

# Brandix Apparel Bangladesh Ltd.

Plot 39-43, 46-49, EPZ Cumilla  
(23.446381, 91.188181)

03 August 2022

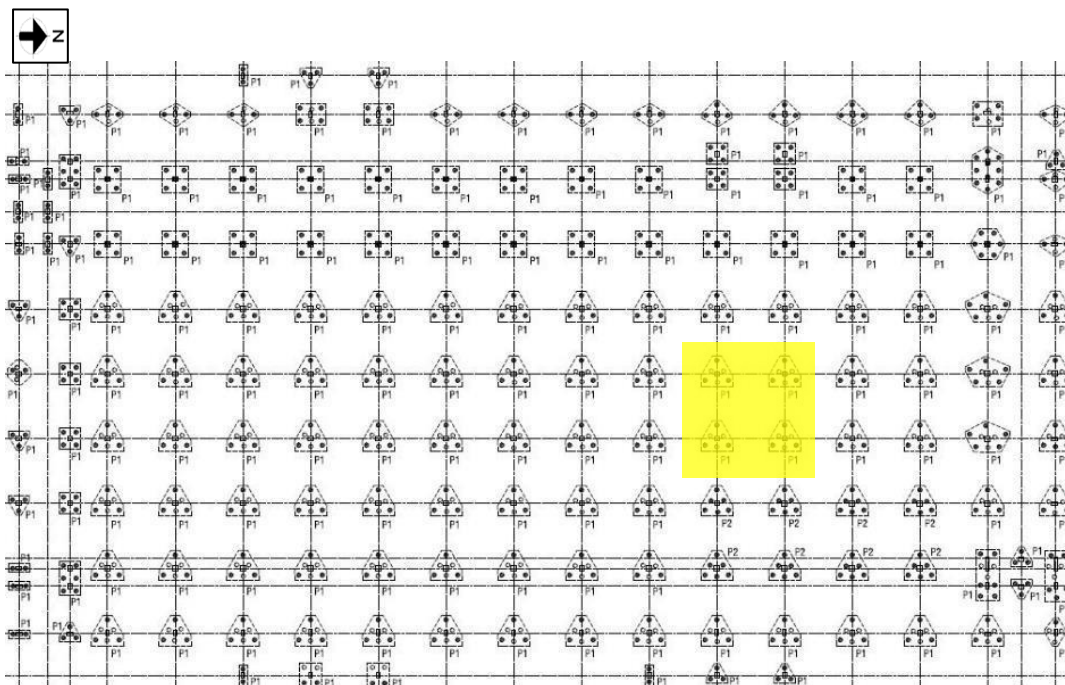


# Buildings Information

1. Building-1 (Production Building) (G+2)
2. Building-3 (Utility Building) (G+1)
3. Building-4 (Under Ground Water Tank & Pump Room) (B+G)
4. Building-5 (Security Room-1) (Single Storied)
5. Building-6 (Security Room-2) (Single Storied)
6. Building-7 (Security Room-3) (Single Storied)
7. Building-8 (Security Room-4) (Single Storied)
8. Building-10 (Gas House) (Single Storied Shed)
9. Building-12 (Bicycle Stand Shed & Safety Tank) (Single Storied Shed)
10. Building-14 (Waste Collection Building) (Single Storied)
11. Building-15 (Boiler Room) (Single Storied)

# Observations

**Factor of Safety of several pile foundations are  
below the allowable limit**



Pile Layout plan

Cursory calculation indicates that factor of safety (FoS) of some pile foundations is below the allowable limit at marked locations considering the floor live load 5 kPa for typical floor, 1.5 kPa for roof, super imposed load from overhead water tank and ultimate pile capacity 106 Ton from pile load test data. Building engineer to required to review the design, loads and foundation stresses and prepare a remediation plan.



Load from OHT

## 10. CONCLUSION & RECOMMENDATION

Maintained loading static axial compression test on the service pile was carried out to determine its axial load carrying capacity under the test conducted by "*B.R Geotechnical Consultant*". The design load for the service pile was 70,000.00 kg. The test load of 106,405.00 kg was applied to the service pile. Based on the load test results, it has been concluded that the above service pile is safe with design load 70,000.00 kg and the following ultimate load capacity of the service pile is recommended within the vicinity of the pile.

| Service Pile No & Location | Dia. of Pile | Length of Pile | Ultimate Load Capacity |
|----------------------------|--------------|----------------|------------------------|
| STP- 53, Grid No-Q/13      | 500 mm       | 16.500 m       | >106,405.00 kg         |

Ultimate pile capacity (106 Ton) in pile load test report

# Possible vehicle impact for column & beam



No barrier provided for the exposed columns and beams at ground floor

Columns and beams at ground floor are prone to possible vehicle impact. Building engineer is required to provide barrier for all exposed columns & beams at ground floor to prevent from possible vehicle impact.

# **Non-structural elements found unbraced/not anchored**

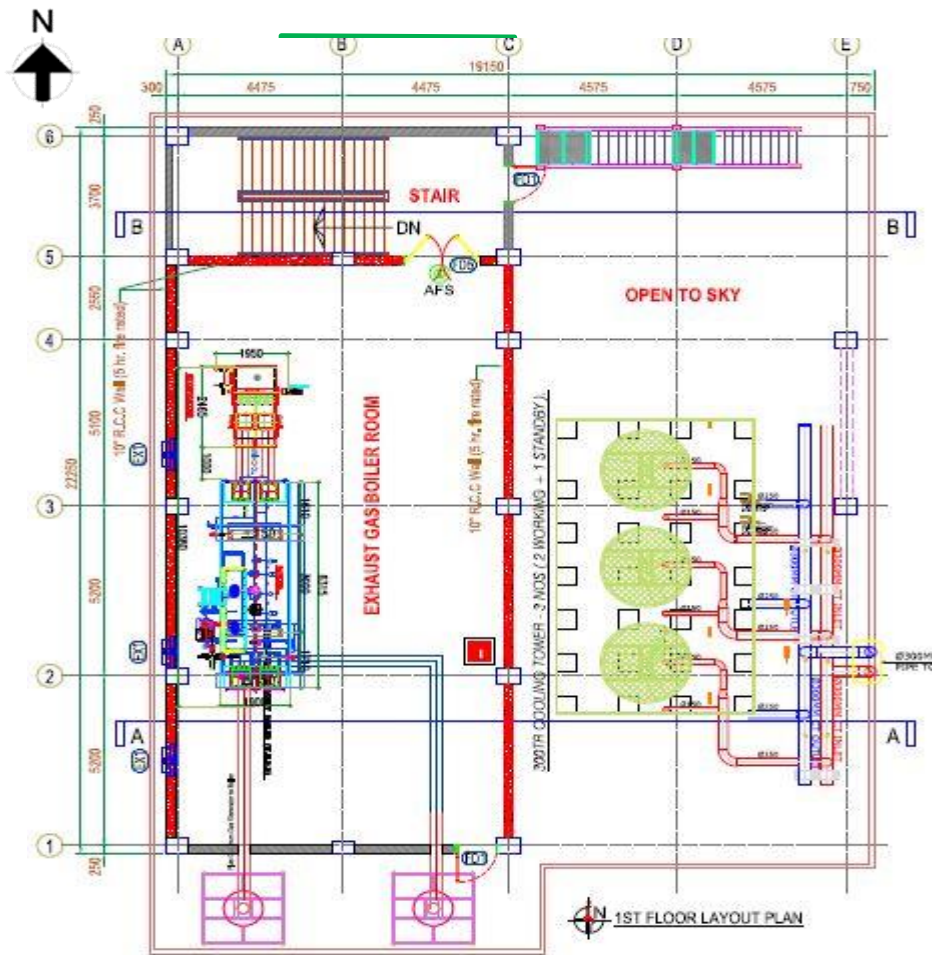


Storage rack found within the building without braced/anchored

Building engineer is required to brace/anchor all non structural elements.

# **Vibration on floor due to operation of heavy machine**

**10 Observation: Building 3 (Utility Building)**



First floor layout plan

Significant vibration was felt on the first floor due to operation of heavy machineries. Building engineer is required to investigate the long-term effect of the vibration and suggest remediation.



Heavy machineries

## 1 Observation: Building 3 (Utility Building)

## **Water ponding on roof**



Water ponding on roof slab due to poor drainage system

Water ponding was observed on roof slab due to poor drainage system. Building engineer is required to improve drainage system.

# **Steam flow near structural element**

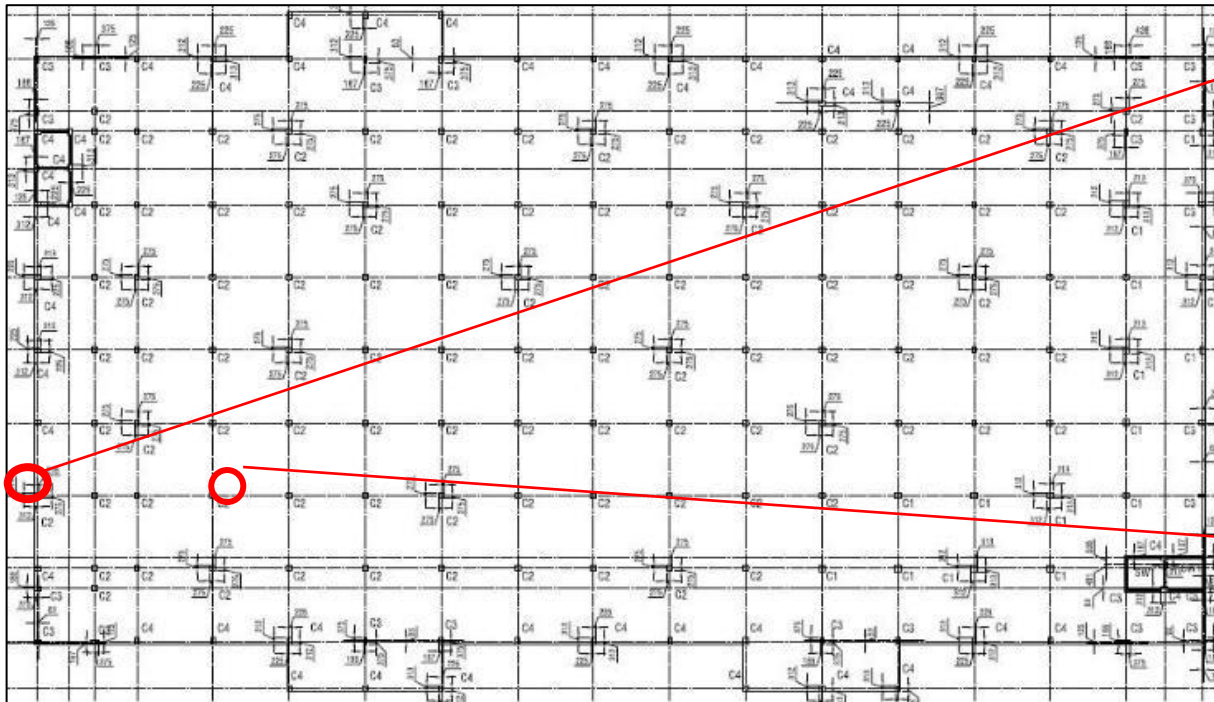
**Observation: Building 3 (Utility Building)**



Steam flow adjacent to periphery beam

Steam flow from boiler was observed adjacent to periphery beam which may damage the beam in the long run. Building engineer is required to divert the steam flow to another direction to avoid the future damage of beam.

# Tests Carried Out



Column Layout Plan (Building 1)



Stone Aggregate



Ferro-scanning



Building-3 (Utility Building): Stone aggregate



Ferro scanning

## Tests Carried Out: Building 3 (Utility Building)

# Problems Observed

## **Building 1 (Production Building)**

Item 01: Factor of Safety of several pile foundations are below the allowable limit

Item 02: Possible vehicle impact for column & beam

Item 03: Non-structural elements found unbraced/not anchored

## **Building-3 (Utility Building)**

Item 04: Vibration on floor due to operation of heavy machine

Item 05: Water ponding on roof

Item 06: Steam flow near structural element

# Priority Actions

| Item No. | Observation                                                                                                  | Recommended Action Plan                                                                                                                   | Recommended Timeline |
|----------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 01       | Factor of Safety of several pile foundations are below the allowable limit (Building 1: Production Building) | Building engineer is required to review the design, loads and foundation stresses for the marked area.                                    | 6-weeks              |
| 02       | Factor of Safety of several pile foundations are below the allowable limit (Building 1: Production Building) | Actively manage floor loading plan.                                                                                                       | 6-weeks              |
| 03       | Factor of Safety of several pile foundations are below the allowable limit (Building 1: Production Building) | Implement remediation work where required.                                                                                                | 6-months             |
| 04       | Factor of Safety of several pile foundations are below the allowable limit (Building 1: Production Building) | Implement load plan.                                                                                                                      | 6-months             |
| 05       | Possible vehicle impact for column & beam (Building 1: Production Building)                                  | Building engineer is required to provide barrier for all exposed columns & beams at ground floor to prevent from possible vehicle impact. | 6-weeks              |

| Item No. | Observation                                                                           | Recommended Action Plan                                                                                         | Recommended Timeline |
|----------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------|
| 06       | Non-structural elements found unbraced/not anchored (Building 1: Production Building) | Building engineer is required to brace/anchor all non-structural elements.                                      | 6-weeks              |
| 07       | Vibration on floor due to operation of heavy machine (Building 3: Utility Building)   | Building engineer is required to investigate the long-term effect of the vibration and suggest remediation.     | 6-weeks              |
| 08       | Vibration on floor due to operation of heavy machine (Building 3: Utility Building)   | Carry out remedial works where necessary.                                                                       | 6-months             |
| 09       | Water ponding on roof (Building 3: Utility Building)                                  | Building engineer is required to improve drainage system.                                                       | 6-months             |
| 10       | Steam flow near structural element (Building-3 : Utility Building)                    | Building engineer is required to divert the steam flow to another direction to avoid the future damage of beam. | 6-weeks              |