

VERSATILE TEXTILES LTD.

10, Deger Chala, National university, Gazipur, Bangladesh
(23.964633N, 90.384902E)
01st Sep 2016





Observation



Inadequate Structural drawing (Factory Building)



Roof top steel shed



Branching column connection with slab



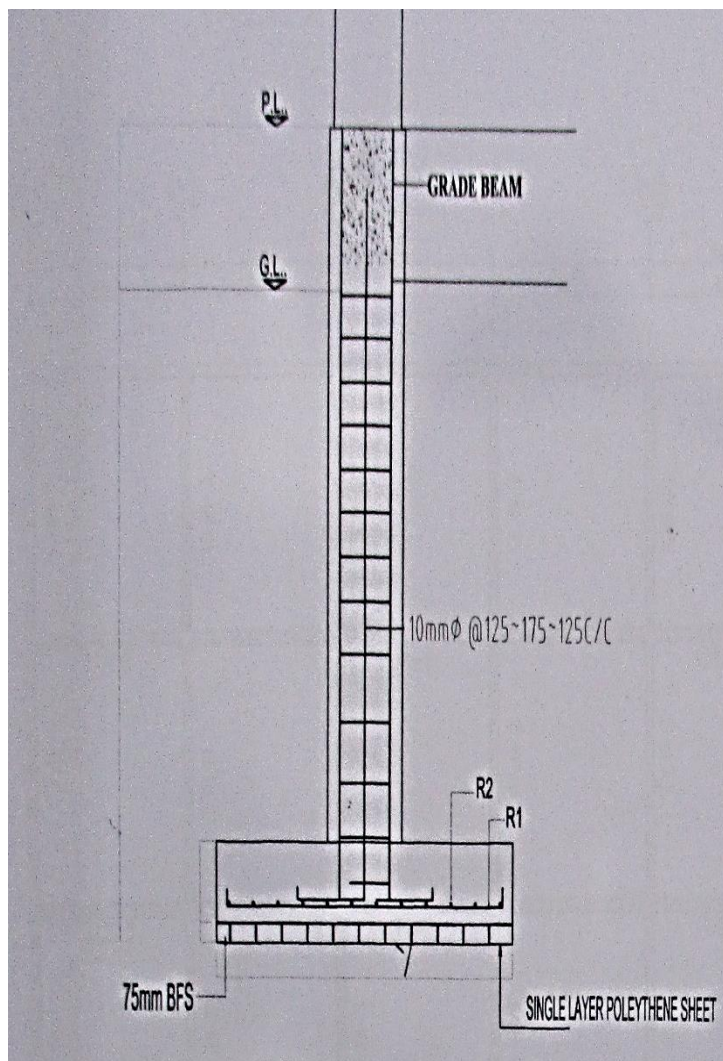
Canopy



Typical connections of
compression stud and bracing

As Built Structural Drawings were not available for the steel roof shed & canopy. The connection between branching column of canopy and roof slab was not cleared also it was not mentioned in structural drawing.

Observation



Long section of foundation from structural drawing.

As-built structural drawings provides detailing and dimensions of the footings. However, depth of the footing and dimensions of beams was not mentioned.

FOOTING SCHEDULE (OPTION-02)				
TYPE	SIZE [LXB]	THICKNESS	REINFORCEMENT	
FOOTING		T	Bottom- R1+ R2	
F1	2350 x 2350	400	16 mm @ 175 mm C/C	
F2	3300 x 3300	500	16 mm @ 125 mm C/C	

Foundation detail.

SCHEDULE OF FLOOR BEAM AND REINFORCEMENT DETAILS.		
FLOOR BEAM MARK	EXTERIOR SUPPORT SECTION (SECTION 1-1)	MIDDLE SECTION (SECTION 2-2)
F.B		

Floor Beam detail.



Adequacy of the foundation system (Factory Building)



9.0 CONCLUSIONS

Based on the above analysis and discussions, the following conclusions may be drawn regarding the sub-soil formation of the project area.

- The subsoil formation of the project site has been found more or less regular in between the boreholes.
- From bore log the top soil of the 09 Nos. bore shown the same property up to depth of 07ft to 12ft very soft to soft clayey silt & 32ft medium to very stiff silt some to little clay
- The subsequent deep layers cohesive soils of medium compact silt some to little sand & medium to dense fine sand some silt
- At 08-12/13.00ft depth for measured from existing ground surface for the bearing capacities of shallow foundations including Continuous and Square footing foundations are satisfactory or not satisfactory (Ref: Table-02.)
- Therefore, consideration of shallow foundation for the proposed project is suitable or not possible.
- Pile foundation may be considered for the proposed project.
- The approximate values of the skin friction as well as the point bearing capacities of piles are provided in the Table-3.

RECOMMENDATION

The following recommendations are suggested for the construction of proposed Building At Plot (Dag) No. S.A.-193, 192, R.S.-324, 524, 323, Khatian No. S.A.-27, R.S.-64, Mouza-Saydana, J.L No-86, Mouza-Baliara, J.L No-75, Khatian No. S.A.-23, 43, R.S.-101, 99, 44, Plot (Dag) No. S.A.-36, 1, R.S.-36, 35, 236, P.S.-Joydevpur, Dist.-Gazipur.

SHALLOW FOUNDATION

- Shallow foundation including Continuous wall/RCC Strip as well as Isolated type footing foundation shall be provided for the proposed Building.
- The bearing Capacity of the above foundation shall be considered in the following way: -

At 08.00ft Below The EGL At BH-01, 02, 07, 08

- To be **1.10** Tsf (F.S=3.0) for the Continuous wall/RCC Strip footing foundation.
- Alternately to be **1.25** Tsf (F.S=3.0) for the Isolated Column footing foundation.

At 12.00ft Below The EGL At BH-All

- To be **1.50** Tsf (F.S=3.0) for the Continuous wall/RCC Strip footing foundation.
- Alternately to be **1.75** Tsf (F.S=3.0) for the Isolated Column footing foundation.
- To increase the above Bearing Capacity about 20%, excavation should be filled 4.0ft by compacted sand (F.M=2.0) in 6" layer.

Deep Foundation

Cast-In-Situ RCC Pile

The Cast-in-Situ RCC Pile may be used with following category: (F.S=2.5)

Length of pile below EGL.	Allowable load capacity of 16" dia Cast-in-Situ RCC pile (F. S=2.5)	Allowable load capacity of 18" dia Cast-in-Situ RCC pile (F. S=2.5)	Allowable load capacity of 20" dia Cast-in-Situ RCC pile (F. S=2.5)	Allowable load capacity of 24" dia Cast-in-Situ RCC pile (F. S=2.5)
0-10"	40.0 ton per pile	50.0 ton per pile	60.0 ton per pile	80.0 ton per pile

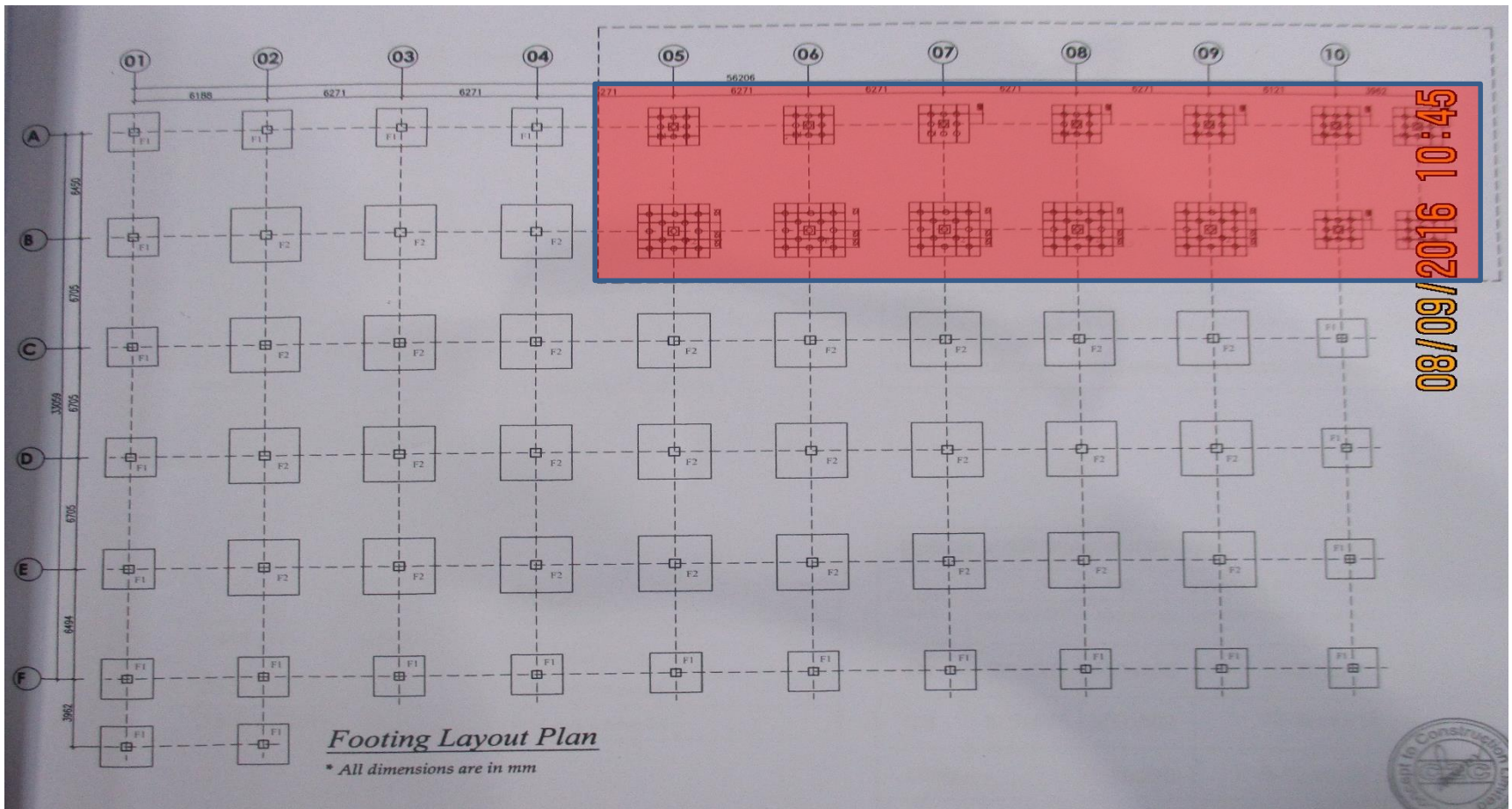
Note:

- 1 Ton = 2000 Ibs, 1 TSF = 100 Kpa, EGL = Existing Ground Level.
- The Foundation Engineer or the Designer may select other alternative type, on the base of depth as well as the Bearing Capacity of the foundation according to his requirement, in the light of test result provided in this report.

Recommended By

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Soil test reports recommend shallow foundation or RC cast is situ piled foundation. But according to structural drawing it is found as wooden pile has been used in a portion of the foundation system of the building.



In some portions of foundation system, wooden piles were used to support isolated footings according to as-built structural drawings. But the detail of the wooden pile including capacity is not mentioned.

Observation



Problems Observed

Item 1: Inadequate Structural drawing

Item 2: Adequacy of the foundation system.



Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Inadequate Structural drawing	Comprehensive As-Built drawings are to be produced as per as-built condition.	6-weeks
2	Inadequate Structural drawing	Factory engineer to assess the adequacy of the roof shed and Canopy as per BNBC.	6-weeks
3	Inadequate Structural drawing	Implement any remedial measures as per recommendations of the assessment.	6-months
4	Adequacy of the foundation system	Current loading should not be increased. Control loads with in 3kPa	Immediate - Now
5	Adequacy of the foundation system	Factory engineer to assess the adequacy of all foundations as per BNBC.	6-weeks
6	Adequacy of the foundation system	Implement any remedial measures as per recommendations of the assessment.	6-months