during the work and for bearing all additional costs associated with the error, unless such error is based on incorrect data supplied in writing by the Engineer, in which case, the expense in rectifying the same shall be at the expense of the Government.

In the case of “change” or “changed conditions” which involve any change in stakeout, the Contractor shall coordinate with the PRMF and facilitate the prompt reestablishment of the field control for the altered or adjusted work.

All flagging, lath, stakes, and other staking materials shall be removed and disposed after the project is completed.

b. Survey and Testing Equipment and Personnel

{PRIVATE }{tc \l 2 "(d) GS 21.2 Survey Equipment and Personnel Supplied to the Engineer"}The Contractor shall, as a requirement of the Contract and without extra charge, furnish all necessary instruments, appliances, surveyor team, and any material that the Construction Supervision Team may require for checking the setting out or for any other relevant work to be done. The Survey team shall consist of (but not limited to, if required) one Surveyor, one instrument man and three (3)

Surveyor's laborer, with acceptable (to the PRMF) previous experience. Transport shall be provided as required. If the survey personnel are required, they must be made available within 24 hrs of the PRMF's request.

Survey and testing equipment in accordance with the following shall be provided for the use of the Project. The Contractor shall submit valid calibration certificate from the Bureau of Lands for each instrument and capable of achieving the specified tolerances. This equipment can be used if it is accepted by the PRMF; otherwise new equipment shall be provided.

- 1 each, Total Station and digital Data Collector with aluminum tripod
- 1 digital level or auto level
- 3 each, Wild (or equivalent) Reflector prisms with reflective holders.
- 2 each, bipod prism holder
- 3 each, Wild (or equivalent) Reflector prism rods.
- 3 each, 5 meter pocket tapes (Stanley, or equivalent)
- 3 each, 30 meter tapes (Stanley, or equivalent)
- 1 each, 60 meter tape (Stanley, or equivalent)
- 2 each, 1 meter carpenter (spirit) levels (Stanley, or equivalent)
- 2 each, big umbrella

All survey and testing equipment shall be supplied with miscellaneous tools, necessary tripods, **extra batteries and battery chargers** (for electrically operated equipment), mountings, carrying and storage cases and all necessary accessories.

The Contractor shall at his own expense make any additional surveys and measurements that are required for the construction of the work such as slope stakes, temporary grade stakes, and bridge and culvert layout, offset line, etc. The Contractor shall be responsible for the accuracy of all surveys or measurements made by his employees.

Any marks made by the PRMF or the Contractor shall be carefully preserved and, if disturbed or destroyed, shall be immediately replaced by the Contractor at his own expense and to the satisfaction of the PRMF. No work shall be carried out in any section until the PRMF has approved the necessary setting out.

Stakes of the type and quality normally used in highway survey work and suitable for the intended use shall be furnished. Stakes and hubs of sufficient length to provide a solid set in the ground with sufficient surface area above ground for necessary legible markings shall also be furnished.

c. Survey and Staking Requirements

All survey, staking, recording of data, and calculations necessary to construct the project from the initial layout to final completion shall be performed. Stakes shall be reset as many times as necessary to construct the work.

1. Control Points

Established initial horizontal and vertical control points in conflict with construction shall be relocated to areas that will not be disturbed by construction operations. The coordinates and elevations for the relocated points shall be furnished before the initial points are disturbed.

2. Roadway Cross-sections

Roadway cross-sections shall be taken normal or perpendicular to the centreline. When the centreline horizontal curve radius is less than or equal to 150 meters and vertical parabolic curve radius is less than or equal to 100 meters, cross sections shall be taken at a maximum centreline spacing of 10 meters. When the centreline horizontal curve radius is greater than 150 meters and vertical parabolic curve radius is greater than 100 meters, cross-sections shall be taken at maximum centreline spacing of 20 meters. Additional cross-sections shall be taken at significant breaks in topography and at changes in the typical roadway section including transition change to super-elevated sections. Along each cross sections, points shall be measured and recorded at breaks in topography and at changes in typical roadway section including transition change to super-elevated sections and shall be no further apart than 5 meters. Points shall be measured and recorded to at least the anticipated slope stake and reference locations. All cross sections distances shall be reduced to horizontal distances from centerline.

3. Slope Stakes and References

Slope stakes and references shall be set on both sides of centreline at the cross-section locations. Slope stakes shall be established in the field as the actual point of intersection of the design roadway slope with the natural ground line. Slope stake references shall be set outside the clearing limits. All reference point and slope stake information shall be included on the reference stakes. When initial references are provided, slope stakes may be set from these points with verification of the slope stake location with field measurements. Slope stakes on any section that do not match with the staking report within the tolerances established in Table 1 shall be recatched. Roadway cross-section data shall be taken between centreline and the new slope stake location. Additional references shall be set even when initial references are provided.

4. Clearing and Grubbing Limits

Clearing and grubbing limits shall be set on both sides of centreline at roadway cross-section locations, extending 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 PRMF.

5. Centerline Reestablishment

Centerline shall be re-established from instrument control points. The maximum spacing between centreline points shall be 10 meters when the centreline horizontal curve radius is less than or equal to 150 meters and vertical parabolic curve radius is less than or equal to 100 meters. When the centreline horizontal curve radius is greater than 150 meters and vertical parabolic curve radius is greater than 100 meters, the maximum distance between centreline points shall be 20 meters.

6. Grade Finishing Stakes

Grade finishing stakes shall be set for grade elevations and horizontal alignment, at the centreline and at each shoulder of roadway cross-section locations. Stakes shall be set at the top of subgrade and the top of each aggregate course.

Where turnouts are constructed, stakes shall be set at the centreline, at each normal shoulder, and at the shoulder turnout. In parking areas, hubs shall be set at the center and along the edges of the parking area. Stakes shall be set at all ditches to be paved.

The maximum longitudinal spacing between stakes shall be 10 meters when the centreline horizontal curve radius is less than or equal to 150 meters and vertical parabolic curve radius is less than or equal to 100 meters. When the centreline horizontal curve radius is greater than 150 meters and vertical parabolic radius curve is greater than 100 meters, the maximum longitudinal spacing between stakes shall be 20 meters. The maximum transverse spacing between stakes shall be 5 meters. Brushes or guard stakes shall be used at each stake.

7. Culverts

Culverts shall be staked to fit field conditions. The location of culverts may differ from the plans. The following shall be performed:

a. Survey and record the ground profile along the culvert centreline including inlet and outlet channel profile of at least 10 meters and as additionally directed by the Engineer so as to gather all necessary data for the preparation of pipe projection plan.
b. Determine the slope catch points at the inlet and outlet.
c. Set reference points and record information necessary to determine culvert length and end treatments.
d. Plot into scale the profile along the culvert centreline reflecting the natural ground elevation, invert elevation, the flowline, the roadway section, and the size, length and the degree of elbow of culvert, end treatments, grade and other appurtenances.
e. Plot into scale the cross-section of inlet and outlet channel at not more than 5 meters interval.
f. Submit the plotted Pipe Projection Plan for approval of final culvert length, alignment and headwall.
g. When the Pipe Projection Plan has been approved, set drainage culvert structure survey and reference stakes, and stake inlet and outlet to make the structure functional.

8. Bridges

Adequate horizontal and vertical control and reference points shall be set for all bridge substructure and superstructure components. The bridge chord or the bridge tangent shall be established and referenced.

Set at least three (3) reference points each at downstream and upstream portion. Conduct topographic survey and plot into scale at least 100 meters upstream and downstream from the centreline of bridge.

9. Retaining Walls and Other Types of Slope Protection Works

Profile measurements along the face of the proposed wall and 2 meters in front of the wall face shall be surveyed and recorded. Cross-sections shall be taken within the limits designated by the Engineer at every 5 meters along the length of the wall and at all major breaks in terrain. For each cross-section, points shall be measured and recorded every 5 meters and at all major breaks in terrain. Adequate references and horizontal and vertical control points shall be set.

10. Borrow and Waste Sites

The work essential for initial layout and measurement of the borrow or waste site shall be performed. A referenced baseline, site limits, and clearing limits shall be established. Initial and final cross-sections shall be surveyed and recorded.

11. Permanent Monuments and Markers

All survey and staking necessary to establish permanent monuments and markers shall be performed.

12. Miscellaneous Survey and Staking

All surveying, staking and recording of data essential for establishing the layout and control of the following shall be performed, as applicable:

a. Approach roads and trails
b. Road Right of Way and Construction limit in accordance with the approved Parcellary Plan
c. Curb and gutter
d. Guardrail
e. Parking areas
f. Paved waterways and outfall structures
g. Lined canals and other ditches
h. Chutes and spillways
i. Turf establishment
j. Utilities
k. Signs, delineators, and object markers
l. Pavement markings

II. **AS-STAKED PLAN**

The following are the important requirements to prepare as-staked drawings:

a. All as-staked drawings are required to be on one set of 24" x 36" tracing paper and 2 sets of blue printed copies, and shall bear the name and address of the contractor and the preparing, reviewing or checking, recommending and approving officials. The contractor is

also required to submit CAD file of drawings in CD and 3 copies of as-staked quantities in A4 size, ring bound including electronic copy in excel format. As-staked drawings are required to be submitted along with other requirements piror to start of any construction activities at the site. Attached as Annex B is the standard title block of the as-staked drawings showing the signatories of the reviewing and approving authorities.

b. The Contractor shall be responsible for the supervision of the surveying and staking personnel. Any errors resulting from the operations of the surveying personnel shall be corrected at the Contractor's expense.

c. At a minimum, the required sheets are as follows:

1. sheet 1 – cover sheet
2. sheet 2 – table of contents
3. sheet 3 – plan and profile (multiple sheets) (scale 1:1000)
4. sheet 4 – cross section (multiple sheets) (scale 1:100)
5. sheet 5 – Earthworks Quantity calculations

d. Following are the important drawings for approval as pre-requisite to start of construction activities:

1. Plan and Profile - The contents of the plan and profile sheets are:

a. Title Block
b. Designed Finished Grade Line (and Revised Finished Grade)
c. Original Ground Line
d. As-staked Ground Line
e. Profile elevations along centreline (Finished Grade, Original Ground and As-staked ground)
f. Super-elevation diagram (optional or when there is revision to elements of curve)
g. Road widening Diagram (optional or when there is revision to elements of curve)
h. Table of Elements of Curve and Reference Points (and Revised Elements of Curve)
i. PVIs (to be numbered and tabulated)
j. Drainage structures (Location and description/size)
k. Control Points (BM/BLLM/GPS and TBMs shown at locations in the plan and tabulated with elevations)

2. Cross-section Drawings – to be shown in the drawings are:

a. Title Block
b. At every full station (20 m interval),
c. As-staked Ground section

d. Typical Roadway Section Template on Finished Grade (finished level,
e. subbase, subgrade level)
f. Finished Grade elevations (centerline)
g. As-staked ground centerline elevation
h. Coordinates of toe of slope
i. Edge of existing road (LCG/RCG) coordinates
j. Slope protection (section)
k. Quantity block tabulation showing: widths of clearing and grubbing (Item
l. 100), subgrade preparation (Item 105), end areas of cut and fill (and slope Protection end area if included in the plan)

3. Shop Drawings of Structures – to be shown are:
    a. Plan and Elevation Drawings of the structure (finished grade, ground section, embankment section)
    b. Invert elevations at inlet/outlet
    c. Distance from centreline to ends of barrel of structures
    d. Details of headwalls and wingwalls
    e. Details of RCBC barrel section
    f. Reinforcing bar schedule
    g. Station and Description of the structure
    h. Title block

IV. AS-STAKED QUANTITY CALCULATIONS

As-staked quantity for earthworks will be calculated using end area method. Areas of roadway and canal excavation, embankment, subbase and surface course shall be derived from the cross section of specific road station using CADD software. A quantity sheet will be developed showing the calculations for the quantity of each of the pay items. A typical quantity sheet can be expanded to include area of clearing/grubbing and subgrade preparation.

V. REVIEW AND APPROVAL OF AS-STAKED DOCUMENTS

The following process shall be observed on the preparation and when requesting approval of as-staked documents:

From the effective date of the Contract or at earlier date as maybe agreed with the Construction Supervision Team (CST), the Contractor shall commence the conduct of joint stake survey and prepare/submit as-staked documents which shall comprise survey data, as-staked plan and as-staked quantities.

Upon receipt of the as-staked documents, the CST shall conduct random check/verification of the as-staked plan and quantities together with the Contractor's Project Engineer and Survey Team.

After field verification, the CST and Contractor shall meet to discuss verification findings and CST's comments on the as-staked documents. Comments shall be transmitted officially by the RE to the

Contractor prior to the meeting, copy of which shall be included in the submission of as-staked documents to PRMF Makati. Minutes of the meeting shall also be prepared and shall be furnished to PRMF Makati.

Contractor shall revise the as-staked documents based on the comments and agreements during the meeting. If there is a need for follow-up meetings, the RE shall set the same and shall ensure that discussions and agreements are properly recorded through minutes of meeting.

If there are no further comments, the Contractor shall finalize the as-staked documents and submit it with transmittal letter to the RE. The RE then shall facilitate the signing of the as-staked documents by the Provincial Engineer and submit the same to PRMF Makati for final review and approval. The entire process also applies to submission of initial as-stake documents.

Upon approval by RE and Provincial PRMF of the as-staked documents, the RE can issue the appropriate Site Instruction to the contractor to start clearing, grubbing and other earthwork activities.

Upon receipt of the as-staked documents, the Road Rehabilitation Engineer (RRE) shall review the same and if found in order, endorse to the Road Engineer Coordinator (REC) for approval.
Once approved, the signed as-staked documents shall be returned to the Contractor for reproduction and for distribution to the RE (one set), Contractor (one set) and PEO (one set). The original set of signed as-staked documents shall be furnished to PRMF Makati Office for safekeeping.

During the entire process, all issues/concerns particularly those that would involve possible design changes and cost adjustments shall be communicated immediately by email to the Road Rehabilitation Engineer (RRE) and Road Engineer Coordinator (REC) for appropriate advice.

VI. METHOD OF MEASUREMENT

Providing requirements in accordance with the provisions of this Specification section will not be measured, but paid as a lump sum.

VII. BASIS OF PAYMENT

Payment shall constitute full compensation for surveying, staking, calculating/processing by any means and recording data, for furnishing and placing all materials, and for furnishing all equipment, tools and incidentals necessary to complete the Item.

Payment shall be made as follows:

(a) 50% of the Payment shall be made after the provision of and acceptance of the Contractors Survey, including all hard copies and digital copies required in the specified format, and the approved as-staked documents.

(b) The remaining 50% shall be distributed throughout the Contract starting with the Contractor's initial interim payment, based on the Contractors progress, or % completion.

All costs associated with and necessary for compliance with the Specification, including providing survey equipment, shall be included in the Lump Sum price. No additional or separate payment will be made in this regard.

The PRMF may at any time withhold or reduce the payments for the Contractor's setting out of the work and staking if (in the opinion of the PRMF) such work is not provided in accordance with requirements of this Specification section.

1.19.3 Establishment of Lines and Grades prior to commencing Construction

1.19.4 The Contractor shall set construction stakes establishing lines and grades in accordance with the Drawings and shall secure the approval of the Engineer before commencing with construction. The Engineer will, if he deems it necessary, revise the line and grade and require the Contractor to adjust the stakes accordingly. The Contractor shall give the Engineer not less than forty-eight hours notice of his intention to stake out or establish levels for any part of the work in order that arrangements may be made for checking. The Contractor shall measure the staking out and the Engineer will check the measurement. The approved measurement will be the basis of payments.

1.19.5 The surveying and staking shall be performed to obtain close conformance with the lines, grades and details indicated on the drawings or established by the Engineer.

1.19.6 For all roadway and bridge projects the Contractor shall perform a profile and cross-section survey of all existing features and conditions across the cross sections spaced every 20m before commencement of the works. The survey shall extend to the limits indicated in the design drawings. Plotted cross-sections and profiles shall be submitted to the Engineer prior to the commencement of the construction activities. Additional cross-sections shall be taken at the exact same locations (also every 20m) after the installation of each pavement layer in addition to a survey of the final, finished grade. The surveys shots for all cross-sectioning work shall be taken at a minimum of 2m spacing across each cross-section and shall include survey shots at all lane lines, ditches, etc.

1.19.7 The Contractor shall be responsible for the supervision of the surveying and staking personnel. Any errors resulting from the operations of the surveying personnel shall be corrected at the Contractor's expense.

Measurement and Payment

Providing requirements in accordance with the provisions of this Specification section will not be measured, as specified in section VII of Setting Out and Staking.

All costs associated with and necessary for compliance with the Specification, including providing survey equipment, shall be included in the Lump Sum payment. No additional or separate payment will be made in this regard.

The Engineer may at any time withhold or reduce the payments for the Contractor's setting out of the work and staking if (in the opinion of the Engineer) such work is not provided in accordance with requirements of this Specification section.

Pay Item	Description	Unit

B.2	Setting Out and Staking	lump sum

1.21 Land for Construction Purposes, Detours, Plant and Other Uses

1.21.1 The Local Proponent will provide the sites for the Works for the Contractor's use.

1.21.2 Before any land belonging to the Government or to a private landowner is used for any purposes in connection with the execution of the Work, the Engineer's approval shall be first obtained.

1.21.3 Prior to placing the facilities in any area, all clearing and grubbing operations shall be performed to the satisfaction of the Engineer. The ground elevation of all temporary facilities shall be a minimum 20 cm above the adjacent existing ground. The surface shall be sloped to allow rainwater to adequately drain.

1.21.4 If any utility for water, electricity, drainage, etc., passing through the temporary site will be affected by the Works, the Contractor at his own expense shall provide a satisfactory re-alignment or alternative in full working order to the satisfaction of the owner of the utility and the Engineer, before the cutting or removal or relocation of the existing utility.

1.21.4 On completion of the Contract, or earlier if so directed by the Engineer, all plant, temporary facilities and any other encumbrances shall be removed; the site and land use areas shall be properly cleaned and all damage made good.

Measurement and Payment

Land for construction and other purposes in accordance with this Specification section shall be considered as included in the lump sum payment as provided for under "Mobilization".

1.22 Location and Protection of Utilities and Existing Structures

a. Before commencing construction work, the Contractor shall undertake a survey to establish the exact location of all utilities affected by the Works. Survey results shall be recorded in plan form to the satisfaction of the Engineer and surface pegs shall be fixed on the site to indicate the location of all underground utilities. These pegs shall remain and be maintained for the duration of the contract.

b. Where works of either a temporary or permanent nature are to be undertaken by the Contractor in the vicinity of utilities, the Contractor shall adopt appropriate construction methods, provide adequate protective devices and take precautionary measures in order to avoid damage to the utilities. Any damage to utilities caused directly or indirectly by the Contractor's or any Subcontractor's work will be considered the Contractor's responsibility.

c. The Contractor shall be responsible for locating all existing structures affected by or affecting the work under this Contract, prior to the start of construction. Any delay or extra expense to the Contractor due to the encountering of existing structures shall not constitute a claim for extra work, additional payment, time or damages.

Measurement and Payment

The location and protection of utilities in accordance with this Specification shall be considered as included in the lump sum payment as provided for under "Mobilization".

1.23 Construction Photographs

The Contractor shall be responsible for the production of construction photographs, as described herein.

a) Photographs of the entire site and pertinent features thereof shall be taken before the commencement of work at the Site and submitted to the Engineer. The same views shall be re-photographed upon completion of all construction activities, and submitted with the Contractor's application for payment. It is important that the Contractor photographs all adjacent structures in order to have an inventory of the before-construction conditions.

b) Photographs shall be taken throughout each month indicating the progress of the work, prior to and during any major work activity and at such times and locations as requested by the Engineer, and submitted with the Contractor's monthly report. Hard copies of the photographs and the digital files (burned onto CD) shall be submitted in order for the invoice to be considered complete and suitable for processing.

c) Photographs shall be taken at intervals of not more than 50 meters along the route of the Works before the commencement of work, and promptly submitted to the Engineer. The same views shall be re-photographed upon completion of construction activities on any section of the Works, and submitted with the Contractor's monthly report or as otherwise

d) Photographs shall also be taken at all the structure sites, with full photo coverage from all view angles. If the photo coverage is insufficient, the Engineer will specify the number and location of the photographs.

e) All problematic areas shall be fully photographed.

f) All photographs shall be taken with digital cameras that will automatically date-month-year the photographs were taken. The camera shall have a minimum of 3 megapixels and the photographs shall all be taken at the highest resolution. The Contractor shall supply both "hard" copies and the digital files of all photographs. If necessary, the Contractor shall provide the necessary software to the Engineer for computerized storage and

reproduction of photographs.

g) Each photograph shall be suitably captioned prior to submission.

Measurement and Payment

The provisions for supplying construction photographs in accordance with this Specification shall be measured for payment but under Monthly Progress Report and Schedule of Works.

1.24 Clearance of Contractor's Facilities

On or before expiry of the Defects Liability Period, the Contractor shall clear away all his temporary facilities including but not limited to offices, camps, storage and holding yards, workshops, crushing and mixing plant, diversion, and haul roads so that the land is returned to at least its previous condition and, in the case of agricultural land, potential productivity. Clearance shall include but not be limited to tasks such as the removal of unwanted structures, removal of metallic and concrete debris, removal and disposal of any soil contaminated by diesel, bitumen or other polluting material, ripping to relieve compaction, grading, replacement of topsoil, and turfing and grassing, as appropriate. Where improvements have been made such as land filling or installation of boreholes or construction of boat landings, these may be retained subject to the agreement of the landowner. The Employer reserves the right to inspect the site of any facilities established or used by the Contractor in connection with the Works and to undertake any corrective measures necessary to restore the land, and to recover the cost from monies due or to become due to the Contractor.

1.25 Filling in Holes and Trenches

The Contractor, upon completion of any part of the work, shall immediately, at no additional cost, fill up all holes and trenches, or carry out the work to them as required by the Engineer, that he may have dug or excavated and are no longer required for the project, and he shall clear away all rubbish and material that is no longer required for the execution of the work. All costs associated with this requirement shall be included in the Contractor's Unit Prices and not be paid for separately.

1.26 Project Record Documents

Throughout the progress of the works the Contractor shall maintain an accurate record of all changes in the Contract Documents on a "job set" of Project Record Documents, and shall transfer the final as-built information to the Final Record Documents before the completion of the Works.

1.26.1 Submittal Requirements

1. Submit or make available for review by the Engineer's representative, the job set of Project Documents as currently maintained on the 25th of each month. The Engineer's approval of these documents will be a pre-requisite for approval of the Monthly Progress Payment Certificates.

2. Submit for the Engineer's approval the Final Project Record Documents at the time of application for Certificate of Substantial Completion. Accompany the submittal with a transmittal letter containing:

- Date
- Project title and loan agreement number
- Contractor's name and address
- Title and number of each record document
- Certification that each document as submitted is complete and accurate
- Signature of the Contractor or his authorized representative

3. Storage of Job Set

The job set shall be stored in the field office in files and racks and the Contractor shall maintain the job set protected from loss and damage until the transfer of as-built data to the Final Project Documents has been completed. The record documents shall not be used for construction purposes and the documents shall be available at all times for inspection by the Engineer and Employer.

1.26.2 Project Records for Materials & Equipment

All records concerning the testing and approval of materials and equipment to be incorporated into the Permanent Works shall form part of the project records. The Contractor shall develop and maintain a record system which clearly shows the current status of all material sources, testing and approvals. All approved samples shall be maintained at the job site.

1.26.3 Update and Maintenance of the Job Set Documents

1. Responsibility

The Contractor shall delegate the responsibility for the maintenance of Record Documents to one nominated person on the Contractor's staff whose nomination shall be approved by the Engineer.

2. Identification

Immediately upon receipt of the job set, identify each of the Documents with the title "PROJECT RECORD DOCUMENTS - JOB SET", in 5 cm high printed letters.

Preservation

Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method to be approved by the Engineer for protecting the job.

Marking Entries on Drawings

Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by notes and by graphic lines as required. Date all entries, call attention to the entry by a "cloud" around the area or areas affected. In the event of overlapping changes, different colors may be used for each of the changes. Keep record documents current and do not permanently conceal any work carried out.

Legibly mark to record actual construction details such as:

a. Depths of various elements of foundation in relation to datum shown.
b. Horizontal and vertical location of underground utilities referenced to permanent surface improvements.
c. Locations of internal utilities concealed in construction referenced to visible and accessible features of structures.
d. Field changes of dimension and detail.
e. Changes made by Change Order.
f. Details not on original Contract Drawings.

5. Timing
   All entries should be made within 24 hours after receipt of the information.
6. Accuracy

Use all means necessary, including the proper tools for measurement, to determine actual locations of the installed items and the accuracy of entries.

The Contractor should thoroughly coordinate all changes within the Record Documents, marking adequate and proper entries on each page of the Specifications and sheet of Drawings and other Documents where such entry is required to properly show the change. The accuracy of records shall be such that any future search for items shown in the Contract Documents may be obtained from the approved Record Documents.

1.26.7. Final Record Documents

1. General

The purpose of the Final Report Documents is to provide factual information regarding all aspects of the Works, both concealed and visible, to enable future modification of design to proceed without lengthy and expensive site measurement, investigation, and examination.

2. Transfer of Data to Drawings

Carefully transfer all changed data shown on the job set of Record Drawings to the corresponding drawing originals of the Final Report Drawings and clearly indicate the full description of all changes made during construction and the actual location of all items. Call attention to each entry by drawing a "cloud" around the area or areas affected. Make all change entries on the originals neatly, consistently, and in ink or crisp black pencil.

3. Transfer of Data to Other Documents

If Documents other than Drawings have been kept clean successfully during the progress of the Work, and if entries have been kept sufficiently in order to the approval of the Engineer, the job set of those Documents (other than Drawings) will be accepted by the Engineer as Final Record Documents for those Documents. If any such documents are not so approved by the Engineer, secure a new copy of that document from the Engineer and carefully transfer the changed data to the new copy to the approval of the Engineer.

4. Review and Approval

Submit the completed set of Final Record Documents to the Engineer at the time of application for the Take - Over Certificate. If requested by the Engineer, participate in a review meeting or meetings, execute any required changes and promptly re-submit the Final Record Documents to the Engineer for his acceptance.

5. Changes Subsequent to Acceptance

The Contractor shall have no responsibility for recording changes to the Works subsequent to the issue by the Engineer of the Take Over Certificate except for changes resulting from replacements, repairs, and alterations made by the Contractor as part of his guarantee, or additional work that the Contractor has agreed to carry out during the Defects Liability Period.

1.27 FABRICATION YARD FOR PRECAST CONCRETE MEMBERS

The Contractor shall provide or lease a property for the erection of crushing/batching plant, the location of which shall be near to the project site.

The Yard shall be provided with complete facilities, plant and equipment that will sustain the required rate of production of structures.
The Contractor shall provide access to the Engineer and his authorized representatives and/or inspectors for the supervision, testing, sampling and other relative activities.

The plant yard shall have the following facilities:

I Stockyard
II Provisional Buildings (depending on location):

a) Field Office
b) Bunkhouse
c) Sub-Contractor's Office
d) Warehouse
e) Reinforcing Steel Bars Shop
f) Laboratory
g) Generator House
i) Boiler Room
j) Repair Shop
k) Fuel Station
l) Steel/Woodwork Shop
m) Canteen
n) Labor Camp

o) Housing
p) Guard House
q) Garage

Roads

Sufficient access roads for clear and safe working.

Parking

Sufficient parking areas.

Plant

It is anticipated that a crushing and batching plant will be required together with cranes and other accessorial items of a functional plant.

Cost for the fabrication yard is deemed to be included in the pay item for mobilization and demobilization.

1.28 FINISHING/CLEARING THE SITE

Upon completion of all construction operations, the entire roadway or roadways shall be finished as specified in these specifications.

Stockpiling of materials on the finished construction area and drifting of materials across the pavement will not be permitted. The finished pavement shall be cleaned of all dirt and foreign material.

The slopes of embankments, excavations, road approaches, road connections, ditches, channel changes, and material sites within or adjacent to the project boundaries shall be finished to the lines and grades called for by the plans. Ditches and channels within or adjacent to the project boundaries shall be cleared of debris and obstructions. Sewers, culverts and other drainage facilities and their appurtenant structures constructed under the contract shall be cleaned out. All stones and other waste material exposed on slopes, which are liable to become loosened, shall be removed and disposed of. All materials and debris resulting from clearing and grubbing operations not previously removed shall be disposed of.

All materials resulting from the above specified finishing operations shall become the property of the Contractor and shall be disposed of outside the project boundaries unless otherwise permitted by the special provisions.

Disposal of materials outside the highway right of way shall be in accordance with the provisions in Clause 102.1.5, “Spoil and Spoil Disposal” of these Supplemental Specifications. The entire roadway and right of way shall be left in a neat and presentable condition.

1.29 SILENCE OF CONTRACT Documents

The apparent silence of the Plans, Specifications, Supplemental Specification, and Special Provisions, as to any detail or the apparent omission from them of a detailed description concerning any point shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of first class quality are to be used. All interpretation of the Contract Documents shall be made by the Engineer on the basis stated above.

1.30 MEETINGS/CONFERENCES

As often as possible or as necessity arises, meetings/conferences shall be held to discuss matters of detail, i.e. construction sequences, progress, materials, procedures, temporary works, quality control and similar subjects pertinent to the satisfactory execution of the Works, or to discuss problems arising out of the implementation of the Project.

Such meetings/conferences shall not be less frequent than twice a month and shall be attended by the Project Manager of the Contractor, the Engineer or his representative and by the Employer or his representative.

Minutes of the Meetings/Conferences shall be officially documented by the Contractor, confirmed or concurred to by all parties, copies thereof submitted to the Engineer and Employer, properly dated and numbered.

1.31 CONSTRUCTION PLANNING

The Contractor shall submit, for the approval of the Engineer construction plans, detailed design for construction and shop drawings of structures prior to construction.

In the construction plans, the detailed methods of construction shall be shown. Shop drawings shall be submitted with supporting calculations.

1.32 MATERIALS SOURCES

Information as to the locations, availability and suitability of construction materials are contained in the Soils and Materials Report. Although the information is made available for examination, the Contractor is cautioned to take the following into considerations in preparing his Bid:

The Materials Report does not form part of the Contract Documents. The data contained therein are to be considered as a single to help in locating suitable sources. The Contractor shall be solely responsible for making all arrangements for obtaining required materials including provisions for access thereto.
The Contractor shall determine the adequate transportation requirements from the supply source to the work site. No separate payments shall be allowed to cover the cost of haulage, the cost of which shall be understood to be included in the various bid items.
The Contractor shall determine the amount for handling and removal of overburden from the borrow pits or quarry sites and the cost and the amount of work required to crush, screen and store materials in accordance with the Specifications. All such costs shall be included in the Bid prices.

The Contractor is permitted to obtain aggregates from Government-owned quarries, rivers and/or other sites subject to existing regulations. However, this shall not relieve him of responsibility for charges levied, by other agencies, if any. If payment of taxes, duties or other charges is demanded by such Agency, the charges shall be considered in the Bid prices pertinent to the quarried materials.

If probable sites or sources of materials are shown on the Drawings, it is understood that the information given is only for the purpose of indicating their approximate locations and distances to the project road and to provide the Contractor reference locations.

1.33 MEASUREMENT AND PAYMENT

Unless specifically included in the Bill of Quantities as pay item(s), works prescribed under Part B - OTHER GENERAL REQUIREMENTS shall not be measured for direct payment but shall be considered as subsidiary work for other related Pay Items.

2. PROJECT SAFETY

2.1 GENERAL

The Contractor shall, as a priority in all his activities, undertakings and endeavors, ensure the continued and continuous safety of the public and all persons directly or indirectly associated with the Works.

During the entire process of constructing the Works -- including preparation of the site and final clean up upon completion -- the Contractor shall exercise the utmost care in order to prevent damage to the environment and adjoining properties.

Due precautions shall be taken by the Contractor, at his own cost, to ensure the safety and protection against accidents of all staff and labor engaged on the Works, local residents in the vicinity of the Works, and the public traveling through the Works. The Contractor shall have in his staff on Site a designated officer qualified to promote and maintain safe working practices. This officer shall have authority to issue instructions and shall take protective measures to prevent accidents, including but not limited to the establishment of safe working practices and the training of staff and labor in their implementation.

The Contractor shall at his own expense provide protective clothing and equipment to all staff and labor engaged on the Works to the satisfaction of the Engineer. Such clothing and equipment shall include, at a minimum, protective footwear for workmen undertaking concrete mixing work, protective footwear and gloves for any workmen performing bituminous paving works, protective footwear, clothing, cream, gauntlet-type gloves, hats, safety glasses or goggles and filter masks for workmen undertaking lime stabilization works, hard hats for workmen engaged in bridge construction, and otherwise as appropriate to the job at hand and to the Engineer's satisfaction.

The Contractor shall also provide hard hats (white color), reflective safety vests, and safety

shoes for the Engineers and visiting staff. All equipment provided to the Engineers and visiting staff will remain the property of the Contractor after project handover.

2.2 COMPLIANCE WITH LEGISLATION

a) The Contractor shall comply with all safety and industrial health legislation including, without limitation, the Rules and Regulations of the Republic of the Philippines and the authorities having jurisdiction.

b) The Contractor shall comply with all requirements of the appropriate agencies that govern irrigation and drainage facilities.

c) The Contractor shall comply with all current environmental laws and regulations, be they national or local, related to the following, but not limited to:

- noise;
- vibration;
- air pollution;
- water contamination;
- solid waste disposal;
- liquid waste disposal;
- sanitary conditions (water supply, sewerage, etc.);
- protection of the traveling public, etc.,
- and the requirements and stipulations of the General Conditions of Contract.

2.3 SAFETY OF PUBLIC

The Contractor will be responsible for the safety of the public legitimately passing through the site. All excavations, plant or items of potential danger to the public must be barricaded and sign-posted to the satisfaction of the Engineer, and the Contractor must provide sufficient watchmen to ensure the safety of the public at all times. All existing pedestrian routes shall be maintained in a safe condition unless an alternative route is provided to the satisfaction of the Engineer.

2.4 AVAILABILITY OF SAFETY-RELATED DOCUMENTS

The Contractor shall comply with the Engineer's requirements insofar as displaying in each of the site offices, workshops and canteens a copy of such safety and industry health posters and keeping on the Site copies of safety and industrial health regulations and documents.

2.5 SAFETY, TRAFFIC CONTROL AND ENVIRONMENTAL PLAN

The Contractor shall prepare and submit to the Engineer for review and approval no later than 15 days after Notice to Proceed, a Safety, Traffic Control and Environmental Plan, which shall contain, without limitation, the following details:

a) Safety, environmental and traffic control staff organizational structure, which should identify the personnel to be engaged solely for traffic control, environmental protection and safety assurance (including the Contractor's Safety Officer who will be responsible for all safety on the Site) and the responsibilities of each of the participants

b) Proposed interaction and communication procedures between the Contractor's construction personnel and traffic control, environmental protection and safety assurance staff. In particular, the establishment of a regular communication and reporting system;

c) An undertaking signed by the Contractor's Representative to the effect that the Contractor will ensure that safety, industrial health and environmental protection are given highest priority in all aspects of the Works and in discharging his contractual obligations. The Contractor's Representative must also provide the written appointment and authorization to the person assigned to be the Safety Officer;

d) Frequency, coverage and intent of site safety meetings together with the rational for attendance;

e) Frequency, coverage and intent of regular site safety reports;

f) Methods of promoting an awareness of site safety, environmental protection and industrial health amongst all persons directly or indirectly associated with the Works. This shall include proposals for on site publicity, on-site training courses for all workmen on the Site and at all levels of supervision and management, incentive schemes for the promotion of compliance with safety measures and other similar measures.

g) An Environmental Control and Protection Program which shall cover, but not be limited to, the following items:

- storage of volatile liquids and toxic materials,
- waste control and management;
- control related to the use of existing roads and bridges by the Contractor's vehicles; and

h) A Traffic Control Plan, which shall cover the means and methods the Contractor intends to take for proper and adequate control of traffic during the course of the Works. This Plan shall address requirements under the Specification "Maintenance and Protection of

Traffic" and shall include but not be limited to:

- the traffic control equipment the Contractor proposes to use for the Works;
- traffic control signage including location and sign descriptions;
- how and when the Contractor proposes to use traffic control flag men;
- traffic control means during both working and non-working periods;
- traffic control means and devices for night and off-hour periods.
- traffic control measures for each stage of construction

i) Understanding of and means of ensuring due compliance with the statutory regulations relating to construction work in the Republic of the Philippines;

j) The powers vested in the Safety, Traffic and Environmental Control staff which would enable them to take urgent and appropriate and direct action to make safe the Site and prevent unsafe working practices, undue disruption to the environment, correct improper or inadequate traffic control measures or other infringements of the Safety, Traffic and Environmental Control Plan or statutory regulations;

k) Method by which the Safety, Traffic and Environmental Control Plan procedures and practices proposed by subcontractors will be reviewed for compliance with the Site Safety Plan and statutory regulations;

l) A complete listing of all the safety equipment and protective clothing which will be required for the Works, including the quantity, sourcing, standards of manufacture, storage provisions and means of ensuring proper utilization by all workmen and staff employed directly or indirectly by the Contractor. Such equipment shall include, but not be limited to, reflective safety vests,) protective footwear, fire extinguishers, first aid equipment and hard hats.

m)The frequency of the inspection, testing and maintenance of the safety equipment, scaffolds, guardrails, ladders and other means of access, lifting, lighting, signing, and guarding equipment and the standards below which such items will be removed from the Site and replaced;

n) The means and frequency by which the Safety, Traffic and Environmental Control systems will be inspected, supervised and audited by the Safety Officer to ensure due compliance with the principles and objectives of the Safety, Traffic and Environmental Control Plan at all levels of construction;

o) Records to be prepared and maintained by the Safety Officer and the Safety, Traffic and Environmental Control staff and communication procedures to be adopted by the Safety Officer such that the Engineer and others associated with the Works (e.g., Subcontractor) are kept fully informed on matters relating to site safety and industrial health and environmental regulations throughout the period of the Contract;

p) Proposals to ensure that construction methods do not compromise the Contractor's commitment to the Safety, Traffic and Environmental Control Plan or his compliance with statutory regulations.

2.6 SAFETY OFFICER

a) The Contractor shall appoint a Safety Officer whose duties throughout the period of the Contract shall be entirely connected with the Safety, Traffic and Environmental Control activities on the Site.

b) The Safety Officer shall be fluent in English and be a suitably qualified and experienced person who shall supervise and monitor compliance with the Safety, Traffic and Environmental Control Plan and shall, in particular but without limitation, carry out auditing of the operation of the Safety, Traffic and Environmental Control Plan.

c) The Safety Officer shall be subject to the Engineer's approval prior to mobilization.

d) The Contractor's Safety Officer is responsible for ensuring that all safety-related provisions are met. The Employer shall instruct the Contractor to replace the Safety Officer for continued failure to make corrective actions even after being reminded by the Engineer. Repeated occurrences will be the responsibility of the contract's site manager.

e) The Contractor shall not undertake any works on the Site until the Safety Officer has mobilized to the Site unless otherwise specifically agreed to in writing by the Engineer.

f) The Contractor shall not remove the Safety Officer from the site without the express written permission of the Engineer. Within fourteen (14) days of any such removal or notice of intent of removal, the Contractor shall nominate a replacement Safety Officer for the Engineer's approval.

g) The Contractor shall provide the Safety Officer with supporting staff in accordance with the staffing levels set out in the Safety, Traffic and Environmental Control Plan.

h) The Contractor shall empower the Safety Officer and his staff to instruct employees of the Contractor or of its Subcontractors to cease operations and take urgent and appropriate action to make safe the Site and prevent unsafe working practices or other infringements of the Safety, Traffic and Environmental Control Plan or the statutory regulations.

i) The Contractor shall ensure that the Safety Officer maintains a daily site records, whereas such records shall comprehensively recorded all relevant matters concerning site safety, environmental and traffic control, inspections and audits, related incidents and the like. The site records shall be available at all times for inspection by the Engineer.

j) If in the Engineer's opinion, the Safety Officer demonstrates his incapacity to undertake the position, the Engineer will request a replacement. A suitable replacement must be proposed by the Contractor within 3 days, and if acceptable, mobilized within 14 days of the request.

2.6.1 Safety Officers Lines of Communication

The Contractor's Staff Organization Plan shall show direct lines of communication and reporting between the Safety Officer and the Contractor's Project Manager and between the Safety Officer and the Contractor's Director responsible for the Contract. The Contractor's managing director shall instruct and require (in writing) the Project Manager and the Safety officer to be directly accountable in all matters concerning site safety, environmental aspects and proper traffic control.

2.7 SAFETY REPORTS

The Contractor shall submit regular site safety and environmental reports to the Engineer as a requirement of the Safety, Traffic and Environmental Control Plan.

A summary report shall be submitted as part of the Monthly Progress Report. Prior to submission, the Contractor's Project Manager shall endorse the Report. Site safety reports shall comprehensively address all relevant aspects of site safety, environmental and industrial health regulations and, in particular, report on all site safety and environmental inspections/ audits undertaken during the period covered by the report.

2.8 BREACHES OF SITE SAFETY PLAN

Any serious breaches of the Safety, Traffic and Environmental Control Plan or the statutory regulations or disregard for the safety or environmental measures of any persons may be the reason for the Engineer or Employer to exercise their authority to require the Contractor's employee, Subcontractor's employee, the Safety Officer's and/ or the Contractor's Project Manager's removal from the Site. In the case where the deficiency or neglect is serious enough to warrant the Safety Officer's removal, the Contractor will be instructed to stop work, until an acceptable replacement is mobilized. This will not be considered as a basis for an extension of time.

2.9 SUB-CONTRACTOR'S SAFETY PLAN

a) The Contractor shall provide his Subcontractors with copies of the Safety, Traffic and Environmental Control Plan and shall incorporate into all sub-contract documentation

provisions to ensure the compliance with such plan at all tiers of the sub-contracting.

b) The Contractor shall, unless the Engineer's approval in writing is given, require all subcontractors to appoint a safety representative who shall be available on the Site throughout the operational period of the respective sub-contract. In the event of the Engineer's approval being given, the Safety Officer or safety staff, without prejudice to their other duties and responsibilities, shall ensure as far as is practically possible, that employees of subcontractors of all tiers are conversant with appropriate parts of the Safety, Traffic and Environmental Control Plan and the statutory regulations.

2.10 SAFETY MEETINGS

The Contractor shall convene regular safety meetings in accordance with the Safety, Traffic and Environmental Control Plan and shall require attendance by the Safety Officer and safety representatives of Subcontractors unless otherwise agreed by the Engineer. All safety meetings shall be notified in advance to the Engineer, who may attend in person or by his representative at his discretion. The minutes of all safety meetings shall be taken, and recorded in English and sent to the Engineer within seven (7) days of the meeting.

2.11 SAFETY EQUIPMENT AND CLOTHING

The Contractor shall ensure that safety equipment and protective clothing as described in the Safety Plan are available on the site at all times and that measures for the effective enforcement of proper utilization and necessary replacement of such equipment and clothing is incorporated into the Site Safety Plan. The failure of the Contractor to provide the necessary equipment will be considered as a basis for payment deductions.

2.12 SAFETY INSPECTIONS

The Contractor shall regularly inspect, test and maintain all safety equipment, scaffolds, guardrails, ladders and other means of access, lifting, lighting, signing and guarding equipment. Lights and signs shall be kept clear of obstructions and legible to read. Equipment, which is damaged, dirty, incorrectly positioned or not in working order, shall be repaired or replaced immediately.

2.13 FIRST AID BASE

The Contractor shall establish, maintain and regularly furnish first aid equipment at all camps and work sites to the satisfaction of the Engineer. This equipment should be capable of treating routine, minor construction related injuries such as abrasions or bruises. All serious injuries should be treated at a local hospital.

2.14 SAFETY INFORMATION AND TRAINING

a) The Contractor shall ensure that safety and industrial health matters are given a high degree of publicity to all persons regularly or occasionally on the Site.

b) The Contractor shall conduct regular on-site safety training courses. The frequency, coverage and application of which shall be in accordance with the Site Safety Plan. The

Contractor shall require that all Subcontractors' employees participate in relevant training courses appropriate to the nature, scale and duration of the subcontract works.

2.15 PLANT & EQUIPMENT

All Construction Plant and equipment used on or around the Site shall be fitted with appropriate safety devices.

2.16 QUALIFIED PERSONNEL

The Contractor must ensure that only suitably qualified personnel shall operate all Construction Plant and equipment used on or around the Site.

2.17 NOTIFICATION OF ACCIDENTS

The Contractor shall notify the Engineer immediately when any accidents occur whether on-site or off-site in which the Contractor, his personnel or Construction plant, or those of his Subcontractors are directly or indirectly involved and which result in any injuries to any persons. Such initial notification may be verbal and shall be followed by a written comprehensive report, explaining the cause of the accident within 24 hours of the accident.

2.18 ASSISTANCE TO THE ENGINEER

The Contractor shall provide full co-operation and assistance in all safety, traffic and environmental control surveillance carried out by the Engineer or the Employer. Any and all deficiencies noted by the Engineer shall be rectified immediately.

2.19 PAYMENT

All costs necessary for and associated with the project safety shall be measured for payment, but under Construction Safety and Health Program and Environmental Management Plan.

3.0 ENVIRONMENTAL CONTROL AND PROTECTION

3.1 GENERAL

The Contractor shall be solely responsible for the remedy or mitigation measure(s) required by the environment-related effects of any of his construction or construction-related activities. In case of an environmental problem, the Contractor shall immediately notify the Engineer, and provide a proposed course of action to take. Among the situations which may require such steps are complaints or legal actions by third parties on matters such as environmental damage to property and natural resources, ground subsidence, interruption of groundwater flow, and air, surface and groundwater contamination.

a) The Contractor shall prepare a detailed Site Environmental Plan (SEP) for the work site,

base camp disposal areas, etc., showing arrangements for hauling of excavated materials, disposal of sanitary and other wastes, location of fuel, oil and lubricant depots, sheds for equipment, labor and housing facilities, fuelling areas, vehicle cleaning facility, etc., prior to the start of construction for approval of the Engineer. The SEP shall also show all utility services, including water supply, disposal, treatment, etc. The location of nearby watercourse, stream or canal shall be shown. A draft shall be prepared and presented at the pre-construction meeting. The final version is required prior to the first billing.

b) The Contractor shall obtain all his materials requirements such as sand, coarse aggregate for concrete works, size stone, lime, soil, earth, sub-grade and sub-base materials from approved and identified quarry sites with appropriate quarrying and extraction permits from concerned government agencies like DPWH and DENR.

c) The Contractor shall assure that the provisions/conditions asked of him in the Environmental Compliance Certificate (ECC) issued by DENR and in the Environmental Management Plan (EMP) prepared by the Employer, are complied with. See the ECC and EMP. If required, the requirements of CENRO shall be complied with, for no additional compensation.

d) The Contractor shall ensure that no trees, shrubs, or waterside vegetation are felled or harmed except for those required to be cleared for execution of the Works. The Contractor shall protect trees and vegetation from damage to the satisfaction of the Engineer. No tree shall be removed without the prior approval of the Engineer and other competent authorities. Should the Contractor become aware during the period of the Contract that any tree or trees designated for clearance have cultural or religious significance, he shall immediately inform the Engineer and await his instructions before proceeding. In the event that trees or other vegetation not designated for clearance are damaged or destroyed, they shall be repaired or replaced to the satisfaction of the Engineer, who shall also impose a penalty to twice the commercial value of any timber affected, as assessed by the Engineer, and deducted to any payments due to the Contractor.

e) The Contractor shall not use wood as a fuel for the execution of any part of the Works, including but not limited to the heating of bitumen and bitumen mixtures and the manufacture of bricks for use in the Works, and to the extent practicable shall ensure that fuels other than wood are used for cooking, and water heating in all his camps and living accommodations.

f) The Contractor shall make his own arrangements at his own expense for water supply for construction and other purposes. Only clean water free from deleterious materials and of appropriate quality for its intended use shall be used. In cases where the local water systems are unable to provide sufficient quantity or quality, the Contractor shall be responsible for providing additional water as required for no additional compensation. Any significant water storage facility (i.e., reservoir) shall remain the property of the counterpart organization after the completion of the works (in reasonably good condition), unless the LGU requires this to be removed, which will be done so at the

Contractor's expense. In providing water, the Contractor shall ensure that the rights of and supply to existing users are not affected either in quality, quantity or timing. In the event of a dispute over the effect of the Contractor's arrangements on the water supply, the Engineer shall be informed immediately and shall instruct the Contractor as to appropriate remedial actions to be undertaken at the Contractor's expense.

g) The Contractor shall not locate any hot-mix or similar potentially polluting plant closer than 500 m to any settlement. Any such plant shall be fitted with dust suppression equipment and shall be operated and maintained at all times in conformity with the manufacturer's specifications, instructions and manuals.

3.2 PREVENTIVE MEASURES

a) The Contractor shall conform to the environmental laws and other relevant legislation of the Government of the Philippines.

b) The Contractor shall be responsible for ensuring that no earth, rock or debris is deposited on public or private right-of-way as a result of his operations, including any deposits arising from the movement of Construction Plant or vehicles. The Contractor shall provide a vehicle cleaning facility at the exits from the Site where excavated material is hauled, to the consent of the Engineer.

c) The Contractor shall at all times ensure that all existing stream courses and drains within, and adjacent to, the Site are kept safe and free from any debris and any excavated materials arising from the Works. The Contractor shall ensure that chemicals and concrete agitator washings are not deposited in the watercourses.

d) All water and waste products arising on the Site shall be collected, removed from the Site via a suitable and properly designed temporary drainage system and disposed of at a location and in a manner that will cause neither pollution nor nuisance.

e) The Contractor shall construct, maintain, remove and reinstate as necessary temporary drainage works and take all other precautions necessary for the avoidance of damage by flooding and silt washed down from the Works. It shall also provide adequate precautions to ensure that no spoil or debris of any kind are allowed to be pushed, washed down, fallen or be deposited on land adjacent to the Site.

f) In the event of any spoil or debris from construction works being deposited on adjacent land or any silt washed down to any area, then all such spoil, debris or material and silt shall be immediately removed and the affected land and areas restored to their natural state by the Contractor to the satisfaction of the Engineer.

3.3 AIR QUALITY CONTROL

a) The Contractor shall not install any furnaces, boilers or other similar plant or equipment

using any fuel that may produce air pollutants without prior written consent of the Engineer pursuant to the environmental laws and other relevant legislation of the Government of the Philippines.

b) The Contractor shall not burn debris, wastes or other materials on the Site.

3.4 CONSTRUCTION DUST LEVEL CONTROL

a) The Contractor shall implement dust suppression measures that shall include, but not be limited to the following:

- Stockpiles of sand and aggregate greater than 20 m^3 for use in concrete manufacture shall be enclosed on three sides, with walls extending above the pile and two (2) meters beyond the front of the piles.

- Effective water sprays shall be used during the delivery and handling of all raw sand and aggregate, and other similar materials, when dust is likely to be created and to dampen all stored materials during dry and windy weather.

- Areas within the Site where there is a regular movement of vehicles shall have an acceptable hard surface and be kept clear of loose surface material.

- The provision of adequate dust suppression plant including water trucks with spray bars.

- The Contractor shall spray all roads within the construction areas of the Site at least twice each day, and more if necessary to control dust to the satisfaction of the Engineer.

- The Contractor shall check all equipment and machinery on the Site at least weekly and make all necessary corrections and or repairs to ensure compliance with safety and air pollution requirements.

- The Contractor shall ensure that all vehicles are properly cleaned (bodies and tires are free of sand and mud) prior to leaving the site areas. The Contractor shall provide necessary cleaning facilities on site and ensure that no water or debris from such cleaning operations is deposited off-site.

- The Contractor shall ensure that all trucks used for transporting materials to and from the site are covered with canvas tarpaulins, or other acceptable type cover (which shall be properly secured) to prevent debris and/or materials from falling from or being blown off the vehicle(s).

- The Contractor shall provide construction walls in all locations where strong winds

could cause the blowing of dust and debris.

b) Where the Engineer determines that the dust level is unacceptable, the Engineer may direct the Contractor to take effective remedial measures including, but not limited to, removing dust sources and modifying working procedures.

c) The Contractor shall inform the Engineer of all steps taken. The Contractor shall submit written reports and proposals for action to the Engineer whenever the Engineer considers the dust levels too high.

3.5 WATER POLLUTION CONTROL

a) The Contractor shall comply with the environmental laws and other relevant legislation of the Government of the Philippines insofar as they relate to water pollution prevention and control, and monitoring.

b) The Contractor shall take all necessary precautions against pollution or interference with the supply, or obstruction of the flow of, surface or underground water. These precautions shall include but not be limited to physical measures such as earth bunds of adequate capacity around fuel, oil and solvent storage tanks and stores, oil and grease traps in drainage systems from workshops, vehicle and plant washing facilities and service and fuelling areas and kitchens, the establishment of sanitary solid and liquid waste disposal systems, the maintenance in effective condition of these measures, the establishment of emergency response procedures for pollution events, and dust suppression, all in accordance with normal good practice and to the satisfaction of the Engineer. Should any pollution arise from the Contractor's activities or neglect, he shall clean up the affected area immediately at his own cost and to the satisfaction of the Engineer, and shall pay full compensation to any affected parties.

c) The Contractor shall ensure that no tools or machinery are washed in any water source or areas that shall drain into an existing watercourse, stream or canal.

d) The Contractor shall ensure that rain run-off from the construction sites is not deposited directly into any watercourse, stream or canal, without making provisions for suspended solids.

e) The Contractor shall ensure that all temporary construction facilities are located at least 50 meters away from a watercourse, stream or canal.

f) The Contractor shall carry out a weekly check of all equipment for prevention of oil and/or lubrication leaks and ensure that all equipment oil and lubrication replacements are performed only in designated maintenance and repair work areas.

g) The Contractor shall ensure that there will be no disposal (intentional or unintentional) of

any type of material or fluids into any watercourses or seawater. This requirement shall include the installation of protective barriers, if required.

h) The Contractor shall ensure that there will be no disturbance or damage to mangroves, corals, seaweed and all other marine life as a result of construction or construction-related activities. This requirement shall include the installation of protective barriers, if required.

i) The Contractor shall ensure that there will be no disturbance or damage to the seabed or shoreline at or near the construction limit. This requirement shall include the installation of protective barriers, if required.

j) The Contractor shall ensure that there will be no disturbance to the river flow or tidal flows at or near the construction limit.

k) The Contractor shall ensure that there will be no disturbance (i.e., removal of moorings, landing areas, access, etc.) to the local residents' usage of boats or sea craft. This requirement shall include the installation of temporary measures to ensure this, if required.

3.6 NOISE AND VIBRATION CONTROL

a) The Contractor's attention is drawn to the Conditions of Contract and to the environmental laws and other relevant legislation of the Government of the Philippines.

b) The Contractor shall consider noise and vibration as an environmental constraint in its design, planning and execution of the Works. The Contractor shall coordinate with the local authorities/residents when loud construction activities will commence, at least 1 week before.

c) The Contractor shall, at his own expense, take all appropriate measures to ensure that work carried out by the Contractor and by his Subcontractors, whether on or off the Site, will not cause any unnecessary or excessive noise which may disturb local inhabitants.

d) Without prejudice to the generality of the foregoing, noise level reduction measures shall include the following:

- The Contractor shall ensure that all powered mechanical equipment used in the Works shall be effectively sound-reduced using the most modern techniques available; and

- The Contractor shall construct acoustic screens or enclosures around any parts of the Works from which excessive noise may be generated;

- The Contractor shall select equipment with considerations for using equipment with lowest noise levels and ensure that all equipment is regularly maintained to ensure the

noise level is minimized.

- The Contractor shall ensure that all equipment engines and motors are equipped with proper mufflers.

e) The Contractor shall submit to the Engineer a noise statement including a full list of all powered mechanical equipment which it proposes to use during daytime and nighttime work and any proposed noise level reduction measures. The noise statement shall include noise safety measures, which consider the use of earmuffs in noisy areas and rotation and/ or working hour limitations for personnel continuously working in areas of high (90 decibel or greater) noise areas. The noise statement shall be submitted at least fourteen days before the planned start of any work to be undertaken during hours of darkness. No work shall be carried out during the hours of darkness until the Engineer has notified the Contractor in writing of his consent based on the noise statement submitted in relation to such work. Such consent of the Engineer shall not in any event relieve the Contractor of its obligations under the Contract, nor fetter, limit or restrict the Engineer's powers to give instructions in accordance with the Contract.

f) The Contractor shall ensure that noise generated by work carried out by the Contractor and its Subcontractors during hours of darkness shall not exceed the maximum permissible noise limits, which the Engineer considers acceptable, whether continuously or intermittently. In the event of a breach of this requirement, the Contractor shall immediately re-deploy or adjust the relevant equipment or take other appropriate measures to reduce the noise levels and thereafter maintain them at levels that do not exceed the acceptable limits. Such measures may include, without limitation, the temporary or permanent cessation of the use of certain items of equipment.

3.7 HAZARDOUS MATERIALS, REFRIGERANTS AND FIRE EXTINGUISHERS

The use of handling storage and disposal of Hazardous Materials, Refrigerants and Fire Extinguishers shall be in accordance with the "appropriate DENR regulations and other relevant regulations of the Government of the Philippines".

3.8 SITE WASTE MANAGEMENT

a) Road Rehabilitation Project

- Construction aggregate, materials and supplies are transported and stored properly.

- Excess construction materials, debris, waste and refuse are stored or disposed of properly and safely.

- Adequate size of containers provided for type of wastes being handled.

- Construction materials not posing hazard to motorists.

- Designated disposal area or dumpsite is operated onsite.

- Waste recovery/recycle/reuse is practiced onsite.

- Burning of non-biodegradable wastes is avoided or prevented.

- Waste management unit or person is designated to perform onsite.

b) Municipal Port Improvement Subproject

- Construction aggregate, materials and supplies are transported and stored properly.

- Excess construction materials, debris, waste and refuse are stored or disposed of properly and safely.

- No construction materials or wastes are left floating or submerged at or near construction area.

- Construction equipment or machines do not pose hazard to boats and sea crafts.

- Designated disposal area or dumpsite is operated onsite.

- Waste recovery/recycle/reuse is practiced onsite.

- Burning of non-biodegradable wastes is avoided or prevented.

- Waste management unit or person is designated to perform onsite.

c) Bridge Rehabilitation Subproject

- Construction aggregate, materials and supplies are transported and stored properly.

- Excess construction materials, debris, waste and refuse are stored or disposed of properly and safely.

- Adequate size of containers provided for type of wastes being handled.

- Construction materials not posing hazard to motorists.
- Designated disposal area or dumpsite is operated onsite.
- Waste recovery/recycle/reuse is practiced onsite.
- Burning of non-biodegradable wastes is avoided or prevented.
- Waste management unit or person is designated to perform onsite.

3.9 MINIMIZING CONSTRUCTION IMPACT ON THE LOCAL ROAD SYSTEM

The Contractor shall conduct his construction operations to minimize their impact on the road systems in and around the areas of construction. Measures to accomplish this requirement shall include but not be limited to the following:

a) The loading of all trucks used for transporting materials and equipment and shall not exceed the legal limits as stipulated by the Department of Public Works and Highways.

b) The speed for all trucks used for transporting materials and equipment shall not exceed 60 km/hr on highways.

c) The transportation of materials and equipment shall be in accordance with all relevant requirements and regulations.

d) The avoidance of loading and transportation of materials and equipment during rush hours to avoid aggravating conditions on roads in the construction area.

e) The storage of construction materials.

The Contractor shall be responsible for all road damage that may occur from the transporting of materials and equipment to and from the site. The Contractor shall be responsible for coordinating with the appropriate authority for implementing all necessary repairs and/or restorations. The Contractor shall repair any damage to the satisfaction of the Engineer and at no cost to the Employer.

4.0 MAINTENANCE AND PROTECTION OF TRAFFIC

4.1 GENERAL REQUIREMENTS

a) The Contractor shall keep existing roads open to traffic during the performance of the Works. The Contractor shall at all times keep roads and footpaths affected by his operations free from soil and material spillage.

b) The Contractor shall keep the length of the project construction areas in such condition

that traffic will be accommodated safely. Traffic control devices and services shall be provided and maintained both inside and outside the project limits as needed to facilitate traffic guidance should this be necessary.

c) The Contractor shall design a traffic control plan, which will be submitted to the Engineer before the commencement of the works. The plan shall indicate the number, type and spacing of all traffic control devices, signage etc.

d) Prior to the start of construction operations, the Contractor shall erect such signs, barricades and other traffic control devices as may be required by the drawings, specifications or as directed by the Engineer. Traffic control devices shall be operated only when they are needed and only those that apply to conditions actually in existence.

e) Temporary fences shall be placed to provide a visual barrier between the work area and adjacent traffic or buildings and at locations directed by the Engineer.

f) Any devices provided under this Clause that are lost, stolen, destroyed or deemed unacceptable while their use is required on the project shall be replaced by the Contractor without additional compensation.

g) During non-working hours and following completion of a particular construction operation, all warning signs, except those necessary for the safety of the public, shall be removed or entirely covered so that the unnecessary and/ or misleading sign panel will not be visible.

h) Retro-reflective sheeting on signs, barricades and other devices shall be kept clean. The Contractor shall promptly correct stretches, rips, and tears in the sheeting. Retro-reflective sheeting must be used on all devices and shall be properly maintained.

i) Nighttime operations shall be illuminated by a lighting system approved by the Engineer. The lighting system shall be positioned and operated to preclude glare and annoyance to the adjacent residents. Incandescent lights will not be permitted.

j) The Contractor shall take necessary care at all times during the execution of the works to ensure the existing convenience and safety of residents along and adjacent to the road, and any public highway or port facility that may be affected by the Works. Street lighting shall be relocated as necessary to maintain the same standard of lighting during the course of the Works until new lighting facilities are brought into operation.

k) The Contractor should thoroughly acquaint himself with existing traffic conditions and understand the importance of maintaining traffic safety and the avoidance of excessive traffic delay. The Contractor shall cooperate with the pertinent agencies regarding traffic control and all details will be subject to the Engineer's approval.

l) The Contractor shall be responsible for investigating and establishing the requirements for traffic control and safety at the site and shall submit such details in his Safety, Traffic Control and Environmental Plan as required by the Project Safety Specification.

m) The Contractor's requirements shall include, but not be limited to, construction of detours, temporary bridge approach roads, of traffic control devices and services for the control and protection of traffic through areas of construction. The layout components and method of traffic control measures shall be indicated on the traffic control plan and be subject to approval by the Engineer, before the work is allowed to commence.

n) Any failure of the Contractor to meet these requirements will entitle the Engineer to issue a "stop work" order, which will remain in effect until corrective measures have been made. Any delay this may cause will not be considered as a basis for additional time.

o) The contractor shall be responsible for the temporary relocation of the existing traffic signals as required in order to proceed with the Works.

4.2 TEMPORARY ROAD WORKS

a) The Contractor shall furnish, maintain, and remove on completion of the work for which they are required, all temporary roads and road works such as sleeper tracks and staging over roads, access and service roads, temporary crossings or bridges over streams or unstable ground. Such temporary road works shall be constructed to the satisfaction of the Engineer, but the Contractor shall nevertheless be responsible for any damage done to or caused by such temporary road works.

b) Before constructing temporary road works, the Contractor shall make all necessary arrangements, including payment if required, with the public authorities or landowners concerned, for the use of the land for which he shall obtain the approval of the Engineer. Such approval will be dependent on the Engineer being satisfied with the Contractor's proposals for items such as signing, lighting and riding quality of the temporary road together with the proposed maintenance arrangements. Such approval will not, however, relieve the Contractor of his responsibilities under the Contract. Upon completion of the works, the Contractor shall clean up and restore the land to the satisfaction of the Engineer.

c) The Contractor shall submit for the Engineer's approval drawings giving full details of temporary roads. Such details shall include alignment, profile, pavement construction, signing, lighting and the proposed duration of the temporary road.

d) The Contractor shall make all arrangements necessary to permit the passage along the road section relating to this Contract of the Constructional Plant, materials and employees belonging to the Contractor.

e) The temporary roads must be continuously maintained by the Contractor for the full duration of the Contract.

4.3 TEMPORARY TRAFFIC RAMPS

In cases where it is necessary or required by the Engineer, the Contractor shall construct and maintain temporary traffic ramps, and furnish all the required labor and materials.

4.4 TRAFFIC CONTROL

a) In order to facilitate traffic through or around the Works, or wherever ordered by the Engineer, the Contractor shall erect and maintain at prescribed points on the work and at the approaches to the work, traffic signs, barricades, cones and other facilities as necessary or required by the Engineer for the proper direction and control of traffic.

b) As necessary for proper control of traffic or when/where directed by the Engineer, the Contractor shall furnish and station competent flagmen whose sole duties shall consist of directing the movement of traffic through or around the work. The flagman must be provided with the necessary safety equipment such as reflective safety vest, proper flagging, etc.

c) The Contractor shall furnish and erect, within or in the vicinity of the project area, such warning and guide signs as may be necessary or ordered by the Engineer.

d) In order to minimize disruption to traffic flows, the Contractor shall enclose the Site with temporary fences to provide a visual barrier between his work and adjacent traffic.

4.5 MEASUREMENT AND PAYMENT

All costs necessary for and associated with maintenance and control of traffic shall be measured for payment, but shall be paid under Construction Safety and Health Program and Environmental Management Plan. Payment shall be made based on percentage accomplishment.

Pay Item	Description	Unit
B.3	Construction Safety and Health Program and Environmental Monitoring	Lot

5.0 MONTHLY PROGRESS REPORTS AND SCHEDULE OF WORKS

5.1 DESCRIPTION

Before the seventh calendar day of each month, the Contractor shall submit to the Engineer the Monthly Progress Report, which shall account for all work performed up to and including the last day of the preceding month. Each progress report shall include a narrative describing:

a) The activities that have been completed with their actual start and completion dates;

b) The activities on which work is currently in progress and the number of working days required to complete each activity;

c) The current and anticipated delaying factors, their effect on the construction schedule, and proposed corrective actions and

d) Any work reported completed, but which is not readily apparent to the Engineer, shall be substantiated with satisfactory evidence.

5.2 REPORT CATEGORIES

In addition to a narrative as described above, the Monthly Report shall include information and data as detailed below for each of the noted categories. The Engineer may at any time require the Contractor to include other categories or additional information in each category if, in the opinion of the Engineer, they are necessary to track the progress and/or requirements of the Works.

5.2.1 Shop & Working Drawing Status Report

The Contractor shall with each Monthly Report submit in tabular format a shop drawing status report, noting the status of all Shop and Working drawings (if required) as of the date of the report.

5.2.2 Schedule of Payment Summary

The Contractor shall, with each Monthly Report, submit in tabular format a summary of payments as of the date of the report. The schedule of payment summary shall note the originally projected payments in accordance with the Schedule of Payment Forecast and the payments to the date of the report.

In addition, the Contractor shall also submit a schedule of past and projected payments in a graphical format (S curve).

5.2.3 Project Photographs

The Contractor shall, with each Monthly Report, submit project photographs in accordance with the requirements of the Construction Photographs Specification, including the digital files.

5.2.4 Equipment and Materials Delivery Forecasts

The Contractor shall, with each Monthly Report, submit updated Equipment and Materials Delivery Forecasts.

5.2.5 Up-Dated Schedule Of Works

Computerized copy of the Schedule of Works, with all activities up-dated to the end of the preceding month before the Monthly Report is due, shall be submitted with each Monthly Report.

5.2.6 Quality Control Summary

The Monthly Report shall include a Quality Control summary report prepared by the Contractor's Quality Control Engineer giving a summary of Quality Control activities for the reporting period. The report shall address quality control problems and outstanding deficiencies. In addition, the report shall include a summary of all quality control tests, and test results during the report period.

5.2.7 Safety Summary

The Monthly Report shall include a Safety Summary report prepared by the Contractor's Safety Officer giving a summary of safety related activities for the reporting period. The report shall address safety, traffic control and environmental problems and restraints and any accident, whether minor or major, occurring during the report period.

5.2.8 Equipment Report

a) With each Monthly Report the Contractor shall present, in tabular format, an on-site equipment listing noting all the Contractor's, Subcontractor's and supplier's equipment on site since the commencement of work including the equipment projected to be needed up to the end of the report period.

b) The tabulation shall identify the type of equipment, the equipment make and model, as well as the capacity of the equipment (if applicable) and note the date the equipment arrived on site and the date the equipment left the site. In addition the listing shall note if the equipment is in operation or not operating. For any equipment not in operation during the report period, the Contractor shall note the period when the equipment was not in operation and the reason why.

5.2.9 Work Force Tabulation

With each Monthly Report the Contractor shall present, in tabular format, a listing of all Contractor's, Subcontractors and suppliers senior personnel on site during the report period. The listing shall include the names of all senior personnel, their company affiliation and their position.

5.2.10 Report Formatting

The monthly report shall:

- Be Prepared in A4 size paper

- Be ring bound with a clear acetate or plastic cover

- Have a clearly identifiable cover page indicating the Project title, the Construction Company and the period covered.
- Be written in 12 point font
- Include Drawings on
- Have all photos printed in color

5.2.11 Description

The Schedule of Works, or Construction Schedule, shall incorporate all activities that will affect the Works from commencement to completion including, but not limited to:

a) the Contractor's mobilization and demobilization;

b) all site investigation activities;

c) all surveying and laying out ;

d) all key and milestone dates;

e) all interface dates between the Contractor, any interfacing contractors and sub-contractors for the Works;

f) all Quality Control inspection and testing requirements;

g) all Submittal, Working Drawing and Shop Drawing preparation;

h) all Submittal time for review by the Engineer;

i) all activities associated with the procurement, purchase, fabrication and shipment of goods, materials, and equipment to be incorporated into the Works;

j) all construction activities for each phase and section of the Works, including testing and commissioning and defects and deficiencies work;

k) all activities (including required testing) associated with the approval of materials and equipment to be incorporated in the Works;

l) all public and site holidays; and

m) such other activities that the Engineer may require to be monitored.

5.3 SCHEDULE OF WORKS SUBMISSION AND NARRATIVE STATEMENT

5.3.1 The Schedule of Works

a) No later than 15 (fifteen) days after issuance of the Notice to proceed the Contractor shall submit his proposed schedule of works to the Engineer for review and approval. This Schedule of Works shall be in the form and content prescribed herein. Unless the Engineer approves a revised Schedule of Works this shall remain the Schedule of Works for all purposes during the Contract Period.

b) The Contractor's schedule shall include a narrative statement and a logic breakdown of major activities with durations, start and end dates.

5.3.2 Narrative Statement

The narrative statement shall be a comprehensive statement of the Contractor's plan and approach for the execution of the Works and the achievement of milestones or Key Dates and any intermediate dates. It shall incorporate outline method statements in respect of major items of work including design and construction sequences and primary items of Plant, temporary works and the like. It shall fully describe and explain the reasons for the main logic links in the schedule and include particulars of how activity durations are established.

5.4 SCHEDULE REQUIREMENTS

a) The detail and number of activities incorporated in the Contractor's Schedule of Works shall be sufficient to manage the total works and identify restraints, delays and effects on the Works by dependent activities. The schedule shall show activity durations, activity descriptions, early and late start and finish dates, and activity float and activity dependencies. The schedule shall incorporate the Critical Path Method (CPM) of scheduling, with all activities tied to one start and one end date. The schedule shall be in the form of a computer implemented and modified CPM.

b) The schedule shall be cost loaded and indicate the projected S-Curve. This shall be indicated on the monthly reports with the actual S-Curve superimposed, along with the actual % complete for all the major work activities.

c) All activities shall be cost loaded (as appropriate) with schedule costs equating to the Contractor's Schedule of Payment Forecast, so that the total Contract Sum of the Works

is reflected on the schedule. All activities shall be resource loaded (as appropriate), indicating all manpower and/or equipment necessary to accomplish the activity within the given time duration.

d) All activities shall be organized in a logical work breakdown structure, indicating work stages and phases, and shall clearly indicate critical path(s) of each facility and/or segment of the Works.

e) All activity descriptions shall be unique, each describing discrete elements of work.

f) Any activity having or creating an imposed constraint shall be fully described and defined by the Contractor in an attached summary to the schedule.

g) All activities shall have an activity identification number related to the work breakdown structure as well as a unique description, with duration expressed in calendar days.

5.5 SUBMITTAL OF UPDATED SCHEDULES AND ACTIVITY REPORTS

On a monthly basis all activities of the approved Schedule of Works shall be updated to reflect the actual work accomplished to the end of the month and submitted to the Engineer. In addition, an activity report, generated by the schedule computer program, shall also be submitted. The Activity Report shall include the following information and data for each activity:

a) activity identification number and description;

b) activity duration expressed in calendar days;

c) early and late start and finish dates for each activity, as well as planned start and finish dates;

d) calculated total and free float for each activity;

e) predecessors(s) and successor(s), accompanying relationships and lag/lead duration(s) for each activity;

f) imposed time or date constraints on each activity;

g) an activity calendar;

h) critical path delay; and

i) all activities that have a negative float shall be identified and analyzed to identify the impact on the timely completion of the Works.

5.6 REVISIONS TO APPROVED SCHEDULE OF WORKS

After approval by the Engineer, the Schedule of Works will not be revised without either the request or approval of the Engineer.

5.7 SCHEDULING PERSONNEL

The Contractor shall submit, as part of his Staff Organization Plan, the name and resume of his Scheduler, who shall hold reputable professional qualifications acceptable to the Engineer including at least three (3) years relevant experience in the scheduling of civil engineering works. The Scheduler shall be employed by the Contractor full time on the Contract until completion of the Works or such earlier time as accepted by the Engineer.

5.8 WORK NOT COMPLETED BY LATEST SCHEDULED COMPLETION DATE

If at any time during the Project execution, any activity is not completed by its latest scheduled completion date, the Engineer shall be notified within 7 days of the Contractor's plans to re-organize the work force to recover the lost time and prevent delays on any other activity.

5.9 MEASUREMENT AND PAYMENT

The preparation and supply of the Contractor's monthly progress report in accordance with the provisions of this Specification section shall be paid based on percentage accomplishment.

Pay Item	Description	Unit
B.4	Monthly Progress Reports and Schedule of Works	lot

6.0 PROJECT SIGN BOARD

6.1 DESCRIPTION

This item shall consist of furnishing and installing project sign boards in accordance with these specifications and to the details shown on the Plans, or as required by the Engineer.

6.2 MATERIAL REQUIREMENTS

See material details as shown on the Plans.

6.3 CONSTRUCTION REQUIREMENTS

6.3.1 EXCAVATION AND BACKFILLING

Holes shall be excavated to the required depth to the bottom of the concrete foundation as shown on the Plans. Backfilling shall be carried out by using suitable materials approved by the Engineer and shall be compacted in layers not exceeding 150 mm in depth. Surplus excavated materials shall be disposed of by the Contractor as directed by the Engineer.

6.3.2 ERECTION OF POST

The main posts shall be erected vertically in position inside the formwork of the foundation block prior to the placing of the concrete and shall be adequately supported by bracing to prevent movement of the posts during the placing and setting of concrete. The posts shall be located at the position on the Plans.

6.3.3 SIGNBOARD INSTALLATION

The signboard shall be installed in accordance with the details shown on the Plans. The texts of the signboard shall be as directed by the Engineer.

6.4 METHOD OF MEASUREMENT

The quantities of the project sign boards shall be the number of such signs specified, including the necessary posts and supports erected and accepted.

6.5 BASIS OF PAYMENT

The quantities measured as determined in Sub-section 6.4, Method of Measurement, shall be paid at the contract unit price for the Pay Items shown in the Bid Schedule which price and payment shall be full compensation for furnishing and installing the sign boards, for excavation, backfilling and construction of foundation blocks, and all labor, equipment, tools and incidentals necessary to complete the item.

Payment will be made under:

Pay Item	Description	Unit
B.5	Project Sign Board	each

PART C – EARTHWORK

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 asphalt base paint prepared especially for tree surgery. The clearing and grubbing limits shall be the construction limits.

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) Clearing and grubbing shall include stripping at the sides to form the side ditch or blade to ditch as shown in the typical roadway section.

(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 vegetation, 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 mm2 (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 will be disposed 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

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 (2)	Removal of Existing Stone Masonry Headwall	Cubic Meter

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.

Boulders, logs, and other objectionable materials encountered in excavation shall be removed.

After each excavation is completed, the Contractor shall notify the Engineer to that effect and no footing, bedding material or pipe culvert shall be placed until the Engineer has approved the depth of excavation and the character of the foundation material.

(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.

103.3.3 Foundation Fill

The volume of foundation fill to be paid for will be the number of cubic metres measured 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.

103.3.5 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 (3)a	Foundation Fill/ Gravel Bed	Cubic Meter
103 (6)	Pipe Culvert and Drain Excavation	Cubic 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 subgrade is in rock cut, all materials below subgrade 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 subgrade, 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	+	0.5 %
Permitted variation from design LONGITUDINAL GRADE	±	0.1 %

over 25 m length

105.3.3 Subgrade in Common Excavation

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 recompacted 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 recompacting 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:

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

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 (2)	Subgrade Preparation (Existing Pavement)	Square Meter

PART D – SUBBASE AND BASE COURSE

ITEM 200 – AGGREGATE SUBBASE COURSE

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.

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 less than 4 and not greater than 8 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.

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 m2 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%

Method of Measurement

Aggregate Subbase Course will be measured by the cubic meter (m3). 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.

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

PART G – DRAINAGE AND SLOPE PROTECTION STRUCTURES

ITEM 500 – PIPE CULVERTS AND STORM DRAINS

500.1 Description

This item shall consist of the construction or reconstruction of pipe culverts and storm drains, hereinafter referred to as "conduit" in accordance with this Specification and in conformity with the lines and grades shown on the Plans or as established by the Engineer.

500.2 Material Requirements

Material shall meet the requirements specified in the following specifications:

Zinc coated (galvanized) corrugated iron or steel culverts and underdrains	AASHTO M 36
Cast iron culvert pipe	AASHTO M 64
Concrete sewer, storm drain and culvert pipe	AASHTO M 86
Reinforced concrete culvert, storm drain and sewer pipe	AASHTO M 170

Bituminous coated corrugated metal culvert pipe and pipe arches	AASHTO M 190
Reinforced concrete arch culvert, storm drain and sewer pipe	AASHTO M 206
Reinforced concrete elliptical culvert, storm drain and sewer pipe	AASHTO M 207
Asbestos cement pipe for culverts and storm drains	AASHTO M 217

Joint Mortar – Joint mortar for concrete pipes shall consist of 1 part, by volume of Portland Cement and two (2) parts of approved sand with water as necessary to obtain the required consistency.

Portland Cement and sand shall conform to the requirements of Item 405, Structural Concrete. Mortar shall be used within 30 minutes after its preparation.

Rubber gaskets	AASHTO M 198

Oakum – Oakum for joints in bell and spigot pipes shall be made from hemp (Cannavis Sativa) line or Benares Sunn fiber or from a combination of these fibers. The oakum shall be thoroughly corded and finished and practically free from lumps, dirt and extraneous matter.

Hot poured joint sealing compound	AASHTO M 173

Bedding material shall conform to the requirements of Subsection 500.3.2, Bedding.

Backfill material shall conform to the requirements of Subsection 500.3.6, Backfilling.

When the location of manufacturing plants allow, the plants will be inspected periodically for compliance with specified manufacturing methods, and material samples will be obtained for laboratory testing for compliance with materials quality requirements. This shall be the basis for acceptance of manufacturing lots as to quality.

Prior to and during incorporation of materials in the work, these materials will be subjected to the latest inspection and approval of the Engineer.

500.3 Construction Requirements

500.3.1 Trenches Excavation

Trenches shall be excavated in accordance with the requirement of Item 103, Structure Excavation, to a width sufficient to allow for proper jointing of the conduit and thorough compaction of the bedding and backfill materials under and around the conduit. Where feasible, trench wall shall be vertical.

The completed trench bottom shall be firm for its full length and width. Where required, in the case of crop drains, the trench shall have a longitudinal camber of the magnitude specified.

When so specified on the Plans, the excavation for conduits placed in embankment fill, shall be made after the embankment has been completed to the specified or directed height above the designed grade of the conduit.

500.3.2 Bedding

The bedding shall conform to one of the classes specified. When no bedding class is specified, the requirements for Class C bedding shall apply.

Class A bedding shall consist of a continuous concrete cradle conforming to the plan details.

Class B bedding shall consist of bedding the conduit to a depth of not less than 30 percent of the vertical outside diameter of the conduit. The minimum thickness of bedding material beneath the pipe shall be 100 mm. The bedding material shall be sand or selected sandy soil all of which passes a 9.5 mm sieve and not more than 10 percent of which passes a 0.075 mm sieve. The layer of the bedding material shall be shaped to fit the conduit for at least 15 percent of its total height. Recesses in the trench bottom shall be shaped to accommodate the bell when bell and spigot type conduit is used.

Class C bedding shall consist of bedding the conduit to a depth of not less than 10 percent of its total height. The foundation surface, completed in accordance with Item 103, Structure Excavation, shall be shaped to fit the conduit and shall have recesses shaped to receive the bells, if any.

For flexible pipe, the bed shall be roughly shaped and a bedding blanket of sand or fine granular material as specified above shall be provided as follows:

Pipe Corrugation Depth	Minimum Bedding Depth
10 mm	25 mm
25 mm	50 mm
50 mm	75 mm

For large diameter structural plate pipes the shaped bed need not exceed the width of bottom plate.

500.3.3 Laying Conduit

The conduit laying shall begin at the downstream end of the conduit line. The lower segment of the conduit shall be in contact with the shaped bedding throughout its full length. Bell or groove ends of rigid conduits and outside circumferential laps of flexible conduits shall be placed facing upstream. Flexible conduit shall be placed with longitudinal laps or seams at the sides.

Paved or partially-lined conduit shall be laid such that the longitudinal center line of the paved segment coincides with the flow line. Elliptical and elliptically reinforced conduits shall be placed with the major axis within 5 degrees of a vertical plane through the longitudinal axis of the conduit.

500.3.4 Jointing Conduit

Rigid conduits may either be of bell and spigot or tongue and groove design unless another type is specified. The method of joining conduit sections shall be such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Joints shall be made with (a) Portland Cement mortar, (b) Portland Cement grout, (c) rubber gaskets, (d) oakum and mortar, (e) oakum and joint compound, (f) plastic sealing compound, or by a

combination of these types, or any other type, as may be specified. Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the conduit and finished smooth on the inside. For grouted joints, molds or runners shall be used to retain the poured grout. Rubber ring gaskets shall be installed so as to form a flexible water-tight seal. Where oakum is used, the joint shall be called with this material and then sealed with the specified material.

When Portland Cement mixtures are used, the completed joints shall be protected against rapid drying by any suitable covering material.

Flexible conduits shall be firmly joined by coupling bands.

Conduits shall be inspected before any backfill is placed. Any pipe found to be out of alignment, unduly settled, or damaged shall be taken up and relaid or replaced.

500.3.5 Field Strutting

When required by the Plans, vertical diameter of round flexible conduit shall be increased 5 percent by shop elongation or by means of jacks applied after the entire line of conduit has been installed on the bending but before backfilling. The vertical elongation shall be maintained by means of sills and struts or by horizontal ties shall be used on paved invert pipe.

Ties and struts shall be 300 mm in place until the embankment is completed and compacted, unless otherwise shown on the Plans.

These construction specifications shall also apply in the case of relaid conduits. In addition, all conduits salvaged for relaying shall be cleaned of all foreign materials prior to reinstallation.

500.3.6 Backfilling

Materials for backfilling on each side of the conduit for the full trench width and to an elevation of 300 mm above the top of the conduit shall be fine, readily compactible soil or granular material selected from excavation or from a source of the Contractor's choice, and shall not contain stones that would be retained on a 50 mm sieve, chunks of highly plastic clay, or other objectionable material. Granular backfill material shall have not less than 95 percent passing a 12.5 mm sieve and not less than 95 percent retained on a 4.75 mm sieve. Oversized material, if present, shall be removed at the source of the material, except as directed by the Engineer.

When the top of the conduit is flushed with or below the top of the trench, backfill material shall be placed at or near optimum moisture content and compacted in layers not exceeding 150 mm (compacted) on both sides to an elevation 300 mm above the top of the conduit. Care shall be exercised to thoroughly compact the backfill under the haunches of the conduit. The backfill shall be brought up evenly on both sides of the conduit for the full required length. Except where negative projecting embankment-type installation is specified, the backfill material shall be placed and compacted for the full depth of the trench.

When the top of the conduit is above the top of the trench, backfill shall be placed at or near optimum moisture content and compacted in layers not exceeding 300 mm (compacted) and shall be brought up evenly on both sides of the conduit for its full length to an elevation 300 mm above the top of the conduit. The width of the backfill on each side of the conduit for the portion above the top of the trench shall be equal to twice the diameter of the conduit or 3.5 m, whichever is less. The backfill material used in the trench section and the portion above the top of the trench for a distance on each side of the conduit equal to the horizontal inside diameter and to 300 mm above the top of the conduit shall conform to the requirements for backfill materials in this Subsection. The remainder of the backfill shall consist of materials from excavation and borrow that is suitable for embankment construction.

Compaction to the density specified in Item 104, Embankment, shall be achieved by use of mechanical tampers or by rolling.

All conduits after being bedded and backfill as specified in this Subsection shall be protected by one metre cover of fill before heavy equipment is permitted to cross during construction of the roadway.

500.3.7 Imperfect Trench

Under this method, for rigid conduit, the embankment shall be completed as described in Subsection 500.3.6, Backfilling, to a height above the conduit equal to the vertical outside diameter of the conduit plus 300 mm. A trench equal in width to the outside horizontal diameter of the conduit and to the length shown on the plans or as directed by the Engineer shall then be excavated to within 300 mm of the top of the conduit, trench walls being as nearly vertical as possible. The trench shall be loosely filled with highly compressible soil. Construction of embankment above shall then proceed in a normal manner.

500.4 Method of Measurement

Conduit of the different types and sizes, both new and relaid, will be measured by the linear metre in place. Conduit with sloped or skewed ends will be measured along the invert.

Each section will be measured by the number of units installed.

Branch connection and elbows will be included in the length measurement for conduit, or they may be measured by the number of units installed.

Class B bedding material placed and approved shall be measured by the cubic metre in place.

When the Bid Schedule contains an estimated quantity for "Furnishing and Placing Backfill Material, Pipe Culvert", the quantity to be paid for will be the number of cubic metre complete in place and accepted, measured in final position between limits as follows:

1. Measurement shall include backfill material in the trench up to the top of the original ground line but will not include any material placed outside of vertical planes 450 mm up outside of and parallel to the inside wall of pipe at its widest horizontal dimension.

2. When the original ground line is less than 300 mm above the top of the pipe, the measurement will also include the placing of all backfill materials, above the original ground line adjacent to the pipe for a height of 300 mm above the top of pipe and for a distance on each side of the pipe not greater than the widest horizontal dimension of the pipe.
3. The measurement shall include the placing of backfill material in all trenches of the imperfect trench method. Materials re-excavated for imperfect trench construction will be measured for payment under Item 103, Structure Excavation.

500.5 Basis of Payment

The accepted quantities of conduit, determined as provided in Section 500.4, Method of Measurement, shall be paid for at the contract unit price per linear meter for the conduit of the types and sizes specified complete in place. End sections and, when so specified, branch connections

and elbows, shall be paid for at the contract unit price per piece for the kind and size specified complete in place.

Excavation for culverts and storm drains, including excavation below flow line grade and for imperfect trench, shall be measured and paid for as provided in Item 103, Structure Excavation.
Concrete for Class A bedding will be paid for under Item 405, Structural Concrete.
When the Bid Schedule does not contain as estimated quantity for "Furnishing and Placing Backfill Material, Pipe Culvert" payment for placing backfill material around pipe culverts will be considered as included in the payment for excavation of the backfill material.

Payment will be made under:

Payment Item Number	Description	Unit of Measurement
500 (1)b	RCPC, 760mm Ø Class-II	Linear Meter
500 (1)c	RCPC, 910mm Ø Class-II	Linear Meter
500 (1)e	RCPC, 1220mm Ø Class-II	Linear Meter

Note: Materials for reinforcing steel bars refer Item 404 of DPWH Technical Specs for Roads and Bridges, 2004 Edition

ITEM 504 - CLEANING AND RECONDITIONING EXISTING DRAINAGE STRUCTURES

504.1 Description

This item shall consist of cleaning and reconditioning existing pipes and appurtenant structures in reasonably close conformity with this Specification and as shown on the Plans.

504.2 Material Requirements

Materials used for repair or replacement under the various Pay Items shall conform the requirements of the applicable Items of this Specification.

504.3 Construction Requirements

Pipe Removed and Cleaned – The pipe shall be carefully removed and cleaned of foreign material both within the barrel and at the jointed ends.

Pipe Cleaned in Place – All foreign materials within the barrel shall be removed and disposed off by methods which will prevent damage to the pipe.
If approved by the Engineer, all or part of the pipe designated to be cleaned in place may be removed, cleaned, and relaid in accordance with the applicable Items. In such cases, the Contractor shall furnish all materials required to replace damaged pipes and joints, perform all excavation and backfill, and re-lay the pipe, all at the contract bid price for this Item.

Re-laying or Stockpiling Salvaged Pipe - Relaying of pipe selected by the Engineer to be removed and cleaned shall be done as shown on the Plans, in accordance with the appropriate Item for the kind of pipe involved. The Contractor shall furnish all jointing materials and shall replace the pipe broken by him, in sufficient lengths to complete the designated length to be relaid without added compensation. Salvaged pipe to be stockpiled shall be placed as shown on the Plans and as directed

by the Engineer. No pipe which has sustained structural damage shall be placed in stockpiles. The Contractor shall dispose off such damaged pipes at approved locations.

Reconditioning Drainage Structures – Structures such as manholes, inlets, and the likes, designated on the Plans or as directed by the Engineer to be reconditioned shall have all debris removed, leaks repaired, missing or broken metalwork replaced, and each structure left in operating condition.

504.4 Method of Measurement

Measurement will be made by the linear meter of pipe acceptably cleaned, removed, re-laid or stockpile as designated in the Bill of Quantities, irrespective of the kind or size involved.

Pipe removed, cleaned, and re-laid will be measured in their final position.

Pipe removed, cleaned, and stockpiled will be measured by totaling the nominal laying lengths of all pipe units acceptably removed, cleaned, and placed in the stockpile.

Pipe cleaned in place will be measured along the flow line of the pipe line acceptably cleaned a directed.

Measurement of drainage structures reconditioned will be made by actual count of the total number of units of each type acceptably completed.

504.5 Basis of Payment

The quantities as provided in Section 504.4, Method of Measurement, shall be paid for at the contract price bid per unit of measurement for each of the Pay Items listed below that appear in the Bid Schedule, which price and payment shall be full compensation for the work of this item except excavation and backfill which is paid for under Item 103, Structure Excavation.

Excavation and backfill necessary for pipe removal operations shall be done as part of the work of this Item.

The Contractor shall remove and replace without added compensation any pipe damaged by this operations and which cannot be acceptably repaired in place.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
504 (3)a	Cleaning Pipe Culvert in place (760mmØ and below)	Linear Meter
504 (3)b	Cleaning Pipe Culvert in place (910mmØ and up)	Linear Meter
504 (4)	Cleaning/ Reconditioning existing RCBC	Linear Meter

If more than one type of drainage structure is described for an Item in the Bid Schedule, letter suffixes shall be added to the item Number differentiate between such structures.

If no Pay Item from the list above appears in Bid Schedule, the pipe removed will be considered as included in the work of Item 101, Removal of Structures and Obstructions.

ITEM 505 – RIPRAP AND GROUTED RIPRAP

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.

Material Requirements

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.

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 D15 of the filter is at least 4 times the size D85 for the embankment material, where D15 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.

Mortar

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.

Construction Requirements

Excavation

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.

Placing

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.

Grouting

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.

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.

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.

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.

Payment will be made under:

505 (5)	Grouted Riprap, Class A(Ditch)	Cubic Meter

PART H– MISCELLANEOUS STRUCTURES

ITEM 603 – GUARDRAIL

603.1 Description

This item shall consist of furnishing and constructing posts and guardrails of the types called for in the contract and in accordance with this Specification, at the locations, and in conformity with the lines and grades shown on the Plans, or as required by the Engineer.

603.2 Material Requirements

Materials for the desired type of guardrail shall meet the requirements specified in the following specifications:

1. Wire rope or wire cable AASHTO M 30
2. Chain link fabric AASHTO M 181
3. Metal beam rail AASHTO M 180
4. Timber rail, unless otherwise indicated in the Plans or Special Provisions, any of the following first group Philippine Timber shall be used: Ipil, Molave, Tindalo or Yacal. Only one species of timber shall be used in the construction of any one continuous length of guardrail.

Timber guardrail shall be well-seasoned, straight and free of injurious defects. They shall be dressed and of sufficient length so that joints shall be on the rail posts.

Guardrail Hardware. Offset brackets of the resilient and non-resilient types shall be of the type specified, or as shown on the Plans, and shall meet the strength requirements specified.

Splices and end connections shall be of the type and design specified or as shown on the Plans, and shall be of such strength as to develop the full design strength of the rail elements.

Unless otherwise specified, all fittings, bolts, washers and other accessories shall be galvanized in accordance with the requirements of AASHTO M 111 or ASTM A 153, whichever may apply. All galvanizing shall be done after fabrication.

Guardrail Post. Posts shall be of wood, steel, or concrete, as may be specified. Only one kind of post shall be used for any one continuous guardrail.

Wood post shall be fabricated from approved or specified timber specie and shall be of the quality, diameter or section and length as specified, or as shown on the Plans.

Steel post shall be of the section and length as specified, or as shown on the Plans. They shall be of a copper bearing steel when so specified. Steel shall conform to the requirements of AASHTO M 183 for the grade specified. The posts shall be galvanized or shop painted as may be specified.

Pre-cast reinforced concrete posts shall be of a section and length as specified or as shown on the Plans. Concrete shall conform with the requirements of Item 405, Structural Concrete, for class specified. Reinforcement shall conform with the requirements of AASHTO M 31 Grade 60. All bars shall be of the deformed type.

Concrete deadmen for end anchorages shall be as specified, or as shown on the Plans. Concrete and reinforcement shall conform to the requirements as stated above the precast reinforced concrete posts.

Paints for steel and wood shall be specified and conform to the requirements specified in Item 411, Paint.

603.3 Construction Requirements

603.3.1 Posts

Posts shall be set vertically in the position shown on the Plans and, where embedded in a concrete foundation block, shall remain undisturbed for a minimum of 48 hours. The space around the post shall be backfilled to the ground line with approved material in layers not exceeding 100 mm and each layer shall be moistened and thoroughly compacted.

Rail Elements
Rail elements shall be erected in a manner resulting in a smooth continuous installation. All bolts, except adjustment bolts, shall be drawn tight. Bolts shall be of sufficient length to extend beyond the nuts at least 5 mm but not more than 10 mm.

Where painting of railing components is specified, any damage to the shop coat of paint shall be corrected by an application of an approved rust-inhibitive primer prior to further painting. Any surface inaccessible to painting after erection shall be given the specified number of coats of paint uniformly applied by thorough brushing using an approved pressure spray.

Galvanized surfaces which have been abraded so that the base material is exposed, threaded portions of all fittings and fasteners and cut ends of bolts shall be protected in a manner as may be specified or directed.

The surfaces and sawed edges of untreated or salt-treated guardrail shall be painted with three coats of white paint to within 200 mm of the ground line. The first 200 mm of posts above the ground shall be painted with two coats of black paint. Painting shall be done only when the timber is dry and clean. Each coat of paint shall be thoroughly dry before the next coat is applied. Paint shall be applied in heavy coats, completely covering every part of the surface and shall be worked well into the joints and open spaces. It shall be thoroughly and evenly spread that no excess paint collects at any point.

Guardrail and posts, after erection has been completed, shall be stained with two applications of approved creosote stain, covering the rails and the exposed portions of the posts. The wood shall be dry before being stained. The first coat shall be thoroughly dry before the second is applied. Stain shall not be applied in damp weather.

For beam type guardrails, metal works not galvanized shall be given one shop coat of red lead, zinc chromate paint or an approved fast-drying rust-inhibitive primer and two field coats of white or aluminum paint. Untreated wood posts shall be given three coats of paints of the color indicated on the Plans, or as specified. Painting shall conform to the requirements of Item 411, Paint.

603.4 Method of Measurement

Guardrail shall be measured by linear meter from center to center of end posts, except where end connections are made on masonry or steel structures, in which case measurement will be to the face of such structures.

End anchorages and terminal sections will be measured as units of each kind shown in Bid Schedule. If no pay items for anchorages or terminal sections appear in the Bid Schedule, measurement therefore shall be included in the linear meter measurement for completed guardrail.

Basis of Payment

The accepted quantities of guardrail, determined in Subsection 603.4, Method of Measurement, shall be paid for at the contract unit price per linear meter for the type specified, complete in place, 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 Item. When so specified, end anchorages and terminal sections will be paid for at the contract unit price for each of the kind specified and completed in place.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
603 (3a)	Metal Guardrail- Class A/ TypeI (Metal Beam) including concrete post	Linear Meter
603 (3)b	Metal Guardrail- End Piece	Pieces

ITEM 605 – ROAD SIGN

605.1 Description

This Item shall consist of furnishing and installing road signs in accordance with this Specification and to the details shown on the Plans, or as required by the Engineer.

The road signs shall comply in all respects with the "Philippine International Road Signs Manual" published by the Department of Public Works and Highways, Manila. The categories of road signs are designated in the Manual, namely, danger warning signs, regulatory signs and informative signs, or guide signs. These are referred to in the Contract as warning signs and informatory signs, respectively.

Road signs shall be classified as standard or non-standard. Standard signs consist of all warning signs, regulatory signs and informatory signs with the exception of direction signs, place identification signs and the line. Non-standard signs consist of all informatory signs which are not classified as standard signs.
The size of warning and regulatory signs is the length of the side of triangular signs (measured from the points of intersection of the extension of the edges), the horizontal width of octagonal signs and the diameter of circular signs.

605.2 Material Requirements

605.2.1 Sign Panels

Sign panels for warning, regulatory, and informatory signs shall be manufactured from aluminum sheeting at least 3 mm thick.

605.2.2 Reflective Sheeting

The reflective sheeting used on the road signs shall consist of spherical lens elements embedded within a transparent plastic having a smooth, flat surface with a protected pre-coat adhesive which shall be pressure sensitive for manual application, or tack free heat activated for mechanical vacuum-heat application.

The minimum reflective brightness values of the reflective sheeting as compared to a magnesium oxide (MgO) shall be as given in Table 605.1. The brightness of the reflective sheeting totally wet by rain shall be not less than 90% of the given values.

Table 605.1 – Reflective Brightness of Traffic Signs Surfaces

Color	Angle of incidence	Angle of Divergence	Minimum Reflective Brightness Value Compared with MgO
Red	-40 200 500	0.50 0.50 0.50	15 10 3
White	-40 200 500	0.50 0.50 0.50	75 70 70
Yellow	-40 200 500	0.50 0.50 0.50	35 35 10
Blue	-40 200 500	0.50 0.50 0.50	6 4.5 0.5

The reflective sheeting shall be sufficiently flexible to permit application and adhesion to a moderately embossed surface. It shall show no damage when bent 900 over a 50 mm diameter mandrel.
The sheeting shall be solvent-resistant so as to be capable of withstanding cleaning with petrol, diesel fuel, mineral spirits, and turpentine methanol.

The sheeting shall show no cracking or reduction in reflectivity after being subjected to the dropping of a 25 mm diameter steel ball from a height of 2 m into its surface.

The adhesive shall permit the reflective sheeting to adhere accurately 48 hours after application of temperatures of up to 900.

The reflective material shall be weather-resistant and, following cleaning in accordance with manufacturer's recommendations, shall show no discoloration,
cracking, blistering, peeling or any dimensional change.

Samples of reflective sheeting shall be submitted to the Engineer for approval.

605.2.3 Posts and Frames

Wide flange posts and frames shall be fabricated from structural steel conforming to ASTM A 283 Grade D. In lieu of wide flange steel posts, the Contractor may use tubular steel posts conforming to ASTM A 501. All posts shall be thoroughly cleaned, free from grease, scale and rust and shall be given one coat of rust-inhibiting priming paint and two coats of gray paint in accordance with Item 411, Paint.

605.2.4 Nuts and Bolts

Nuts, bolts, washers and other metal parts shall be hot-dip galvanized after fabrication in accordance with the requirements of AASHTO M 111.

605.2.5 Concrete Foundation Blocks

The concrete for the foundation blocks shall be Class A in accordance with Item 405, Structural Concrete and shall be of the size shown on the Plans.

605.3 Construction Requirements

605.3.1 Excavation and Backfilling

Holes shall be excavated to the required depth to the bottom of the concrete foundation as shown on the Plans.

Backfilling shall be carried out by using suitable material approved by the Engineer and shall be compacted in layers not exceeding 150 mm in depth. Surplus excavated material shall be disposed of by the Contractor as directed by the Engineer.

605.3.2 Erection of Posts

The posts shall be erected vertically in position inside the formwork of the foundation block prior to the placing of the concrete and shall be adequately supported by bracing to prevent movement of the post during the placing and setting of concrete. The posts shall be located at the positions shown on the Plans.

Sign Panel Installation
Sign panels shall be installed in accordance with the details shown on the Plans. Any chipping or bending of the sign panels shall be considered as sufficient cause to require replacement of the panels at the Contractor's expense.

The exposed portion of the fastening hardware on the face of the signs shall be painted with enamels matching the background color.

All newly erected traffic road signs shall be covered until ordered removed by the Engineer.

605. 4 Method of Measurement

The quantities of standard reflective warning and regulatory road signs shall be the number of such signs of the size specified, including the necessary posts and supports erected and accepted.
The quantities for standard reflective informatory signs and non-standard reflective informatory signs shall be the number of such, including the necessary posts and supports, erected and accepted.

605.5 Basis of Payment

The quantities measured as determined in Subsection 605.4, Method of Measurement, shall be paid for at the contract unit price for the Pay Items shown in the Bid Schedule which price and payment shall be full compensation for furnishing and installing road signs, for excavation, backfilling and construction of foundation blocks, and all labor, equipment, tools and incidentals necessary to complete the Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
605 (1)a	Warning Signs(Triangular)	Each
605 (2)a	Regulatory Signs	Each
605 (4)	Project Information Signs	Each

SPECIFICATIONS FOR MAINTENANCE COMPONENT

General Requirements:

Project Safety

2.3 GENERAL

The Contractor shall, as a priority in all his activities, undertakings and endeavors, ensure the continued and continuous safety of the public and all persons directly or indirectly associated with the Works in compliance with the safety, health and environmental laws and regulations of the Philippine Government.

Due precautions shall be taken by the Contractor, at his own cost, to ensure the safety and protection against accidents of all staff and labor engaged on the Works, local residents in the vicinity of the Works, and the public traveling through the Works. The Contractor shall have in his staff on Site a Safety & Environment Officer or SEO qualified to promote and maintain safe working practices. This officer shall have authority to prepare the required Construction Safety and Health Program (CHSP), implement the program, including issuing instructions and shall take protective measures to prevent accidents, such as but not limited to the establishment of safe working practices and the training of staff and labor in their implementation.

The Contractor shall at his own expense provide protective clothing and equipment to all staff and labor engaged on the Works to the satisfaction of the Engineer. Such clothing and equipment shall include, at a minimum, protective footwear for workmen undertaking concrete mixing work, protective footwear and gloves for any workmen performing bituminous paving works, protective footwear, clothing, cream, gauntlet-type gloves, hats, safety glasses or goggles and filter masks for workmen undertaking lime stabilization works, hard hats for workmen engaged in bridge construction, and otherwise as appropriate to the job at hand and to the Engineer's satisfaction.

The Contractor shall also provide hard hats (white color), reflective safety vests, and safety shoes for the Engineers and visiting staff. All equipment provided to the Engineers and visiting staff will remain the property of the Contractor after project handover.

2.4 COMPLIANCE WITH LEGISLATION

a) The Contractor shall comply with all safety, health and environmental legislation including, without limitation, the Laws and Regulations of the Republic of the Philippines and the authorities having jurisdiction.

b) The Contractor shall comply with all requirements of the appropriate agencies that govern irrigation and drainage facilities.

c) The Contractor shall comply with all current environmental laws and regulations, be they national or local, related to the following, but not limited to:

- noise;
- vibration;
- air pollution;
- water contamination;
- solid waste disposal;
- liquid waste disposal;
- sanitary conditions (water supply, sewerage, etc.);
- protection of the traveling public, etc.,
- and the requirements and stipulations of the General Conditions of Contract.

2.6 SAFETY OF PUBLIC

The Contractor will be responsible for the safety of the public legitimately passing through the site. All excavations, plant or items of potential danger to the public must be barricaded and sign-posted to the satisfaction of the Engineer, and the Contractor must provide sufficient watchmen to ensure the safety of the public at all times. All existing pedestrian routes shall be maintained in a safe condition unless an alternative route is provided to the satisfaction of the Engineer.

2.7 AVAILABILITY OF SAFETY-RELATED DOCUMENTS

The Contractor shall comply with the Engineer's requirements insofar as displaying in each of the site offices, workshops and canteens a copy of such safety and industry health posters and keeping on the Site copies of safety and industrial health regulations and documents.

2.8 SAFETY, TRAFFIC CONTROL AND ENVIRONMENTAL PLAN

In addition to the required CHSP, the Contractor through the designated Safety & Environment Officer (SEO) shall prepare and submit to the Engineer for review and approval no later than 15 days after Notice to Proceed, a Safety, Traffic Control and Environmental Plan or STEP, which shall contain, without limitation, the following details:

a) Safety, environmental and traffic control staff organizational structure, which should identify the personnel to be engaged solely for traffic control, environmental protection and safety assurance

(including the Contractor's Safety Officer who will be responsible for all safety on the Site) and the responsibilities of each of the participants

b) Proposed interaction and communication procedures between the Contractor's construction personnel and traffic control, environmental protection and safety assurance staff. In particular, the establishment of a regular communication and reporting system;

c) An undertaking signed by the Contractor's Representative to the effect that the Contractor will ensure that safety, industrial health and environmental protection are given highest priority in all aspects of the Works and in discharging his contractual obligations. The Contractor's Representative must also provide the written appointment and authorization to the person assigned to be the Safety Officer;

d) Frequency, coverage and intent of site safety meetings together with the rational for attendance;

e) Frequency, coverage and intent of regular site safety reports;

f) Methods of promoting an awareness of site safety, environmental protection and industrial health amongst all persons directly or indirectly associated with the Works. This shall include proposals for onsite publicity, on-site training courses for all workmen on the Site and at all levels of supervision and management, incentive schemes for the promotion of compliance with safety measures and other similar measures.

g) An Environmental Control and Protection Program which shall cover, but not be limited to, the following items:

- storage of volatile liquids and toxic materials,
- waste control and management;
- control related to the use of existing roads and bridges by the Contractor's vehicles and

h) A Traffic Control Plan, which shall cover the means and methods the Contractor intends to take for proper and adequate control of traffic during the course of the Works. This Plan shall address requirements under the Specification "Maintenance and Protection of Traffic" and shall include but not be limited to:

- the traffic control equipment the Contractor proposes to use for the Works;
- traffic control signage including location and sign descriptions;
- how and when the Contractor proposes to use traffic control flag men;
- traffic control means during both working and non-working periods;
- traffic control means and devices for night and off-hour periods.
- traffic control measures for each stage of construction

l) Understanding of and means of ensuring due compliance with the statutory regulations relating to construction work in the Republic of the Philippines;

m) The powers vested in the Safety, Traffic and Environmental Control staff which would enable them to take urgent and appropriate and direct action to make safe the Site and prevent unsafe working practices, undue disruption to the environment, correct improper or inadequate traffic control measures or other infringements of the Safety, Traffic and Environmental Control Plan or statutory regulations;

Method by which the Safety, Traffic and Environmental Control Plan procedures and practices proposed by subcontractors will be reviewed for compliance with the Site Safety Plan and statutory regulations;

q) A complete listing of all the safety equipment and protective clothing which will be required for the Works, including the quantity, sourcing, standards of manufacture, storage provisions and means of ensuring proper utilization by all workmen and staff employed directly or indirectly by the Contractor. Such equipment shall include, but not be limited to, reflective safety vests, protective footwear, fire extinguishers, first aid equipment and hard hats.

r) The frequency of the inspection, testing and maintenance of the safety equipment, scaffolds, guardrails, ladders and other means of access, lifting, lighting, signing, and guarding equipment and the standards below which such items will be removed from the Site and replaced;

s) The means and frequency by which the Safety, Traffic and Environmental Control systems will be inspected, supervised and audited by the Safety Officer to ensure due compliance with the principles and objectives of the Safety, Traffic and Environmental Control Plan at all levels of construction;

t) Records to be prepared and maintained by the Safety Officer and the Safety, Traffic and Environmental Control staff and communication procedures to be adopted by the Safety Officer such that the Engineer and others associated with the Works (e.g., Subcontractor) are kept fully informed on matters relating to site safety and industrial health and environmental regulations throughout the period of the Contract;

u) Proposals to ensure that construction methods do not compromise the Contractor's commitment to the Safety, Traffic and Environmental Control Plan or his compliance with statutory regulations.

2.7 SAFETY & ENVIRONMENT OFFICER OR SEO

a) The Contractor shall appoint a Safety & Environment Officer whose duties throughout the period of the Contract shall be entirely connected with the Safety, Traffic and Environmental Control activities on the Site.

b) The SEO shall be fluent in English and be a suitably qualified and experienced person who shall supervise and monitor compliance with the Safety, Traffic and Environmental Control Plan and shall, in particular but without limitation, carry out auditing of the operation of the CHSP-STEP.

c) The SEO shall be subject to the Engineer's approval prior to mobilization.

d) The Contractor's SEO is responsible for ensuring that all safety-related provisions are met. The Employer shall instruct the Contractor to replace the SEO for continued failure to make corrective

actions even after being reminded by the Engineer. Repeated occurrences will be the responsibility of the contract's site manager.

e) The Contractor shall not undertake any works on the Site until the SEO has mobilized to the Site unless otherwise specifically agreed to in writing by the Engineer.

f) The Contractor shall not remove the SEO from the site without the express written permission of the Engineer. Within fourteen (14) days of any such removal or notice of intent of removal, the Contractor shall nominate a replacement SEO for the Engineer's approval.

g) The Contractor shall provide the SEO with supporting staff in accordance with the staffing levels set out in the Safety, Traffic and Environmental Control Plan.

h) The Contractor shall empower the SEO and his staff to instruct employees of the Contractor or of its Subcontractors to cease operations and take urgent and appropriate action to make safe the Site and prevent unsafe working practices or other infringements of the Safety, Traffic and Environmental Control Plan or the statutory regulations.

i) The Contractor shall ensure that the SEO maintains a daily site records, whereas such records shall comprehensively recorded all relevant matters concerning site safety, environmental and traffic control, inspections and audits, related incidents and the like. The site records shall be available at all times for inspection by the Engineer.

j) If in the Engineer's opinion, the SEO demonstrates his incapacity to undertake the position, the Engineer will request a replacement. A suitable replacement must be proposed by the Contractor within 3 days, and if acceptable, mobilized within 14 days of the request.

2.6.2 Safety Officers Lines of Communication

The Contractor's Staff Organization Plan shall show direct lines of communication and reporting between the SEO and the Contractor's Project Manager and between the SEO and the Contractor's Director responsible for the Contract. The Contractor's managing director shall instruct and require (in writing) the Project Manager and the SEO to be directly accountable in all matters concerning site safety, environmental aspects and proper traffic control.

2.11 SAFETY REPORTS

The Contractor shall submit regular site safety and environmental reports to the Engineer as a requirement of the CHSP-STEP.

A summary report shall be submitted as part of the Monthly Progress Report. Prior to submission, the Contractor's Project Manager shall endorse the Report. Site safety reports shall comprehensively address all relevant aspects of site safety, environmental and industrial health regulations and, in particular, report on all site safety and environmental inspections/ audits undertaken during the period covered by the report.

2.12 BREACHES OF CHSP-STEP

Any serious breaches of the CHSP-STEP or the statutory regulations or disregard for the safety or

environmental measures of any persons may be the reason for the Engineer or Employer to exercise their authority to require the Contractor's employee, Subcontractor's employee, the SEO's and/ or the Contractor's Project Manager's removal from the Site. In the case where the deficiency or neglect is serious enough to warrant the SEO's removal, the Contractor will be instructed to stop work, until an acceptable replacement is mobilized. This will not be considered as a basis for an extension of time.

2.13 SUB-CONTRACTOR'S SAFETY PLAN

a) The Contractor shall provide his Subcontractors with copies of the CHSP-STEP and shall incorporate into all sub-contract documentation provisions to ensure the compliance with such plan at all tiers of the sub-contracting.

b) The Contractor shall, unless the Engineer's approval in writing is given, require all subcontractors to appoint a safety representative who shall be available on the Site throughout the operational period of the respective sub-contract. In the event of the Engineer's approval being given, the SEO or safety staff, without prejudice to their other duties and responsibilities, shall ensure as far as is practically possible, that employees of subcontractors of all tiers are conversant with appropriate parts of the CHSP-STEP and the statutory regulations.

2.14 SAFETY MEETINGS

The Contractor shall convene regular safety meetings in accordance with the CHSP-STEP and shall require attendance by the SEO and safety representatives of Subcontractors unless otherwise agreed by the Engineer. All safety meetings shall be notified in advance to the Engineer, who may attend in person or by his representative at his discretion. The minutes of all safety meetings shall be taken, and recorded in English and sent to the Engineer within seven (7) days of the meeting.

2.11 SAFETY EQUIPMENT AND CLOTHING

The Contractor shall ensure that safety equipment and protective clothing as described in the CHSP-STEP are available on the site at all times and that measures for the effective enforcement of proper utilization and necessary replacement of such equipment and clothing is incorporated into the CHSP-STEP. The failure of the Contractor to provide the necessary equipment will be considered as a basis for payment deductions.

2.12 SAFETY INSPECTIONS

The Contractor shall regularly inspect, test and maintain all safety equipment, scaffolds, guardrails, ladders and other means of access, lifting, lighting, signing and guarding equipment. Lights and signs shall be kept clear of obstructions and legible to read. Equipment, which is damaged, dirty, incorrectly positioned or not in working order, shall be repaired or replaced immediately.

2.13 FIRST AID BASE

The Contractor shall establish, maintain and regularly furnish first aid equipment at all camps and work sites to the satisfaction of the Engineer. This equipment should be capable of treating routine, minor construction related injuries such as abrasions or bruises. All serious injuries should be treated at a local hospital.

2.16 SAFETY INFORMATION AND TRAINING

a) The Contractor shall ensure that safety and industrial health matters are given a high degree of publicity to all persons regularly or occasionally on the Site.

b) The Contractor shall conduct regular on-site safety training courses. The frequency, coverage and application of which shall be in accordance with the CHSP-STEP. The Contractor shall require that all Subcontractors' employees participate in relevant training courses appropriate to the nature, scale and duration of the subcontract works.

2.17 PLANT & EQUIPMENT

All Construction Plant and equipment used on or around the Site shall be fitted with appropriate safety devices.

2.16 QUALIFIED PERSONNEL

The Contractor must ensure that only suitably qualified personnel shall operate all Construction Plant and equipment used on or around the Site.

2.17 NOTIFICATION OF ACCIDENTS

The Contractor shall notify the Engineer immediately when any accidents occur whether on-site or off-site in which the Contractor, his personnel or Construction plant, or those of his Subcontractors are directly or indirectly involved and which result in any injuries to any persons. Such initial notification may be verbal and shall be followed by a written comprehensive report, explaining the cause of the accident within 24 hours of the accident. Prescribed forms and templates by the Government shall be secured and used by the Contractor in the reporting of accidents or Workplace Incidents, including complying with procedures on matters related to accident or incident investigation.

2.18 ASSISTANCE TO THE ENGINEER

The Contractor shall provide full co-operation and assistance in all safety, traffic and environmental control surveillance carried out by the Engineer or the Employer. Any and all deficiencies noted by the Engineer shall be rectified immediately.

2.19 PAYMENT

Performance Rating (PR)

A Performance Rating for Safety, Traffic and Environmental Management for the period covered shall be generated based on the daily performance as reflected in the Safety and Environmental Monitoring Form or SEMF. A compliance performance rating (expressed as percentage of complied monitoring indicators exhibited) of the contractor will be calculated based on the submitted SEMF.

Suggested Computation to generate the contractor's PR:

PR = (Total Number of YES/ Total Number of YES + Total Number of NO) x 100

The performance rating is expressed as percentage based on the contractors daily compliance or a YES determinations with all the identified safety and environmental impact mitigating measures (or monitoring indicators) during the monitoring period.

The performance rating scale is established as follows:

Excellent	97-100% Performance Rating
Good	≥ 85% Performance Rating
Poor	< 85% Performance Rating

Penalty

The mobilization of SEO onsite and submission of the approved CHSP-STEP will be required from the contractor during their first billing request. Non-compliance will result to withholding of the billed amount under Safety, Health and Environment, until the requirements are met.

The ECM Performance Rating during the monitoring period will be incorporated in the estimation of billing for the completed work or deliverables by Contractor. The corresponding monthly Performance Rating (PR) of the project contractors shall be used in the payment of the Safety, Traffic and Environment billable pay item. The deducted amount (percentage value between 100% and PR) will be accounted as their recorded & documented penalty for non-compliance of a particular parameter/s or indicator/s during the monitoring period. Low or decreasing PR means higher progressing penalty amount for the particular contractor.

All costs necessary for and associated with maintenance and control of traffic shall be measured for payment, but shall be paid under Construction Safety and Health Program and Environmental Monitoring Program.

Pay Item	Description	Unit
A.3	Maintenance, Safety & Health Program and Environmental Monitoring	lot

I. CIVIL WORKS

ACTIVITY No. 102: MANUAL PATCHING OF UNPAVED ROAD SURFACES

Description of Activity

Use this activity for correcting minor surface erosion, ruts, corrugations, potholes, etc. on short sections by using labor-intensive methods, and by adding new materials. Replenishing short sections of wearing surface (each with a continuous length of not more than 30 meters) is included .

Purpose

To eliminate hazardous conditions and to provide smooth, well-drained surfaces.

Schedule of Application

Schedule repairs of hazardous conditions as soon as possible. Schedule repairs of non-hazardous conditions when defects control traffic speeds or threaten the structure of the road surface. If possible, schedule when natural moisture facilitates compaction. Schedule this activity when subgrade failures (soft spots) are already corrected.

Construction Method

a. Place safety devices.
b. Restore shape of roadway surface.
c. Place material in layers to facilitate compaction.
d. Compact each layer.
e. Shape surrounding surface or dig outlet channels through high areas of surface, if needed, to allow water to drain to the ditch. Report said high areas to PRMF Resident Engineer and Provincial Engineer for scheduling of needed corrective action.
f. Check cross-section, profile and drainage. Re-work if needed.
g. Remove safety devices.

Typical Crew	**Typical Equipment**	**Typical Materials**
3-6 laborers	1 Vibratory plate compactor (if available)	Surface/ Base/ Subbase
	Hand tools	
	Safety devices	

Daily Production Rate

8-12 cubic meters of patching material placed.

Material Requirements

Surface Course

The aggregate shall consist of hard, durable particles or fragments of stone or gravel and sand or other fine mineral particles free from vegetable matter and lumps or balls of clay and of such nature that it can be compacted readily to form a firm, stable layer. It shall conform to the grading requirements shown in table 300.1 when tested by AASHTO T 11 and T 27.

Table 300.1 – Grading Requirements

Sieve Designation		**Mass Percent Passing**			
Standard Mm	Alternate U. S. Standard	Grading A	Grading B	Grading C	Grading D
25	1”	100	100	100	100
9.5	3/8	50-85	60-100	-	-
4.75	No.4	35-65	50-85	55-100	70-100
2.00	No. 10	25-50	40-70	40-100	55-100
0.425	No.40	15-30	25-45	20-50	30-70
0.075	No. 200	5-20	5-20	6-20	8-25

The coarse aggregate material retained on the 2.00 mm (No.10) sieve shall have a mass percent of wear by the Los Angeles Test (AASHTO T 96) of not more than 45.

When crushed aggregate is called for in the Bill of Quantities, not less than fifty (50) mass percent of the particles retained on the 4.75 mm (No. 4) sieve shall have at least one (1) fractured face.

The fraction passing the 0.075 mm (No.200) sieve shall not be greater than 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 a plasticity index range of 4 to 9, when tested by AASHTO T 89 and T 90, respectively.

Materials for gravel surface course and crushed aggregate surface course shall have a soaked CBR Value of not less than 25% and 80% respectively 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.

Base Course

Aggregate for base course 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 base.

In some areas where the conventional base course materials are scarce or non-available, the use of 40% weathered limestone blended with 60% crushed stones or gravel shall be allowed, provided that the blended materials meet the requirements of this Item.

The base course material shall conform to Table 201.1, whichever is called for in the Bill of Quantities

Table 201.1 – Grading Requirements

Sieve Designation		**Mass Percent Passing**	
Standard, mm	Alternate US Standard	Grading A	Grading B
50	2”	100	
37.5	1-1/2”	-	100
25.0	1”	60 – 85	-
19.0	¾”	-	60 – 85
12.5	½”	35 – 65	-
4.75	No. 4	20 – 50	30 – 55
0.425	No. 40	5 – 20	8 – 25
0.075	No. 200	0 – 12	2 – 14

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 25 and plasticity index not greater than 6 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 test determined by AASHTO T 96.

The material passing the 19 mm (3/4 inch) sieve shall have a soaked CBR value of not less than 80% as determined by AASHTO T 193. The CBR value shall be obtained at the maximum dry density (MDD) as determined by AASHTO T 180, Method D.

If filler, in addition to that naturally present, is necessary for meeting the grading requirements or for satisfactory bonding, it shall be uniformly blended with the base course material on the road or in a pugmill unless otherwise specified or approved. Filler shall be taken from sources approved by the Engineer, shall be free from hard lumps and shall not contain more than 15 percent of material retained on the 4.75 mm (No. 4) sieve.

Subbase Course

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.

Method of Measurement

The quantity of manual patches of road to be paid shall be the total cubic meters of materials which have been consumed and accepted by the Engineer.

Basis of Payment

The quantity of completed patching of and compacted surface as provided above shall be paid for at the contract unit price per cubic meter. Payment shall constitute full compensation for providing, transporting, placing and compaction for preparation of failure, and, compacting of the road surface and for all labor, equipment, tools to complete this item, including the required traffic control.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
102	Manual Patching of Unpaved Road	Cubic Meter

Note: * The type of material should be the same as or better than the existing or former surface material.

1/ Use Act. 103 for continuous sections longer than 30 meters.
1/ Use Act. 61X for section longer than 200 meters.

ACTIVITY NO. 104: MACHINE GRADING OF UNPAVED ROAD SURFACES

Description of Activity

Use this activity for correcting minor surface erosion, ruts, corrugations, potholes, depressions, etc. and restoring the surface crown by using a road grader. Reclaiming surface materials and reshaping of ditches, if needed, are included. However, adding new materials and/or surface widening are not included.

Purpose

To provide smooth, well-drained surfaces. Reclaiming surface material and ditching are secondary purposes.

Schedule of Application

Schedule when defects control traffic speeds or threaten the structure of the road surface. Schedule ditching when there is a need 1/. Schedule a roller only when there is sufficient natural moisture for

compaction 2/. Defects that cannot be removed by scarifying, such as subgrade failures (soft spots) 3/, should be corrected first prior to scheduling this activity.

Construction Method

a. Place safety devices.
b. Scarify or cut surface to remove potholes, erosion scars, corrugations, high areas, etc.
c. Clean and re-cut ditches and outlets/turnouts. Remove spoil material from culvert inlets and outlets.
d. Reclaim suitable material from ditches and sides.
e. Remove oversize or unsuitable material.
f. Blend reclaimed material with scarified surface materials.
g. Spread, reshape and compact.
h. Check cross section, profile and drainage. Rework if needed.
i. Remove safety devices.

Typical Crew	Typical Equipment	Typical Materials
1-2 operators (if roller is used)	Road grader	None
2 laborers	Pneumatic roller (if available)	
	Hand tools	
	Safety devices	

Daily Production Rate:
2-5 centerline kilometers graded.

Method of Measurement

The quantity of graded road to be paid, shall be the number of centerline kilometers of road which has been cut, graded, compacted and accepted by the Engineer.

Basis of Payment

The quantity of completely graded and compacted surface as provided above shall be paid for at the contract unit price per kilometer, which price and payment shall constitute full compensation for leveling, grading, shaping, compacting and watering of the surface and for all labor, equipment, tools to complete this item, including required traffic control.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
104	Machine Grading Of Unpaved	Centerline Kilometers

	Road Surfaces	

ACTIVITY No. 141: MANUAL DITCH CLEANING (Lined and Unlined)

Description of Activity

Use this activity for reshaping ditches that do not have adequate flow lines or cross-sections or for cleaning obstructed ditches (lined or unlined) by using labor-intensive methods. Digging new ditches is included if short (up to 100 m.) and work is comparable to reshaping a silted ditch.

Purpose

To provide functional ditches.

Schedule of Application

Schedule when ditches are silted or otherwise obstructed. Emphasize prior to rainy season and when surface defects are caused by inadequate drainage.

Construction Method

a. Start cleaning or digging from the downstream side or from the discharge point.
b. Remove debris from the ditch.
c. Reshape unlined ditch to an adequate flow line and cross-section.
d. Final unlined ditch elevations should match culvert inlet and outlet elevations.
e. Place ditch waste material in a safe location that does not obstruct drainage.
f. Dig shoulder outlet channels, if needed, to allow water to drain, and report this condition to PEO Area Engineer for scheduling of needed corrective action.

Labor Requirements

Typical Crew	Typical Equipment	Typical Materials
3 laborers	Hand Tools	None

Daily Production Rate

450 ditch meters cleaned

Method of Measurement

Measurement will be made by the linear meter of ditch acceptably cleaned, irrespective of the kind or dimensions involved.

Basis of Payment

The quantities as provided in the Method of Measurement shall be paid for at the contract price bid per meter, which price and payment shall be full compensation for digging, cleaning, disposing of debris and the provision of necessary tools.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
141	Manual Ditch Cleaning	meters

ACTIVITY No. 142: MANUAL CLEANING OF CULVERT INLET/OUTLET/CATCH BASINS

Description of Activity

Use this activity for removing obstructions at culvert inlets and outlets, in manholes, in catch basins and in drop inlets, using labor-intensive methods. This activity does not include inspection.

Purpose

To provide functional drainage structures.

Schedule of Application

Schedule when needed, as indicated by PRMF Provincial Resident Engineer and Provincial Engineer inspections. Emphasize prior to rainy season and where surface defects have been caused by inadequate or clogged drainage.

Construction Method

a. Remove debris from inlets and outlets.
b. Remove obstructions that would not normally wash out.
c. Place waste material in a safe location that does not obstruct drainage or waste on site.
d. Report structural failures and eroded areas to Area Engineer.

Labor Requirements

Typical Crew	Typical Equipment	Typical Materials
3 laborers	Hand tools	none

Daily Production Rate

6 - 12 inlets, outlets, catch basins or manholes cleaned

Method of Measurement

Measurement of drainage inlet/outlet cleaned will be made by actual count of the total number of units of each type acceptably completed.

Basis of Payment

The quantities as provided in the Method of Measurement shall be paid for at the contract price bid per meter, which price and payment shall be full compensation for cleaning, disposing of debris and the provision of necessary tools.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
142	Manual Cleaning Of Culvert Inlet/Outlet/Catch Basins	Number of Units

ACTIVITY No. 143: CULVERT LINE/BARREL CLEANING

Description of Activity

Use this activity when line/barrel of culvert is not functioning to remove silted materials using labor-intensive methods. Includes cross drainage and lateral lines.

Purpose

To provide functional culvert lines.

Schedule of Application

Schedule when culvert lines/barrels are not functioning efficiently due to clogging, with emphasis prior to rainy season.

Construction Method

a. Remove silted materials at culvert lines/barrel.
b. Remove obstructions that would not normally wash out.
c. Place waste material in a safe location that does not obstruct drainage or waste on site.
d. Report structural failures and eroded areas to Area Engineer.

Labor Requirements

• **Typical Crew**	**Typical Equipment**	**Typical Materials**
4 laborers	Hand tools	None
	Safety devices	

Daily Production Rate

1 - 3 lines cleaned

Method of Measurement

Measurement of culvert line/barrel cleaned will be made by actual count of the total number of units of each type acceptably completed.

Basis of Payment

The quantities as provided in the Method of Measurement shall be paid for at the contract price bid per unit (line), which price and payment shall be full compensation for cleaning, disposing of debris and the provision of necessary tools.

Payment will be made under:

• **Pay Item Number**	**Description**	**Unit of Measurement**
143	Culvert Line/Barrel Cleaning	Number of lines

ACTIVITY No. 201: VEGETATION CONTROL

Description of Activity

Use this activity for removing vegetation and cutting and clearing brush out of roadside areas.

Purpose

The primary purpose is beautification.

Schedule of Application

Schedule when the vegetation within the mowing limits reaches an average height of fifteen centimeters (15 cm). If possible, avoid scheduling for secondary roads and in built-up areas where residents mow the vegetation.

Construction Method

a. By means of hand tools, cut and remove all debris and vegetation in a distance from the road determined by the PRMF Resident Engineer and Provincial Engineer.
b. Place safety devices during repair works and to be removed after its completion.

Typical Crew	Typical Equipment	Typical Materials
4 laborers	2 grass cutter	None
	hand tools (bolo or scythe)	

Daily Production Rate

200 - 500 pass-meters

Method of Measurement

The work to be paid for shall be the number of pass-meters and fractions thereof acceptably cleared and grubbed within the limits indicated on the Plans or as may be adjusted by the PRMF Provincial Coach and Provincial 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.

Basis of Payment

The accepted quantities, measured as prescribed in the Method of Measurement, shall be paid for at the Contract unit price which 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
201	Vegetation Control	pass-meters

Notes:

A "Passmeter" is one mowing on one side of the road regardless of the width. Normally, one centerline meter of road (with both sides to be mowed) will have two pass-meters per mowing operation.

ACTIVITY No. 303: GUARDRAIL MAINTENANCE

Description of Activity

Use this activity for repairing, repainting or replacing guardrails and posts.

Trimming vegetation to improve guardrail visibility and cleaning guardrails are included, if incidental to work.

Purpose

To maintain guardrails in as-constructed condition.

Schedule of Application

Schedule when guardrail installations have lost their original strength, alignment or visibility.

Construction Method

1. Place safety devices.

2. Perform maintenance in accordance with current traffic control devices guidelines.

3. Remove safety devices.

Material Requirements

General

Paint, except, aluminum paint, shall consist of pigments of the required fineness and composition ground to the desired consistency in linseed oil in a suitable grinding machine, to which shall be added additional oil, thinner and drier as required.

Aluminum paint shall consist of aluminum bronze powder or paste of the required fineness and composition to which shall be added the specified amount of vehicle.

The paint shall be furnished for use in ready mixed, paste or powder form.

All paint shall meet the following general requirements:

a. The paint shall show no excessive settling and shall easily be redispersed with a paddle to a smooth, homogenous state. The paint shall show no curdling, levering, caking or color separation and shall be free from lumps and skins.

b. The paint as received shall brush easily, possess good leveling properties and shall show no running or sagging when applied to a smooth vertical surface.

c. The paint shall dry to a smooth uniform finish free from roughness grit, unevenness and other imperfections.

d. The paint shall not skin within 48 hours in three quarters filled closed container.

e. The paint shall show no thickening, curdling, gelling or hard caking after six (6) months storage in full, tightly covered container at a temperature of 210C (700F).

Material Specifications:

Latex Paint		
Flat	-	PNS 139 : 1995
Semi-Gloss	-	PNS 463 : 1991
Gloss	-	PNS 462 : 1991
Enamel Paint		
Flat Wall	-	PNS 227 : 1989
Semi-Gloss	-	PNS 225 : 1995
Gloss	-	PNS 226 : 1995
Quick Dry	-	PNS 224 : 1995
RED LEAD PAINT	-	ASSHTO M 72
RED OXIDE PAINT	-	ASSHTO M 312
ALUMINUM PAINT	-	ASSHTO M 69

TRAFFIC PAINT

Philippine Bureau of Standards (PBS)

Standard Administrative Order (SAO) : No. 378 Series of 1979

Philippine Standard Specification for Reflectorized Traffic Paint, Pre-Mixed

Premixed Reflectorized Traffic Paint – A paint in which the glass beads are mixed in the paint during the process of manufacture, so that upon application and drying the paint line is capable of retro-reflection of the light beams.

SPECIFICATIONS: TRAFFIC PAINT

Philippine Bureau of Standards (PBS)

Standard Administrative Order (SAO) : No. 378 Series of 1979

Philippine Standard Specification for Reflectorized Traffic Paint, Pre-Mixed

TWO TYPES, based on the vehicle used:

1. Type I – Tung Oil Modified Oleoresinoud Varnish
2. Type II – Chlorinated Rubber Alkyd

Glass Beads – reflective spheres (retro reflective media) used in traffic paints. (500 g/liter of paint)

Drop-on or pressurized methods – paints may be reflectorized for night visibility by adding reflective spheres before the paint film dries or sets.

Rate: 5 to 6 lb. per gallon (600 to 720 kg/m of paint)

CLASSIFICATION OF PAINTS:

LATEX PAINT - intended for use on concrete or other masonry surfaces.

FLAT LATEX PAINT – Paint made from emulsions of polymer in water as binder with suitable pigment which is substantially free from gloss (Lusterless finish).

GLOSS/SEMI-GLOSS LATEX - the paint made from emulsion of polymer in water as binder with suitable pigment which has sheen, shine or luster.

ENAMEL PAINT - intended for used on wood surfaces, a special type of paint made with varnish as the vehicle.

FLAT WALL PAINT - for interior use, a paint made from alkyd resin as binder with suitable pigment which is substantially free from gloss.

GLOSS/SEMI-GLOSS PAINT- for exterior use, a paint made from alkyd resin as binder with suitable pigment which has sheen, shine or luster.

RED LEAD/RED OXIDE PAINT

- metal primers, for exterior and interior use. Use as a prime or shop cost or for maintenance coats which are placed on bridges, similar structural steel and other ferrous metal surfaces.

RED LEAD

- a bright orange-red tetroxide (Pb_3O_4), used as primary constituents of anti-corrosive primers for iron and steel.

RED OXIDE - a pigment mainly of ferric oxide (Fe_2O_3)

ALUMINUM PAINT - primarily intended for use on steel structures

REFLECTORIZED TRAFFIC PAINT (RTP)

- for zone marking, traffic lanes & parking spaces, should be rapid drying, resistant to abrasion & weather conditions and should possess improve visibility at night.

- Pavement marking materials that can be applied uniformly by means of a standard application and when properly applied will provide a retro-directive reflective marking for concrete & bituminous highway surface.

SAMPLING / MINIMUM TESTING REQUIREMENTS:

1 – Quality Test (Q.T.) – 100 gallon/100 pails or fraction thereof

Sample to be submitted should be the actual representative of the sample to be used in the project.

* 1 gallon or 1 pail whichever is used

TESTS ON PAINTS

For Latex, Enamel, Red Lead, Red Oxide and Aluminum Paints

I. PHYSICAL TESTS:

1. Density/Specific Gravity (ASTM D 1475)
2. Drying Time (ASTM D 1640)
3. Total Solids (Non-volatile Matter) (ASTM 1644/ISO 1515)
4. Extraction of Pigment (ASTM D 2371)
5. Coarse Particles (ASTM D 185) – red lead

CHEMICAL TESTS: PIGMENT ANALYSIS

For White Paint -% Titanium Dioxide (% TiO2)

For Red Lead -% True Red Lead (% Pb3O3)

-% Iron Oxide (% Fe2O3)

For Red Oxide -% Iron Oxide (% Fe2O3)

Tests on Reflectorized Traffic Paint

(White and Yellow)

I. PHYSICAL TESTS:

1. Density/Specific Gravity (ASTM D 1475)
2. No Pick-up Time (ASTM D 711)
3. Total Solids (Non-volatile Matter) (ASTM 1644/ISO 1515)
4. Extraction of Pigment (ASTM D 2371)
5. Extraction of Glass Beads (Decantation)
6. Grading of Beads (ASTM D 1214)
7. Amount of True Spheres (ASTM B 1155-Roundness)

II. CHEMICAL TESTS: PIGMENT ANALYSIS

For White RTP - % Titanium Dioxide (%TiO2)

For Yellow RTP - % Medium Chrome Yellow

% Lead Chromate (% PbCro4)

Labor Requirements

Typical Crew	Typical Equipment	Typical Materials
1 driver (use when service vehicle is assigned)	1 service vehicle (use when there are several repair locations for one day)	guardrail panels
4 laborers	hand tools	guardrail posts
	safety devices	traffic paint
		hardware

Daily Production Rate

- 20 linear meters of guardrail to be maintained

Method of Measurement

Guardrail maintenance shall be measured by linear meter of completed guardrail.

Basis of Payment

The accepted quantities for guardrail maintenance, determined in the Method of Measurement, shall be paid for at the contract unit price per linear meter, 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 Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
303	Guardrail Maintenance	meters

MAINTENANCE ACTIVITY QUANTITY STANDARDS:

No.	Maintenance Activity		
CARRIAGEWAY		Frequency	Activity
101	Manual repair of Unpaved Road Surface	12 times/year	Routine
102	Manual Patching of Unpaved Road Surface	9 times/year (at 25 cum/km)	Routine
103	Machine Patching of Unpaved Road Surface	3 times/year (25 cum/km)	Routine
104	Machine Grading of Unpaved Road Surface	3 times/year	Routine
61X	Re-gravelling of Unpaved Road Surface	once/year or as determined by the gravel loss formula	Periodic

ROADSIDE SHOULDER			
132	Manual Patching of Unpaved Road Shoulders	3 Times/ year (at 5 cubic meter/km)	Routine
133	Machine Grading of Unpaved Road Shoulders	3times/year	Routine
ROADSIDE DRAINAGE			
141	Manual Ditch Cleaning	4 times/year	Routine
142	Manual Inlet/Outlet Cleaning	4 times/year	Routine
143	Manual Culvert/ Line Cleaning	4 times/year	Routine
ROADSIDE VEGETATION			
201	Vegetation Control	4 times/year	Routine
TRAFFIC MAINTENANCE			
301	Road sign Maintenance	once/year	Routine
303	Guardrail Maintenance	once/year	Routine

QUALITY CONTROL PROGRAM: (MINIMUM TEST REQUIREMENTS)

ITEM 100 - *CLEARING AND GRUBBING*

Test: None
Document: 1 – Resident Engineer Certificate.

ITEM 101 - *REMOVAL OF STRUCTURES AND OBSTRUCTION*

Test: None
Document: 1 – Resident Engineer Certificate.

ITEM 102 - *EXCAVATION*

Test: Same as for Item 103, 104 and 105, whichever is applicable.

ITEM 103 - *STRUCTURE EXCAVATION*

If excavated materials are wasted, the volume involved shall be reported, so that quality control requirements may be adjusted accordingly. Submit Resident Engineer Certificate of Waste.

If excavated materials are incorporated into the work:

For every 1500m3 or fraction thereof:
- 1 - G , Grading Test
- 1 - P , Plasticity Test (LL, PL, PI)
- 1 - C , Laboratory Compaction Test

For every 150mm layer in uncompacted depth
- 1 - D , Field Density

ITEM 104 - *EMBANKMENT*

Tests: For every 1500m3 or fraction thereof.
- 1 - G, Grading Test
- 1 - P, Plasticity Test (LL, PL, PI)

1 - C, Laboratory Compaction Test

For each 500m2 of each layer of compacted fill or fraction thereof at least one group of three in-situ density tests. The layers shall be placed not exceeding 200mm in loose measurement or based on the result of compaction trials.

ITEM 105 - ***SUBGRADE PREPARATION***

Same as for Item 104

ITEM 106 - ***COMPACTION EQUIPMENT and DENSITY CONTROL STRIPS***

Tests: Same as for Item 104, 105, 200, 201, 202, 203, 204, 205, 206 and 300

ITEM 107 - ***OVERHAUL***

Tests: None

ITEM 200 - ***AGGREGATE SUBBASE COURSE***

Tests:

For every 300m3 or fraction **thereof**:

1 - G, Grading Test

1 - P, Plasticity Test (LL, PL, PI)

For every 1500m3 or fraction thereof:

1 - C, Laboratory Compaction Test

For every 2500m3 or fraction thereof:

1 - CBR, California Bearing Ratio Test

For every layer of 150 mm of compacted depth based on three results of compaction trials.

At least one group of three in-situ density tests for each 500m2 or fraction thereof.

ITEM 201 - ***AGGREGATE BASE COURSE***

Tests:

For every 300m3 or fraction thereof:

1 - G, Grading Test

1 - P, Plasticity Test (LL, PL, PI)

For every 1500m3 or fraction thereof:

1 - Q, Quality test for:

(Grading, Plasticity and Abrasion)

1 - C, Laboratory Compaction Test

For every 2500m3 or fraction thereof:

1 - CBR, California Bearing Ratio Test

For every layer of 150 mm of compacted depth based on the results of compaction trials.

At least one group of three in-situ density tests for each 500m2 or fraction thereof.

ITEM 202 - ***CRUSHED AGGREGATE BASE COURSE***

Tests: Same as for Item 201

For every 1500m3 or fraction thereof:

1 - F, Fractured Face

ITEM 300 - ***AGGREGATE SURFACE COURSE***

Tests:

For every 300 m3 or fraction thereof:

1 - G, Grading Test

1 - P, Plasticity Test (PL, LL, PI)

For every 1500 m3 or fraction thereof:

1 - C, Compaction Test

1 - Q, Quality Test for :(Grading, Plasticity and Abrasion)

For every layer of 150 mm of compacted depth/based on the results of compaction trials.

At least one group of three in-situ density tests for each 500m^2 or fraction thereof:

For crushed gravel or crushed stone, 1500 m3 or fraction thereof:

1 - F, Fractured Face

ITEM 311 - ***PORTLAND CEMENT CONCRETE PAVEMENT***

A. Cement

Quantity : 9.00 bags m3 (40 kg/bag)

Tests : For every 2000 bags or fraction thereof:

1-Q, Quality test

B. Fine Aggregate

Quantity :

1.) 0.50 m3/m3 concrete (if rounded coarse aggregate is used)

2.) 0.54 m3 / m3 concrete (if angular coarse aggregate is used)

Tests : For every 1500 m3 or fraction thereof:

a. For a source not yet tested, or failed in previous quality tests 1- Q, Quality Test For: Grading, elutriation (wash), bulk specific gravity, absorption, mortar strength, soundness organic impurities, unit weight, % clay lumps, and % shale

b. For a source previously tested and passed the quality tests:

1-Q, Quality test for: Grading, elutriation (wash), bulk specific gravity, absorption & mortar strength.

For every 75m3 or fraction thereof:

1-G, Grading test

C. Coarse Aggregate

Quantity:

1.) 0.77 m3 /m3 concrete (if rounded coarse aggregate is used)

2.) 0.68 m3 /m3 concrete (if angular coarse aggregate is used.)

Tests:

For every 1500 m3 or fraction thereof

a. For a source not yet tested, or failed in previous quality tests

1-Q, Quality test for: Grading, bulk specific gravity, absorption, abrasion, soundness and unit weight

b. For a source previously tested and passed quality tests :

1-Q, Quality test for : Grading, bulk specific gravity absorption and abrasion

For every 75 m3 or fraction thereof:
1-G, Grading test

D. Water

Tests: 1-- Certificate from Project Engineer or
1-Q, Quality test, if source is questionable

E. Joint Filler

1. Poured Joint Filler
Test: 1-Q, Quality test on each type of ingredient for each shipment
2. Premolded Joint Filler
Tests: 1-Q, Quality test on each thickness of filler for each shipment

F. Special Curing Agents

Tests; 1-Q, Quality test for each shipment

G. Steel bars

Tests: For every 10,000 kg or fraction thereof for each size
1-Q, Quality test for bending, tension and chemical analysis

H. Concrete

Tests: Flexural Strength Test on Concrete Beam Samples
1 -set consisting of three (3) beam samples shall represent a 330 m2 of pavement, 230 mm depth, or fraction thereof placed each day. Volume of concrete not more than 75 m3.

I. Completed Pavement

Tests: Thickness determination by concrete core drilling on a lot basis Five (5) holes per km per lane or five (5) holes per 500 m when two lanes are poured concurrently.

ITEM 405 - *STRUCTURAL CONCRETE*

A. Cement

Quantity: (40 kg/bag)
Class A - - 9.0 bags / m3 of concrete
Class B - - 8.0 bags / m3 of concrete
Class C - - 9.5 bags / m3 of concrete
Class P - - 11.0bags / m3 of concrete
Tests: For every 2000 bags or fraction thereof
1-Q. Quality Test

B. Fine Aggregate

Quantity:

	For Rounded (m3 / m3 of concrete)	**For Angular** (m3 / m3 of concrete)
Class A -	0.50	0.54
Class B -	0.45	0.52
Class C -	0.53	0.59
Class P -	0.44	0.47

Tests: For every 1500 m3 or fraction thereof:

a. For a source not yet tested or failed in previous quality test:

1-Q, Quality test for : grading, elutriation (wash), bulk specific gravity, absorption, mortar strength, soundness, organic impurities, unit weight, % Clay Lumps, and % Shale

b. **For a source previously tested and passed quality test:**

1-Q, Quality test for: grading, elutriation (wash), bulk specific gravity, absorption and mortar strength

For every 75 m3 or fraction thereof:

1-G, Grading test

C. **Coarse Aggregate**

Quantity

	For Rounded CA (m3 / m3 of concrete)	For Angular CA (m3 / m3 of concrete)
Class A -	0.77	0.68
Class B -	0.82	0.73
Class C -	0.70	0.68
Class P -	0.68	0.65

Tests: For every 1500 m3 or fraction thereof:

a. For a source not yet tested or failed in previous quality test:

1-Q, Quality Test for: grading, bulk specific gravity, absorption, abrasion, soundness and unit weight

b. For a source previously tested and passed quality test:

1-Q, Quality test for : Grading, Absorption, Bulk Specific Gravity and Abrasion

For every 75m3 or fraction thereof :

1-G. Grading Test

D. Water

Tests:

1-Certificate from Resident Engineer

1-Q, Quality test, if source is questionable

E. Premolded Filler for Expansion Joints

Tests:

1-Q, Quality test on each thickness of filler for each shipment

F. Steel Reinforcement

Tests:

1-Q, Quality test for every 10,000 kg or fraction thereof for each size

G. Concrete

Tests:

Compressive Strength test on concrete cylinder samples. 1 set consisting of 3 concrete cylinder samples shall be taken from each day's pouring and to represent not more than 75 m3 of concrete or

fraction thereof.

ITEM 411 - *PAINT*

Tests:

1-Q, One 20-L can for every 100 cans or fraction thereof
1-Q One 4-L can for every 100 cans or fraction thereof

Republic of the Philippines
Provincial Government of
Agusan del Sur

Australian AID

Department of Interior
and Local Government

PHILIPPINES PROVINCIAL ROAD MANAGEMENT FACILITY

TECHNICAL DRAWINGS

PW-ADS-13-02

REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)

A. GENERAL

TABLE OF CONTENTS

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT: PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY: ADOLPH EDWARD G. PLAZA, PROVINCIAL GOVERNOR, DATE:

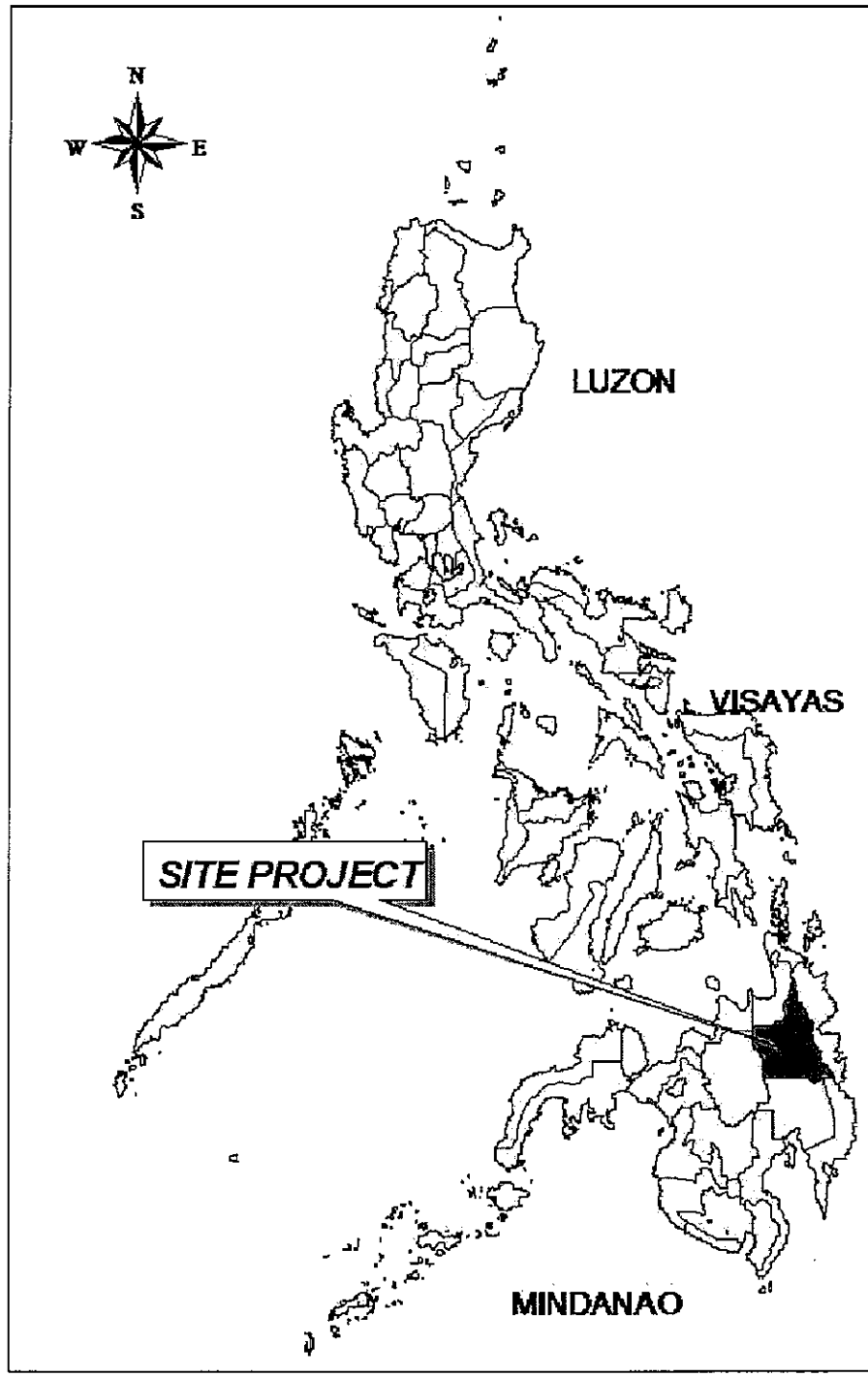
SUBPROJECT NAME: REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW-ADS-13-02
LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

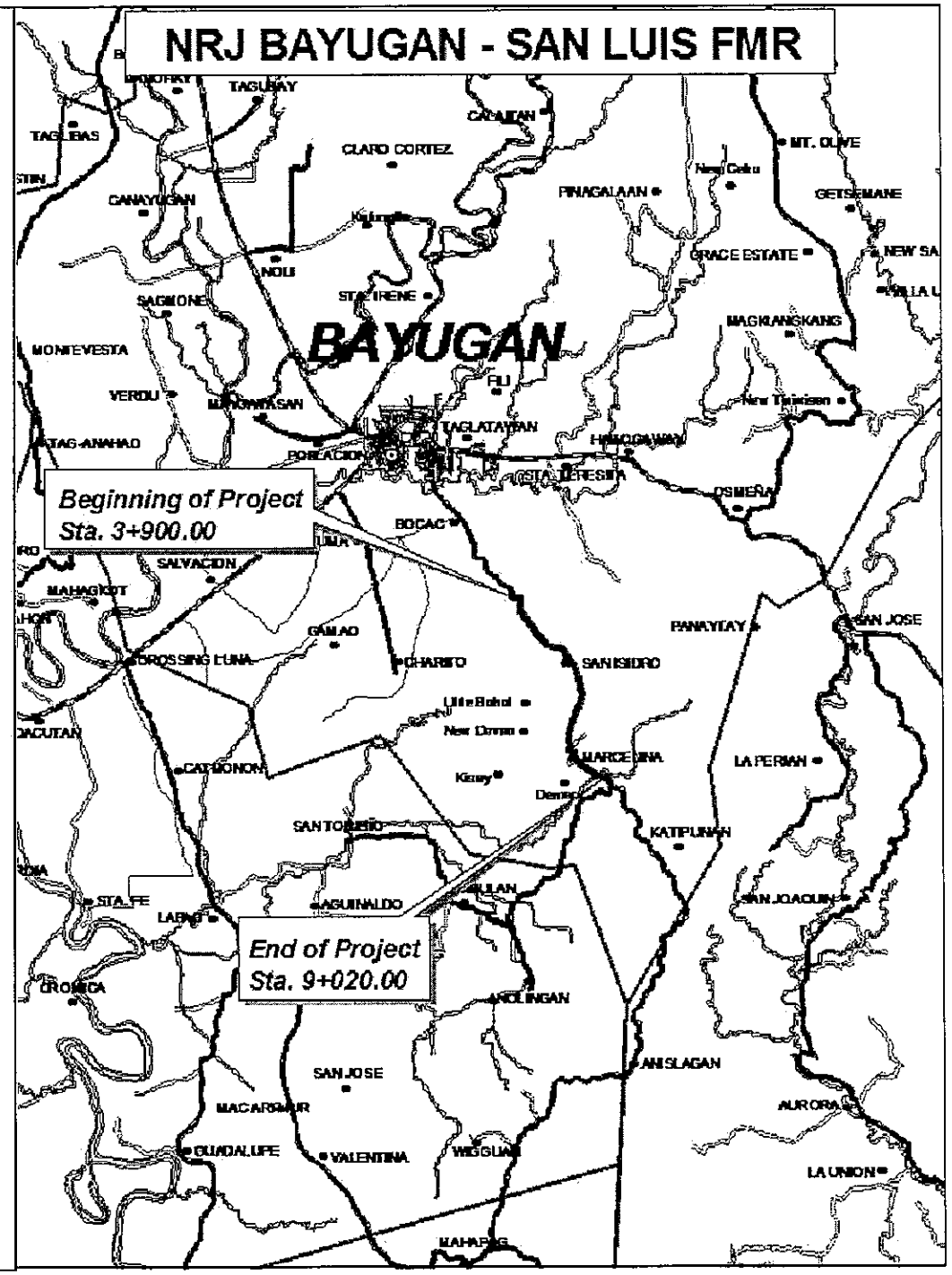
APPROVED BY: GRAHAM JOHNSON-JONES, MANAGER - PHYSICAL WORKS

SHEET CONTENTS: TABLE OF CONTENTS
SCALE: AS SHOWN

DWG NUM: RH G-01
SHEET 01 OF 23

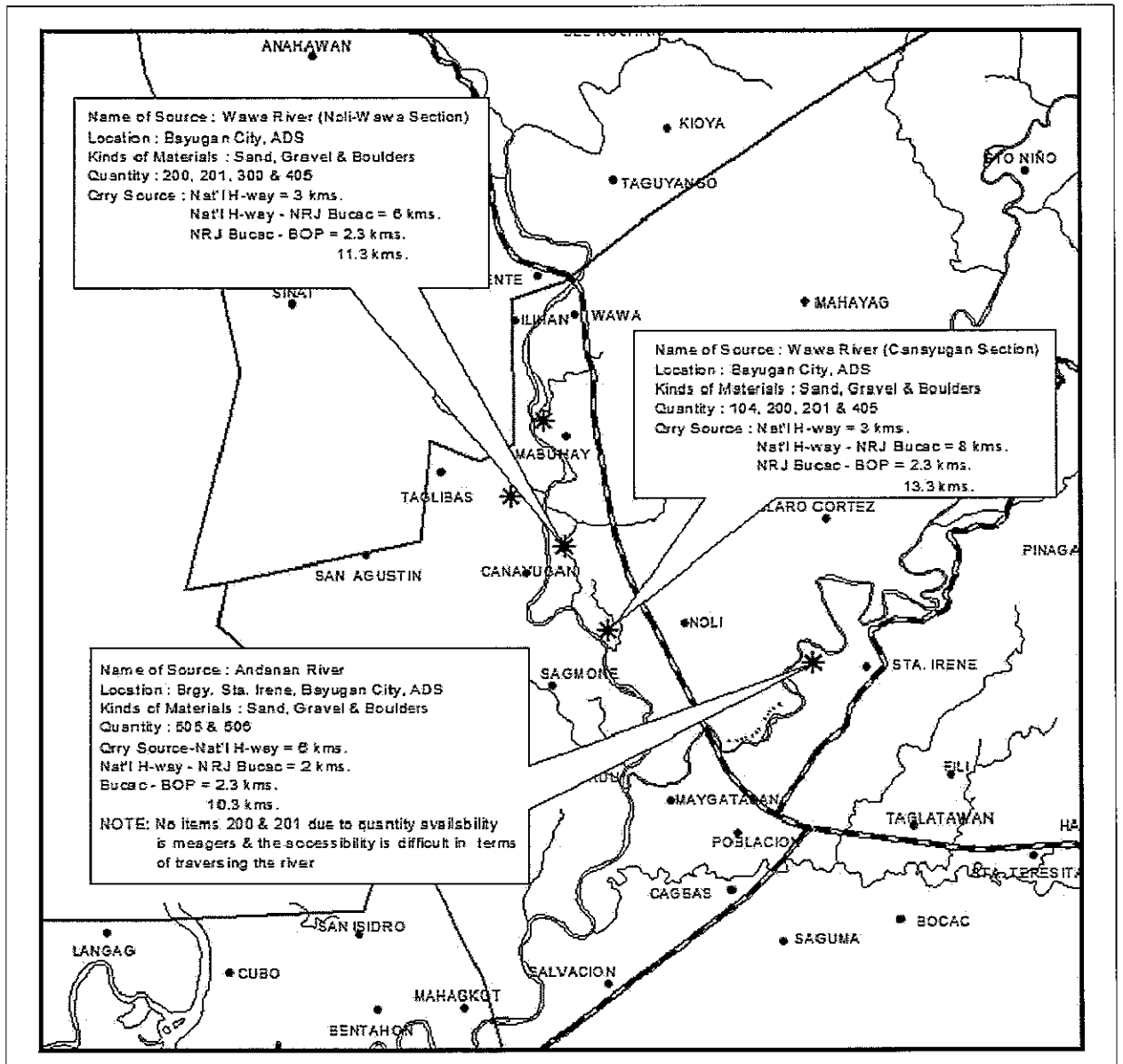


VICINITY MAP



LOCATION MAP

Australian AID / PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)	PRIMARY PROPONENT: PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR — PATIN-AY PROSPERIDAD AGUSAN DEL SUR	CONFORMED BY: ADOLPH EDWARD G. PLAZA, PROVINCIAL GOVERNOR, DATE:	SUBPROJECT NAME: REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION); PROJECT CODE: PW-ADS-13-02; LOCATION: BAYUGAN, AGUSAN DEL SUR		NAME:	POSITION:	SIGNATURE:	DATE:	APPROVED BY:	SHEET CONTENTS:	DWG NUM:
				DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER – I			GRAHAM JOHNSON-JONES, MANAGER – PHYSICAL WORKS	LOCATION & VICINITY MAP	RH G-02
				PREPARED BY:	BLANCA MIOG	ENGINEER – I					
				ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER				SCALE: NTS	SHEET 02 OF 23



Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:

PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR

PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:

ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR

DATE:

SUBPROJECT NAME:

REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)

PROJECT CODE: PW-ADS-13-02

LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:

GRAHAM JOHNSON-JONES
MANAGER - PHYSICAL WORKS

SHEET CONTENTS:

MATERIALS SOURCE MAP

SCALE: NTS

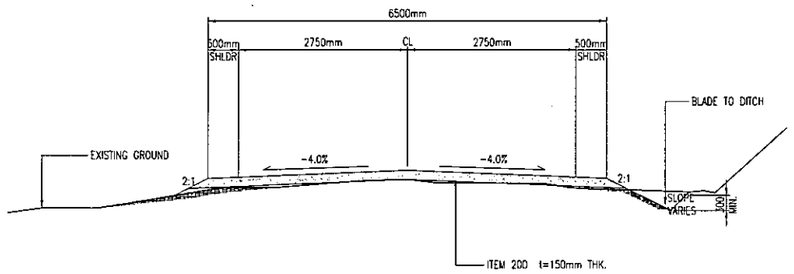
DWG NUM: RH G-03

SHEET 03 OF 23

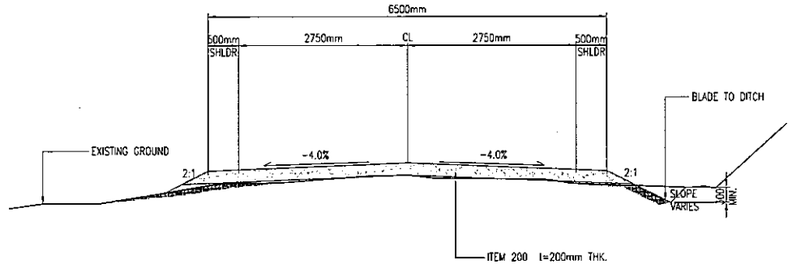
Project	:	**Rehabilitation and Minor Improvement of NRJ-Bayugan-San Luis Road(Bucac-Marcelina Section)**
Contract Reference	:	**PW-ADS-13-02**
Location	:	**Agusan Del Sur**

PAY ITEM NO.	DESCRIPTION	UNIT	QTY
(1)	(2)	(3)	(4)
Part B - Other General Requirements			
B.1	Mobilization and Demobilization	lot	1.00
B.2	Setting Out and Staking	lot	1.00
B.3	Construction Health and Safety Requirements and Environmental Monitoring	lot	1.00
B.4	Monthly Progress Report and Schedule Of Works	lot	1.00
B.5	Project Sign Board	each	2.00
Part C - Earthworks			
100(1)	Clearing and Grubbing	ha.	1.07
101(1)	Removal of Existing Guardrails	lin.m.	137.16
103(6)	Pipe Culvert and Drain Excavation	cu.m.	75.82
105(2)	Subgrade Preparation (Existing pavement)	sq.m.	25,855.18
Part D - Subbase and Base Course			
200	Aggregate Subbase Course	cu.m.	4,777.63
Part G - Drainage and Slope Protection Structures			
500(1)c	RCPC, 910mm ø Class II	lin.m.	16.00
504(3)a	Cleaning Pipe Culvert in place (760mmø and below)	lin.m.	120.00
504(3)b	Cleaning Pipe Culvert in place (910mmø and up)	lin.m.	63.00
504(4)	Cleaning/Reconditioning existing RCBC	lin.m.	14.00
505(5)	Grouted Riprap (Ditch and Headwall)	cu.m.	214.33
Part H - Miscellaneous Structures			
603(3)a	Metal Guardrail - Class A,Type I (Metal Beam), including concrete post	lin.m.	167.64
603(3)b	Metal Guardrail End Piece	pcs	16.00
605(4)	Project Information Sign	each	1.00

B. ROADWAY



A RD-01 TYPICAL SECTION-1 (150mm THK.)
SCALE 1:50 M



B RD-01 TYPICAL SECTION-2 (200mm THK.)
SCALE 1:50 M

GRAVEL THICKNESS SCHEDULE

STATION LIMITS		FINAL RECOMMENDED THICKNESS (mm)	LENGTH OF LIMITS (m)	REMARKS
0+000.00	0+240.00	200	240.00	Typical Section 2
0+240.00	0+260.00	200-150	20.00	Transition
0+260.00	0+541.37	150	281.37	Typical Section 1
0+541.37	0+561.65	0	20.28	Existing BRIDGE
0+561.65	0+828.50	150	266.85	Typical Section 1
0+828.50	1+238.00	0	409.50	Existing PCCP
1+238.00	1+480.00	200	242.00	Typical Section 2
1+480.00	1+500.00	200-150	20.00	Transition
1+500.00	1+730.00	150	230.00	Typical Section I
1+730.00	1+750.00	150-200	20.00	Transition
1+750.00	2+449.10	200	699.10	Typical Section 2
2+449.10	2+660.60	0	211.50	Existing PCCP
2+660.60	3+000.00	150	339.40	Typical Section I
3+000.00	3+020.00	150-200	20.00	Transition
3+020.00	3+250.00	200	230.00	Typical Section 2
3+250.00	3+270.00	200-150	20.00	Transition
3+270.00	3+533.10	150	263.10	Typical Section I
3+533.10	4+014.60	0	481.50	Existing PCCP
4+014.60	4+500.00	200	485.40	Typical Section 2
4+500.00	4+520.00	200-150	20.00	Transition
4+520.00	5+026.50	150	506.50	Typical Section I
5+026.50	5+046.00	0	19.50	Existing BRIDGE
5+046.00	5+120.00	150	74.00	Typical Section I
		TOTAL GROSS LENGTH	**5,120.00**	
		EXISTING PCCP & BRIDGE LENGTH	**1,142.28**	
		TOTAL NET LENGTH	**3,977.72**	

ADS ROAD WIDTH

STATION		LENGTH (m)	PROPOSED ROAD WIDTH (m)
FROM	TO		
0+000.00	0+541.37	541.37	6.50
0+541.37	0+561.65	20.28	Existing BRIDGE (6.5m.)
0+561.65	0+808.50	246.85	6.50
0+808.50	0+828.50	20.00	Transition
0+828.50	1+238.00	409.50	Existing PCCP (6.0m.)
1+238.00	1+258.00	20.00	Transition
1+258.00	2+429.10	1,171.10	6.50
2+429.10	2+449.10	20.00	Transition
2+449.10	2+660.60	211.50	Existing PCCP (6.0m.)
2+660.60	2+680.60	20.00	Transition
2+680.60	3+513.10	832.50	6.50
3+513.10	3+533.10	20.00	Transition
3+533.10	4+014.60	481.50	Existing PCCP (6.0m.)
4+014.60	4+034.60	20.00	Transition
4+034.60	5+026.50	991.90	6.50
5+026.50	5+046.00	19.50	Existing BRIDGE (6.5m.)
5+046.00	5+120.00	74.00	6.50
TOTAL GROSS LENGTH		5,120.00	
EXISTING PCCP & BRIDGE LENGTH		1,142.28	
TOTAL NET LENGTH		3,977.72	

Australian AID
PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:
PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:
ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR
DATE:

SUBPROJECT NAME:
REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW-ADS-13-02
LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:
GRAHAM JOHNSON-JONES
MANAGER - PHYSICAL WORKS

SHEET CONTENTS:
TYPICAL ROADWAY SECTION AND GRAVEL THICKNESS SCHEDULE
SCALE: AS SHOWN

DWG NUM: RH RD-01
SHEET 05 OF 23

SCHEDULE OF FLEX-BEAM GUARDRAILS

STATION LIMITS		LENGTH (m)		TOTAL LENGTH (m)	CONCTRETE POST (N)	NO. OF END PIECE	REMARKS	
FROM	TO	LEFT	RIGHT					
0+525.94	0+537.37	11.43	11.43		-	-	Retain Existing	Bridge
0+565.65	0+580.89	15.24	15.24		-	-	Retain Existing	
0+580.89	0+599.94	19.05		19.05	6	2	Additional	
0+580.89	0+592.32		11.43	11.43	4	2	Additional	
3+510.46	3+525.70	15.24			-	-	Retain Existing	RCBC
3+487.60	3+525.70		38.10	38.10	11	2	Remove and Replace	
3+531.70	3+546.94	15.24			-	-	Retain Existing	
3+531.70	3+569.80		38.10	38.10	11	2	Remove and Replace	
5+007.26	5+022.50	15.24	15.24	30.48	10	4	Remove and Replace	Bridge
5+050.00	5+065.24	15.24	15.24	30.48	10	4	Remove and Replace	

NOTES:
THESE TABLE OF SCHEDULES ARE SUBJECT TO MINOR ADJUSTMENTS/MODIFICATIONS TO SUIT ACTUAL FIELD CONDITION UPON APPROVAL OF THE ENGINEER.

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT: PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY: ADOLPH EDWARD G. PLAZA, PROVINCIAL GOVERNOR, DATE:

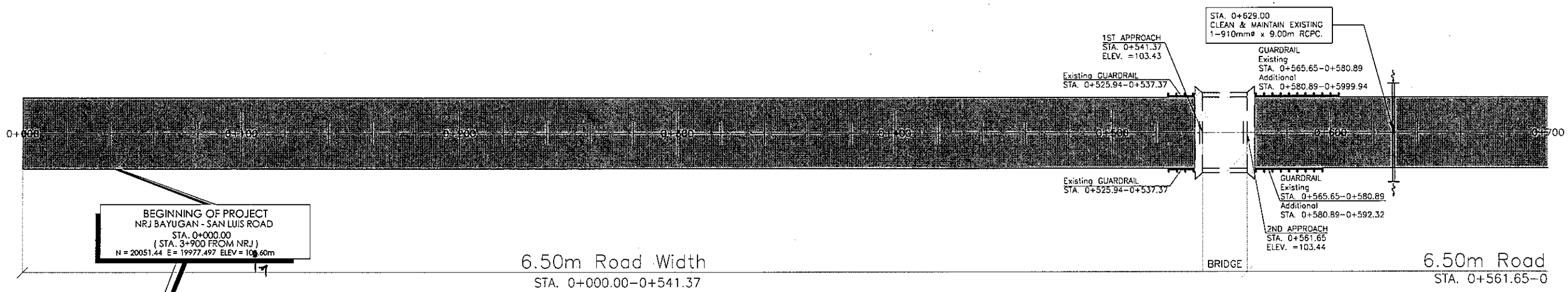
SUBPROJECT NAME: REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW-ADS-13-02
LOCATION: BAYUGAN, AGUSAN DEL SUR

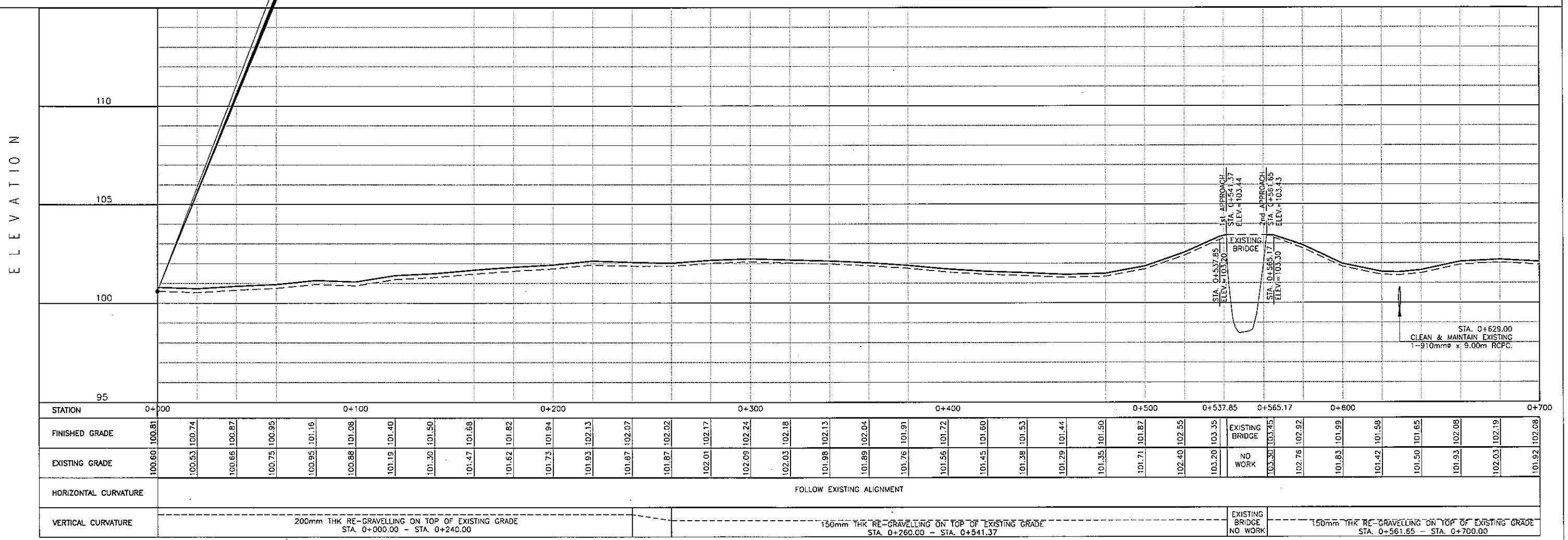
	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY: GRAHAM JOHNSON-JONES, MANAGER - PHYSICAL WORKS

SHEET CONTENTS: SCHEDULES OF FLEX BEAM GUARDRAILS
SCALE: NTS

DWG NUM: RH RD-02
SHEET 06 OF 23





STATION	0+000	0+100	0+200	0+300	0+400	0+500	0+537.85	0+565.17	0+600	0+700
FINISHED GRADE	100.81 100.74 100.87 100.95 101.16 101.08 101.40 101.50 101.68 101.82 101.94 102.13 102.07 102.02 102.17 102.24 102.18 102.13 102.04 101.91 101.72 101.60 101.53 101.44 101.50 101.87 102.55 103.35	EXISTING BRIDGE	103.45 102.92 101.99 101.58 101.65 102.08 102.19 102.08							
EXISTING GRADE	100.60 100.53 100.66 100.75 100.95 100.88 101.19 101.30 101.47 101.62 101.73 101.93 101.87 101.87 102.01 102.09 102.03 101.98 101.89 101.76 101.56 101.45 101.38 101.29 101.35 101.71 102.40 103.20	NO WORK	103.30 102.76 101.83 101.42 101.50 101.93 102.03 101.92							
HORIZONTAL CURVATURE	FOLLOW EXISTING ALIGNMENT									
VERTICAL CURVATURE	200mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 0+000.00 - STA. 0+240.00		150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 0+260.00 - STA. 0+541.37				EXISTING BRIDGE NO WORK		150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 0+561.65 - STA. 0+700.00	

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:

PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR

PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:

ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR

DATE:

SUBPROJECT NAME:

REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)

PROJECT CODE: PW-ADS-13-02

LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:

GRAHAM JOHNSON-JONES
MANAGER, PHYSICAL WORKS

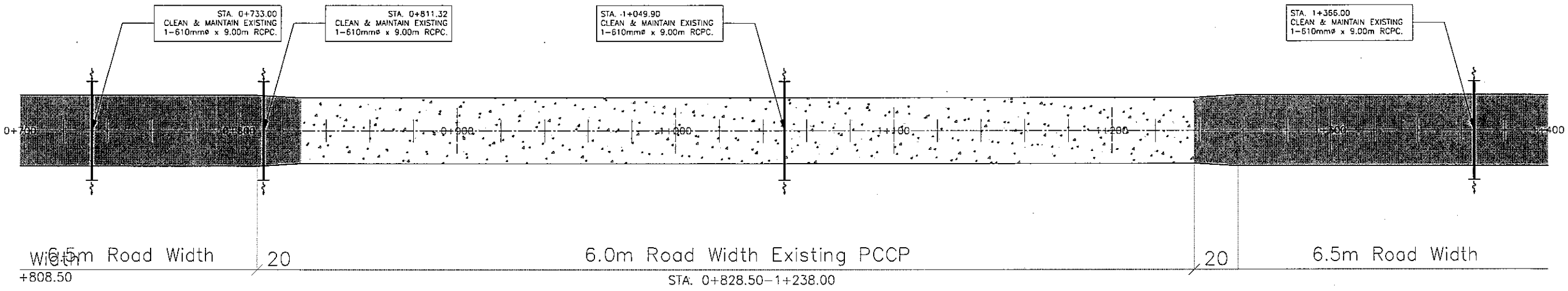
SHEET CONTENTS:

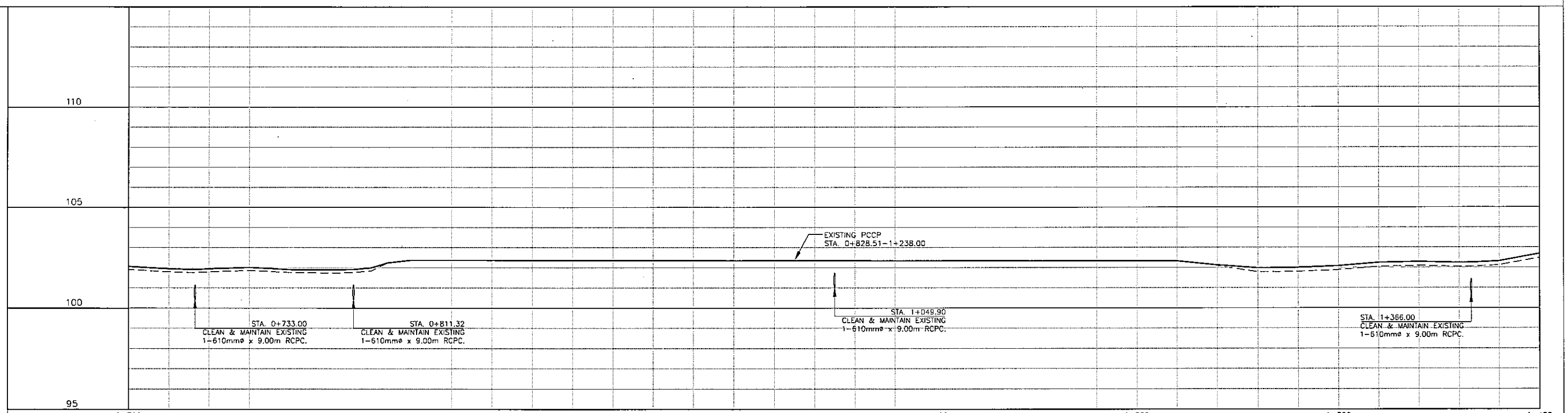
PLAN & PROFILE
STA. 0+000.00 - STA. 0+700.00

SCALE: PLAN - 1:1000H-1:200V, PROFILE - 1:1000H-1:100V

DWG NUM: RH RD-03

SHEET 07 OF 23





STATION	0+700			0+800			0+900			1+000			1+100			1+200			1+300			1+400
FINISHED GRADE	102.08	101.95	101.95	102.02	101.92	101.90	102.00	102.38	102.38	102.37	102.37	102.37	102.37	102.37	102.36	102.36	102.36	102.36	102.35	102.35	102.35	102.35	102.35	102.34	102.34	102.34	102.34	102.14	101.99	102.02	102.10	102.25	102.30	102.25	102.33	102.70
EXISTING GRADE	101.92	101.80	101.80	101.87	101.76	101.74	101.84	102.37	102.37	102.37	102.37	102.36	102.36	102.36	102.36	102.36	102.35	102.35	102.35	102.35	102.35	102.35	102.34	102.34	102.34	102.34	102.34	102.09	101.79	101.81	101.89	102.05	102.09	102.05	102.13	102.49
HORIZONTAL CURVATURE	FOLLOW EXISTING ALIGNMENT																																			
VERTICAL CURVATURE	150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 0+700.00 - STA. 0+828.50									EXISTING PCCP STA. 0+828.51 - STA. 1+238.00 (EXCEPTION - NO WORK)																				200mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 1+238.00 - STA. 1+400.00					

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:

PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR

PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:

ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR

DATE:

SUBPROJECT NAME:

REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)

PROJECT CODE: PW-ADS-13-02

LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:

GRAHAM JOHNSON-JONES
MANAGER - PHYSICAL WORKS

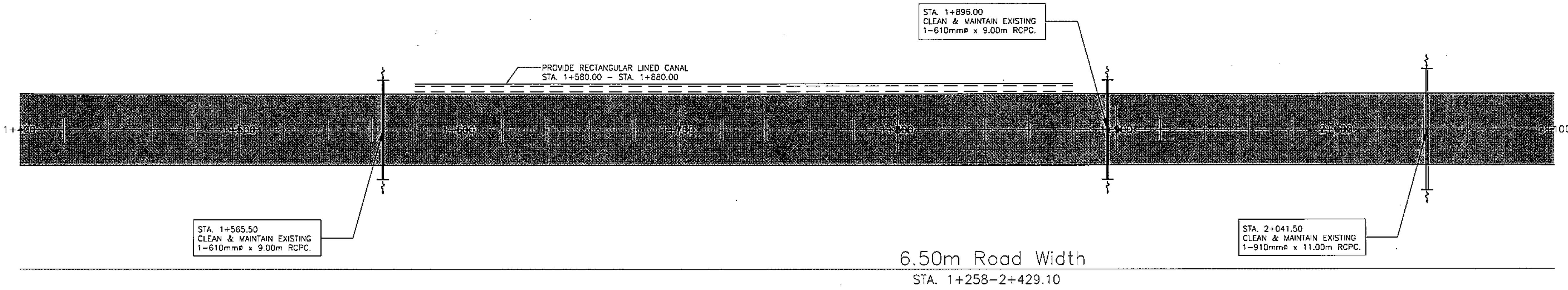
SHEET CONTENTS:

PLAN & PROFILE
STA. 0+700.00 - STA. 1+400.00

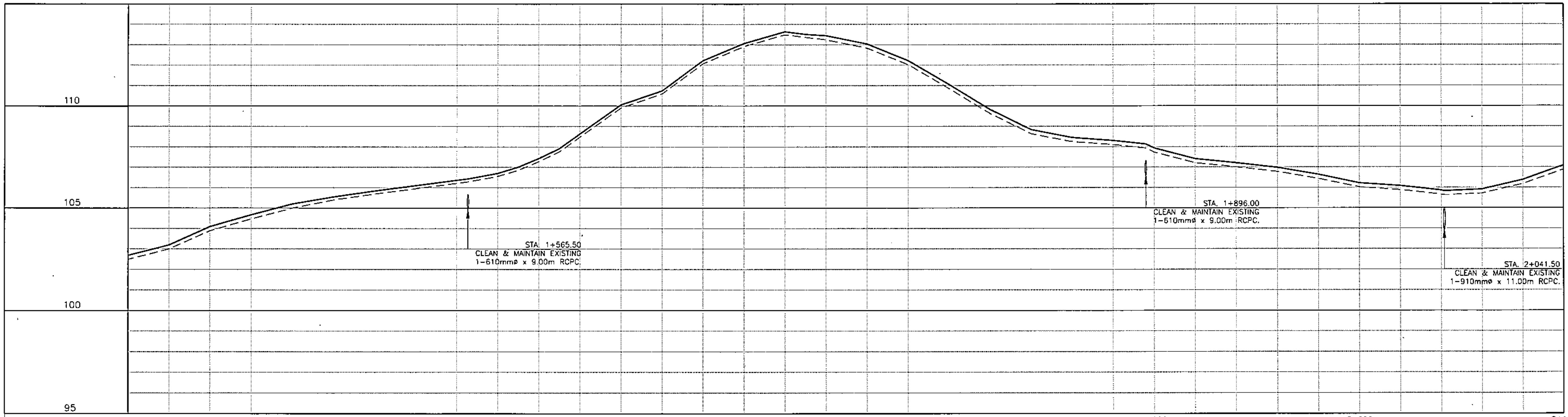
SCALE: PLAN - 1:1000H-1:200V, PROFILE - 1:1000H-1:100V

DWG NUM: RH RD-04

SHEET 08 OF 23



ELEVATION



STATION	FINISHED GRADE	EXISTING GRADE
1+400	102.70	102.49
	102.65	102.49
	103.21	103.00
	104.10	103.89
	104.67	104.47
	105.20	105.00
1+500	105.56	105.40
	105.84	105.69
	106.11	105.95
	106.36	106.21
	106.71	106.56
1+600	107.43	107.28
	108.64	108.48
	110.06	109.91
	110.75	110.60
	112.23	112.07
1+700	113.07	112.92
	113.65	113.49
	113.45	113.24
	113.04	112.84
	112.23	112.03
1+800	111.06	110.85
	109.84	109.64
	108.84	108.64
	108.45	108.25
	108.31	108.11
1+900	107.94	107.74
	107.41	107.21
	107.21	107.01
	106.98	106.78
	106.64	106.44
2+000	106.23	106.02
	106.09	105.88
	105.87	105.66
	105.92	105.72
	106.38	106.18
2+100	107.09	106.88

HORIZONTAL CURVATURE: FOLLOW EXISTING ALIGNMENT

VERTICAL CURVATURE:
- 200mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 1+400.00 - STA. 1+480.00
- 150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 1+500.00 - STA. 1+730.00
- 200mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 1+750.00 - STA. 2+100.00

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT: PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY: ADOLPH EDWARD G. PLAZA, PROVINCIAL GOVERNOR
DATE:

SUBPROJECT NAME: REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW-ADS-13-02
LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

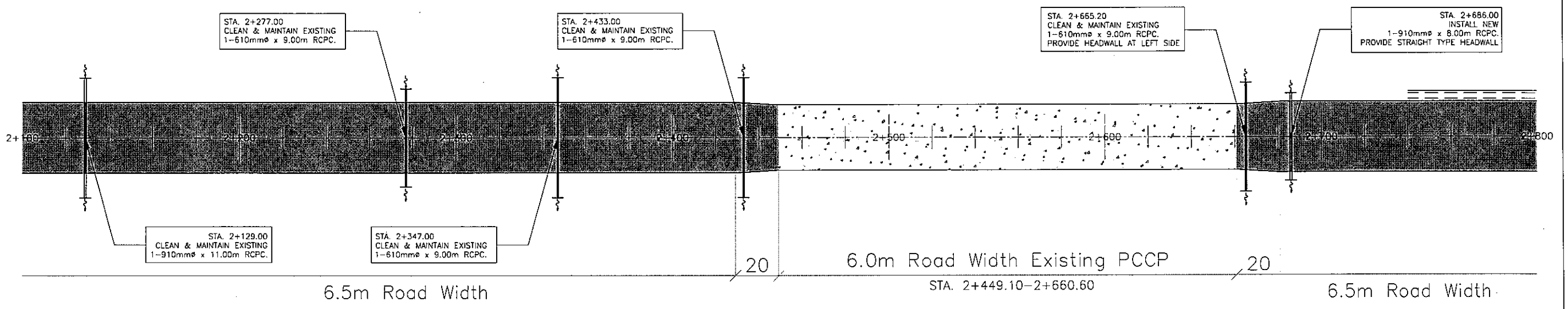
APPROVED BY: GRAHAM JOHNSON-JONES, MANAGER - PHYSICAL WORKS

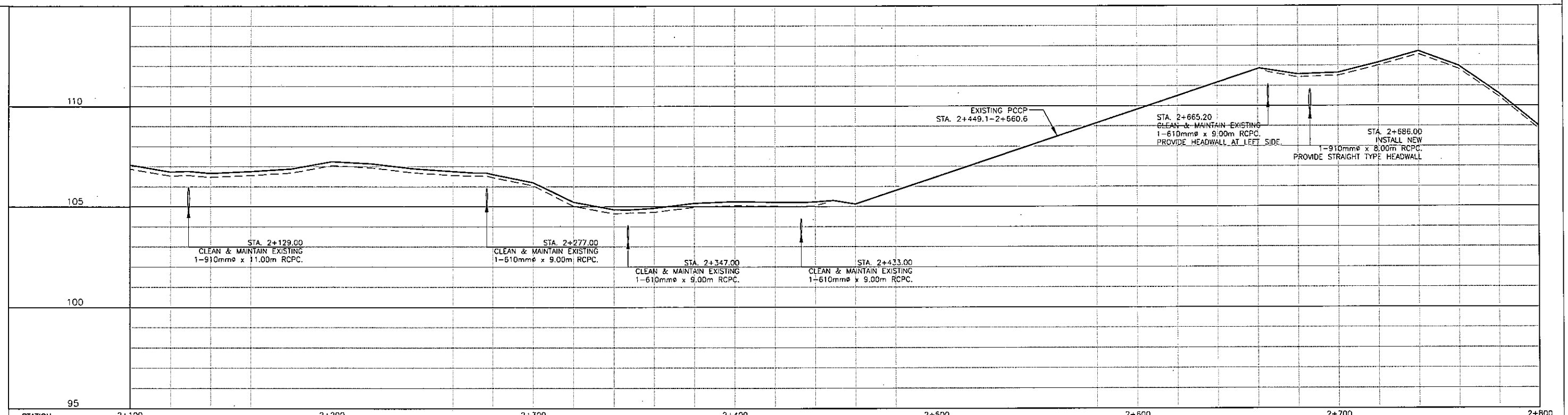
SHEET CONTENTS: PLAN & PROFILE STA. 1+400.00 - STA. 2+100.00

SCALE: PLAN - 1:1000H-1:200V, PROFILE - 1:1000H-1:100V

DWG NUM: RH RD-05

SHEET 09 OF 23





STATION	2+100			2+200						2+300						2+400						2+500						2+600						2+700						2+800
FINISHED GRADE	107.09	106.74	106.67	106.77	106.89	107.26	107.14	106.91	106.77	106.65	106.25	105.22	104.85	104.92	105.17	105.26	105.22	105.24	105.13	105.80	106.48	107.15	107.82	108.49	109.16	109.84	110.51	111.18	111.85	111.58	111.66	112.16	112.73	111.99	110.62	109.01
EXISTING GRADE	106.88	106.54	106.47	106.56	106.68	107.05	106.94	106.70	106.56	106.45	106.05	105.02	104.65	104.72	104.97	105.06	105.02	105.04	105.13	105.80	105.47	107.14	107.81	108.49	109.16	109.83	110.50	111.17	111.85	111.42	111.51	112.00	112.57	111.84	110.47	108.85
HORIZONTAL CURVATURE	FOLLOW EXISTING ALIGNMENT																																						
VERTICAL CURVATURE	200mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 2+100.00 – STA. 2+449.10																																						
	EXISTING PCCP STA. 2+449.10 – STA. 2+660.60 (EXCEPTION – NO WORK)																																						
	150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 2+660.60 – STA. 2+800.00																																						

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:

PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR

PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:

ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR

DATE:

SUBPROJECT NAME:

REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)

PROJECT CODE: PW-ADS-13-02

LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:

GRAHAM JOHNSON-JONES
MANAGER, PHYSICAL WORKS

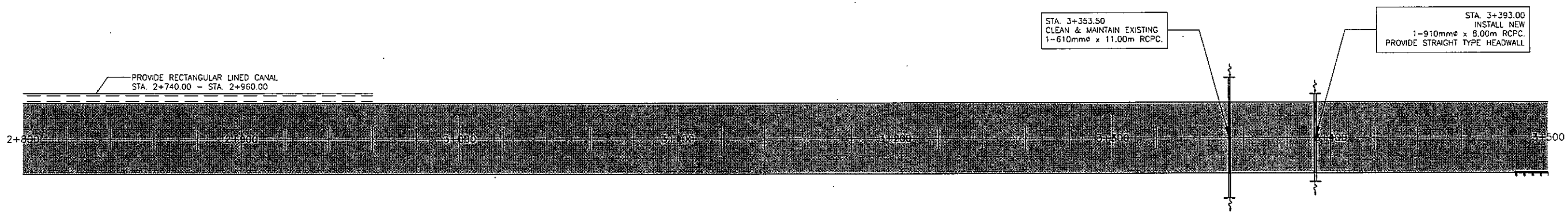
SHEET CONTENTS:

PLAN & PROFILE
STA. 2+100.00 - STA. 2+800.00

SCALE: PLAN - 1:1000H-1:200V, PROFILE - 1:1000H-1:100V

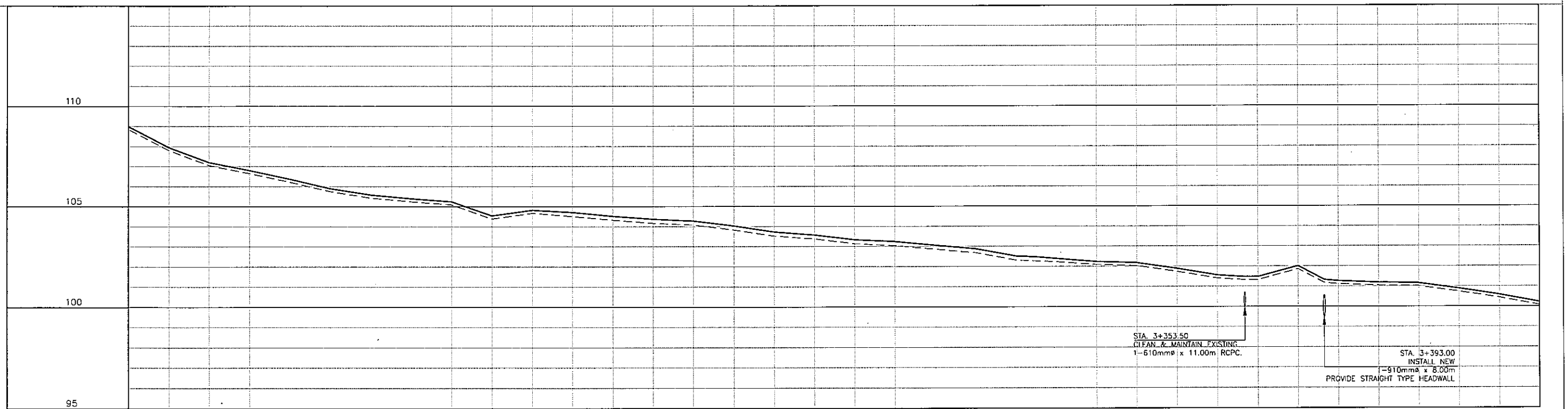
DWG NUM: RH RD-06

SHEET 10 OF 23



6.50m Road Width

STA. 2+680.60-3+513.10



STATION	FINISHED GRADE	EXISTING GRADE
2+800	109.01	108.85
	107.95	107.80
	107.21	107.05
	106.81	106.65
	106.38	106.22
2+900	105.91	105.75
	105.59	105.43
	105.40	105.24
	105.25	105.10
	104.54	104.39
3+000	104.83	104.67
	104.71	104.51
	104.53	104.32
	104.37	104.17
	104.28	104.08
3+100	104.04	103.83
	103.73	103.53
	103.59	103.38
	103.35	103.14
	103.25	103.04
3+200	103.07	102.86
	102.89	102.69
	102.52	102.32
	102.40	102.23
	102.25	102.09
3+300	102.19	102.03
	101.90	101.74
	101.57	101.41
	101.48	101.33
	102.02	101.86
3+400	101.27	101.12
	101.20	101.04
	101.16	101.01
	100.89	100.74
	100.59	100.43
3+500	100.22	100.07

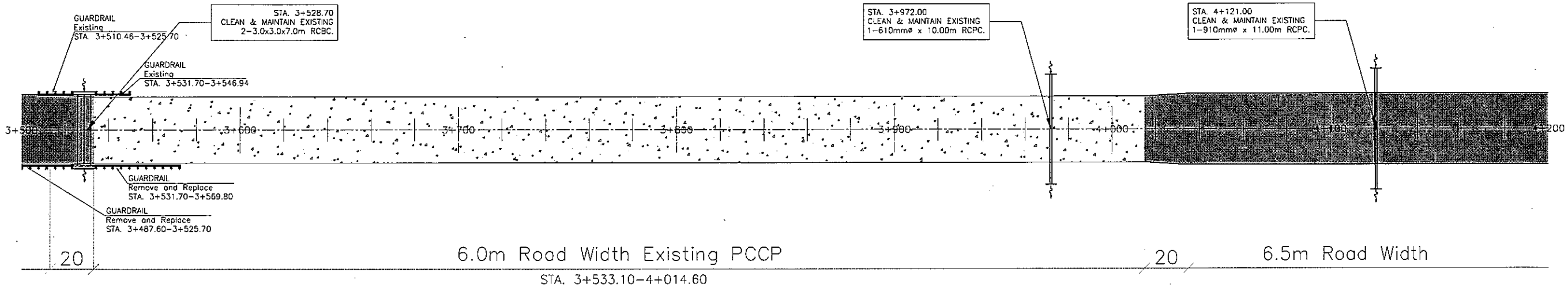
HORIZONTAL CURVATURE: FOLLOW EXISTING ALIGNMENT

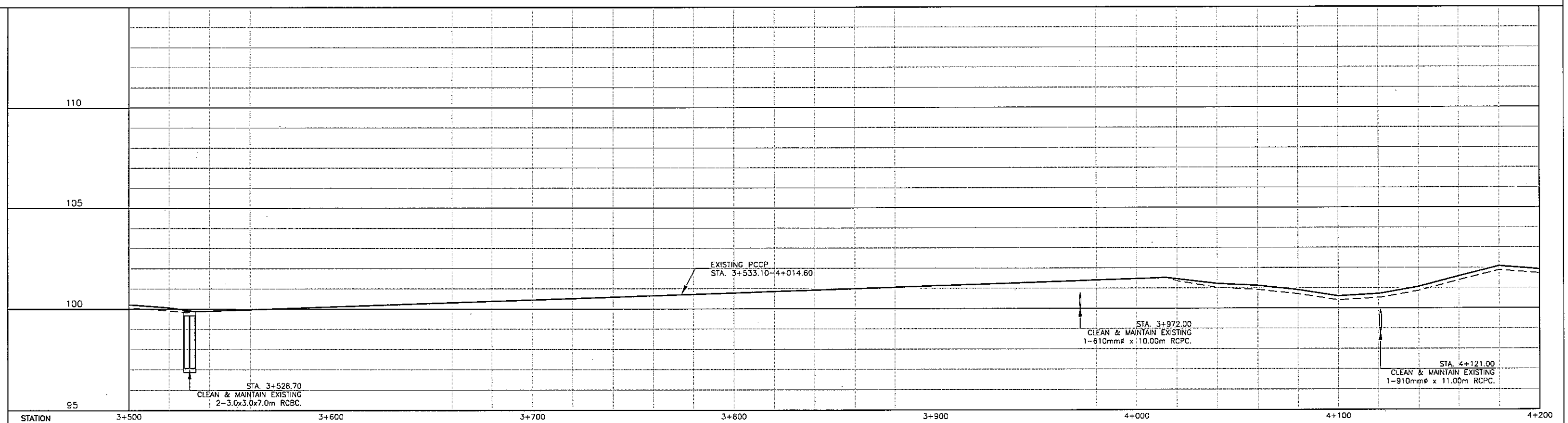
VERTICAL CURVATURE:
- 150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 2+800.00 - STA. 3+000.00
- 200mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 3+020.00 - STA. 3+250.00
- 150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 3+270.00 - STA. 3+533.10

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:	CONFORMED BY:	SUBPROJECT NAME:		NAME:	POSITION:	SIGNATURE:	DATE:	APPROVED BY:	SHEET CONTENTS:	DWG NUM:
PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR PATIN-AY PROSPERIDAD AGUSAN DEL SUR	ADOLPH EDWARD G. PLAZA PROVINCIAL GOVERNOR DATE:	REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION) PROJECT CODE: PW-ADS-13-02 LOCATION: BAYUGAN, AGUSAN DEL SUR	DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I			GRAHAM JOHNSON-JONES MANAGER - PHYSICAL WORKS	PLAN & PROFILE STA. 2+800.00 - STA. 3+500.00 SCALE: PLAN - 1:1000H-1:200V, PROFILE - 1:1000H-1:100V	RH RD-07 SHEET 11 OF 23
			PREPARED BY:	BLANCA NIOG	ENGINEER - I					
			ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		1/8			





STATION	FINISHED GRADE	EXISTING GRADE
3+500	100.22	100.07
	100.07	99.92
	99.90	99.90
	99.97	99.97
	100.04	100.04
3+600	100.11	100.11
	100.18	100.17
	100.25	100.24
	100.32	100.31
	100.38	100.38
3+700	100.45	100.45
	100.52	100.52
	100.59	100.58
	100.66	100.65
	100.73	100.72
3+800	100.80	100.79
	100.86	100.86
	100.93	100.93
	101.00	101.00
	101.07	101.06
3+900	101.14	101.13
	101.21	101.20
	101.27	101.27
	101.34	101.34
	101.41	101.41
4+000	101.48	101.48
	101.47	101.36
	101.23	101.03
	101.13	100.92
	100.92	100.71
4+100	100.60	100.40
	100.72	100.52
	101.07	100.86
	101.59	101.38
	102.09	101.89
4+200	101.92	101.72

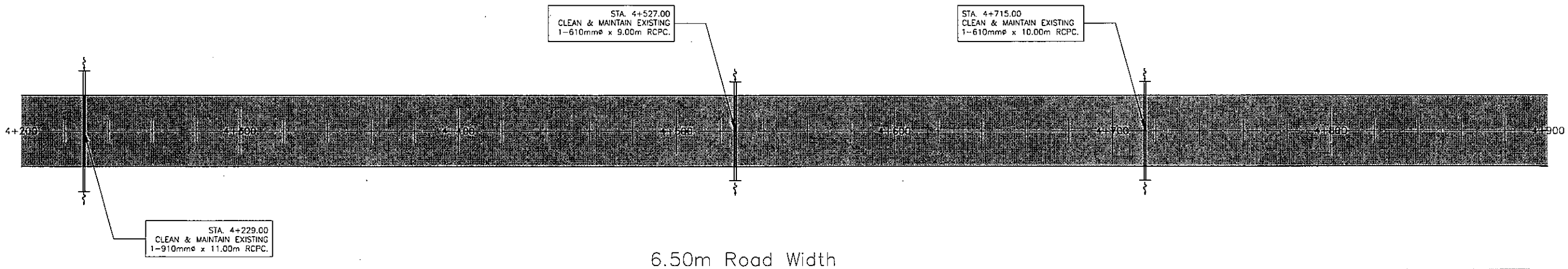
HORIZONTAL CURVATURE: FOLLOW EXISTING ALIGNMENT

VERTICAL CURVATURE:
EXISTING PCCP STA. 3+533.10 – STA. 4+014.60
(EXCEPTION – NO WORK)

200mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE
STA. 4+014.60 – STA. 4+200.00

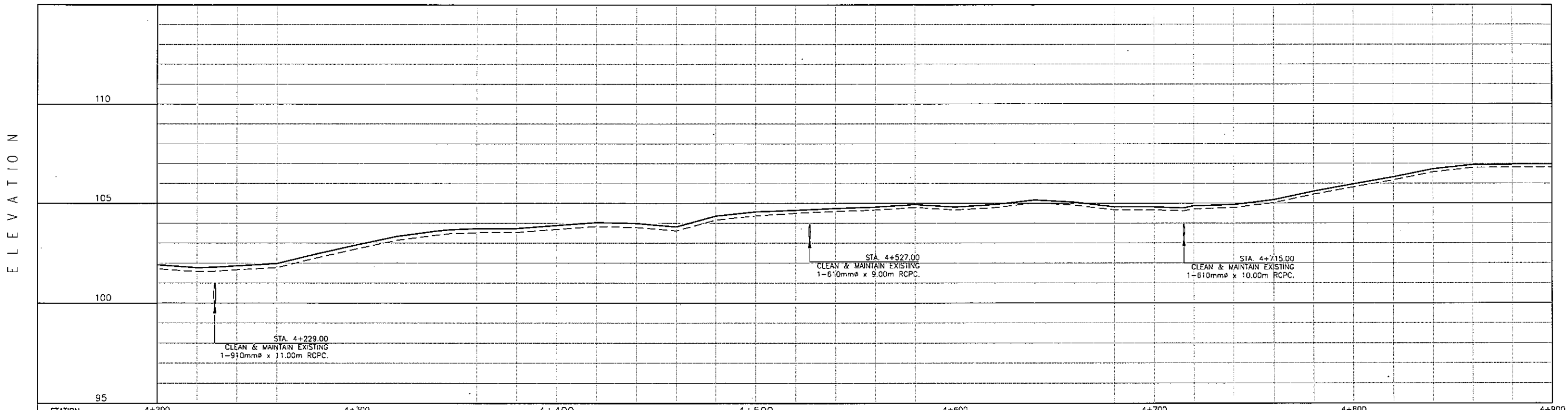
Australian AID
PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:	PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR PATIN-AY PROSPERIDAD AGUSAN DEL SUR					
CONFORMED BY:	ADOLPH EDWARD G. PLAZA PROVINCIAL GOVERNOR					
DATE:						
SUBPROJECT NAME:	REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)					
PROJECT CODE:	PW-ADS-13-02					
LOCATION:	BAYUGAN, AGUSAN DEL SUR					
	NAME:	POSITION:	SIGNATURE:	DATE:		
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - 1				
PREPARED BY:	BLANCA NIOG	ENGINEER - I				
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER				
APPROVED BY:	GRAHAM JOHNSON-JONES MANAGER - PHYSICAL WORKS					
SHEET CONTENTS:	PLAN & PROFILE STA. 3+500.00 - STA. 4+200.00					
SCALE:	PLAN - 1:1000H-1:200V, PROFILE - 1:1000H-1:100V					
DWG NUM:	RH RD-08					
SHEET	12 OF 23					



6.50m Road Width

STA. 4+034.60-5+026.50



STATION	4+200			4+300			4+400			4+500			4+600			4+700			4+800			4+900
FINISHED GRADE	101.92	101.78	101.87	101.98	102.47	102.92	103.35	103.61	103.73	103.74	103.90	104.04	104.00	103.82	104.37	104.58	104.66	104.75	104.82	104.95	104.82	104.94	105.18	105.05	104.83	104.82	104.87	104.94	105.18	105.60	105.97	106.32	106.73	106.95	106.96	106.97
EXISTING GRADE	101.72	101.58	101.67	101.78	102.27	102.72	103.14	103.41	103.53	103.54	103.69	103.84	103.79	103.62	104.17	104.38	104.50	104.59	104.67	104.79	104.66	104.79	105.02	104.91	104.67	104.66	104.72	104.78	105.03	105.45	105.82	106.17	106.57	106.79	106.81	106.81
HORIZONTAL CURVATURE	FOLLOW EXISTING ALIGNMENT																																			
VERTICAL CURVATURE	200mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 4+200.00 - STA. 4+500.00																		150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 4+520.00 - STA. 4+900.00															

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:

PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR

PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:

ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR

DATE:

SUBPROJECT NAME:

REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)

PROJECT CODE: PW-ADS-13-02

LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:

GRAHAM JOHNSON-JONES
MANAGER - PHYSICAL WORKS

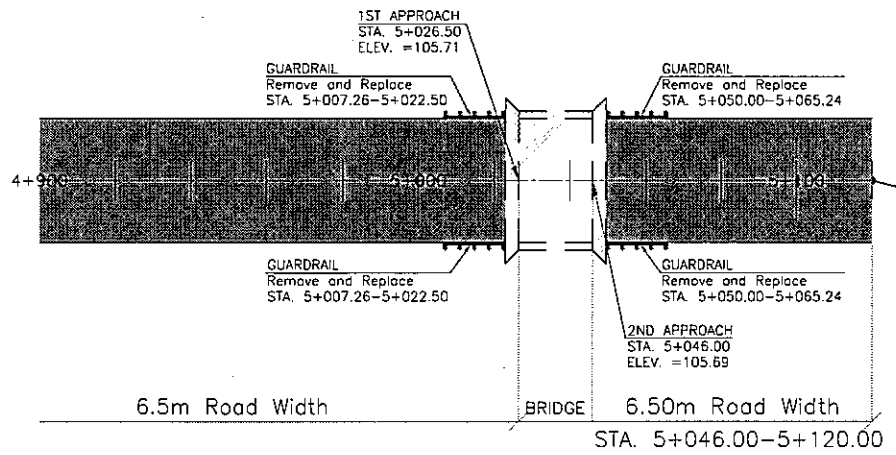
SHEET CONTENTS:

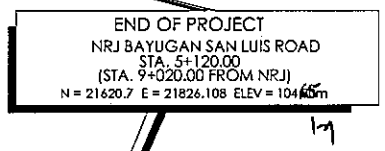
PLAN & PROFILE
STA. 4+200.00 - STA. 4+900.00

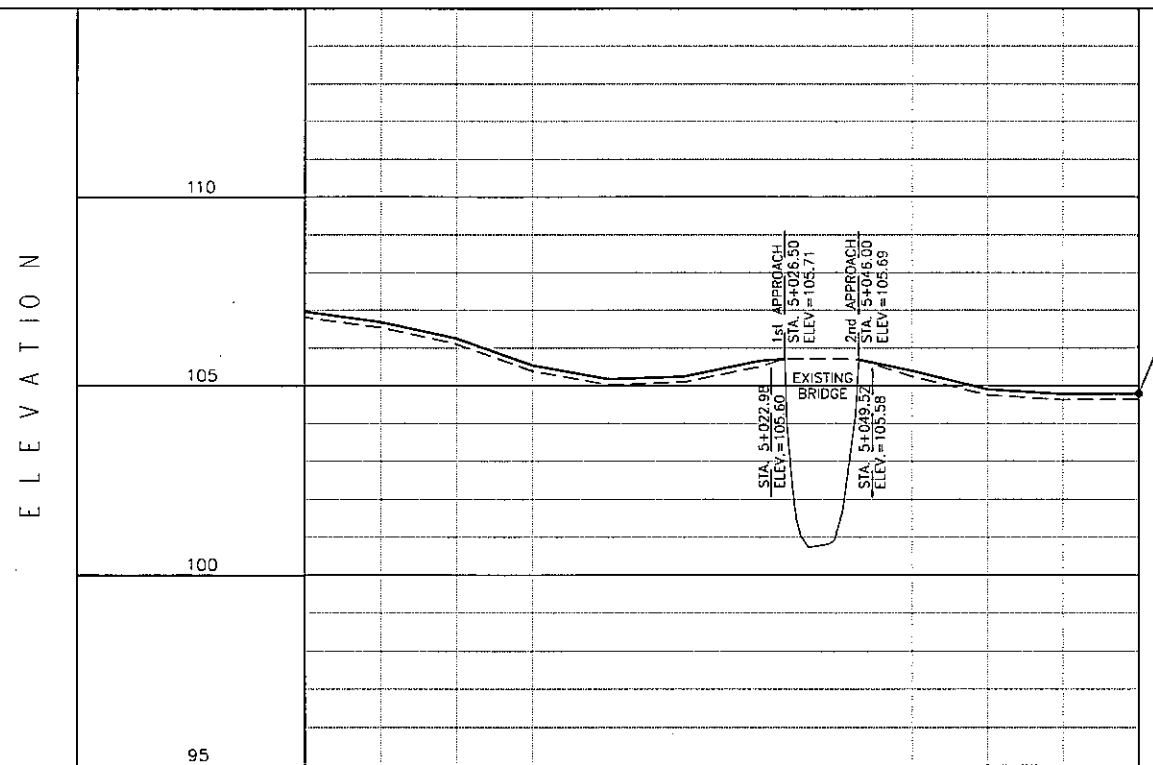
SCALE: PLAN - 1:1000H-1:200V, PROFILE - 1:1000H-1:100V

DWG NUM: RH RD-09

SHEET 13 OF 23







STATION		4+900				5+000	5+020	5+022.98	5+049.52	5+060		5+100	5+120
FINISHED GRADE	106.97	106.69	106.26	105.55	105.18	105.25	105.60	EXISTING BRIDGE	105.82	105.40	104.91	104.79	104.80
EXISTING GRADE	106.81	105.54	106.10	105.39	105.03	105.10	105.51	NO WORK	105.58	105.25	104.75	104.63	104.65
HORIZONTAL CURVATURE	FOLLOW EXISTING ALIGNMENT												
VERTICAL CURVATURE	150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 4+900.00 – STA. 5+026.50							EXISTING BRIDGE NO WORK	150mm THK RE-GRAVELLING ON TOP OF EXISTING GRADE STA. 5+046.00–5+120.00				

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:

PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR

PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:

ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR

DATE:

SUBPROJECT NAME:

REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)

PROJECT CODE: PW-ADS-13-02

LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:

GRAHAM JOHNSON-JONES
MANAGER - PHYSICAL WORKS

SHEET CONTENTS:

PLAN & PROFILE
STA. 4+900.00 - STA. 5+120.00

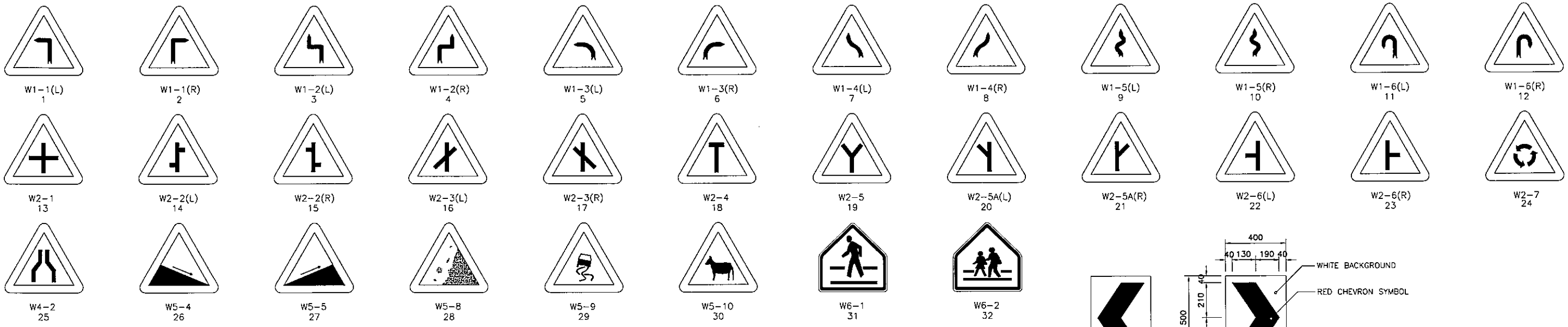
SCALE: PLAN – 1:1000H–1:200V, PROFILE – 1:1000H–1:100V

DWG NUM: RH RD-10

SHEET 14 OF 23

C. ROAD STANDARDS AND DETAILS

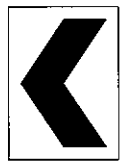
(A) WARNING SIGNS



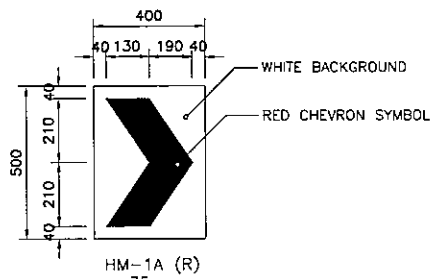
W1-1(L) 1 | W1-1(R) 2 | W1-2(L) 3 | W1-2(R) 4 | W1-3(L) 5 | W1-3(R) 6 | W1-4(L) 7 | W1-4(R) 8 | W1-5(L) 9 | W1-5(R) 10 | W1-6(L) 11 | W1-6(R) 12

W2-1 13 | W2-2(L) 14 | W2-2(R) 15 | W2-3(L) 16 | W2-3(R) 17 | W2-4 18 | W2-5 19 | W2-5A(L) 20 | W2-5A(R) 21 | W2-6(L) 22 | W2-6(R) 23 | W2-7 24

W4-2 25 | W5-4 26 | W5-5 27 | W5-8 28 | W5-9 29 | W5-10 30 | W6-1 31 | W6-2 32

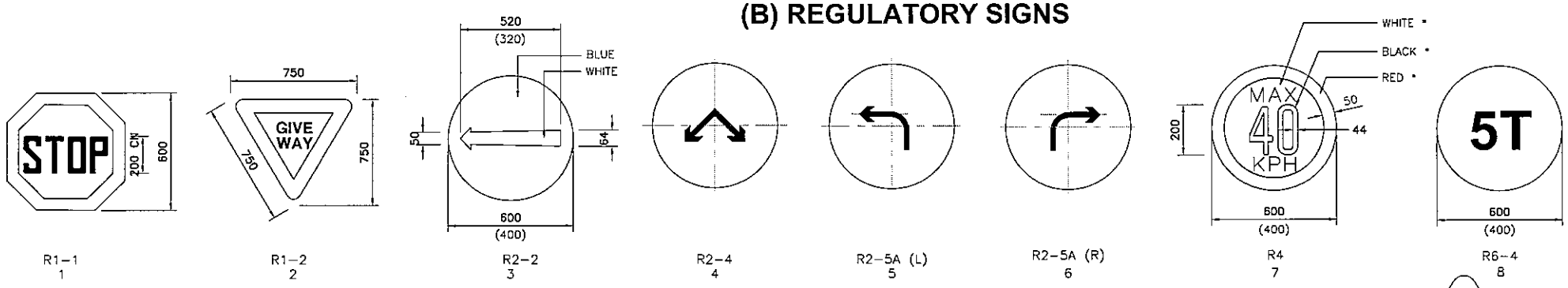


HM-1A (L) 34



HM-1A (R) 35

(B) REGULATORY SIGNS



R1-1 1 | R1-2 2 | R2-2 3 | R2-4 4 | R2-5A (L) 5 | R2-5A (R) 6 | R4 7 | R6-4 8

* COLOR CODING OF LEGEND, BACKGROUND AND BORDER.
( ) DIMENSIONS WITHIN BUILT-UP AREAS

LEGEND:

A. WARNING SIGNS

1.	SHARP TURN (LEFT)	W1-1(L)	24.	ROUNDABOUT (ROTONDA)	W2-7
2.	SHARP TURN (RIGHT)	W1-1(R)	25.	NARROW ROAD	W4-2
3.	REVERSE TURN (LEFT)	W1-2(L)	26.	STEEP DESCENT	W5-4
4.	REVERSE TURN (RIGHT)	W1-2(R)	27.	STEEP CLIMB	W5-5
5.	CURVE (LEFT)	W1-3(L)	28.	FALLING OR FALLEN ROCKS LEFT AND RIGHT	W5-8
6.	CURVE (RIGHTT)	W1-3(R)	29.	SLIPPERY WHEN WET	W5-9
7.	REVERSE CURVE (LEFT)	W1-4(L)	30.	CATTLE CROSSING	W5-10
8.	REVERSE CURVE (RIGHT)	W1-4(R)	31.	PEDESTRIANS	W6-1
9.	WINDING ROAD (LEFT)	W1-5(L)	32.	CHILDREN	W6-2
10.	WINDING ROAD (RIGHT)	W1-5(R)	33.	SUPPLEMENTARY SIGN(SCHOOL)	W8-9
11.	HAIRPIN BEND (LEFT)	W1-6(L)	34.	CHEVRON ALIGNMENT SIGN (LEFT)	HM-1A (L)
12.	HAIRPIN BEND (RIGHT)	W1-6(R)	35.	CHEVRON ALIGNMENT SIGN (RIGHT)	HM-1A (R)
13.	CROSS ROAD	W2-1			
14.	OTHER CROSS ROAD (LEFT)	W2-2(L)			
15.	OTHER CROSS ROAD (RIGHT)	W2-2(R)			
16.	OTHER CROSS ROAD (LEFT)	W2-3(L)			
17.	OTHER CROSS ROAD (RIGHT)	W2-3(R)			
18.	T JUNCTION	W2-4			
19.	JUNCTION	W2-5			
20.	Y JUNCTION (LEFT)	W2-5A(L)			
21.	Y JUNCTION (RIGHT)	W2-5A(R)			
22.	SIDE ROAD JUNCTION (LEFT)	W2-6(L)			
23.	SIDE ROAD JUNCTION (RIGHT)	W2-6(R)			

B. REGULATORY SIGN

1.	STOP AT INTERSECTION	R1-1
2.	PRIORITY ROAD AHEAD	R1-2
3.	DIRECTION TO BE FOLLOWED	R2-2
4.	DIRECTION TO BE FOLLOWED	R2-4
5.	DIRECTION TO BE FOLLOWED	R2-5 (L)
6.	DIRECTION TO BE FOLLOWED	R2-5 (R)
7.	SPEED LIMIT	R4
8.	LOAD RESTRICTION SIGN	R6-4

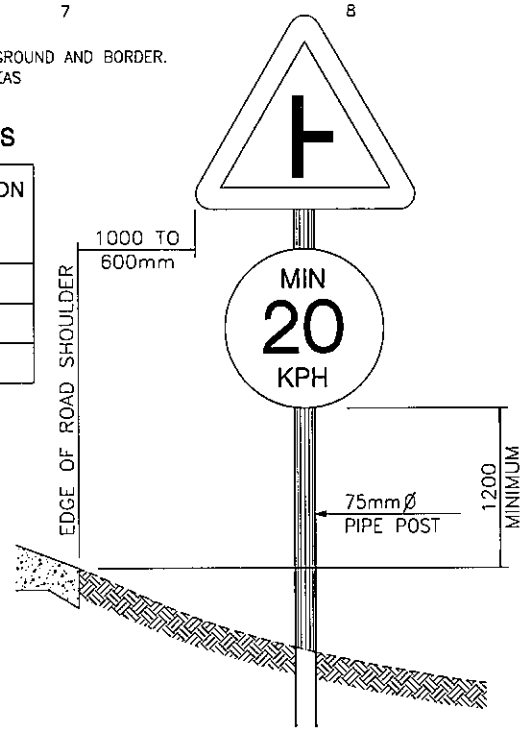
SPACING FOR CHEVRON ALIGNMENT SIGN ON HORIZONTAL CURVES

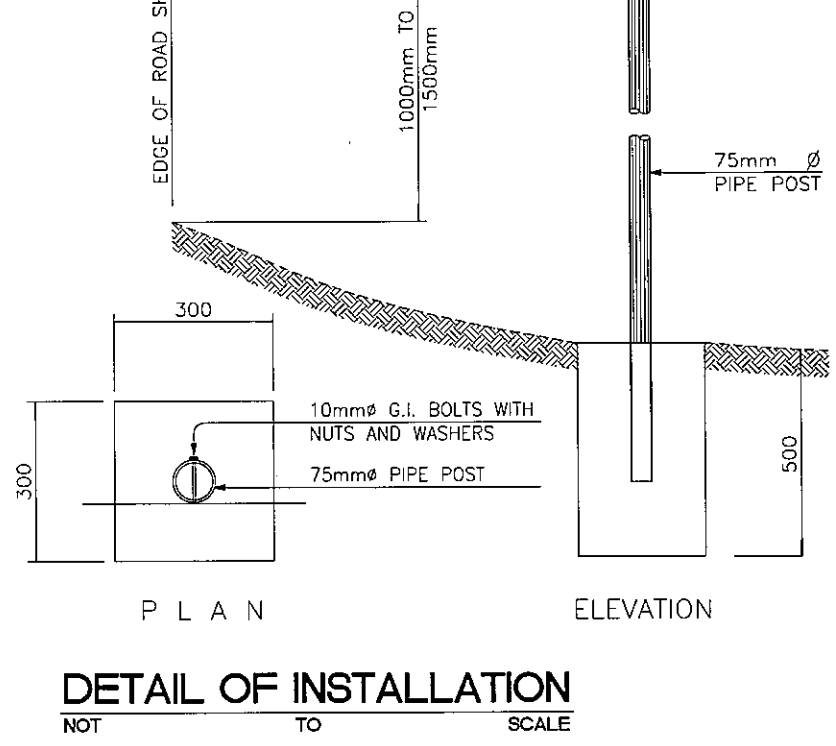
CURVE ADVISORY SPEED (Km/h)	CURVE RADII (m)	APPROXIMATE CHEVRON ALIGNMENT SIGN SPACING (m)
≤ 20	≤ 60	12
30 TO 50	60 – 120	24
60 TO 70	120 – 210	36

* EACH LOCATION HAS 2 PCS. OF CHEVRON ALIGNMENT SIGN.

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. EACH SIDE OF THE EQUILATERAL TRIANGLE SHALL BE 750mm FOR No's. 1 TO 12 AND 600mm FOR No's. 13 TO 30 EXCEPT FOR No's. 16 AND 17 WHICH IS 750mm.
3. THE SYMBOLS SHALL BE BLACK ON WHITE BACKGROUND AND RED BORDER (50mm WIDE) EXCEPT FOR No's. 31 AND 32 WHICH SHALL HAVE A FLUORESCENT YELLOW GREEN BACKGROUND.
4. No's. 13 TO 24. THE DIAMETER SHALL BE 600mm OUTSIDE BUILT UP AREAS AND 450mm WITHIN BUILT UP AREAS. THE COLOR CODING OF SYMBOLS, BACKGROUND AND BORDER ARE AS SHOWN. EXACT LOCATION OF ROAD SIGNS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
5. THE DIMENSIONS, SIZES OF LETTERS AND NUMERALS, SHAPE, COLOR AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF D.P.W.H. PHILIPPINES ROAD SIGNS MANUAL, 2004.
6. ROAD SIGNS SHALL BE PLAIN CEMENT FINISH, SMOOTHENED AND TREATED WITH CONCRETE NEUTRALIZER AND PRIMER PRIOR TO APPLICATION OF RETRO REFLECTIVE MATERIALS/STICKERS ON LEGENDS, LETTERS, BORDERS AND BACKGROUND OF THE SIGN SLAB AS DIRECTED BY THE ENGINEER.

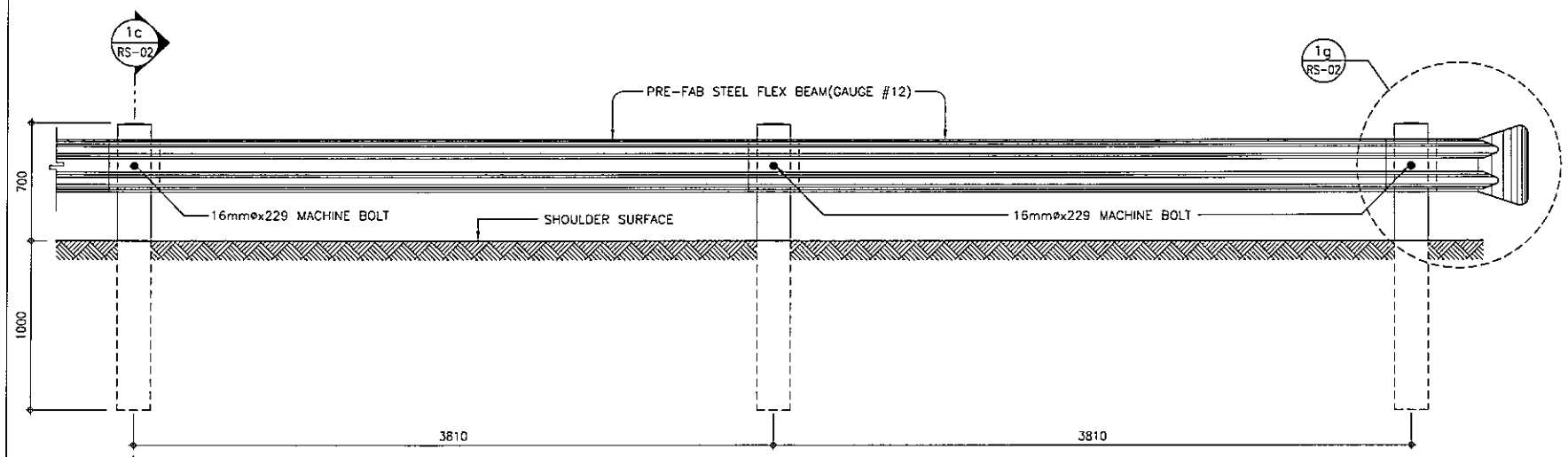




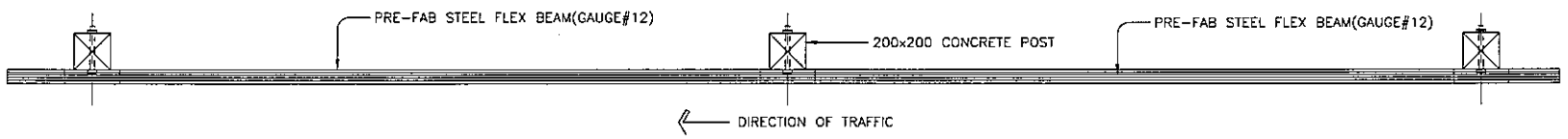
DETAIL OF INSTALLATION

NOT TO SCALE

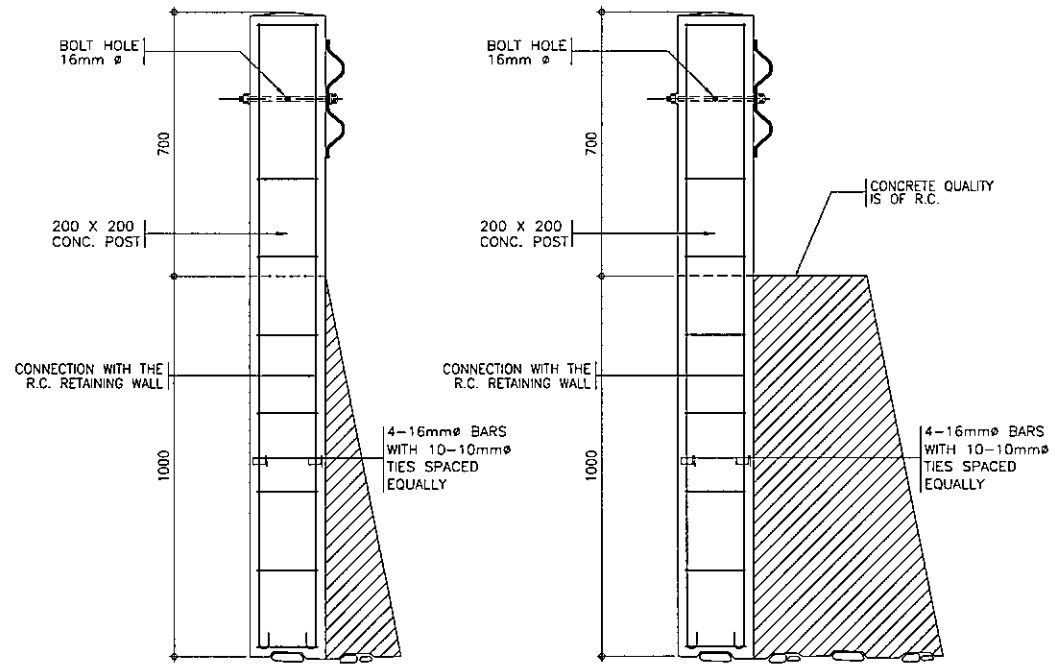
Australian AID / PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)	PRIMARY PROPONENT: PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR, PATIN-AY PROSPERIDAD AGUSAN DEL SUR	CONFORMED BY: ADOLPH EDWARD G. PLAZA, PROVINCIAL GOVERNOR, DATE:	SUBPROJECT NAME: REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION); PROJECT CODE: PW-ADS-13-02; LOCATION: BAYUGAN, AGUSAN DEL SUR		NAME:	POSITION:	SIGNATURE:	DATE:	APPROVED BY: GRAHAM JOHNSON-JONES, MANAGER PHYSICAL WORKS	SHEET CONTENTS: STANDARD WARNING AND REGULATORY SIGNS; SCALE: AS SHOWN	DWG NUM: RH RS-01; SHEET 15 OF 23
				DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I					
				PREPARED BY:	BLANCA NIOG	ENGINEER - I					
				ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER					



1b RS-02 ELEVATION SCALE 1:40 M



1a RS-02 PLAN SCALE 1:40 M



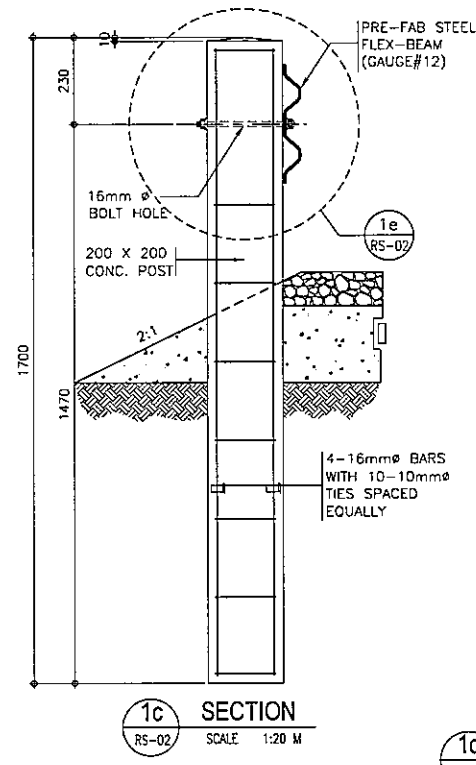
RETAINING WALL TYPE

1h RS-02 BEAM TYPE GUARDRAIL ON RETAINING WALL(TYPICAL) SCALE 1:20 M

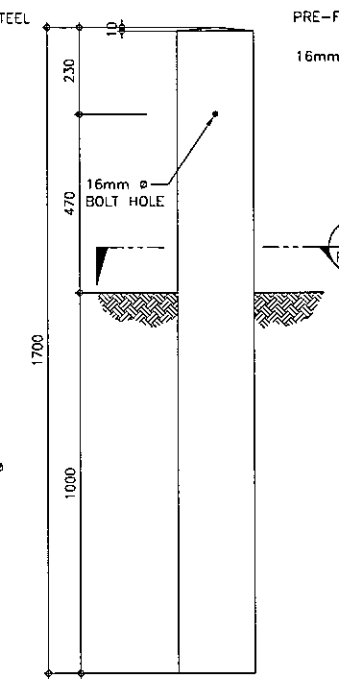
GENERAL NOTES:

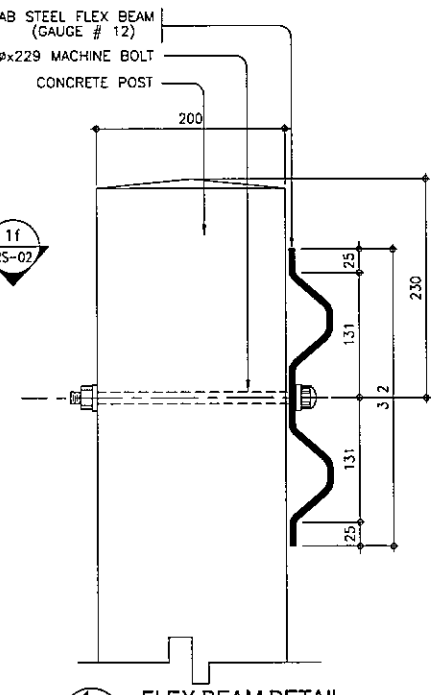
1. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES REVISED 1995.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
3. WHEN CONCRETE POST ARE USED, IT SHALL CONFORM WITH THE REQUIREMENTS OF CLASS "C" CONCRETE, ITEM NO. 501 (4) AND REINFORCING STEEL SHALL CONFORM WITH REQUIREMENTS OF REINFORCING STEEL, ITEM NO. 404.
4. GAUGE OF FLEX-BEAM GUADRAIL SHALL BE AS INDICATED IN PLAN & SPECIFICATIONS.
5. ALL NUTS SHALL BE WELDED TO THE BOLTS AFTER TIGHTENING.
6. MAIN REINFORCING STEEL BARS SHALL CONFORM WITH THE REQUIREMENTS OF AASHTO M31 GRADE 40
7. TIES SHALL BE GRADE 30

1 RS-02 STANDARD FLEX-BEAM GUARDRAIL SCALE AS SHOWN

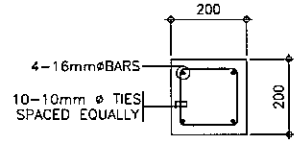


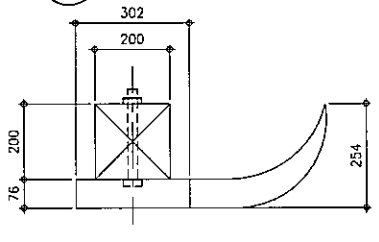
1c RS-02 SECTION SCALE 1:20 M



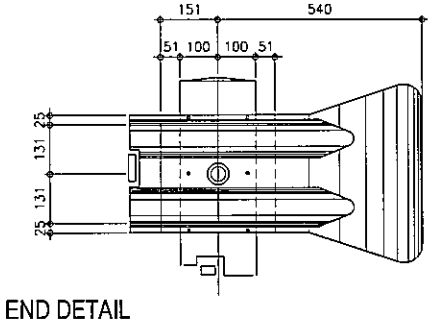


1e RS-02 FLEX BEAM DETAIL SCALE 1:20 M



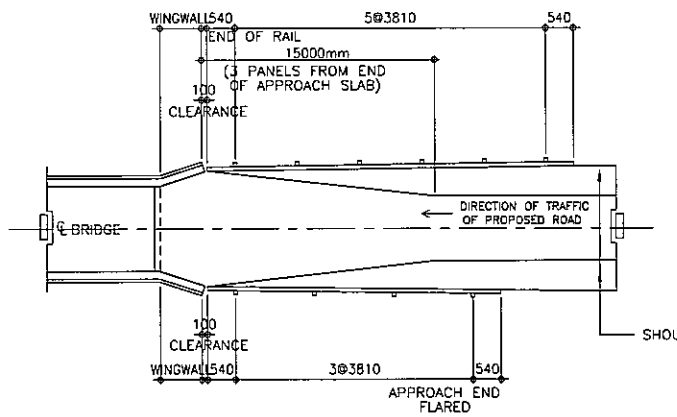


1d RS-02 ELEVATION OF POST SCALE 1:20 M

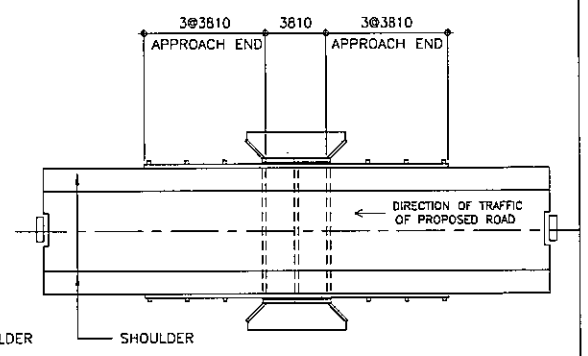


1f RS-02 SECTION OF POST SCALE 1:20 M

1g RS-02 FLEX-BEAM END DETAIL SCALE 1:20 M



PLAN-B (BRIDGE)



PLAN-A (BOX CULVERT)

1i RS-02 GUARDRAILS ALONG BOX CULVERT & BRIDGE APPROACHES SCALE N T S

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT: PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY: ADOLPH EDWARD G. PLAZA, PROVINCIAL GOVERNOR, DATE:

SUBPROJECT NAME: REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW-ADS-13-02
LOCATION: BAYUGAN, AGUSAN DEL SUR

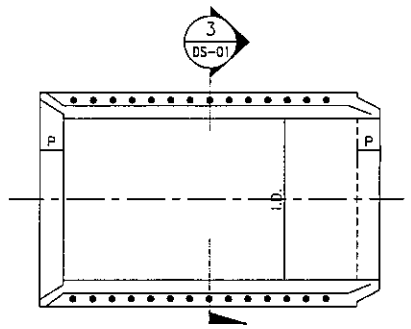
	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY: GRAHAM JOHNSON-JONES, MANAGER - PHYSICAL WORKS

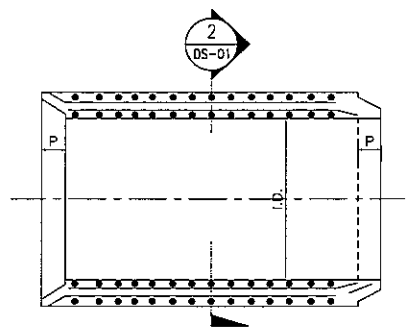
SHEET CONTENTS: STANDARD FLEX-BEAM GUARDRAIL
SCALE: AS SHOWN

DWG NUM: RH RS-02
SHEET 16 OF 23

D. DRAINAGE STANDARDS AND DETAILS



1a DS-01 ONE LINE OF CIRCULAR OR ELLIPTICAL REINFORCEMENT
SCALE N T S

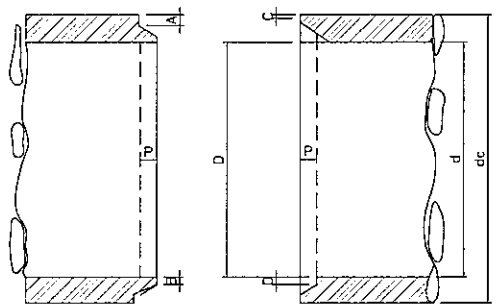


1b DS-01 TWO LINES OF CIRCULAR REINFORCEMENT
SCALE N T S

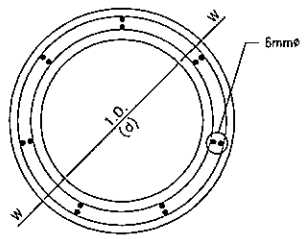
1 DS-01 CLASSIFICATION OF TYPICAL DRAINAGE
SCALE N T S

PERMISSIBLE VARIATION :

1. INTERNAL DIAMETER (I.D.) OF 305 TO 610 MILLIMETER PIPE SHALL VARY NOT MORE THAN + 1.5% FROM THE DESIGN DIAMETER THE I.D. OF 686 TO 2743mm PIPE SHALL VARY NOT MORE THAN + 1% OR 9.50mm WHICHEVER IS GREATER, FROM THE DESIGN DIAMETER
2. WALL THICKNESS – THE WALL THICKNESS SHALL NOT BE LESS THAN THAT SHOWN IN THE DESIGN BY MORE THAN 5% OR 4.80m WHICHEVER IS GREATER.
3. LENGTH OF TWO OPPOSITE SIDES – VARIATION IN LAYING LENGTHS OF TWO OPPOSITE SIDES OF PIPE SHALL NOT BE MORE THAN 10.40mm/m OF DIAMETER, WITH A MAXIMUM OF 16mm IN ANY LENGTH OF PIPE.
4. LENGTH OF PIPE – THE UNDERRUN IN LENGTH OF A SECTION OF PIPE SHALL NOT BE MORE THAN 10.40mm/m WITH A MAXIMUM OF 13mm IN ANY LENGTH OF PIPE.



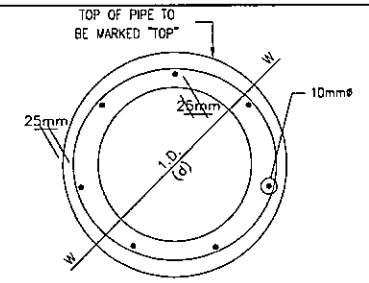
ALL DIMENSION ARE IN MILLIMETERS	TONGUE		GROOVE	
P	A	B	C	D
45/51	23	20	20	23
63	33	30	30	33



2 DS-01 TWO LINES OF CIRCULAR REINFORCEMENT (SECTION)
SCALE N T S

NOTE :

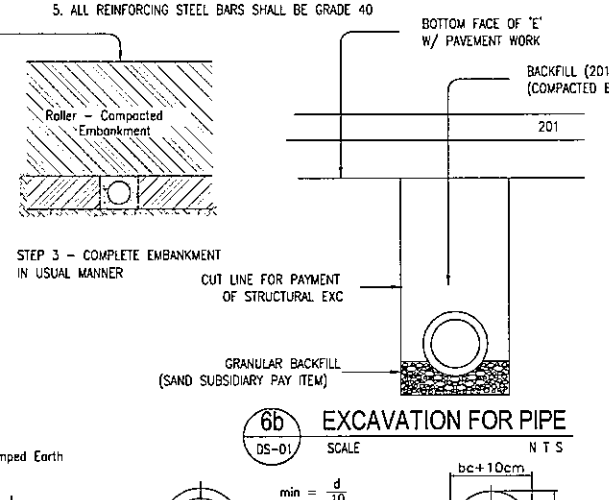
1. THE SPACING (CENTER TO CENTER) OF ADJACENT RINGS OF CIRCUMFERENTIAL REINFORCEMENT IN A CAGE SHALL NOT EXCEED 101mm.
2. 910mm OR MORE WALL THICKNESS THE BELL OR THE SPIGOT OF THE JOINT SHALL CONTAIN AT LEAST ONE CIRCUMFERENTIAL REINFORCEMENT
3. FOR WELDED CONNECTION, THE MINIMUM LAP REQUIREMENT SHALL
4. FOR WIRE CONNECTION, THE MINIMUM LAP REQUIREMENT SHALL BE–20 x DIAMETER (DEFORMED BAR) 40 x DIAMETER (PLAIN BAR)
5. ALL REINFORCING STEEL BARS SHALL BE GRADE 40



3 DS-01 ONE LINE OF ELLIPTICAL REINFORCEMENT (SECTION)
SCALE N T S

1. FOR 63mm OR LESS, WALL THICKNESS PROTECTIVE COVERING, SHALL BE 18mm.
2. FOR 63mm OR GREATER WALL THICKNESS CIRCULAR REINFORCEMENT SHALL BE PLACED 35 TO 50% OF WALL THICKNESS FROM THE INNER SURFACE

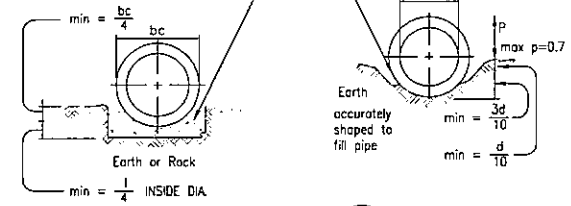
4 DS-01 ONE LINE OF CIRCULAR REINFORCEMENT (SECTION)
SCALE N T S



CALIFORNIA METHOD A

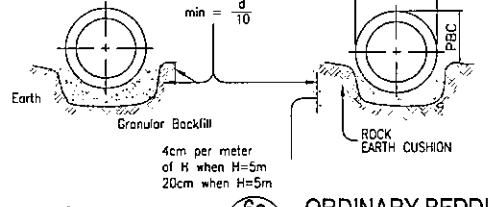
6a DS-01 METHODS OF PIPE INSTALLATION
SCALE N T S

6b DS-01 EXCAVATION FOR PIPE
SCALE N T S



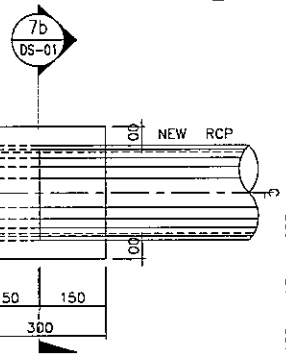
6c DS-01 CONCRETE CRADLE BEDDING
SCALE N T S

6d DS-01 FIRST CLASS BEDDING
SCALE N T S

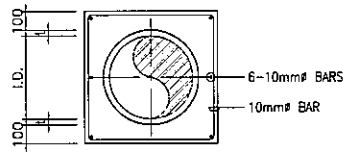


6e DS-01 ORDINARY BEDDING
SCALE N T S

6 DS-01 TYPICAL BEDDING FOR PROJECTING CONDUITS
SCALE N T S



7a DS-01 PLAN
SCALE N T S



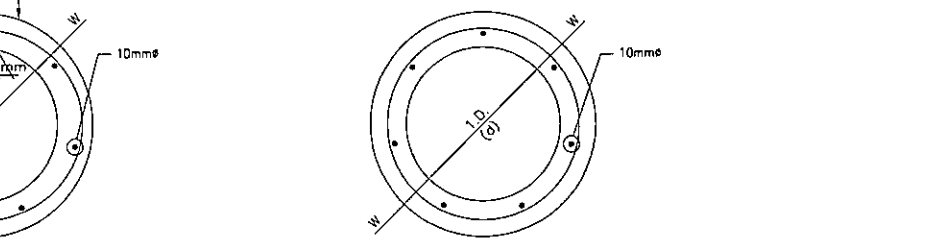
7b DS-01 SECTION
SCALE N T S

HORIZONTAL SKEW ANGLE μ°			
	90°	L=	W+2 [(H–B–A) Ss] + 0.60
	60°		1.1547 (W+2[(H–B–A) Ss] + 0.60]
	45°		1.4142 (W+2[(H–B–A) Ss] + 0.60]

LEGEND:

- W – WIDTH OF ROAD & FORMATION
- X – WIDTH OF SHOULDERS
- I – WIDTH OF PAVEMENT
- H – OVERFILL ABOVE THE PIPE
- L – TOTAL PIPE LENGTH
- B – 0.5 W I ± Xt 2
- t_1 – SLOPE OF PAVEMENT
- t_2 – SLOPE OF SHOULDER
- Z – H – A + B tan
- A – PAVEMENT THICKNESS + 0.30m WHEN THE EDGE OF SHOULDER MEETS THE TOE OF EMBANKMENT 0.50 + 0.30 METERS WHEN THE EDGE OF THE SHOULDER AND THE TOE EMBANKMENT ARE AT DIFFERENT LEVELS
- S_s – SIDE SLOPE
- μ – ANGLE

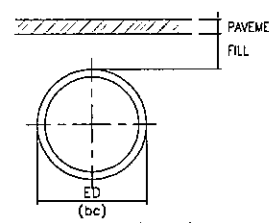
7 DS-01 CONNECTION DETAILS OF RCP EXTENSION
SCALE N T S



5 DS-01 CLASSIFICATION OF TYPICAL DRAINAGE
SCALE N T S

INTERNAL DIAMETER OF PIPE (d) mm.	CLASS II STANDARD RCP										CLASS IV EXTRA STRENGTH RCP					
	WALL THICKNESS A					WALL THICKNESS B				STRENGTH TEST REQUIREMENT, kg PER LINEAR METER OF PIPE	WALL THICKNESS B				STRENGTH TEST REQUIREMENT, kg PER LINEAR METER OF PIPE	
	CONCRETE STRENGTH 280 kg/cm² (4000 psi)					CONCRETE STRENGTH 280 kg/cm² (4000 psi)					CONCRETE STRENGTH 280 kg/cm² (4000 psi)					
	WALL THICKNESS (mm)	CIRCULAR REINFORCEMENT cm²/m		ELLIPTICAL REINFORCEMENT cm²/m	DEPTH D (mm)	WALL THICKNESS (mm)	CIRCULAR REINFORCEMENT cm²/m		ELLIPTICAL REINFORCEMENT cm²/m	DEPTH D (mm)	THREE–EDGE–BEARING METHOD		WALL THICKNESS (mm)	CIRCULAR REINFORCEMENT cm²/m		ELLIPTICAL REINFORCEMENT cm²/m	DEPTH D (mm)	THREE–EDGE–BEARING METHOD	
		INNER CAGE	OUTER CAGE				INNER CAGE	OUTER CAGE			LOAD TO PRODUCE 0.25mm CRACK	ULTIMATE LOAD		INNER CAGE	OUTER CAGE			LOAD TO PRODUCE 0.25mm CRACK	ULTIMATE LOAD
460 (18)	51	1.5	–	1.5	45	63	1.5	–	1.5	45	2250	3400	63	6.0	–	2.3	45	4500	6800
610 (24)	63	2.8	–	2.3	45	76	1.5	–	1.5	45	3000	4500	76	7.7	–	4.9	45	6000	1000
760 (30)	70	3.2	–	3.0	51	89	3.0	–	2.5	51	3700	500	89	7.4	–	59	51	7400	11100
910 (36)	76	3.0	2.1	3.2	63	101	2.5	1.9	2.8	63	4500	6700	101	6.3	4.7	7.0	63	8900	13400
1070 (42)	89	3.4	2.5	3.8	63	114	3.2	2.5	3.5	63	3200	7800	114	7.4	5.8	8.3	63	10500	15700
1220 (48)	101	4.5	3.4	4.9	63	127	3.8	3.0	4.2	63	6000	8900	127	8.9	6.8	9.9	63	12000	17900
1520 (60)	127	6.4	4.7	7.0	63	152	5.3	4.0	5.9	63	7500	11000		CONCRETE STRENGTH, 350 kg / cm²				14900	22400
													152	125	9.5	14.0	63		

REINFORCED CONCRETE PIPES MINIMUM COVER



STANDARD STRENGTH PIPES (CLASS II)

Fill 1/2 E.D FOR FLEXIBLE PAVEMENT
0.15 FOR RIGID PAVEMENT

EXTRA STRENGTH PIPES (CLASS IV)

Fill 0.15m FOR RIGID AND FLEXIBLE PAVEMENT

SAFE OVERFILLS ON COMMERCIAL GRAVITY–CAST MAXIMUM

(d) INSIDE DIAMETER (mm)	SPECIFIED CRACKING D–LOAD, KILOGRAM PER LINEAR METER PER MILLIMETER OF PIPE		SAFE HEIGHTS PIPE COVER IN METERS (H)			
			CLASS II STRENGTH RCP		CLASS IV STRENGTH RCP	
	CLASS II	CLASS IV	METHOD A	METHOD B	METHOD A	METHOD B
610 (24)	7.32	9.77	8.4	NO LIMIT		10.0 NO LIMIT
760 (30)	6.59	9.77	7.8	NO LIMIT		10.2 NO LIMIT
919 (36)	6.59	9.77	7.6	NO LIMIT		10.3 NO LIMIT
1070 (42)	6.59	9.77	7.3	30.5		10.4 NO LIMIT
1220 (48)	6.59	9.77	7.0	11.8		10.5 NO LIMIT
1520 (60)	4.88	7.32	7.1	9.6		10.5 NO LIMIT

NOTE : IN PRACTICAL APPLICATION OF THE ABOVE TABLES THE OVERFILL VALUES ARE NOT TO BE CONSIDERED CLOSER THAN THE NEAREST 50cm; DECIMALS OF A METER ARE SHOWN TO FACILITATE PLOTTING OF DESIGN CURVES; IF DESIRED.

HEADWALLS, WING WALLS AND CATCHBASINS

MASONRY MAYBE USED AS AN ALTERNATIVE TO CONCRETE IF CALLED FOR IN THE SPECIAL SPECIFICATIONS

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:
PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN–AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:
ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR
DATE:

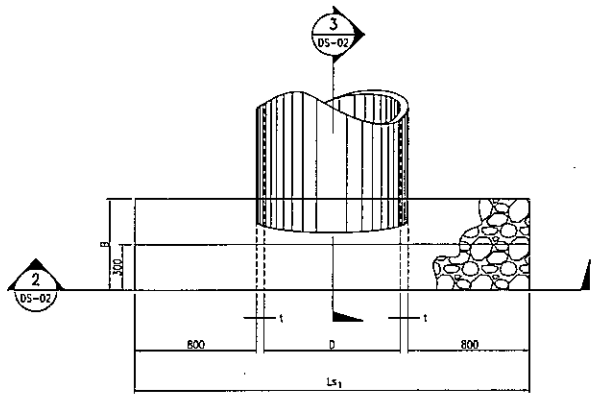
SUBPROJECT NAME:
REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW–ADS–13–02
LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER – I		
PREPARED BY:	LOREMEL DANUCO	ENGINEER – I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

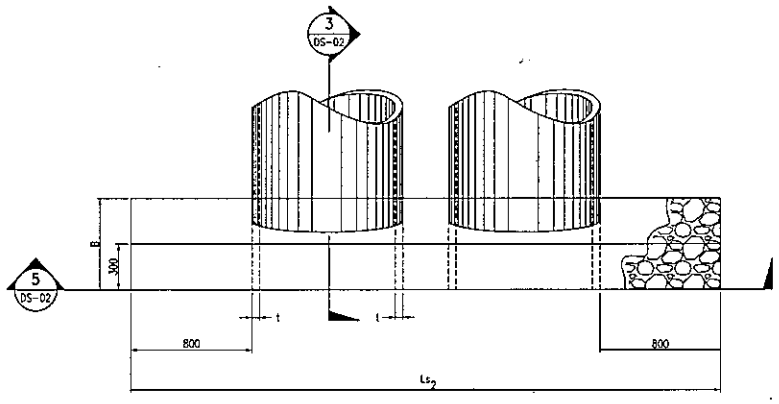
APPROVED BY:
GRAHAM JOHNSON–JONES
MANAGER – PHYSICAL WORKS

SHEET CONTENTS:
REINFORCED CONCRETE PIPE CULVERT (RCPC) DETAILS AND TABLES
SCALE: AS SHOWN

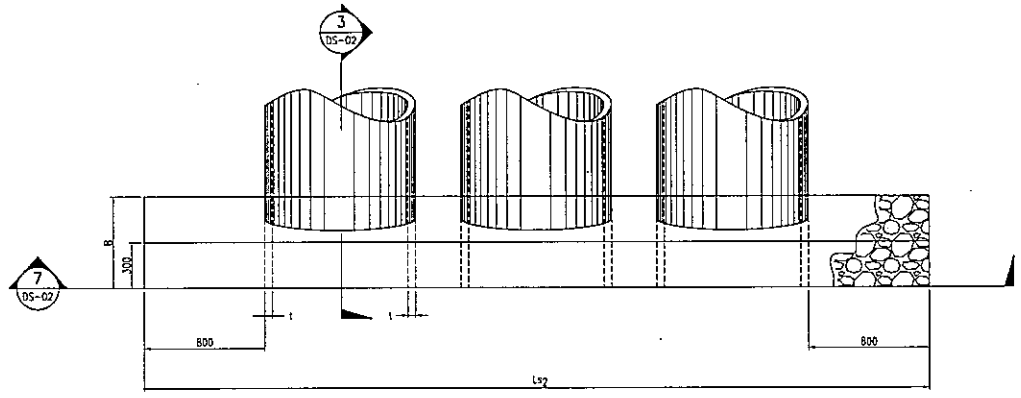
DWG NUM: RH DS-01
SHEET 17 OF 23



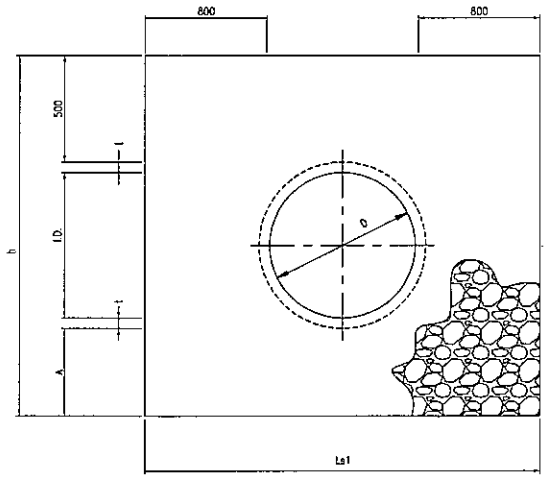
1 DS-02 PLAN SCALE 1:20 M



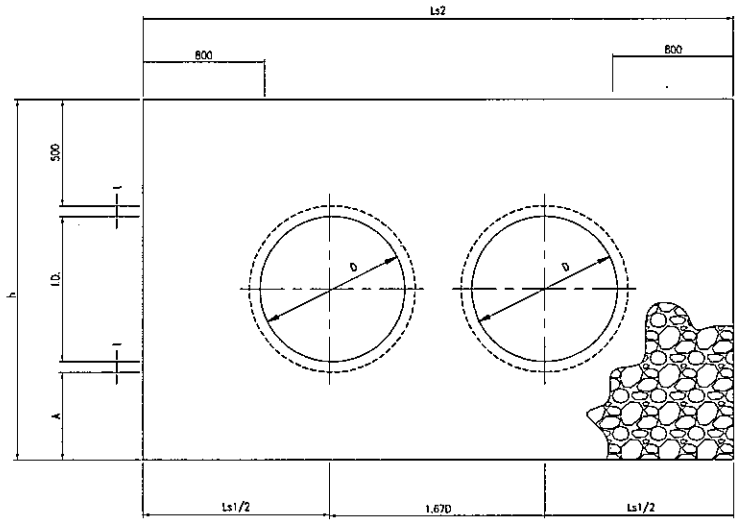
4 DS-02 PLAN SCALE 1:20 M



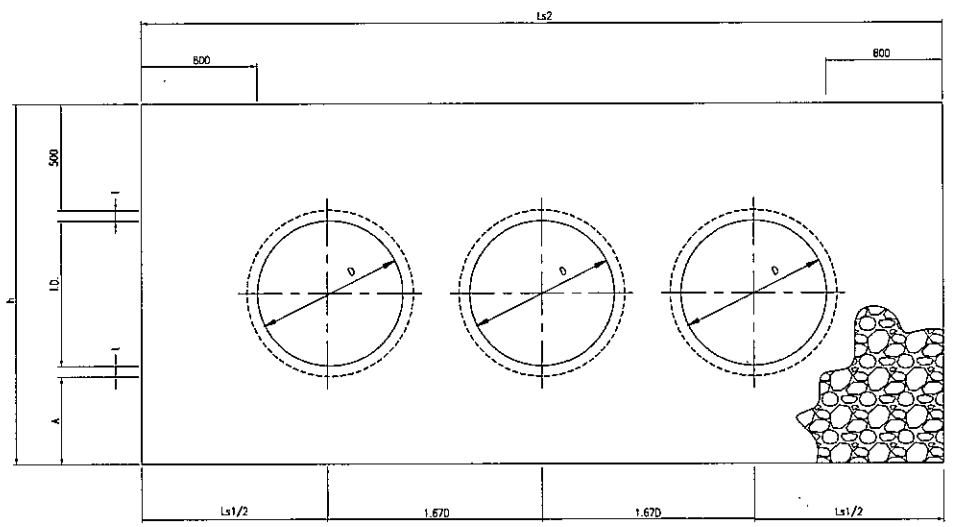
6 DS-02 PLAN SCALE 1:20 M



2 DS-02 STRAIGHT TYPE (SINGLE) SECTION SCALE 1:20 M

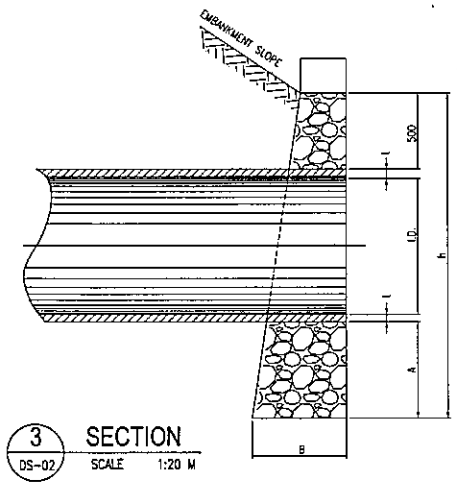


5 DS-02 STRAIGHT TYPE (DOUBLE) SECTION SCALE 1:20 M

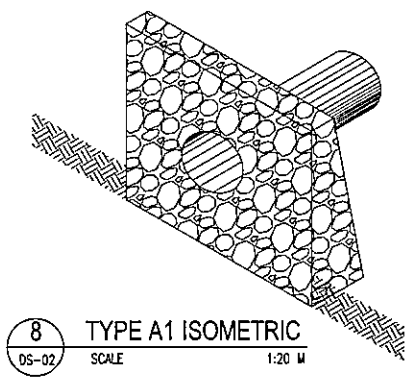


7 DS-02 STRAIGHT TYPE (TRIPLE) SECTION SCALE 1:20 M

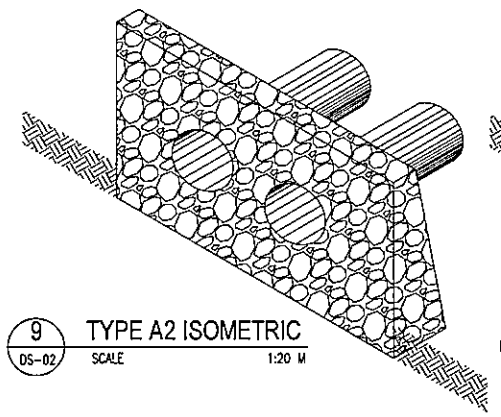
QUANTITIES	
BARREL SIZE	MASONRY
mm.	cu. m.
1 - 610	0.81
1 - 760	2.74
1 - 910	3.98
1 - 1070	5.45
1 - 1220	7.25
1 - 1520	11.62
2 - 610	2.48
2 - 760	4.16
2 - 910	6.00
2 - 1070	8.29
2 - 1220	10.99
2 - 1520	17.77
3 - 610	3.13
3 - 760	5.21
3 - 910	7.50
3 - 1070	10.38
3 - 1220	13.78
3 - 1520	22.28



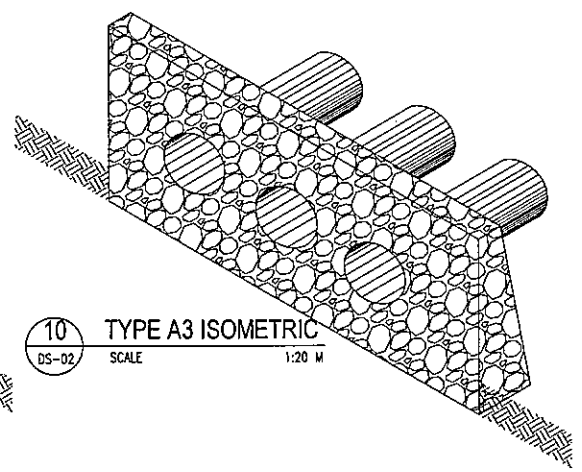
3 DS-02 SECTION SCALE 1:20 M



8 DS-02 TYPE A1 ISOMETRIC SCALE 1:20 M



9 DS-02 TYPE A2 ISOMETRIC SCALE 1:20 M



10 DS-02 TYPE A3 ISOMETRIC SCALE 1:20 M

STRAIGHT TYPE HEADWALL (NORMAL)								
COMMON DIMENSIONS						BARREL INSTALLATION		
PIPE DIAMETER (D)	t	A	B	h	w	SINGLE Ls1	DOUBLE Ls2	TRIPLE Ls3
		.67*h	.60*h	A+2t+.3	D+2t+.3	D+2t+.8*2	Ls1+w	Ls1+2w
0.610	0.076	0.41	1.09	1.67	1.06	2.36	3.42	4.49
0.760	0.089	0.51	1.27	1.95	1.24	2.54	3.78	5.01
0.910	0.102	0.61	1.45	2.22	1.41	2.71	4.13	5.54
1.070	0.114	0.72	1.63	2.51	1.60	2.90	4.50	6.09
1.220	0.127	0.82	1.81	2.79	1.77	3.07	4.85	6.62
1.520	0.152	1.02	2.17	3.34	2.12	3.42	5.55	7.67

NOTE : TYPE A3 FOR TRIPLE BARREL INSTALLATION

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:

PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR

PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:

ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR

DATE:

SUBPROJECT NAME:

REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)

PROJECT CODE: PW-ADS-13-02

LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	LOREMEL DANUCO	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:

GRAHAM JOHNSON-JONES
MANAGER / PHYSICAL WORKS

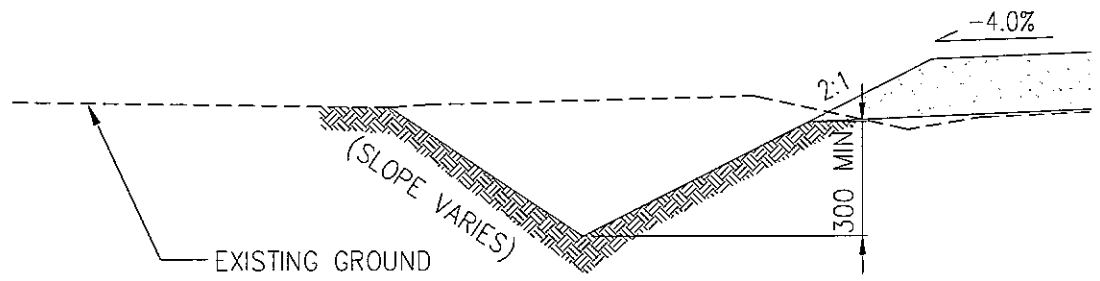
SHEET CONTENTS:

GROUTED RIPRAP HEADWALL/ STRAIGHT TYPE FOR NORMAL INSTALLATION (Gr-HST)

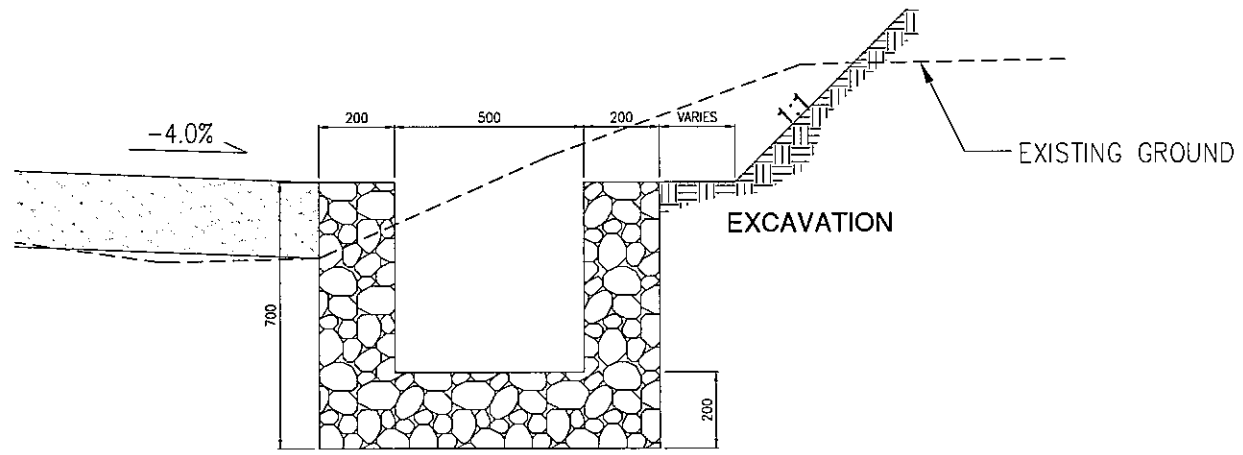
SCALE: AS SHOWN

DWG NUM: RH DS-02

SHEET 18 OF 23



1 / D5-04 TRIANGULAR EARTH DITCH DETAIL
SCALE 1:10 M



2 / DS-04 RECTANGULAR LINED CANAL DETAIL
SCALE 1:10M

Australian AID
PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:
PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:
ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR
DATE:

SUBPROJECT NAME:
REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW-ADS-13-02
LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	LOREMEL DANUCO	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:
GRAHAM JOHNSON-JONES
MANAGER - PHYSICAL WORKS

SHEET CONTENTS:
TRIANGULAR EARTH DITCH AND LINED CANAL DETAIL
SCALE: AS SHOWN

DWG NUM: RH DS-03
SHEET 19 OF 23

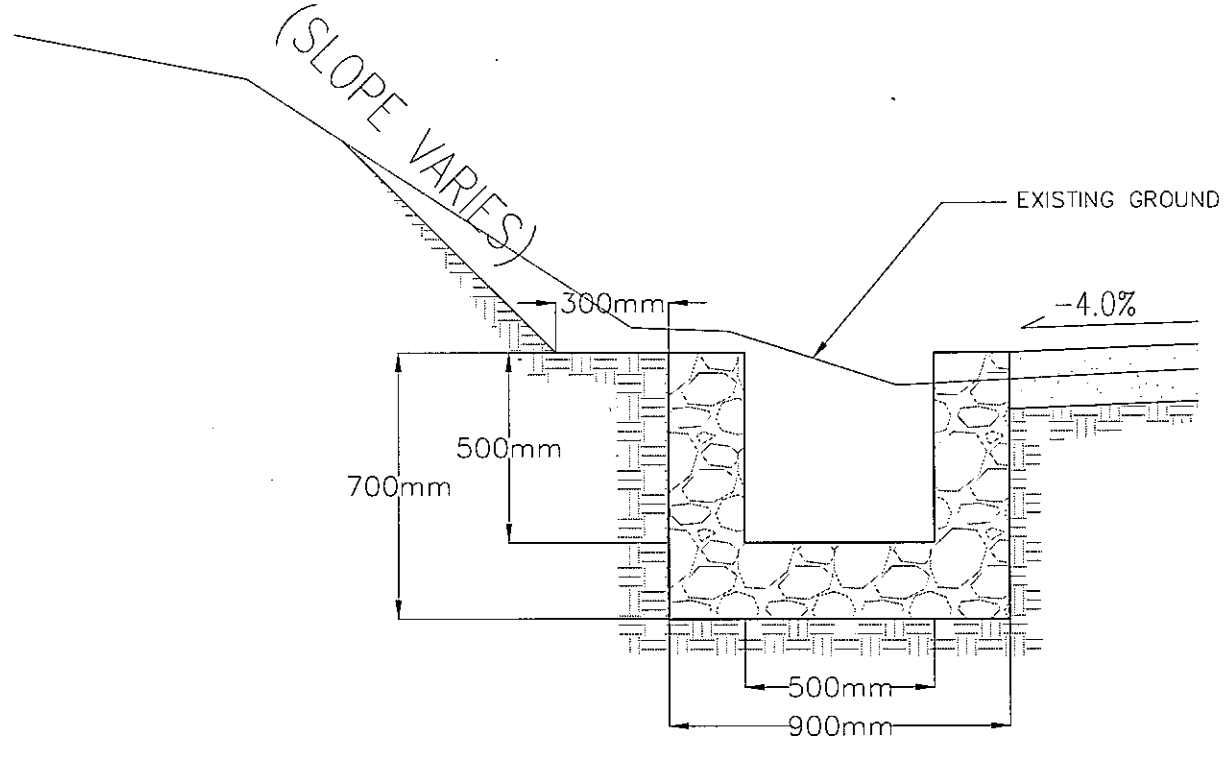
E. DRAINAGE SCHEDULES AND CROSS SECTION

SCHEDULE OF DRAINAGE STRUCTURES

STATION	DESIGN DIMENSIONS				INLET STRUCTURES	OUTLET STRUCTURES	REMARKS
	TYPE OF CULVERT	NO. OF BARREL	WIDTH/DIAM.	LENGTH			
0+629.00	RCPC CLASS II	1	0.910	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 910mm x 9.0m
0+733.00	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
0+811.32	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
1+049.90	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
1+366.00	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
1+565.50	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
1+896.00	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
2+041.50	RCPC CLASS II	1	0.910	11.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 910mm x 11.0m
2+129.00	RCPC CLASS II	1	0.910	11.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 910mm x 11.0m
2+277.00	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
2+347.00	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
2+433.00	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
2+665.20	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m . Provide Headwall @ Left Side
2+686.00	RCPC CLASS II	1	0.910	8.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	INSTALL NEW 1-910mm x 8.0m PROVIDE STRAIGHT HEADWALL
3+353.50	RCPC CLASS II	1	0.610	11.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 11.0m
3+393.00	RCPC CLASS II	1	0.910	8.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	INSTALL NEW 1-910mm x 8.0m . PROVIDE STRAIGHT TYPE HEADWALL
3+528.70	RCBC	2	3.0 x 3.0	7.00			CLEAN & MAINTAIN EXISTING 2 - 3.0 x 3.0 x 7.0m RCBC
3+972.00	RCPC CLASS II	1	0.910	10.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 910mm x 10.0m
4+121.00	RCPC CLASS II	1	0.910	11.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 910mm x 11.0m
4+229.00	RCPC CLASS II	1	0.910	11.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 910mm x 11.0m
4+527.00	RCPC CLASS II	1	0.610	9.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 9.0m
4+715.00	RCPC CLASS II	1	0.610	10.00	STRAIGHT HEADWALL	STRAIGHT HEADWALL	CLEAN & MAINTAIN EXISTING 1 - 610mm x 10.0m

SCHEDULE OF MASONRY LINE CANAL

STATION LIMITS	LOCATION	LENGTH
1+580.00 - 1+880.00	LEFT SIDE	300.0 m.
2+740.00 - 2+960.00	LEFT SIDE	220.0 m.



1 / DC-01 MASONRY LINE CANAL DETAIL
SCALE 1:10M

Australian AID

PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:
PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:
ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR
DATE:

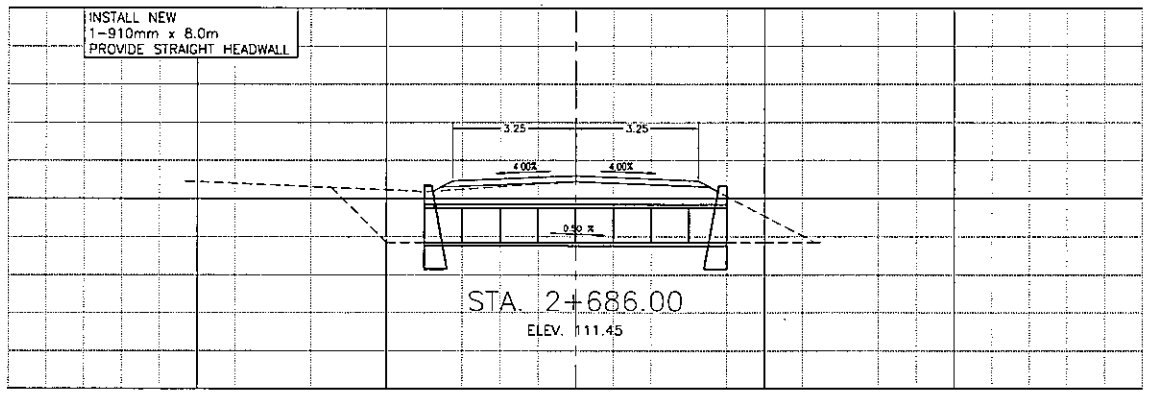
SUBPROJECT NAME:
REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW-ADS-13-02
LOCATION: BAYUGAN, AGUSAN DEL SUR

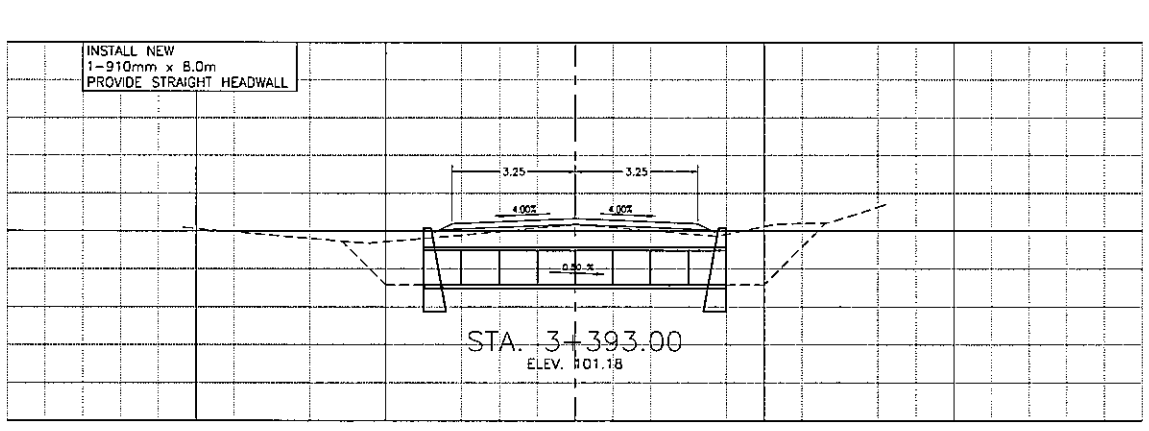
	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	LOREMEL DANUCO	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:
GRAHAM JOHNSON-JONES
MANAGER - PHYSICAL WORKS

SHEET CONTENTS:
SCHEDULE OF DRAINAGE STRUCTURES AND MASONRY LINE CANAL
SCALE: AS SHOWN

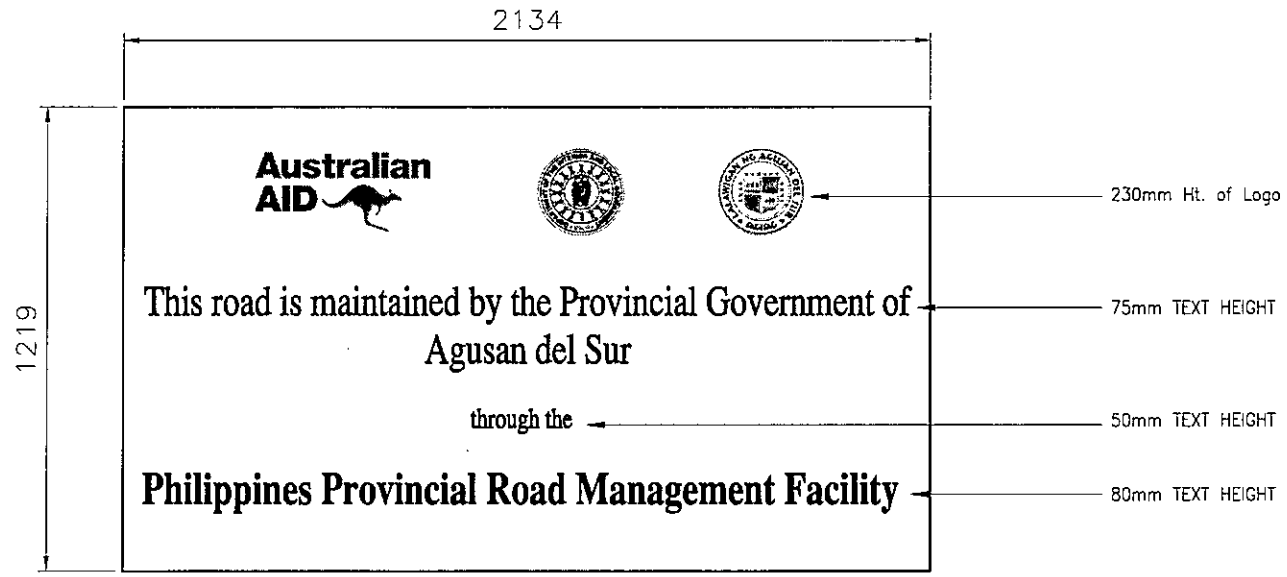
DWG NUM: RH / DC-01
SHEET 20 OF 23



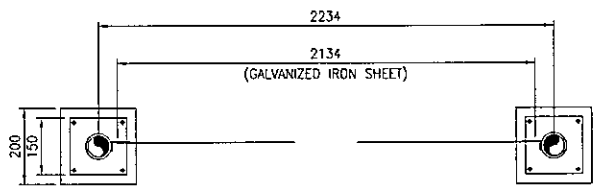


Australian AID PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)	PRIMARY PROPONENT: PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR PATIN-AY PROSPERIDAD AGUSAN DEL SUR	CONFORMED BY: ADOLPH EDWARD G. PLAZA PROVINCIAL GOVERNOR DATE:	SUBPROJECT NAME: REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION) PROJECT CODE: PW-ADS-13-02 LOCATION: BAYUGAN, AGUSAN DEL SUR		NAME:	POSITION:	SIGNATURE:	DATE:	APPROVED BY:	SHEET CONTENTS: DRAINAGE CROSS SECTIONS SCALE: AS SHOWN	DWG NUM: RH / DC-02 SHEET 21 OF 23
				DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I				
				PREPARED BY:	LOREMEL DANUCO	ENGINEER - I				
				ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER			GRAHAM JOHNSON-JONES MANAGER - PHYSICAL WORKS	

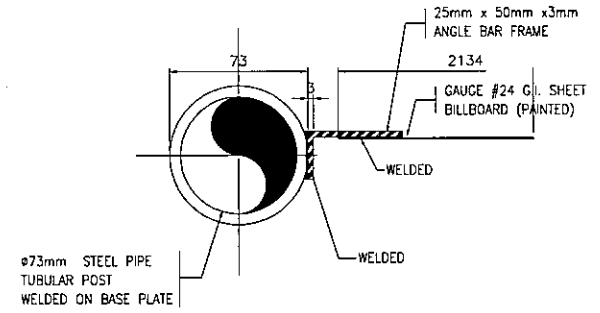
F. MISCELLANEOUS



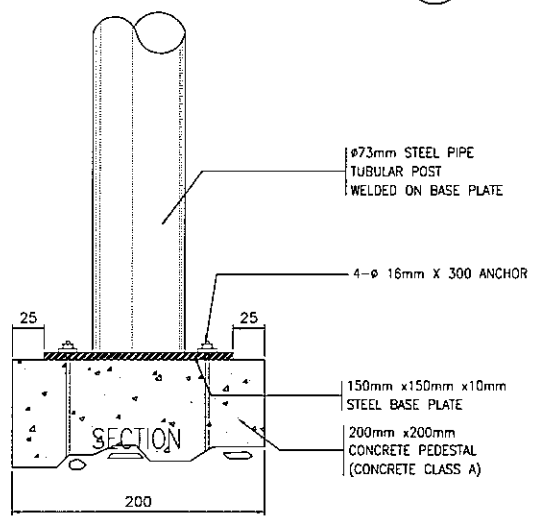
1 MS-01 DETAILED SIGNAGE
SCALE 1:10 M

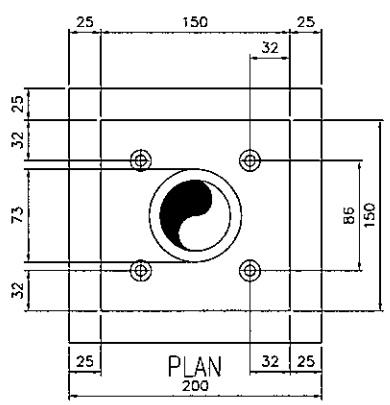


5 MS-01 DETAILED PLAN
SCALE 1:10 M

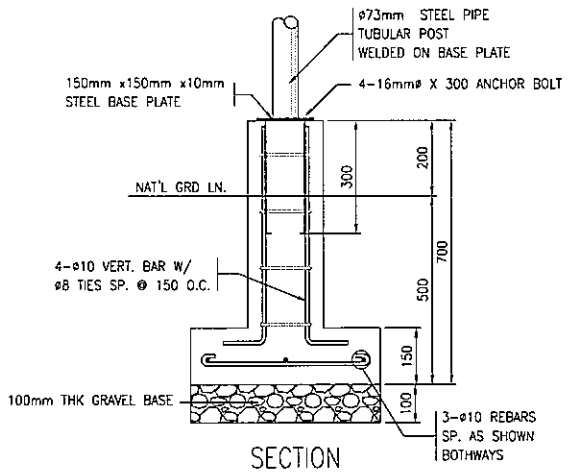


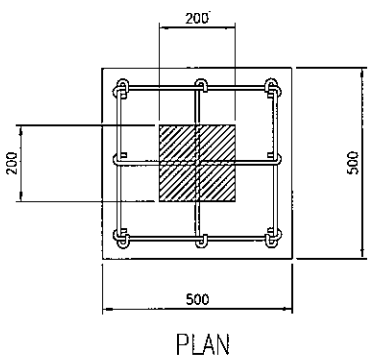
2a MS-01 SPOT DETAIL
SCALE 1:2 M



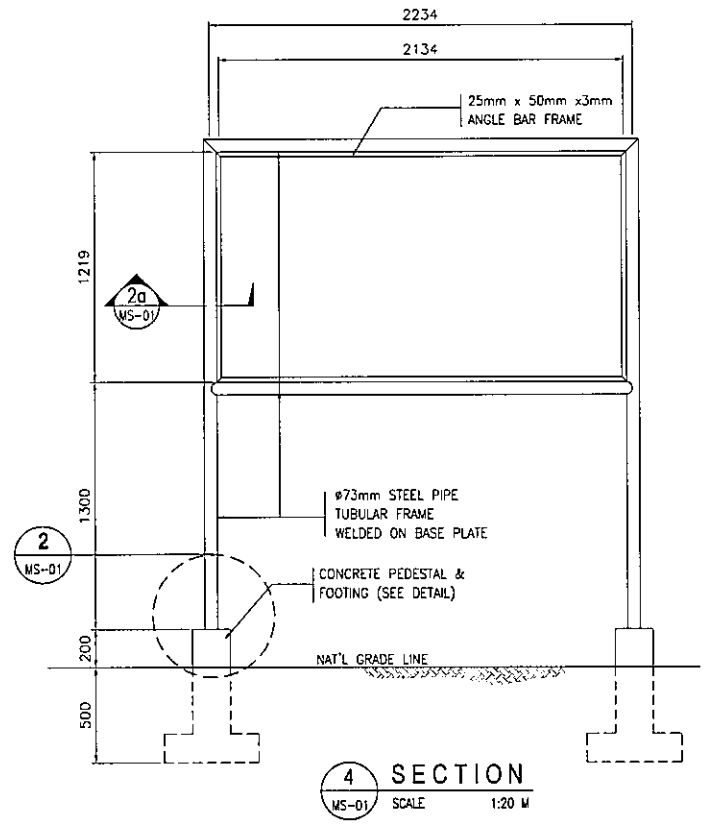


2 MS-01 FRONT ELEVATION
SCALE 1:3 M





3 MS-01 DETAIL OF CONCRETE FOOTING & CONCRETE PEDESTAL
SCALE 1:10 M



4 MS-01 SECTION
SCALE 1:20 M

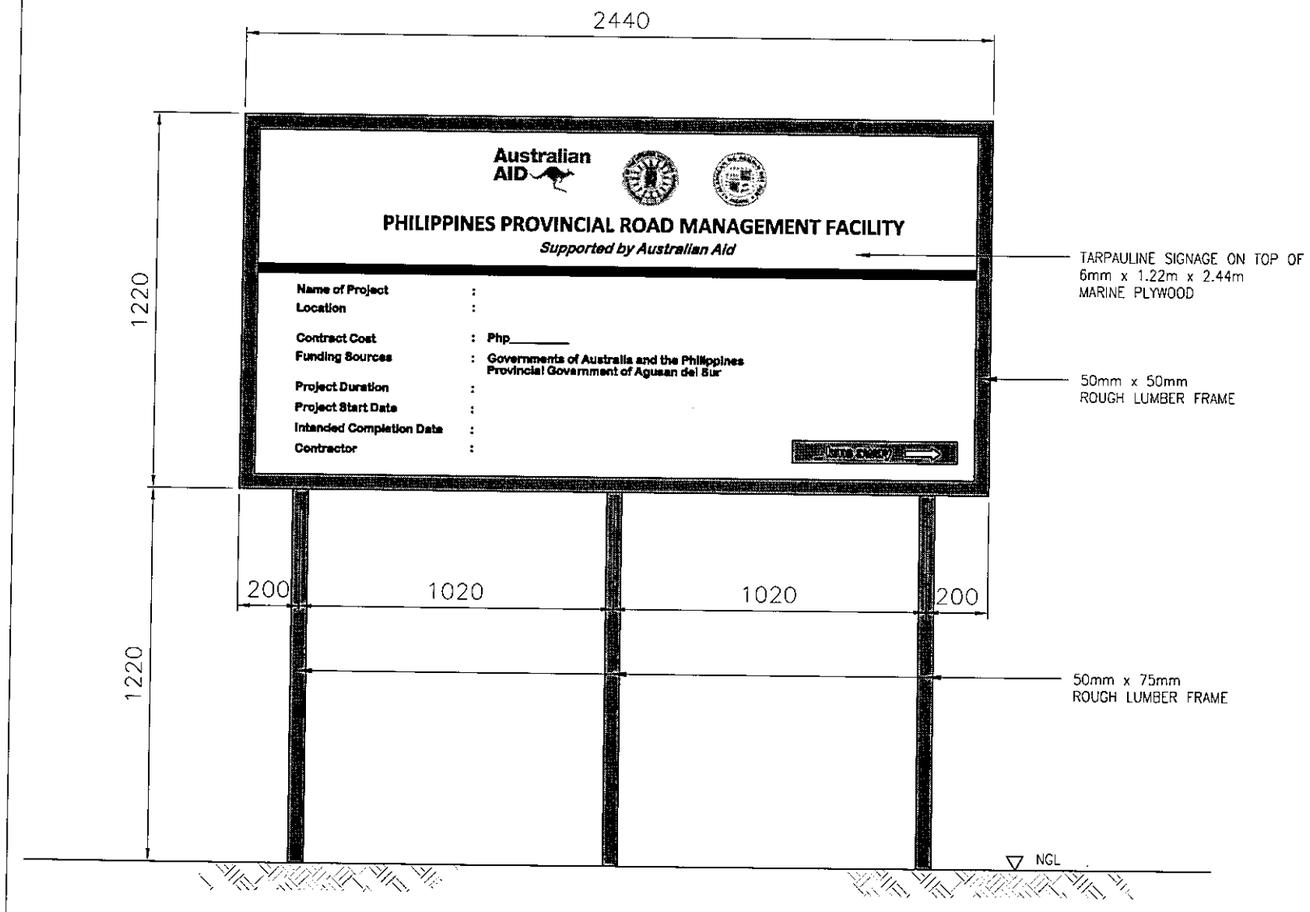
NOTE:

1. ALL STEEL COMPONENTS SHALL BE B.I. PRIMED WITH RED LEAD PRIMER, ACRYLIC (SEMI-GLOSS) PAINT (WHITE EXTERIOR GRADE)
2. USE A TWO PART ALL-PURPOSE EPOXY ADHESIVE (THERMOPLASTIC MATERIAL) FOR RIGID CHEMICAL BONDING BETWEEN TARPAULINE AND PLYWOOD.

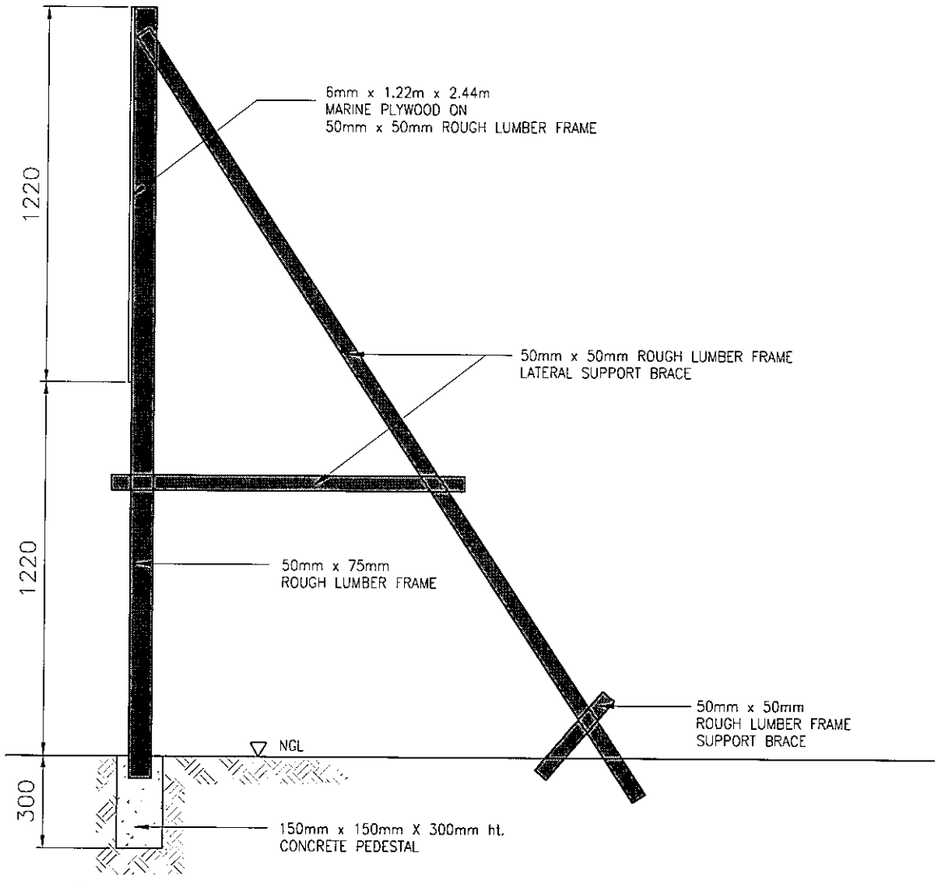
Australian AID
PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT: PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR, PATIN-AY PROSPERIDAD AGUSAN DEL SUR	CONFORMED BY: ADOLPH EDWARD G. PLAZA, PROVINCIAL GOVERNOR, DATE:	SUBPROJECT NAME: REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION); PROJECT CODE: PW-ADS-13-02; LOCATION: BAYUGAN, AGUSAN DEL SUR		NAME:	POSITION:	SIGNATURE:	DATE:	APPROVED BY:	SHEET CONTENTS:	DWG NUM:
			DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I			GRAHAM JOHNSON-JONES, MANAGER / PHYSICAL WORKS	PROJECT INFORMATION SIGN DETAIL	RH MS-01
			PREPARED BY:	BLANCA NIOG	ENGINEER - I					
			ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER				SCALE: AS SHOWN	SHEET 22 OF 23

NOTE:
LUMBER TO BE USED SHALL BE APPROVED BY THE ENGINEER..



1 MS-02 FRONT ELEVATION
SCALE 1:3 M



2 MS-02 SIDE ELEVATION
SCALE 1:3 M

Australian AID
PROVINCIAL ROAD MANAGEMENT FACILITY (PRMF)

PRIMARY PROPONENT:
PROVINCIAL GOVERNMENT OF AGUSAN DEL SUR
PATIN-AY PROSPERIDAD AGUSAN DEL SUR

CONFORMED BY:
ADOLPH EDWARD G. PLAZA
PROVINCIAL GOVERNOR
DATE:

SUBPROJECT NAME:
REHABILITATION AND MINOR IMPROVEMENT WORKS OF NRJ BAYUGAN - SAN LUIS ROAD (MARCELINA-BUCAC SECTION)
PROJECT CODE: PW-ADS-13-02
LOCATION: BAYUGAN, AGUSAN DEL SUR

	NAME:	POSITION:	SIGNATURE:	DATE:
DRAWN BY:	CHARLES KIM O. PLAZA	ENGINEER - I		
PREPARED BY:	BLANCA NIOG	ENGINEER - I		
ENDORSED BY:	PAMELA D. YUCOSING	PROVINCIAL ENGINEER		

APPROVED BY:
GRAHAM JOHNSON-JONES
MANAGER / PHYSICAL WORKS

SHEET CONTENTS:
PROJECT SIGN BOARD
SCALE: AS SHOWN

DWG NUM:
RH MS-02
SHEET 23 OF 23