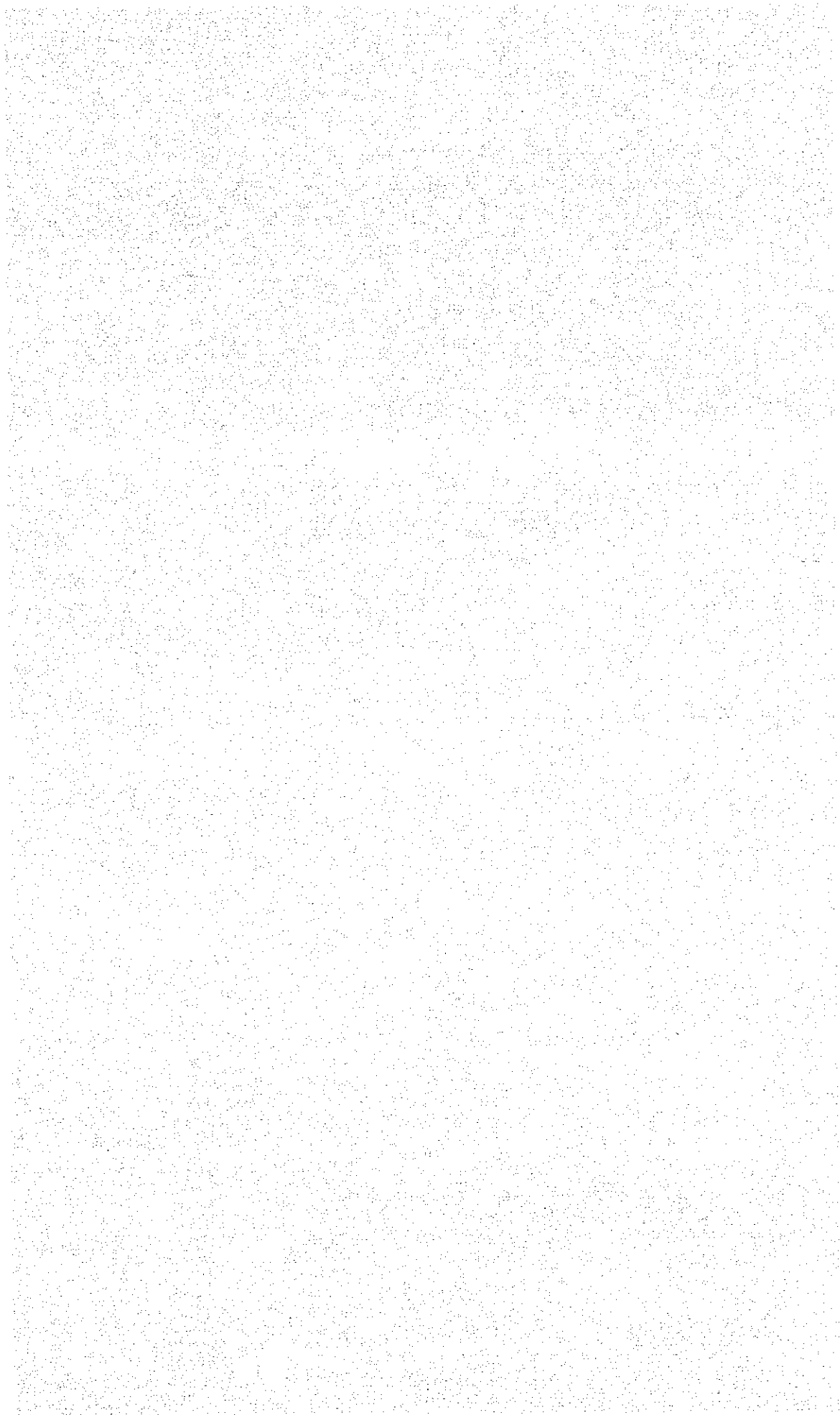


II. INSTRUCTIONS TO BIDDERS



Instructions to Bidders

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INSTRUCTIONS TO BIDDERS

IB-01 BIDS TO BE CONSIDERED

Only firms or joint ventures invited by JICA may submit Bids.

Bids will be considered only from those Bidders who have submitted the necessary cash deposit to the JICA, Manila, as called for in Clause IB-04 BID SECURITY, and who have visited the site and have registered accordingly at the JICA, Manila Office.

IB-02 PREPARATION OF BIDS

The Bidders are required to use the prescribed attached BID FORM. The _____ will not consider Bids submitted on other than the prescribed Bid form.

All Bids shall be prepared in English and submitted in one original and two (2) copies, at the place and on or before the hour and date fixed for receipt of Bids in accordance with the Invitation for Bids, and shall conform to the following requirements.

- (a) One copy of the Bid shall be marked "Original" and each of the other copies shall be marked "copy". In cases of discrepancies between the original and copies, the original shall govern.

The original and the copies of Bids shall be made on the Bid Forms provided and made a part of these Bid Documents, which shall be returned in their entirety with all blanks in the Bill of Quantities properly filled in and manually signed in ink. Bids written in pencil will not be considered.

If erasures or other changes appear, each such erasure or change shall be fully signed by the same person who signed the Bid. Modifications of Bids will be considered only by letter signed by the same person, who signed the Bid and only if received at the _____ Office, in _____, prior to the time of the opening of Bids specified in the Invitation for Bids.

- (b) Bids submitted shall be on all items in the Bill of Quantities for the work schedule the bidder is prequalified and Bids submitted for only a part of the work schedule will not be considered. All Bid shall be typewritten or completed in ink both in words and in figures. In case of discrepancy between the words and figures, the price in words shall prevail. Also, in case of discrepancy in the unit price and the extension thereof, the unit price shall govern.
- (c) The Bids shall be signed by a person duly authorized to do so. Bids submitted by corporations shall bear the seal of the corporation and be attested by its Secretary. Bids submitted by Joint ventures of two or more firms shall be accompanied by the document of formation of the joint venture duly registered and authenticated before an official deputized to witness sworn statements, in which is defined precisely the function, its period of duration, the obligate it, the participation of the several firms forming the joint venture, and any other information which will permit a full appraisal of its functioning.
- (d) Both the original and the copies of the Bid shall contain all of the information and data required in

Clause IB-09 DATA TO BE SUBMITTED WITH BIDS, to be furnished by the Bidder. Complete information and data shall be submitted with the Bid and no information and data must be submitted with the Bid and no information and data received from the Bidders after the opening of the Bids will be considered in the evaluation of Bids. No Bid will be accepted after the date and hour specified in the Invitation for Bids for delivery either to the the Office,
_____.

- (e) The JICA assumes no obligation or responsibility whatsoever to compensate or indemnify the Bidders for any expense or loss which they may incur in the preparation of the Bids, nor does the JICA guarantee that an award will be made under these Bid Documents.

IB-03 BASIS ON WHICH BIDS ARE REQUESTED

The form of the Bid to be awarded is on a fixed unit price basis of payment to the bidder, as specifically set forth in the Bid Forms. Bids are requested on the above basis and a Bid which is on any other basis will not be considered. A Bid which is qualified by the Bidder by the insertion or attachment of unsolicited terms or conditions will be rejected. Prices quoted shall be in Philippine Pesos.

IB-04 BID SECURITY

The original of each Bid shall be accompanied by a Bid Security in an amount equivalent to five percent (5%) of the total Bid price in the form of cash, certified check or bank draft or guarantee issued by any reputable bank, acceptable to the JICA, or surety bond underwritten by domestic bonding companies approved by the JICA or any combination thereof, payable to the JICA, as a guarantee that the successful bidder will, within thirty (30)

calendar days from receipt of the Notice of Award enter into Contract with the JICA and furnish the Performance Security and Evidence of Working Capital for the complete and faithful performance of the Works specified in these Bid Documents. Bid Security shall be valid for at least one hundred twenty (120) calendar days after the opening of Bids. In case the successful bidder fails for any reason to execute the Contract and/or to furnish the Performance Security and Evidence of Working Capital within the stipulated time, his Bid Security shall be forfeited to the JICA as liquidated damages and not by way of penalty, since the exact damage caused to the JICA by such failure is difficult if not impossible to determine accurately.

The Bid Security of the successful bidder will be returned within thirty (30) calendar days following execution of the Contract, but in any event, not later than one hundred twenty (120) calendar days following the opening of Bids. The Bid Security of unsuccessful bidders will be returned after the successful Bidder has signed the Contract and furnished the Performance Security and Evidence of Working Capital.

A Bid which is not accompanied by a satisfactory Bid Security will not be considered.

IB-05 DELIVERY OF BIDS

Bids shall be enclosed in sealed envelope marked in capital letters, the complete and exact title of the Project as indicated in the Invitation for Bids, and shall be addressed and delivered to:

(or)

on or before the hour and date fixed for receipt of Bids as stipulated in the Invitation for Bids.

Bids with the satisfactory Bid Security shall be delivered on or before the designated time to be eligible for consideration. Bids received otherwise after the Bid Closing time will be returned unopened to the bidders. The JICA will not be responsible for prematurely opened Bids which are not properly marked. Modification of Bids received after the Bid Closing Time will not be considered.

IB-06 WITHDRAWAL OF BIDS

On presentation of receipt, the Bidder will be allowed to withdraw his Bid prior to the time set for the opening of Bids if he communicates his purpose in writing to the JICA and his Bid shall be returned to him unopened. No Bid can be withdrawn for any reason whatsoever after the opening of Bids has commenced.

IB-07 BIDDER'S RESPONSIBILITY

The Bidder shall be responsible for having taken steps to carefully examine all of the Bid Documents and also to have fully informed himself as to all conditions, local and otherwise, affecting the performance of the Contract Work, and to have formulated an estimate of the facilities available and needed. Failure to do so will be at the Bidder's risk.

It shall be the sole responsibility of Bidders to determine and to satisfy themselves by such means as they consider necessary or desirable as to all matters pertaining to this Contract, including the locations and nature of the work, climatic conditions, the nature and condition of the terrain, geological conditions at the

site, transportation and communication facilities, the requirements and availability of labor, water, electric power and roads, the locations and extent of aggregate source, earth and other natural materials for use in the Contract Work, and all other factors that may affect the cost, duration, and execution of the Contract Work. The Bidder, by the act of submitting a Bid, acknowledges that he has inspected the Site and determined the general characteristics and scope of the Contract Work and the conditions stated above.

The JICA will not assume any responsibility regarding interpretation obtained by the bidder, or from the information furnished by the JICA. No verbal agreement of conversation with any Officer, employee, or agent of the JICA or the Engineer, either before or after the execution of the Contract, shall affect or modify any of the terms or obligations contained in these Bid Documents.

IB-08 LAWS

By submitting a Bid, the Bidders are considered to have become familiar with all laws, acts and regulations of the Philippines that in any manner may affect or apply to the operations and activities of the Contractor under the Contract, or in connection therewith. The Contractor shall be the employer of the personnel whom he will utilize for the performance of the Contract Work and he shall be obligated to comply with the labor laws of the Philippines.

IB-09 DATA TO BE SUBMITTED WITH BIDS

All Bids shall contain the following documents:

- (a) An organization chart, and complete qualifications and experience data sheets for the supervisory

personnel he proposes to employ for the execution of the Contract Work. This chart shall be accompanied by a bar graph showing the scheduled data and length of employment on the Project. Alternate key personnel of equal competence may be substituted later subject to the approval of the JICA.

- (b) A construction schedule showing the detailed proposal plan of operation and construction of each main item in the Bill of Quantities from start to completion of the Contract Work, and the schedule of utilization of the different items of major construction. The schedules shall include construction and manpower mobilization. The schedules shall be in a bar graph form with months shown as the least unit of time and each main item on a separate horizontal line. The schedule shall also show expected monthly accomplishment and financial requirements based on the Bill of Quantities.
- (c) A list of equipment proposed to be used for the performance of the Contract Work. This list shall specifically enumerate the number, make, type and capacity of all major items of equipment. Minor items of equipment, classified by categories, shall also be enumerated. The list of major equipment shall set forth separately the construction equipment owned by the Bidder and that with the Bidder intends to purchase or provide from other sources and the sources thereof.
- (d) Bidder's declaration certifying that he has fully informed himself of all conditions, local and otherwise, affecting the carrying out of the Contract Work and that his proposal has been prepared in

strict accordance with the terms and conditions of the Bid Documents.

A Bid which is not accompanied by the above-mentioned requirements will not be considered.

IB-10 BIDDER'S COMPETENCE

The JICA reserves the right to examine fully the competence and responsibility of a Bidder at any time before award of Bids by further verification of the Bidder's Prequalification Confidential Statement, or by any other means; and to reject any Bid when facts as to business and technical organization, or financial resources, or construction experience have been misrepresented and in JICA's opinion would justify rejection.

IB-11 INTERPRETATION OF BID DOCUMENTS

If a prequalified Bidder is in doubt as to the true meaning of any part of the Bid Documents, the Bidder may submit a written request for an interpretation to the JICA allowing sufficient time for a reply to reach him before submission of his Bid. Any substantive interpretation given will be issued by the JICA in the form of a Supplemental Notice furnished to all prospective Bidders.

IB-12 EVALUATION AND COMPARISON OF BIDS

Promptly after the opening of Bids, the JICA will undertake a detailed study and appraisal of all the Bids submitted. In making its Bid evaluation, the JICA will not be bound to award a contract to the bidder submitting the Bid with the lowest indicated cost, but will take into consideration the Bid prices, unbalance Bids, proposed construction schedule, financial and equipment resources, experiences in the similar construction works and other relevant factors that may affect the successful completion of the contract works.

Should there be only one (1) Bidder who has submitted Bid for a Contract Work Schedule, the said Contract Work Schedule will be awarded to him, provided his unit Bid prices are within the allowable limits of the JICA estimates.

IB-13

AWARD OF CONTRACT

Bids will be opened simultaneously by the Bid committee in the presence of the bidders who participate in the bidding at the time of opening.

Award of Contract shall be made by Schedule in the proposal and the responsible bidder who offered the lowest quotation (most advantageous to the JICA) will be given preference in the award of the Contract Work.

In the determination of the lowest responsible Bidder, the following rules shall be observed.

- (a) The lower limit is minus twenty five (25) percent of either the JICA's estimate or the average of all Bids accepted and considered, which ever is lower.

- (b) The upper limit is plus fifteen (15) percent of the JICA's estimate but in no case shall the unit price for any major items thereof (item comprising twenty (20) percent or more of the total project cost) exceed twenty five (25) percent of the JICA's estimate for such item.

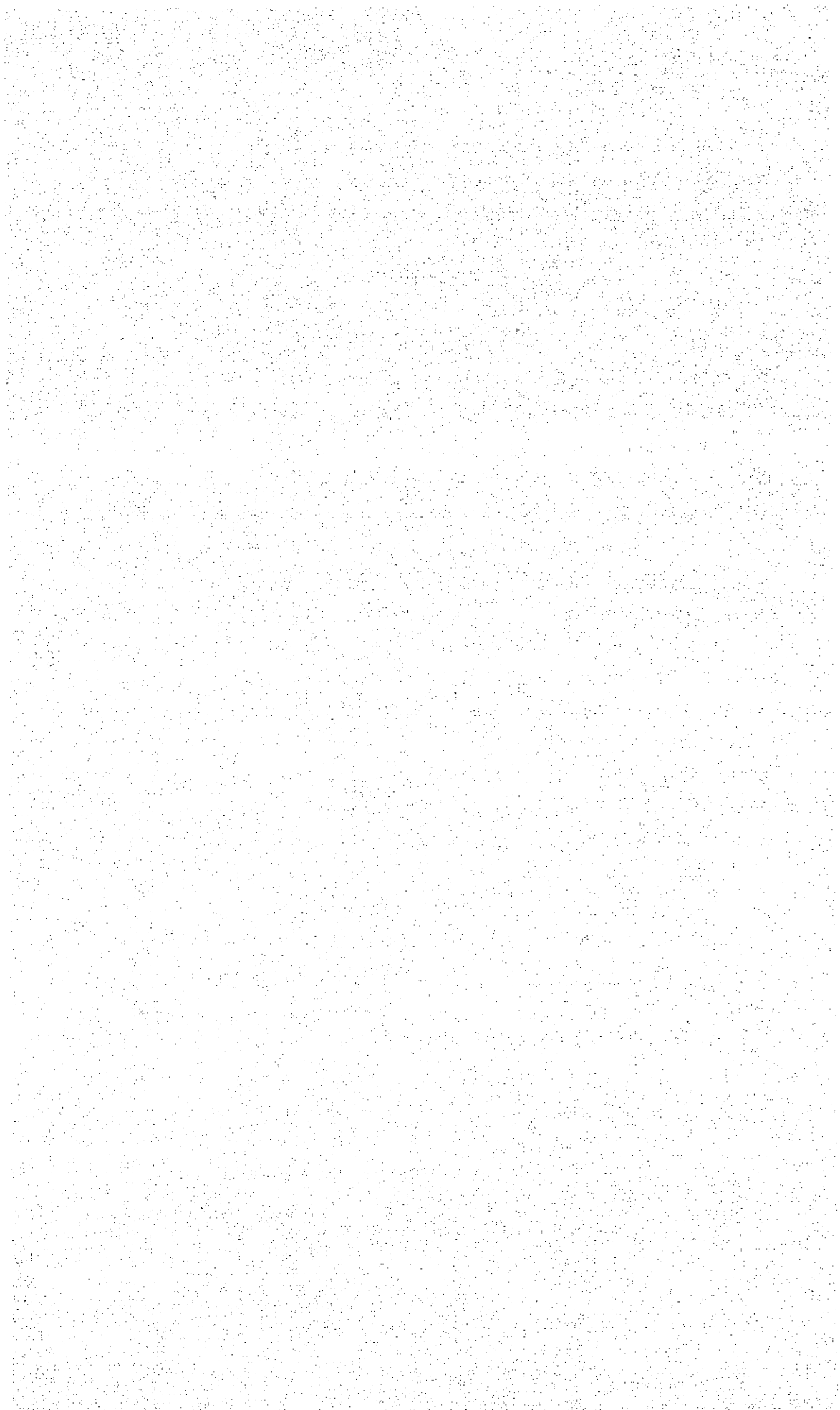
The JICA reserves the right to reject any and all Bids, to waive any informality in the Bids received and to disregard any Bid which is obviously unbalanced. The right is also reserved to reject the Bid of any bidder who: a) has previously failed to properly perform or

complete on time any and all construction contracts undertaken by him: b) having secured prequalification papers, and later prequalified, fails to participate in the bidding conducted by the JICA for two (2) consecutive times; and c) incomplete information.

Prior to the award of Contract Work Schedule, the JICA shall undertake an inspection to verify the pledged equipment at least fifty (50) percent of the JICA Minimum Equipment Requirement and which equipment are not committed to any project and are available in good running condition to be mobilized within the number of calendar days stipulated in the Technical Specifications, Section I - TEMPORARY WORKS AND MOBILIZATION OF CONSTRUCTION EQUIPMENT to the jobsite. If the pledged equipment are not available or are committed to other projects, the JICA shall have the right to disqualify said winning Bidder and give the award of the Contract Work Schedule to the next complying responsible Bidder provided he is amenable to the winning Bid price. If such a situation occurs the JICA shall not be liable for damages and said defaulting Bidder shall be banned from future biddings of the office.

Within seven (7) calendar days from the date of receipt of Notice of Award, the successful Bidder will be required to have in _____ Office, _____, a representative empowered to execute the Contract with the _____.

III. GENERAL CONDITIONS



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GENERAL CONDITIONS

GC-01 DEFINITIONS

Wherever the following terms are used in the Contract Documents, they shall have the following meaning:

- Philippines : The Republic of the Philippines
- JICA : The Japan International Cooperation Agency
- JICA's
Representatives: JICA OFFICERS and persons authorized
by JICA
- Committee : The Committee of the Japan International
Cooperation Agency, specially established
for the Project.
- Administrator : The managing head of the JICA in MANILA
- Engineer (s) : An individual, partnership, corporation,
association, firm or joint venture or
syndicate which have been engaged by JICA
to assist in engineering services and
supervision of the work to be done under
this Contract.
- Project Manager: The managing head of the particular Project
where this Contract Work will be
implemented.
- Bidder : An individual, partnership, corporation,
association, firm or joint venture
submitting a Bid to the JICA for the
performance of the Contract Work.

Contract : The legally executed agreement between the Contractor and the JICA for the performance of the Contract Work covered by these Contract Documents.

Contractor : The individual, partnership, corporation, association, joint venture or syndicate having a direct contract with JICA for the implementation of the contract Work under this Contract.

Sub Contractor : The individual, partnership, corporation, association or syndicate having a direct contract with the Contractor for furnishing services or work under this contract.

Contract Documents : Collectively the Pre-qualification Confidential Statements; instruction to Bidders; General, Special and Local Conditions; Technical Specifications; Invitation for Bids; the Proposal; Drawings as defined; Supplemental Notices; Notice of Award; Performance Bond and Evidence of Working Capital; the Contract; and Notice to Proceed.

Furnish : All works done and all expenses, including labor, materials, plant and overhead incurred by the Contractor in providing and delivering to the geographical location designated in the specifications, a specified item, article, or piece of apparatus or equipment.

Erect and
Install : All works done and all expenses, including labor, materials and overhead incurred by the Contractor in receiving a specified item, article, or piece of apparatus or equipment at a geographical location designated in transporting it to and storing it at the site of work, and there erecting, placing or laying it as shown in the plans or as directed, to be by and at the expense of the Contractor unless otherwise specified.

Furnish & Erect: All works done and all expenses, including labor, materials,

Furnish & Install: overhead in providing delivery, transporting, storing

Furnish & Place: and erecting, placing, laying as specified item, a piece of apparatus

Furnish & Lay : or equipment shown on the plans or as directed by the Project Engineer at the expense of the Contractor, unless otherwise specified.

Supplemental

Notice : Is meant a written additional information, provisions and/or other documents as issued by the Administrator before the opening of Bids and are incorporated in the contract Documents.

Sureties : Bank or banks and/or bonding company or companies which are joined and severally bound with the Contractor's faithful performance of the Contract and the payment of all his obligations arising thereunder.

Permanent Works: The permanent structures to be constructed and completed in accordance with the Contract Documents.

Temporary Works: All temporary structures of every kind required for the execution and completion of the Permanent Works.

Works : Refer to Permanent Works and/or Temporary Works.

Construction

Plant : All equipment, facilities, supplies, and other incidentals required for execution and completion of the work but exclusive of materials or other things intended to form or forming part of the Permanent Works.

Drawings : All contract and construction Drawings referred to in these Contract Documents and any modification of such drawings approved in writing by the Engineer and such other drawings as may from time to time be furnished or approved in writing by Engineer for construction of the Works.

Site : The lands on which the Works are to be executed or carried out and any other lands or places provided by the JICA for the purposes of the contract.

Approved : Means approved in writing by duly authorized persons.

Contract Work : The furnishing of all labor, materials, supplies, equipment, necessary or convenient to the successful completion of the Work and the carrying out of all the duties and obligations imposed by the Contract.

Extra Work : Such additional labor, materials, supplies, equipment, facilities, and other incidentals as are required to complete the Works for the purpose for which it was intended but not, originally covered or called for in the Contract.

GC-02 CORRELATION AND INTERPRETATION OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. In case of discrepancy, defective description, errors, omissions, or ambiguity between or in any of the Contract Documents, the following shall be the rules of interpretation.

Drawings shall govern over the General conditions and the Technical specifications shall govern over the General Conditions and the Drawings.

Detailed Drawings shall govern over General Drawings. Figures written on Drawings shall govern over the Drawings themselves.

If the contractor, either before commencing the work or during its performance, discovers any conflict, discrepancy, error, or omissions between or in any of the Contract Documents or in case of any question concerning

the meaning of the contract, he shall promptly notify the Engineer thereof in writing. On receipt of such notice, the Engineer promptly investigate the matter and give appropriate orders or instructions to the Contractor. Until such orders or instructions are given, the Contractor's performance of any affected portion of the work, after his discovery of the conflict, discrepancy, error, omission, or question, shall be at his own risk and he shall bear any additional cost resulting therefrom.

Omissions from the Contract Documents or misdescription of details of work which are manifestly necessary to carry out the intent of the Contract, or which are customarily performed, shall not relieve the contractor from performing such omitted or misdescribed details of work but they shall perform as if fully and correctly set forth in the Contract Documents.

GC-03

JURISDICTION

The proper law of this contract shall be the law enforce in the Philippines. Any litigations between the parties that may arise out of or in connection with this Contract or the breach thereof or the performance of work thereunder shall be determined in the Courts except as may be otherwise specifically provided in these Contract Documents. At or before the time of execution of the Contract Documents. At or before the time of execution of the contract, the contractor shall notify the JICA in writing of the appointment of one or more agents satisfactory to the JICA upon whom process may be served in connection with any litigations. The Courts shall be deemed to have obtained jurisdiction to render valid judgements upon the Contractor, by such service.

GC-6

GC-04 STATUTORY REQUIREMENTS

The Contractor shall comply with all applicable laws, acts, codes and regulations of the Philippines and its political subdivisions or any public, municipal or other duly constituted authority which may affect the prosecution of the Contract Work.

GC-05 ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees, and shall save harmless and indemnify the JICA and the Engineer, their officers, agents and employees against liability, including cost and expenses, for infringement of any patent rights of other protected rights arising out of the performance of the Contract Work.

GC-06 ASSIGNMENT AND SUBCONTRACTS

(a) Assignment. The Contractor shall not assign, transfer, pledge, subcontract or make any other disposition of this contract or any part thereof, or any interest therein except as provided for herein.

Should the contractor desire to subcontract any service or item of work within the provisions stated above, the Contractor shall notify the JICA in writing within thirty (30) calendar days after the signing of the Contract, and shall submit complete information of the proposed Subcontractor, including his financial status, experience, organization, personnel and equipment available for the work and the specific service or item of works to be done or subcontracted. The Contractor shall not subcontract any part of the Contract without the prior written approval of the Administrator and such approval if given shall not relieve the Contractor from any liability or obligation under the Contract.

The Contractor agrees that he is as fully responsible to the JICA for the acts and omissions of his Subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him. Nothing contained in the contract Documents shall create any contractual relation between any Subcontractor and the JICA.

The Contractor is fully responsible for payment of Subcontractors; however, the JICA reserves the right to withhold or deduct such payments from the Contractor's monthly progress payment, should the Contractor refuse or fail to make justifiable payments to any subcontractor in accordance with the subcontract.

The JICA may by written notice require the Contractor to terminate a subcontract if a subcontractor fails to perform the work in accordance with the Contract. In such event, the Subcontractor shall leave the site immediately and the JICA will not be liable for such termination.

GC-07

FAMILIARITY WITH CONTACT WORK

The Contractor shall be responsible for having taken steps necessary to satisfy himself as to the nature and locations of the Contract Work, the type of equipment and facilities needed preliminary to and during the prosecution of the Contract Work, the general and local conditions, and all other matters which can in any way affect the Contract Work or the cost thereof. Any failure by the Contractor to do so will not relieve him from responsibility for successfully performing the Contract Works without additional expense to the JICA. The JICA assumes no responsibility for any understanding or

representations concerning conditions made by any of its representative prior to the execution of this Contract, unless such understanding or representation are expressly stated in the Contract Documents.

GC-8 LIABILITY FOR SPECIAL RISKS

The JICA shall (1) hold the Contractor harmless from all liability for damages or destruction of the Works or property whether owned by JICA, or any other third parties and for injury or loss of life caused, directly or indirectly, by declared or undeclared war, invasion, insurrection, or usurped power in the Philippines, hereinafter referred to as "Special Risks", (2) compensate the Contractor when occasioned directly or indirectly by said special risks for (a) legitimate costs and expenses, and (b) loss or damages to property of the Contractor at the site including that in transit within the Philippines to the project site.

GC-09 RESPONSIBILITY FOR CONTRACT WORK

From the commencement of the Contract work. Until its final or partial acceptance as specified in the Special Conditions. The Contractor shall assume full responsibility for the Contract Work. The Contractor shall be responsible for any damage to or destruction of the Work, except for special risks as provided for in Clause GC-08 Liability for Special Risks, to make no claims against the JICA for damages to the works from any cause except for said special risks.

GC-10 SAFETY OF PERSONNEL AND THIRD PARTIES-PREVENTION OF ACCIDENTS-RESPONSIBILITY

Except for special risks as provided for in Clause GC-08 "Liability for Special Risks", the Contractor is

solely responsible for the safety, protection and security of his personnel, third parties, the public at large, the works, equipment, installations, etc. Accordingly the Contractor shall comply faithfully with any and all pertinent laws, at his own expense, take all requisite protective measures to the end of eliminating the occurrence of accidents, loss or damage of any kind during the performance of the Contract Work and until their final acceptance. The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient warning lights, danger signals and other signs, and shall take all necessary precautions for the protection of the Work and the safety of this personnel and the public. Roads closed to traffic shall be protected by effective barricades and obstructions shall be illuminated at night in accordance with the existing pertinent ordinances and other regulations.

Provided the stipulations of the pertinent laws, decrees, regulations and other ordinances in force in the Philippines do not contain different provisions, The Contractor shall comply with the applicable provisions of the U.S. Bureau of Reclamation Publication, "Construction Safety Standard". The Contractor shall furthermore cooperate with the JICA on all matters concerning the prevention of accidents. To this end, the Contractor shall fully acquaint himself with JICA's regulations and printed instructions, which JICA may, from time to time, issue during the performance of the Contract Work and the Contractor shall strictly observe and comply with all such regulations and instructions. The Contractor shall cooperate closely with the JICA's Safety Inspectors or related personnel to develop an effective safety program construction of the Works.

In the event the Contractor fails to observe his above obligations, the JICA may, at the Contractor's expense take whatsoever measure is deemed necessary by the JICA for the protection of JICA, Contractor's personnel and third parties and order the immediate interruption of dangerous work. The Contractor shall not be entitled to any indemnification or time extension on account of such interruption. It is understood that the JICA's right referred to above shall in no way diminish the Contractor's responsibility hereunder.

The Contractor shall report in writing within twenty four (24) hours from their occurrence, the local Police and the Local Inspector, all accidents occurring on any of the Contract Work or in connection therewith. In the event of serious or fatal accidents, the Contractor shall leave unchanged the conditions existing at the site of the accident so that the Authorities may proceed with their investigations ascertain the causes of the accident.

The Contractor shall be solely and exclusively responsible for any loss or damage, death or injuries, resulting from the performance of the Contract Work or in connection therewith, sustained by any person or party. The Contractor shall save harmless the JICA from any and all claims or court actions raised or instigated against it by any person or party for any loss, damage or injuries caused by the Contractor, his personnel, his mechanical equipment, and materials or his workyard installations, and shall at his own expense indemnify such person or party for its loss, damage or injury.

CONTRACTOR'S EMPLOYEES AND SUPERINTENDENCE

The Contractor shall give efficient superintendence to the works, using his best skill and attention, and shall during the execution of the Contract Work, provide a competent full time Superintendent and necessary assistants.

The Superintendent shall be the authorized representative of the Contractor and shall receive on behalf of the Contractor directions and instructions from the JICA. The designation of the Superintendent shall be approved in writing by the JICA, which approval may at any time be withdrawn. If such approval is withdrawn the Contractor shall, as soon as practicable after receiving written notice from the JICA, remove the Superintendent from the Site and shall not thereafter employ him again on the Site in any capacity and shall promptly replace him by another Superintendent approved by the JICA

The Engineer shall be at liberty of object to and require the Contractor by written notice to remove forthwith from the Site any other person employed by the Contractor in the execution of the Contract Work, who in the opinion of the Engineer misconducts himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Engineer to be undesirable, and such person shall not be again employed without the written permission of the Engineer.

All expenses associated with removal of such Contractor's employee shall be paid by the Contractor who shall save harmless the JICA and Engineer from any claim arising from such actions.

INSPECTION OF CONTRACT WORK

All Contract Work shall be performed in a skillful and workmanlike manner. Inspection of all the Contract Work shall be made by the JICA while such Contract Work is in progress to ascertain that the completed works will comply in all respects with the standards and requirements set forth in these Contract Documents. Notwithstanding such inspection the Contractor shall be held responsible for the acceptability of the finished Works.

The Engineer shall assist the JICA in the inspection of all Contract Work.

The JICA, the Engineer and their representatives shall at all times have access to the Works whenever it is in preparation of in progress, and the Contractor shall provided proper facilities for such access, and shall furnish promptly, without additional charge, all facilities, labor and supplies reasonably needed for safe and convenient inspection. The Contractor shall give the JICA timely notice of readiness of the Works for inspection, and the JICA shall perform said inspection in such a manner as not to delay the contract Work unnecessarily.

If any works should be covered up without prior approval or consent of the JICA, it must, if require by the JICA, be uncovered for examination and properly restored at the Contractor's expense, unless the JICA has unreasonably delayed inspection after notice of readiness for inspection has been given.

Re-examination of any Works may be ordered by the JICA and, if so ordered, the Works must be uncovered by the contractor. If such works is found to be in

accordance with the Contract Documents, the JICA shall pay the cost of re-examination and replacement plus fifteen percent (15%). If such works is not is accordance with the contract Documents, the contractor shall bear such re-examination and replacement costs and shall not be entitled to any extension of time on this account.

GC-13

CORRECTION OF WORKS

The Contractor shall promptly replace all materials and correct all Works determined by the JICA or his duly authorized representative as failing to meet the Contract requirements. The Contractor shall promptly replace and correct the Works in accordance with the contract without expense to the JICA and shall bear the cost of damage done to other parties occasioned by such removal or replacement.

If the Contractor does not take action to replace and correct such condemned materials and damaged works within ten (10) calendar days after written notice, the JICA may (1) by contract or otherwise, replace such materials or correct such Works and charge the cost thereof to the Contractor, or (2) terminate the Contractor's right to proceed as provided for in Clause GC-14 JICA's Right To Take Over Contract Work.

Failure or negligence by the JICA or its agents to condemn or reject bad or inferior Works or materials shall not be construed to imply acceptance of the same if such bad or inferior Works or materials were not discovered at any time prior to the final acceptance of the Contract Work by the JICA.

If the JICA deems it inexpedient to correct the Works that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract Amount shall be made therefor, unless the contractor elects to correct the Works.

GC-14 JICA's RIGHT TO TAKE OVER CONTRACT WORK

(a) Right to take Over. Should the Contractor

1. Be adjudged a bankrupt; or
2. Become insolvent or make a general assignment of his assets for the benefit of his creditors; and
or
3. In the opinion of JICA be unreasonably or unnecessarily delayed in the performance of the Contract Work; or
4. Abandon the Contract Work; or
5. Assign the Contract or sublet the Contract Work other than permitted herein; or
6. Fail to complete the construction of the Work as herein specified; or
7. Violate any of the Conditions, covenants and agreement of this Contract;

then, in any of these cases, the JICA shall have the right to terminate the employment of the Contractor and to take over the Contract Work, after giving the Contractor and his sureties fifteen (15) calendar days prior written

notice to that effect. such notice shall contain the reasons for such intention to take over than if within fifteen (15) calendar days after serving such notice, and Contractor fails to extinguish the causes or reasons for such intention to take over or fails to make satisfactory arrangement for its correction, the right of the Contractor to prosecute the Contract Work himself shall terminate.

(b) Completion of Contract Work by the JICA

In such event the JICA may take over the Contract Work and prosecute the same to completion, by contract or otherwise, and shall have the right at its option to take possession of and utilize in completing the Contract Work such materials, equipment, and construction plant as may be on the Sites and necessary therefor.

(c) Liability of Contractor and Sureties

It is expressly agreed that in the event the JICA takes over the Contract Work from the Contractor, the latter and his Sureties shall continue to be liable under this Contract for any expense in the completion of the Contract Work in excess of the contract price and the bond field by the Contractor and other monies due the Contractor from JICA shall be answerable for such expense and, for any and all damages that the JICA may suffer as a result of and in connection with take-over.

(d) Payments

It is Contract Work is taken over by the JICA under Clause GC-14 JICA's Right to Take Over Contract Work, the Contractor shall not be entitled to receive any further payment until the Work is completed.

The JICA shall ascertain and fix the value of the Works already completed by the Contractor but not paid for and all usable materials on the Sites. The cost of completing the Works shall be charged against the contract price of the remaining works and in case of insufficiency thereof, the excess cost shall be chargeable against the defaulting Contractor and his Sureties.

In the event that the total expenditures of the JICA on completion of the Contract Work are not in excess of the contract price, the difference between said total expenditures and the contract price shall be applied to settle claims filed under clause GC-26 Payments By Contractor Unpaid Claims and the balance, if any, shall be paid to the Contractor, Provided, however, that no amount in excess of the combined value of the unpaid completed Work retained percentages and usable materials at the time of taking over of the Work shall be so paid nor shall any claim for prospective profits for the work done after the JICA shall have taken over be considered or allowed. The Contractor shall not stand to benefit from the portion of the Contract Work taken over by the JICA.

GC-15

EXTENSION OF TIME DUE TO FORCE MAJEURE

The Contractor shall not be in default under this Contract because of any delays in the prosecution or completion of the Contract work or any separable part thereof, which delays are caused by "force majeure", Provided, that the Contractor submits a claim, in accordance with the provisions of Clause GC-16 Claims For Extension Of Time For Completion, and in the opinion of the JICA the delays are caused by force majeure.

"Force Majeure" shall be defined as any event, the happening or pernicious results of which could not be prevented even though a person against whom it happened or threatened to happen were to take such appropriate care or necessary precautionary measure as might be expected from him.

GC-16 CLAIMS FOR EXTENSION OF TIME FOR COMPLETION

Should the amount of additional or Extra Work of any kind or other special circumstances of any Contractor to an extension of time for the completion of the Contract Work under this Contract the JICA shall determine the amount of such extension; Provided, that the JICA 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 twenty-eight (28) calendar days after such work has been commenced or after the circumstances leading to such claim have arisen, delivered to the JICA a notice giving full and detailed particulars of any claim for an extension of time in order that it may be investigated at that time. Failure to provide such notice shall constitute a waiver by the Contractor of any claim. On receipt of full and detailed particulars, the JICA's Representative shall extend the time for completing the Contract Work, when, in the JICA's opinion, the findings of fact justify an extension.

GC-17 CONTRACTOR'S RIGHT TO SUSPEND CONTRACT WORK OR TERMINATE CONTRACT

If the Contract Work should be completely stopped except due to normal seasonal rains, for a continuous period of more than ninety (90) calendar days, through no act or fault of the Contractor or of anyone employed by him or as a result of the occurrence of special risks as

provided for in Clause GC-08 Liability For Special Risks, then the Contractor, without prejudice to any other right or remedy, shall have the right to give the JICA fifteen (15) calendar days by written notice to stop the Contract Work or terminate this Contract and recover from the JICA payment for any loss or damage to the Contractor arising out of or in connection with or by consequence of such termination and if the Contract Work is not resumed within fifteen (15) calendar days after receipt of such notice due to no fault of the Contractor, the Contractor may terminate the Contract.

GC-18

DISPUTE AND ARBITRATION

Any controversy or dispute arising out of or relating to this Contract which cannot be resolved by mutual agreement shall be decided by the JICA within fifteen (15) calendar days from receipt of a written notice from the Contractor, and who shall furnish the Contractor a written copy of his decision. Such decision shall be final and conclusive unless within thirty (30) calendar days from the date of receipt thereof, the Contractor shall deliver to the JICA a written notice that he disagrees with the decision and desires that the dispute be submitted to arbitration. Pending decision from arbitration the Contractor shall proceed diligently with the performance of the Contract and in accordance with the decision of the JICA.

When formal arbitration is requested, an Arbitration Board shall be formed in the following manner: The JICA and the Contractor shall each appoint a third member who shall act as chairman. If either of the parties, i.e., the JICA or the Contractor fails to appoint a member to this Arbitration Board within thirty (30) calendar days subsequent to the date on which the contractor requested

arbitration, the appointment shall be made by the Judge of the court having jurisdiction. If the two first members of this board cannot agree upon a third member within fifteen (15) calendar days from the last date of their own appointment, the third member shall be appointed by the Judge of the court having jurisdiction. No one with a financial interest in the subject under arbitration will be permitted to serve on this board. This board may engage experts to act in an advisory capacity without vote on decisions. Minutes shall be kept of all meetings and shall be signed by all members of this Board. All decisions by this board shall require simple majority. All interested parties shall be informed of the decisions of this board in writing over the signature of the chairman. Expenses of this board shall be paid in accordance with the decision of the Arbitration Board. The decision of the Arbitration Board shall be binding on both parties.

The JICA and Contractor shall have the right to institute suit against each other, as the case may be, in any court of competent jurisdiction, in the Philippines, to enforce any decision or award rendered in arbitration proceedings. The JICA shall have same right as above to enforce a ruling of the Representatives in the event said ruling is final and conclusive as above described.

GC-19

LANGUAGE AND UNIT SYSTEM OF WEIGHTS AND MEASURES

All drawings, designs specifications, manuals, name plates, markings, operating instructions, estimates, statements, charts, schedules, reports, notices, documents and all written communications between the JICA or the Engineer and Contractor, concerning this Contract, shall be in the English language and the metric system of weights and measures in principle may be used.

GC-20 COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that he has not employed or retained any person or selling agency to solicit or secure this Contract upon any agreement for a commission, percentage, brokerage, or contingent fee, excepting bonafide employees, or bonafide established selling or commercial agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the JICA shall have the right to terminate the Contract without liability, or in its discretion, to deduct from the value of the Contract, the full amount of such commission, percentage, brokerage, or contingent fees.

GC-21 WARRANTY AGAINST BENEFITS

The Contractor warrants that he has not given or promised to give any money or gift to any employee of the JICA, or any Philippine Government instrumentality to secure this Contract.

GC-22 PUBLIC OFFICIALS AND ENGINEERS NOT PERSONALLY LIABLE

There shall be no personal liability upon the JICA representatives, agents or employees or Engineers for any act performed in the discharge of any duty imposed, or the exercise of any power or authority conferred upon them by, or within the scope of the Contract, it being understood that in all matters they act solely as agents and representatives of the JICA.

GC-23 NO WAIVER OF LEGAL RIGHTS

The JICA shall not be precluded or estopped by any measurements, estimate or certificate made either before or after the completion and acceptance of Work and payment therefore from showing the true amount and character of the Work performed and materials furnished by the

Contractor, nor from showing that any such measurements, estimate or certificate is untrue or is incorrectly made; nor that the work or materials do not in fact conform with the Contract. The JICA shall not be precluded or estopped notwithstanding any such measurement, estimate or certificate and payment in accordance therewith from recovering from the Contract. Neither the Acceptance by the JICA or by its representative, nor any extension of time, nor any possession taken by the JICA shall operate as a waiver of any portion of the Contract or any other power herein reserved, or of any right to damages. A waiver of any breach of the Contract shall not be held to be waiver of any other or subsequent breach.

GC-24 PUBLICATION AND PICTURES

Publicizing the works or any part thereof, without the prior written approval of the Administrator and JICA, in the form of announcements or publications, either verbal or in writing, or pictures, movies or in any other manner, is prohibited.

GC-25 ANTIQUES AND OBJECTS OF VALUE

All ruins, relics, coins and other artistic or antique objects of any nature and value discovered during the performance of the Contract Work belong to Republic of the Philippines. The Contractor upon discovery of such objects, shall immediately inform the JICA and Project Manager and, pending such action on his part, shall take all indicated measures, including suspension of any affected part of the Contract Work, for preserving instant and guarding said objects. No rights whatsoever shall accrue to the Contractor and no compensation of any nature shall be due to him for the

discovery of said objects and all rights accruing under the law to the discoverer shall devolve exclusively to the National Irrigation administration.

GC-26

PAYMENTS BY CONTRACTOR-UNPAID CLAIMS

The Contractor shall pay punctually the workmen employed on the Contract Work and the persons furnishing materials and services therefor, and deliver the Works free from all claims of any description, and, if required, he shall furnish the JICA with a statement sworn before an officer duly authorized to administer oaths that all persons who have done work or furnished materials or services under this Contract, and shall have filed any account of such claims with the JICA have been fully paid; and in case such evidence is not furnished as aforesaid, such amount as the JICA may consider necessary to meet the lawful claims of the persons aforesaid shall be deducted from the money due to the Contractor, and shall not be allowed until the liabilities aforesaid shall have been fully discharged and the evidence thereof furnished the JICA or until their lack of equity has been established. If such written evidence is not furnished before the final payment under this Contract falls due, the JICA may pay such lawful claims in whole or in part to the person or persons, firms or corporations claiming the same, and charge the amount thus paid to the Contractor, who shall accept the same as payment from the amount due to this Contract.

GC-27

CHANGED CONDITIONS

The Contractor shall promptly, and before such conditions are disturbed, notify the JICA in writing of: (a) sub-surface or latent those indicated in this Contract, or (b) unknown physical conditions at the Site or an unusual nature, differing materially from those

ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract. The JICA shall investigate the conditions, and if it finds that such conditions do so materially differ and provided that the Contractor has submitted a claim in accordance with the Clause GC-16 Claims For Extension Of Time For Completion and Clause GC-29 Claims For Extra Work, then the JICA shall direct the Contractor to perform such Extra Work, as provided for in Clause GC-28 Extra Work, as may be necessary in the opinion of the JICA and he shall grant the Contractor such extension of time as may be justified.

GC-28

EXTRA WORK

The JICA may, at any time by written order and without notice to the Sureties, direct the Contractor to perform extra work if such Extra is within the general scope of this Contract. No Extra Work shall be undertaken unless in pursuance of such written order by the JICA, and no claim for payment shall be valid unless the Extra Work was so ordered. The Contractor shall promptly proceed with the Extra Work as directed by the JICA and the amounts to be paid the Contractor for any such Extra Work shall be determined subsequently by one or more of the following methods:

- (a) By applicable unit prices contained in the Contractor's Proposal for like work.
- (b) By a supplemental Bill of quantities of quantities and Schedule of proposed by the Contractor and approved by the JICA.
- (c) By a reasonable lump sum proposal from the Contractor acceptable to the JICA.

(d) By cost-plus-percentage basis. The Contractor shall be reimbursed for all actual necessary cost, as determined by the JICA; in doing the Extra Work which shall include the following:

1. his direct labor costs, exclusive of those included in (4) below.
2. all materials used on the Extra Work included in the Works.
3. all supplies, fuel, lubricants, power and other incidentals, and
4. an allowance for use of his Construction equipment as provided for in the Special Conditions, and

the Contractor shall receive an additional payment of fifteen (15) percent of all such cost to cover his indirect overhead costs, plus five (5) percent of all costs, including indirect overhead, as his profit.

If the parties are unable to agree on any of the methods for payment to the Contractor specified in sub-paragraphs (a), (b), and (c) then such Extra Work shall be done on a cost-plus-percentage basis as described in sub-paragraph (d) above.

The cost of the Extra Work done shall be submitted at intervals to be determined by the JICA in a satisfactory form and which shall be approved or adjusted at once by the JICA. Request for payment by the Contractor for any Extra Work shall be accompanied by a statement, with the above approved supporting forms, giving a detailed

accounting and record of the amount for which he claims payment. Said requests for payment shall be included with the Contractor's monthly statements for progress payments.

GC-29

CLAIMS FOR EXTRA WORK

If the Contractor claims that Construction Drawings or any instructions issued by the JICA during the term of the Contract involve extra cost or should other special circumstances of any kind whatsoever occur such as to fairly entitle the Contractor to extra cost under this Contract, the JICA shall determine the amount of such extra cost; Provided, that the JICA is not bound to take into account any claim for any extra cost unless Contractor has within twenty-eight (28) calendar days after such work has been commenced or after the circumstances leading to such claim have arisen, delivered to the JICA a notice giving full and detailed particulars of any claim for extra cost in order that it may be investigated at the time. Failure to provide such notice shall constitute a waiver by the Contractor of any claim. On receipt of full and detailed particulars the Administrator shall examine the facts and shall grant the Contractor extra cost when, in the JICA's opinion, the findings of fact justify and extra cost.

GC-30

NIGHTS, SUNDAYS, HOLIDAYS AND OVERTIME

Work at night, on Sundays, on Holidays, as overtime shall be governed by the pertinent laws, regulations and acts and shall be the sole responsibility of the Contractor. All costs and expenses associated with work at night, on Sundays, on Holidays as overtime will be paid by the Contractor and will be included in the Bid prices submitted by the Contractor for this Contract.

GC-31 NOTICE TO PROCEED

The JICA, after approval of the Contract, will issue to the Contractor a Notice to Proceed with the Contract Work within fifteen (15) calendar days from the date of Bid opening.

GC-32 CONSTRUCTION PROGRAM

Within seven (7) calendar days after date of receipt of Notice to Proceed, the Contractor shall furnish the JICA a complete construction program providing for the orderly performance of the Contract Work, showing in detail the proposed program shall be in such form and in such detail as to show properly the sequence of operations, the period of time required for completion of the Contract Work under each item or group of items in the Bill of Quantities. such construction programs shall be up-dated and submitted at intervals of not more than two (2) months; however, the Contractor shall immediately advise the JICA of any proposed change in the construction program. Revised construction programs shall show construction operations for each item of the Contract Work from the starting date to the anticipated completion date, indicating the periods during which Contract Work was previously underway, as well as estimated future period of construction operations.

The Contractor will also submit a schedule of the Contract Work by the Critical Path Method (CPM), the Program Evaluation and Review Technique (PERT), or by a similar type of construction scheduling as a supplement to the program specified above.

The JICA may withhold approval of progress payment estimates in case the Contractor fails to submit the Construction Program or its revision within the time herein specified until such time they are submitted.

GC-33

STATISTICAL REPORTS

The Contractor shall within seven (7) calendar days after the end of each month furnish the JICA, without cost to the JICA in a form and number of copies to be determined by the Engineer, the following:

- (a) Physical Progress Reports for the month and estimated progress for the succeeding month.
- (b) Completion Schedules (target and actual) based on the approved Construction Program as provided for in Clause GC-32 Construction Program.
- (c) A Tabulation of Employees showing the supervisory staff and the numbers of the several classes of labor employed by the Contractor during the month.
- (d) A listing of equipment utilized for performance of the Contract Work during the month.

GC-34

CONSTRUCTION EQUIPMENT AND TOOLS

All construction equipment and tools to be used for the Contract Work shall be furnished by the Contractor. As specifically mentioned in Clause IB-09 Responsibility For Contract Work. Data to be Submitted with Proposal, the Contractor shall furnish the JICA a complete list of all brand new and good running condition construction equipment that the requires in connection with this Contract Work. The Contractor shall prepare subsequently a schedule of delivery for the said equipment based on his

construction schedule and operations program. No separate payment shall be made for the costs of construction equipment and tools and such cost shall be included in the Bid prices for various items in the Bill of Quantities.

GC-35

RIGHT TO CHANGE

The JICA reserves the right to make changes in the work as are required for its proper completion, including, but not limited to: design modifications which increase or decrease the quantities of unit price items of the work. The JICA may also order the elimination of a portion of the work, even though required for proper completion if, due to the JICA's right-of-way acquisition difficulties, the Contractor would be unduly delayed in performing that portion of the work.

All quantities stated in the Contract for unit price items of work are estimates only and actual measured quantities of such work will vary from such estimated quantities. such variations are not changes within the scope and meaning of this Contract, and shall be adjusted for payment purposes in the monthly and final estimate of work.

The JICA may grant the Contractor extension of time for the completion of the work or extra work for delays due to the changes in the work and other specified causes, all to the extent provided for by Clause GC-15 Extension Of Time Due To Force Majeure and Clause GC-16 Claims For Extension Of Time Of Completion.

All orders for changes will be given in writing. An order which provide for an adjustment or an extension of time will be given only by change order.

GC-36

SUSPENSION OF THE WORK

By written order to the Contractor, the JICA may suspended the work wholly or in part, for such period as JICA may deem necessary, for any of the following reasons:

- (a) Failure of the Contractor to carry out orders given or to perform any provisions of the contract Documents; or
- (b) The convenience and benefit of the JICA in which case the order will constitute an order for a change in the work pursuant to Clause GC-35, Right to Change.

the Contractor shall immediately comply with such written order, and shall resume the suspended work only upon the JICA's written order to do so.

A suspension ordered under (a) above shall not be cause for time extension or additional compensation.

A suspension ordered under (b) above will be considered a cause for time extension as provided for by Clause GC-16 Claims for Extension of Time for Completion, and adjustment in compensation to the same extent as other changes in the work.

GC-37

PERFORMANCE SECURITY

The Contractor shall, at the time of executing the Contract, provide performance security deposited with and made payable to the JICA in the amount equivalent to not less than twenty percent (20%) of the total contract amount in the form of surety bond, cash or bank guarantee or any combination thereof, issued by a bonding company acceptable to the JICA.

Failure to deposit satisfactory performance security at the time of execution of the Contract or such extended time as may be allowed by the JICA shall be a breach of this Contract, and the JICA may, at its discretion, cancel the contract and accept some other Bidders, or invites further bidding.

Should any Surety upon the bond furnished under this paragraph shall become unacceptable to the JICA, or, if any Surety shall fail to furnish reports as to its financial condition from time to time, as requested by the JICA, the Contractor shall promptly furnish such replacement security as may be required from time to time to protect the interest of the JICA; up to a sum equal to the amount of the original security.

The JICA may require additional performance security if the Contract is increased appreciably.

The cost of the Performance Bond which is acceptable to the JICA is enclosed herewith.

GC-38

PAYMENT IF CONTRACT TERMINATED

If the contract shall be terminated as provided for in Clause GC-17 Contractor's Right to Stop Contract Work or Terminate Contract, the Contractor shall be paid by the JICA for:

- (a) All work executed prior to the date of termination at the rates and prices provided in the Contract.

- (b) The amount paid, as verified by the JICA, for materials ordered for the Work which have been delivered to the Contractor or of which the Contractor is legally liable to accept delivery, such materials becoming the property of the JICA.
- (c) The amount actually incurred by the Contractor in the expectation of completing the whole of the Works insofar as such expenditure have not been covered by the payments in subparagraph (a) and (b) above.
- (d) The actual and reasonable cost of removal of the Contractor's Construction Plant and return thereof to the contractor's place of registration.

Provided, that against any payments due from the JICA under this paragraph the JICA shall be entitled to be credited with any outstanding amount due from the Contractor for sums previously paid by the JICA to the Contractor in respect of the execution of the Contract Work.

GC-39

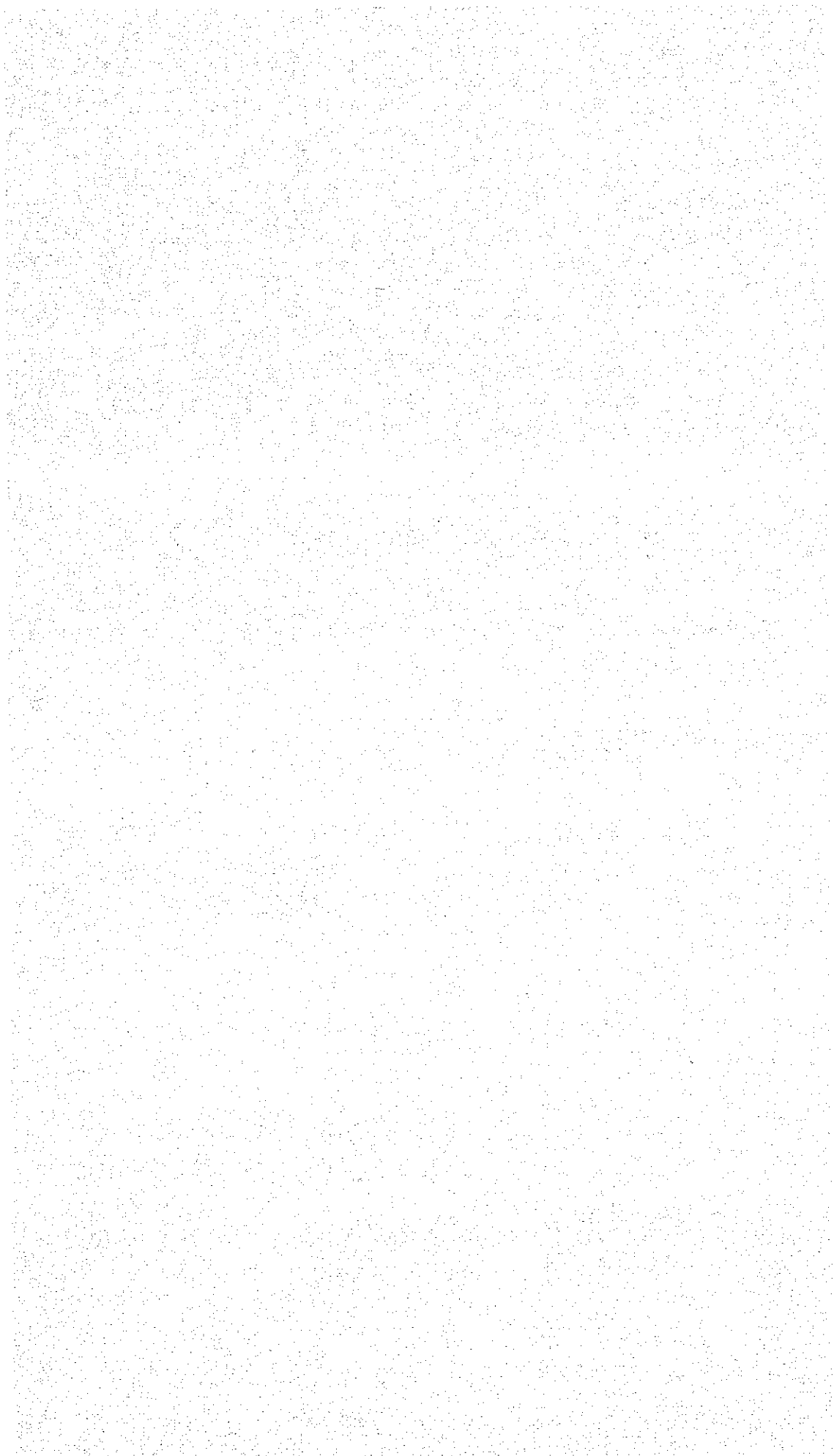
PREPARATORY WORK

The Contractor shall furnish labor, materials, supplies, equipment, and other facilities to install such Temporary Works as described in Chapter 1 of the Technical Specifications.

Payment for furnishing all materials, equipment and labor for the preparation of the camp area and for constructing the Contractor's Temporary Works will be made at the lump sum price stated in the Bill of Quantities. This price is fixed by the JICA and is not subject to change. Payment will be made on the basis of percentage of facilities installed as estimated by the Contractor and

approved by the JICA, except that twenty percent (20%) of the lump sum price will be paid on presentation of the Contractor's complete plans for the Temporary Works. Not included in these items is the cost of operation and maintenance of the Contractor's Temporary Works which cost shall be included in the prices tendered in the various items of the Bill of Quantities.

IV. BID FORM



BID FORM

TO: The resident Representative
Japan International Cooperation Agency, Manila Office
c/o Embassy of Japan
2nd Floor, L.C. Building, 375 SEN. GIL J. PUYAT AVE. EXT.
Makati, Metro Manila
PHILIPPINES

P-01 BILL OF QUANTITIES AND BID PRICES

The undersigned Bidder having carefully examined in their entirety of the Bid Documents for the (name of project) _____, hereby offers and proposes to perform all of the construction and services to furnish all equipment, materials, supplies, labor and other items described in the Bid Documents, all at for the unit or lump sum prices stated in words and figures in the following Quantities:

(Name in Print & Signature)

- Bill of Quantities to be attached herein -

P-02 GUARANTY OF COMPLETION

The undersigned Bidder guarantees to effect the commencement, prosecution and completion of the Contract Works as described in Paragraphs concerned.

P-03 BID SECURITY

Bid security in the amount of _____ (words)
_____, _____ (figures)
in enclosed herewith.

I hereby certify that all statements herein are made on behalf of _____ (name of company);
Dated this _____ day of _____ 1987.

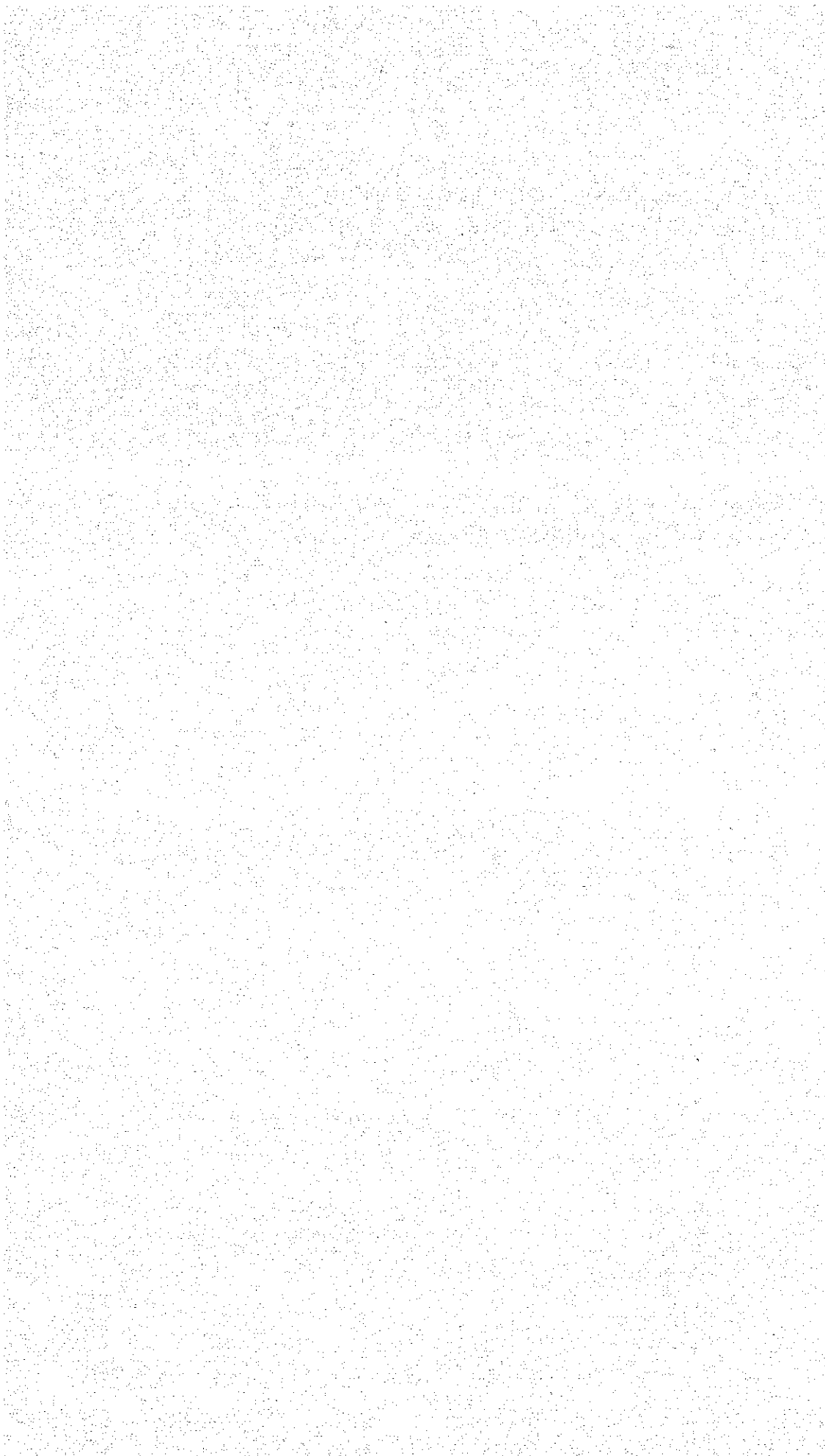
(Name in Print and Signature)

Title _____

Firm's Address _____

WITNESS

V. CONTRACT FORM



Contents of Contract Form

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CONTRACT FORM

CONTRACT FOR _____

This Contract is executed and delivered this _____
day of _____, _____ A.D., at _____

hereinafter referred to as the _____ represented herein by
MR. _____, Representative of said Office and

hereinafter referred to as the Contractor, represented herein by
MR. _____ of said firm, a national of _____
and duly authorized to represent this firm in this Contract.

The JICA and the Contractor mutually agree as follows:

C-01 CONTRACT DOCUMENTS

The following documents are hereby incorporated and
made a part of this Contract, as though fully written out
and set forth herein:

- a) Invitation to Bid
 - b) Instruction to Bidders
 - c) General Conditions
 - d) Technical Specifications
 - e) Drawings
 - f) Performance Bond
 - g) Notice of Award
 - h) Supplemental Notices
-
-
-

All codes, designations, standards, standard specifications and similar materials which are referred to in the General Conditions, Technical Specifications and Drawings are hereby made a part of this Contract.

All of the above documents are referred to herein as the contract Documents.

C-02

ACCEPTANCE OF BID

The _____ has accepted the Bid of the Contractor for furnishing equipment, supplies, materials, tools, labor and other incidentals for the _____

in conformity and in accordance with and subject to all terms and conditions of the Contract Documents. The Contractor shall furnish performance security under this Contract as stipulated in the conditions of the Contract Documents.

C-03 AGREEMENT

The Contractor agrees to furnish equipment, supplies, materials, tools and labor and to perform the construction and the JICA agrees to pay for such, as described in the Contract Documents.

C-04 OBLIGATION OF CONTRACTOR

The Contractor agrees to perform well and faithfully and of the Contract Work and furnish all of the equipment and materials described in the Contract Documents and to supply and to provide all equipment, materials, supplies, labor and other facilities requisite for or incidental to the successful completion of the Works and the carrying out of all the duties and obligations imposed by the Contract Documents.

C-05 OBLIGATION OF JICA

The _____ agrees, subject to the terms and conditions of the Contract Documents, to pay the Contractor the amount shown, at the rates and times and in the manner set forth in the Contract Documents.

C-06 MUTUAL OBLIGATIONS

The _____ and the Contractor mutually agree to perform fulfill, abide by and submit to any and all of the provisions and requirements and all matters and things contained or expressed in or reasonably to be inferred from the Contract Documents.

C-07 NOTICES

All notices called for by the terms of this Contract shall be effective only at the time of receipt thereof and only when received by the parties to whom they are addressed at the following addresses:

JICA: The Representative
JAPAN INTERNATIONAL COOPERATION AGENCY
_____ Project

Contractor: _____

Any change in address by either party shall be made known to the other who will acknowledge the change for purposes of this Paragraph. All notices called for by the terms of this Contract shall be in English language and shall be sent by messenger or registered mail, or telegram, or cable. However, telegram or cable shall be confirmed by a letter of the same day.

C-08

INTEGRATION

The _____ and the Contractor agree that his Contract, including the Contract Documents, expresses and integrates all of the agreements, understanding, promises and covenants of the parties, and supersedes all prior and contemporaneous negotiations, understandings and agreements, whether written or oral and that no modification or alteration of this Contract shall be valid or binding on either party, unless expressed in writing and executed with the same formality as this Contract, except as may otherwise be specifically provided in this Contract.

C-09

JURISDICTION

The proper law, applicable to this Contract shall be the laws in force in the Republic of the Philippines.

C-10 COUNTERPARTS

This Contract is executed seven (7) identical counterparts, five (5) copies for the JICA- , one (1) copy for the Contractor, and one (1) copy to be submitted to the National Irrigation Administration, the Philippines.

C-11 APPROVAL BY THE BOARD

This Contract shall be subject to the approval of the

_____.

_____ PROJECT

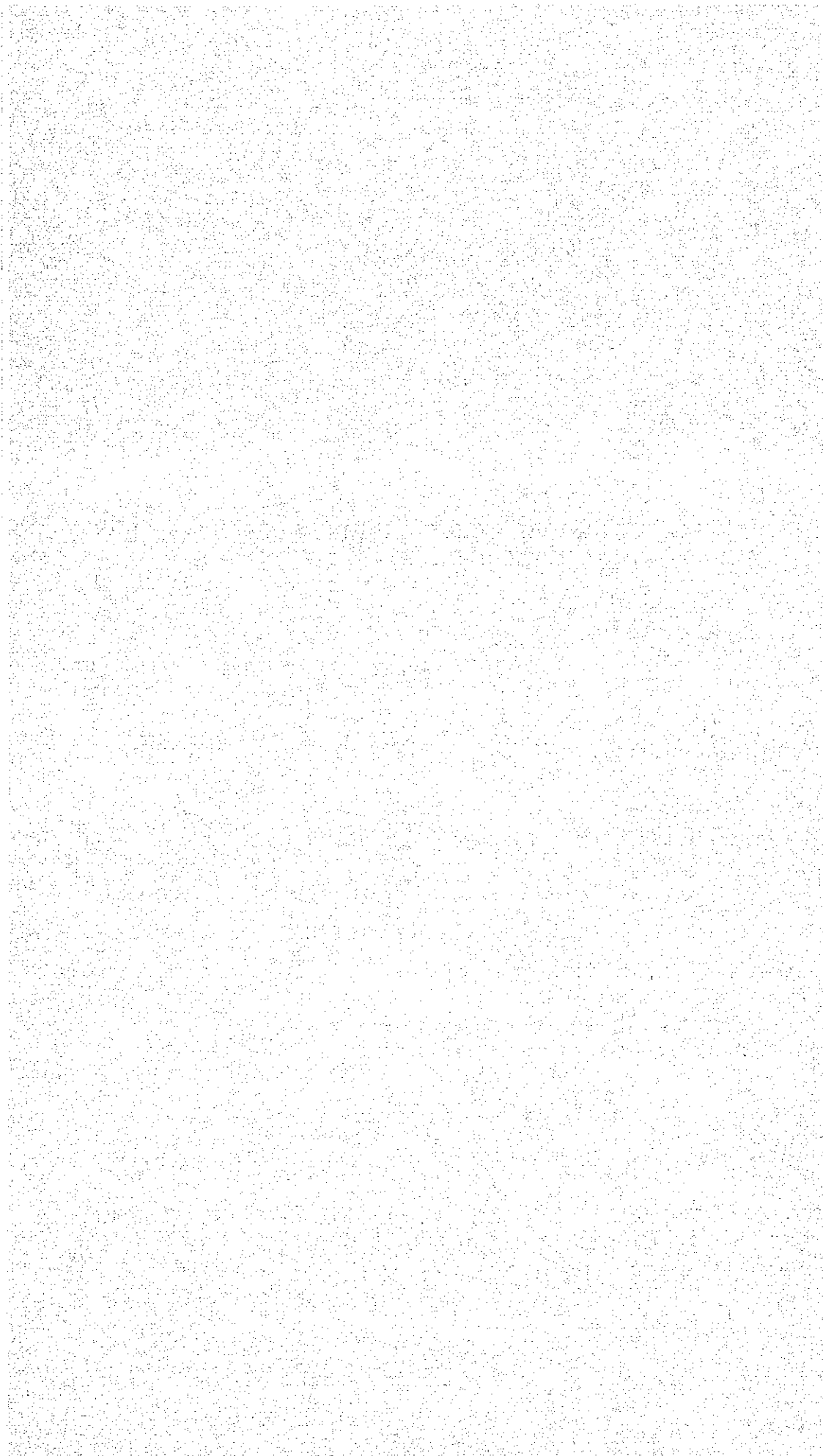
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VI. TECHNICAL SPECIFICATIONS



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CHAPTER I. TEMPORARY WORKS AND MOBILIZATION
OF CONSTRUCTION EQUIPMENT

101 Temporary works

The Contractor shall furnish all materials, labor, equipment and tool and install such temporary works as are necessary for the successful completion of the Contract Works.

The Contractor shall submit to the Engineer for approval the Contractor's plan of the temporary works.

The temporary works consist of the following works.

- (1) Access roads and temporary detours in any places required in the Site for construction of the works.
- (2) Contractor's camps, offices, store houses, workshops labor's camps and other facilities in the site.
- (3) Temporary power and water supplies in the site for construction of the works.

102 Mobilization of equipment

The Contractor shall mobilize and move into the project site (in accordance with the approved Construction program and Equipment moving-in and Utilization schedule) the required construction equipment needed for the successful completion of the Contract work immediately after receipt of the approved Construction program.

CHAPTER II. EARTHWORKS

201 Scope

This chapter covers stripping, excavation of farmland and structures, land leveling, fill and backfill for structures, surface soil handling and disposal of excavated materials.

202 Clearing and grubbing of site

The Contractor shall clear the ground on the site and around the structures to be constructed. Such clearing shall consist of the removal and disposal, in a manner approved by the Engineer, of all trees, stumps, stems, brush, roots, vegetation and other objectionable matters within the site.

Grubbing shall consist of the removal of the tree stumps, roots, brush and rubbish from the work area to be occupied by the embankment structures and from the surface of excavation, and elsewhere as directed by the Engineer. It shall include scraping of the natural ground surface at an adequate depth by effective means to remove all vegetation and other objectionable materials.

The holes resulting from the grubbing up shall be filled with approved material and well compacted.

All materials to be burned shall be piled neatly and in a suitable condition shall be burned completely. Special precautions shall be taken at all times to prevent fire from spreading and shall have available at all times at the burning site adequate and ready for use fire fighting equipment and supplies.

203 Stripping, Removal of Surface Soil

The stripped surface soil shall be removed and temporarily stored at a place provided by the Contractor for later reuse. Before commencing the works, the Contractor shall submit to the Engineer for approval his proposed place for store of the surface soil.

Thickness of stripping of the surface soil is 20 cm in depth, unless otherwise as shown on the drawings or directed by the Engineer. The work includes stripping, collecting, loading, hauling, unloading and stocking at a place approved or directed by the Engineer.

204 Cutting and filling of trial form

After stripping and removal of the surface soil, the surface of farm foundation shall be as level as possible by cutting and filling in accordance with the designed elevation shown on the approved drawings. The cutting portions of foundation desirably shall be slightly lower than filling portions.

The filling works shall be performed from a layer to a layer by spreading the filling materials.

The levelling of surface shall be regulated within the tolerance ± 7.5 cm.

Until the enough bearing capacity for foundation is obtained, the foundation shall be compacted in order to avoid the differential settlement after execution of cutting and filling by using of a compactor directed the Engineer.

205 Land levelling work of trial farm

After completion of cutting and filling works, the stored soil described in Item 203 shall be hauled to the original place and refilled. The levelling of refilled surface shall be performed to avoid uneven land by means approved by the Engineer so as to make the surface within tolerance ± 5.0 cm at 5 points on each farm plot.

206 Excavation of structures

Excavation shall mainly mean the excavation of earth material such as soil, sand and gravel other than rock.

Unless otherwise approved, no excavation shall be permitted under water. The site shall be kept well drained and free from inundation caused by rainfall or groundwater during construction.

- (a) Excavation of drainage canals, foundation of pipelines and structures shall be carried out in accordance with the lines, grades, slopes and dimensions as shown on the approval drawings or directed by the Engineer.
- (b) In case of the over excavation which is not approved or directed by the Engineer, the Contractor shall carried out, at the contractor's own expense, the filling and compaction works by the same materials.
- (c) If the required bearing capacity for structures is not obtained at the excavation shown on the approved drawings, the excavation shall be continued until the allowed bearing capacity is obtained.

(d) Disposition of excavated materials

The Contractor shall submit to the Engineer the necessary drawings and other specific information of the proposed spoil dump areas for obtaining the approval from the Engineer. The prior consent by the Engineer is quite essential for carrying out spoil dumping at any places excavated materials deemed unsuitable as fill materials shall be wasted to the approved spoil dump areas.

(e) Demolition and removal

When indicated in the drawing or directed by the Engineer, existing concrete and/or brick structures, such as culverts, brick wall, etc., shall be demolished and disposed accordingly.

207 Fill and Backfill

This item covers the specifications for fill and backfill works and as shown in the drawings or otherwise direction given by the Engineer, the Contractor shall furnish and place the earth materials for drainage canal embankment and related structures. Any work of fill and backfill shall not be commenced without prior approval of the Engineer. The slope of the embankment shall be made as the shaping of slope indicated on the drawings approved by the Engineer.

Backfill, as referred to herein, is defined as refill works. The materials for backfill works shall be made free from roots, stones of more than five (5) centimeters in diameter, and other objectionable materials and subject to the approval of the Engineer. The backfill materials shall be placed in layers, the each layer being not more than twenty (20) centimeters thick before compaction, thoroughly compacted by using of power tampers or by other method approved by the engineer.

No backfill materials shall be placed on concrete structures before a period of fourteen days has elapsed after placing the concrete.

The fill works shall be carried out in conformity with the lines, grades and dimensions indicated on the drawings, unless otherwise directed by the Engineer. The Engineer may instruct to change a slope of the fill works in respect of soil conditions at the site. Such a change will be made according to the quantities of materials available. The changes prescribed by the Engineer should not cause any claims for increase in unit prices.

Any fill material, which are rendered unsuitable after being placed at the site, shall be replaced by the Contractor without only payment thereto. The Contractor shall re-excavate and remove the filled materials which the Engineer considers objectionable and shall also dispose of such material to the spoil area directed by the Engineer, and refill the excavated area as directed without any additional cost.

Backfill for the construction of the pipeline shall be carried out after carrying out the leakage test of pipeline. The backfill until 60 cm above the top of the pipe shall be made soon after the inspection for the joint works. The heavy equipment including truck shall not be used for the spreading and the rolling compaction of the above-mentioned backfill works. The backfill of succeeding layers can be carried out by the method and equipment approved by the Engineer.

When sufficient materials for fill and backfill is not available from the ditch excavation, additional materials shall be obtained from sources as determined by the Engineer. The materials shall be quality satisfactory for the purpose.

208 Measurement and payment

Measurement for payment for earth works shall be made by the drawings approved by the Engineer and the volume will be computed in cubic meters under the dimensions to be directed by the Engineer.

The accepted quantities of earth works, measured provided above, will be paid for at the contracted unit rate in the Bill of Quantities.

The rate shall include all the expenses for execution of earth works.

CHAPTER III. CONCRETE WORKS

301 Scope

The specifications for the Concrete Works contained herein and as shown on the drawings or otherwise directed by the Engineer, the Contractor shall execute as the following works:

- (a) Furnish all materials, and mix, transport, place, finish, protect, and cure concrete;
- (b) Furnish, construct, erect, and remove forms;
- (c) Construct expansion and contract joints, and furnish and place for water stops, joint fillers, and sealing compound;
- (d) Prepare, clean, cut bend, and place steel reinforcement.

302 Cement

The cement for mortar and concrete works shall be of quality which conforms to the requirements of the Standard Specifications for Portland Cement.

The cement, in sealed bags unbreakable, shall be stored in weathertight and properly ventilated warehouse with adequate provisions for the prevention of absorption of moisture. All storage facilities shall be subject to approval and shall be such as to permit easy access for inspection and identification. The cement which has been stored for more than one month or which is suspected to be damp shall not be used unless otherwise approved by the Engineer.

303 Water

Water used in mixing concrete shall be fresh, clean and free from injurious amounts of oil, acid, alkali, salt, or organic matter.

304 Fine aggregate

The fine aggregate shall be natural sand not including organic materials and others foreign substances.

Fine aggregate shall consist of hard, tough, and durable particles. The shape of the particles shall be generally rounded or cubical and reasonable free from flat or elongated pieces. The quality of fine aggregate shall be subject to approval by the Engineer

305 Coarse aggregate

Coarse aggregate shall consist of gravel or crushed gravel, or a combination of gravel and crushed gravel.

Coarse aggregate shall consist of hard, tough, durable, and clean particles. All foreign materials and dust shall be removed by adequate processing. The particle shape of the smallest size of crushed coarse aggregate shall be generally rounded or cubical, and the coarse aggregate shall be reasonably free from flat and elongated particles in all sizes. The quality of coarse aggregate shall be also subject to approval of the Engineer.

306 Proportion of concrete

- (a) The Contractor shall design the mix proportion for every class of concrete placing for the approval by the Engineer.

- (b) Unless otherwise directed by the Supervisor, the maximum size of coarse aggregate to be used in the various parts of the work shall be 3/4 inch.
- (c) The designed mix proportion of concrete is indicated as follows;

<u>Class</u>	<u>Minimum 28 days compressive strength</u>	<u>Mixing proportion by volume cement: fine aggregates: coarse aggregates</u>
A. (Reinforced concrete)	210 kg/cm ²	1 : 2 : 4
B. (Plain concrete)	180 "	1 : 3 : 6
C. (Level concrete)	135 "	1 : 4 : 6

Other proportions for mixed design may be directed by the Engineer at the site.

307 Mixing

- (a) Concrete shall be mixed in a power driven batch type machine approved by the Engineer.
- (b) The mixing time of concrete shall be more than two minutes but and less than five minutes. Overmixing, requiring the introduction of additional water to preserve the required consistency, will not be permitted. The mixer shall be completely emptied before receiving the materials for the succeeding batch and shall be kept clean and washed out after stopping work at the end of each shift.
- (c) The aggregate shall be moistured by watering if it is drier than the condition known as saturated surface dry.

- (d) On commencing work, cement paste for the first batch shall contain sufficient cement mortar to coat the inside of the drum to avoid the reduction of the required mortar content of the mix.

308 Conveying

Concrete shall be conveyed from mixer to forms, as rapidly as practicable by methods which will prevent segregation or loss of ingredients.

309 Placing

- (a) Approval of the Engineer shall be obtained before starting any concrete pour.
- (b) Concrete shall be worked into the corners and angles of the forms and around all reinforcement and embedded without permitting the material to segregate.
- (c) All concrete shall be placed upon clean, damp surfaces free from standing or running water. Prior to placing concrete, the earth foundation shall be satisfactorily compacted in accordance with approved methods.
- (d) Surface upon or against which concrete is to be placed, shall be clean, free from oil, standing or running water, mud, objectionable coatings, debris, and loose, semi-detached or unsound fragments. To insure a firm and tight bond between fresh concrete and other concrete, concrete surfaces, where necessary, shall be chipped or roughened as directed by the Engineer. All surfaces shall be wetted thoroughly to keep them in a completely moist condition before placing concrete. All approximately horizontal surfaces shall be covered with a layer of mortar of the same cement-sand ratio as used in the concrete mix before the concrete is placed.

- (e) Concrete shall be placed and consolidated with the aid of mechanical vibrating equipment or of hand-spading and tamping.

310 Forms

- (a) Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall be maintained rigidly in correct position. Forms shall be sufficiently tight to prevent loss of mortar from the concrete.
- (b) At the time concrete is placed in the forms, the surfaces of the forms shall be free from any objectionable materials and shall be oiled to prevent sticking.
- (c) Forms shall be removed as soon as practicable after the time instructed by the Engineer.

311 Curing and protection

- (a) All concrete shall be moist cured for a period of not less than seven (7) consecutive days by an approved method or combination of methods applicable to local conditions.
- (b) Concrete shall be kept wet by covering with water-saturated material or by other means approved by the ENgineer.

312 Reinforcing bar

- (a) The Contractor shall furnish all steel reinforcement materials for concrete works as indicated on the drawings. The Contractor shall prepare, clean, cut, bend and place all reinforcements, as shown on the detailed drawings or

directed by the Engineer. The Contractor shall furnish all chains, supports and ties. The reinforcement shall be reasonable free from loose, flaky rust and scale, and free from oil, grease and other coating which might destroy or reduce its bond with concrete.

- (b) The distance from the center of the main reinforcement to the concrete surface shall be 5 cm except such portions as shown in the drawings. The concrete covering the stirrups, spacer bars, and similar secondary reinforcement may be reduced by the diameter of such bars, unless otherwise indicated by the Engineer.
- (c) Lapping length at joints of the reinforcing bar shall be at least thirty times of the diameter of the bar and shall be bound by steel wire.
- (d) The reinforcements shall be secured in place by use of metal or concrete supports, spacers or ties. Such supports shall be of sufficient strength to maintain the reinforcement in place throughout the concreting operation. The supports shall be used in such manner that they will not be exposed or contribute in any way to the discoloration or deterioration of the concrete.

313 Measurement and payment

- (a) Measurement for payment for concrete cast in situ shall be made by volume in cubic meters of respective classes of concrete placed as computed from the dimensions shown on the drawings approved by the Engineer.
- (b) Measurement for payment for formwork for concrete Class-A and Class-B shall be the area shown on the Drawings, measured in square meters, of concrete surfaces formed.

- (c) Measurement for payment for reinforcing bar shall be the weight of reinforcing steels placed in the concrete in metric kilogram as computed from the approved detailed, bar bending schedule, using theoretical unit weights.

- (d) The accepted quantities of concrete formwork, reinforcing bar and other miscellaneous, will be paid for at the contract unit rate in the Bill of Quantities. The formwork for Class-C shall be deemed to be included in the rate of concrete works.

CHAPTER IV. PIPE WORK

401 Scope

All pipe, fittings and appurtenances shall be furnished by the Contractor. In addition, the Contractor shall furnish all labor, materials, equipment and incidents required to install the piping, fittings and appurtenances as shown on the drawings.

Work to be done shall include hauling, laying, installing, jointing and all other work necessary to produce a completed facility. The Contractor shall furnish and install fittings, gaskets, flanges, bolts, nuts and all other materials necessary to properly install the work shown on the drawings and as specified.

For each work required for pipe embedding, the specifications for earth and foundation works shall be applied.

402 Shop drawings

The Contractor shall submit detailed working and shop drawings and schedules of all pipe, fittings and appurtenances. Shop drawings shall include but not be limited to the following;

1. Lists of materials
2. Schedules of pipe lengths
3. Details of proposed joints

403 Pipe and fittings

- (a) Joints of galvanized steel pipes shall be of flanged or screwed. All metal parts of joint shall be adequately protected with rustproof paint.

Wall thickness of steel pipes shall be as follows.

<u>Diameter</u>	<u>Wall Thickness</u>
150 mm	5.0 mm
125 mm	4.5 mm
50 mm	3.8 mm
25 mm	3.2 mm

- (b) Polyvinyl chloride pipes (PVC pipes) shall be provided at one Taper Socket at the end of pipes in compliance with manufactures' standard. The connection's pipes and fittings shall be used suitable bonding agent which is approved by the Engineer.

Wall thickness of PVC pipes shall be more than followings.

<u>Diameter</u>	<u>Wall Thickness</u>
150 mm	6.5 mm
125 mm	5.4 mm
65 mm	3.5 mm

404 Installation

- (a) The installation of pipe and fittings shall be strictly in accordance with the manufacturer's technical instruction printed.
- (b) In making connections, clean dirt, moisture and oil from pipe and fittings. Particular care shall be taken not to overstress threaded connections at joint.
- (c) In case that the foundation is composed at gravel layer, the foundation shall be replaced by suitable soil material in thickness 10 cm. And also it shall be compacted sufficiently under the instruction of the Engineer.

- (d) After completion of pipe installation, backfill works shall be carefully executed in accordance with the drawings or the direction of the Engineer.
- (e) Cuttings of the pipe shall be kept to a minimum. when cuts are necessary, they shall be perpendicular to the axis of the pipe and smooth. cuts shall be made with tools in conformity with the pipe manufacturer's recommendations.
- (f) Precautions shall be given to avoid damages to the pipes and fittings. In handling and storing the pipes and fittings, every care shall be given to avoid distortion, flattening, scoring or other damages. The pipes and fittings shall not be allowed to drop or strike objects.

405 Sluice valve

- (a) The sluice valves shall be of vertical and flanged type conforming to JIS B2062 or equivalent.
- (b) The sluice valves shall be suitable for water services piping as the maximum operating pressure of static head up to 7.5 kg/sq.cm.

406 Check valve

- (a) The check valves shall be of flanged swing type in accordance with JIS B2074 or equivalent.
- (b) The check valves shall be suitable for water services piping at the maximum operating pressure of static head up to 7.5 kg/sq.cm.
- (c) Valve body and disc shall be made of cast iron conforming to class 3 (FC 20) of JIS G5501 or equivalent.

407 Foot valve

- (a) The foot valves shall be of flap valve type.
- (b) The maximum operating pressure of the foot valve of static head shall be 7.5 kg/sq.cm.
- (c) Valve body shall be made of cast iron.

408 Hydrant

- (a) The hydrants shall be of 360 degrees swing type and be screwed with the valve socket.
- (b) The maximum operating pressure of the hydrant of static head shall 7.5 kg/sq.cm.
- (c) Valve bodies and disc shall be made of aluminium alloy and/or gun metal. The Contractor shall submit the sample of the hydrant for approval of the Engineer.

409 Flow meter

The type of equipment shall be propeller meter type with one side flange and the flow meter shall have measuring function as follows.

Flow meter, dia. 125 mm moment discharge and
accumulated discharge

Flow meter, dia. 65 mm accumulated discharge

410 Leakage tests

- (a) Before acceptance, pipelines shall be tested by the Contractor in the presence of the Engineer. The Contractor shall furnish all labor, fuel, oil and other equipment required to carry out tests at the Contractor's expense.
- (b) Leakage test, unless otherwise directed by the Engineer, shall be conducted for a continuous two hour period at the maximum operating pressure of the system, 2 kg/cm^2 .
- (c) If any test shows the leakage of any joint, pipe or otherwise ruptures part of the system, the Contractor shall make the necessary repairs and repair the leakage tests. The method of leak-stoppage shall be subject to the approval of the Engineer.

411 Measurement and payment

Measurement for payment for supply and installation of pvc and galvanized steel pipe shall be the length in meters of pipes installed, as computed on centerline of the alignment of pipeline including the lengths for straight pipes, bend pipes, tees, flanges, joints, and earth works, but excluding the pipeline of pump house and suction sump.

The accepted quantities of pipelines, measured as provided above, will be paid for the contracted unit rate in the Bill of Quantities.

CHAPTER V. INSTALLATION OF PUMPS

501 Scope

The pump with accessories shall be furnished by the Contractor. The Contractor shall submit to the Engineer the specifications and drawings in conditions assembled, disassembled and installed, which are prepared by the manufactures, in advance.

502 Pump

The capacity of the proposed pump shall satisfied the following specifications or equivalent:

Type	:	Single suction volute pump
Diameter	:	80 mm
Capacity	:	560 liter/min
Total head:		12.5 m
Power	:	3.9 ps

The pumping unit to be furnished shall be in accordance with the latest applicable standards in the country of origin for the type of pump to be supplied, unless otherwise specified herein. The efficiency of the unit to be furnished shall be as high as practicable and consistent with the best modern design. The pump shall ensure equal or higher quality than the specified special standard or the indicated design requirements of these Contract Documents.

503 Installation

The pump shall be installed and incorporated with the structure as indicated in the drawings furnished by the manufacturer.

504 Servicing and operation test

After the pump is completely installed, the pump's accessories shall be cleaned and serviced by the Contractor.

The pump shall be tested before take-over and shall operate smoothly.

505 Guarantee of materials and workmanship

The Contractor shall submit testing records of the pump the test-run of which is to be made by the manufacturers.

The Contractor shall guarantee the quality of the equipment and be fully responsible for any defective equipment and parts found within one (1) year from the date of acceptance.

506 Measurement and payment

Payment for the installation of pumps will be made on the basis of contracted lump sum prices after completion of the Engineer's examination.

CHAPTER VI. STONE WORKS

601 Scope

This chapter covers the materials to be used and the placing for the stone work.

Stones for riprap shall be the best of its kind, sound and durable, free from flaws and from soft, weathered or decomposed points. The sites for stone material shall be proposed by the Contractor to the Engineer for his approval. When required by the Engineer, samples of stone shall be submitted by the Contractor.

602 Riprap Material

The riprap material shall be either field stone or rough rock stone obtained from quarry. The average size of stone shall be 250 mm.

603 Foundation

Foundation to receive riprap shall be trimmed to the levels or slopes as shown in the drawings, rammed and compacted to provide firm foundation. All foreign materials such as lumps of earth, wooden pegs, wooden stumps, roots, other debris and water shall be thoroughly removed.

604 Riprap

Mortared riprap works and placed riprap works shall be carried out in accordance with the drawings or as directed by the Engineer.

605 Mortared riprap

Riprap shall consist of hand placed stones giving an even exposed surface whose interstices and joints shall be filled with sand-cement mortar.

Stones shall be placed to form a layer of riprap 300 mm thick unless otherwise shown on the drawings, measured perpendicular to the slope.

The interstices and joints shall be filled with mortar consisting of one part cement of three parts sand or as otherwise approved by the Engineer. The materials to be mixed shall be accurately measured by volume. The water contents and consistency shall be suitable for workability.

Fifty (50) mm weep holes shall be formed in the mortared face at 4 m spacing vertically and horizontally, unless otherwise shown on the Drawings. A minimum of two (2) weep holes shall be placed in each section of mortared rip-rap.

Within twenty four (24) hours of construction, the joints on all exposed faces shall be raked clear of loose mortar and pointed with the mortar specified.

Mortared rip-rap shall be protected from the sun and kept moist for at least three (3) days after pointing.

Any riprap which is damaged shall be removed and replaced.

The tolerances for finished surface shall be:

- protrusions or depressions not to exceed 10 mm above or below the average plane level in any one square meter of surface.

- the thickness of mortared riprap not to be less than the stated dimensions on the Drawings or these Specifications.

606 Placed Rip-rap

Rock shall be placed to form a layer of rip-rap slope and final placement, positioning and sorting shall be accomplished by manual labor.

607 Measurement and payment

Measurement for payment for riprap shall be made by the drawing approved by the Engineer and quantity will be computed in the cubic meter.

The accepted quantities for riprap, measured as provided above, will be paid for at the contracted unit rate in the Bill of Quantities.

CHAPTER VII. FARM ROAD WORKS

701 Scope

The farm road works consists of setting out of alignment, clearing and grubbing, stripping and excavation, embankment and gravel pavement.

The location, type, longitudinal profiles, transversal sections and other details of the works shall be as indicated on the drawings.

702 Clearing and grubbing of site

This works shall be carried out in compliance with Section 202 at Chapter 2 Earthworks.

703 Stripping of top soil

This works shall be carried out in compliance with Section 203 at Chapter 2 Earthworks.

704 Excavation of road bed

Road bed shall be excavated to the elevation as specified by the drawings or directed by the Engineer. The excavated materials shall be placed on the other site for reuse under direction by the Engineer.

705 Embankment

The Contractor shall submit the plan of location of borrow area which has been developed by him on his responsibility and his own expense to the Engineer for approval.

- (a) The area of excavated foundations shall be compacted sufficiently by compactor or means directed by the Engineer.
- (b) Before placing the first of fill on such compacted foundation area, the surface shall be scarified to a depth not less than 50 mm, in order to roughen the surface and provide good bonding of the fill placed thereon.
- (c) The fill shall be placed and spread in continuous layers parallel to the major axis of the farm road.
- (d) The spread of each layers shall not exceed 25 cm in thickness.
- (e) Where the surface has dried too much for proper bonding, it shall be uniformly sprinkled with water, scarified, harrowed and mixed until the moisture content of the in place material is within the required limits. If the moisture content of the in place material is higher than the limited required, such fill shall be controlled until its moisture content is within required limit or it shall be removed from the site where directed by the Engineer.
- (f) The Contractor shall Control the moisture content of the fill material on the site or the place directed by the Engineer.

706 Compaction

Each layer of the fill material shall be compacted by an approved compactor so that the fill material shall form a single homogeneous mass. When so directed by the Engineer, hand operated heavy duty tampers and/or smooth faced vibrating rollers shall be used for the compaction of fill material

placed in areas inaccessible to the compaction equipment selected for normal use. These tampers or rollers shall be air, gasoline or diesel powered. They shall be easily manoeuvrable and of sufficient capacity to obtain the specified density.

The dry density of the fill shall be not less than required degree of compaction 90%.

Note: Degree of compaction

$$= \frac{\text{Dry density of fill in situ}}{\text{Max. dry density of standard compaction}} \times 100 (\%)$$

707 Testing of fill

The Engineer will perform tests on the fill material. Testing by the Engineer will be done as frequently as deemed necessary and the Contractor shall furnish labor and equipment to assist in obtaining the samples for testing.

- (a) The compaction test of fill material shall be conducted in accordance with JIS A1214 or equivalent standard.
- (b) The density of fill in place will be determined by using of sand cone method.

708 Gravel pavement

The gravel material shall be used for pavement of the farm roads.

709 Measurement and payment

Measurement for payment for road embankment except for pipeline works shall be the volume of compacted materials placed and measured in cubic meters by the average and area method.

The accepted quantities of road embankment and gravel for pavement, measured as provided above, will be paid for the Contracted unit rate in the Bill of Quantities.

CHAPTER VIII. BUILDING WORK

801 Scope

The Contractor shall construct pump house, warehouse & garage, shelter for works and campost shed required in the contract in accordance with the specifications and as shown on the drawings.

Shelter for works shall be built by wood as shown on drawings.

Details of the building work not fully indicated on the drawings shall be designed by the Contractor in accordance with the standard architectural and engineering practice. The Contractor shall submit to the Engineer which shall be complete and shall contain all required detailed information.

802 Materials

All materials used in the building construction shall be subject to the Engineer's approval. The Contractor shall submit to the Engineer samples of the said materials prior to the commencement of relative works for the approval.

803 Earthworks

- (a) The ground for buildings shall be levelled before commencement of the works.
- (b) The earthwork required for foundations and other parts of the buildings shall be carried out to the lines and levels as shown on Drawings and/or directed by the Engineer, in accordance with Chapter II Earthworks.

- (c) The portions around the foundations or other portions requiring backfill shall be filled with good materials and sufficiently compacted.

804 Concrete works

The concrete works shall be performed in accordance with the applicable requirements of Chapter III CONCRETE WORKS. Providing no other kind of concrete is specified in the drawings, Class A shall be used for the floors and low thickness parts and Class A shall be used for the reinforced concrete.

805 Block works

- (a) Concrete block shall be of hollow Type.
- (b) Concrete block shall be as manufactured by manufacturers in the mass production of concrete blocks of good quality and design, and shall be subject to approval by the Engineer. The Engineer shall reserve the right to subject the concrete block to whatever tests he deems necessary in order to assure the soundness of the product at the Contractor's expense.
- (c) Block shall be finished in stretcher, regular shape, half size, corner lintel and any other regular manufactured type and shape required to ensure a satisfactory arrangement of block installation.
- (d) Block shall be free from substances that will cause staining or pip-outs, and shall be of fine, even texture with straight and true edges. All blocks shall be moist cured for at least 24 hr and then air cured in covered storage for not less than 14 days before delivery.

- (e) Block shall be of modular type as required for nominal wall thickness of 100 mm or 150 mm. Blocks shall be uniform in size, texture and color. Blocks shall be saw cut where fitted to non-modular space. The unit block shall have a regular rectangular shape and perpendicular aligned holes.

806 Carpentry

- (a) Materials

The wood used shall be dried to 24 percent or less in moisture content. And the wood shall be hard.

- (b) Preservative treatment and insecticide treatment

All the surfaces of wood in contact with concrete, mortar, etc. shall be coated twice with phenol preservative.

Lauan not treated with insecticide shall not be used.

All metallic parts shall be coated with rust preventives, except the portions embedded in concrete.

- (c) Protection

The portions which may be spoiled or damaged during working shall be protected by the covering of paper, board, or any other suitable materials.

807 Roofing

- (a) Material

The roof materials except shelter for works shall be No. 26 corrugated galvanized iron sheets. The overlapped

portions shall extend more than 2.1/2 crests in crosswise direction and more than 30 cm in lengthwise direction. The roof material of shelter for works shall be nippa.

808 Joiner's work

(a) Window

The windows shall be of wooden sashes.

(b) Door

The doors shall be wooden flush doors.

(c) Hardwares

All the locks for fittings and other accessory hardwares shall be of first class quality, and their samples shall be submitted and approved by the Engineer.

Door locks : Cylinder locks with master keys
Knobs to be made of stainless steel

Door closers : With floor hinge stops

Hinges : Stainless steel
Hinges in office shall be pivot hinges

809 Glazing works

(a) Materials

The sheet glass shall be polished sheet glass.

(b) Fitting materials

For edge keeping portions, Thiokol sealing agent shall be used.

810 Painting

(a) General

All the facings of woods and steels in the buildings shall be painted in accordance with the Engineer's instruction.

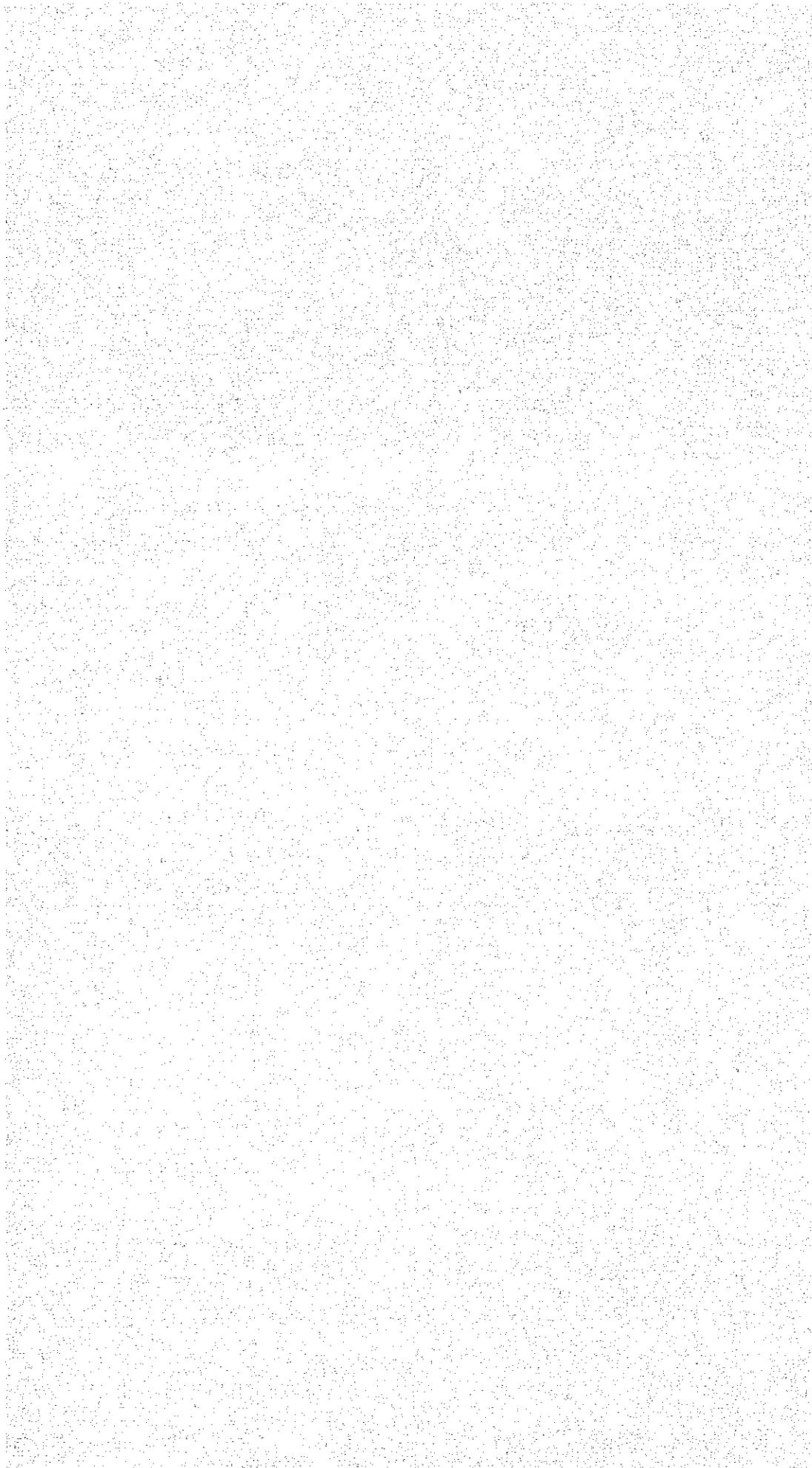
(b) Painting schedule

The painting schedule shall be as shown in the following tables.

Alkyd resin paint

<u>Ferrous portions</u>		<u>Wooden portions</u>	
<u>Painting schedule</u>	<u>No. of coats</u>	<u>Painting schedule</u>	<u>No. of coats</u>
Unticorrosive coat	1	Surface preparation	1
Intermediate coat	1	First coat	1
Finish coat	2	Intermediate coat	1
		Finish coat	2

VII. BILL OF QUANTITIES



SUMMARY OF BILL OF QUANTITIES

Pesos

Division 1. General
Division 2. Irrigation Facilities
Division 3. Drainage Facilities
Division 4. Farm Road
Division 5. Land Consolidation
Division 6. Other Facilities

Sub-total

Sum for Contingencies
(10% of Sub-total)

Total Bid Price

Division 1. General

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Amount</u>
1001	Survey works	L.S.	1		
1002	Common temporary works	L.S.	1		
	<u>Total</u>				<u> </u>

Division 2. Irrigation Facilities

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Amount</u>
<u>Section 2.1. Temporary Works</u>					
2101	Temporary works	L.S.	1		
<u>Section 2.2. Civil Works for Pumping Station & Elevated Tank</u>					
2201	Excavation	m ³	42		
2202	Fill & Backfill	m ³	21		
2203	Reinforced concrete (Class - A)	m ³	26		
2204	Plain concrete (Class - B)	m ²	30		
2205	Leveling concrete (Class - C)	m ²	0.2		
2206	Form work	m ²	255		
2207	Reinforcing Bar	kg	878		
2208	Grouted Riprap	m ³	18		
2209	Riprap	m ³	22		
2210	Wooden manhole cover	No.	3		
Total for Section 2.2.					

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Amount</u>
<u>Section 2.3. Supply & Installation of Pump & Pipes around</u>					
<u>Elevated Tank</u>					
2301	Single suction volute pump (ϕ 80mm, 0.56 m ³ /min) including suction pipe, foot valve, check valve, sluice valve & outlet pipe around pump	set	2		
2302	Galvanized steel pipe (ϕ 150 mm)	m	13		
2303	Galvanized steel pipe (ϕ 125 mm)	m	52		
2304	Galvanized steel pipe (ϕ 50 mm)	m	19		
2305	Galvanized steel pipe (ϕ 25 mm)	m	5		
2306	PVC pipe (ϕ 150 mm)	m	22		
2307	PVC pipe (ϕ 125 mm)	m	4		
2308	Cast iron sluice valve (ϕ 125 mm)	No.	1		
2309	Cast iron sluice valve (ϕ 50 mm)	No.	1		
2310	Bronze valve(ϕ 25 mm)	No.	1		
2311	Strainer (ϕ 125 mm)	No.	1		
2312	Flow meter with measuring function of both moment and accumulated discharge. (ϕ 125 mm, one flange)	No.	1		
2313	Couping (ϕ 125 mm)	No.	2		
Total for Section 2.3.					

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Amount</u>
<u>Section 2.4. Pump House</u>					
2401	Pump house	m ²	13		
<u>Section 2.5. Supply & Installation</u>					
2501	PVC pipe (ø125 mm)	m	366		
2502	PVC pipe (ø 65 mm)	m	216		
2503	Flow meter with measuring function of accumulated discharge (ø 65 mm, one flange)	No.	25		
2504	Hydrant (ø 65 mm)	No.	25		
2505	Cast iron sluice valve (ø125 mm)	No.	2		
2506	Coupling (ø 65 mm)	No.	25		
2507	Flow meter & hydrant box	No.	25		
2508	Valve box (ø125 mm)	No.	1		
2509	Blow of valve box	No.	1		
	Total for Section 2.5.				<hr/>
<u>Section 2.6. Miscellaneous Works</u>					
2601	Hand rail	m	12		
2602	Ladder (H=3.35 m)	No.	2		
2603	Ladder (H=4.32 m)	No.	1		
2604	Screen	No.	3		
	Total for Section 2.6.				<hr/>
	Total for Division 2.				<hr/>

Division 3. Drainage Facilities

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Amount</u>
<u>Section 3.1. Civil Works</u>					
3101	Earth works Drainage ditch (No.1)	m	350		
3102	Earth works Drainage ditch (No.2)	m	457		
3103	Earth works Drainage ditch (No.3)	m	147		
	Total for Section 3.1.				
<u>Section 3.2. Structure</u>					
3201	Drops (A) type	No.	3		
3202	Drops (B) type	No.	1		
3203	Culvert (A) type	No.	1		
3204	Culvert (B) type	No.	1		
3205	Waste way	No.	1		
3206	Measuring weir (Triangular weir)	No.	10		
3207	Outlet	No.	25		
3208	Brick drainage	m	113		
3209	Brick drainage with cover	m	14		
3210	Drainage lining	m	153		
3211	Investigation hole of under groundwater (ϕ 50mm, l = 1.50 m)	No.	25		
	Total for Section 3.2.				
	Total for Division 3.				

Division 4. Farm Road

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Amount</u>
4101	Farm road	m	417		
4102	Gravel paving	m ²	1,425		
	Total for Division 4.				<hr/>

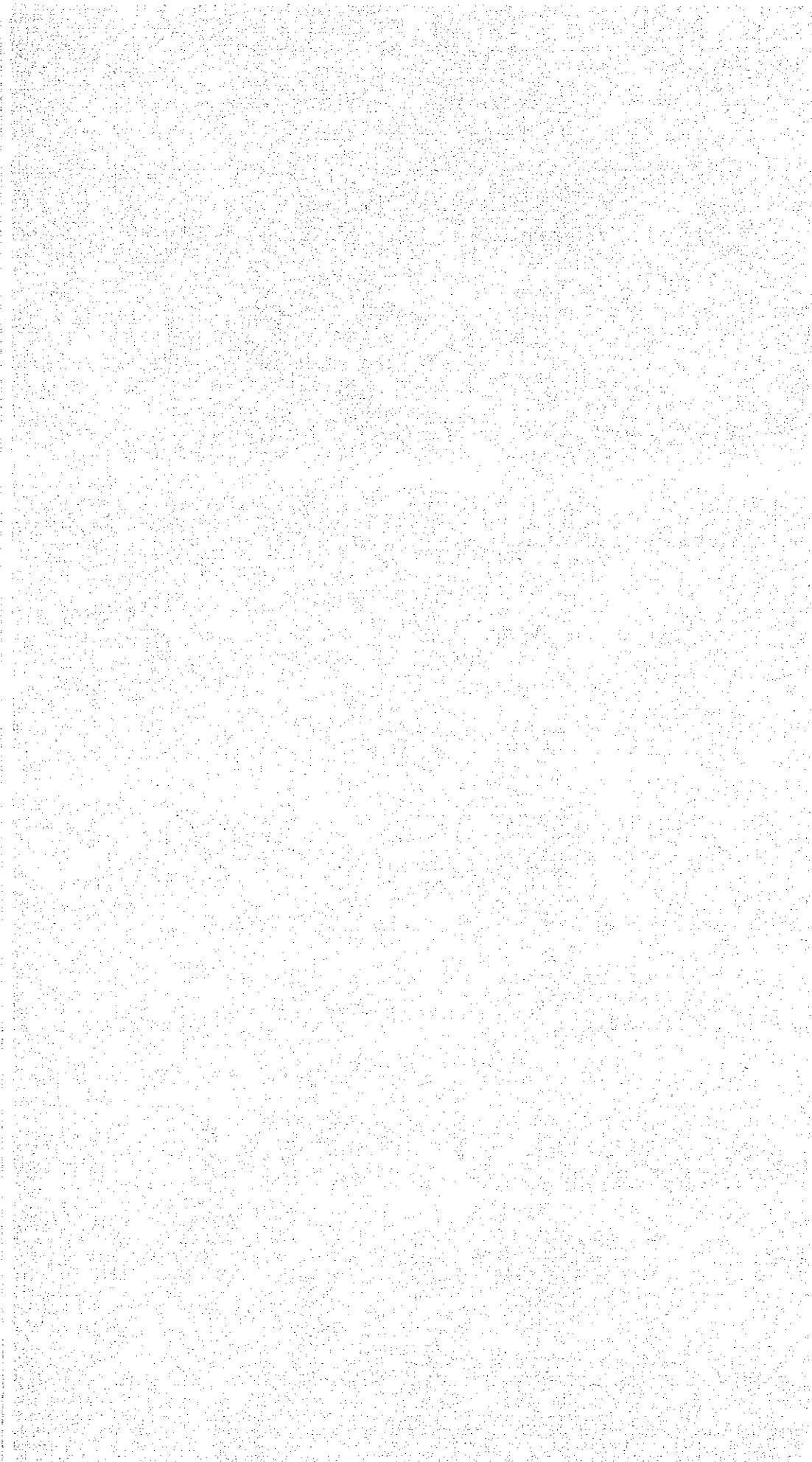
Division 5. Land Consolidation

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Amount</u>
5101	Cut and embankment	m ³	3,369		
5102	Top-soil stripping	m ³	5,178		
5103	Top-soil removing	m ³	5,178		
5104	Land leveling (Foundation)	m ²	25,893		
5105	Land leveling (1st stage)	m ²	25,893		
5106	Land leveling (2nd stage)	m ²	25,893		
5107	Plot border	m	2,394		
5108	Slope grading	m ²	165		
Total for Division 5.					-----

Division 6. Other Facilities

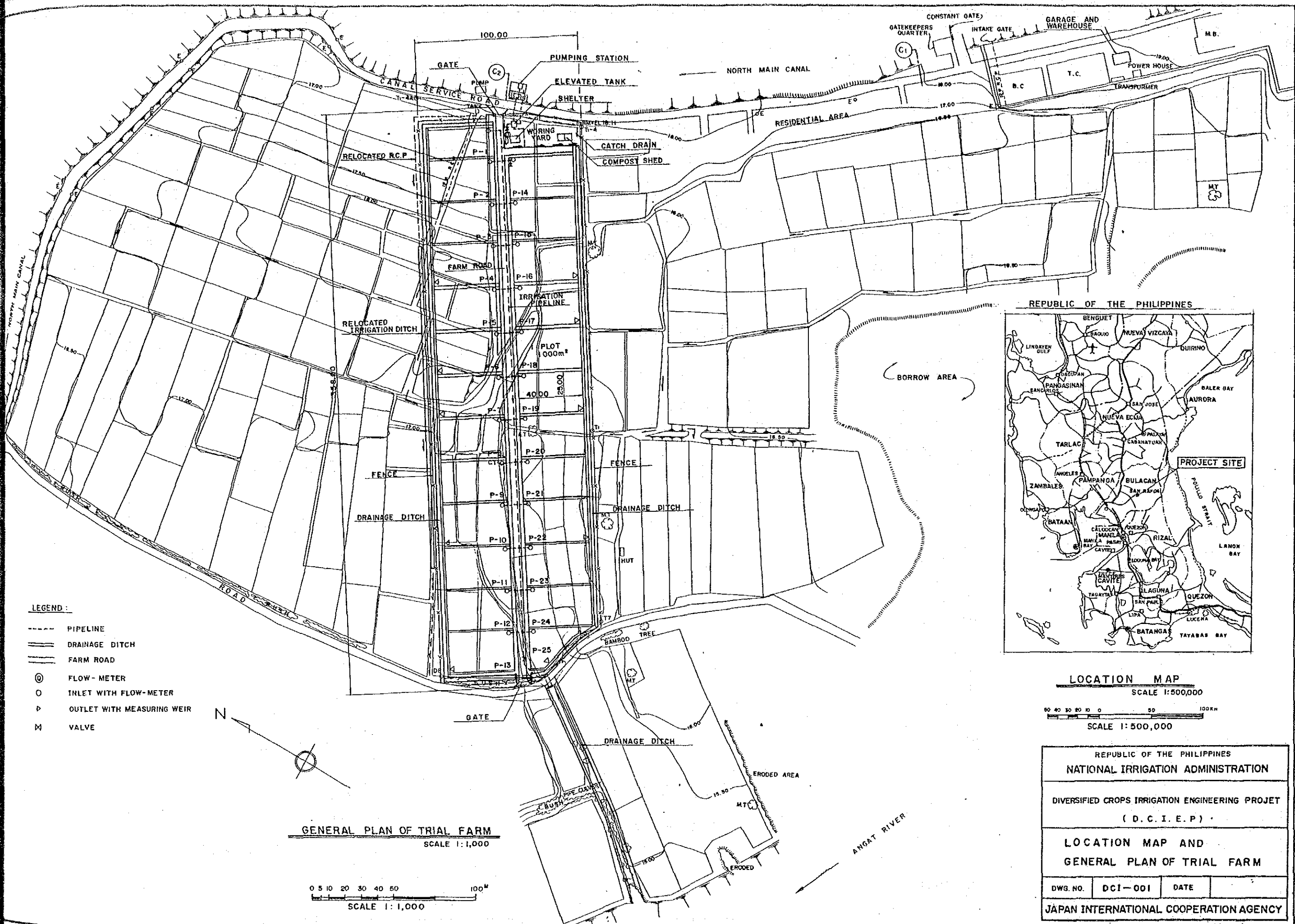
<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Amount</u>
<u>Section 6.1. Relocation of Existion Pipeline</u>					
6101	Removal of existing pipeline	m	94		
6102	Pipeline	m	127		
6103	Irrigation ditch	m	210		
Total for Section 6.1.					
<u>Section 6.2. Fence Works</u>					
6201	Fence	m	915		
6202	Gate	No.	2		
Total for Section 6.2.					
<u>Section 6.3. Building</u>					
6201	Garage and warehouse	m ²	60		
6202	Compost shed	m ²	28		
6203	Shelter	m ²	24		
6204	Septic tank	No.	1		
Total for Section 6.3.					
Total for Division 6.					

VIII. DRAWINGS



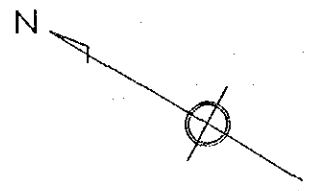
LIST OF DRAWINGS

<u>DRAWING NO.</u>	<u>TITLE OF DRAWINGS</u>
DCI-001	LOCATION MAP AND GENERAL PLAN OF TRIAL FARM
DCI-002	PUMPING STATION FACILITIES (1)
DCI-003	" (2)
DCI-004	" (3)
DCI-005	ELEVATED TANK
DCI-006	PIPE ARRANGEMENT AROUND ELEVATED TANK (1)
DCI-007	" (2)
DCI-008	VALVE BOX, STRAINER BOX, FLOW METER BOX AND BLOW OFF VALVE BOX
DCI-009	IRRIGATION PIPELINE AND FLOW METER & HYDRANT BOX
DCI-010	PLAN OF DRAINAGE DITCH
DCI-011	STRUCTURES ON DRAINAGE DITCH (1)
DCI-012	" (2)
DCI-013	MEASURING WEIR AND OUTLET
DCI-014	PLAN OF FARM ROAD
DCI-015	EARTH WORK OF TRIAL FARM (1)
DCI-016	" (2)
DCI-017	" (3)
DCI-018	" (4)
DCI-019	" (5)
DCI-020	WAREHOUSE AND GARAGE
DCI-021	SHELTER FOR WORKS
DCI-022	COMPOST SHED AND SEPTIC TANK
DCI-023	GATE, FENCE AND RELOCATION OF EXISTING PIPELINE
DCI-024	SURVEY RESULT

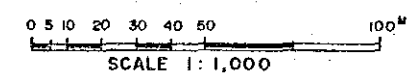


LEGEND:

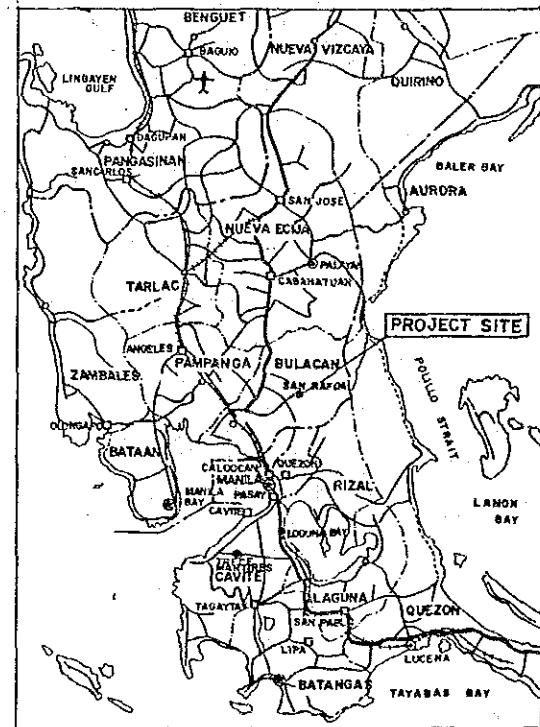
- PIPELINE
- === DRAINAGE DITCH
- == FARM ROAD
- ⊙ FLOW-METER
- INLET WITH FLOW-METER
- ▷ OUTLET WITH MEASURING WEIR
- M VALVE



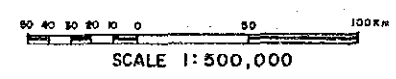
GENERAL PLAN OF TRIAL FARM
SCALE 1:1,000



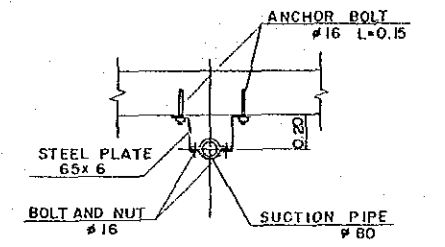
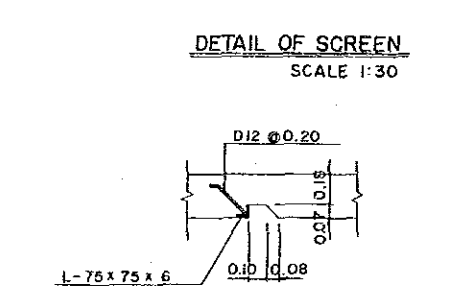
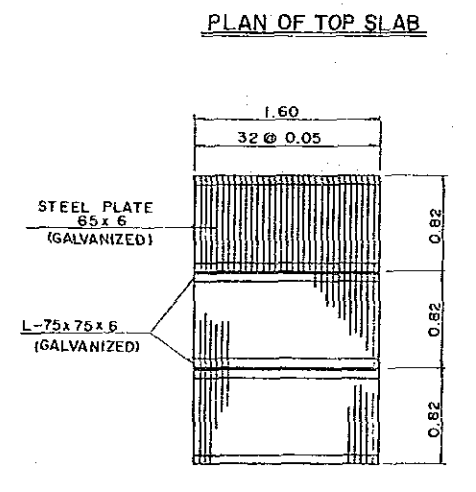
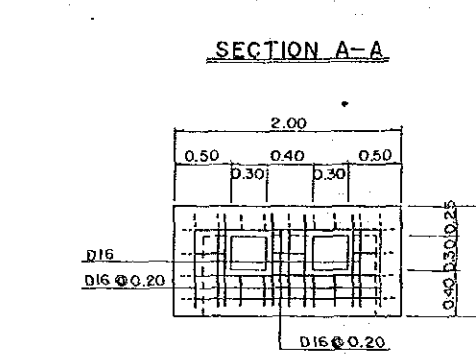
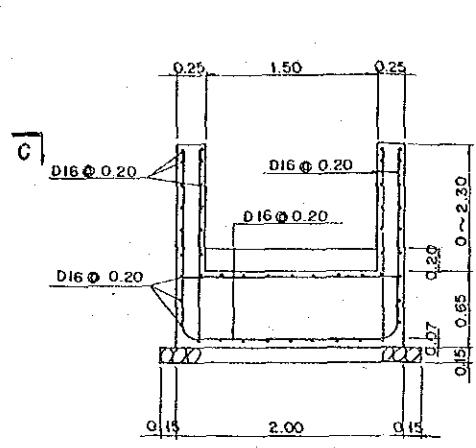
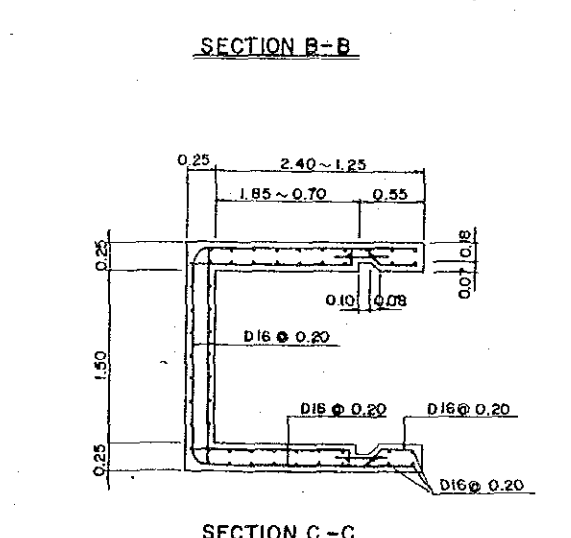
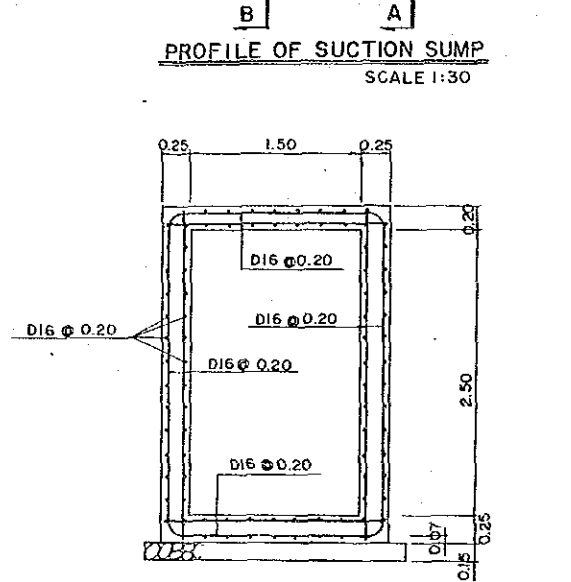
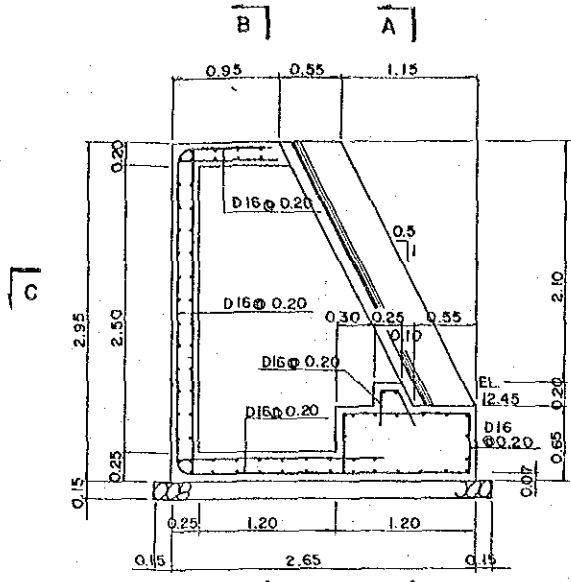
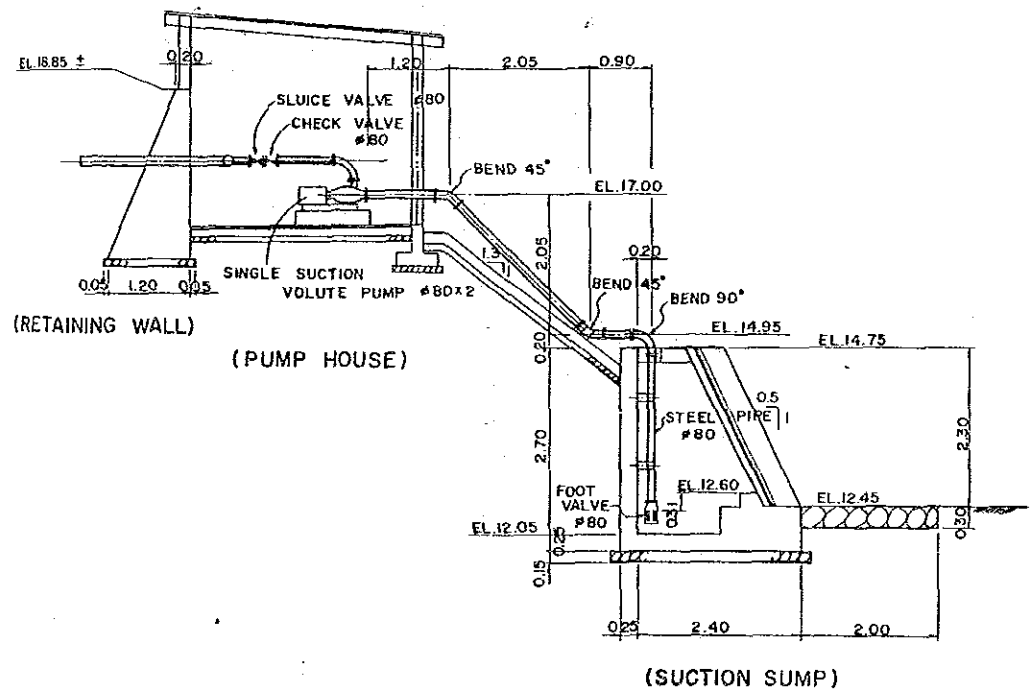
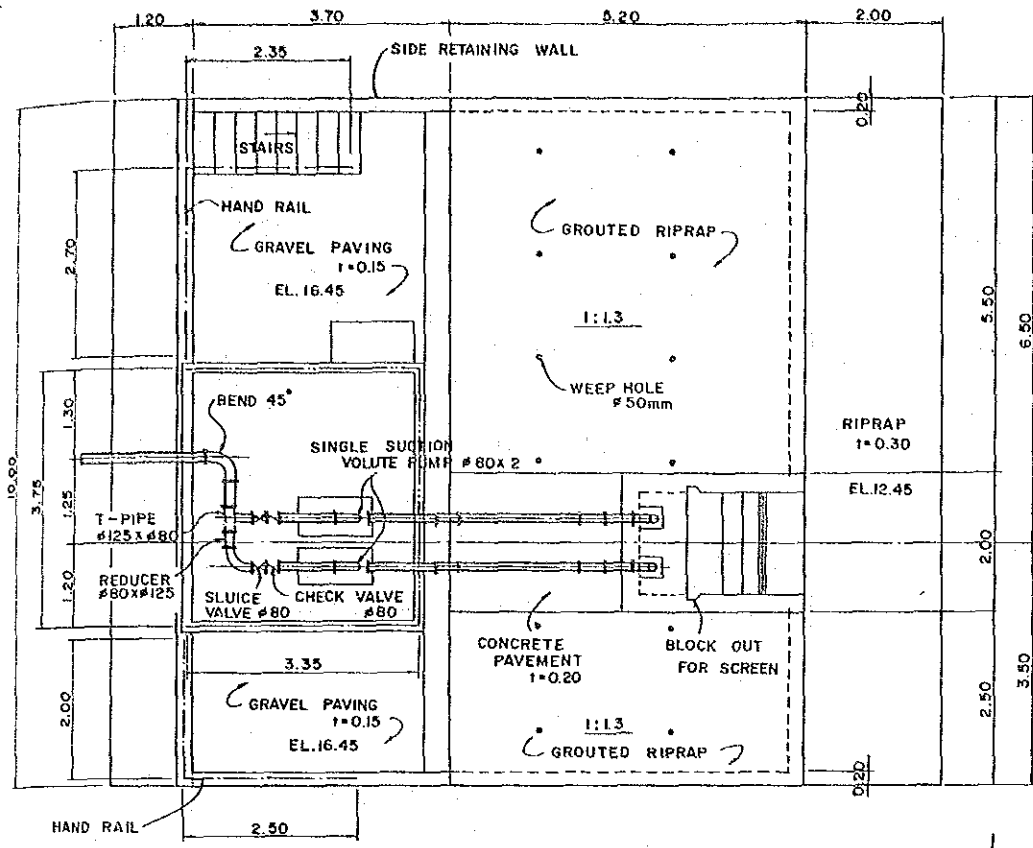
REPUBLIC OF THE PHILIPPINES



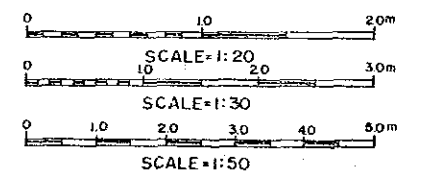
LOCATION MAP
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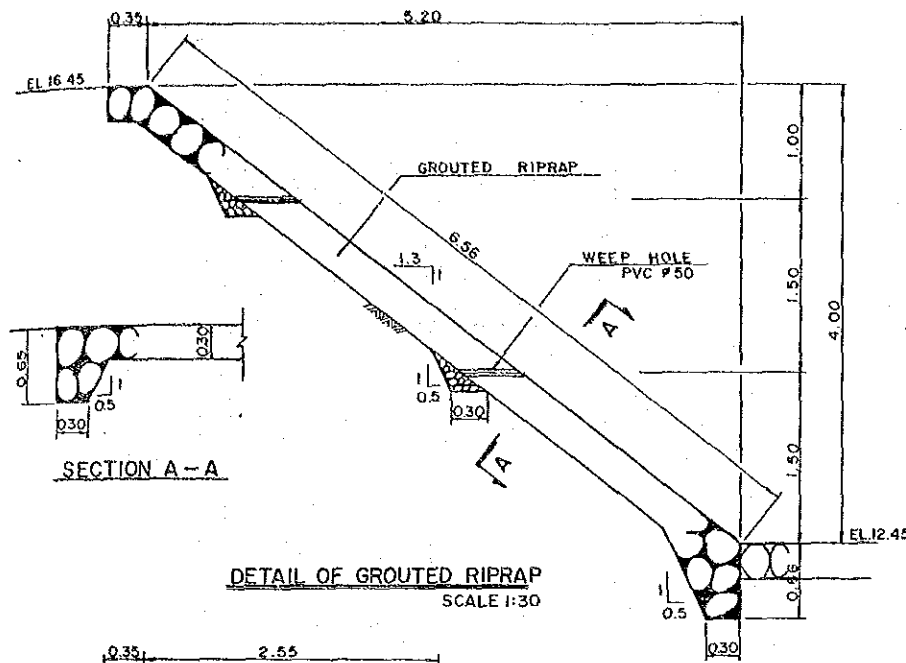
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NATIONAL IRRIGATION ADMINISTRATION			
DIVERSIFIED CROPS IRRIGATION ENGINEERING PROJ (D. C. I. E. P)			
LOCATION MAP AND GENERAL PLAN OF TRIAL FARM			
DWG. NO.	DCI-001	DATE	
JAPAN INTERNATIONAL COOPERATION AGENCY			



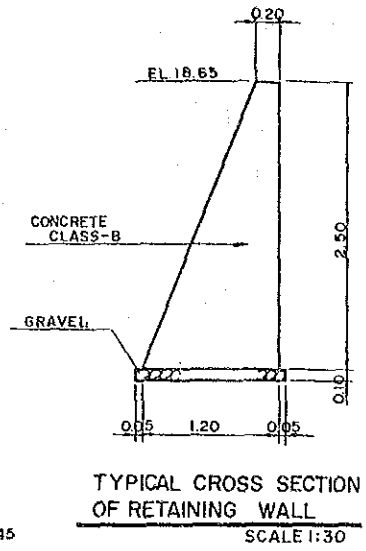
- NOTES
1. ALL DIMENSIONS ARE GIVEN IN METERS EXCEPT FOR METAL WORKS.
 2. ALL REINFORCING BAR AND METAL WORKS ARE SHOWN IN MILLIMETERS.
 3. ARRANGEMENT OF PIPES AROUND THE PUMPS SHALL BE PROPOSED BY THE CONTRACTOR FOR ENGINEER'S APPROVAL.
 4. COVERING THICKNESS OF REINFORCING BAR IS 5cm EXCEPT OTHERWISE SHOWN.



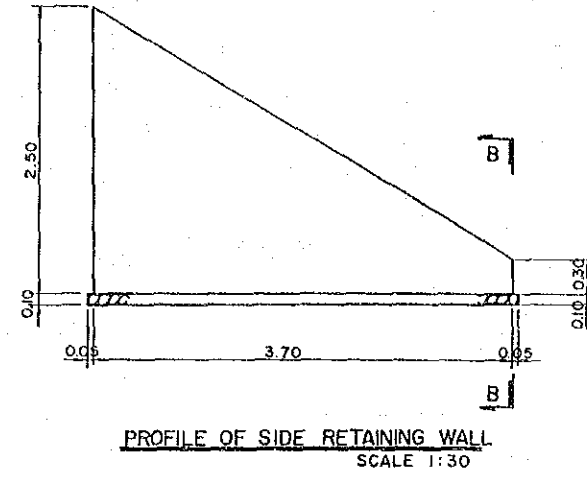
REPUBLIC OF THE PHILIPPINES
NATIONAL IRRIGATION ADMINISTRATION
DIVERSIFIED CROPS IRRIGATION ENGINEERING PROJECT
(D . C . I . E . P)
PUMPING STATION FACILITIES (I)
DWG. NO. DCI - 002 DATE
JAPAN INTERNATIONAL COOPERATION AGENCY



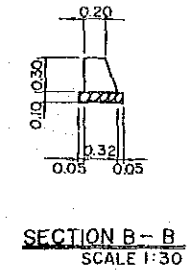
DETAIL OF GROUTED RIPRAP
SCALE 1:30



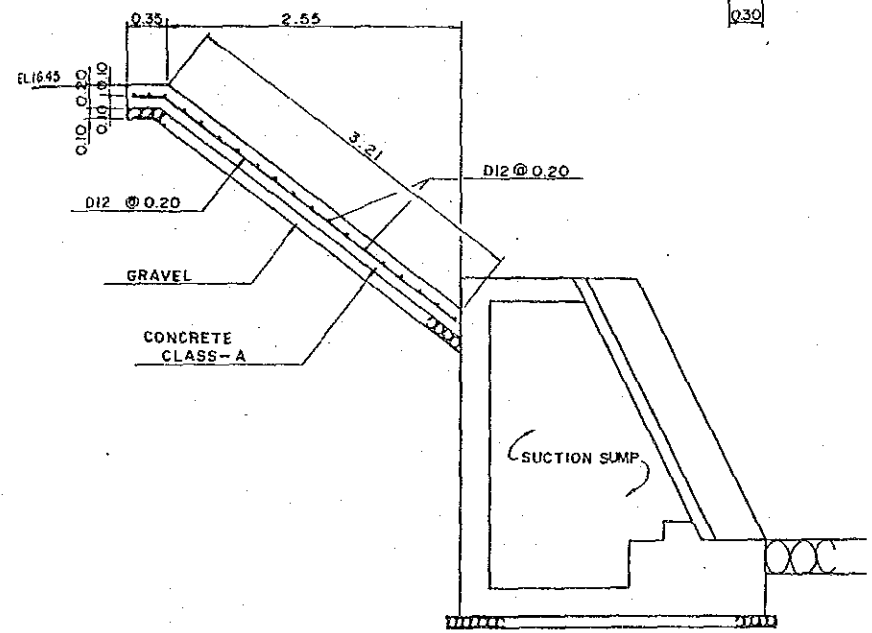
TYPICAL CROSS SECTION
OF RETAINING WALL
SCALE 1:30



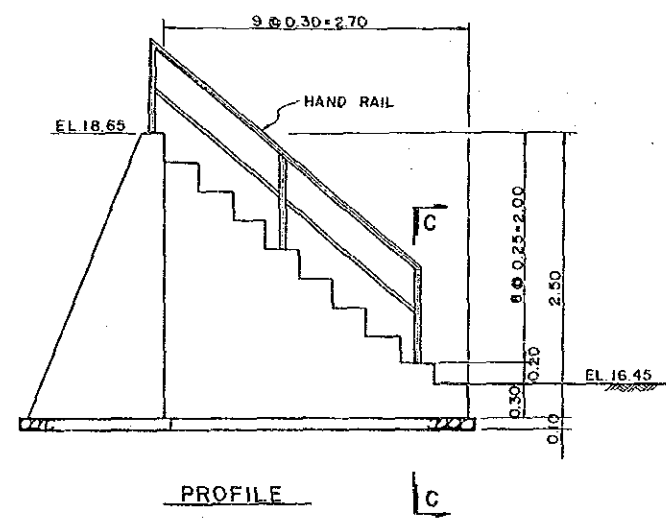
PROFILE OF SIDE RETAINING WALL
SCALE 1:30



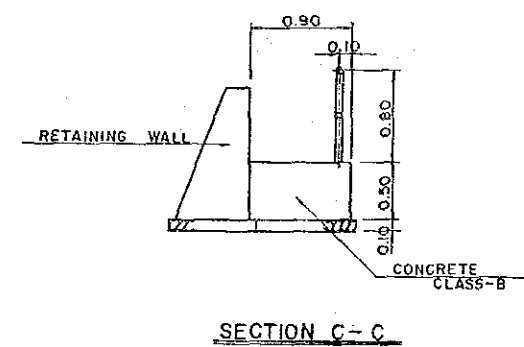
SECTION B-B
SCALE 1:30



DETAIL OF CONCRETE PAVING
SCALE 1:30

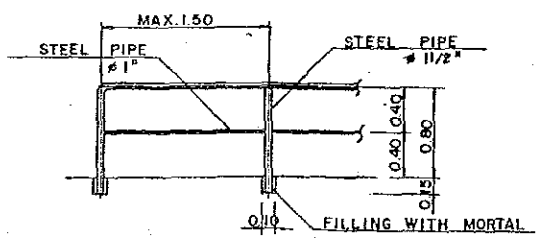
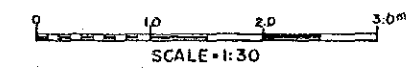


PROFILE
STAIRS
SCALE 1:30



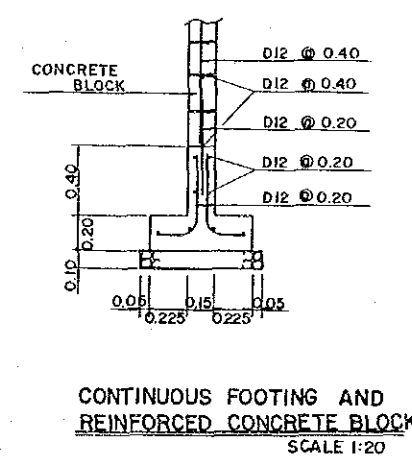
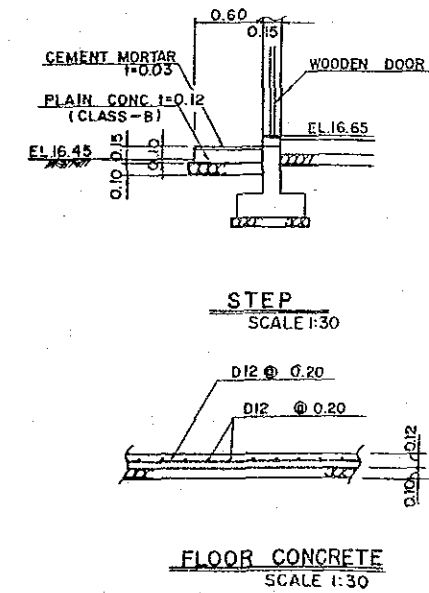
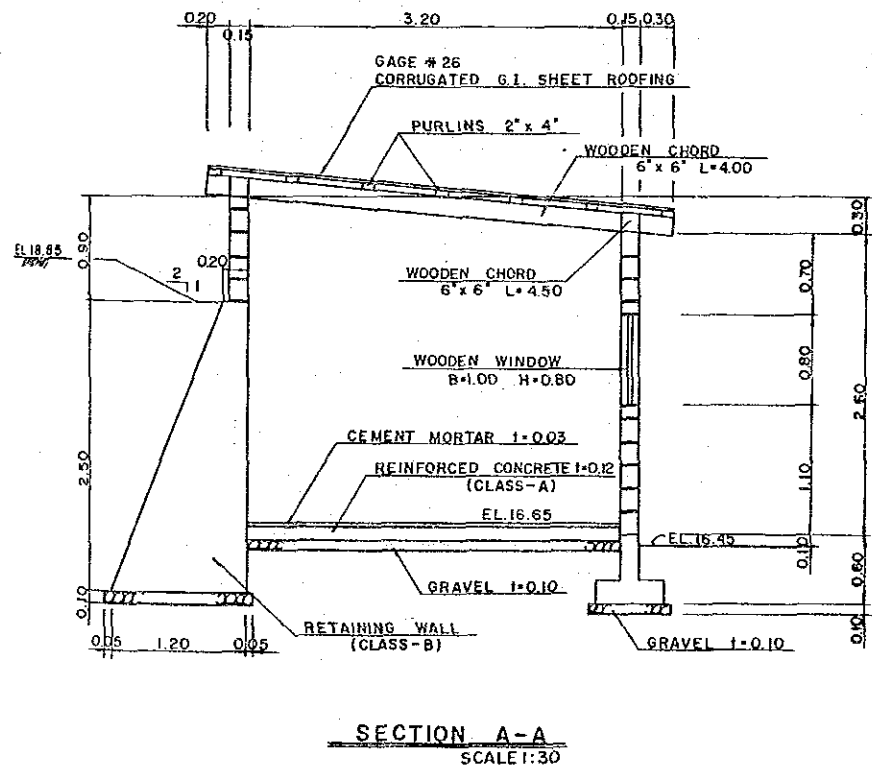
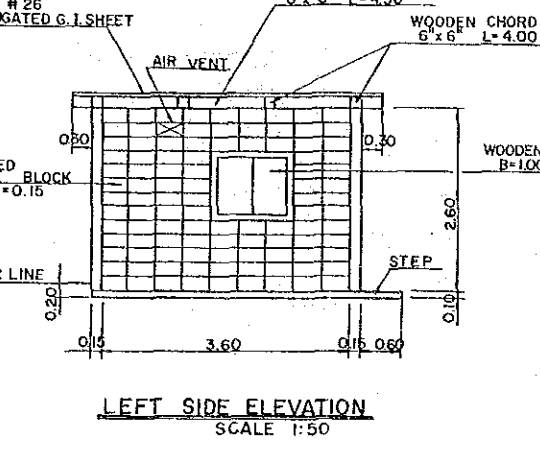
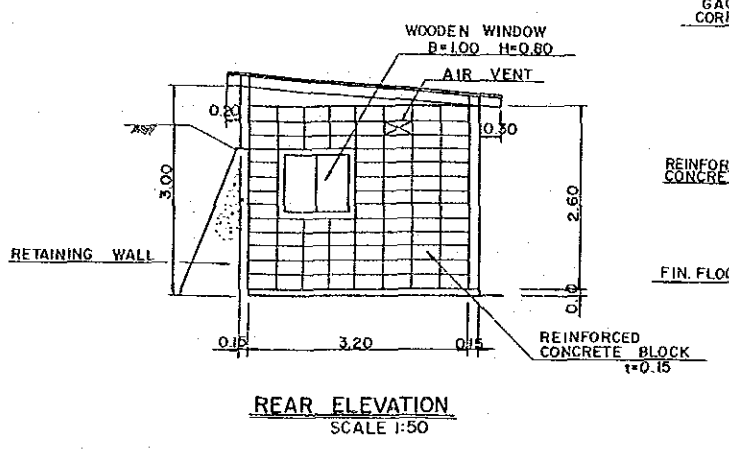
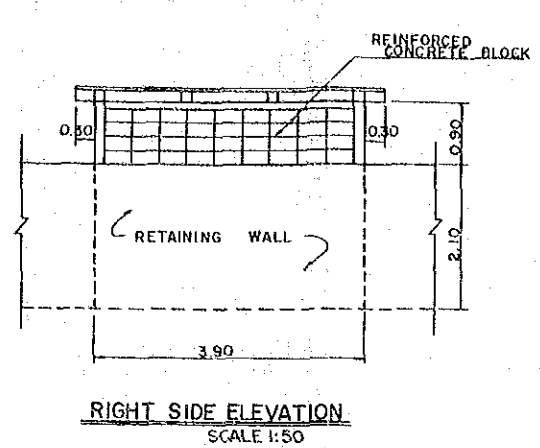
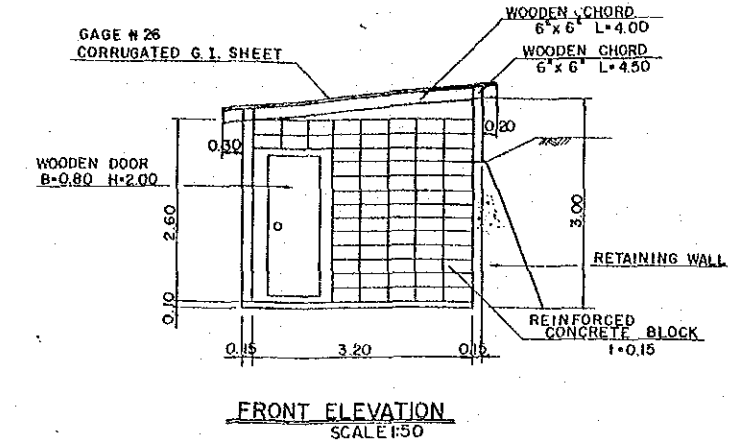
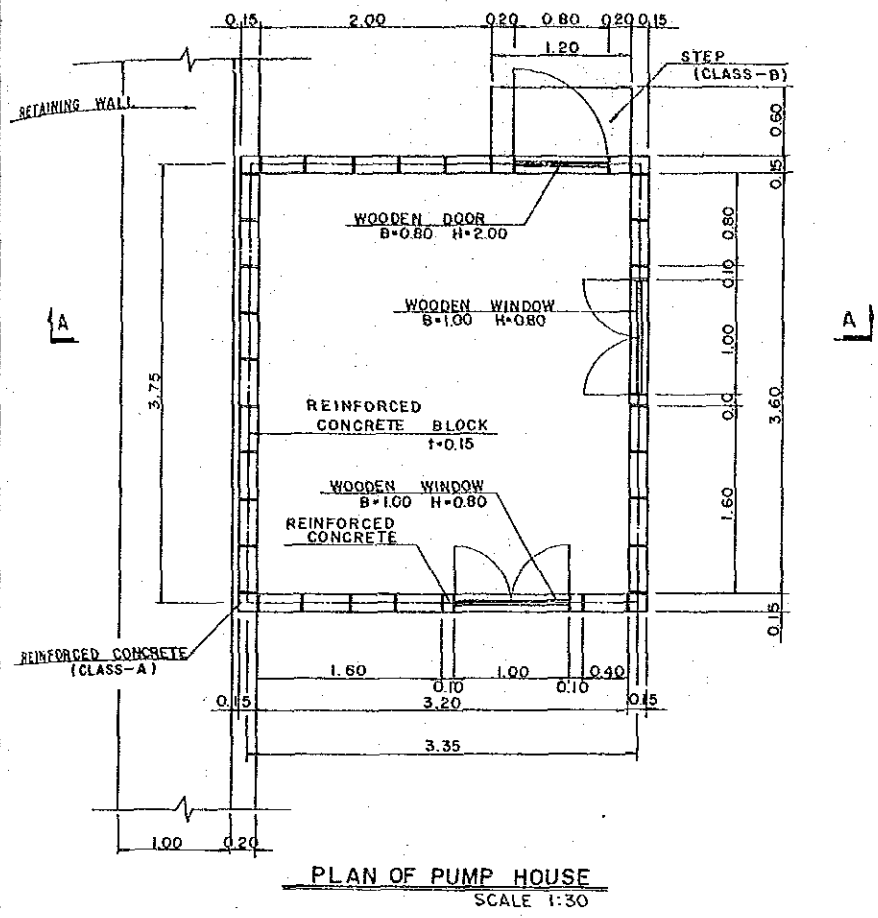
SECTION C-C

- NOTES
1. ALL DIMENSIONS ARE GIVEN IN METERS EXCEPT FOR REINFORCING BAR.
 2. ALL REINFORCING BAR ARE SHOWN IN MILLIMETERS.



HAND RAIL
SCALE 1:30

REPUBLIC OF THE PHILIPPINES			
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PUMPING STATION FACILITIES (2)			
DWG. NO.	DCI - 003	DATE	
JAPAN INTERNATIONAL COOPERATION AGENCY			



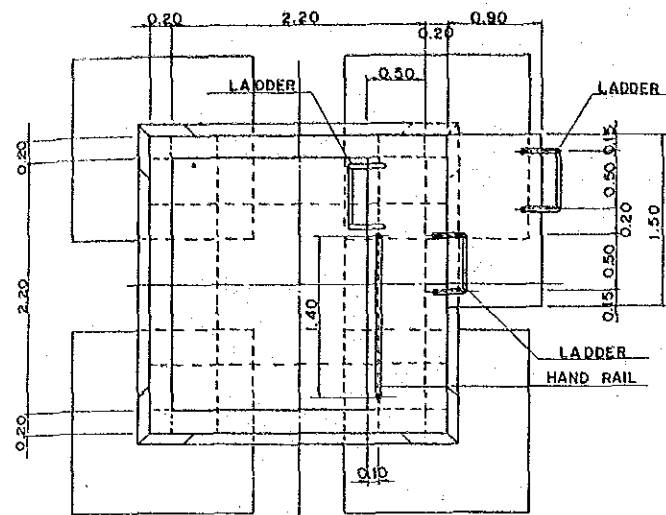
NOTES.

1. ALL DIMENSIONS ARE GIVEN IN METERS EXCEPT OTHERWISE SHOWN.
2. ALL REINFORCING BARS ARE SHOWN IN MILLIMETERS.

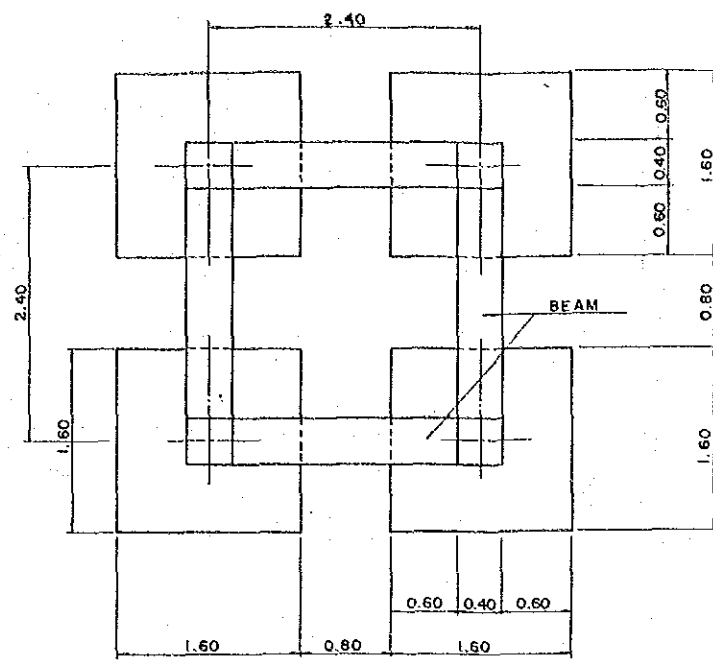
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SCALE=1:50

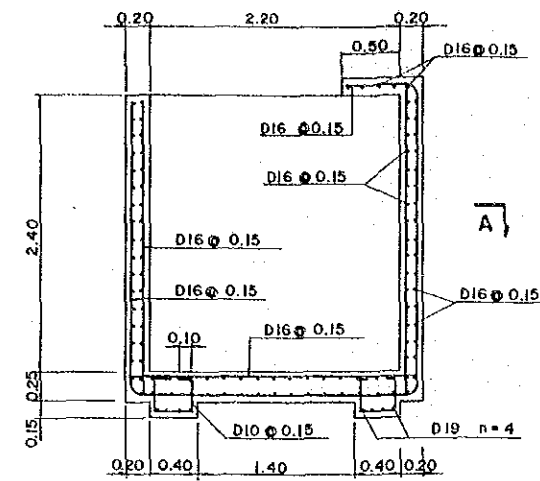
REPUBLIC OF THE PHILIPPINES		
NATIONAL IRRIGATION ADMINISTRATION		
DIVERSIFIED CROPS IRRIGATION ENGINEERING PROJCT (D . C . I . E . P)		
PUMPING STATION FACILITIES (3)		
DWG. NO.	DCI - 004	DATE
JAPAN INTERNATIONAL COOPERATION AGENCY		



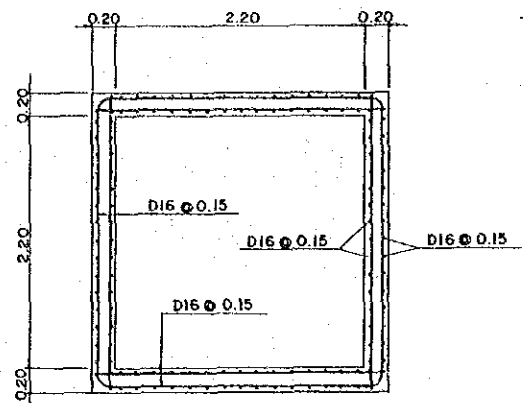
PLAN OF ELEVATED TANK
SCALE 1:30



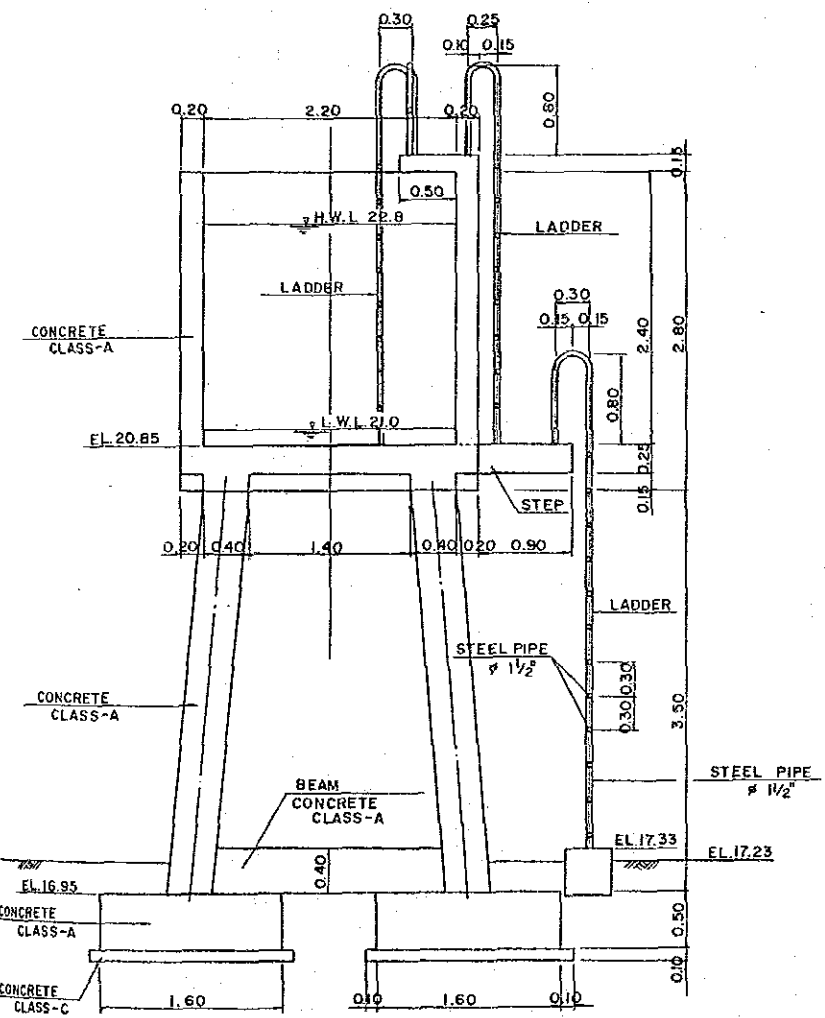
FOUNDATION PLAN
SCALE 1:30



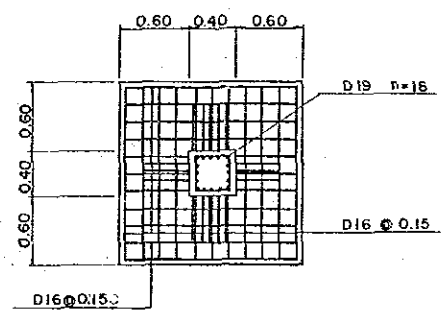
PROFILE OF TANK
SCALE 1:30



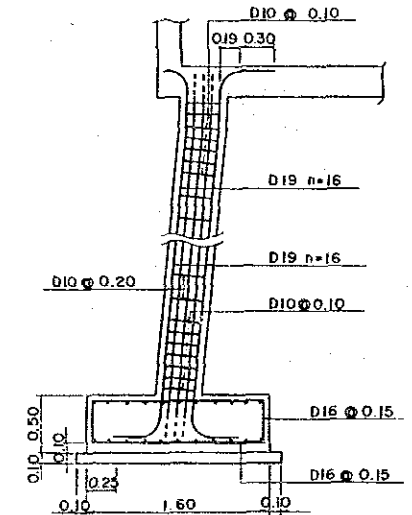
SECTION A-A
SCALE 1:30



PROFILE
SCALE 1:30

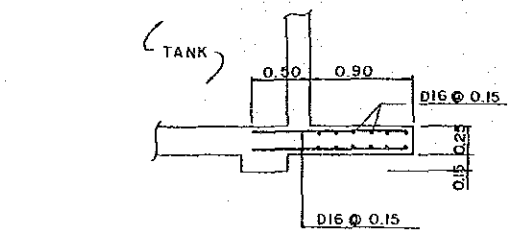


DET. PLAN OF FOUNDATION AND COLUMN
SCALE 1:30

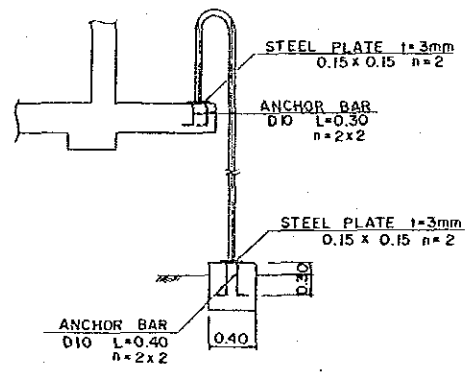


DET. PLAN OF BEAM
SCALE 1:30

REINFORCING BAR OF TANK ARE NOT SHOWN.

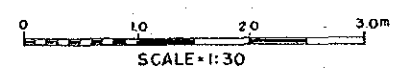


PLAN OF STEP
SCALE 1:30

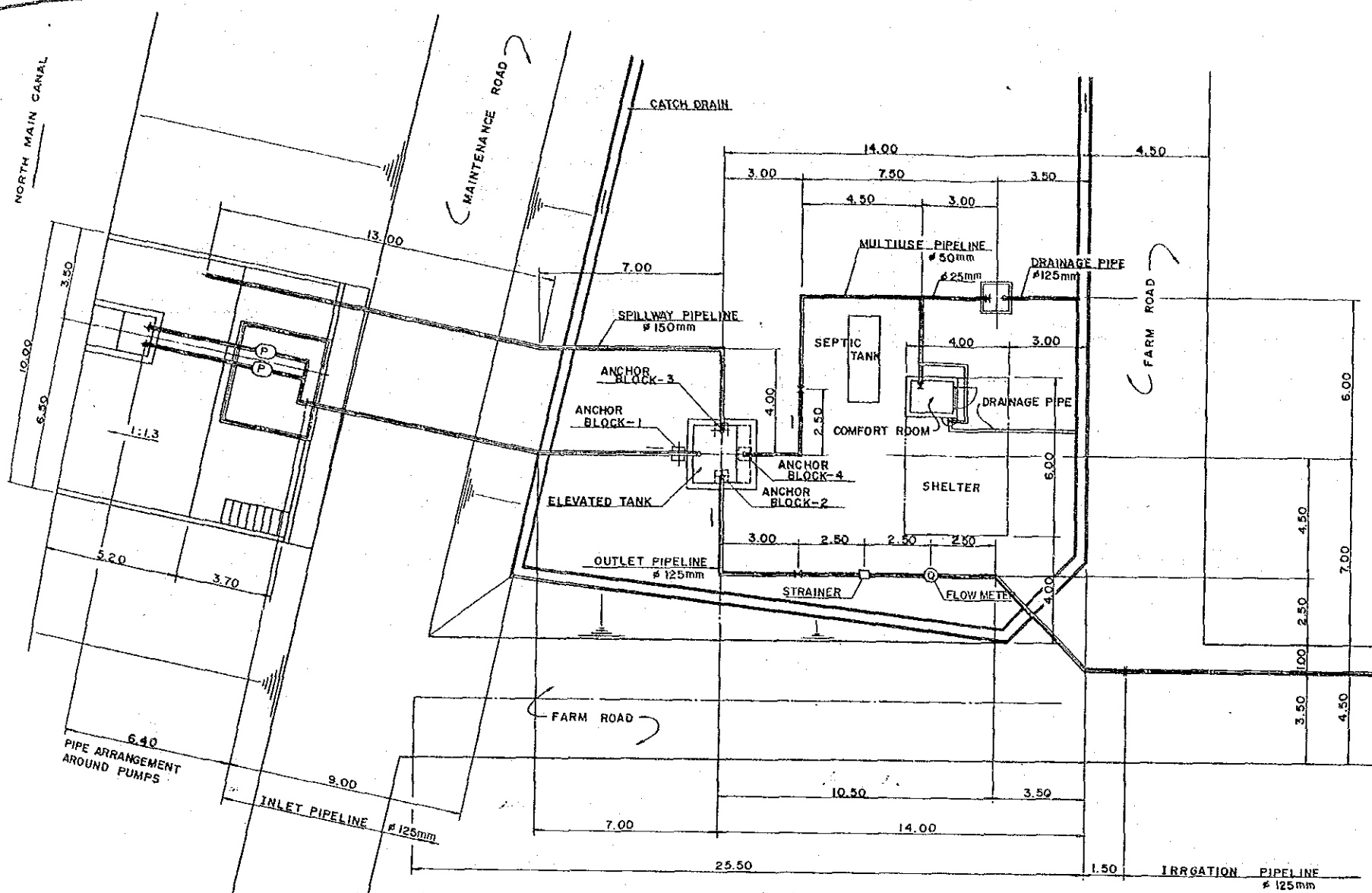


INSTALLATION OF LADDER
SCALE 1:30

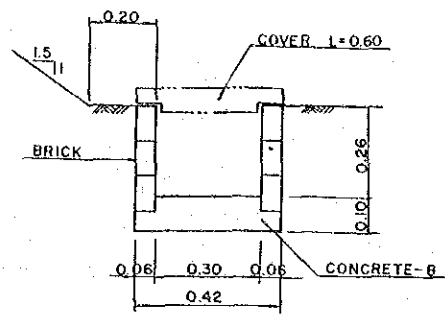
- NOTES.
1. PIPE INSTALLATION WORKS, INLET PIPE, OUTLET PIPE, SPILLWAY AND ETC., ARE NOT SHOWN.
 2. ALL DIMENSIONS ARE GIVEN IN METERS EXCEPT OTHERWISE SHOWN.
 3. ALL REINFORCING BAR ARE SHOWN IN MILLIMETERS.



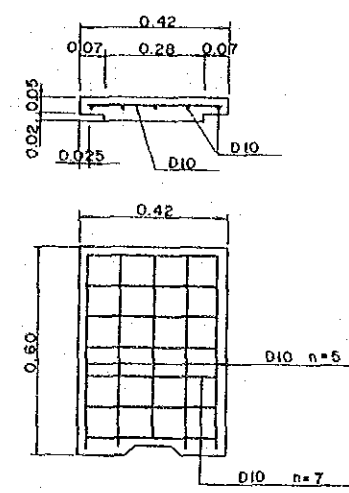
REPUBLIC OF THE PHILIPPINES			
NATIONAL IRRIGATION ADMINISTRATION			
DIVERSIFIED CROPS IRRIGATION ENGINEERING PROJET			
(D . C . I . E . P)			
ELEVATED TANK			
DWG. NO.	DCI-005	DATE	
JAPAN INTERNATIONAL COOPERATION AGENCY			



PIPE ARRANGEMENT AROUND ELEVATED TANK
SCALE 1:100



CATCH DRAIN
SCALE 1:10

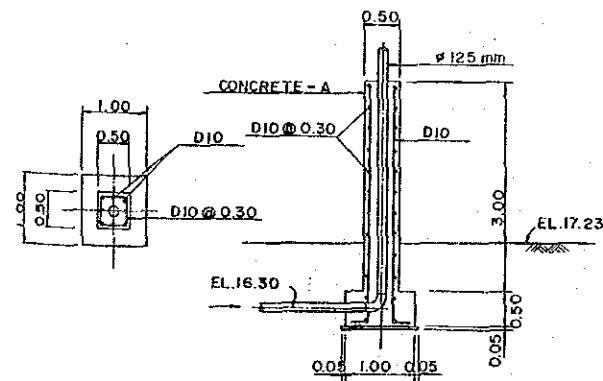
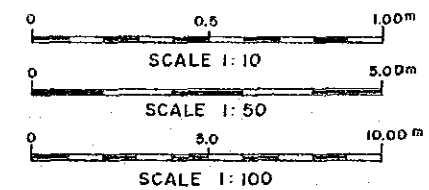


DETAIL OF COVER
SCALE 1:10

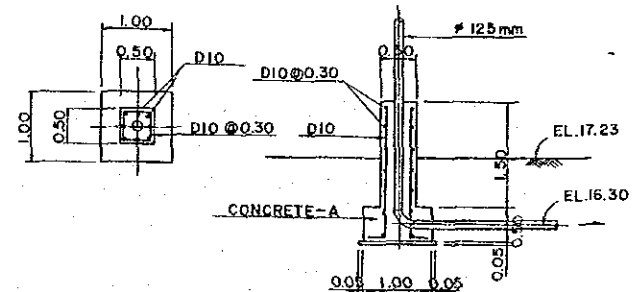
LOCATION OF COVER	
LOCATION	NUMBER OF COVER
SHELTER	3 PCS.
WORKING YARD	5 PCS.
COMPOST SHED	13 PCS.

NOTES.

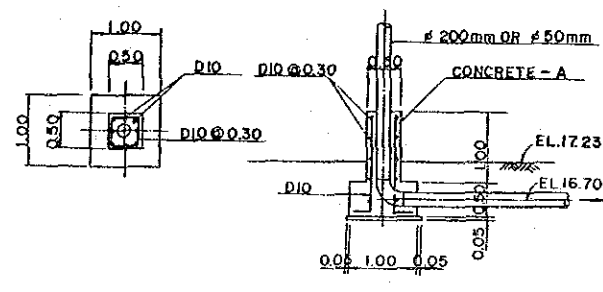
1. ALL DIMENSIONS ARE GIVEN IN METERS EXCEPT OTHERWISE SHOWN.
2. REINFORCING BAR IS SHOWN IN MILLIMETERS.



ANCHOR BLOCK-1
SCALE 1:50

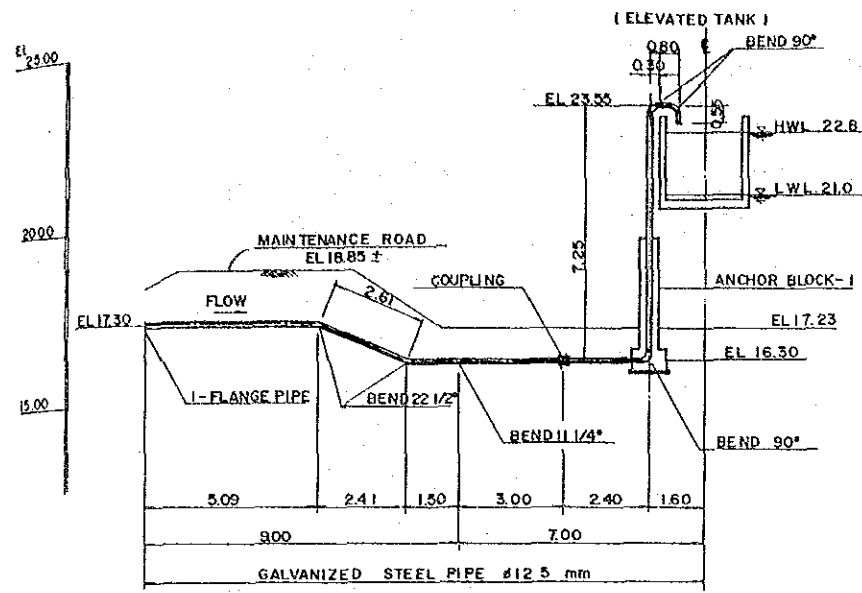


ANCHOR BLOCK-2
SCALE 1:50

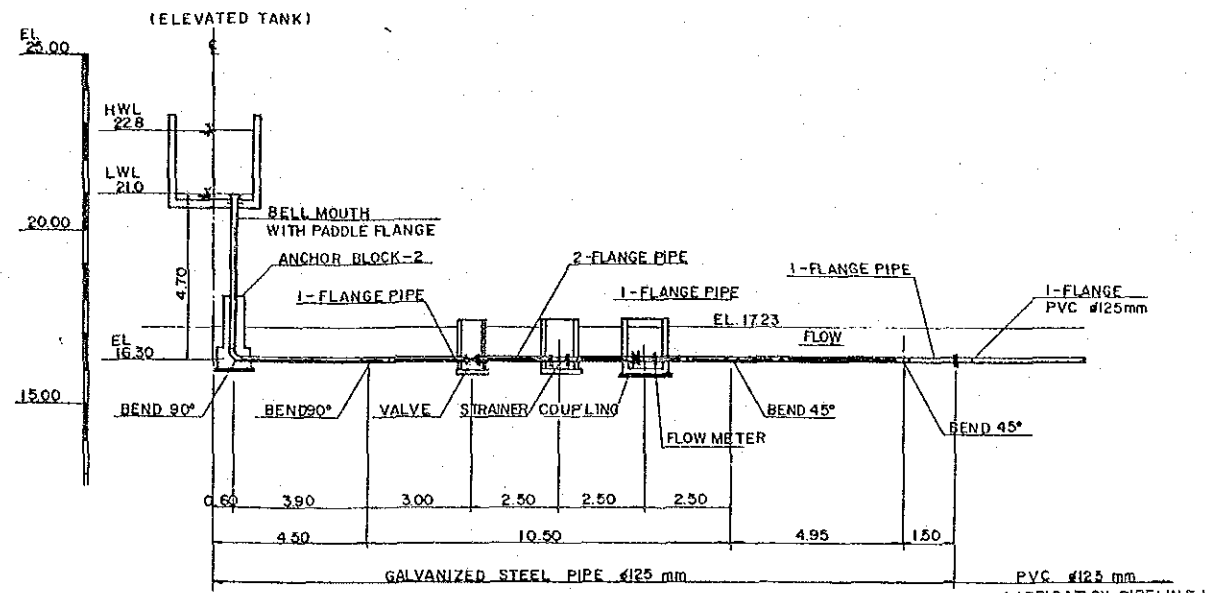


ANCHOR BLOCK-3 & 4
SCALE 1:50

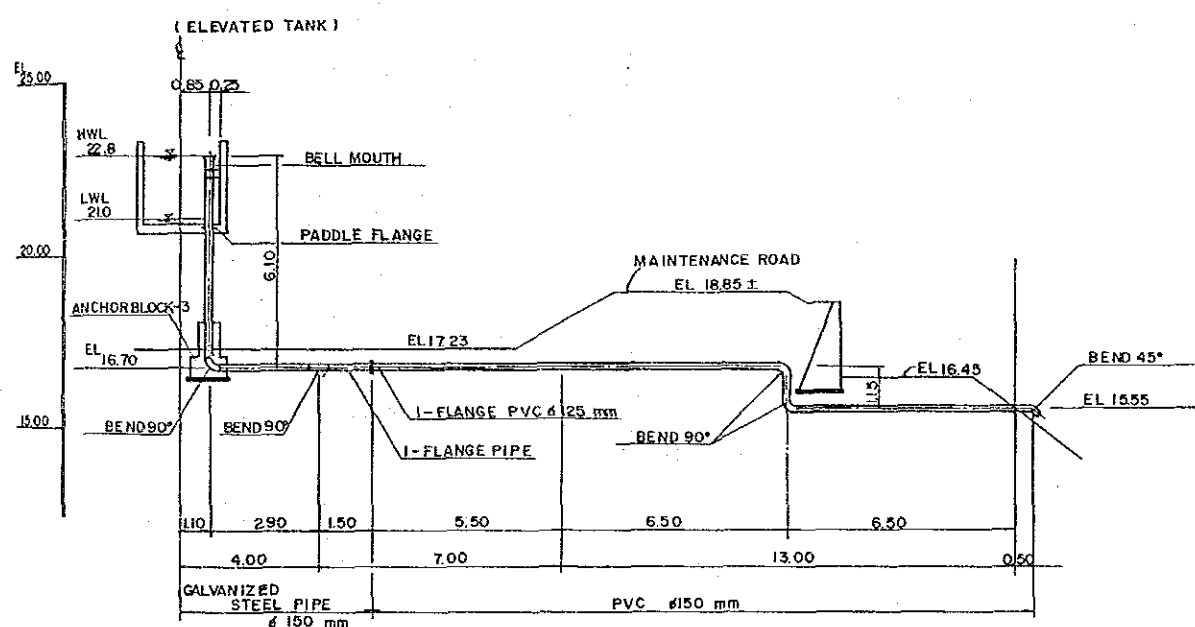
REPUBLIC OF THE PHILIPPINES		
NATIONAL IRRIGATION ADMINISTRATION		
DIVERSIFIED CROPS IRRIGATION ENGINEERING PROJECT		
(D. C. I. E. P)		
PIPE ARRANGEMENT AROUND ELEVATED TANK (I)		
DWG. NO.	DCI - 006	DATE
JAPAN INTERNATIONAL COOPERATION AGENCY		



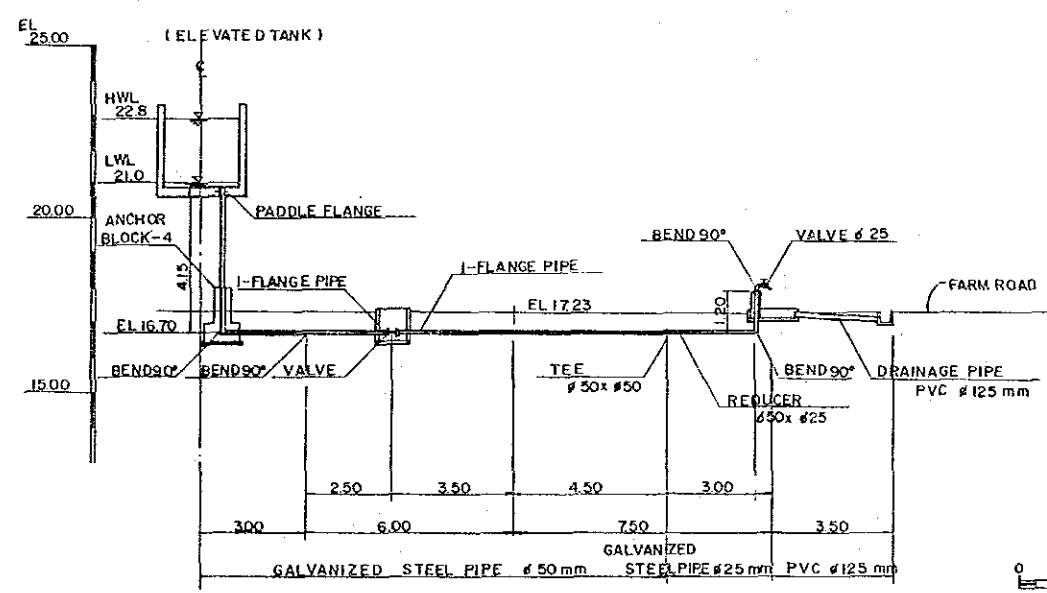
INLET PIPELINE
SCALE 1:100



OUTLET PIPELINE
SCALE 1:100

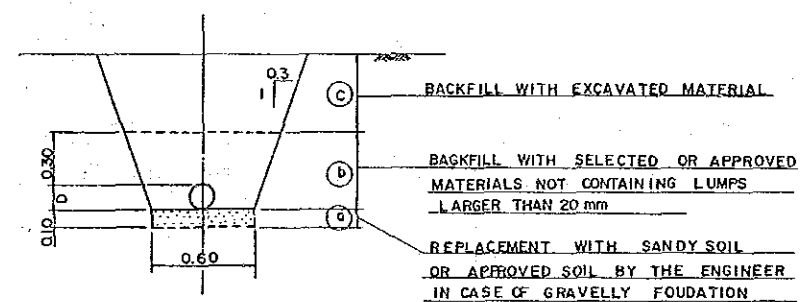
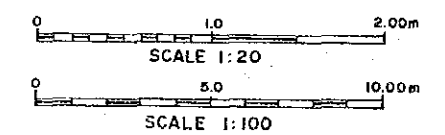


SPILLWAY PIPELINE
SCALE 1:100



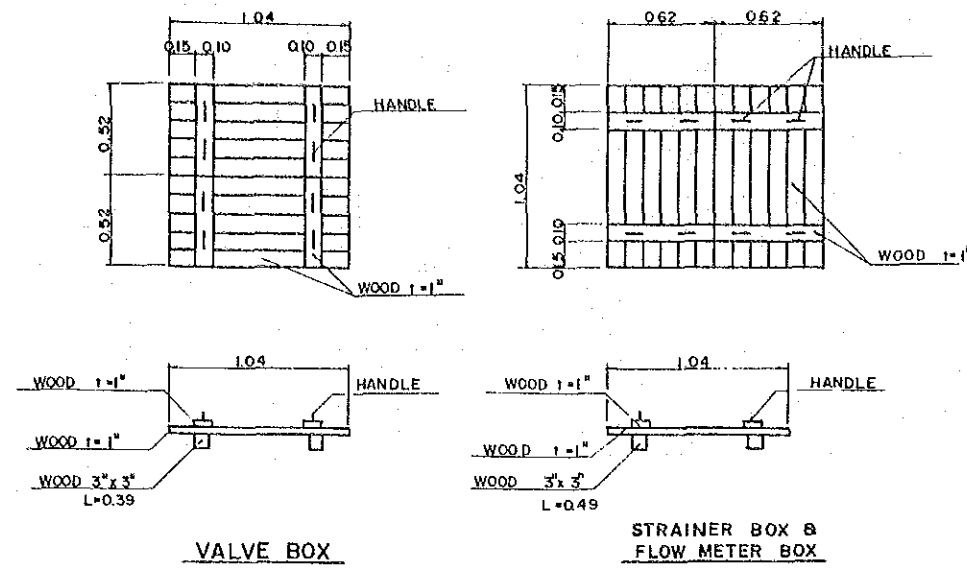
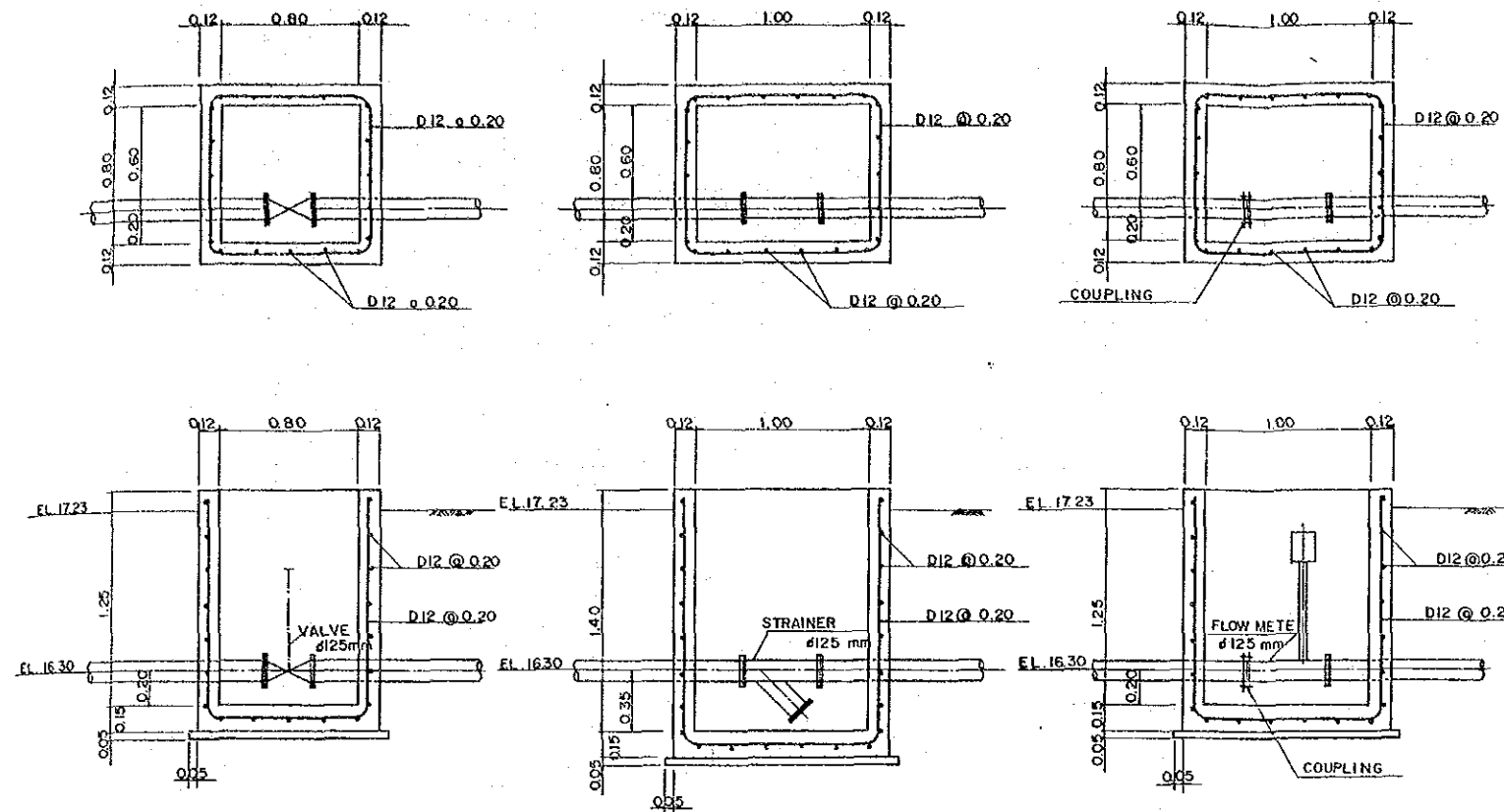
MULTIUSE PIPELINE
SCALE 1:100

NOTES.
1. ALL DIMENSIONS ARE GIVEN IN METERS EXCEPT OTHERWISE SHOWN



STANDARD SECTION OF PIPE LAYING WORKS
SCALE 1:20

REPUBLIC OF THE PHILIPPINES			
NATIONAL IRRIGATION ADMINISTRATION			
DIVERSIFIED CROPS IRRIGATION ENGINEERING PROJECT			
(D . C . I . E . P)			
PIPE ARRANGEMENT AROUND ELEVATED TANK (2)			
DWG. NO.	DCI -- 007	DATE	
JAPAN INTERNATIONAL COOPERATION AGENCY			



VALVE BOX
SCALE 1:20

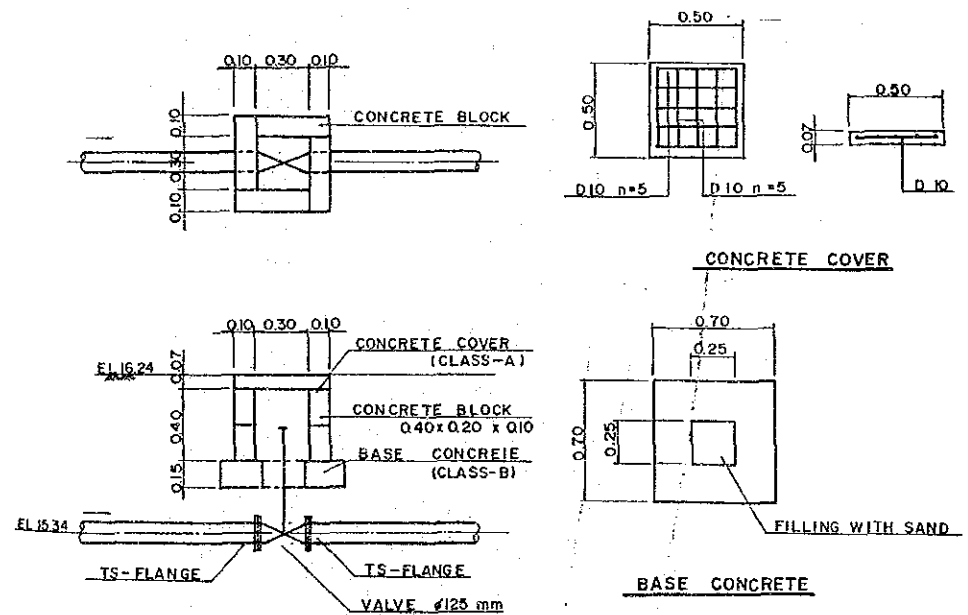
STRAINER BOX
SCALE 1:20

FLOW METER BOX
SCALE 1:20

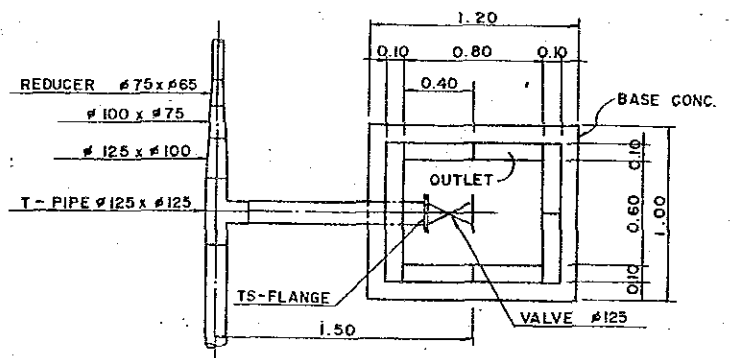
VALVE BOX

STRAINER BOX & FLOW METER BOX

DETAIL OF COVER
SCALE 1:20

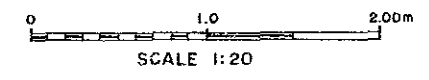


BLOW OFF VALVE
SCALE 1:20

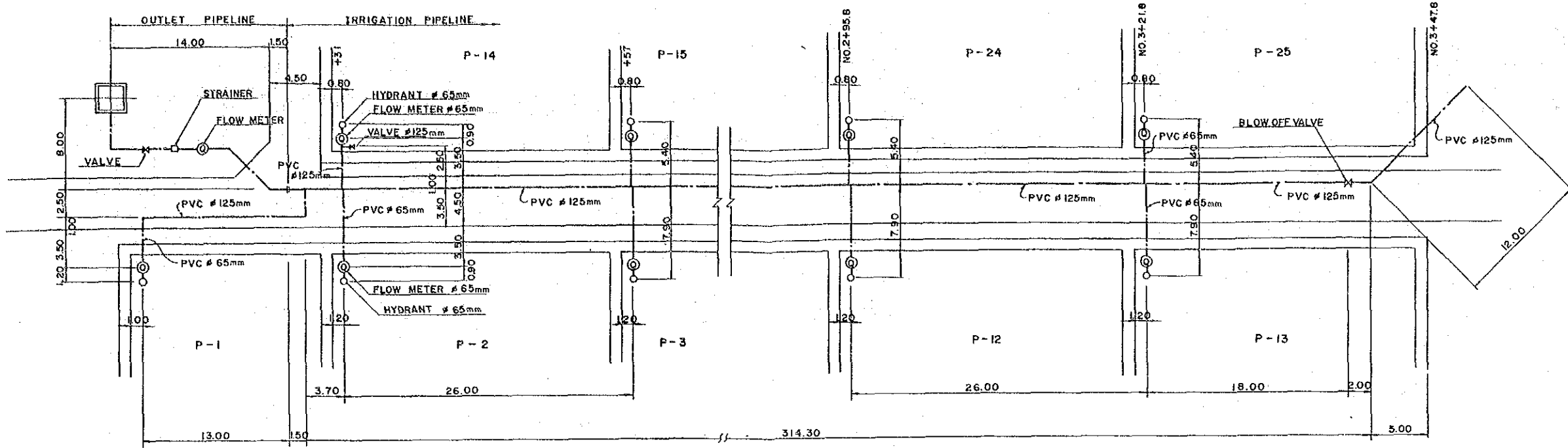


VALVE BOX AT PLOT NO.14
SCALE 1:20

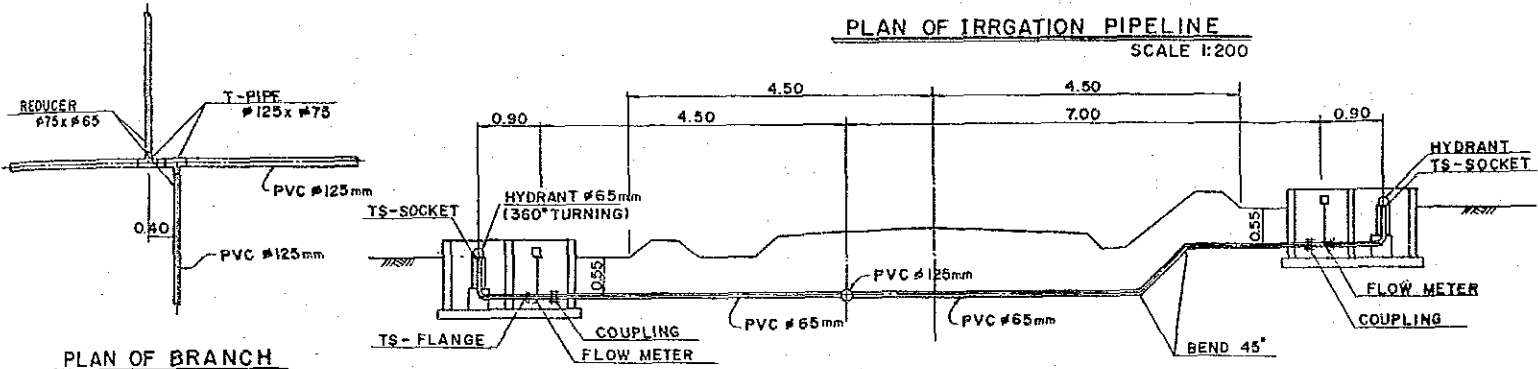
- NOTES.**
1. ALL DIMENSIONS ARE GIVEN IN METERS EXCEPT OTHERWISE SHOWN.
 2. REINFORCING BAR IS SHOWN IN MILLIMETERS



REPUBLIC OF THE PHILIPPINES		
NATIONAL IRRIGATION ADMINISTRATION		
DIVERSIFIED CROPS IRRIGATION ENGINEERING PROJECT		
(D. C. I. E. P)		
VALVE BOX, STRAINER BOX, FLOW METER BOX AND BLOW OFF VALVE BOX		
DWG. NO.	DCI - 008	DATE
JAPAN INTERNATIONAL COOPERATION AGENCY		

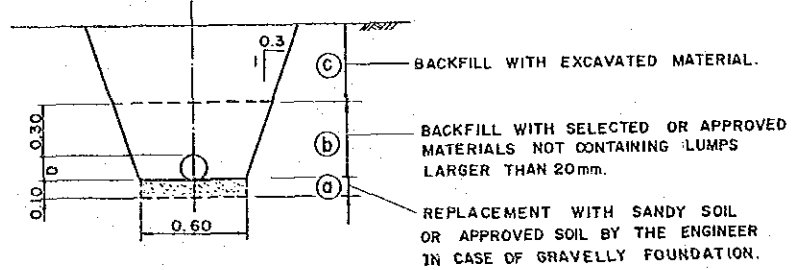


PLAN OF IRRIGATION PIPELINE
SCALE 1:200

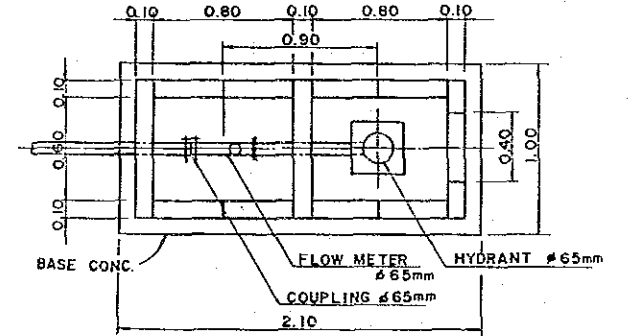


PLAN OF BRANCH
SCALE 1:50

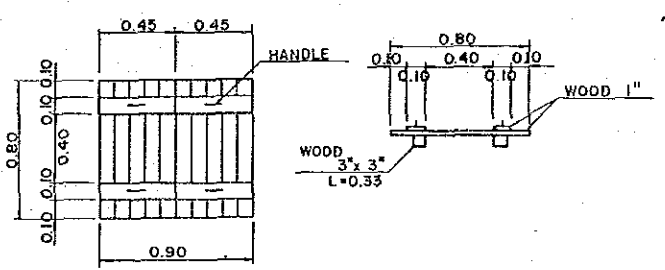
PROFILE OF BRANCH PIPELINE
SCALE 1:50



STANDARD SECTION OF
PIPE LAYING WORKS
SCALE 1:20



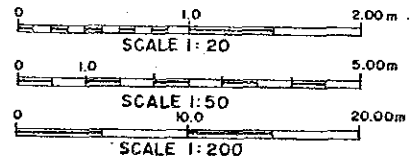
FLOW METER & HYDRANT BOX
SCALE 1:20



COVER FOR FLOW METER BOX
SCALE 1:20

COVER FOR HYDRANT BOX
SCALE 1:20

- NOTES.
1. ALL DIMENSIONS ARE GIVEN IN METERS EXCEPT FOR REINFORCING BAR.
 2. ALL REINFORCING AND METAL ARE SHOWN IN MILLIMETERS.



REPUBLIC OF THE PHILIPPINES		
NATIONAL IRRIGATION ADMINISTRATION		
DIVERSIFIED CROPS IRRIGATION ENGINEERING PROJECT		
(D . C . I . E . P)		
IRRIGATION PIPELINE AND FLOW METER & HYDRANT BOX		
DWG. NO.	DCI-008	DATE
JAPAN INTERNATIONAL COOPERATION AGENCY		