Date: 07-01-2013

## SOIL TESTING REPORT

Name of Work: Construction of building at Nagarjuna Nagar, Kushaiguda
Client: M/s Modi Properties & Investments Pvt. Ltd.

1. Two soil samples collected from the site by the client were brought to the Lab for testing.

2. No water table is reported in the pits.

3. The samples were tested for density and shear parameters (c & Φ) in accordance with IS: 2720. Appendix gives the results of lab testing and calculations for SBC as per IS: 6403-1981.

4. Based on Lab testing, SBC is recommended as 30 t/sq m for foundations at 2 m depth below cellar floor level.

5. This is based on the assumption of footing width of 2 m. The actual size will be based on the loads from the super structure.

6. Foundation pits should be backfilled well-compacted gravelly morum.

For GEO TECHNOLOGIES

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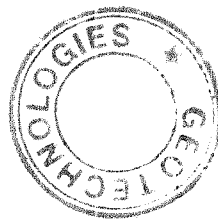
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APPENDIX: CALCULATION OF BEARING CAPACITY

Soil Properties:

Property	S-1	S-2
Unit wt. r, KN/cu m	18.6	18.8
Cohesion c, KN/sq m	12	10
Angle of internal friction Φ, deg.	34	35

Calculation of SBC:

a) Shear Criterion:

Width of foundation... 2 m   Depth of foundation... 2 m

Using IS Code 6403–1981 formula (assuming square footings & General shear failure):

Net, Ult B.C. = $1.3 \, c \, Nc + r \, D \, (Nq - 1) + 0.4 \, r \, B \, Nr$,

$r = 18.6$ KN / cu m; $c = 12$ KN / sq m (neglected)

For $\Phi = 34°$, $Nc = 31.45$ $Nq = 20.36$ $Nr = 26.57$

Net, Ult B.C. = 1115 per sq m

With a F.S. of 3, SBC = 371 KN per sq m

b) Settlement Criterion:

Based on the results of Direct shear test and IS: 6403 (Fig.1), N is taken as 22.

Based on Teng's equation, adopted in *IS: 8009 (Part-I)-1976* (Fig.9), for a settlement of 25 mm,

Allowable bearing capacity q (allow.) = $34.6 \, (N - 3) \, [(B + 0.3) / 2B]^2$ KN / sq m

For N = 22, B = 2 m, q (allow.) = 217.3 KN / sq m = 21.7 t/m^2

For a settlement of 40 mm, Allowable bearing capacity q (allow.) = $21.7 \times 40/25 = 34.7$ t/m^2

Recommended Safe Bearing Capacity is 30 tonnes per sq m.

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