



Republic of the Philippines
Cagayan State University
Central Administration
Caritan, Tuguegarao City 3500,
Cagayan Valley, Philippines

Email: univinfraoffice@gmail.com

Tel No. : +63(078)377-3200

Website: www.csu.edu.ph

UNIVERSITY INFRASTRUCTURE OFFICE

SCOPE OF WORKS

Name of project: **CONSTRUCTION OF GOAT/SHEEP MULTIPLIER FARM**
Location of project: **CAGAYAN STATE UNIVERSITY - PIAT CAMPUS**
Starting Date: **Upon Approval**
Time of Completion: **120 C.D.**

INTRODUCTION

This set of scope of works shall govern the methods of construction and the kinds of materials to be used for the proposed building shown in the plans and detail drawings.

The plans, detail drawings and this scope of works shall be considered as complementing each other, so that what is mentioned or shown in one, although not mentioned or showed in the other, shall be considered as appearing on both. In case of conflict between the two, the same should be referred to the designing Architect/Engineer for resolution.

GENERAL CONDITION

All parts of the construction shall be finished with first class workmanship, to the fullest talent and meaning of the plans and this scope of works, and to the entire satisfaction of the Architect/Engineer and the end user.

The construction shall conform to all the requirements of the latest National Building Code of the Philippines as well as the local rules and regulation of the Municipality of Piat, Cagayan, Philippines.

ITEM I: GENERAL REQUIREMENTS

- Installation of standard project billboard format. The specific design and size that must be used based on the DPWH projects. It typically measures 4 feet x 8 feet (1200 mm x 2400 mm) and uses either ½ inch (12 mm) marine plywood or tarpaulin posted on 3/16 inch (5 mm) marine plywood.
- Use of hard hat - protective skull guard, white and yellow, heavy duty, safety goggles, welding mask, safety shoes, and gloves (leather) heavy duty within the period of construction.
- Installation of project marker as specified/detailed on approved plans.

ITEM II: EARTHWORKS

A. BACKFILL – FILLING MATERIALS

- Backfill - Filling Materials as specified/detailed on approved plans.

B. BEDDING MATERIALS

- Use 3/4" crushed gravel - bedding materials as specified/detailed on approved plans.

C. CLEARING AND GRUBBING

- The building site shall be leveled according to the plans and cleared of rubbish, roots, and other perishable and objectionable matters to a suitable sub-grade.

- All such unsuitable materials and existing structures shall be removed from the building site and spread uniformly over the areas adjacent to the proposed building, or otherwise disposed of as may be directed by the Architect/Engineer in charge of the construction.

D. EXCAVATION

- Excavations shall be to the depths indicated bearing values. Excavations for footing and foundations carried below required depth shall be filled with concrete and bottom of such shall be level. All structural excavations shall extent a sufficient distance from the walls and footings to allow proper erection and dismantling of forms for installation of service and for inspection.
- All excavation shall be inspected and approved before pouring any concrete.
- Where water is encountered in the excavation process, it shall be removed by bailing or pumping, care being taken that the surrounding soil particles are not disturbed or removed.

ITEM III: FORMWORKS

- Use 3/4" x 4' x 8' phenolic board, 2" x 2" good lumber, and 2" x 3" good lumber for the formworks.
- *General* - Forms shall be used where ever necessary to confine the concrete and shape it to the required line or to insure the concrete of contamination with materials caving from adjacent, excavated surfaces. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall be maintained rigidly in correct position. Forms shall be sufficiently tight to prevent loss of mortar from the concrete. Forms for exposed surfaces against which backfill is not be placed shall be lines with a form grade plywood.
- *Cleaning and oiling of forms*- Before placing the concrete, the contact surface of the form shall be cleaned of encrustation of mortar, the group or other foreign materials, and shall be coated with commercial form oil that will not strain the concrete surfaces.
- *Removal of Forms*- Forms shall be removed in a manner, which will prevent damage to the concrete. Forms shall not be removed without approval. Any repairs to surfaces imperfection shall be performed at once and airing shall be started as soon as the surface is sufficiently hard to permit it without further damage.

ITEM IV: CONCRETE WORKS

- Unless otherwise specified herein, concrete work shall conform to the requirements of the ACI Building Code. Full cooperation shall be given other than to install embedded items. Provision shall be made for setting items not placed in the forms, before concrete is placed in the forms, embedded items shall have been inspected and tested for concrete aggregates and other materials shall have been done.

a) Materials

- Cement for the concrete shall conform to the requirements of specification for the Portland cement (ASTM C-160).
- Water used in mixing concrete shall be clean and free from other injuries amounts of oils, acids, alkaline, organic materials and other substances that may be deleterious to concrete or steel.
- Fine aggregates shall consist of hard, tough, durable uncoated particles. The shape of the particles shall be generally rounded of cubicle and reasonably free from flat or elongated particles. The stipulated percentage of fine in the sand shall be obtained either by the processing of natural sand or by the production of suitably graded manufactured sand.
- Coarse aggregates shall consist of gravel, crushed gravel or rock, or a combination of gravel and rock, course aggregates shall consist of hard, tough, durable, clean and uncoated particles. The size of coarse aggregates to be used in the various parts of the work shall be in accordance of the following:
 - **Size – 3/4” for all concreting works.**

b) Proportioning and mixing

- Proportion of all materials entering into the concrete shall be as follows:
 - **Class ‘A’ – 1:2:4- for column, slab, and beam**

- *Mixing* - Concrete shall be machined mixed. Mixing shall begin within 3 min. after the cement has been added to the aggregates. In the absence of a concrete mixer, manual mixing is allowed.
- c) Curing**
- *General* – All concrete shall be moist cured for a period not less than seven (7) consecutive days by an approved method or combination applicable to local conditions.
- d) Finishing**
- Concrete surfaces shall not be plastered unless otherwise indicated. Exposed concrete surfaces shall be formed with plywood, and after removal of forms, the surfaces shall be smooth, true to line and shall present or finished appearance except for minor defects which can be easily be repaired with patching with cement mortar, or can be grounded to a smooth surface to remove all joint marks of the form work.
 - *Concrete slabs on fill* – the concrete slabs on fill shall be laid on a prepared foundation consisting of sub grade and granular fill with thickness equal to the thickness of overlaying slab except as indicated otherwise.

ITEM V: REBAR WORKS

- All reinforcing steel bars with sizes 16mm Ø must be grade 60 and sizes 12mm and 10mm Ø must be grade 40 and if the contractor attempts to use lower than the specified grade of RSB, it will not be allowed.
- All steel reinforcing bars to be used in this construction shall consist of round deformed bars with lugs or projections on their sides to provide a greater bond between the concrete and the steel.
- All Steel reinforcing bars to be used shall be of approved qualities and standards.
- All steel reinforcing bars shall be accurately placed and secured against displacement by tying them together at each bar intersection with gauge no. 16 galvanized iron wire.
- All Steel reinforcing bars indicated for footings, columns, slabs, beams, and other concrete members shall all conform to the number, size and spacing as indicated in the drawings or schedule of steel reinforcements.
- No metal reinforcement shall be installed in place unless it is free from rust, scale or other coatings, which will destroy or reduce the bond with concrete.
- All steel reinforcing bars to be used in this construction shall be approved by the project Civil/Structural Engineer.

ITEM VI: MASONRY WORKS

- Use 100mm thickness concrete hollow blocks as specified/detailed on approved plans.
- Concrete hollow blocks to be used in this project shall be of approved qualities.
- The concrete hollow block walls shall be laid, and the cells filled with cement mortar consisting of part Portland cement and sand by volume. They shall be reinforced with round deformed bars, 12mm diameter vertical bar spaced at 600mm on center, and 10mm diameter horizontal bar at every 3 layers of CHB.
- All exposed surfaces of concrete hollow block walls shall be finished with the specified materials indicated on the elevation drawings.

PLASTERING WORKS

- Materials to be used are Cement, pure sand and water as specified in the plans and estimate.
- Ensure that materials, samples and method statement have been submitted and approved by the Architect/ Engineer.
- For safety purposes, ensure the working area is kept clean for easy access and protect edges of opening by barricading while working.
- All required openings for mechanical & electrical services, conduits pipes, and plugs shall be installed and tested prior to plastering.
- Mix mortar in a number of batches, a batch being the quantity (or volume of mortar), which can be consumed with in next 2 hours.
- Mix proportion required is 1:2
- Plastering shall be started from the top and worked downwards to the floor.
- Do not allow any breaking or chippings open the plastered areas, for laying pipes etc. Once plastering is completed.

- Check thoroughly before and immediately after plastering, the surface areas for unevenness, surface blemishes etc. So that all rectification can be carried out within the final setting time, without much additional costs.

ITEM VII: CARPENTRY WORKS

- Installation of 2"x6"x14' Hard Wood-Wood Beam fastened to 5.0 mm x 50 mm x 50 mm x 6.0m - Angle bar with 12mm Ø x 100mm Expansion bolt with nuts and washer and 10mm Ø x 150mm Bolt with nuts and washer as specified/detailed on the approved plans.
- Installation of 2"x6"x14' Good Lumber and 2"x4"x14' Good Lumber with 2'x4' Heavy duty Plastic Matting for the floor joist and flooring as specified/detailed on the approved plans.
- All Woods/Lumber shall apply flatwall enamel as specified/detailed on the approved plans.
- Fabrication of wall - 0.6mm thk. Rib Type long span roofing sheets Pre-painted (Green) as specified/detailed on the approved plans.
- All tubulars shall apply epoxy primer as specified/detailed on the approved plans.

ITEM VIII: METAL WORKS

- Installation of 4" Ø x 3.0m GI Pipe Sch 40 as specified/ detailed on the approved plans.
- Installation of 5.0mm x 50mm x 100mm x 6.0m Channel Bar as specified/ detailed on the approved plans.
- Installation of 1.5mm x 50mm x 100mm x 6.0m C- purlins spaced at 600mm O.C. welded to 50mm x 50mm x 6mm thick angle bar as specified/detailed on the approved plans.
- Installation of 1.5mm x 50mm x 150mm x 6.0m C- purlins (Fascia) as specified/detailed on the approved plans.
- Installation of 12mm diameter sag rod plain round bar and cross bracing as specified/detailed on the approved plans.
- Installation of M16 turn buckle as specified/ detailed on the approved plans.
- All framing materials shall be applied with anti-rust paint.
- All framing shall be accomplished in a first class manner and shall be executed by skilled personnel who are thoroughly familiar with this type of work.
- The framing contractor shall verify all dimensions before the work begins. Any discrepancies between the plans should be brought to the consultant attention. The framing contractor is not authorized to make decisions where a discrepancy in plans or specification occurs.

ITEM IX: TINNERY WORKS

- Installation of 0.6mm thk. Rib Type long span roofing sheets Pre-painted (Green) Pre-painted as specified/detailed on the approved plans.
- Installation of 0.6mm x 8' Roof gutter, flashing, and ridge roll - Pre-painted (Green) as specified/detailed on the approved plans.
- Installation of 10mm thk. Double sided insulator rolls - 1.0m width x 50.0m length / roll and 6' x 30m Chicken Wire mesh (1"x1" hole) as specified/detailed on the approved plans.
- Roof materials shall be installed with 2½" Teck screw fastened carefully which should be free from leakage.
- Apply silicone sealant to all roof joints, seams, penetrations, and flashing to ensure a watertight seal, as specified/detailed on the approved plans.

ITEM X: DOORS AND STEEL WALLS INSTALLATION (Fabrication, Supply and Install)

- Fabrication, Supply and Install All Doors as per plan and specifications.
- Fabrication, Supply and Install of Steel Wall - 1/2" Ø G.I. Pipe sched 40 walling welded to Top and Bottom 1 1/2" Ø G.I. Pipe and welded to 1 1/2" Ø G.I. Pipe Post sched 40
- Fabrication, Supply and Install of Feeder (1.0m x 1.20 m) - 12mmØ RSB welded to 12mmØ RSB frame with Durable Plastic Feeding Tray - 1mx0.30mx0.18m

ITEM XI: PLUMBING WORKS

- Installation of PVC Pipe S-1000 (3" D) – Downspout as specified/detailed on the approved plans.

ITEM XII: PAINTING WORKS

- Painting Works for All Masonry and Concrete (Interior and Exterior portions).
- Use Skimcoat, latex primer paint (white), semi-gloss latex paint (color will refer to the end user), #100 sand paper, #150 sand paper, 6" roller brush, baby roller with handle, 2" Paint brush and 1" thk paint brush,
- Painting works shall be done in three coats with proper treatment, preparation prior to the application of the final coat.
- Use sand paper to remove ridges and bumps.
- Before applying the final color of the building it must be approved and inspected by the University and Campus Infrastructure Unit.

Prepared by:

ENGR. RIZZA G. LIBED, RMP, MECE
Civil Engineer - University Infrastructure Office

Recommending Approval:

ENGR. JAMES B. BUSILAN, MECE
University Director - University Infrastructure Office

Approved By:

HITLER C. DANGATAN, Ph.D.
Campus Executive Officer - CSU Piat Campus