

## Justification for diversion of Forest land for non-Forest Purpose

In-Principal approval for diversion of 86.6255 Ha of forest land has been accorded to Sivok-Rangpo New BG Rail Line Project vide No.5-WBA072/2014-BHU Dated 28.11.2017. This total 86.6255 Ha of forest land is to be used for construction of main tunnels, bridges, access road to the portals and muck dumping yards.

A part from the above land another 12.3786 Ha of land as tabulated below is required for construction of Adits. In transportation infrastructure project adits play very important role-mainly safety during construction, operation and maintenance phases. These are also mandatory requirement and serve as escape/evacuation passage in case of any emergency.

All these proposed adit tunnels are passing through the hills thus there will not be any change in eco-system of the environment and minimum forest degradation take place. These adit tunnels will also facilitate additional work front which will help in reducing the construction time of main tunnels.

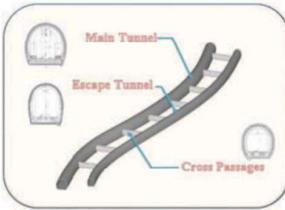
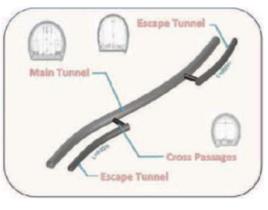
### Land Required for Adits

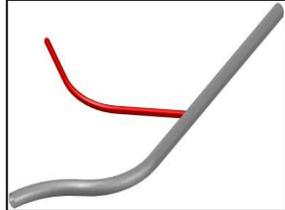
| Sl No. | Main Tunnel No. (More Than 3000M Length) | Length (M)     |                 | Area (Ha)      |              | Division                  |
|--------|--|----------------|-----------------|----------------|--------------|---------------------------|
|        |  | In Forest area | In Revenue Area | Forest         | Revenue      |                           |
| 1      | T1                                       | 865            |                 | 1.5278         |              | Mahananda Wildlife        |
| 2      | T6                                       | 536            |                 | 1.2544         |              | Darjeeling Forest Divison |
| 3      | T7                                       | 470            |                 | 2.9818         |              | Darjeeling Forest Divison |
| 4      | T8                                       | 321            | 810             | 0.6648         | 0.648        | Kalimpong Forest Division |
| 5      | T10 for Adit1                            | 806            |                 | 2.0198         |              | Kalimpong Forest Division |
|        | T10 for Adit 2                           | 992            |                 | 2.4518         |              | Kalimpong Forest Division |
| 6      | T11                                      | 942            |                 | 1.4781         |              | Kalimpong Forest Division |
|        |  |                |                 | <b>12.3786</b> | <b>0.648</b> |                           |

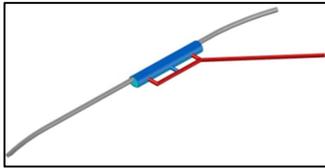
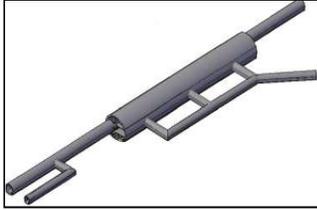
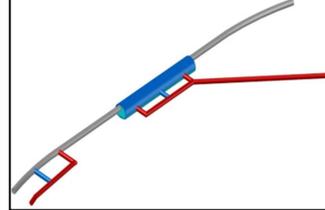
Proposed locations of adits have been finalized by renown tunnel design experts after intense study of the topography, geology and environmental aspects.

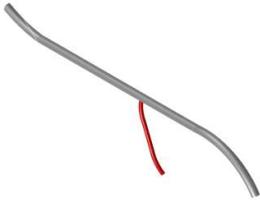
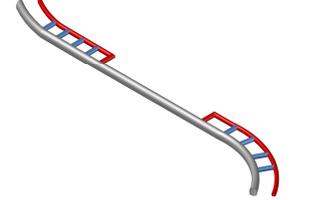
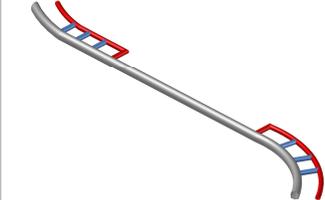
After studying various options for adits most suitable options with respect to minimum forest land diversion has been selected. The options are placed below:

| <b><u>Tunnel T-1 Adit</u></b> |  |  |  |
|-------------------------------|--|--|--|
|                               | OPTION I<br>(1 escape adit below NH10) | OPTION II<br>(with parallel escape tunnel) | OPTION III<br>(with 2nos of 600 m parallel escape tunnels) |

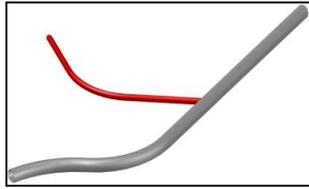
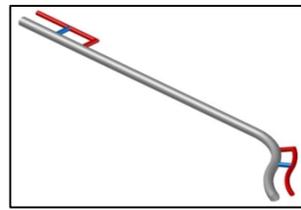
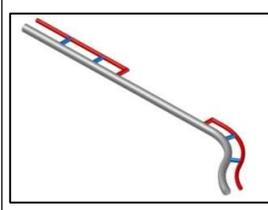
|                        |  |  |   |
|------------------------|--|--|---|
| Description            | <p>This alternative considers the application of one escape adit (with length of 865 m) connecting main tunnel to the valley nearby the highway NH-31A/NH10, which the railway is aligned to.</p> <p><u>Minimum Forest Land Required as Length of the adit is 865 M only</u></p> | <p>A parallel escape tunnel to the main tunnel T-1 with a length of 4203 m and distance between the tunnels of 20 m, which will be accessible by road vehicles from both portals. The connection between the parallel escape tunnel and the main tunnel will be built with pedestrian cross passages.</p> <p>The total length of parallel escape tunnel+ cross passages is 4203m + 160 m</p> | <p>2 Nos of escape tunnels with a length of 600m each, starting from either side of the portal, parallel to the main tunnel T-1. Distance between the tunnels is 20 m and will be accessible by road vehicles from both portal P1 and P2.</p> |
| Pictorial Presentation |   |    |    |
| Remarks                | Best Option Considering Minimum Forest Land Diversion is Option –I   |  |   |

| <b>Tunnel T-6 Adit</b> |   |   |  |
|------------------------|---|---|--|
|                        | <b>OPTION I</b><br>(1 parallel tunnel with cross passages)  | <b>OPTION II</b><br>(Three Lateral Escape Adits)  | <b>OPTION III</b><br>(One Lateral Adit)  |
| Description            | <p>A parallel access/escape tunnel along the entire alignment of the tunnel from portal to portal with a cross section of about 18m<sup>2</sup> which would be accessible by vehicles. Access to the first tube is provided by seven cross passages at a spacing of 500 m and a finished cross section of about 10m<sup>2</sup></p> | <p>Three escape adits of about 18m<sup>2</sup> starting from each portal and connecting to the tunnel at equal intervals along the alignment, thus maintaining a maximum distance between escape points to 1,000 m.</p> | <p>This alternative considers the application of one escape adit (with length of 536m) connecting main tunnel at mid of main tunnel approximately.</p> |
| Pictorial Presentation |    |   |   |
| Remarks                | Best Option Considering Minimum Forest Land Diversion is Option –III  |   |  |

| <b>Tunnel T-7 Adit</b> |   |  |  |
|------------------------|---|--|--|
|                        | <b>OPTION I</b><br>(Only 1 access tunnel to UG station)   | <b>OPTION II</b><br>(1parallel evacuation tunnel + 1 access tunnel to UG station )                     | <b>OPTION III</b><br>(1 parallel evacuation tunnel with a cross passage + 1 access tunnel to UG station) |
| Description            | Total tunnel length 3047 m between T7-P1 to Adit 1912m and 1134 m between Adit to T7-P2, total adit length -461 m | Total tunnel length 3047 m. The total length of parallel escape tunnel+ cross passages is 650m + 180 m | Total tunnel length 3047 m. The total length of parallel escape tunnel+ cross passages is 750m + 200 m   |
| Pictorial Presentation |                                  |                      |                       |
| Remarks                | Option –I will require less forest land acquisition.  |  |  |

| <b>Tunnel T-8 Adit</b> |   |   |   |
|------------------------|---|---|---|
|                        | <b>OPTION I</b><br>(1 central evacuation tunnel )   | <b>OPTION II</b><br>(2 parallel evacuation tunnels with cross passages)                                     | <b>OPTION III</b><br>(2 parallel evacuation tunnels with cross passages)                                    |
| Description            | Total tunnel length 4166 m between T8-P1 to Adit 1912m and 2332 m between Adit to T8-P2 1834 m, total adit length - 806 m | Total tunnel length 4166 m. The total length of parallel escape tunnel+ cross passages is 650m+650m + 160 m | Total tunnel length 4166 m. The total length of parallel escape tunnel+ cross passages is 700m+700m + 120 m |
| Pictorial Presentation |                                        |                         |                        |
| Remarks                | Option –I will require less forest land acquisition.  |   |   |

| <b>Tunnel T-10 Adit-1 &amp; Adit 2</b> |   |   |  |
|--|---|---|--|
|  | <b>OPTION I</b><br>(02 lateral escape evacuation tunnel ) | <b>OPTION II</b><br>(2 parallel evacuation tunnels) | <b>OPTION III</b><br>(2 parallel evacuation tunnels with cross passages) |
|  |   |   |  |

|                                |   |   |  |
|--------------------------------|---|---|--|
| Description                    | Total tunnel length 5270m between T10-P1 to Adit T10-P2, length respectively 806 m & 992 m                                  | Total tunnel length 5270 m. The total length of parallel escape tunnel+ cross passages is 5270m+5270m + 660 m | Total tunnel length 5270 m. The total length of parallel escape tunnel+ cross passages is 5270m+5270m + 1600 m |
| Pictorial Presentation         |    |                             |                             |
| Remarks                        | Option –I will require less forest land acquisition.  |   |  |
| <b><u>Tunnel T-11 Adit</u></b> |   |   |  |
|                                | <b>OPTION I</b><br>(1 Evacuation Tunnel )   | <b>OPTION II</b><br>(2 parallel evacuation tunnels with cross passages)                                       | <b>OPTION III</b><br>(2 parallel evacuation tunnels with cross passages)                                       |
| Description                    | Total tunnel length 3232m between T11-P1 to Adit 1616 m and 2332 m between Adit to T11-P2 1616 m, total adit length - 912 m | Total tunnel length 3232 m. The total length of parallel escape tunnel+ cross passages is 600m+600m + 80 m    | Total tunnel length 3232m. The total length of parallel escape tunnel+ cross passages is 650m+650m + 120 m     |
| Pictorial Presentation         |    |                           |                           |
| Remarks                        | Option –I will require less forest land acquisition.  |   |  |

We are very much concern with regards to use of forest land, however as there is no other type of land available except forest land for construction of this important safety feature of tunnels, we submit this proposal for consideration where minimum forest land diversion will take place.

  
 4.6.15  
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