



# Comfit Composite Knit Ltd. (New Building)

Gorai, Mirzapur, Tangail.

(24.095054, 90.175606)

4<sup>th</sup> June 2018





# Observations



**No record available for soil improvement**

## 9.0 CALCULATED ALLOWABLE BEARING CAPACITY

The bearing capacity of shallow and deep foundation has been calculated in accordance with article 8.0 of the report. The calculated bearing capacity of soil is described in the following section;

### 9.1 Allowable Bearing Capacity of Foundation

The bearing capacities of the foundation may be determined from the field testing parameters. The bearing capacity of foundation has been calculated using the empirical relations as discussed in section 8.0. The evaluated values are shown in the following Table 9.1 and 9.2.

**Table 9.1A** The evaluated allowable bearing capacity of shallow foundation (F.S. = 2.50)  
(Considering width of square footing = 3m)

Depth (m)	Allowable Bearing Capacity of Square Footing (kPa)			
	BH-01	BH-02	BH-03	BH-04
1.5	47	70	23	47
3.0	152	203	76	279

**Table 9.1B** The evaluated allowable bearing capacity of shallow foundation (F.S. = 2.50)  
(Considering width of square footing = 3m)

Depth (m)	Allowable Bearing Capacity of Square Footing (kPa)			
	BH-05	BH-06	BH-07	BH-08
1.5	93	256	176	112
3.0	279	228	208	176

**Table 9.1C** The evaluated allowable bearing capacity of shallow foundation (F.S. = 2.50)  
(Considering width of square footing = 3m)

Depth (m)	Allowable Bearing Capacity of Square Footing (kPa)			
	BH-09	BH-10	BH-11	BH-12
1.5	48	112	16	16
3.0	112	176	32	48

**Table 9.1D** The evaluated allowable bearing capacity of shallow foundation (F.S. = 2.50)  
(Considering width of square footing = 3m)

Depth (m)	Allowable Bearing Capacity of Square Footing (kPa)			
	BH-13	BH-14		
1.5	19	19		
3.0	77	38		

Allowable bearing capacity (Considering F.S 2.5)

### NOTES FOR DEPTH OF EXCAVATION OF FOUNDATION :

01. Adjacent footings should be at the same elevation.
02. Unconfined compressive strength of foundation soil (original clay soil below the excavation level) should be greater than 170 kPa.  
(Footing size have to be increased for soil at any footing not satisfied this criteria)

General notes for soil bearing capacity. (170 kPa considered).

BH 03- 76 kPa  
BH 11- 32 kPa  
BH 12- 48 kPa  
BH 13- 77 kPa  
BH 14- 38 kPa

## Observations



### 10.0 CONCLUDING REMARKS

On the basis of test results and calculations, following conclusions may be drawn regarding the sub-soil condition and suitable foundation of the proposed project.

Project : Construction of Proposed Seven-Storeyed Green Leaf Building-2  
Location: Comfit Composite Knit Ltd. at Gorai, Mirzapur, Tangail.

Client : Comfit Composite Knit Ltd.

- ❑ The top soil layers at the investigated site are found irregular at the bore hole locations of the proposed site. Top soil upto 3.8m depth below the EGL at BH-03, BH-11, BH-12, BH-13 and BH-14 consists of soft silty clay. While the soil at a depth of 3m below the EGL at other bore holes consists of medium stiff to stiff silty clay. The underlying soil layer consists of stiff silty clay. Deep soil layer at a depth of 9m below the EGL to investigation depth consists of medium dense to dense silty fine sand (The formation of soil layers can be seen from bore logs in Annexure A-02 to A-015).
- ❑ The bearing capacity of soil at shallow depth may be satisfactory for foundation of the proposed building provided that a compacted sand filling has been done properly as a replacement of soft soil. On the other hand, deep soil layer at a depth of 12m from EGL has good bearing capacity for deep foundation. On the basis of above findings, shallow foundation may be provided after replacement of soft soil with dense sand up to required depth. Otherwise, deep foundation has to be provided for the proposed building.
- ❑ The estimated allowable bearing capacity of shallow and deep foundation is given in tables 9.1 and 9.2. For safety, it is suggested to check the allowable bearing capacity by appropriate load test in the field before construction.

Note: EGL = Existing ground level at the borehole locations.

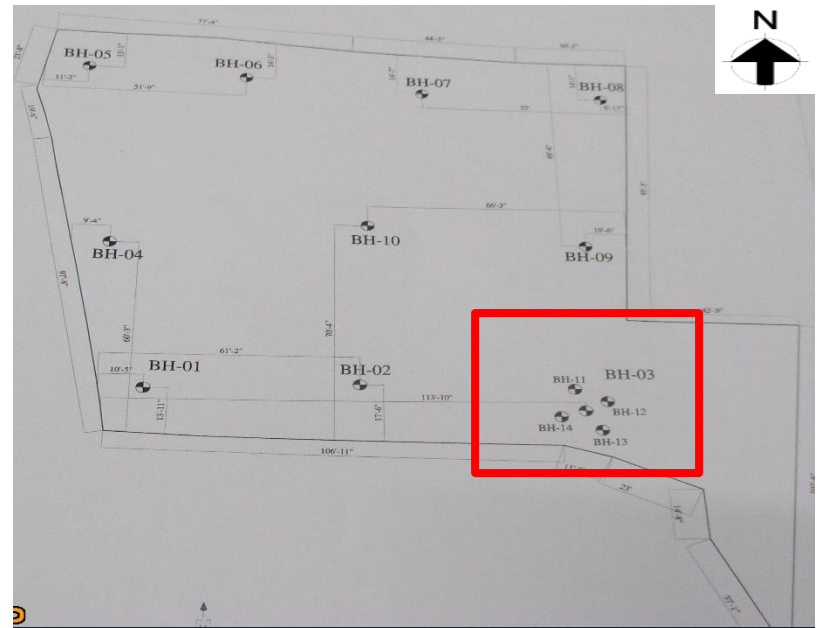
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### Recommendation of soil test report

## Observations



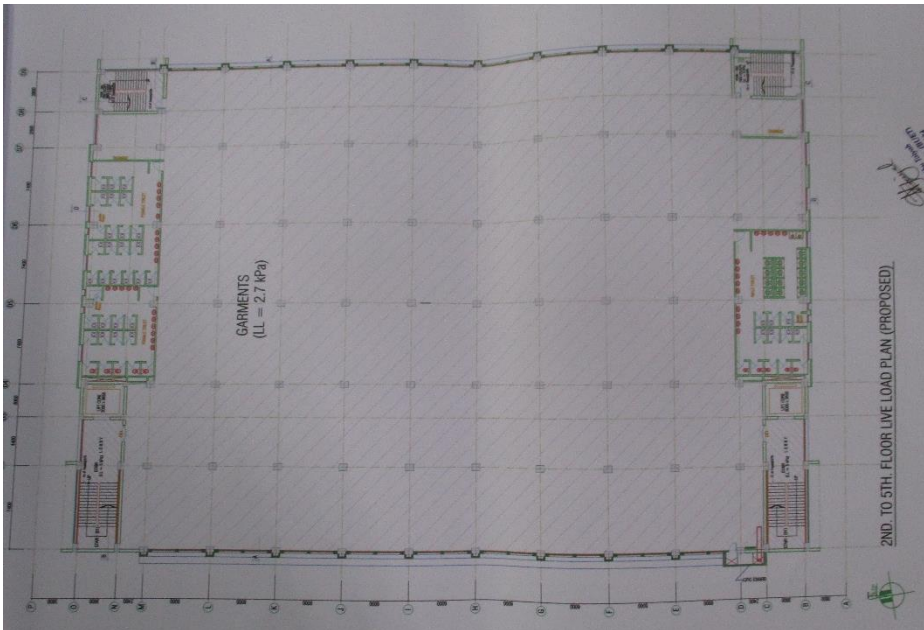
Bore layout plan

The allowable bearing capacity of BH-3,11,12,13,14 are relatively very low at 3 m depth compare to the design bearing capacity of 170 kPa. Soil improvement suggested in geotechnical investigation report to obtain the design soil bearing capacity. No soil improvement record was available on site for review. Building engineer is required to check whether the recommended improvement was carried out or not and review the foundation design accordingly.



# Live load plan need to revise

Observations



Live load considered 2.7 kPa on general floor and 7.5 kPa on first floor. Which is not meet the minimum standard according to BNBC. Building engineer is required to update the floor loading plan following minimum live load requirement as per BNBC.



No load management program was visible. Implement the floor load management program.



# Columns susceptible to vehicle impact



Columns are susceptible to vehicle impact. Building engineer is required to take necessary measures to protect the columns.



# Problems Observed

- 1: No record available for soil improvement.
- 2: Live load plan need to revise.
- 3: Columns susceptible to vehicle impact.



Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	No record available for soil improvement	Building engineer is required to check the existing soil bearing capacity and review the foundation design.	6-weeks
2	No record available for soil improvement	Carry out remedial works where necessary.	6-months
3	Live load plan need to revise	Maintain current use of loading below 3 kPa.	6-weeks
4	Live load plan need to revise	Update floor loading plan according to BNBC minimum live load requirement.	6-weeks
5	Columns susceptible to vehicle impact	Provide protective barrier to the suspected columns.	6-weeks