STRUCTURAL NOTES

1.0 GENERAL

1.1 THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL NOTIFY THE ENGINEER OF DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS BEFORE PROCEEDING WITH THE WORK. THIS SHALL INCLUDE THE LOCATION AND DIMENSION OF THE GROOVES, REGLETS, SLEEVES, CURBS, OPENINGS, EMBEDDED OR ATTACHED ITEMS, ETC. ARCHITECTURAL, MECHANICAL, ELECTRICAL AND SANITARY DRAWINGS SHALL BE REFERRED TO WHENEVER NECESSARY.

1.2 SCHEDULES OF SPLICE AND DEVELOPMENT LENGTHS AND ALL OTHER INDICATED DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE DIMENSIONS FROM PLANS, SECTIONS AND DETAILS.

1.3 THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHODS OF CONSTRUCTION, UNLESS SO STATED. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PROTECT THE STRUCTURES, ADJACENT PROPERTY, WORKMEN AND OTHER PERSONS DURING ALL PHASES OF CONSTRUCTION.

1.4 THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONDITION WHICH IN HIS OPINION MIGHT ENDANGER THE STABILITY OF OR CAUSE DISTRESS TO THE STRUCTURE.

1.5 THE CONTRACTION MATERIALS SHALL NOT BE STORED ON POURED SLABS. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT SUB-CONTRACTORS ARE INFORMED NOT TO VIOLATE THIS REQUIREMENT.

1.6 THE CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACING AND SHORING FOR ALL STRUCTURAL MEMBERS AS REQUIRED FOR STRUCTURE STABILITY DURING ALL PHASES OF CONSTRUCTION WHERE SEQUENCE OF ACTIVITIES AND METHOD OF PLACING SHORINGS ARE INDICATED (AS IN THE DEMOLITION OF EXISTING STRUCTURAL ELEMENTS), THEY SHALL BE STRICTLY FOLLOWED. THE ENGINEER SHALL BE CONSULTED BEFORE ANY DEVIATION FROM PRESCRIBED SEQUENCE AND METHOD ARE MADE.

1.7 REBARS OF EXISTING WALLS, COLUMNS AND FLOOR SLABS; IF ANY SHALL BE SAND BLASTED TO BARE WHITE METAL FINISH BEFORE THEY ARE WELDED TO NEW STRUCTURAL STEEL BEAMS AND COLUMNS OR SPLICED TO NEWLY INSTALLED REBARS.

1.8 WHERE CONCRETE EPOXY ADHESIVE IS REQUIRED TO FILL THE GAP BETWEEN AN EXISTING AND NEW STRUCTURAL MEMBERS, EXISTING CONCRETE SURFACES SHALL BE SUBJECTED TO MINIMUM 6000 Psi HIGH PRESSURE WATER JET UNTIL ALL LOOSE PARTICLES ARE REMOVED AND THE SURFACES ARE REMOVED AND THE SURFACES SHALL BE PROTECTED FROM DUST AND SHALL BE SUBJECTED TO MEDIUM PRESSURE WATER SPRAYING IMMEDIATELY BEFORE EPOXY APPLICATION.

1.9 THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL SHOP DRAWING SHOWING THE PROPOSED FABRICATION AND INSTALLATION OF ALL METAL WORKS. NO WORK SHALL BE STARTED UNTIL THE SHOP DRAWINGS HAVE BEEN APPROVED. ALL WORKS SHALL CONFORM TO THE APPROVED SHOP DRAWINGS.

1.10 THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO ENSURE PROPER ALIGNMENT OF THE STRUCTURE AFTER THE INSTALLATION OF ALL STRUCTURAL AND FINISHING MATERIALS.

1.11 TYPICAL DETAILS AND GENERAL NOTES ON SHEET NO. S-1 APPLY TO ALL PARTS THE JOB UNLESS OTHERWISE SHOWN IN THE DRAWINGS.

2.0 STANDARDS AND REFERENCES

THE FOLLOWING SHALL GOVERN THE DESIGN, FABRICATION AND CONSTRUCTION OF THE PROJECT.

2.1 AMERICAN CONCRETE INSTITUTE (ACI) PUBLICATIONS.

2.2 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) PUBLICATIONS

2.3 NATIONAL STRUCTURAL CODE OF THE PHILIPPINES (NSCP), LATEST EDITION

3.0 CONCRETE AND REINFORCING BARS

3.1 NORMAL WEIGHT CONCRETE

3.1.1 UNLESS NOTED OTHERWISE, CONCRETE USED IN THIS WORK SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (Fc') OF 5,000 Psi AT 28 DAYS.

3.1.2 CONCRETE COVER OVER REINFORCING BARS SHALL BE AS FOLLOWS :

A. FOUNDATION ELEMENTS (TIE BEAMS INCLUDED) CAST AGAINST EARTH 75mm.
B. FOUNDATION ELEMENTS (TIE BEAMS INCLUDED) CAST AGAINST FORM OR LEAN CONCRETE : 40mm.
C. BEAM AND COLUMNS: 40mm (MEASURED TO STIRRUPS AND TIES)
D. SLABS (INSIDE EXPOSURE): 75mm.
D. SLABS (OUTSIDE EXPOSURE WITHOUT FLOOR FINISH): 20mm.

3.1.3 BEFORE CONCRETE IS POUR, CHECK WITH ALL TRADE CONTRACTORS TO ENSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, ETC. RELATING TO THE WORK.

3.1.4 CONCRETE MINIMUM COMPRESSIVE STRENGTH (Fc') FOR SLAB-ON GRADE AND CHB WALL FOOTING SHALL BE 2500 Psi AT 28 DAYS.

3.2 REINFORCING BARS

3.2.1 REINFORCING DEFORMED BARS SHALL HAVE A MINIMUM YIELD STRENGTH (Fy) OF 40 Ksi.

3.2.2 ALL REINFORCING BARS SHALL BE FREE OF RUST, GREASE OR OTHER MATERIAL THAT IMPAIR BOND.

3.2.3 ALL REINFORCING BARS SHALL BE ACCURATELY AND SECURELY PLACED BEFORE POURING CONCRETE OR APPLYING MORTAR OR GROUT.

3.2.4 LAPPED SPLICES SHALL BE STAGGERED WHERE POSSIBLE SUCH THAT NOT MORE THAN 50% OF BARS OF IN A STRUCTURAL ELEMENT SHALL BE SPLICE AT THE SAME POINT OR ALONG THE SAME LINE.

3.2.5 UNLESS OTHERWISE INDICATED, SPLICING OR REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI-318 EXCEPT THAT THE MINIMUM LAP SPLICE SHALL 40 BAR DIAMETERS BUT NOT LESS THAN 600mm.

3.2.6 UNLESS SHOWN OTHERWISE ON PLANS, CENTER OF SPLICE SHALL BE AS FOLLOWS :

A. INTERMEDIATE BEAMS : TOP BARS AT MIDSPAN AND BOTTOM BARS WITHIN A DISTANCE EQUAL TO THE MEMBER'S DEPTH FROM FACE OF SUPPORT. SPLICING OF BOTTOM BARS AT SUPPORT SHALL BE PERMITTED ONLY WHEN THERE IS ABSOLUTELY NO DANGER OF BAR CLOGGING AT THE JUNCTION IN THE OPINION OF THE ENGINEER.

B. BEAM FRAMING TO COLUMNS, TOP BARS AT MIDSPAN AND BOTTOM BARS : TOP BARS AT MIDSPAN AND BOTTOM BARS WITHIN A DISTANCE EQUAL TO THE MEMBER'S DEPTH FROM FACE OF SUPPORT. SPLICING OF BOTTOM BARS AT SUPPORT SHALL BE PERMITTED ONLY WHEN THERE IS ABSOLUTELY NO DANGER OF BAR CLOGGING AT THE JUNCTION IN THE OPINION OF THE ENGINEER.

C. COLUMNS, LAP SPLICES SHALL BE MADE WITHIN THE CENTER HALF OF COLUMN HEIGHT AND THE SPLICE NOT BE LESS THAN 30 BAR DIAMETER WELDING OR USED OF APPROVED MECHANICAL DEVICES MAY BE PERMITTED PROVIDED NO ADJACENT BARS ARE WELDED OR SPLICED AT ANY LEVEL A MINIMUM VERTICAL DISTANCE BETWEEN TWO ADJACENT BAR SPLICES SHALL BE 600mm.

D. CHB WALL : VERTICAL BARS SHALL BE SPLICED AT THE TOP OF WALL FOOTING OR FOOTING TIE BEAMS AND AT THE BOTTOM OF THE REINFORCED CONCRETE LINTEL BEAMS OR BEAM.

3.2.7 UNLESS INDICATED OTHERWISE, ALL BEAMS TERMINATING AT A COLUMN SHALL HAVE TOP AND BOTTOM BARS EXTENDING TO THE FAR FACE OF THE COLUMN, TERMINATING IN A STANDARD 90° HOOK. LENGTH OF ANCHORAGE SHALL NOT BE ELSS THAN 600mm.

3.2.8 SHOP DRAWINGS FOR REINFORCEMENT SHALL BE SUBMITTED FOR APPROVAL OF ENGINEER PRIOR TO FABRICATION AND INSTALLATION.

3.2.8 DEVELOPMENT LENGTH Ld OF REINFORCING BARS SHALL BE AS FOLLOWS :

SIZE OF REBARS (mm)	DEVELOPMENT LENGTH (mm)
10	170
13	220
16	270
20	300
25	600

4.0 STRUCTURAL STEEL

4.1 ALL STRUCTURAL STEEL SHALL HAVE MINIMUM YIELD STRENGTH (Fy) OF 36 Ksi UNLESS NOTED OTHERWISE.

4.2 ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE AS AMENDED TO DATE.

4.3 ALL STRUCTURAL STEEL MEMBERS INCLUDING SUB-SET PLATES, BOLTS, SHALL CONFORM WITH ASTM A36.

4.3 SHOP AND FIELD WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 AND PERFORMED BY QUALIFIED WELDERS.

4.3 UNLESS INDICATED OTHERWISE, WELDING ELECTRODES SHALL BE E60XX, BOLTS SHALL BE A325.

4.3 LOCATION OF CENTER-LINE OF SPLICE FOR COLUMN SHALL BE FROM 0.25H TO 0.40H, (MEASURED FROM THE TOP OF THE GIRDER AT BASE). WHERE H IS THE CLEAR HEIGHT BETWEEN GIRDERS.

5.0 CONCRETE HOLLOW BLOCKS (CHB)

5.1 UNLESS INDICATED OTHERWISE, CHB USED IN THIS WORK SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (Fm') OF 7000 Psi AT 28 DAYS.

5.2 ALL CHB CELLS SHALL BE FILLED SOLIDLY WITH CEMENT-MORTAR.

5.2 LINTEL BEAM BEAM SHALL BEAR AT LEAST 200mm ON EACH SIDE OF MASONRY WALL OPENING.

6.0 FOUNDATION

6.1 ASSUME SOIL BEARING CAPACITY FOR SHALLOW FOUNDATION IS 1500 psf. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE ACTUAL SOIL BEARING CAPACITY BEFORE CONCRETING THE FOUNDATION.

6.2 BOTTOM OF PAD FOOTINGS SHALL BE AT A MINIMUM DEPTH OF 1.20m BELOW NATURAL GRADE LINE.

6.3 ALL COLUMN FOOTINGS AND FOOTING TIE BEAMS SHALL REST ON 50mm THICK WELL-COMPACTED GRAVEL BASE COURSE.

6.4 BACKFILL SHALL BE PLACED IN 0.20m LAYER SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY.

6.5 ALL ELEVATION BACKFILLING AND COMPACTION SHALL BE INSPECTED BT THE ENGINEER.

6.6 WHERE LOOSE/SOFT MATERIALS ARE ENCOUNTERED AT INDICATED DEPTH OF EXCAVATION, EXCAVATE TO FIRM LAYER AND REPLACE LOOSE/SOFT MATERIALS UNDERNEATH THE FOOTING AREA PLUS 1/2 DEPTH OF SOFT MATERIAL ON ALL SIDES WITH SELECTED GRANULAR BACKFILL COMPACTED TO 95% OF MAXIMUM DRY DENSITY.

7.0 CONSTRUCTION JOINTS

7.1 CONSTRUCTION JOINTS INDICATED IN THE DRAWINGS SHALL BE MADE SO AS TO LEAST IMPAIR THE STRENGTH OF STRUCTURE AND SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER, EXCEPT SLAB ON GRADE.

7.2 UNLESS SHOWN OTHERWISE, SLAB ON GRADE SHALL HAVE CONTROL JOINTS AT 6.00m MAXIMUM CENTER TO CENTER.

7.3 BEAM CONSTRUCTION JOINTS SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE SPAN. IT SHALL BE PROVIDED WITH 3 EXTRA STIRRUPS AT 75mm O.C. EACH SIDE OF THE JOINT.

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF AGRICULTURE PHILIPPINE RURAL DEVELOPMENT PROJECT PROVINCE OF BATANGAS	PROJECT TITLE: CONSTRUCTION OF COFFEE PROCESSING CENTER AT BRGY. AGA, NASUGBU, BATANGAS LOCATION: NASUGBU, BATANGAS	CAD BY: VINCENT JOHN M. AMORADO CAD OPERATOR CHECKED BY: LEO B. GUARIN ARCHITECT III	PROJECT ENGINEER: KRISTOFFER P. MARALIT ENGINEER II	CHECKED BY: MILAGROS C. AÑONUEVO ENGINEER IV	APPROVED BY : GILBERT P. GATDULA PROVINCIAL GOVERNMENT DEPT. HEAD	APPROVED BY : HON. HERMILANDO I. MANDANAS GOVERNOR	SHEET NO. S-1 5 OF 9	PAMAHALAAN NG BATANGAS PHILIPPINES