8.3.1. Mined-Out Land:

Mined out area will be back filled simultaneously to restore the original topography. Presently around 0.00 Ha is mined and back filled. At the end of the life of the mine, the area refilled and afforested will be around 111.025 Ha.

The safety barrier along the mining lease boundary shall be utilized for casurina and coconut plantations after the cessation of mining operations.

Post Mining after cessation of mining activities (Area in Hectare)

(TABLE- 35)

No	Activities	As on date	End of five year of Mining plan Period	End of life of Mine
1	Area under inland mining	0.000	6.00	0.000
2	Storage of topsoil	0.000	0.000	0.000
3	Overburden/dump/Waste dump	0.000	0.000	0.000
4	Mineral storage	0.000	0.000	0.000
5	Infrastructure (Plant area, Pump house, work shop etc.,)	2.000	2.000	1.000
6	Road	0.000	0.000	0.000
7	Railways	0.000	0.000	0.000
8	Tailing pond	0.000	0.000	0.000
9	Effluent treatment plant	0.000	0.000	0.000
10	Mineral Separation Plant	0.000	0.000	0.000
11	*area under the sea	5.000	5.000	5.000
13	Mines, Refilled, and afforested area	0.000	17.74	126.02.5
14	Inhabitated Village areas – TS canal widened, lakh area and safety for water body, coastal replenishment	47.97.5	47.97.5	47.97.5
15	Undisturbed Area	125.02.5	101.28.5	0.000
Grand Total		180.00.0	180.00.0	180.00.0

8.3.2 Topsoil Management:

This is not applicable in this case as the top soil contains the maximum percentage of heavy minerals.

Existing afforestation in the refilled area:

Major part of the mined out area in all the lease areas are back filled with tailing sand followed by plantation (casuarinas, coconut, mango, teak, jackfruit etc,) mixed with general afforestation. To facilitate plant growth and improve survival rate of the saplings, small pits are dug on the sand and filled with soil, coconut husk and kitchen waste from the kitchen. Usually this activity is done before the onset of the monsoon. Native and fast growing, deep rooted plant species like casuarinas and coconuts which are adaptable to the local climatic condition are preferred for plantation in the back filled areas. The management consults the District Forest Officer and concerned officers regularly for proper guidance.

Casurina and coconut plantation has been carried out after back filling the inland dredged / mined out areas. Usually this is done before the onset of monsoon. Every year about 500 saplings are proposed to be planted in the back filled areas. More than 5,000 trees have been planted till date over the back filled areas, MSP surrounding area, guest house area etc. with a survival rate of more than 80%. Plantation will be carried out in phased manner over all the back filled areas. A nursery is developed by IREL, Chavara outside the mine lease area in company's land for supplying saplings to the mines for plantation.

(TABLE-36)

Year	No. of Trees Planted	Area	%of Survival	Species
Upto 2000	1000		75%	
2001	500		75%	
2002	500	Exhausted and Refilled	75%	Casurina, Coconut
2003	500		75%	
2004	500		80%	
2005	500		80%	
2006	500		80%	
2007	500		80%	
2008	500		80%	
2009	500		80%	
2010	500		80%	
2011	500		80%	
2012	500		80%	
2013	500		80%	

The proposed phase wise plantation programme within the mine lease area is given .

Afforestation Programme for the balance scheme period .

(TABLE-37)

Year	No. of Saplings	Area Covered (Ha)	Survival rate(%)	Places of plantation	Species
2016-17	150	2.00	80	Refilled area	Coconut and casurina
2017-18	150	2.00	80	Refilled area	
2018-19	500	6.00	80	Refilled area	
2019-20	500	6.00	80	Refilled area	
2020-21	500	6.00	80	Refilled area	
Total	1800	22.00			

Mine Layout and Afforestation Plan is enclosed. Refer Plate No. 6.

8.3.3 Tailing Dam Management.

Not applicable since the complete Mining lease hold area is covered under beach and mining activity & regularly carried out for exploiting replenishable Beach washings sand. However, the tailing are being used for refilling the mined out area and afforestation programme is being carried out systematically in the adjacent inland mining lease hold areas.

HUP tailing are simultaneously transported to the inland mined out areas for back filling. Hence, there is no separate tailing pond for storage of tailing is required to be maintained. A desliming pond is maintained near the HUP for re circulation of water. A settling pond for MSP wet section is maintained to settle the fines and re circulation of water.

8.3.4 Acid mine drainage, if any and its mitigative measures.

No acid mine drainage.