DECLARATION

I herewith declare that the work included in the thesis in part or whole, has not been submitted for any other academic qualification at any institution.

Date

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Certified by:

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Professor S.M.A.Nanayakkara
Supervisor

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NOTATIONS

This appendix contains a list of notations used in this paper.

a	=	Radius of cylinder, ring beam.
d	=	Depth of ring beam.
E	=	Young's Modulus of Elasticity.
H_o	=	Horizontal force at an edge?
H_R	=	Radial force on ring beam.
h	=	Height of water above the crown of the bottom spherical dome.
h_1	=	Depth of water in the cylindrical portion of the tank.
M	=	Bending Moment, Subscripts x & ϕ denote the meridional bending moments in the cylindrical shell and the spherical dome respectively. Subscript θ denotes the transverse bending moment. Subscript Φ denotes the redundant moment at an edge. Subscript R denotes the radial moment in a ring beam.
N	=	Direct force - subscripts x & ϕ denote the meridional forces in the cylindrical shell and the spherical dome respectively. Subscript θ denotes the hoop force.
P	=	Line load per unit length.
p	=	Load per unit area.
Q	=	Shearing force, subscription x & ϕ denote the shearing forces in the cylindrical shell and the spherical dome respectively.
R	=	Radius of a spherical dome.
s	=	Distance of a point in a conical shell from the vertex of the cone.
t	=	Thickness of shell, ring beam.
V	=	Membrane rotation. Subscripts c, and d denote the cylindrical shell, spherical shell.
v	=	Rotation due to edge forces moments. Subscripts c and d denote the cylindrical shell, spherical dome respectively. Subscripts H and M denote the horizontal force and redundant moment applied at an edge respectively.
x	=	Distance of a point from an end in a cylindrical shell.
y	=	Shell constant for a conical shell.

y = Shell constant for a conical shell.

$$y = 2\sqrt{\frac{12(I-\mu^2)s^2 \tan^2\alpha}{t^2}}$$

α_1 = Angle made by a point in the spherical dome with its edge.

α = Angle made by a conical shell with its base circle.

β = Shell constant.

(1) $\beta = 4\sqrt{\frac{3(I-\mu^2)a^2}{t^2}}$ for a cylindrical shell

(2) $\beta = 4\sqrt{\frac{3(I-\mu^2)R^2}{t^2}}$ for a spherical shell

γ = Density of water.

μ = Poisson's ratio.

Δ = Membrane displacement. Subscription c & d denote the cylindrical shell, spherical dome.

δ = Displacement due to edge force and moments. Subscripts c, d, denote the cylindrical shell, spherical dome respectively. Subscript R denotes the ring beam. Subscripts H and M denote the horizontal force redundant applied moment at an edge respectively.

γ_c = Density of Concrete (Kg/m^3)

E = Young's modules (kN/m^2)

δ_{RH} = Displacement of the ring beam due to radial force

δ_{RM} = Displacement of the ring beam due to radial moment

δ_{dH} = Displacement of the dome due to unit edge force

δ_{dM} = Displacement of the dome due to unit edge moment

Δ_d = Displacement of the dome

υ_{RH} = Rotation of the ring beam due to radial force

υ_{RM} = Rotation of the ring beam due to radial moment

υ_{dH} = Rotation of the dome due to unit edge force

υ_{dM} = Rotation of the dome due to unit edge moment

υ_d = Rotation of the dome