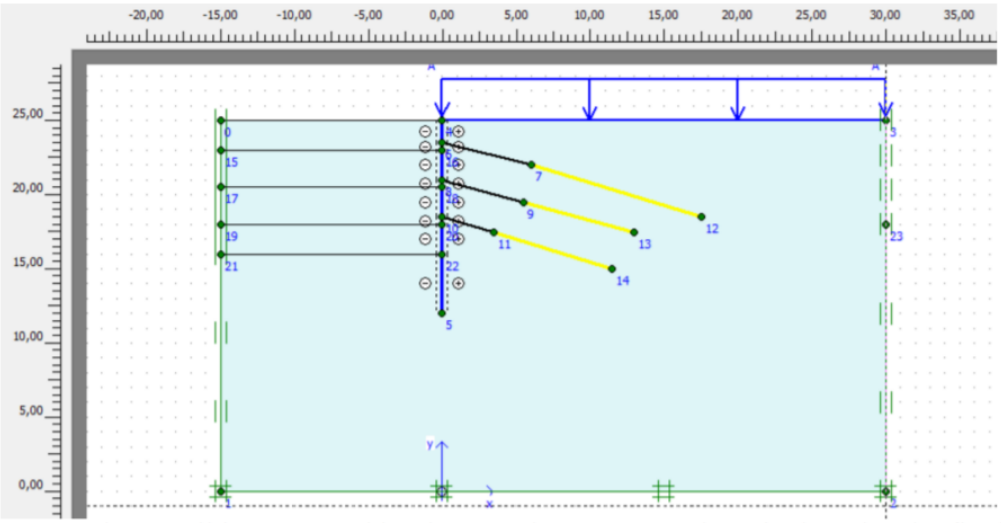
NTUA

MSC IN ANALYSIS AND DESIGN OF EARTHQUAKE RESISTANT STRUCTURES (ADERS)

Course: **Geotechnical Engineering in the Design of Structures**

PROJECT2: Diaphragm wall analysis



A 12m deep wall is supported by three anchors per 2m along its length. The final excavation level is at 9m depth and the water table at 7m below surface.

Soil	Unit weight (KN/m^3) Saturated/ unsutur.	Young's modulus E (kPa)	Friction Angle φ´(degrees)	Cohesion intercept c´ (kPa)	Permeabi -lity (m/day)
Sandy silt	21/18.5	E50(ref)= 18750	25	22	0.121
Pc(reference) = 100kPa	Power m=0.5	Eoed(ref)= 12500	Dilation angle ψ=0	Tensile strength=0	
		Eur(ref)= 75000	Parameters required for **soil hardening** model		

Excavation depth (m)		anchor number /pre-stress in free length (kN)	Depth (m) Left(L)/right(R) horizontal distance from wall (hor.d.w.)	Grouted length Depth(m) R/hor.d.w.	Fmax extension/compression (kN)	EA (kN)
2		1/35	1.5/3 6	6.5/17.5	837/1	$8.775x10^4$
4		2/50	4/5.5 5.5	7.5/13	837/1	$8.775x10^4$
7		3/66	6.5/7.5 3.5	10.5/11.5	1116/1	$1.170x10^5$
9						

Table 2: Excavation and prop levels and characteristics