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ABBREVIATIONS

A	–	Cross sectional area of the cylinder
a	–	Half the length of a rectangular element
b	–	Half the width of a rectangular element
C	–	Pile perimeter
c_a	–	Adhesion
Cs	–	A bond modulus for the adhesive strength
D, d	–	Diameter of pile
ds	–	Relative displacement parallel to the bond interface
E	–	Young's modulus
E_S	–	Soil modulus
F	–	Total applied force
F_w	–	Correction factor for tapered pile
H	-	Thickness of the weak layer
K_0	–	Lateral earth pressure coefficient
K_n, K_s	–	Interface element stiffness
L	–	Length of pile shaft
N	–	Shape function
P	–	Vector of Transformed stresses
P1, P2	–	Force acting on node number 1, 2
P_{su}	–	Ultimate shaft resistance
P_{bu}	–	Ultimate base resistance
Q	–	Load on head of pile
q	–	Effective overburden pressure at depth z_i
Q_s	–	skin friction on pile
Q_b	–	Base resistant on pile
Q_p	–	Failure load on pile
s	–	Surface of a finite element
U_s	–	Strain energy of an elastic body
v	–	Volume of a finite element
w_1, w_2	–	Weight factors
W_p	–	Weight of the pile

W_S	–	Work done by surface tractions
W_b	–	Work done by body forces
x_i	–	Ordinates in X-Axis (i=1,2,3 etc)
y_i	–	Ordinates in X-Axis (i=1,2,3 etc)
α	–	A Coefficient
α_i	–	Constants for shape function (i=1,2,3 etc)
β	–	A Coefficient
ϕ	–	Angle of friction of soil
δ, ϕ_a	–	Angle of friction between pile and soil
λ	–	A Coefficient
τ_a	–	Shear resistance at the pile soil interface
σ_n	–	Normal stress between pile and soil
v	–	Poisson's ratio
ξ	–	Normalized co-ordinates along X-Axis
η	–	Normalized co-ordinates along Y-Axis
ε	–	Strain vector
π^e	–	Potential energy
$[B]$	–	Shape function matrix
$[D]$	–	Modulus vector
$\{f\}$	–	Body forces vector
$[L]$	–	Derivation vector
$\{u\}$	–	Displacement matrix
$\{\sigma\}$	–	Stress vector
$\{\tau\}$	–	Applied traction vector
$\{\phi\}$	–	Nodal Displacement vector