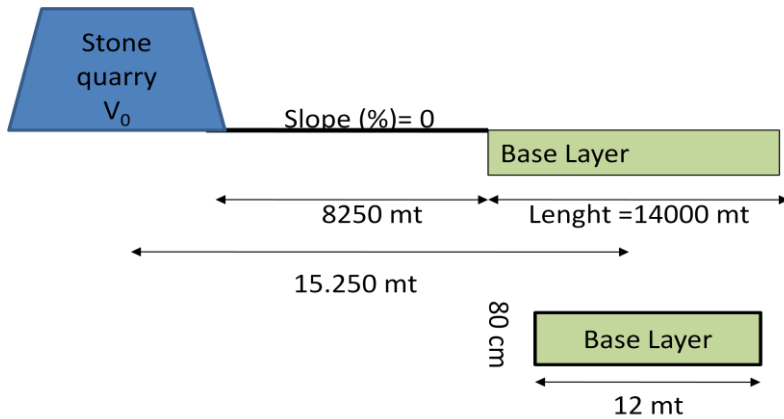


Question: A pavement base layer is to be constructed in 30 days. Find the necessary truck numbers.



shift (hours/day)	8+8
Base layer density (t/m ³)	2
Θtemporary (%)	20
Θpermanent (%)	9.8
Loader efficient (m ³ /saat)	130
Truck loading volume capacity (m ³)	6
Truck engine power	250
Truck empty weight (kgf)	4250
Load and unload time (minutes)	2.75
Wr (kgf/kgf)	0.15
Work site efficiency (%)	85
Project time duration (day)	30
Max. trafik speed (km/hour)	60

Answer:

Soil	
Excavated volume necessary (m ³)	$V_0 = \frac{V_k}{(1 + \Theta_k)} = \frac{134400}{(1 + 0.098)} = 122404.37$
Excavated volume necessary per day (m ³ /day)	$\frac{V_0}{30} = \frac{122404.37}{30} = 4080$
Loader	
Loader efficiency (m ³ /day)	130 m ³ /day x (8+8) hours = 2080
Loader number needed to complete the work in 30 days	$\frac{4080}{2080} = 1.96 = 2$
V _{departure} (km/hours)	$\frac{0.243 \times 250}{14250 \times (0.15 + 0)} = 28.42$
V _{return} (km/hours)	$\frac{0.243 \times 250}{4250 \times (0.15 + 0)} = 95 > 60 \text{ take } 60$
Truck	
Load (tons)	$\frac{2 \times 6}{(1 + 0.2)} = 10$
t departure (minutes)	$\frac{15.250}{2028.42} = 0.537 \text{ hours} = 32.2$
t return (minutes)	$\frac{15.250}{60} = \text{hours} = 15.25$
One period time (minutes)	32.20+15.25+2.75 (loading and unloading) = 50.20
D _{truck} efficiency (m ³ /day)	$x = \frac{0.85 \times 6 \times 60 \times (8 + 8)}{(1 + 0.2) \times 50.20} = 81.2$
Number of truck = $\frac{D_{eks}}{D_{truck}}$	$\frac{4160}{81.2} = 51$
2x2080 = 4160 m ³	