



Republic of the Philippines
Department of Agriculture
Western Visayas
Iloilo City

CONTRUCTION OF NATIVE CHICKEN MULTIPLIER FARM

BRGY. 6, POBLACION, IGBARAS, ILOILO

TECHNICAL SPECIFICATIONS AND SCOPE OF WORKS

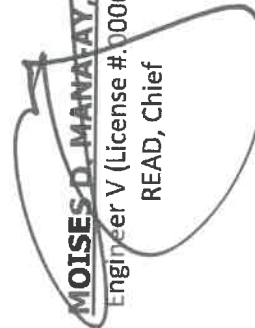
Prepared by:


JERRY B. GUANCO, ABE
Engineer II (License No. 0007498)

Reviewed:


YVONNE GRACE H. SUR, ABE
Engineer III (License# 0005970)
Head, EPDSS

Checked/Submitted by:


MOISES D. MANATAY, ABE, MEE
Engineer V (License #: 0006077)
READ, Chief

Recommending Approval:


JOSE ALBERT A. BARROGO
RTD for Operations and Extension

Approved:


DENNIS R. ARPJA
Regional Executive Director

SPECIFICATIONS

GENERAL DESCRIPTION OF THE WORK

The work to be done and executed shall include the furnishing of labor and materials, equipment, and specialized works in the **Construction of Native Chicken House** completely as shown in the drawing, reflected in the detailed estimates and as described herein.

All works to be done shall be in the highest quality of workmanship to the fullest intent and meaning of the plans and specifications unless otherwise specified.

PLANS and SPECIFICATIONS:

All drawings, small scale and detail drawings are intended to collaborate with the specifications and to form part thereof, where figures are given, they are to be followed in preference to measurement by scale. Anything shown in the drawings and not mentioned in the specifications or vice-versa or anything not expressly set forth in either but which is reasonably implied shall be furnished and installed as thought specifically shown in mentioned both.

B.1 PROJECT BILL BOARD / SIGNBOARD, SIGNAGES AND OTHER MARKER

The contractor shall implement the COA Circular no. 2013-004, the information and the publicity on programs/projects/ activities of government agencies. A tarpaulin signboard must be suitably framed for the outdoor display at the project location, and shall be posted as soon as the award has been made. The design and format shall conform to the plans and specification as specified.

The Contractor shall provide barricades, barriers and safety signage and be visible at all times when work is being done.

The colors red, black and white shall be those of opaque glossy as specified in the **fundamental Specifications for Safety Colors for CIE Standard.**

The height of barricades shall be 1 meter minimum. Barricade with height of more than 1.2 meter shall be approved by the designer.

Basis of Payment:

Work prescribed for Billboard, signages and barricades shall not be measured and paid separately, same shall be deemed to be included in pay items for other items for work. The contractor shall be paid per lumpsum as specified in the bill of quantities.

B.5. OCCUPATIONAL SAFETY AND HEALTH

B 7.1 GENERAL

All security and health controls necessary for the execution of the Works such as but not limited to, medical facilities, manpower safety gadgets, sanitary arrangements, explosives and fuel, temporary fencing, safety precautions and fire prevention, shall be established and maintained by the Contractor at his own expense. The Contractor shall make himself responsible for all security and health controls and shall submit to the Engineer for his approval the organization and the regulations for these purposes.

The Contractor shall take all necessary precautions against risks, loss of life or of injury to any person employed on the Works or to employees of the Employer and the Engineer or to visitors or to persons having good and sufficient reasons to be about the Works, and shall properly safeguard the Works to the satisfaction of the Engineer.

The Contractor shall provide their Workers, Supervisors, Engineers, and Owner's and Engineer's representatives the necessary safety gadgets at the site such as: safety shoes, safety helmets, safety belts, gloves, goggles, gas or dust masks, and Uniforms,

The Contractor shall furthermore take all necessary precautions against damage to the property of the Employer or of others located at or adjacent to the Site. The Contractor shall at all times comply with any accident prevention, regulations and any safety regulations of local or national authorities or that shall be prescribed by the Employer.

The Contractor shall appoint a Safety Officer and hold periodical safety meetings with the Engineer and with his own supervisors and foremen. The Contractor shall report in writing within twenty-four (24) hours to the Engineer all accidents involving the death of and/or injury to any person, resulting from the Contractor's operation.

conformity with the requirements of any duly constituted medical and sanitary authority. The Contractor shall provide first aid units/stations and shall be responsible for and bear all cost in connection with the first aid services including the use of ambulance of injured or sick employees transporting to the hospital. Such first aid services shall be provided to the Employer, the Engineer, and to their employees at the site at no cost to them. The Contractor shall make his own arrangement for the treatment of casualties on the Site in

The Contractor shall submit to DA-RAED for approval the layout drawings, program of erection and the specifications for temporary works within thirty (30) calendar days following the date of receipt of the Notice to Proceed as stipulated in Article SC - 3.

BASIS OF PAYMENT

Work prescribed for Health and safety shall not be measured and paid separately, same shall be deemed to be included in pay items for other items for work.

B.9. MOBILIZATION AND DEMOBILIZATION

Demobilization shall include dismantling and removal from the site of the Contractor's plant, materials and equipment and all temporary facilities. It shall also include cleanup of the site after completion of the Contract Work as approved by the Engineer and transportation from the site of the Contractor's employees.

Mobilization, as provided in these Specifications, means preparatory work and operations, including, but not limited to, those necessary for the movement of necessary personnel, plant and equipment to the Site.

The Contractor shall mobilize and move into the Project Site the required construction equipment needed for the successful completion of the Contract Work.

MINIMUM EQUIPMENT REQUIREMENT FOR CONSTRUCTION
Equipment Quantity

- | | | |
|----|---|--------|
| 1. | Welding Machine | 1 unit |
| 2. | Any Minor Equipment needed to complete the project. | |

The Contractor shall furnish the Engineer with a resources schedule, showing in detail the sequence of proposed delivery to the Site of plant and equipment necessary to comply with the proposed construction program.

The Contractor shall keep the Engineer informed of the arrival of plant and equipment on the Site. In accordance with the Conditions of Contract, the Contractor shall not remove construction plant and equipment from the Site without the approval of the Engineer.

Basis of Payment

The quantities determined as provided above shall be paid for at the appropriate contract unit price, for each of the particular pay items shown in the Bill of Quantities which price and payment shall constitute full compensation for furnishing and maintaining such items:

Description -----Mobilization/Demobilization

Unit of Measurement -----Lump sum

Payment of 70% of the Lump Sum will be made monthly in the proportion that the progress of mobilization completed in a particular month bear to the total numbers of plant and equipment shown in the approved resources schedule. The remaining 30% of the Lump Sum will be paid upon certification by the Engineer that the demobilization of plant and equipment has been completed including site clean-up to his satisfaction.

B.7. TEMPORARY FACILITY AND OFFICE EQUIPMENT

The contractor shall provide the temporary shelter of all workers and engineers on site, Where and when it is deemed necessary, the Contractor shall furnish lighting facilities, signs and sentry, and other safety facilities and services.

Basis of Payment:

The accepted quantities, measured as prescribed in Section B.1 shall be paid for at the contract unit price for the particular pay items listed above that is included in the Bill of Quantities. The payment shall constitute full compensation for providing the temporary facility and the delivery of office equipment as indicated and prescribed herein.

ITEM 800 – SITE CLEARING AND GRUBBING

Description

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

Construction Requirements

800.1.1 General

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

800.1.1.1 Clearing and Grubbing

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

- (1) Removal of undisturbed stumps and roots and nonperishable solid objects with a minimum depth of one (1) meter below the subgrade or slope of the

embankment will not be required.

- (2) In areas outside of the grading limits of cut and embankment areas, stumps and nonperishable solid objects shall be cut off not more than 150 mm (6 inches) above the ground line or low water level.
- (3) In areas to be rounded at the top of cut slopes, stumps shall be cut off flush with or below the surface of the final slope line.
- (4) Grubbing of pits, channel changes and ditches will be required only to the depth necessitated by the proposed excavation within such areas.

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

800 2.2 Method of Measurement

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

- 1. Area Basis. The work to be paid for shall be the number of hectares and fractions thereof acceptably cleared and grubbed within the limits indicated on the Plans or as may be adjusted in field staking by the Engineer. Areas not within the clearing and grubbing limits shown on the Plans or not staked for clearing and grubbing will not be measured for payment.
- 2. Lump-Sum Basis. When the Bill of Quantities contains a Clearing and Grubbing lump-sum item, no measurement of area will be made for such item.

800 3.3 Basis of Payment

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

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
800 (1)	Site Clearing	Square meter
800 (3)	Individual Removal of Trees, Small	Each
800 (4)	Individual removal of Trees, Large	Each

of Quantities which price and payment shall be full compensation for removing and disposing of obstructions, including materials, labor, equipment, tools and incidentals necessary to complete the work prescribed in this item. The price shall also include backfilling, salvage on the right-of-way and disposal as provided herein

I. EARTHWORKS

ITEM 803 – STRUCTURE EXCAVATION

803.1 Description

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

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

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

Prior to starting excavation operations in any area, all necessary clearing and grubbing in that area shall have been performed in accordance with Item 800, Clearing and Grubbing.

803.1.1 STRUCTURAL EXCAVATION

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

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

After each excavation is completed, the Contractor shall notify the Engineer

to that effect and no footing, or bedding material shall be placed until the Engineer has approved the depth of excavation and the character of the foundation material.

803.2.2 Utilization of Excavated Materials

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

803.2.3 Backfill and Embankment for Structures

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

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

803.3.3 Foundation Fill

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

803.3.5 Basis of Payment

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

- (2) Any excavation for footings ordered at a depth more than 1.5 m below the lowest elevation shown on the original Contract Plans will be paid for as provided in Part K, Measurement and Payment unless a pay item for excavation ordered below Plan elevation appears in the Bill of Quantities.
- (3) Concrete will be measured and paid for as provided under Item 900, Structural Concrete.

804.1 Material Requirements

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

following definitions:

1. Suitable Material – Material which is acceptable in accordance with the Contract and which can be compacted in the manner specified in this Item. It can be a common material or rock.
2. Unsuitable Material -- Material other than suitable materials such as:
 - (a) Materials containing detrimental quantities of organic materials, such as grass, roots and sewerage.
 - (b) Organic soils such as peat and muck.
 - (c) Soils with liquid limit exceeding 80 and/or plasticity index exceeding 55.
 - (d) Soils with a natural water content exceeding 100%.
 - (e) Soils with very low natural density, 800 kg/m³ or lower.
 - (f) Soils that cannot be properly compacted as determined by the Engineer.

804. Construction Requirements **804.1 General**

Prior to the construction of embankment, all necessary clearing and grubbing in that area shall have been performed in conformity with Item 800, Clearing and Grubbing.

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

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

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

Material from excavation per Item 803 which is used in embankment and accepted by the Engineer will be paid under Embankment and such payment will be deemed to include the cost of excavating, hauling, stockpiling and all other costs incidental to the work.

804.2 Basis of Payment

The accepted quantities, measured as prescribed in Section 804.4, shall be paid for at the Contract unit price for each of the Pay Items listed below that is included in the Bill of Quantities. The payment shall continue full compensation for placing and compacting all materials including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
804 (1)	Embankment	Cubic Meter

900.0 STRUCTURAL CONCRETE

901.0

Item 900) 3000psi- for slab on grade and Pedestal.
Concrete Mixture= 1:3:3

- A. Concrete Column Pedestal
- B. Column Pedestal Footing
- C. Wall Footing
- D. Slab on grade

900.1 Description

This Item shall consist of furnishing, placing and finishing concrete in related structures as mentioned above, in accordance with this specification and conforming to the lines, grades, and dimension shown on the plans.

900.1 Materials Requirements

900.1.1 Cement shall be of fresh Portland cement of standard specifications and shall have the **required tensile** and **compressive** stresses and **fineness**.

900.2 Construction Method

900.3 Slab on grade,Column Psedestal, column Pedestal and Slab on grade

*Thickness of slab on grade (Breeder House and Brooder House as indicated in the Plans)shall be of 75mm using 10mm diam. Deformed steel bar as temperature bar spaced at 600mm O.C both ways

900.3.1 Concrete Aggregates

Except as permitted elsewhere in this section, the maximum size of the aggregate shall be not larger than one-fifth (1/5) of the narrowest dimensions between sides of forms of the member for which the concrete is to be used nor larger than three-fourths of the minimum clear spacing between individual reinforcing bars or bundles of bars.

900.3.1.1 Aggregate Tests

Samples of the fine and coarse aggregates to be used shall be selected by the Engineer for tests at least 30 days before the actual concreting operations are to begin. It shall be the responsibility of the contractor to designate the source or sources of aggregate to give the Engineer sufficient time to obtain the necessary samples and submit them for testing.

No aggregate shall be used until official advice has been received that it has satisfactorily passed all test, at which time written authority shall be given for its use.

900.3.2 Water

Water to be used shall be clean and free from alkaline and acid matters.

900.3.3 Concrete Quality

900.3.4 Methods of Determining the Proportions of Concrete

The determination of the proportions of cement, aggregate, and water to attain the required strengths shall be made by one of the following methods, but lower water-cement ratios may be required for conformance with the quality of concrete.

Method 1, Without preliminary test

Where preliminary test data on the materials to be used in the concrete have not been obtained the water-cement ratio for a given strength of concrete shall not exceed the values shown in Table 900.1. When strengths in excess of 281 kilograms per square centimeter (4000 pounds per square inch) are required or when light weight aggregates or admixtures (other than those exclusively for the purpose of entraining - air) are used, the required water-cement ratio shall be determined in accordance with Method 2.

Method 2. For combination of materials previously evaluated or to be established by trial mixtures.

Water-cement ratios for strengths greater than that shown in Table 1 900.1 may be used provided that the relationship between strength and water-cement ratio for the materials to be used has been previously established by reliable test data and the resulting concrete satisfies the

TABLE 900.1 MAXIMUM
CONCRETE (METHOD NO.1)

PERMISSIBLE WATER-CEMENT RATIOS FOR

Specified compressiv e strength at 28 days, psi fc	Maximum permissible water-cement ratio			
	Non-air-entrained concrete		Air- entrained concrete	
	U.S. gal. per 42.6 kg. bag of cement	Absolute ratio by weight	U.S. gal per 42.6 kg. bag of cement	Absolute ratio by weight
2500	7 ¼	0.64 2	6 ¼	0.55 4
3000	6 ½	0.57 6	5 ¼	0.46 5
3500	5 ¾	0.51 0	4 ½	0.39 9
4000	5	0.44 3	4	0.35 4

900.3.5 Concrete Proportions and Consistency

The proportions of aggregate to cement for any concrete shall be such as to produce a

mixture that will work readily into the corners and angles of the form and around reinforcement with the method of placing employed on the work, but without permitting the materials to segregate or excess free water to collect on the surface. The methods of measuring concrete materials shall be such that the proportions can be accurately controlled and easily checked at any time during the work.

Minimum Strength, Concrete other than fill, shall have a minimum compressive strength at 28 days of 140 kilograms per square centimeter (2000 psi).

900.1 Method of Measurement

The quantity of concrete to be paid shall be the quantity shown in the Bid Schedule, unless changes in design are made in which case the quantity shown in the Bid Schedule will be adjusted by the amount of the change for the purpose of payment.

900.2 Basis of Payment

The accepted quantities of structural concrete completed in place will be paid for at the contract unit price for cubic meter as indicated on the Bid Schedule.

Pay Item and Description	Unit of measurement
Structural Concrete	Cubic Meter

900.3.6 REINFORCING STEEL WORKS

Reinforcing steel bars shall conform to the requirements of the following Specifications:

Deformed & Plain Billet Steel Bars for concrete Reinforcement (ASTM A 615),

Grade 40, for Bars 16mm and smaller (40,000 psi) $f_y=275.8\text{Mpa}$

Bars for concrete Reinforcement

AASHTO M 31,

Grade 60 for Bars 20mm and larger (60,000psi) $f_y=414\text{Mpa}$.

Deformed Rail - Steel and Plain

Bars for Concrete Reinforcement

ASTM A 616

If reinforcing bars are to be welded, these ASTM specifications shall be supplemented by requirements assuring satisfactory weldability.

900.3.7 Storage of Materials

Cement and aggregates shall be stored in such a manner as to prevent their deterioration or the intrusion of foreign matter. Cement shall be stored, immediately upon arrival on the site of the work, in substantial, waterproof bodegas, with a floor raised from the ground sufficiently high to be free from dampness. Aggregates shall be stored in such a manner as to avoid the inclusion of foreign materials.

900.4 Construction Requirements

Notations: The notations used in these regulations are defined as follows:

f_c = compressive strength of concrete
 F_{sp} = ratio of splitting tensile strength to square root of compressive strength.

3. STRUCTURAL STEEL

A. STRUCTURAL STEELS (A36) $F_y = 248$ MPA

B. ALL WELDING WORKS SHALL BE DONE BY SKILLED AND LICENSED WELDER

REINFORCING BARS SHALL HAVE 40mm MINIMUM CLEAR DISTANCE FROM WALL FACE EXCEPT FOR WALLS IN CONTACT WITH THE GROUND WHERE A MINIMUM OF 70mm SHALL BE PROVIDED.

Such prices and payment shall be full compensation for furnishing all materials, including metal water stops, joints, joint fillers, weep holes, and rock backing and timber bumpers; for all form and false work; for mixing, placing, furnishing, and curing the concrete;

and for all labor, materials, equipment, tools and incidentals necessary to complete the item, except that reinforcing steel shall be paid for at the contract unit price per kilogram for reinforcing steel metal pipes and drains, metal conduits and ducts, and metal expansion angles shall be paid for as structural steel that when the proposal does not include an item for structural steel these miscellaneous metal parts shall be paid for as reinforcing steel.

903(1) FORMS AND FALSEWORK

This item shall consist of designing, constructing and removing forms and falsework to temporarily support concrete, girders and structural elements until the structure is completed to the point it can support itself.

Formwork should be:

- Strong enough to withstand dead and live loads.
- Capable of retaining its shape by being efficiently propped and braced horizontally and vertically.
- Designed and constructed to prevent leakage of cement grout, with sealed joints.
- Capable of being removed in various parts without damaging the concrete.

Material Requirements

903.1 Formwork

materials used for smooth form finish shall be thick plywood/ phenolic board, tempered concrete-form-grade hardboard, other acceptable materials capable of producing the desired finish for form-facing materials. Form-facing materials shall produce a smooth, uniform texture on the concrete. Form-facing materials with raised grain, torn surfaces, worn edges, patches, dents, or other defects that will impair the texture of concrete surfaces shall not be permitted. No form-facing material shall be specified for rough form finish.

Formwork accessories Formwork accessories that are partially or wholly embedded in concrete, including ties and hangers shall be commercially manufactured. The use of non-fabricated wire from ties shall not be permitted. Where indicated in the Contract, use form ties with integral water barrier plates in walls.

903.2 Formwork release agents Commercially manufactured formwork release agents shall be used to prevent formwork absorption of moisture, prevent bonding with concrete, and not stain the concrete surfaces.

903.2.1 Falsework

The materials to be used in the falsework construction shall be of the quantity and quality necessary to withstand the stresses imposed; it may be timber or steel or a combination of both. The workmanship shall be of such quality that the falsework will support the loads imposed on it without excessive settlement.

Formwork Stripping Time (When Ordinary Portland Cement is used):

Type of Formwork	Formwork Removal Time
Sides of Walls, Columns and Vertical faces of beam	24 hours to 48 hours (as per engineer's decision)
Removal of props for beams and arches	
i) Span up to 6m	14 days
ii) Span over 6m	21 days

1046(2)a1 MASONRY WORKS

- This item is consisting of furnishing All materials, tools and equipment and labor necessary to complete the execution of the masonry works by using 6" and 4" concrete hollow blocks and Concrete Louvers as shown on the plans and herein specified.

CONCRETE HOLLOW BLOCKS

7.1 Where the use of CHB is indicated, they shall be true to size without cracks or spurs or other defects that may impair their strength or durability. They shall have three cones.

7.2 All concrete hollow blocks shall be a product of a reputable manufacturer

Use Class "B" concrete-(17.5Mpa concrete) for CHB fillers mixtures (1:3:5)

1027.4 Method of Measurement

Masonry work shall be measured in square meters or part thereof for work actually completed in the building

1027.5 Basis of Payment

The work quantified and determined as provided in the Bill of Quantities shall be paid for at the Contract Unit Price which price constitutes full compensation including labor, materials, tools and equipment and incidentals necessary to complete this Item.

1005.0 (DOORS AND WINDOWS)

A.1 .1 All doors and windows shall conform to the plans and specifications.

b. Hardware: Heavy-duty hardware and coated for corrosion resistance, door hinges shall be fabricated. And shall conform to the plans and specifications.

c. Fabrication and installation of steel door for chicken house shall be done accordingly and Windows shall be of the size and type indicated in the schedule and as specified therein

All Doors and frames specified herein shall be thoroughly cleaned and chemically treated to ensure paint adhesion. All surfaces of the door and frame exposed to view shall receive a factory-applied coat of rust-inhibiting primer, either air-dried or baked-on. The applied finish paint shall meet

the performance requirements and acceptable to the end user.

A.3 HARDWARE:

1. Where the exact type of finishing hardware specified is not adaptable type as having as nearly practicable the same operation and quality as the ones specified shall be used upon the approval of the engineer.
2. All hinges shall be chromium-plated nickel brass or it local equivalent having similar quality.

ITEM 1027 CEMENT PLASTER FINISH

1027.1 Description

This Item shall consist of furnishing all cement plaster materials, labor, tools and equipment required in undertaking cement plaster finish as shown on the Plans and in accordance with this Specification

1027.2 Material Requirements

Manufactured materials shall be delivered in the manufacturer's original unbroken packages or containers which are labelled plainly with the manufacturer's name and trademark.

1027.2.1 Cement

Portland cement shall conform with the requirements as defined in Item 700, Hydraulic Cement.

1027.2.3 Fine Aggregates

Fine aggregates shall be clean, washed sharp river sand and free from dirt, clay, organic matter or other deleterious substances. Sand derived from crushed gravel or stone may be used with the Engineer's approval but in no case shall such sand be derived from stone unsuitable for use as coarse aggregates.

1027.3 Construction Requirements

1027.3.1 Mixture

- a) Mortar mixture for brown coat shall be freshly prepared and uniformly mixed in the proportion by volume of one part Portland Cement, three (3) parts sand and one-fourth (1/4) part hydrated lime.
- b) The finish coat shall be pure Portland Cement properly graded conforming to the requirements of this Item and mixed with water to approved consistency and plasticity.
- c) Finishing of **Chicken House (Breeder and Brooder House)** shall be mixed with heavy-duty waterproofing and applied accordingly with quality workmanship.

1027.3.2 Surface Preparation

- a) After removal of formworks reinforced concrete surfaces shall be roughened to improve adhesion of cement plaster.
- b) Surfaces to receive cement plaster shall be cleaned of all projections, dust, loose particles, grease and bond breakers. Before any application of brown coat is commenced all surfaces that are to be plastered shall be wetted thoroughly with clean water to produce a uniformly moist condition.

1027.3.4 Workmanship

Cement plaster finish shall be true to details and plumbed. Finish surface shall have no visible junction marks where one (1) Day's work adjoins the other. Where directed by the Engineer or as shown on the Plans vertical and horizontal groove joints shall be 25 mm wide and 10 mm deep.

1027.4 Method of Measurement

All cement plaster finish shall be measured in square meters or part thereof for work actually completed in the building.

1027.5 Basis of Payment

The work quantified and determined as provided in the Bill of Quantities shall be paid for at

the Contract Unit Price which price constitutes full compensation including labor, materials, tools and equipment and incidentals necessary to complete this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
1027 (a)	Cement plaster finish	m ²

1032(1) C PAINTING WORKS (Steel Painting for Trusses, and other Metal support)

This section of the specification covers the complete painting and finishing of the Steel surfaces, the painting of unfinished metal, and other surfaces of all the components of the said facility.

1. The work covered by this section of the specification consists of the proper preparation of surfaces, the furnishing of labor, materials, tools, appliances, scaffoldings, and other necessary equipment, and the performing of all operations in connection with painting, varnishing, complete in accordance as specified therein.
2. All paint materials shall meet the requirements of the specifications by the standardization committee on supplies and shall be delivered on the job in the original containing, with labels intact and seal unbroken.
3. Except as otherwise noted, the color of the priming coat shall be lighter than the body coat. Paint shall applied 3 coats.

1014 (1) bI PRE-PAINTED METAL SHEETS LONGSPAN AND OTHER ROOFING ACCESSORIES

ROOFING MATERIALS

1014(1) bI.1 RIB TYPE METAL ROOFING (Forest Green color)

This item shall consist of furnishing all plant, equipment, tools, materials, and labor required to perform and complete the rib metal roofing, together with related accessories such as *ridge roll, fascia cover, rivets, soldering*, and downspout when called for on the Plans all in conformity with this Specifications.

1014(1) bI.2 MATERIAL REQUIREMENTS

1. RIB GALVANIZED IRON

- a. Rib galvanized iron (G.I.) sheets, including plain G.I. sheets for roofing accessories, shall be cold-rolled meeting ASTM153 and with spelter coating of zinc not less than 0.381kg/m².
- b. Unless otherwise specified or shown on Plans, roofing sheets and bent accessories shall be 0.40 mm thick and provided in long-span sizes to minimize end lapping.
- c. Sheets shall weigh not less than 4.14kg. /m² and shall be marked or stamped showing the thickness, size, amount of zinc coating, brand and name of the manufacturer.
- d. Test specimens shall stand being bent through 180 degrees flat on itself without fracture of the base metal and without flaking of the zinc coatings.

1014(1) bl.3 ROOF ACCESSORIES

1014(1) bl.3.1 Rivets and washers

1. Rivets and washers shall be galvanized mild iron and shall not be less than 5mm in diameter and 10mm in length.
2. Washers shall not be less than 1.5mm thick and 20mm in outside diameter and shall provide a snug fit to the rivet.

A. Preparatory Work

- 1: Preparatory to the installation of the rib type G.I. roofing, purlins should have been placed and spaced properly to fit the length of roofing sheets to be installed.
2. The center line of the purlins at end laps shall be 15 cm. From the bottom line of end laps and intermediated purlins should be placed equidistant with each other.
3. Ascertain that the top of the purlins should be on the same plane.

1014(1) bl.5 Installation of Rib G.I. Sheet

1. Provide an end lap of 25cm. minimum length. Each sheet shall be fastened temporarily by 1.83mm diameter by 2.5 cm. long galvanized flat-head nails at valleys of corrugations covered by side or end laps.
2. Succeeding upper rows of Rib G.I. sheets shall be installed in the same manner until the entire roof area is covered.
3. Rivets shall be provided with a galvanized mild iron washer below and one lead and one galvanized washer above the street.
4. Rivets shall be sufficiently long to permit the forming a hemispherical head. Riveting shall be done such that the lead washer shall be compressed to provide a water-tight fit around the rivet.

SPECIFICATIONS AND CONTRACT

Base Metal Thickness
0.40mm thick

Designated Gauge
Gauge 28

0 .50mm thick
0 .60mm thick
0 .80mm thick

Gauge 26
Gauge 24
Gauge 22

1. Procedure for the subsequent sheets until the whole roofing area is covered and or adopt the installation procedure provided in the instruction manual for each type of molded rib profile.
2. **End lap.** In case of handling or transport, consideration requires to use of two or more end-lapped sheets to provide full-length coverage for the roof run, and install each line of sheets from bottom to top or from eave line to apex of roof framing. Provide 15 cm. minimum end lap
3. **Anchorage.** Pre-painted steel roofing sheets shall be fastened to the 50mmx150mmx1.5mm C-Channel purlins with standard-length G.I. straps and rivets.
4. For steel Frame up to 4.5 mm thick, use self-drilling screw No.12 by 3.5 cm. long hexagonal head with neoprene washer.
5. For steel support up to 5mm thick or more, use threaded cutting screw No.12 by 4.0 cm. long hexagonal head with neoprene washer.
6. For the side lap fastener use self-drilling screw No. 10 by 1.6 cm. long hexagonal head with neoprene washer.
7. In cutting pre-painted steel sheets to place the exposed color side down, cutting shall be carried out on the ground and not over the top of other painted roofing products.
8. **Power cutting or drilling** to be done or carried out on pre-painted products already installed or laid in position, the area around holes or cuts shall be masked to shield the paint from hot filings.
9. Storage and Protection. Pre-painted steel roofing, walling products and

1047(2)a STRUCTURAL STEEL

(Steel Post, Rafters, Girt, Purlins, and other Supports)

1. All materials and accessories shall be free from rust or any other form of corrosion.
2. All Materials for Trusses /Rafter and other Strctural Steel as specified on the plans shall be of the following:

1047.1(2)a MATERIALS SPECIFICATIONS:

50mm x 100mmx1.5mm Tubular (Trusses/Rafter)
38.1mm x 38.1mm x4.5 mm Angle Bar
50mm x75mm x 1.2 mm G.I Cee-Channel (<i>Purlins</i>)
25mm x 25mm x4.5 mm Angle Bar
12mmØ Plain Bar (<i>Sag Rod</i>)
75mm G.I PIPE SCH 40(STEEL POST)

Materials

Materials shall conform to the respective requirements specified herein as shown:

- a. Structural steel shall conform to ASTM A-36
- b. High strength bolts, including nuts and washers shall be ASTM 325
- c. Welding Electrodes and rods shall conform to AWS A5.1

1047.2(2)a Fabrications

- a. Fabrication and assembly shall be done in the shop to the greatest extent possible. All materials shall be cleaned and straight. If straightening or flattening is necessary, it shall be done by a process and in a manner that will not damage the materials.
- b. Welding on structural steel works shall be done in accordance with the standards of American Welding Society AWD Code D.1. Welding works shall only be performed by certified welders.
- c. Bolted connections: Holes for bolts shall be 1.5mm larger than the nominal diameter of the bolt. Holes shall be cleaned cut without torn or rugged edged. Bolt holes shall be at right angles to the member. Bolted parts shall fit solidly together when assembled and shall not be separated by gaskets or any other interposed compressible materials. Contact surfaces within frictions type joints shall be from oil or paint.
- d. Match markings. Members and component parts of structure shall be matched marked to ensure accurate assembly and erection
- e. All structural steel work shall be painted, 01 coat rust converter and 02 coats epoxy primer).

f. All welded portions shall be inspected and approved by the Project Engineer.

1047.3(2) a. TRUSS INSTALLATION AND BRACING

A. Installation Tolerances

A1.1. Top Chord Bearing Trusses

For top chord bearing trusses a maximum gap tolerance between the inside of the bearing and the first diagonal or vertical web shall be adopted.

A1.2. Permanent Bracing

Permanent truss bracing shall provide out-of-plane support to the truss at the top chord plane, bottom chord plane, and web member plane, as required by design.

Purlins used to act as permanent bracing shall be adequately attached to the top and bottom chords and to a diagonal brace or diaphragm. Purlin spacing shall be 0f 0.50m otherwise specified on the plans and specifications.

A1.3 Trusses other support

Provide 12mm Plain round bar sag rod, 12mm Plain Round bar for Cross Bracing with M16 Eye-to-eye Standard turnbuckle for Pig Housing.

All structural steel works shall be under the supervision of the structural engineer.

1047.4(2a) a Basis of Payment

The work quantified and determined as provided in the Bill of Quantities shall be paid for at the Contract Unit Price which price constitutes full compensation including labor, materials, tools and equipment and incidentals necessary to complete this Item. The contractor shall be paid per square meter as specified in the BOQ.

1003(2)a1 CARPENTRY AND JOINERY WORKS

The work to be done in this section shall be Fabrication and Installation of wall framing and wall panel by using the following materials:

1200mmx2400mmx4.5mm FIBCEM Board as wall Panel

Guage #24 Metal Studs, Furring and other accessories as wall framing
Steel Door and frames(Materials are same as the wall)

804.2Basis of Payment

The accepted quantities, measured as prescribed in Section 804.4, shall be paid for at the Contract unit price for each of the Pay Items listed below that is included in the Bill of Quantities. The payment shall continue full compensation for fabricating and installing all materials including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this item.

1005.00 WELDED WIRE MESH WALL AND OTHER ACCESSORIES

The work to be undertaken here under includes the furnishing of all labor, materials, equipment, tools and supervision to the project and to be completed the good working condition of the Chicken House Wall as indicated in the plans.

Chicken Wire Mesh shall be fixed accordingly to the wall framing using :

Guage #16 Hot dipped Galvanized Welded Wire mesh (1/4")- 30 meters / roll
25mmx50mmx1.2mm Tubular as wall framing

Basis of Payment

The work quantified and determined as provided in the Bill of Quantities shall be paid for at the Contract Unit Price, which constitutes full compensation including labor, materials, tools and equipment and incidentals necessary to complete this item.

1100.00 ELECTRICAL WORKS:

The work to be undertaken here under includes the furnishing of all labor, materials, equipment, tools and supervision to the project and to be completed the good working condition of the electrical system for the proposed building.

1. All works here under shall comply with the requirement of the latest edition of the National Electrical Code of the Philippines and the Rules and Regulations of the local Electric company.
2. *MATERIALS and WORKMANSHIP*

All materials shall be unused brand new and shall conform with the standard of the underwriter laboratories in every case where such a standard has been established for the particular type of materials to be installed.

3. *SERVICE ENTRANCE* Service entrance shall be 220-250 volts, single phase, 2 wires, 60 cycles or as indicated in the plan. The service entrance installation shall be part of the electrical works as indicated therein. The service entrance conduit and accessories shall be installed in the nearest power source up to service entrance cap and the work shall be done in accordance with the latest specification required by Electric Company

4. *DISTRIBUTION SYSTEM*

The distribution system shall be 2 wire, 220 volts.

5. *WIRING METHOD*

- 5.1 All wiring shall be installed in standard polyvinyl conduit of the Philippines manufacture or equal and shall conform to the underwriter's standards in code.

- 5.2 Conduit shall not be less than 1.5cm nominal diameter and where so indicated, sizes on the plans are a minimum two or more ducts shall be installed in lieu of the larger size.

- 5.3 All wire shall be copper under no circumstance will aluminum or other metallic conductors be permitted to help. All materials to be used shall be new and approved by the underwriter's laboratories.

All joints in junction boxes, those for feeders and service wire shall be joined by a 3m scotch lock. Provide proper sizes and install according to the manufacturer's specification for service and feeder conductors, tape shall be made with heavy-duty all brass or copper solderless connectors.

- 5.4 All boxes shall be hard plastic, an approved product of the reputable manufacturer

- 5.5 All ceiling and wall bracket outlet boxes shall be of deep rectangular flush type gang boxes or section switch boxes shall be installed where required.

- 5.6 All boxes, including junction and pull boxes shall be sufficient size to provide free space for all conductors enclosed in the box in addition to the fittings. Such as switch mechanisms, receptacles, fixtures slabs, and may be contained in the box.

6. *OUTLET and SWITCH BOXES*

- 6.1 Suitable single pole and three-way switches of the flush tumbler type with an appropriate white plastic or aluminum cover plate shall be provided where indicated on the plans.

- 7.2 All convenience outlet receptacles shall be flushed or wall mounted type of various kinds as indicated in the drawings with suitable cover plates.

- 7.3 Switches and receptacles are indicated in the drawings as close as possible to the desired points, however, actual construction conditions may require a change of location and in such cases, and the attention of the engineer shall be called for the final location.

Depending solely on his engineering judgment, the engineer may direct minor changes in the location of the switches and receptacles.

7.4 Unless otherwise directed by the engineer, the outlet shall be mounted at the following heights above the floor or steps.

7.4.1. Wall switches 1.50m.

7.4.2. Wall brackets 2.00m.

7.4.3. Convenience outlet 1.60m.

7.5 Use Surface Mounted Switches and Outlets.

Wall mounted MCCB Fixed Type Bolt-on, Powder Coated Enclosure Main Breaker) (color gray), enclosure with grounding terminal bus with lugs.

7. CIRCUIT BREAKER

Main Breaker, Circuit breakers and other electrical accessories shall conform to the plans and specifications.

Only one single brand shall be used on the entire project requirements

8. WIRES AND CABLES

THHN/THWN copper wire stranded 600 volts insulation pressure, minimum size of wire for lighting and power system shall be 3.5 sq. mm (AWG no. 12 stranded) and 5.5 sq. mm for spare and must be color coded. (or as specified)

Line 1 - Red
Line 2 - Yellow
Line 3 - Blue
Ground - green

9. ELECTRICAL LIGHTING FIXTURES

11.2 20W LED lamp shall be low maintenance, rust proof, highly efficient, longer life span, environmentally friendly, and less power consumption.

11.3 Use an approved quality brand for the entire LED lights and slim tube LED type or another equivalent brand approved by the Electrical Engineer. Any changes and revisions shall be approved by the designer.

Basis of Payment

The work quantified and determined as provided in the Bill of Quantities shall be paid for at the Contract Unit Price, which constitutes full compensation including labor, materials, tools and equipment and incidentals necessary to complete this item.