ଇବ ଅନୁସନ୍ଧାନ ବିଭାଜନ, ସୁନ୍ଦରଗଡ଼
OFFICE OF THE EXECUTIVE ENGINEER
IB INVESTIGATION DIVISION, SUNDARGARH
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6F 24.2.21

No 160 /Dated- 22.02.2021

To

The Divisional Forest Officer,
Bonai Forest Division
Sundergarh, Odisha

Sub: Proposal for diversion of 113.075 ha of forest land for construction of **Karapani Irrigation Project with construction of Dam at village Barghat & Dhanijam in Lahunipara Tehsil** under Bonai Forest Division in Sundargarh district in the state of Odisha – Compliance to the observation of MoEF & CC, GoI- regarding.

Ref: 1. File No. 8-27/2020-FC 12.01.2021 of MoEF & CC, GoI
2. Memo No. 1808 dt.29.1.2021 of the PCCF (FD & NO FC Act), Bhubaneswar.
3.Your office Letter. No 821/6F-(Mg.) dated 10.02.2021.

Sir

In inviting a kind reference to the letter on the subject cited above, the point wise compliance/ clarification to the EDS made by MoEF & CC, Govt. of India vide reference-1 is submitted herewith for kind information and necessary action please: -

Observation-1

Complete KML File of 113.075 ha of forest land proposed for diversion has not been uploaded online. Forest area estimated from the available KML is worked out to be 105.345 ha while the area worked out from the KML file submitted physically is 112.048 ha. Discrepancy needs to be rectified by the user agency by uploading correct and complete KML file prepared and constructed based on the total station/ DGPS survey. Detail of degraded forest land proposed for CA has not been provided in the online proposal. Differential GPS map of the same, along with its KML file need to be submitted /uploaded by the user agency. Further, detail of other attributes viz. CA Schemes, site suitability certificate has not been uploaded in the part-II submitted online.

Compliance

The Complete KML File of 113.075 ha of forest land proposed for diversion has been uploaded In the Form-A of the online web-portal of www.parivesh.nic.in. The GPS map and the KML file of the degraded forest land identified for compensatory afforestation is also uploaded In the Form-A of the online web-portal. As per the guideline of ORSAC, the area is 95% corrected based on DGPS survey.

Observation-2

DSS analysis of the area proposed for CA revealed that out of 144 ha of degraded forest land proposed for raising CA, in addition to non- forest land, an area of 88 ha falls into MDF category which may not be suitable for CA. Therefore, the User agency needs to identify alternate degraded forest land of crown density below 0.4 and the detail of same needs to be uploaded in the online proposal.

Compliance

As per the observation made by PCCF (FD & NO FC Act), Bhubaneswar, the Divisional Forest officer, Rourkela Division has intimated vide his memo No. 5175 dt. 18.9.2020 ***(copy enclosed)*** *that, the degraded forest land identified in Harapali RF over an area of 144 ha for CA purpose was reverified on ground and it is found that 59 ha of forest land is coming under open forest category (below crown density 0.4), seedling @ 1000 nos /ha. shall be planted within the 59ha. The remaining 85 ha. of degraded forest land that comes under MDF category has also been included in the CA scheme for other ancillary works like silvicultural operation, soil moisture conservation activities to maintain the forest growth.*

Observation-3

Abstract of tree enumeration provided in Part-II submitted online mentioned total project affected trees as 2072 while the inspection report dated nil of the DCF concerned mentioned 21,371 project affected trees. Discrepancies in the number of projects affected trees may be rectified by the user agency and correct detail be intimated and updated on the proposal. Further, detail of project affected trees falling between FRL-2 meter and FRL-4 meter has also not been indicated in the online part-II. The same also needs to be intimated and uploaded by the user agency.

Compliance

In order to speed execution of the work, sample tree enumeration has been carried out over both Forest and Non-Forest area. 11 no. of sample plots of 1 ha each within 113.075 ha of proposed forest area for diversion has been enumerated, 2081 no. of trees have been enumerated and by extrapolation method of the number of tress enumerated (i.e., @ 189 trees/ha) to total proposed area of 113.075 ha, hence the number of trees standing on forest land comes 21,371 (189x113.075).

Similarly, sample enumeration in 15 nos of sample plots of 1 ha each have been carried out in non-forest land and 1693 nos of trees standing on those plots have been enumerated, thus per ha 113 trees found to stand on non -forest land. By extrapolation results in 41455 nos of tress standing on the proposed non- forest land of 366.859ha (113x366.859). Thus, in total 62,826 no. of trees shall be required to be felled up for the project.

As sample enumeration has been done in entire project area, it is not feasible to find out the affected trees falling between FRL-2 meter and FRL-4 meter. However, the trees falling between FRL-2 meter and FRL-4 shall not be felled during the construction period.

Observation-4

Approval for another proposal of the same project involving forest area of 14.53 ha has been reported to be obtained from the integrated regional office, Bhubaneswar on 14.08.2017. Extant proposal involves forest area of 113.075 ha. The User agency may, therefore, intimate whether the proposal approved by the regional Office relates to the same project or

standalone project. The user agency also intimate if the project is comprised of different phases and if so detail of all such phases and forest area involved thereof, may be intimated to the MoEF&CC for a holistic view of the forest area involved in the project.

Compliance

The present proposal for diversion of 113.075ha of forest land is a standalone project. It is not related to the project that has been approved by the Integrated Regional Office, Bhubaneswar on dated 14.08.2017.

Observation-5

Complete detail of cost benefit analysis has not been uploaded online i.e. only abstract detail of benefits associated with the project has been provided in the online proposal. Complete and detailed cost benefit analysis supported with detailed technoeconomic estimations followed in carrying out the cost benefit analysis needs to be uploaded online.

Compliance

Complete detail of cost benefit analysis supported with detailed technoeconomic estimations followed in carrying out the cost benefit analysis has been uploaded on the MoEF & CC web portal.

Observation-6

Project report submitted online mentioned submergence of 8 km stretch of a District road connecting Khuntagain to Angul village. Alternate connectivity proposed to be provided to between these villages and status of forest land involved, if any needs to be intimated by user agency.

Compliance

The alternate connecting road between Village Khuntagain to Angul is under process and this has been carried out with consolidation of the state R&W Department. Outmost care shall be taken up for minimum use of the forest land. The alternative map and proposal shall be submitted in due course. An undertaking in this regard is enclosed in Annexure-1.

Observation-7

Project involves displacement of 148 families in 5 villages. R&R plan for the PAPs, submitted online is not accessible. The same needs to be uploaded in its compatible format to make accessible.

Compliance

Project involves displacement of 148 families in 5 villages. An undertaking for preparation approval of R&R plan has been uploaded in compatible format.

Observation-8

Project involves to major components viz. construction of head works and canals which involves earth cutting and hence generation of muck. Detail of plan for disposal of muck to be generated during the project construction has not been provided in the proposal. The same may needs to be provided by the State.

Compliance

The disposal of muck to be generated during the project construction shall be utilized in canal embankment and Service road. An undertaking in this regard is provided in Annexure-2.

Observation-9

Detailed project Component-wise break up of Forest land Proposed for diversion viz. weir, submergence area, roads etc. needs to be intimated/uploaded by the User agency.

Compliance

Detailed project Component-wise break up of Forest land Proposed for diversion viz. weir, submergence area, roads etc. has been enclosed in Annexure-3.

Observation-10

Layout plan of the Canal, indicating its RoW and various components proposed to be constructed in the RoW needs to be provided by the User agency.

Compliance

Detailed *Layout plan of the Canal, indicating its RoW and various components proposed to be constructed in the RoW has been enclosed in Annexure-4.*

Observation-11

It is also observed that several documents, in their vernacular language without their English version, have been uploaded in the online proposal. The User agency shall ensure that documents uploaded in the vernacular language should invariably be accompanied with their English version also. Necessary updating in the online proposal may be made by the User agency.

Compliance

The documents those are uploaded in the vernacular language has been updated with their English version in the online proposal.

Accordingly, the compliance to the EDS raised by MoEF & CC, GOI, is submitted herewith for kind perusal and further necessary processing at your end.

Yours Faithfully,

Executive Engineer
IB investigation Division,
Sundargarh

Memo No 161 / *Dt* 22.02.2024

Copy submitted to the Regional Principal Chief Conservator of Forest, Rourkela Circle, Rourkela/ Divisional Forest Officer, Rourkela Forest Division, Rourkela for kind information and necessary action.

Executive Engineer

Annexure-1

Undertaking for Alternate Connectivity Road

We here by undertake that, the alternative Connectivity road plan is under process and shall be submitted in due course.

Executive Engineer,
IB investigation Division,
Sundargarh

Annexure-2

Undertaking for Disposal of Muck

We here by undertake that, the disposal of muck to be generated during the project construction shall be utilized in construction of canal embankment and service road.

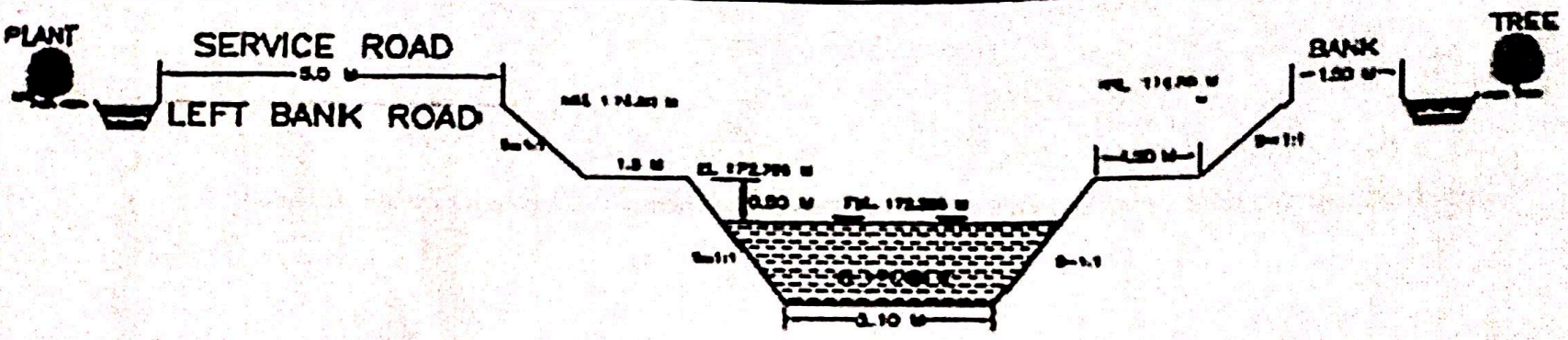
Executive Engineer,
IB investigation Division,
Sundargarh

Annexure-3

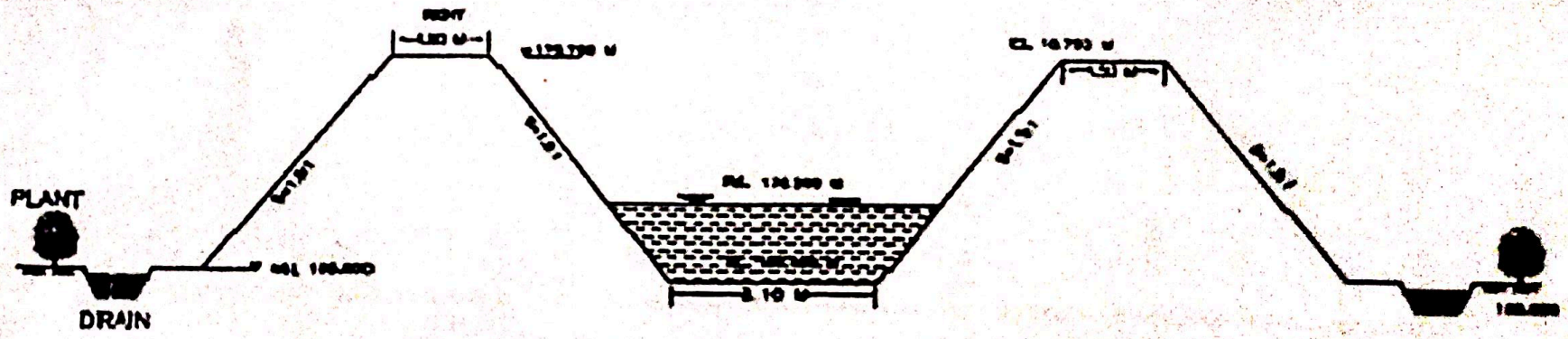
Component Wise Break-up of Project Area					
	Forest Land Area (In Ha.)			Non-Forest Land Area (In Ha.)	Total
	Reserve Forest	PRF	Revenue Forest		
Dam Axis	0.241	0	3.669	9.20	13.11
Pondage	6.001	8.474	72.97	315.528	402.973
Left Main Canal	1.718	0	17.338	29.807	48.863
Right Main Canal	0	0	2.664	12.324	14.988
Total	7.96	8.474	96.641	366.859	479.934

Executive Engineer,
IB investigation Division,
Sundargarh

Annexure



TYPICAL CUTTING SECTION AT RD 60 M AT HEAD REACH OF RIGHT MAIN CANAL SHOWING PLANTATION



TYPICAL FILLING SECTION AT RD 2100 M OF RIGHT MAIN CANAL SHOWING PLANTATION

Fig.No.C2-3: Cross Section of Right Main Canal

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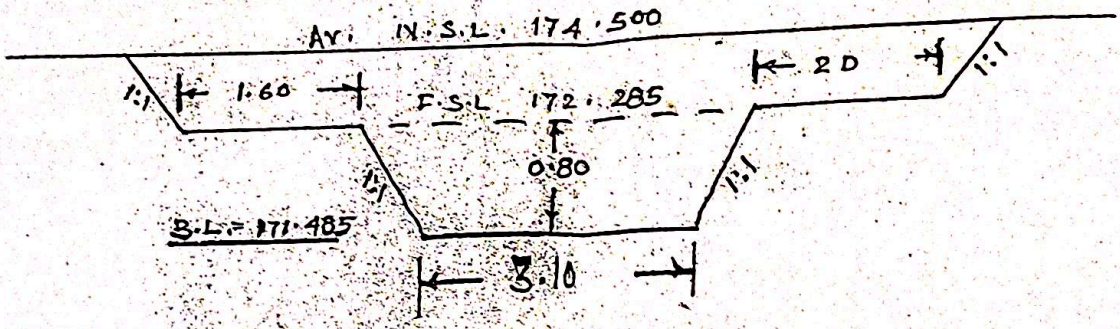
Irrigation Division
Sundargarh

CALCULATION OF EARTH WORK OF MAIN CANAL

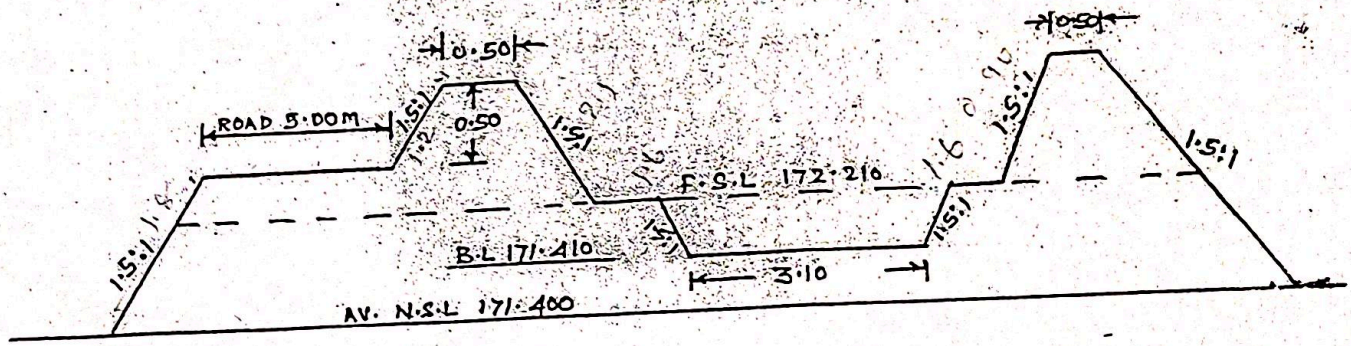
C.S. AT RD 60 M.



Cutting Area :

1)	1/2 x	(3.10	+	4.70) x	0.80	=	3.120
2)	1/2 x	(7.90	+	12.33) x	2.215	=	22.405
					Total	=	**25.525 Sqm.**

C.S. AT RD 360 M.



Filling Area :

Left Bank:

Dowel 1)	1/2 x	(0.50	+	2.00) x	0.50	=	0.625
2)	1/2 x	(7.00	+	8.50) x	0.50	=	3.875
3)	1/2 x	(10.10	+	12.50) x	0.80	=	9.040

Right Bank :

1)	1/2 x	(1.50	+	3.00) x	0.50	=	1.125
2)	1/2 x	(4.60	+	7.00) x	0.80	=	4.640
					Total	=	**19.305 Sqm.**

Turfing :

L/S =	1.80+1.20+0.50+2.10+1.60	=	7.20
R/S =	1.80+1.50+0.90+1.60	=	5.80
			13.00 Sqm.

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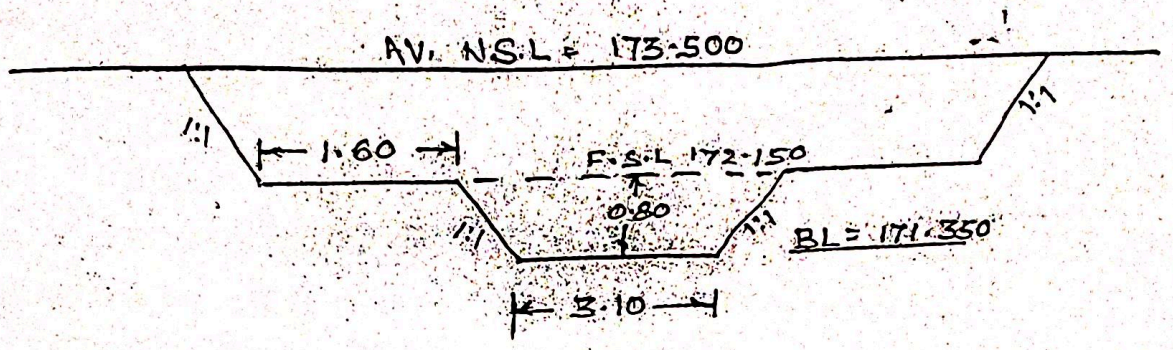
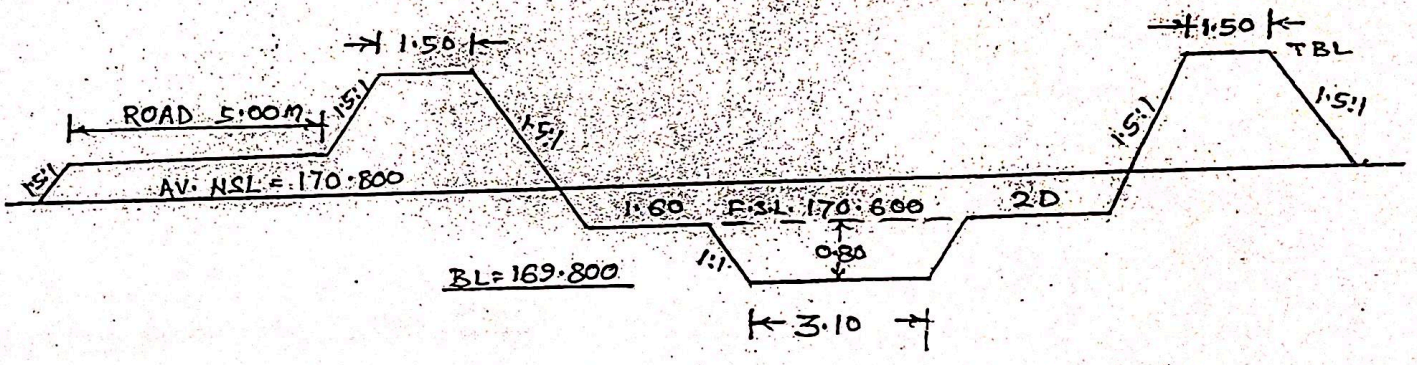
C.S. AT RD 600 M.



Cutting Area :

1)	1/2 x	(3.10	+	4.70) x 0.80	=	3.120	
2)	1/2 x	(7.90	+	10.60) x 1.35	=	12.487	
				Total	=	**15.607**	**Sqm.**

C.S. AT RD 780 M.



Cutting Area :

1)	1/2 x	(3.10	+	4.70) x 0.80	=	2.840	
2)	1/2 x	(7.90	+	8.50) x 0.20	=	1.640	
				Total	=	**4.480**	**Sqm.**

Filing Area :

L/B	1) 1/2 x	(0.50	+	2.00) x 0.50	=	0.625	
	2) 1/2 x	(7.00	+	7.90) x 0.30	=	2.235	
R/B	1) 1/2 x	(1.50	+	2.40) x 0.30	=	0.585	
				Total	=	**3.445**	**Sqm.**

Turfing : L/S 7.00 Sqm.
R/S 5.00 Sqm.
12.00 Sqm. **12.00 Sqm.**

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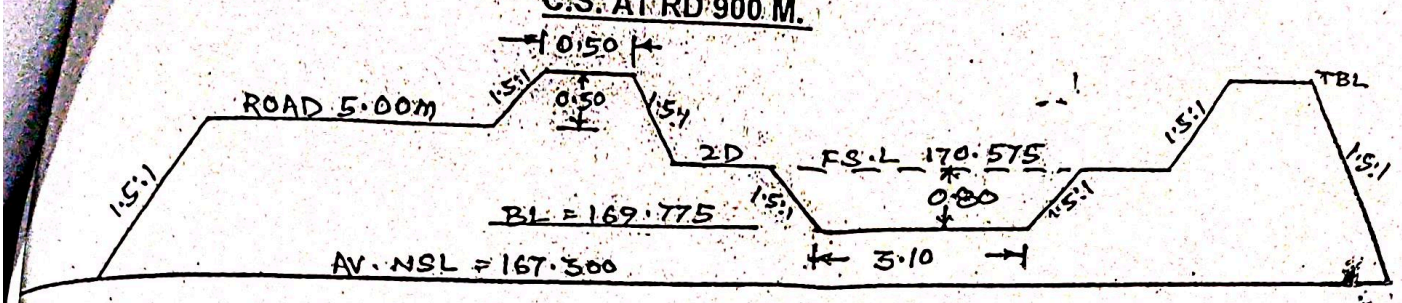
C.S. AT RD 900 M.



Filling Area :

Left side dowel =

1)	1/2	x	(	0.50	+	2.00	) x 0.50	= 0.625
2)	1/2	x	(	7.00	+	8.50	) x 0.50	= 3.875
3)	1/2	x	(	10.10	+	12.50	) x 0.80	= 9.040

Right side :

	1)	1/2	x	(	1.50	+	3.00	) x 0.50 = 1.125
	2)	1/2	x	(	4.60	+	7.00	) x 0.80 = 4.640
Upto N.S.L.	1)	1/2	x	(	22.60	+	26.31	) x 2.475 = 60.526

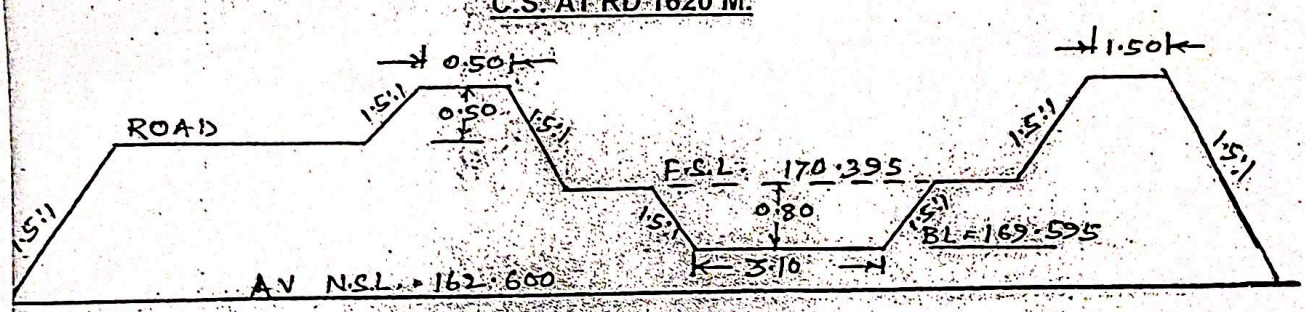
Total = 79.831 Sqm.

Turfing : L/S 11.70 Sqm.

R/S 10.30 Sqm.

22.00 Sqm. **22.00 Sqm.**

C.S. AT RD 1620 M.



Filling Area :

	1)	1/2	x	(	0.50	+	2.00	) x 0.50 = 0.625
	2)	1/2	x	(	7.00	+	8.50	) x 0.50 = 3.875
	3)	1/2	x	(	10.10	+	12.50	) x 0.80 = 9.040
R/B	4)	1/2	x	(	1.50	+	3.00	) x 0.50 = 1.125
	5)	1/2	x	(	4.60	+	7.00	) x 0.80 = 4.640
Upto N.S.L.	6)	1/2	x	(	22.60	+	43.60	) x 6.995 = 231.534

Add extra for 1 : 4 slope

R/S	1)	1/2	x	(	22.00	x	3.50	) = 38.500
L/S	2)	1/2	x	(	16.00	x	2.00	) = 16.000

305.339 Sqm.

Turfing :

L/S	1)	:	34.00	Sqm.
R/S	2)	:	33.00	Sqm.
		Total =	67.00	Sqm.

67.00 Sqm.

Executive Engineer
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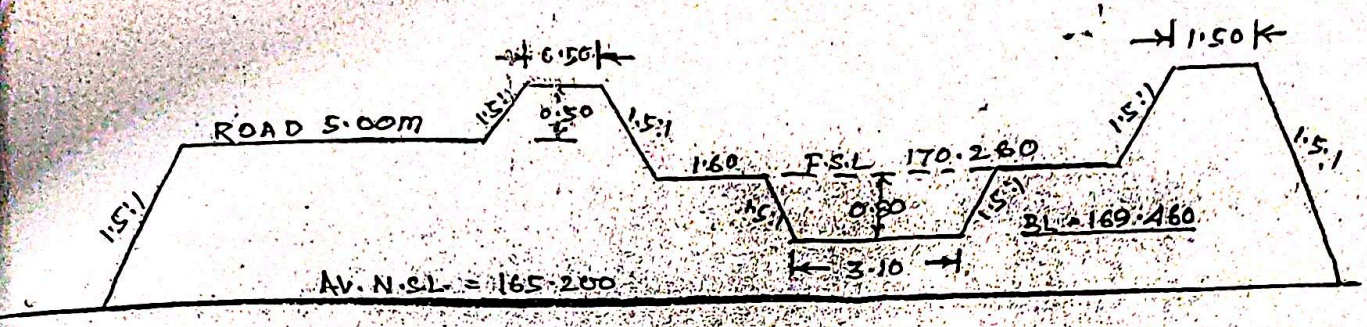
C.S. AT RD 2160 M.



Filling Area :

L/S	1)	1/2	x	(	0.50	+	2.00	) x 0.50	=	0.625
	2)	1/2	x	(	7.00	+	8.50	) x 0.50	=	3.875
	3)	1/2	x	(	10.10	+	12.50	) x 0.80	=	9.040
R/B	1)	1/2	x	(	1.50	+	3.00	) x 0.50	=	1.125
	2)	1/2	x	(	4.60	+	7.00	) x 0.80	=	4.640
Upto N.S.L.	3)	1/2	x	(	22.60	+	35.38	) x 4.26	=	123.497

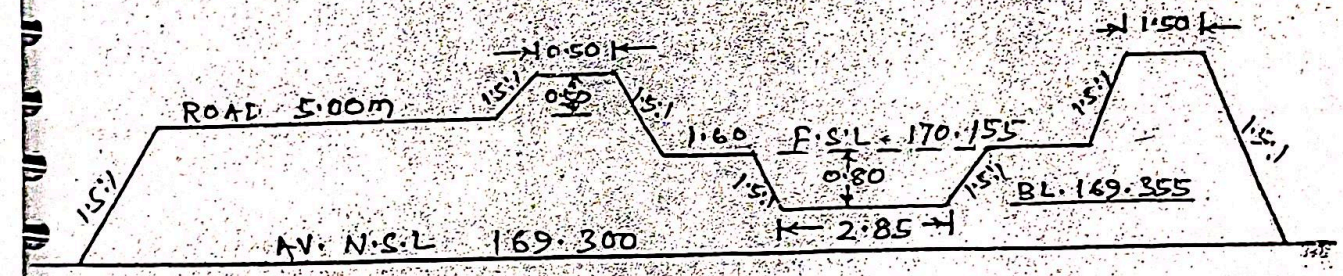
Add extra for 1 : 4 slope

R/B	1/2	x	(	12.00	x	2.00	)	=	12.000
L/B	1/2	x	(	5.00	x	1.00	)	=	2.500
									157.302 Sqm.

Turfing :

L/S	:	25.00	Sqm.
R/S	:	24.00	Sqm.
	Total =	49.00	Sqm.

C.S. AT RD 2580 M.



Filling Area :

L/B	1)	1/2	x	(	0.50	+	2.00	) x 0.50	=	0.625
	2)	1/2	x	(	7.00	+	8.50	) x 0.50	=	3.875
	3)	1/2	x	(	10.10	+	12.50	) x 0.80	=	9.040
R/B	1)	1/2	x	(	1.50	+	3.00	) x 0.50	=	1.125
	2)	1/2	x	(	4.60	+	7.00	) x 0.80	=	4.640
								Total	=	**19.305 Sqm.**

Turfing : 19.00 Sqm. **19.00 Sqm.**

Executive Engineer
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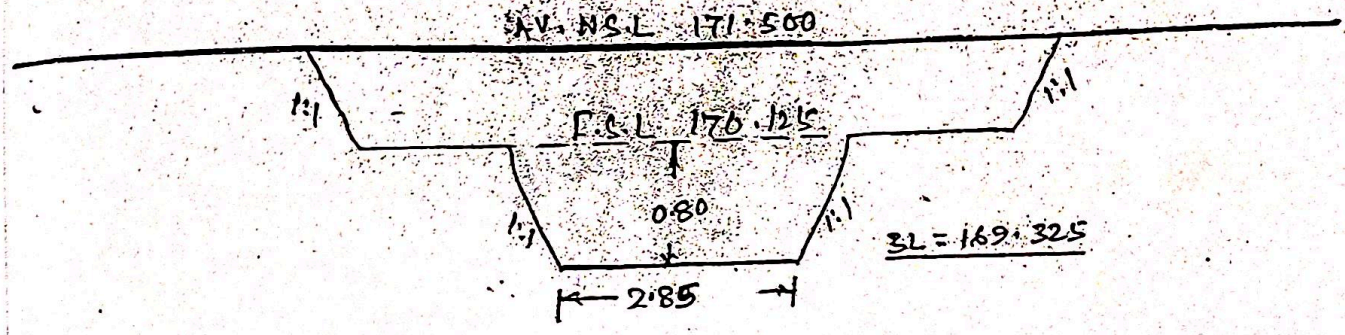
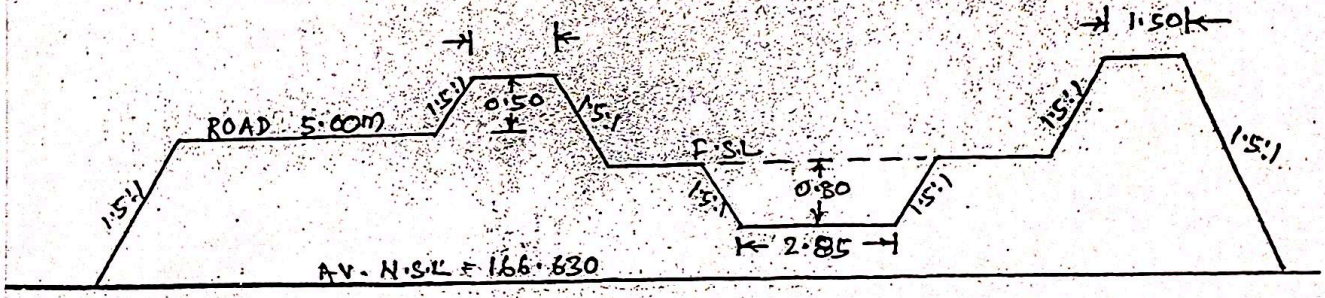
C.S. AT RD 2700 M.



Cutting Area :

1)	1/2	x	(2.85	+ 6.05)	x 0.8	=	3.560
2)	1/2	x	(9.25	+ 12.00)	x 1.375	=	14.609
					Total	=	18.169 Sqm.

C.S. AT RD 3000 M.



Filling Area :

L/B	1/2	x	(0.50	+ 2.00)	x 0.50	=	0.625
TBL to FSL	1/2	x	(7.00	+ 8.50)	x 0.50	=	3.875
FSL to BL	1/2	x	(10.10	+ 12.50)	x 0.80	=	9.040
R/B	1/2	x	(1.50	+ 3.00)	x 0.50	=	1.125
FSL to BL	1/2	x	(4.60	+ 7.00)	x 0.80	=	4.640
BL to NSL=	1/2	x	(22.35	+ 30.23)	x 2.63	=	69.005
							88.310 Sqm.

Turfing :

L/S	:	12.00	Sqm.
R/S	:	10.00	Sqm.
	Total =	22.00	Sqm.

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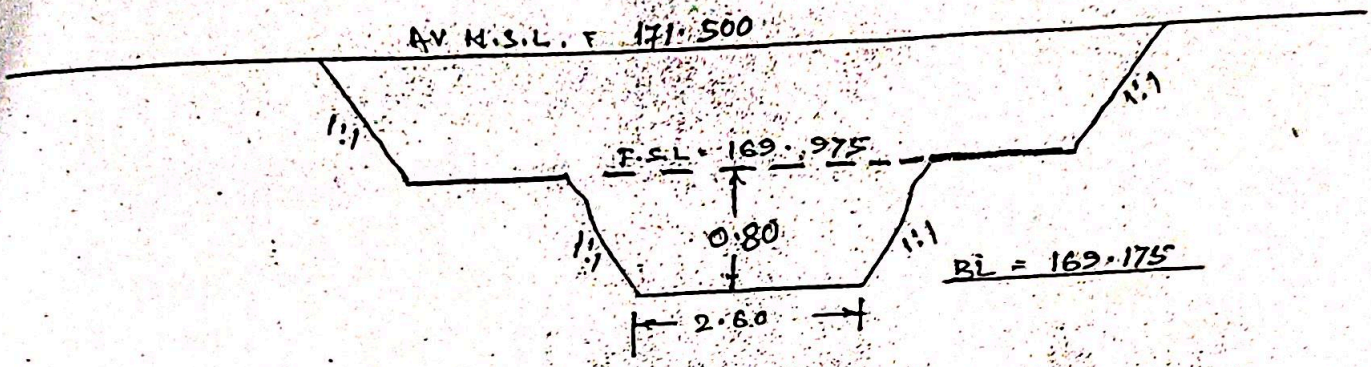
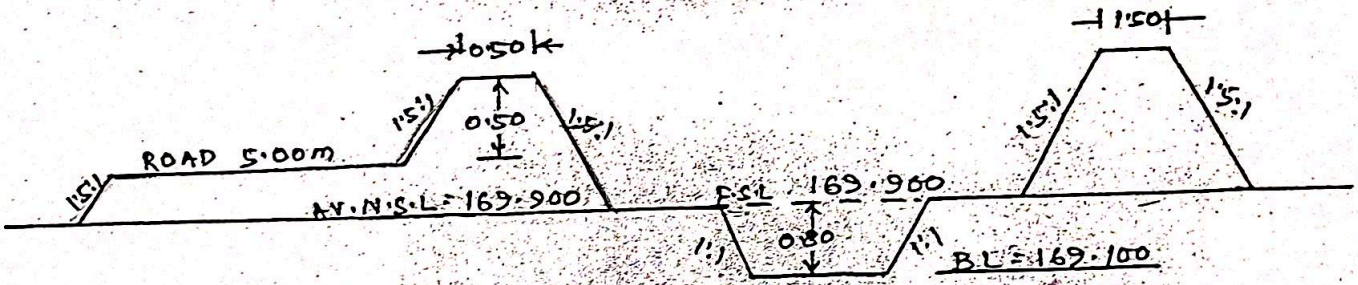
C.S. AT RD 3300 M.



Cutting Area :							
1)	1/2 x	(2.60	+	4.20) x 0.80	=	2.720	
2)	1/2 x	(7.40	+	10.45) x 1.53	=	13.611	
				Total	=	**16.33 Sqm.**	

C.S. AT RD 3600 M.



Cutting Area :							
1)	1/2 x	(2.60	+	4.20) x 0.8	=	2.720	
				Total	=	**2.720 Sqm.**	
Filling Area :							
L/B	1/2 x	(0.50	+	2.00) x 0.50	=	0.625	
	1/2 x	(7.00	+	8.50) x 0.50	=	3.875	
R/B	1/2 x	(1.50	+	3.00) x 0.50	=	1.125	
						5.625 Sqm.	

Turfing : 14.00 Sqm.

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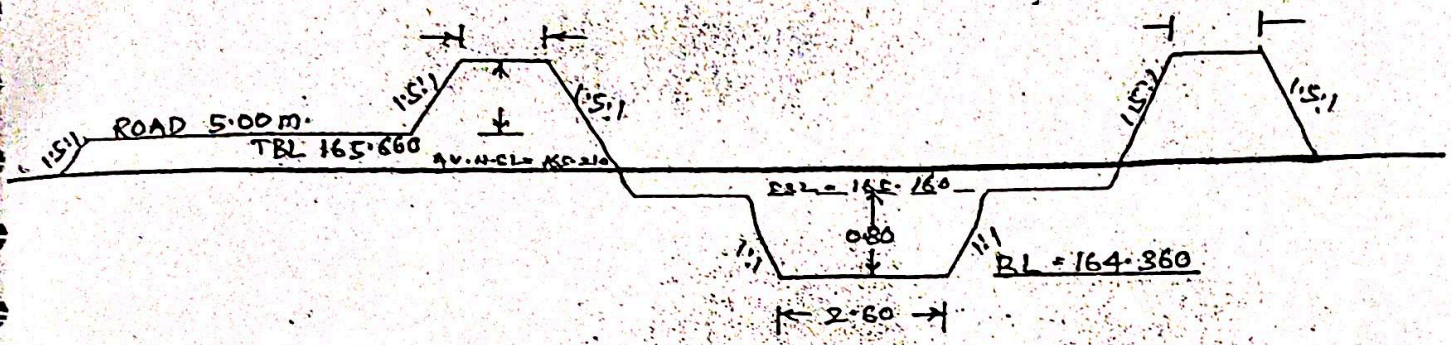
C.S. AT RD 4560 M.



Cutting Area :

	1) 1/2 x	(2.60	+	4.30) x 0.85	=	2.932 Sqm.
				Total	=	**2.932 Sqm.**

Filling Area :

L/B	1) 1/2 x	(0.50	+	2.00) x 0.5	=	0.625
	2) 1/2 x	(7.00	+	8.35) x 0.45	=	3.454
R/B	3) 1/2 x	(1.50	+	2.85) x 0.45	=	0.979
				Total	=	**5.058 Sqm.**

Turfing : L/S = 11.00 Sqm.
R/S = 10.00 Sqm.
21.00 Sqm.

Executive Engineer
Ib Investigation Division
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