Design Requirements for CIPP Liners

Thickness Requirements for CIPP Egg Shaped Liners

							Thickness Requirements by Invert Depth (mm)	
	Nominal Dimensions		Maximum Dimensions				**Invert Depth = 5.75 m** (Design thickness shall be the greater of Eq. 1 & Eq. 2)	
Shape	**Height (mm)**	**Width (mm)**	**Height (mm)**	**Width (mm)**	**Deterioration State**	**Live Load Model**	**Eq. 1:** Long Term Flexural Strength in hoop direction (MPa)	**Eq. 2:** Long Term Flexural Modulus in hoop direction (MPa)
Egg	1350	900	1450	1000	Fully Deteriorated	AASHTO HS25	$t = 160.98S_L^{-0.471}$	$t = 307.13E_L^{-0.315}$

t = design thickness (mm) S_L = Long Term Flexural Strength (MPa) E_L = Long Term Flexural Modulus (MPa)

Design Method:	WRc Sewerage Rehabilitation Manual, Type 2 Design
Applicable Long Term Flexural Strength:	15.5 MPa - 100 MPa
Applicable Long Term Flexural Modulus:	862 MPa - 6000 MPa
Lateral Earth Coefficient:	0.4
Soil Density:	18.85 kN/m^3
Modulus of Soil Reaction:	6.890 MPa
Assumed Water Table Depth:	2.0 m below ground elevation
Soil Stress Model:	Effective Stress
Factor of Safety on Applied Stresses:	2