

NATURAL RESOURCES DEVELOPMENT CORPORATION LTD.
FIELD RECORDS & VOLUME CALCULATION OF 3.0KM DAWATHANG FOREST ROAD 2024

Location : Norgang, Dawathang FMU, Jakar Region
 Name of Road : 3.00 km Forest Road
 Survey method : Zero line
 Road Length : 3000m

1 Mr. Bishal Subba, Civil Engineer, FRD, HO, NRDCL
 2 Mr. Sonam Thinley, FA, Dawathang unit
 3 Mr. Gyalwong Phuntsho, Forest Ranger
 4 Mr. Rinchen, Forester

St. No.	Grad. (%)	Dist. (m)	Side slope (%)	Rock comp. (%)	Vol. per meter (m ³)		Total vol. (m ³)		Additional vol. (m ³)		Culvert ø (cm)	Remarks
					Soil	Rock	Soil	Rock	Soil	Rock		
1	3	4	5	6	7	8	9	10	11	12	13	14
1~2	8	30	10	0	0.48	-	14.40	0.00	-	-	-	
2~3	8	30	10	0	0.48	-	14.40	0.00	-	-	-	
3~4	8	30	10	0	0.48	-	14.40	0.00	-	-	-	
4~5	8	30	10	0	0.48	-	14.40	0.00	-	-	-	
5~6	8	30	10	0	0.48	-	14.40	0.00	-	-	-	
6~7	8	30	10	0	0.48	-	14.40	0.00	-	-	1.00	hume pipe @ 30% side slope
7~8	8	30	20	0	1.04	-	31.20	0.00	7.80	-	-	Passing place 1
8~9	8	30	20	0	1.04	-	31.20	0.00	-	-	-	
9~10	8	30	30	0	1.70	-	51.00	0.00	-	-	-	
10~11	8	12	40	0	2.46	-	29.52	0.00	-	-	-	zig 1
11~12	8	30	70	0	10.50	-	315.00	0.00	-	-	1.00	hume pipe @ 40% side slope
12~13	8	30	70	0	10.50	-	315.00	0.00	-	-	-	
13~14	8	30	70	0	10.50	-	315.00	0.00	-	-	-	
14~15	8	12	70	0	10.50	-	126.00	0.00	-	-	-	zig 2
15~16	8	30	20	0	1.04	-	31.20	0.00	7.80	-	-	Passing place 2
16~17	8	30	40	0	2.46	-	73.80	0.00	-	-	-	
17~18	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
18~19	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
19~20	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
20~21	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
21~22	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
22~23	8	30	50	0	3.38	-	101.40	0.00	25.35	-	-	Passing place 3
23~24	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
24~25	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
25~26	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
26~27	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
27~28	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
28~29	8	19.5	90	0	20.45	-	398.78	0.00	-	-	-	

St. No.	Grad. (%)	Dist. (m)	Side slope (%)	Rock comp. (%)	Vol. per meter (m ³)		Total vol. (m ³)		Additional vol. (m ³)		Culvert ø (cm)	Remarks
					Soil	Rock	Soil	Rock	Soil	Rock		
1	3	4	5	6	7	8	9	10	11	12	13	14
29~30	8	40	120	100	-	19.75	0.00	790.00	0.00	197.50	-	Passing place 4
30~31	8	20	100	25	18.75	3.91	375.00	78.20	-	-	-	
31~32	8	26	70	0	10.50	-	273.00	0.00	-	-	1.00	hume pipe @ 40% side slope
32~33	8	11	70	0	10.50	-	115.50	0.00	-	-	-	
33~34	8	33	80	75	3.38	7.23	111.54	238.59	-	-	-	
34~35	8	25	90	100	-	13.73	0.00	343.25	-	-	-	
35~36	8	16	50	100	-	2.50	0.00	40.00	-	-	1.00	Hume pipe with dia 900mm @ 30% side slope
36~37	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
37~38	8	30	80	25	10.13	2.41	303.90	72.30	-	-	-	
38~39	8	30	80	0	13.50	-	405.00	0.00	101.25	-	-	Passing place 5
39~40	8	23	50	0	3.38	-	77.74	0.00	-	-	-	
40~41	8	30	30	0	1.70	-	51.00	0.00	-	-	-	
41~42	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
42~43	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
43~44	8	30	40	0	2.46	-	73.80	0.00	-	-	-	
44~45	8	15	30	0	1.70	-	25.50	0.00	-	-	-	Large zig 3
45~46	8	16	20	0	1.04	-	16.64	0.00	-	-	-	
46~47	8	21	40	0	2.46	-	51.66	0.00	-	-	-	
47~48	8	30	30	0	1.70	-	51.00	0.00	12.75	-	-	Passing place 6
48~49	8	30	20	0	1.04	-	31.20	0.00	-	-	-	
49~50	8	30	20	0	1.04	-	31.20	0.00	-	-	-	
50~51	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
51~52	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
52~53	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
53~54	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
54~55	8	18	20	0	1.04	-	18.72	0.00	-	-	-	
55~56	8	30	40	0	2.46	-	73.80	0.00	18.45	-	-	Passing place 7
56~57	8	30	40	0	2.46	-	73.80	0.00	-	-	-	
57~58	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
58~59	8	30	70	0	10.50	-	315.00	0.00	-	-	-	
59~60	8	30	70	0	10.50	-	315.00	0.00	-	-	-	
60~61	8	30	70	0	10.50	-	315.00	0.00	-	-	-	
61~62	8	30	60	0	6.13	-	183.90	0.00	-	-	1.00	hume pipe @ 40 % side slope
62~63	8	30	50	0	3.38	-	101.40	0.00	25.35	-	-	Passing place 8
63~64	8	30	70	0	10.50	-	315.00	0.00	-	-	1.00	hume pipe @ 40 % side slope (100% rock)

St. No.	Grad. (%)	Dist. (m)	Side slope (%)	Rock comp. (%)	Vol. per meter (m ³)		Total vol. (m ³)		Additional vol. (m ³)		Culvert ø (cm)	Remarks
					Soil	Rock	Soil	Rock	Soil	Rock		
1	3	4	5	6	7	8	9	10	11	12	13	14
64~65	8	30	30	0	1.70	-	51.00	0.00	-	-	-	
65~66	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
66~67	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
67~68	8	30	40	0	2.46	-	73.80	0.00	-	-	-	
68~69	8	30	40	0	2.46	-	73.80	0.00	-	-	-	
69~70	8	30	60	0	6.13	-	183.90	0.00	45.98	-	-	Passing place 9
70~71	8	30	120	0	37.50	-	1125.00	0.00	-	-	-	
71~72	8	30	120	25	28.13	4.94	843.90	148.20	-	-	1.00	hume pipe @ 30% side slope (100% rock)
72~73	8	30	40	0	2.46	-	73.80	0.00	-	-	-	
73~74	8	7	70	0	10.50	-	73.50	0.00	-	-	1.00	hume pipe @ 30% side slope (100% rock)
74~75	8	30	120	25	28.13	4.94	843.90	148.20	-	-	-	
75~76	8	30	70	25	7.88	1.63	236.40	48.90	-	-	-	
76~77	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
77~78	8	30	50	0	3.38	-	101.40	0.00	25.35	-	-	Passing place 10
78~79	8	30	30	0	1.70	-	51.00	0.00	-	-	-	
79~80	8	30	20	0	1.04	-	31.20	0.00	-	-	-	
80~81	8	30	40	0	2.46	-	73.80	0.00	-	-	-	
81~82	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
82~83	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
83~84	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
84~85	8	30	40	0	2.46	-	73.80	0.00	18.45	-	-	Passing place 11
85~86	8	30	70	0	10.50	-	315.00	0.00	-	-	-	
86~87	8	30	70	0	10.50	-	315.00	0.00	-	-	-	
87~88	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
88~89	8	30	20	0	1.04	-	31.20	0.00	-	-	-	
89~90	8	30	30	0	1.70	-	51.00	0.00	-	-	-	
90~91	8	30	30	0	1.70	-	51.00	0.00	-	-	-	
91~92	8	32	40	0	2.46	-	78.72	0.00	19.68	-	-	Passing place 12
92~93	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
93~94	8	32	40	0	2.46	-	78.72	0.00	-	-	-	
94~95	8	31	50	0	3.38	-	104.78	0.00	-	-	1.00	hume pipe @ 30% side slope
95~96	8	27	80	0	13.50	-	364.50	0.00	-	-	-	
96~97	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
97~98	8	15	80	0	13.50	-	202.50	0.00	-	-	-	
98~99	8	30	80	0	13.50	-	405.00	0.00	-	-	-	
99~100	8	30	80	0	13.50	-	405.00	0.00	101.25	-	-	Passing place 13
100~101	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
101~102	8	30	60	0	6.13	-	183.90	0.00	-	-	-	
102~103	8	33	50	0	3.38	-	111.54	0.00	-	-	-	

St. No.	Grad. (%)	Dist. (m)	Side slope (%)	Rock comp. (%)	Vol. per meter (m ³)		Total vol. (m ³)		Additional vol. (m ³)		Culvert ø (cm)	Remarks
					Soil	Rock	Soil	Rock	Soil	Rock		
1	3	4	5	6	7	8	9	10	11	12	60	14
103~104	8	30	50	0	3.38	-	101.40	0.00	-	-	-	
104~105	8	31	40	0	2.46	-	76.26	0.00	-	-	-	
105~106	8	30	30	0	1.70	-	51.00	0.00	-	-	1.00	hume pipe at 30% side slope
106~107	8	30	60	0	6.13	-	183.90	0.00	45.98	-	-	Passing place 14
Total		3005.5					19,028.02	1,907.64	455.43	197.50	10.00	
Grand Total							19,483.45	2,105.14			10.00	



(Bishal Subba)
Civil Engineer
FRD, HO, NRDCL

Soil	19,483.45	m ³	90.25%
Rock	2,105.14	m ³	9.75%
Total	21,588.59	m³	100%

2. Road length : 3000.00 m
3. Cross drainages : 10 Nos. H/pipe culvert
4. No. of passing places : 14 Nos.
5. No. of Zigs : 3 Nos.
6. Gabion wall : 0.00m approx

Side slope	Cut Width (m)	Fill Width (m)	Total	Back cut slope (Batter)		Volume	
				Soil	Rock	Soil	Rock
10	3.00	2.00	5.00	1.5:1	5:1	0.48	0.46
20	3.00	2.00	5.00	1.5:1	5:1	1.04	0.95
30	3.00	2.00	5.00	1.5:1	5:1	1.70	1.43
40	3.00	2.00	5.00	1.5:1	5:1	2.46	1.95
50	3.00	2.00	5.00	1.5:1	5:1	3.38	2.50
60	3.50	1.50	5.00	1.5:1	5:1	6.13	4.18
70	4.00	1.00	5.00	1.5:1	5:1	10.50	6.50
80	4.50	0.50	5.00	2:1	5:1	13.50	9.64
90	5.00	0	5.00	2:1	5:1	20.45	13.73
100	5.00	0	5.00	2:1	5:1	25.00	15.63
110	5.00	0	5.00	2:1	5:1	30.55	17.63
120	5.00	0	5.00	2:1	5:1	37.50	19.75

S. J. Swain