LIST OF SYMBOLS & ABBREVIATIONS

\( \gamma \)  Unit weight of soil
\( \gamma_d \)  Dry unit weight of soil
\( \gamma_t \)  Total unit weight of soil
\( \Delta \sigma_v' \)  Vertical normal soil pressure
\( \Delta z \)  Vertical spacing between two consecutive reinforcing layers
\( \varepsilon \)  Tensile strain measured in microstrains in the geogrid
\( \mu \)  Poisson's ratio
\( \rho \)  Linear density ratio of the reinforcement
\( \sigma_b \)  Bearing resistance
\( \sigma_n \)  Applied normal pressure
\( \tau \)  Shear stress
\( \tau_u \)  Undrained shear strength
\( \phi \)  Angle of shearing resistance
\( \phi_{\text{as}} \)  Angle of internal friction due to sliding
\( \phi_{\text{ub}} \)  Angle of internal friction due to bonding
\( a \)  Cross-sectional area of the reinforcement
\( A \)  Area of the rigid plate
\( A_z \)  Amplitude of displacement
\( b/B \)  Reinforcement size ratio
\( B \)  Width of footing
\( b \)  Width of the reinforcing sheet
\( \text{BCR} \)  Bearing Capacity Ratio
\( B_{z'} \)  Modified dimensionless mass ratio
\( c \)  a constant
\( C_c \)  Coefficient of curvature
\( C_u \)  Coefficient of uniformity
\( \text{CBR} \)  California Bearing Ratio
d  Depth of reinforced zone  
D  Damping ratio  
D_{10}  Nominal particle size  
D_{s0}  Average size of particle  
DBCR  Dynamic Bearing Capacity Ratio  
D_r  Relative density of sand  
D_s  Depth of sand mat over the soft silty clay  
E  Young's modulus of elasticity  
E_i  Initial tangent modulus  
E_{id}  Dynamic initial tangent modulus  
f  Frequency of operating machine  
F.S.I.  Free swell index  
F_N  Total normal force on the reinforcement  
f_n  Natural frequency  
f_r  Resonant frequency  
f_y  Yield stress of reinforcement  
G  Shear modulus of elasticity  
G_s  Specific gravity of soil solids  
k  Ratio of interfacial contact area to the plan area of the reinforcement  
k  Factor for calculating vertical effective stress  
LL  Liquid limit  
N  Number of reinforcing layers  
n  Number of lateral elements  
N_c  Bearing capacity factors  
N_i  Normal force factor  
N_q  Bearing capacity factors  
N_r  Bearing capacity factors  
P  Total load carried by the footing  
p  Perimeter of the reinforcement  
PI  Plasticity index  
PL  Plastic limit
PR Load carried by the reinforcement

PS Load carried by the soil

q Average bearing pressure of the footing on reinforced soil bed at a given settlement.

q0 Average bearing pressure of the footing on unreinforced soil bed at a given settlement

qd Dynamic bearing pressure of the footing on reinforced soil bed at a given settlement

qd0 Dynamic bearing pressure of the footing on unreinforced soil bed at a given settlement

qu Ultimate bearing capacity

q' Net bearing pressure

rg Radial distance on the geogrid sheet with respect to its centre

s Settlement of the plate/footing resting on the soil beds

sH Minimum grid aperture dimension

SL Shrinkage limit

SRF Settlement Reduction Factor

T Tension mobilized in the reinforcement

Tf Frictional resistance of the reinforcement

Ti Tensile force in the ith layer of reinforcement

Tt Tensile strength of the reinforcement

u Depth of first reinforcement layer below the base of the footing

u/B Depth ratio

Vs Shear wave velocity

yf Horizontal distance from the centre of the footing

zf Vertical distance below the base of the footing