19-21 The Corso, Manly

Maximum Pile Deflection Under SWL

Vertical deflection is a function of flexing of the helix plate, the pressure variation across the helix plate, skin friction resistance down the shaft and deflection of the subgrade under the applied pressure

As screw piles are a proprietary item and the resistance of the founding strata can be nominated by specification of the minimum applied torque at refusal, measured pile deflections under static load test can be determined via empirical relationships from amassed pile static load test data.
As piles are in sand through out their entire depth, the pile acceptance deflection understatic load test will be the long term settlement of the piles under service.
As the bearing strata is sand, the static load test deflection limit can therefore be considered as the deflection limit under working loads.
Ps is the rated load of the proprietary pile, installed into granular material at the minimum nominated driving torque at refusal

	114x6.0CHS	
	Corefilled	
Ps	160,000	N
L	6,000	mm
As	2041	mm^2
Es	205000	N/mm^2
Ac	8219	mm^2
Ec	32000	N/mm^2
Helix size	400	mm
Shape	Square	
Effective helix diameter	451	
PsL/AE	1.41	mm
0.01d	4.51	mm
PsL/AE + 0.01d	5.92	mm
Actual working load	160,000	N
Actual pile deflection under service loads	5.92	mm