

Unicorn Sweaters Ltd. Extension Building

Gorat, Navana Village, Ashulia Dhaka.
(23.94605, 90.30167)

19th October 2021

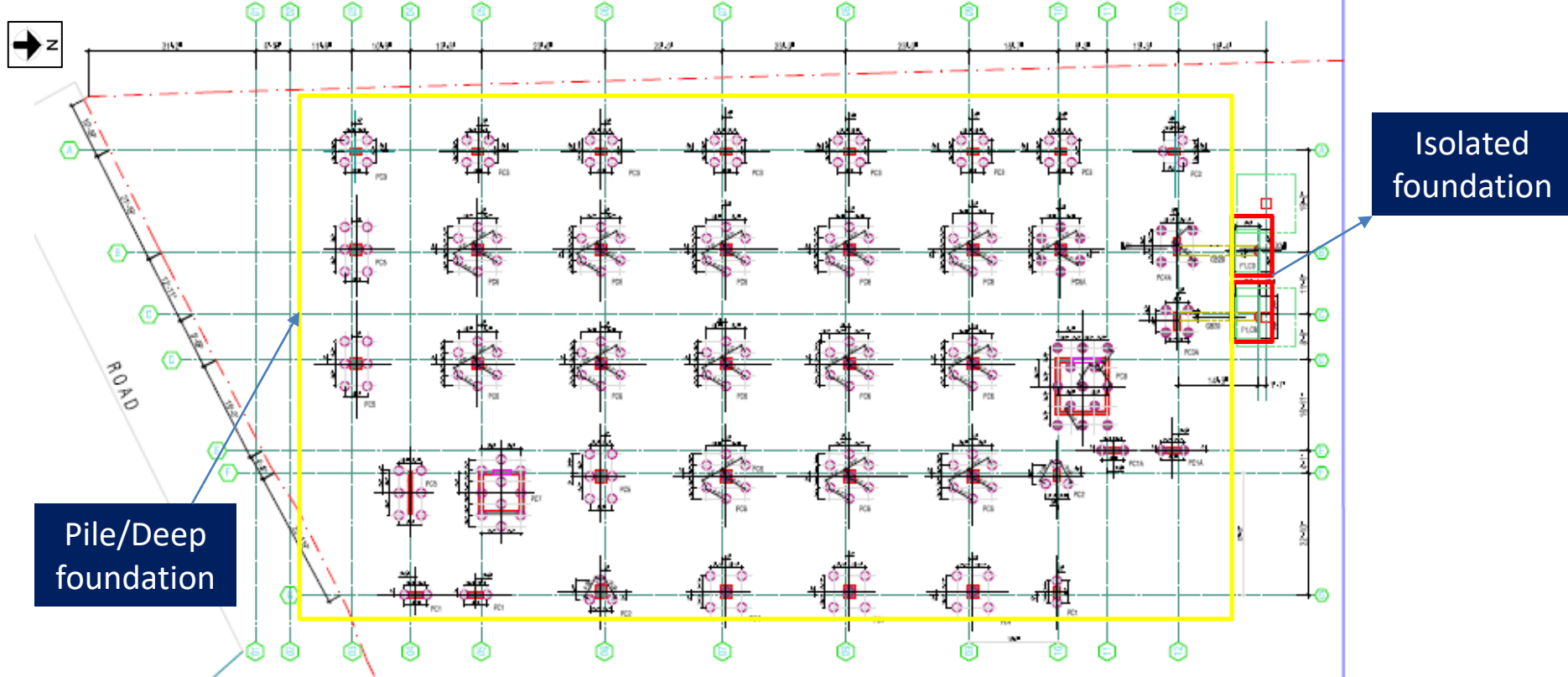


Buildings Information

1. Building 1 (G+5)
2. Boiler Room (Single Storied)

Observations

Isolated footings are stressed above normal design limit



Pile & Isolated foundation layout plan

The cursory calculation indicates that footings are stressed above the normal design limit considering the soil bearing capacity recommended in the geotechnical investigation reports. These footings are under the 2m high Over Head Water Tank. Building engineer is required to review the foundation stresses of the area identified above.

Shallow and Deep foundations are constructed and connected with the beams. Building engineer is required to check the differential settlement issue for the deep and shallow foundation.

16.0 RECOMMENDATIONS:

On the basis of foresaid conclusions, the following recommendations are suggested for 6 (Six) Storied Factory Building at Navana Village, Gorat, Ashulia, Savar, Dhaka, Bangladesh.

SHALLOW FOUNDATION as Isolated column footing:

The average bearing capacity of the Shallow Foundation as Isolated column footing may be considered in the following way:

- To be considered **1.75 Tsf** (F.S. = 2.50) at a depth of **8 ft** measured from EGL particularly at and around for all borings.

Note:

- 1 Tsf = 2 ksf = 95.78 kN/ m² = 0.976 kg/cm², 1 Ton = 9.81 kN = 1000 kg, 1 m = 3.28 ft, EGL = Existing Ground level & F. S. = Factor of Safety.
- The designer may select any other alternative type, depth as well as the bearing capacity of the foundation in the light of information provided in this report.
- Foundation base should be kept dry during construction period.

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Bearing capacity of soil recommended 1.75 tsf (FS 2.5) for shallow foundation
Geotechnical Investigation report prepared by
Agrani Soil Engineers & Geologist

RECOMMENDATIONS :

On the basis of aforesaid conclusions, the following recommendations are suggested for the Proposed 6 (Six) - Storied Factory Building, At Gorat, Navana Village, Savar, Dhaka, Bangladesh.

SHALLOW FOUNDATION:

The average bearing Capacity of the Shallow Foundation as Isolated column footing May be considered in the following way:

- To be considered 1.55 Tsf (F.S.= 3.00) at a depth of 8ft measured from EGL particularly at and around for BH - 1, 4, 5, 6, 7, 9, 13, 14, 15, 16, 18, 20, 21 & 23 only.
- To be considered 1.20 Tsf (F.S.= 3.00) at a depth of 8ft measured from EGL particularly at and around for BH - 2 & 11 only.
- To be considered 1.85 Tsf (F.S.= 3.00) at a depth of 8ft measured from EGL particularly at and around for BH - 3, 10 & 12 only.
- To be considered 1.40 Tsf (F.S.= 3.00) at a depth of 8ft measured from EGL particularly at and around for BH - 8 & 19 only.
- To be considered 1.70 Tsf (F.S.= 3.00) at a depth of 8ft measured from EGL particularly at and around for BH - 17 & 22 only.

OR

PCC CAST IN SPILE PILE :

The average bearing Capacities (F.S = 3.00) of different depth of 16" & 18" & 20" diameter pile with the embedment length up to 60ft from EGL of each boring may be considered as follows :

Length below from EGL	16 inch dia	18 inch dia	20 inch dia	24 inch dia
60" - 00"	36.00 ton	44.00 ton	55.00 ton	77.00 ton

Note:

- 1 Tsf = 2ksf = 105.55 kN/m², 1 Ton = 2000lbs = 9.87 kN, 1m = 3.28 ft, EGL = Existing Ground level & F.S. = Factor Safety.
- The designer may select any other alternative type, depth as well as the bearing capacity of the foundation in the light of information provided in this report.
- Foundation base should be kept dry during construction period.
- Pile load test should be performed. If Pile load test is not performed then the value of the pile capacity should be considered half.

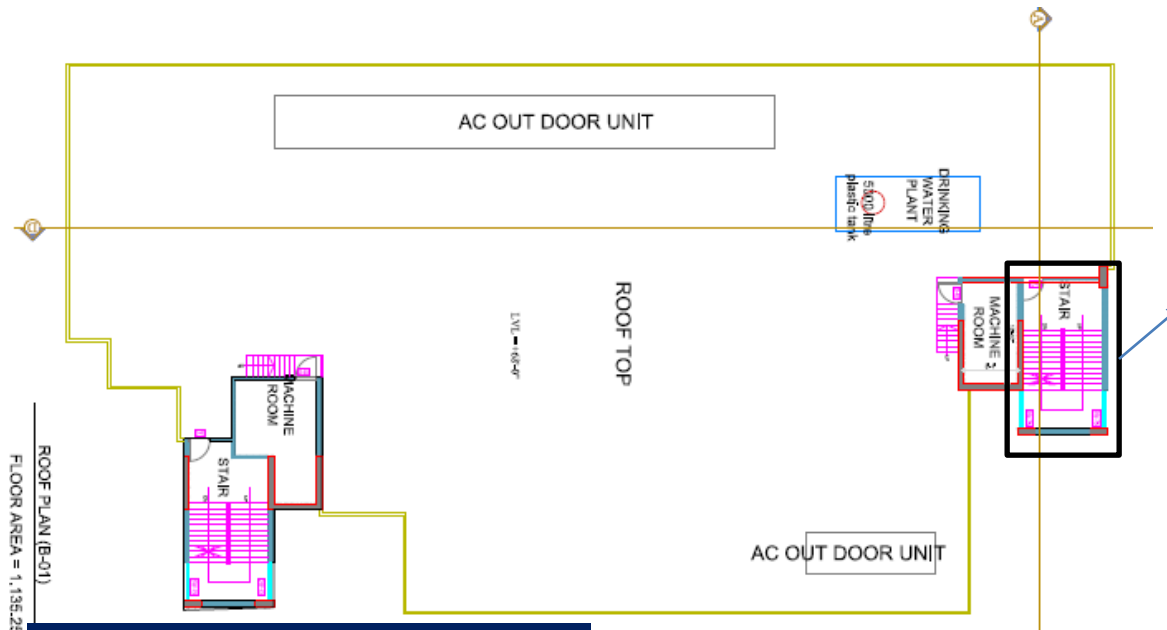
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PROBATOR



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Bearing capacity of soil recommended 1.2 ~1.85 tsf (FS 3) for shallow foundation.
Geotechnical Investigation report prepared by
"BIJOY SOIL INVESTIGATIONS"



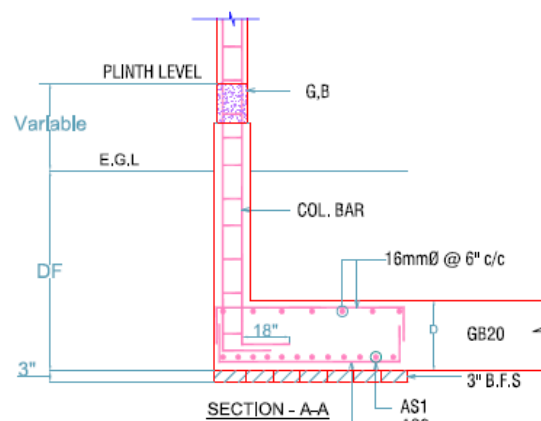
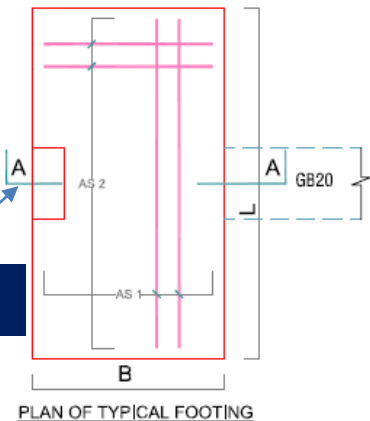
Roof layout plan



2m high OHWT

FOOTING SCHEDULE

SL. NO.	NAME OF FOOTING	FOOTING SIZE B x L	D	d1	d2	DF	AS 1	AS 2
01	F1	5'-6" X 8'-0"	24"	-	-	±5'-0"	16mmØ @ 5" c/c	16mmØ @ 5" c/c



Column

Eccentric footing was constructed but no calculation was provided in the design report. Building engineer is required to review the design of the eccentric footing and need to address it in the design report.

Exposed rebar on roof



Exposed rebar was observed on the roof which is prone to be corroded. Building engineer is required to protect the exposed rebar by suitable method.

Stagnant of water on roof



Stagnant of water observed on roof. Building engineer is required to improve the roof drainage system.

Problems Observed

Building 1

01: Isolated footings are stressed above normal design limit.

02: Exposed rebar on roof.

03: Stagnant of water on roof.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Isolated footings are stressed above normal design limit. (Building 1)	Building engineer is required to review the foundation stresses of the area identified above.	6-weeks
02	Isolated footings are stressed above normal design limit. (Building 1)	Building engineer is required to check the differential settlement issue for the deep and shallow foundation.	6-weeks
03	Isolated footings are stressed above normal design limit. (Building 1)	Building engineer is required to review the design of the eccentric footing and need to address in the design report.	6-weeks
04	Isolated footings are stressed above normal design limit. (Building 1)	Produce and actively manage a loading plan for all floor plates within the factory considering floor, column and foundation capacity.	6-weeks
05	Isolated footings are stressed above normal design limit. (Building 1)	Carryout remedial works where required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Isolated footings are stressed above normal design limit. (Building 1)	Continue to implement loading plan.	6-months
07	Exposed rebar on roof. (Building 1)	Building engineer is required to provide rust proof compound to the exposed rebar to protect from corrosion.	6-weeks
08	Stagnant of water on roof. (Building 1)	Building engineer is required to improve the roof drainage system with adequate slope.	6-weeks