GENERAL NOTES.

1. DESIGN IS TO BS 8110

2. CONCRETE GRADES ARE TO BE AS FOLLOWING WITH FIGURES IN BRACKET DENOTING MAXIMUM SIZE AGGREGATE:

   - FOUNDATION: 30(25)
   - COLUMNS: 30(20)
   - BEAMS & SLABS: 30(20)

3. UNLESS OTHERWISE INDICATED, REINFORCEMENT SHALL BE HIGH YIELD STEEL (TYPE 2), DENOTED BY ‘Y’, HAVING CHARACTERISTIC STRENGTH NOT LESS THAN 410N/MM².

4. COVER TO REINFORCEMENT SHALL BE THE FOUNDATION: 50MM (BOTTOM) 75MM (SIDES)
   - COLUMNS: 25MM
   - BEAMS: 25MM
   - SLABS: 20MM

5. DRAWINGS MAY BE USED FOR EXHIBITION PURPOSE ONLY AND MAY NOT BE COPIED OR MODIFIED OR USED OR CAMELED AT ANY TIME FOR ANY PURPOSE.

6. THIS DESIGN ENGINEER WILL NOT TAKE RESPONSIBILITY FOR ANY JOB NOT SUPERVISED BY HIM.

7. FOUNDATION WAS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M².

8. ALL SERVICE PIPES SHALL ONLY BE PUT INSIDE BLOCKWORK AFTER CONSTRUCTION OF THE BLOCKWORK. PUTTING SERVICE PIPES INSIDE LOAD BEARING BLOCKWORK CORNERS MUST BE AVOIDED.

REINFORCED CONCRETE

- SECTION Y-Y OF TOILET

- FOUNDATION: 50 x 50 x 2.5mm SHS 3.68kg/m

- CASTED MONOLITICALLY TO THE SLAB

- SQUARE PIPE PURLIN & ROOF TRUSSES

- SQUARE PIPE BRACING WELDED TO COLUMN

- SQUARE PIPE BRACING WELDED TO COLUMN

- 7° PIT

- VIRGIN GROUND SOIL

- NATURAL GROUND LEVEL

- CEILING LEVEL

- ROOF LEVEL

- 3.0m DEPTH VIRGIN SOIL

- INSPECTION CHAMBER

- R.C SLAB

- R.C BEAM

- DRAWING TITLE:
  - HOMES FOR NGARANNAM,
  - MAFIA LG.A. BORNO.

- SHEET NO.

- SCALE: 1:50
GENERAL NOTES.

1. DESIGN IS TO BS 8110.

2. CONCRETE GRADING ARE TO BE AS:
   - FOUNDATION: 30(25)
   - COLUMNS: 30(20)
   - BEAMS & SLABS: 30(20)

3. UNLESS OTHERWISE INDICATED, REINFORCEMENT SHALL BE HIGH YIELD STEEL (TYPE 2), DENOTED BY "Y", HAVING CHARACTERISTIC STRENGTH NOT LESS THAN 410N/MM².

4. COVER TO REINFORCEMENT SHALL BE THE:
   - FOUNDATION: 50MM (BOTTOM), 75MM (SIDES)
   - COLUMNS: 25MM
   - BEAMS: 25MM
   - SLABS: 20MM

5. DRAWINGS MAY BE PRIMED FOR COLLECTION ONLY WHEN THE WORK IS COMPLETE AND ALL THE DRAWINGS ARE AVAILABLE.
   - FINAL COPY OF DRAWINGS WILL BE SUBMITTED TO THE DESIGN ENGINEER FOR CLARIFICATION.
   - FINAL COPY OF DRAWINGS WILL BE SUBMITTED TO THE DESIGN ENGINEER FOR CLARIFICATION.
   - DESIGN ENGINEER FOR CLARIFICATION.

6. FOUNDATION WAS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M².

7. DRAWINGS MUST BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTURAL DRAWINGS AND IN CASE OF ANY DISCREPANCY REFER TO THE DESIGN ENGINEER FOR CLARIFICATION.

8. DIMENSIONS ARE IN MILLIMETRE (MM) AND MUST NOT BE SCALING AT ANY TIME.

9. FOUNDATION WAS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M².

10. THIS DESIGN ENGINEER WILL NOT TAKE RESPONSIBILITY FOR ANY JOB NOT SUPERVISED BY HIM.

BLOCKWORK

1. HOLOW BLOCKWALLS BELOW GROUND SLAB LEVEL ARE TO BE FILLED WITH MASS CONCRETE. ENDO FILLING IS TO BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES.

2. THE WALL THICKNESS OF THE BLOCK SHOULDN'T BE MORE THAN 200MM.

3. THE MAXIMUM CRUSHING STRENGTH OF THE HOLOW BLOCK IS TO BE 20N/MM² OF GROSS AREA OF BLOCK AT 28DAYS.

4. BLOCKWORK TIES BETWEEN BLOCKWORK WALL AND COLUMNRETATIONS ARE TO BE PROVIDED AT EVERY COURSE. TIES TO BE 6MM BAR STRAPS 700MM LONG INTO THE BLOCKWORK.

5. MAXIMUM POUR HEIGHT FOR ALL FILLED BLOCK BLOCKWORK TO BE 2 COURSES AT A TIME.

6. ALL SERVICE PIPES SHALL ONLY BE PUT INSIDE BLOCKWORK AFTER THE BLOCKWORK WORK IS COMPLETE. PUTTING SERVICE PIPES INSIDE LOAD BEARING BLOCKWORK CORRES MUST BE AVOIDED.

Project:
HOMES FOR NGARANNAM,
MAFA LGA, BORNO.

1. Issued for Tender
**GENERAL NOTES.**

1. Issued for Tender

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**REINFORCED CONCRETE**

1. DESIGN IS TO BS 8110

2. CONCRETE GRADES ARE TO BE AS FOLLOWS WITH FIGURES IN BRACKET DENOTING MAXIMUM SIZE AGGREGATE:

- FOUNDATION: 30(25)
- COLUMNS: 30(20)
- BEAMS & SLABS: 30(20)

3. UNLESS OTHERWISE INDICATED, REINFORCEMENT SHALL BE HIGH YIELD STEEL (TYPE 2), DENOTED BY "Y", HAVING CHARACTERISTIC STRENGTH NOT LESS THAN 410N/MM².

4. COVER TO REINFORCEMENT SHALL BE THE FOLLOWING:

- FOUNDATION: 50MM (BOTTOM) 75MM (SIDES)
- COLUMNS: 25MM
- BEAMS: 25MM
- SLABS: 20MM

5. DRAWS MAY BE REPRODUCED BY ANY MEANS, PROVIDED THAT THE COPY REMAINS IDENTICALLY IDENTICAL TO THE ORIGINAL. IF ALTERED, THE ALTERATION MUST BE APPROVED BY THE DESIGN ENGINEER FOR CLARIFICATION.

6. DRAWS ARE DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M²

7. FOUNDATION WAS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M².

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**BLOCKWORK**

1. HOLED BLOCKWALLS BELOW GROUND SLAB LEVEL ARE TO BE FILLED WITH MASS CONCRETE. BLOCKS BELOW ARE TO BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES.

2. THE WALL THICKNESS OF THE BLOCKS SHOULDN'T BE MORE THAN 25MM.

3. THE MAXIMUM CRUSHING STRENGTH OF THE BLOCK SHOULD BE 20N/MM² OF GROSS AREA OF BLOCK AT 28 DAYS.

4. BLOCKWORK TIES BETWEEN BLOCKWORK WALL AND COLUMNS/STATIONS ARE TO BE PROVIDED AT EVERY COURSE. TIES TO BE 6MM BAR STRAPS 700MM LONG INTO THE BLOCKWORK.

5. MAXIMUM POUR HEIGHT FOR ALL FILLED BLOCKWORK TO BE 2 COURSES AT A TIME.

6. ALL SERVICE PIPES SHALL ONLY BE PUT INSIDE BLOCKWORK AFTER DUE CONSULTATION WITH STRUCTURAL ENGINEERS. PUTTING SERVICE PIPES INSIDE LOAD BEARING BLOCKWORK CORRIDORS MUST BE AVOIDED.

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**FOUNDATION LAYOUT**

STOREY: 0 - LEVEL: -3.00m - SCALE: 1/50

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**REMARKS**

- FRAME & BURIED DPC
- 700MM HIGH DPC AT ALL EXPOSED WET WALLS
- FOUNDATION LEVEL: -3.00M
- 0.7M ABOVE FOUNDATION OF LEVEL -3.00M

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**DESIGN FOR HOMES FOR NGARANNAM, MAFA LGA, BORNO.**
GENERAL NOTES:

1. Design is to BS 8110
2. Concrete Grades are to be as follow:
   - Foundation: C30(25)
   - Columns: C30(20)
   - Beams & Slabs: C30(20)
3. Unit weights of concrete shall be:
   - Foundation: 24kN/m³
   - Columns: 28kN/m³
   - Beams & Slabs: 26kN/m³
4. Cover to reinforcement shall be:
   - Foundation: 50mm (bottom), 75mm (sides)
   - Columns: 25mm
   - Beams: 25mm
   - Slabs: 20mm
5. Drawings must be read in conjunction with the relevant architectural drawings and in case of any discrepancy refer to the design engineer for clarification.
6. Dimensions are in millimeters (mm) and must not be scaled at any time.
7. Foundation was designed for an assumed allowable soil bearing pressure of 150kN/m².
8. This design engineer will not take responsibility for any job not supervised by him.

BLOCKWORK:

1. Hollow block walls below ground slab level are to be filled with mass concrete. Masonry is to be carried out synchronously on both sides.
2. The wall thickness of the blocks should not be more than 200mm.
3. The maximum crushing strength of the hollow block is to be 20N/mm² of gross area of block at 28 days.
4. Blockwork ties between blockwork wall and columns/structures are to be provided at every course. Ties to be 6mm, 600mm long into the blockwork.
5. Maximum pour height for all filled blockwork to be 2 courses at a time.
6. All service pipes shall only be run inside blockwork after due consultation with structural engineers. Putting service pipes inside non-load bearing blockwork corners must be avoided.

REINFORCED CONCRETE:

1. 1.50 Scale:
2. 1:50
3. Dimensions are in millimeters (mm) and must not be scaled at any time.
4. Foundation:
   - L = 3050 mm
   - L = 750 mm
   - L = 800 mm (H. Length: 100 mm)
5. Column:
   - L = 950 mm
   - L = 2770 mm
   - L = 230 mm
   - L = 100 mm

COL. FOOTING DETAILS

COLUMN DETAILS

HOMES FOR NGARANNAM, MAFIA LGA, BORNO.
GENERAL NOTES.

1. DESIGN IS TO BS 8110
2. CONCRETE GRADES ARE TO BE AS FOLLOWS WITH FIGURES IN BRACKET DENOTING MAXIMUM SIZE OF AGGREGATE:
   - FUNDAMENTAL BEAMS: 30(25)
   - COLUMNS: 30(20)
   - BEAMS & SLABS: 30(20)
3. UNLESS OTHERWISE INDICATED, REINFORCEMENT SHALL BE HIGH YIELD STEEL (TYPE 2), DENOTED BY "Y", HAVING CHARACTERISTIC STRENGTH NOT LESS THAN 410N/MM².
4. COVER TO REINFORCEMENT SHALL BE THE FOLLOWING:
   - FUNDATION: 50MM (BOTTOM) 75MM (SIDES)
   - COLUMNS: 25MM
   - BEAMS: 25MM
   - SLABS: 20MM
5. DRAWINGS MUST BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTURAL DRAWINGS AND IN CASE OF ANY DISCREPANCY REFER TO THE DESIGN ENGINEER FOR CLARIFICATION.
6. DIMENSIONS ARE IN MILLIMETRE (MM) AND MUST NOT BE SCALLED AT ANY TIME.
7. FOUNDATION WAS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M²
8. THIS DESIGN ENGINEER WILL NOT TAKE RESPONSIBILITY FOR ANY JOB NOT SUPERVISED BY HIM.

BLOCKWORK

1. HOLLOW BLOCKWALLS BELOW GROUND SLAB LEVEL ARE TO BE FILLED WITH MASS CONCRETE. BACK FILLING IS TO BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES.
2. THE WALL THICKNESS OF THE BLOCKS SHOULD NOT BE MORE THAN 25MM.
3. THE MAXIMUM CRUSHING STRENGTH OF THE HOLLOW BLOCK IS TO BE 20N/MM² OF GROSS AREA OF BLOCK AT 28 DAYS.
4. BLOCKWORK TIES BETWEEN BLOCKWORK WALL AND COLUMNS/STANCHIONS ARE TO BE PROVIDED AT EVERY COURSE. TIES TO BE 6MM BAR STRAPS 700MM LONG INTO THE BLOCKWORK.
5. MAXIMUM POUR HEIGHT FOR ALL FILLED BLOCK BLOCKWORK TO BE 2 COURSES AT A TIME.
6. ALL SERVICE PIPES SHALL ONLY BE PUT INSIDE BLOCKWORK AFTER CONCRETE HAS SET AND THE BLOCKWORK HAS BEEN CHECKED. PUTTING SERVICE PIPES INSIDE LOAD BEARING BLOCKWORK CORRIDORS MUST BE AVOIDED.

HOMES FOR NGARANNAM, MAFA LGA, BORNO.

FUNDAMENTAL BEAMS DETAILS

1. 1 - 1
2. 1 - 2
3. 1 - 3

FB1 (230x230)

FB2 (230x230)

FB3 (230x230)

FB4 (230x230)
GENERAL NOTES:

1. DESIGN IS TO BS 8110
2. CONCRETE GRADES ARE TO BE AS FOLLOWED:
   - FOUNDATION: 30(25)
   - COLUMNS: 30(20)
   - BEAMS & SLABS: 30(20)
3. UNLESS OTHERWISE INDICATED, REINFORCEMENT SHALL BE HIGH YIELD STEEL (TYPE 2), DENOTED BY "Y", HAVING CHARACTERISTIC STRAIN NOT LESS THAN 0.005.
4. COVER TO REINFORCEMENT SHALL BE:
   - FOUNDATION: 50MM (BOTTOM) 75MM (SIDES)
   - COLUMNS: 25MM
   - BEAMS: 25MM
   - SLABS: 20MM
5. DRAWINGS MUST BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTURAL DRAWINGS AND IN CASE OF ANY DISCREPANCY REFER TO THE DESIGN ENGINEER FOR CLARIFICATION.
6. DIMENSIONS ARE IN MILLIMETRE (MM) AND MUST NOT BE SCALDED AT ANY TIME.
7. FOUNDATION WAS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M2
8. THIS DESIGN ENGINEER WILL NOT TAKE RESPONSIBILITY FOR ANY JOB NOT SUPERVISED BY HIM.

BLOCKWORK:

1. HOLLOW BLOCKWALLS BELOW GROUND SLAB LEVEL ARE TO BE FILLED WITH MASS CONCRETE. BACK FILLING IS TO BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES.
2. THE WALL THICKNESS OF THE BLOCK SHOULD NOT BE MORE THAN 25MM.
3. THE MAXIMUM CRUSHING STRENGTH OF THE HOLLOW BLOCK IS TO BE 20N/MM² OF GROSS AREA OF BLOCK AT 28 DAYS.
4. BLOCKWORK TIES BETWEEN BLOCKWORK WALL AND COLUMNS/TATIONS ARE TO BE PROVIDED AT EVERY COURSE. TIES TO BE 6MM BAR STRAPS 700MM LONG INTO THE BLOCKWORK.
5. MAXIMUM POUR HEIGHT FOR ALL FILLED BLOCKWORK TO BE 2 COURSES AT A TIME.
6. ALL SERVICE PIPES SHALL ONLY BE PUT INSIDE BLOCKWORK AFTER CONCRETE IS PLACED. ALL SERVICE PIPES INSIDE LOAD BEARING BLOCKWORK CORNERS MUST BE AVOIDED.

FLOOR BEAMS DETAILS
GENERAL NOTES.

1. DESIGN IS TO BS 8110
2. CONCRETE GRADES ARE TO BE AS FOLLOWS:
   - FOUNDATION 30(25)
   - COLUMNS 30(20)
   - BEAMS & SLABS 30(20)
3. UNLESS OTHERWISE INDICATED, REINFORCEMENT SHALL BE HIGH YIELD TYPE 2, DESIGNATED BY "Y", HAVING CHARACTERISTIC YIELD STRESS NOT LESS THAN 410N/MM2
4. COVER TO REINFORCEMENT SHALL BE THE
   - FOUNDATION: 50MM(BOTTOM) 75MM(SIDES)
   - SLABS: 25MM
   - COLUMNS: 25MM
   - BEAMS: 25MM
   - SLABS: 20MM
5. DRAWINGS MAY BE USED FOR COLLECTIVE INFORMATION ONLY AND MUST NOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN PERMISSION FROM THE DESIGNER FOR REPRODUCTION OF DRAWINGS IS NOT PERMITTED.
6. DIMENSIONS ARE IN MILLIMETRE(MM) AND MUST NOT BE SCALING AT ANY TIME.
7. FOUNDATION WAS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M2
8. THIS DESIGN ENGINEER WILL NOT TAKE RESPONSIBILITY FOR ANY JOB NOT SUPERVISED BY HIM.

BLOCKWORK

1. HOLLOW BLOCKS ABOVE GROUND SLAB LEVEL ARE TO BE FILLED WITH MASS CONCRETE. BACK FILLING IS TO BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES.
2. THE WALL THICKNESS OF THE BLOCKS SHOULD NOT BE MORE THAN 25MM.
3. THE MAXIMUM CRUSHING STRENGTH OF THE BLOCK IS TO BE 20N/MM2 OF GROSS AREA OF BLOCK AT 28 DAYS.
4. BLOCKWORK TIES BETWEEN BLOCKWORK WALL AND COLUMNS ARE TO BE PROVIDED AT EVERY COURSE. TIES TO BE 6MM OR STRAPS 700MM LONG INTO THE BLOCKWORK.
5. MAXIMUM POUR HEIGHT FOR ALL FILLED BLOCKWORK TO BE 2 COURSES AT A TIME.
6. ALL SERVICE PIPES MUST ONLY BE PUT INSIDE BLOCKWORK AFTER CONSTRUCTION IS COMPLETED AS DIRECTED BY THE STRUCTURAL ENGINEER. PLACING SERVICE PIPES INSIDE LOAD BEARING BLOCKWORK CORRIDORS MUST BE AVOIDED.

MARCH, 2021

CAD DESIGN

CHECKED DATE

DRAWN DATE

Issued for Tender

HOMES FOR NAGARANNAM, MAFA LGA, BORNO.