It may be noted here that the total limestone to be produced from the mine will be dispatched to the crushing plant erected at the cement plant located at a distance of 6.5 k.m away from the target area. Waste generated will also be transported to the preselected site (roads / office site), hardly 800 m if considered for total haulage.

For Limestone hauling :

a) Average Hauling distance both way (6.5 kms x 2) = 13 Kms.

b) Average traveling time both way @ 20 kmph = 39 minutes

c) Average Loading time = 8 minutes

d) Average un-loading time = 2 minutes

e) Average cycle per trip = 49 minutes

f) Effective working time per shift with 80% utilization factor = 384 minutes

g) Average no. of trips per shift per dumper = 384 / 49 = 7.83 nos or say 8 nos.

h) Effective capacity of the Dumper = 6.93 M^3

i) Hauling capacity of dumper per shift (8 X 6.93) = 55.44 or say 55 M^3

i) Hauling capacity of dumper per year with 2 shifts/day and 300 day/year = 33,000 M^3

For Waste hauling :

a) Average Hauling distance both way (0.8 kms x 2) = 1.6 Kms.

b) Average traveling time both way @ 20 kmph = 4.8 or say 5 minutes

c) Average Loading time = 8 minutes

d) Average un-loading time = 2 minutes

e) Average cycle per trip = 15 minutes

f) Effective working time per shift with 80% utilization factor = 384 minutes

g) Average no. of trips per shift per dumper = 384 / 15 = 25.6 or Say 26 nos.

h) Effective capacity of the Dumper = 6.93 M^3

i) Hauling capacity of dumper per shift (26 X 6.93) = 180.18 or say 180 M^3

i) Hauling capacity of dumper per year with 2 shifts/day and 300 day/year = 1,08,000 M^3

Table – 4.8

Year-wise requirement of dumpers for ROM transportation:

	1st year	2nd year	3rd year	4th year	5th yeat
Year-wise quantity of Limestone & Sandstone to be transported. (M^3)	43,196	66,733	71,621	85,428	83,250
Year-wise quantity of ore to be transported. (with swelling factor 1.25) (M^3)	53,995	83,416	89,526	1,06,785	1,04,063
No. of Dumpers required	1.64	2.53	2.71	3.24	3.15
OR say	2	3	3	4	4

So, from the above table it is clear that for ore transportation in the 1st year one dumper is required and for 2nd & 3rd year the requirement is of three and from 4th year onwards the requirement is of four dumpers.

Table – 4.9

Year-wise requirement of dumpers for waste transportation:

	1st year	2nd year	3rd year	4th year	5th yeat
Year-wise quantity of Lateritic Soil & Siliceous Limestone to be transported. (M^3)	17,614	38,588	7,295	1,633	7,519
Year-wise quantity of waste to be transported. (with swelling factor 1.25) (M^3)	22,018	48,235	9119	2,041	9,399
No. of Dumpers required	0.20	0.45	0.08	0.02	0.09

As can be seen from the above Table, the requirement of dumpers is so negligible that it is not required to keep separate dumpers for this purpose. The dumpers engaged for ore transportation will be utilized for waste transportation, on the basis of as & when required.