



Background Information

Gurez is a large valley lying in the north of Kashmir between 74°-30' and 75°-10'. The Kishen Ganga River flows in its west and Burzal stream in its east. Gurez can be reached from Srinagar by a metalled road from the town of Bandipore measuring 45 Km upto Razdhaan Pass, which claims a height of 11,690 feet above the sea level and commands a full view of the whole valley. It is exceedingly picturesque with Kishen Ganga River dashing through a meadow covered with walnut and willow trees and a series of mountains growing Fur trees on its lower slopes. The mountain ranges contain huge deposits of limestone. Kanzalwan a beautiful village is at a distance of 25 Km beyond Razdhaan Pass. The Main Road from Gurez to Tulail crosses the Burzal stream by a bridge and extends to about Checkiwali by almost 55 Km from there.

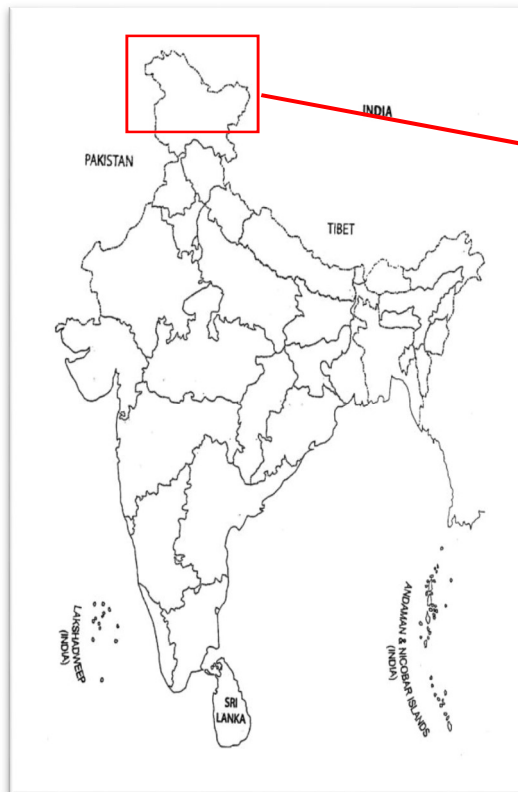
The climate of Gurez Valley is very rigorous and the harvest is scanty and uncertain. The inhabitants rear huge flocks of sheep and goats for sale to the butchers of Srinagar and other towns. Most of the money they make by the sale of sheep and goats is spent on the purchase of food grains imported from Kashmir valley. The main crops grown in Gurez consist of barley, peas, trumba and pinga. Fruits are very rare and include apple, pears and walnuts, which are grown in a few places only.

The inhabitants are generally very poor and live in houses built of uneven timber. Gurez Valley needs lot of development and attention, so that it can attract visitors in large numbers being a pristine and picturesque.

The road falls in Tulail Block of Gurez Valley in District Bandipora. The road from Neeru to Sikender was conceived as providing an All Weather connectivity to the locals of Village Sikender and enroute habitations of Marnoo and SafaidAab benefitting a population of 1544 souls as per census 2011. The road will boost the development of the affecting villages and provide an All Weather connectivity with the main road.

Project Location

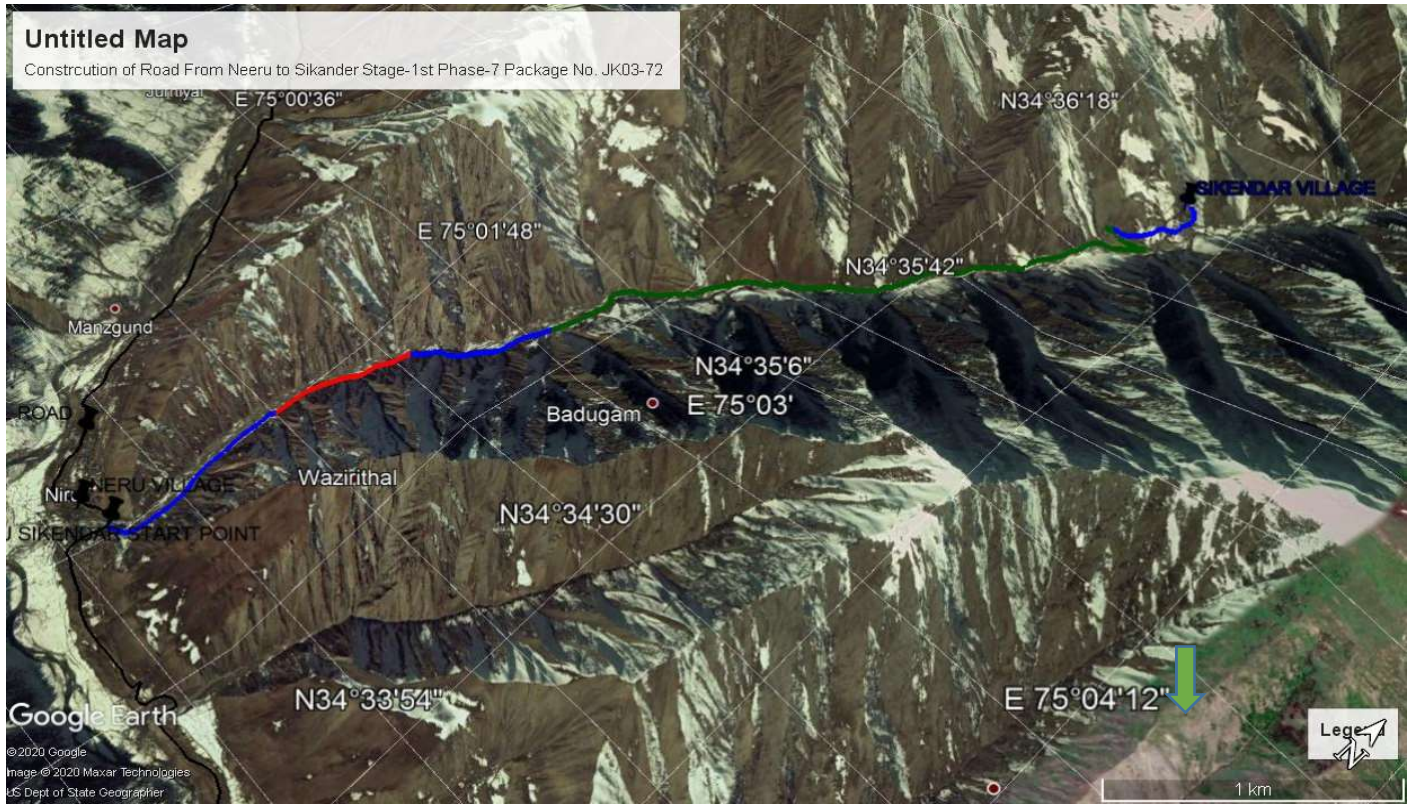
The road takes off from Village Neeru (34°33'49.51"N, 75° 1'55.60"E) falling on the Main Dawar to Checkiwali Road at an Rd-26Km. The road leads to Village Sikender after traversing a length of 6.70km along hilly terrain following the Neeru Nallah.



MAP OF UT OF JAMMU & KASHMIR AND UT OF LADAKH

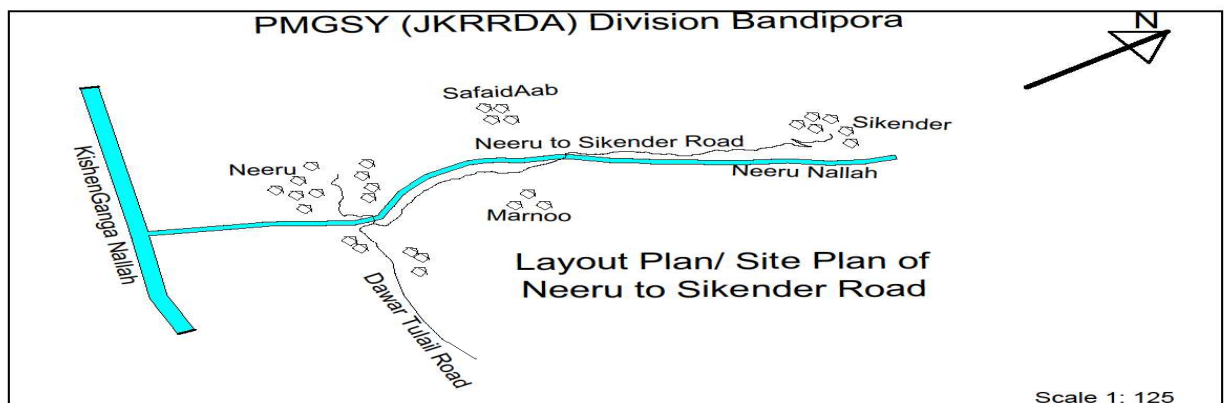


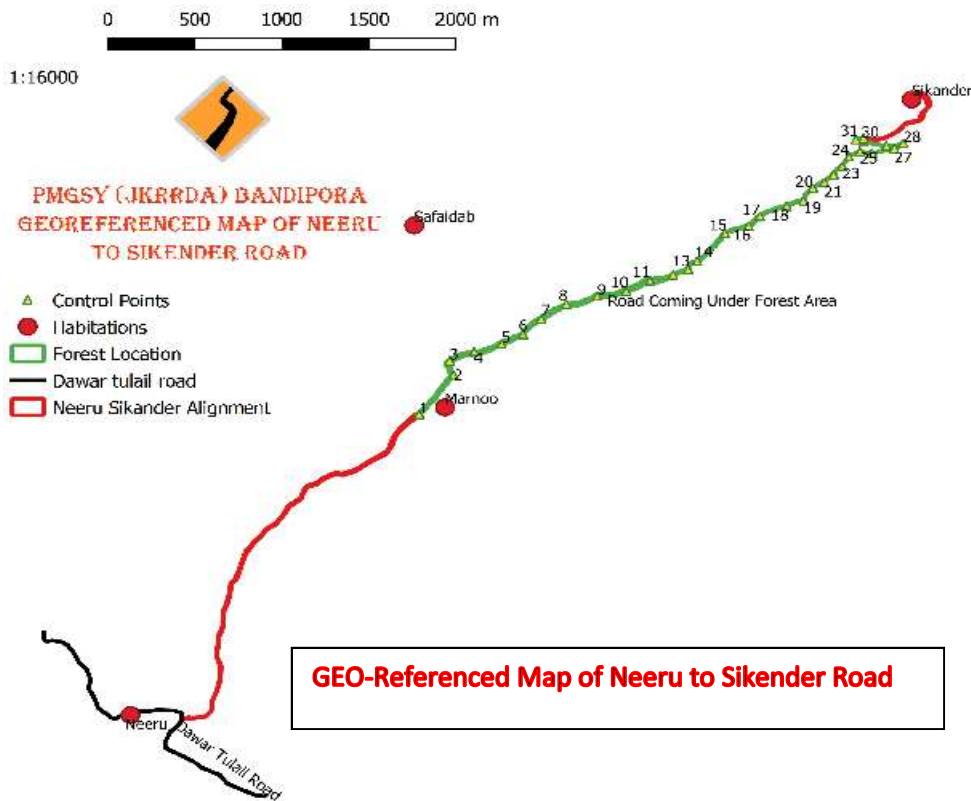
GPS Map for the "Construction of Road from Neeru to Sikander Stage-1st Phase-7th Package No. JK03-72



Aerial View of Project Site

RD-0/00 34°33'49.51"N Forest Start Point 34°34'54.32"N Forest End Point 34°36'10.43"N End Point 34°36'20.47"N
75° 1'55.60"E (At Rd-2/510) 75° 2'11.23"E (At Rd-6/005) 75° 3'16.71"E 75° 3'24.13"E





1	(75.036571, 34.581799)
2	(75.037703, 34.584425)
3	(75.037293, 34.585147)
4	(75.038377, 34.585990)
5	(75.039629, 34.586785)
6	(75.040569, 34.587580)
7	(75.041243, 34.588687)
8	(75.042276, 34.589819)
9	(75.043699, 34.590662)
10	(75.045072, 34.591337)
11	(75.046108, 34.592228)
12	(75.047168, 34.592854)
13	(75.047842, 34.593336)
14	(75.048155, 34.593926)
15	(75.049142, 34.595816)
16	(75.050214, 34.596539)
17	(75.050636, 34.597237)
18	(75.051816, 34.598140)
19	(75.052574, 34.598670)
20	(75.052863, 34.599489)
21	(75.053345, 34.599935)
22	(75.053694, 34.600501)
23	(75.054007, 34.601067)
24	(75.054200, 34.601693)
25	(75.054670, 34.602126)
26	(75.055284, 34.602199)
27	(75.056331, 34.602752)
28	(75.056705, 34.603150)
29	(75.055898, 34.602813)
30	(75.054694, 34.602752)
31	(75.054284, 34.602728)
32	(75.054843, 34.602906)

Muck Management Plan

A) Muck Generation And Its Utilization

The proposed road will involve construction of new road by way of earthwork cutting for a length of about 1370Mtrs from Rd-5330 to Rd-6700. The muck generation table is as under: -

RD	LENGTH IN MTRS	EARTH WORK IN CUTTING			
		X- SECTIONAL AREA IN SQM	TOTAL AREA IN SQM	MEAN AREA IN SQM	QUANTITY IN CUM
5330	0	12.37	-	-	-
5390	60	9.62	21.99	11.00	659.70
5650	260	12.37	21.99	11.00	2858.70
5970	320	12.37	24.74	12.37	3958.40



6300	330	12.95	25.32	12.66	4177.80
6500	200	9.60	22.55	11.28	2255.00
6700	200	9.60	19.20	9.60	1920.00
Total Cutting					15829.60
Add 10% extra for curves and junctions					1582.96
Grand total Cutting					17412.56 Cums
Muck Incl 42% Swell					24725.83 Cums
Muck In Mcums					0.0247

The various construction activities of the project would thus generate a muck of about 0.0247Mcums which would be utilised as below: -

Sr. No.	Name of Work	Utilization As	Quantity to be utilized	
1.	Neeru to Sikender	Shoulder/Berm	6700 x 2 x 2.25 x 0.45	13567.5 Cums or 0.0136Mcums
2.	Neeru to Sikender	Protection Works	RockFill Walls/Crate Walls	2669.36 Cums Or 0.0027 Mcum
3.	Neeru to Sikender	Bus Stand Development **	Quantity from X-section	7865.36 Cums Or 0.00787Mcums
4.	L026 to SafaidAab	Shoulder/Berm	3500 x 2 x 1.50 x 0.45	4725 Cums Or 0.0047Mcums
Total Muck To be Utilised				0.0288Mcums

B) Criteria for Disposing Muck (Bus Stand Site Selection)

For disposal of 0.0037Mcum of muck an area of 0.24 Ha has been identified in Non forest area (34°36'20.56"N, 75° 3'26.66"E). The disposal site was identified after taking into due consideration of availability of suitable area and minimum distance from generation site.

The following points were considered and followed as guidelines for finalization of area (**Non Forestry Land**) to be used dumping site which will be further utilized as Bus Stand.

1. The area has been selected as close as possible to the project site to avoid long distance transportation of muck.
2. The area is free from any landslides or creep and care has been taken that the area doesn't have any possibility of toe erosion and slope instability which will be taken care off by providing gabion walls.
3. There is no active channel or stream of water flowing through the area to avoid any water pollution.

The identification of the area has been done in line with the topography and site specific conditions as specified below.



Detail of Muck Disposal Site (Bus Stand)

Sr. No.	Chainage (Mtrs)	Area (Sqm)	Capacity (Mcums)	Total Muck To Disposed/Utilized
1	6620	98.317	0.0079	0.0037

c) Methodology of Dumping

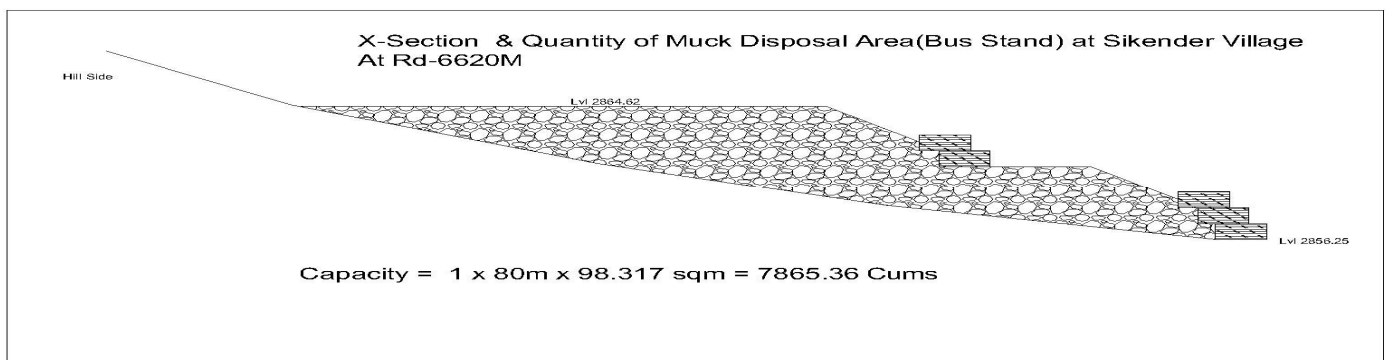
The muck that needs to be disposed off in the Bus stand (**Non Forestry Land**) would be compacted in layers at the angle of repose (mostly 33°) to stabilise the slope under natural circumstances and to avoid any toe erosion and slope instability. The cross section of the area is appended.

The main objective of this muck disposal process are: -

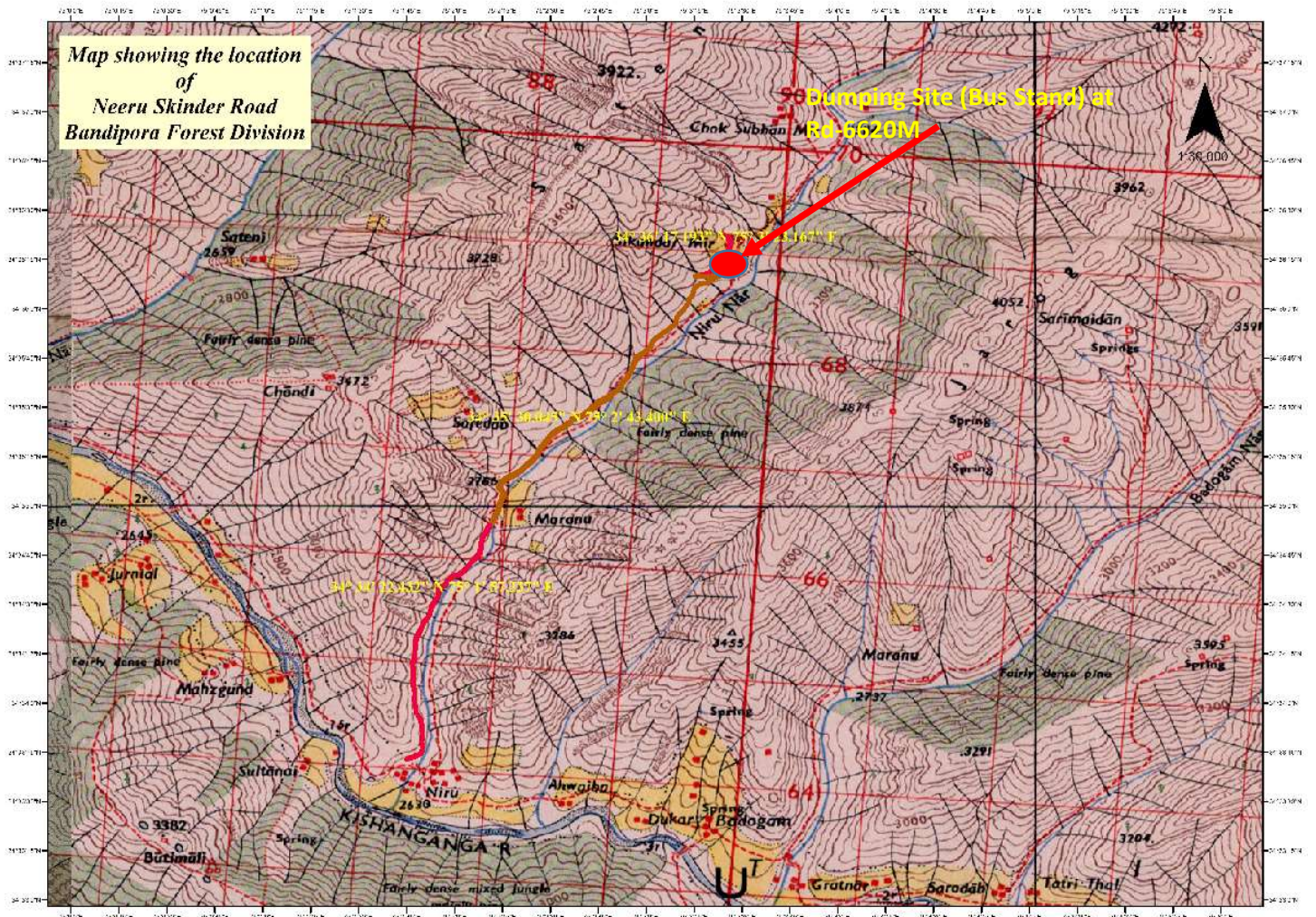
- To protect and control soil erosion.
- To create greenery in the muck disposal area.
- To improve and develop the site as Bus stand.
- To ensure maximum utilization of muck for the construction purposes.
- To minimise the damages due to the spoilage of the muck the project area.

The generated muck will be transported to the designated sites (**Non Forestry Land**) for its maximum utilization as per the specifications. All the precautionary measures will be followed during the utilization of muck. All the measures would be adopted to ensure that the muck disposal won't cause any injury or inconvenience to the people around. The muck dumped will be properly compacted time to time to avoid any erosion.

The capacity of dumping area is more than the volume of muck to be disposed i.e. 0.0037 Mcums (X-section of the area). The general topography of the area has a mild slope. The spillage of the muck is proposed to be prevented by constructing Toe gabion walls and protection walls all along the area. The suitable Protection walls will be constructed prior to muck dumping and loose muck would be compacted in layers to achieve the desired compaction. The area would be ultimately used as Bus Stand/Bus Bay and also part of it will be covered with fertile soil and green plants will be planted.



Typical X-Section of Dumping Yard to be used as Bus Terminal



LOCATION OF MUCK DISPOSAL SITE (BUS STAND)

PICTORIAL VIEW OF MUCK DISPOSAL SITE (BUS STAND)



**D) Rehabilitation of Muck Disposal Site**

The rehabilitation plan of muck dumping site includes engineering and biological measures. The project authorities would ensure that dumping yards blend with the natural landscape to develop the site for its maximum utilization and cover the rest area with greenery.

The following engineering and biological measures have been proposed for the development of spoiled areas.

1. Engineering Measures

For stacking of dumped material, gabion toe walls is proposed to be built before and during dumping of any material on the identified site. The road construction methodology comprises of developing the formation width in cutting and at spots in filling, so that the material obtained from cutting is utilized partially in filling. The excavation on hill side will be done to get a stable slope. At places Breast Wall & Gabion walls shall be done in natural slope to retain the filled material, particularly where there is problem of retaining the slope.

i) Retaining Wall, Breast Wall & Gabion Walls

The total area of dumping area is 0.24 Ha which can accommodate more than 0.0079 Mcum though the estimated muck to be disposed is 0.0037 Mcum. The Gabion Walls of 2 & 3 tier height will be constructed at different levels to form terraced pattern of dumping muck. Also Retaining wall of 3M height and Breast Wall of 2M height shall be constructed at different levels to avoid any spoilage of muck.

ii) Compaction

Compaction is an engineering measure which would reduce the bulk volume of the muck thereby optimising the use of muck disposal area and would make it suitable for future space utilization as Bus Stand.

The financial implication of engineering measures for the rehabilitation of Dumping Area is tabulated below

Sr. No.	Particular	Quantity	Rate	Cost
1.	Gabion Walls	200 Rm	4049.79	8.10
2.	R/Wall 3M Height	100 Rm	19079.50	19.08
3.	R&B Wall 2M Height	80 Rm	10421.14	8.34
4.	Compaction	3764.00 Cum	8.85	0.33
Total Cost in lacs				35.85 Lacs

2. Biological Measures

The surface area of dumping area is about 0.24 Ha. This area will be utilized as Bus Terminal and partly will be treated for the purpose of plantation. Vegetation cover controls the hydrological and mechanical effects on soils and slopes. Therefore biological measures to stabilize the loose slope are essential. To implement the biological measures in dumping area the following activities would be taken into account.

i) Soil Treatment

Muck dumped is not considered to be nutrient rich as it is excavated from the road cutting. In order to make it suitable for the plantation, it will provided bio treatment.

ii) Plantation

The selected species will be planted after their nurseries have been developed. Nearly 1-2 years old saplings would be used for the plantation. Grasses and herbaceous species



would be used in the inter space of tree and shrub species. They will help in retaining the debris and thereby increasing the infiltration capacity of the area. After the compaction is achieved, site will be available for plantation, in consultation with the horticulture as well as forest department.

The financial implication of biological measures for the rehabilitation of Dumping Area is as below.

S. No	Particulars	Quantity	Rate	Amount (in Lakhs)
1.	Manuring	-	Lump sum	1.00
2.	Raising of Plants (incl nursery cost, manure and transportation, etc.)	-	Lump sum	1.50