

**LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE.****LOT 2: SCOPE OF WORKS AND TECHNICAL SPECIFICATION**

This document shall be read and understood in conjunction with the BOQ and design drawings provided. The vendor shall consult the supervising Civil Engineer where clarification is required.

**1 GENERAL**

Together with Section 2 "Instructions to Bidders" this section directs the contractor to the relevant information necessary for pricing the Bills. It is therefore essential that the text contained therein be read in conjunction with the measured items which shall be priced accordingly.

It is assumed that the contractor's supervisory and estimating staff are fully conversant with the normal standards of good workmanship and relevant publications of trade and technical organisations.

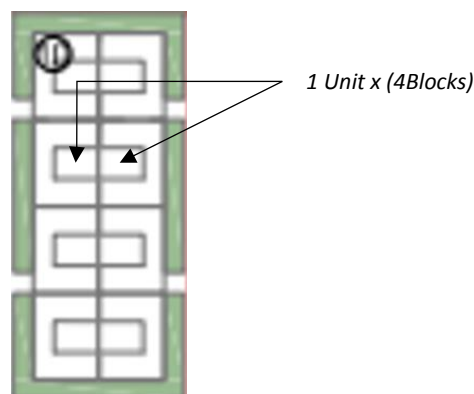
**2 Project Location**

The project is the Construction of LOT 2 of the Teachers' Quarters Residential Building Units at Ngarannam – is located at Ngarannam, Mafa LGA, Borno State (Lat: 11.916924°; Long: 13.573721°) on one side of the main road between Maiduguri - Mafa as shown in Figure 1.

**3 Scope of Work**

The scope of work consists of construction of one cluster of 8 units. The cluster consists of 4 blocks and each block contains 2 units semi attached. In total the number of units in this cluster is 8 units. (a cluster is 4Blocks of 8Units 2bedrooms). Each unit is located on a piece of land measuring 20m x 29m and consists of two (2) bedrooms, One (1) toilet, en-suite bathroom/toilet, and a fence surrounding each unit as per the project drawings and detailed below.

The cluster and the 8 units are sketched below:



Each unit contains the following structures:

- Two (2) bedrooms building: These bedrooms are made of hollow sandcrete blocks and having a veranda and aluminum roofing sheets.
- One toilet/bathroom: The Toilet/Bathroom situated within the building as en-suite, made of hollow sandcrete blocks, having water closet accessories with aluminum roofing sheet.



## LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE

- Kitchen: The kitchen is also part of the building as en-suite, made of hollow sandcrete blocks, having water closet accessories with aluminum roofing sheet.

### 3.1 Construction of 8Units of 2Bedroom Semi-Detached Building

The contractor shall provide construction works for 8Units ,each 2 units are semi-detached building according to the detailed engineering drawings provided. Each unit contains the following structures:

- Two (2) bedrooms building: These bedrooms are made of hollow sandcrete blocks and having a veranda and aluminum roofing sheets.
- One toilet/bathroom: The Toilet/Bathroom situated within the building as en-suite, made of hollow sandcrete blocks, having water closet accessories with aluminum roofing sheet.
- Kitchen: The kitchen is also part of the building as en-suite, made of hollow sandcrete blocks, having water closet accessories with aluminum roofing sheet.

### 3.2 Additional Roofing Works

- Provide additional roof trusses and perpendicular support at both ends of gable wall as provided in the architectural and structural drawing of all the units.
- Provide metallic belt to provide additional braces for roof members as provided in structural drawing of all the units.
- Carefully install Brazilian hard-board ceiling covering at veranda and eaves and make good all associated works of all the units.

### 3.3 Fence Works

The contractor shall construct a hollow sandcrete fence 360m long with a height of 2.0m and a double skin Hollow sandcrete block piers at every 3.25m c/c interval. The fence is surrounding 2units of 2bedrooms each as per the attached BoQ and Drawings.

### 3.4 Provision of Preliminaries

The contractor shall provide the health, safety and environmental gears, sanitary conveniences, temporal hoardings, logistics, temporal and standardize site office with office stationeries for proper site construction management, records and reporting etc.

## 4 DELIVERY PERIOD AND CONTRACT DURATION

The delivery period for all the items mentioned in the scope of works, BOQs and drawings is Twelve (12) Weeks as per the below schedule.

Table 1: Contract Duration

Activity	Duration /Time	Responsible Unit/Reporting
Signing the contract	Within 1-week of awarding the contract	Procurement/Vendor



## LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE

Handing over the site	Within 1-week after signed contract	Engineering Team/Govt. Partner
Mobilization	Within 2 weeks of site handover	Contactor and engineering team
Works commencement date	End of Mobilization Period	Engineering Team/Procurement
Works duration	9 weeks from site handover date	Contractor/Supervising Engineers
Substantial Completion of the project	10 weeks from site handover	Contractor and the supervising engineer

## 5 TECHNICAL SPECIFICATIONS

### 5.1 Technical Specification

- All works and processes shall be carried out using equipment, tools and methods that comply with applicable construction Health, Safety and Environmental regulations, standards, and policies. The use of PPE, safety caution tapes and symbols are mandatory. Safety first!!
- Provide temporary site office and site store to accommodate construction materials safe from harsh weather conditions.
- All excavations, demolition works, removal & arranged construction materials must be clearly encircled with safety caution tapes during works
- All excavations shall be done in accordance to the structural drawings provided
- Filling around foundations etc. is to be of selected earth obtained from the excavation and is to be filled in 150mm layers, each layer well rammed and consolidated
- All formation level must be compacted before concrete blinding as specified in the structural drawings
- All blockwork at substructure level shall be filled solid with concrete mix 1:3:6 while the use of broken blocks, laterite or mortar as a substitute shall not be accepted.
- Laterite shall be approved rock laterite or other suitable materials are to be free from dust or other foreign matter and broken to pass a 75mm ring and to be retained on a 50mm ring and deposited in layers not exceeding 150mm thick, each layer being well consolidated by rolling or ramming and well-watered.
- Hardcore is to be selected broken brick, concrete, hollow sandcrete blocks or other clean hard and dry material.
- Provide damp-proof membrane not less than 0.3mm to cover the total surface of the foundation.
- Ordinary Portland cement shall be used for all masonry and concrete works and must be lump free
- Fine aggregates shall be sieved and free of organic matter and other impurities
- Well-graded crushed granite shall be used as coarse aggregate (20-25mm for reinforced concrete; 35-40mm for mass concrete)
- Water-Cement ratio by weight shall not exceed 0.55. The quantity of water used in the mixing of the concrete must be adequate to ensure proper hydration of the cement and to bring the mass to a proper consistency and to a workable mix.



## LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE

- Batching of concrete shall be by volume and Tilting Mixer shall be employed for mixing of fresh concrete
- Concrete shall be placed gently and not tipped or dropped from a height, it shall then be thoroughly rammed into positions to fill the forms and surround the reinforcement without displacing it and without the formation of voids or cavities.
- Compaction of fresh concrete shall be done with a poker vibrator for adequate compaction.
- The use of BRC wire-mesh for ground floor slab is mandatory in new construction works and photographs are to be shared with Supervising Civil Engineer as evidence of same
- Curing of concrete shall be in accordance with the recommendation set out in the B.S. Code of Practice and all surfaces shall be kept continually wet after concreting and protected from the sun and drying winds by covering with wet sacking, etc. for not less than one week.
- 28-day compressive strength shall be M10 (1:3:6 mix ratio) for mass concrete and M25 (1:1:2 mix ratio) for reinforced concrete
- Concrete cover of 50mm shall be provided to reinforcement in foundation.
- Hollow sandcrete blocks (225mm X 225mm X 450mm) shall be machine-molded and not hand molded
- Minimum crushing strength of Hollow sandcrete blockwork shall not be less than 2.5N/mm<sup>2</sup> (cement-sand ratio of 1:6 by volume; no of blocks must not exceed 25 per 50kg bag of cement during fabrication).
- Formwork shall be Stripped without damage to the concrete.
- A schedule of suggested minimum striking times is given below:
  - Walls, sides of R.C beams sides of columns - 2days after concreting
  - Soffits of slabs and soffits of casting to steel beams - 7days after concreting
  - Soffits to R.C beam - 14days after concreting
- The mortar used shall be composed of cement and sand and approved to give a strength equal to the strength of the blocks
- All reinforcement shall comply with BS4449 and associated codes with regards to bending, lapping, binding, and cranking
- Reinforcement shall be kept free of oil, mud, rust prior to use
- Concrete cover of 25mm shall be provided to reinforcement in beams and column
- High yield steel (tensile strength of 410N/mm<sup>2</sup>) of specified size shall be used for both main reinforcements and links/stirrups.
- The sand for plastering/rendering shall comply with B.S 1199.
- The internal and external renderings shall be carried out in accordance to the specification provided in the architectural drawings.
- All concrete surfaces which are to be rendered are to be carefully and thoroughly hacked with a suitable tool to provide an adequate and suitable keyed surface. All block walling which is to be rendered shall have the joints raked out to provide an adequate and suitable keyed surface.
- Plaster work and paintings which does not thoroughly adhere to any surface shall be removed and re-executed in a proper manner. Such hollowness, cracks, blisters, and any other defects will be considered a defect under the Defects Liability Clause of the Contract.



## LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE

- Ceiling works for the terrace is willow reed bamboo. Ceiling fan hooks must be properly anchored on roof noggins and provided in all buildings.
- The roofing sheet shall be 0.55mm long span aluminum sheet, colour as specified by Architect's instruction.
- Evidence of compliance with specified roof gauge must be provided
- All roofing sheets must be double lapping with 2 corrugation at both ends
- Timber Specifications for roof rafter, struts, purlins, and fascia board as provided in BOQ and Architectural drawings.
- Defective or poorly seasoned timber shall not be used for roof carcass or fascia
- All roof timber structural members including fascia shall be treated with approved chemicals.
- Materials and specifications for windows and doors shall be according to BOQ and Architectural drawings
- Door-post labelling and designation shall be made with plastic plague as directed by the supervising Engineer where required.
- All door and window furniture, ironmongery, flush covers, and the like shall be covered or removed before the preparatory processes are commenced and shall be re-fixed on completion of painting.
- Floor finishes as provided in architectural drawings for different rooms. 50mm cement; sand screed to concrete slab installed to a shine for rooms and veranda.
- Electrical wiring shall be full conduit, with each unit connected independently of its semi-detached building and a main distribution board and changeover switch provided at designated location.
- All plumbing fittings shall be fully conduit, made of uPVC pressured pipes.
- All lamps must be energy-saver type of approved quality not exceeding 20W rating.
- All electrical installations must be earthed, and fittings must be tested and commissioned using a power generator prior to handover of project.
- All Paint materials shall be the best quality of their respective kinds and in accordance with their latest British Standards and obtained from an approved manufacturer. No dilution of painting materials will be allowed, except strictly in accordance with the manufacturer's directions, or as described in their literature.
- 12mm cement screed finish with average gauge Tyrolean finish with two coats of weatherproof paint to Architect's further specification for external walls of the buildings. Internal walls shall be 12mm cement screed finish with two coats of sheen finish paint, color to Architect's further instruction.
- Painting on exterior work shall not be done in wet weather or upon any surface which are not thoroughly dry and free from rust or dust.
- Gloss paint of similarly approved colours shall be on woodwork or metal work after necessary preparations.

### 5.2 Alternative materials, components and goods specified

- Wherever materials, components, and goods, whether basic or proprietary, are specified the Contractor may, subject to approval in writing, use materials, components and goods from an alternative source providing the quality, properties and design are similar.



## **LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE**

- All materials, components and goods shall be used and fixed in an approved manner and, where applicable, in accordance with the manufacturer's instructions.

### **5.3 MEASUREMENT AND VALUATION**

This contract will be Fixed Sum or Lump Sum Contract such that payments will be based on agreed milestones. Measurement and valuation process will involve checking and verifying that the milestone against which payment claim is made, is indeed complete and in accordance with the requirements of the specifications.

### **5.4 TESTS ON COMPLETION**

The contractor shall submit to UNDP designated engineer, not less than 7 days before the date the contractor intends to commence the Tests on Completion a detailed programme showing the intended timing and resources required for these tests.

As soon as the Works have, in the Contractor's opinion, passed the tests on Completion, the contractor shall submit a certified report of the results of these tests to the Engineer. The Engineer shall review such a report and may give a Notice to the contractor stating the extent to which the results of the tests do not comply with the contract.

In considering the results of the tests on completion, the engineer, shall make allowance for the effect of any use of the Works by the beneficiaries on the performance of other characteristics of the Works.

### **5.5 TAKING OVER**

Upon completion of the works, the contractor shall request for a joint final inspection of the completed works. The Engineer will prepare a punch list where necessary upon conduction the final inspection for the contractor to rectify. Once the punch list has been attended to and works are certified complete then the contractor will hand-over the works to the communities through the district council.

### **5.6 DEFECTS AND DEFECT NOTIFICATION PERIOD**

A defect in this context is defined as any observance of a physical problem that may cause structural weakness or failure hence less effective for the intended purpose. The defects can either be patent (obvious, easy to fix and often merely aesthetic) or latent (not easy to find and tend to be somehow problematic). Construction defects may arise from the materials used or workmanship during construction.

The works will have a defects liability period of 24 weeks within which any defects arising will be documented and the contractor will be instructed to make good of the same unless the defect is due to a force majeure.

Failure to attend to the defects without giving any proper reason will result in forfeiture of the retention money withheld by the UNDP Nigeria.

**LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE****5.7 CLOSURE**

Project closure will be upon completion and certification of the works by the engineer designated by UNDP Nigeria who will review and sign off on the deliverables. The completed works will be subject to defects liability period as may be determined in the contract document.

**5.8 INSURANCE**

The contractor shall have a "Contractor's All Risks (CAR)" insurance during the execution period for the contract to cover the works, equipment, personnel, other people's lives, and property.

**5.9 LIABILITY**

The Contractor shall not be liable for the defects arising from the design or specifications. However, the Contractor shall be liable for the defects arising from the materials and workmanship.

**5.10 PROJECT SUCCESS**

Success of the project as expected by the sponsor, beneficiaries and other stakeholders is dependent on completion of all contractual obligations according to the contract, SOW and BOQ. Success, therefore, requires adherence to standards, quality workmanship and use of quality materials during construction.

**5.11 REQUIREMENTS**

UNDP Nigeria through their representative will require certifying any completed works in accordance with the milestones before processing any payment for the completed milestone.

**6 CONTRACT PRICE AND PAYMENT**

The Contract Price will be fixed in Nigeria Naira (NGN) and the currency of payment is Nigerian Naira. UNDP Nigeria will pay the Contractor upon completing a milestone as outlined in section 5A (SOW attached) to the ITB. The amounts payable for each completed milestone will be determined at the time of drafting a contract. UNDP Nigeria may pay the Contractor, upon its request, an Advance for up to 20% of the Contract Sum upon satisfying the requirements in form of Advance Payment Guarantee.

**6.1 CONDITIONS FOR RELEASE OF PAYMENT**

*Table 2: Contract Milestone Payments Schedule*

<b>Milestone No.</b>	<b>Activity</b>	<b>Payment NGN</b>	<b>Completion Date</b>
<b>1</b>	<b>20% progress payment after doing all the below activities:</b> <ul style="list-style-type: none"> <li>• Signing and Submission of Contract.</li> <li>• Submission of Performance Bond.</li> <li>• Attend entrance meeting in UNDP Sub-Office via Zoom, upon presenting signed contract, proposed work plan and list of staffs submitted).</li> </ul>	20%	



## LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE



Milestone No.	Activity	Payment NGN	Completion Date
	<ul style="list-style-type: none"> <li>Submit an updated project work schedule.</li> <li>Handing over of site/Taking over of site Mobilization of equipment and staff to site.</li> <li>Performing a civil works in the site not less than 20% of contract amount as per the approved time schedule.</li> <li>Submit progress report including a summary of activity progress with photographs showing works completed.</li> <li>Submission of Invoice to UNDP Engineer for payment processing (20%) of the total contract amount.</li> </ul> <p>Whereas the contractor wishes to receive the advance payment, the contractor shall submit an Advance Payment Bank Guarantee equivalent (20% contract sum) and submit his request to procurement.</p>		1-3 weeks of commencement date
2	<p><b>40% progress payment of total contract amount:</b></p> <ul style="list-style-type: none"> <li>This payment will be certified upon completion of not less than 40% of the contract scope of works to include work activities, like excavation, foundation works, block walls and concrete works with roofing of structures etc. for all components of the buildings with fencing works, which is to be valued and certified by UNDP Engineer to qualify for payment.</li> <li>Submit progress report (milestone 2 report) including a summary of activity progress with photographs showing works completed.</li> <li>Submit list of workers (not less than 40 with 10-15% being women) who MUST have worked minimum of 10days on the project.</li> <li>Submission of Invoice to UNDP Engineer for payment processing (40%) of the total contract amount.</li> </ul>	40%	4-7 weeks of contract commencement date
4	<p><b>35% payment of the total contract amount:</b></p> <ul style="list-style-type: none"> <li>Complete 100% of all outstanding items of work in the SoW as detailed in the BoQ/SoW as checklist.</li> <li>General paintings, finishes, clearing of site, industrial washing &amp; cleaning of the buildings</li> <li>General testing of electrical fittings and associated works</li> <li>Installation of all visibilities, artistic works for gender segregations if any</li> <li>Submit list of workers (not less than 15 with 10-15% being women) who MUST have worked minimum of 10days on the project .</li> <li>Submit completion report including a summary of activity progress with photographs showing works completed.</li> <li>Submission of Invoice to UNDP Engineer for payment processing (35%) of the total contract amount.</li> </ul>	35%	Week 8-12 of contract duration.



**LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE**

Milestone No.	Activity	Payment NGN	Completion Date
5	Final payment which is the retention of 5% shall be paid after post-completion inspection and certification report by the authorized UNDP nominated engineer that defects which occurred within 6 months of practical completion have been satisfactorily repaired.	5%	24 weeks after the substantial completion date.

**Note:** The Contractor is required to submit a detailed measurement sheet of the actual work done along with each invoice for each milestone. Payment will only be made upon submission of detailed measurement sheet certified by UNDP Engineer.

## 7 CONTRACTOR KEY PERSONNEL

The following personnel shall be provided for Teachers Quarters.

- a. **One (1) Project Manager(Full Time available in the site)**: A minimum of 7 years work experience in the construction works & must have handled at least 3 projects of similar nature and complexity equivalent to this assignment. Minimum a B.Sc/B.Eng in Civil Engineering with a master's degree in Project/Construction Management. He should have PRINCE2 or PMP Certified and COREN Registered. Furthermore, project manager MUST be readily available on site when required within the shortest notice. CV and certificates should be provided in the attached UNDP format attached in the ITB document.
- b. **One (01) Resident Qualified Civil/Site Engineer (Full Time available in the site)**: A minimum of 5 years work experience in the rehabilitation/construction works & must have handled at least 3 projects of similar nature and complexity equivalent to this assignment. Minimum of a B.Tech/B.Eng Degree in Civil Engineering and MUST be ready to reside in Project Location. COREN Registered with CV and certificates provided in the attached UNDP format attached in the ITB document.
- c. **One (1) HSSE Officer:** A minimum of 5 years' relevant work experience in the rehabilitation/Renovation/construction works. Must have handled at least two (02) similar project in nature and complexity. Minimum a B.Sc/B.Tech Degree in Natural/Environmental Engineering or equivalent). Professional certification in Health Safety Security & Environment. CV and certificates provided in the attached UNDP format attached in the ITB document.
- d. **Two (02) Foremen (Full time available in the site)**: A Qualified Foremen with 7 years of experience in civil works (construction/rehabilitation), should have minimum of Higher Diploma in Civil Engineering/Building. He must be COREN Registered with CV and certificates provided in the attached UNDP format attached in the ITB document.

## 8 CONSTRUCTION KEY EQUIPMENT/MACHINERY

**LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE**

S/N	EQUIPMENT	QUANTITY
1	Tilting Concrete mixer 0.5 m <sup>3</sup>	2
2	Levelling Equipment/Survey tools total station and levelling instrument. The one set means total station and levelling instrument	1 set
3	Poker Vibrator	1
4	Water tank 5,000 Ltr.	2
5	5 kVA Generator	1
6	Operational Project Vehicle (Pick Up truck)	1
7	High Resolution Digital Camera	1

**9 Company Previous Experience & Financial Standing**

Minimum 5 years of relevant experience (Renovation /Construction/Rehabilitation works).

Evidence of Minimum 5 contracts of similar value, nature and complexity implemented over the last 5 years with one (1) of PO exceeding NGN 100,000,000.

Statement of Satisfactory Performance/Completion Certificate from the Top three (3) Clients in terms of Contract Value for similar assignments over the last 7 years.

Please submit Latest Audited Financial Statement (Income Statement and Balance Sheet) including Auditor's Report for the past three years **[2018-2019-2020]**.

Bidders having completed and certified Audited Financial Statements for 2020 can also submit to be considered for evaluation.

Minimum annual turnover of **NGN 150,000,000** in any single year in the last 5 years.

**10 General Requirements****10.1 Reports, Meetings and Work-Plan (Time-schedule)**

The contractor is expected to submit weekly progress report, mentioning in his report the following:

- The activities which have been done during that week,
- The materials provided to the site.
- The weather conditions,
- The challenges and delay in the project.
- The number of labors for each day of the week.
- Progress of work related to the quantities.
- Photographs showing progress of works.

There will weekly meeting between UNDP engineer and the contractor.

**LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE**

The contractor is expected to follow submitted and approved work schedule (work-plan) and changes should be communicated and approved by Supervising Engineer before proceeding.

The contractor must submit the milestone progress report with each request for milestone payment. The As-built drawings should be submitted with the progress report of milestone No. 4

**10.2 Health and Safety**

The contractor is fully responsible for the safety of operations in the site.

Contractor must follow the below:

1. Provide his staff with PPE , helmet ,vest and safety shoes.
2. Provide the project site and the holes with safety tape.
3. Provide first Aid kit to the site.

**10.3 COVID 19**

Complying with Covid-19 protection measures on site is mandatory and the Contractor will have to their work in such a way that workflow is not disrupted in the process of adhering to the measures. The contractor must provide his staff with face masks and keep the social distance at work.

The Contractor will observe and follow safety guidelines on the construction site as instructed by the engineer or any party designated by UNDP Nigeria.



**LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE**

- Site Map & Other Associated Layouts

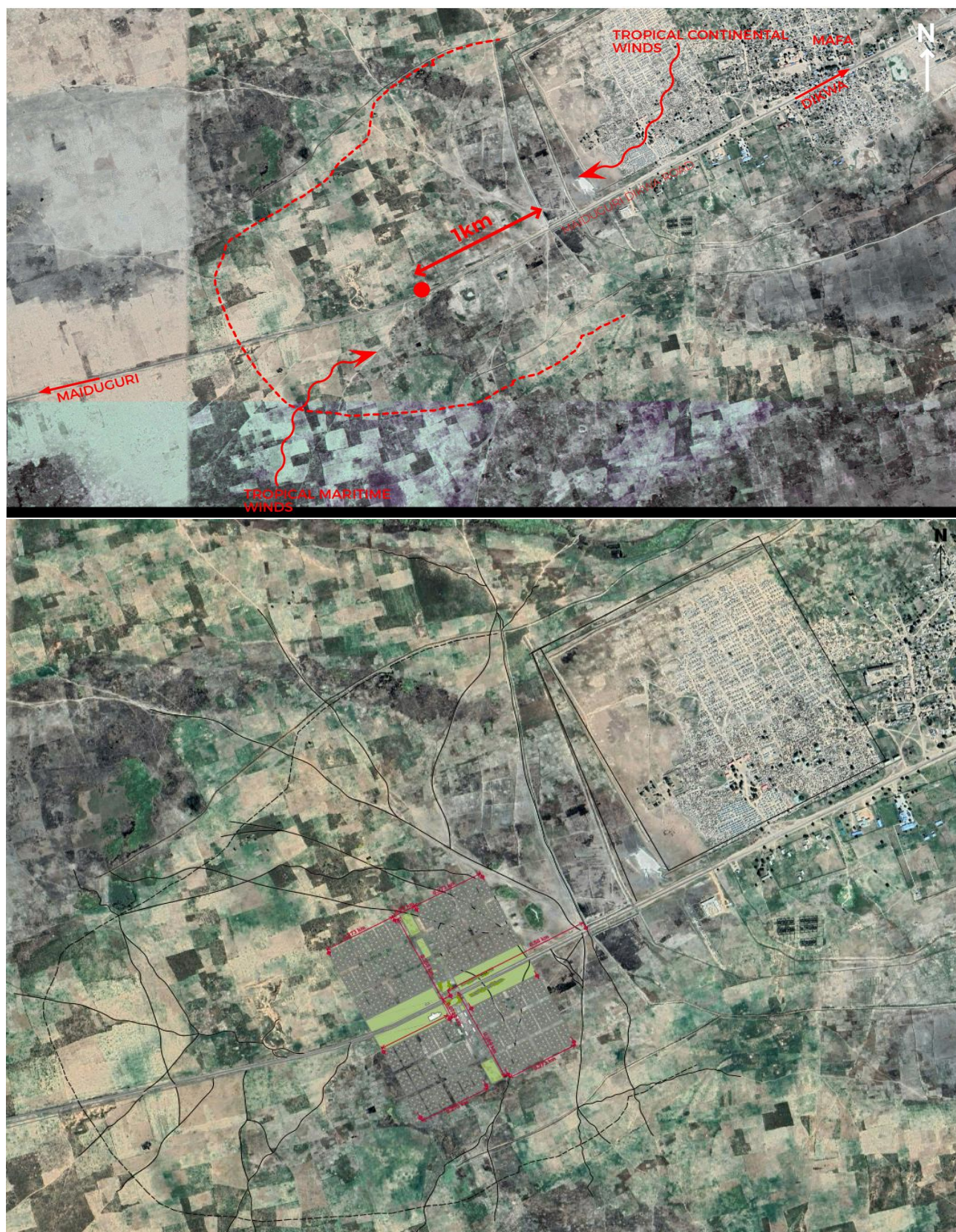


Figure 1: Google Earth Map showing location of Ngarannam Housing Global layout super-imposed.



## LOT 2: CONSTRUCTION OF TEACHERS' QUARTERS AT NGARANNAM, MAFA LGA, BORNO STATE



Figure 2: Global layout of Ngarannam Housing showing location of Teachers' Qtrs. encircled Blue.