

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

2023_NHIDC_775279_1

15.01.2024

Sub: Construction of Twin Tube Uni-directional Aizawl Bypass Tunnel of 2.5 km and its approaches of 2.1 km from km 10.600 to km 15.200 (Package-2) on Sairang - Phaihawk section of NH-6 in the State of Mizoram on EPC Mode.

Amendment No-7

S.N.	Reference section/ clause no./ Item	Existing Provision	Modified Provision																																																													
1	Schedule-B, clause 7 (vii)(a)(b)	Design of Tunnel a. General Construction of twin tube 2 Lane Tunnel shall be designed andt herein. <table><thead><tr><th rowspan="2">Tunnel Chainage (m)</th><th colspan="2">Rock Classes wise length</th><th rowspan="2">Width of Main Carriageway</th></tr><tr><th>Length (m)</th><th>Class</th></tr></thead><tbody><tr><td rowspan="6">CH: 11600 to CH: 14100</td><td>305</td><td>ESC-01</td><td>7 m</td></tr><tr><td>485</td><td>ESC-02</td><td>7 m</td></tr><tr><td>390</td><td>ESC-03</td><td>7 m</td></tr><tr><td>575</td><td>ESC-04</td><td>7 m</td></tr><tr><td>385</td><td>ESC-05</td><td>7 m</td></tr><tr><td>360</td><td>ESC-06</td><td>7 m</td></tr></tbody></table> Note: ESC-1, as specified in Schedule B. ESC: Estimated support class	Tunnel Chainage (m)	Rock Classes wise length		Width of Main Carriageway	Length (m)	Class	CH: 11600 to CH: 14100	305	ESC-01	7 m	485	ESC-02	7 m	390	ESC-03	7 m	575	ESC-04	7 m	385	ESC-05	7 m	360	ESC-06	7 m	Design of Tunnel a. General Construction of twin tube 2 Lane Tunnel shall be designed andt ..therein. Support Class shall be designed as per relevant codal provisions. Support Class given Schedule - B is for reference only a nd EPC contractor is to design the Support Class as per the IRC /Standard code / practices applicable based on their Geological Base line and Geo Technical Investigation to be conducted at site by the em. <table><thead><tr><th colspan="2">Design Km</th><th rowspan="2">Length (m)</th><th rowspan="2">Support Class</th><th colspan="2">RMR/Q</th><th rowspan="2">Rock Class</th><th rowspan="2">Width of Main Carriageway</th></tr><tr><th>From</th><th>To</th><th>Values</th><th>Rock mass class</th></tr></thead><tbody><tr><td>11600</td><td>11750</td><td>150</td><td>ESC-06</td><td>10-18 / 0.1 - 1.0</td><td>V</td><td>Very Poor</td><td>7m</td></tr><tr><td>11750</td><td>11825</td><td>75</td><td>ESC-05</td><td>22-34/ 4.0 - 1.0</td><td>IV</td><td>Poor</td><td></td></tr><tr><td>11825</td><td>11980</td><td>155</td><td>ESC-04</td><td>45-60/ 10.0 - 4.0</td><td>III</td><td>Fair</td><td></td></tr></tbody></table>	Design Km		Length (m)	Support Class	RMR/Q		Rock Class	Width of Main Carriageway	From	To	Values	Rock mass class	11600	11750	150	ESC-06	10-18 / 0.1 - 1.0	V	Very Poor	7m	11750	11825	75	ESC-05	22-34/ 4.0 - 1.0	IV	Poor		11825	11980	155	ESC-04	45-60/ 10.0 - 4.0	III	Fair	
Tunnel Chainage (m)	Rock Classes wise length			Width of Main Carriageway																																																												
	Length (m)	Class																																																														
CH: 11600 to CH: 14100	305	ESC-01	7 m																																																													
	485	ESC-02	7 m																																																													
	390	ESC-03	7 m																																																													
	575	ESC-04	7 m																																																													
	385	ESC-05	7 m																																																													
	360	ESC-06	7 m																																																													
Design Km		Length (m)	Support Class	RMR/Q		Rock Class	Width of Main Carriageway																																																									
From	To			Values	Rock mass class																																																											
11600	11750	150	ESC-06	10-18 / 0.1 - 1.0	V	Very Poor	7m																																																									
11750	11825	75	ESC-05	22-34/ 4.0 - 1.0	IV	Poor																																																										
11825	11980	155	ESC-04	45-60/ 10.0 - 4.0	III	Fair																																																										

S.N.	Reference section/ clause no./ item	Existing Provision						Modified Provision									
		b. The Summary Details of the Support system of Tunnel is indicated in the Figure below.															
		Support Classification	ESC-1	ESC-2	ESC-3	ESC-4	ESC-5	ESC-6	11980	12130	150	ESC-03	10-18 / 0.1 - 1.0	V	Very Poor		
		Rock Mass Quality (Q)	10 to 4	4 to 1	1 to 0.1	10 to 4	4 to 1	1 to 0.1	12130	12330	200	ESC-02	45-60/ 10.0 - 4.0	IV	Poor		
		RMR Rating Range	45.0 - 60.0	22.0 - 34.0	18.0 - 10.0	45.0 - 60.0	22.0 - 34.0	18.0 - 10.0	12635	12920	285	ESC-02	45-60/ 10.0 - 4.0	IV	Poor		
		Excavation Method	Heading / Benching	Heading / Benching	Heading / Benching	Heading / Benching	Heading / Benching	Heading / Benching	12920	13160	240	ESC-03	10-18 / 0.1 - 1.0	V	Very Poor		
		Excavation Length (m)	3.5/6.5	2.5/3.0	1.3/2.5	3.5/6.5	2.5/3.0	1.3/2.5	13160	13580	420	ESC-04	45-60/ 10.0 - 4.0	III	Fair		
		Overburden Depth (m)	400m to 600m	400m to 600m	400m to 600m	Below 400m	Below 400m	Below 400m	13580	13890	310	ESC-05	22-34/ 4.0 - 1.0	IV	Poor		
		Rock Bolt	25 dia 3.5m @ 1.7m c/c	25 dia 5.5m @ 2.5m c/c	25 dia 8m @ 2.5m c/c	25 dia 3.5m @ 1.7m c/c	25 dia 4.5m @ 2.0m c/c	25 dia 6.5m @ 2.5m c/c	13890	14100	210	ESC-06	10-18 / 0.1 - 1.0	V	Very Poor		
		Steel Fiber Reinforced Shotcrete Thickness (mm)	75mm	100mm	100mm	75mm	100mm	100mm	Total							2500	
		Steel Support (m)	ISMB 450 @600 mm c/c	ISMB 550 @600mm c/c	ISMB 550 @500mm c/c	ISMB 250 @600mm c/c	ISMB 450 @600mm c/c	ISMB 550 @600mm c/c	Note: ESC-1,								
		Inner Lining Thickness (mm)	250	250	250	250	250	250	 as specified in Schedule B.								
		Auxiliary Support						Pipe Roofing (88.9 T, 6m Long)	ESC: Estimated support class								
		Length of Tunnel Section (m)	305	485	390	575	385	360	b. DELETED.								

Note: ESC-1,

..... as specified in Schedule B.

ESC: Estimated support class

b. DELETED.

S.N.	Reference section/ clause no./ Item	Existing Provision	Modified Provision
2	Schedule-B, Clause 7 (vii) (e)	A longitudinal ventilation. The longitudinal (Jet) fans (250°C- 2 hrs/ 400 oc -2 hrs) in	A longitudinal ventilation. The longitudinal (Jet) fans (250°C- 2 hrs) in
3	Schedule-B, Clause 7 (vii) (i)	The lighting The tunnel lighting can be provided from alternate source of emergency i.e. solar power voltaic calls. For source of energy i.e. solar power voltaic cell. The electric power shall be required of the order of 2.6 MW. The limitations of solar power system are the following: • During continuous rainfall days or in cloudy weather conditions, the array cannot be charged. Under such situation main power supply from sub-station shall be restored. • Shadow free area is necessary for installation of array.	The lighting The tunnel lighting can be provided from alternate source of emergency i.e. DG sets. For source is anticipated to come from Alternate source of energy i.e. DG sets. The electric power shall be required of the order of 2.6 MW.
4	Schedule B Clause 7 (k)	Emergency Communication: Emergency v. Baggage with frames etc. as required.	Emergency Communication: Emergency v. Deleted.
5	Schedule-B, Clause 7 (vi) i) (l)	During operation and Maintenance Therefore, either end of Tunnel 4 story building having floor area 2x37.2m x 15m is proposed with all necessary amenities as per CPWD Manual.	During operation and Maintenance Therefore, either end of Tunnel 4 story building. The following equipment and installation, contained in the building, are to be provided as per Contractor's detailed design and approved by the Authority's Engineer • Control Room • Facilities for the electrical power supply, main electricity substation, HV switch room, LV switch room, UPS room, battery room, space for transformers; • Diesel generator, fuel tanks • Plant rooms for the tunnel maintenance and future requirements, stores • Staff room and toilet facilities, any other requirements if any. • Control room for Tunnel monitoring facilities. • Parking facilities • Emergency medical facilities • Cafeteria and restaurants facilities

S.N.	Reference section/ clause no./ Item	Existing Provision	Modified Provision																																																																																																																
6	Schedule-B, Clause 7 (vi) i) (n)	Power Distribution Supplying, installation, testing and commissioning of 33 kV/0.433 kV or 11 kV/0.433 kV work component.	Power Distribution Supplying, installation, testing and commissioning of 33 kV/0.433 kV or 11 kV/0.433 kV work component. Being the EPC contractor EPC Contractor shall evaluate the power requirement based as per detailed design and approved the Authority's Engineer.																																																																																																																
7	Clause 7(vii) (h) (i) of Schedule B	(h) Fire Fighting Systems Fire tunnel. i) The standpipe system for firefighting shall be a Class - I" automatic Wet" type system. It contain water at all times that is attached	(h) Fire Fighting Systems Fire tunnel. i) The standpipe system for firefighting shall be as per IRC Sp91-2019, PIARC, NFPA-502 automatic Wet" type system. It contain water at all times that is attached																																																																																																																
8	5(iii) Design requirements of Sch-B	Note:- EPC of highway in accordance to design																																																																																																																	
9	Para 5 & 7 to 13 of Other items of Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below of Schedule H	<table border="1"> <thead> <tr> <th>Item</th><th>Weightage in the contract Price</th><th>Stage for payment</th><th>Percentage Weightage</th></tr> </thead> <tbody> <tr> <td>1</td><td></td><td></td><td></td></tr> <tr> <td>2</td><td>15.50%</td><td></td><td></td></tr> <tr> <td>3</td><td></td><td></td><td></td></tr> <tr> <td>4</td><td></td><td></td><td></td></tr> <tr> <td>5</td><td></td><td>Roof top solar photo voltaic power generation system including space frame</td><td>1.44%</td></tr> <tr> <td>6</td><td></td><td>Tunnel lighting</td><td>2.40%</td></tr> <tr> <td>7</td><td></td><td>CCTV system</td><td>1.30%</td></tr> <tr> <td>8</td><td></td><td>LAN system</td><td>2.17%</td></tr> <tr> <td>9</td><td></td><td>EPABX system</td><td>2.17%</td></tr> <tr> <td>10</td><td></td><td>Driver</td><td>0.52%</td></tr> <tr> <td>11</td><td></td><td>.....</td><td>0.51%</td></tr> <tr> <td>12</td><td></td><td>.....</td><td>0.04%</td></tr> <tr> <td>13</td><td></td><td>Illuminated signages</td><td>0.17%</td></tr> </tbody> </table>	Item	Weightage in the contract Price	Stage for payment	Percentage Weightage	1				2	15.50%			3				4				5		Roof top solar photo voltaic power generation system including space frame	1.44%	6		Tunnel lighting	2.40%	7		CCTV system	1.30%	8		LAN system	2.17%	9		EPABX system	2.17%	10		Driver	0.52%	11			0.51%	12			0.04%	13		Illuminated signages	0.17%	<table border="1"> <thead> <tr> <th>Item</th><th>Weightage in the contract Price</th><th>Stage for payment</th><th>Percentage Weightage</th></tr> </thead> <tbody> <tr> <td>1</td><td></td><td></td><td></td></tr> <tr> <td>2</td><td>15.50%</td><td></td><td></td></tr> <tr> <td>3</td><td></td><td></td><td></td></tr> <tr> <td>4</td><td></td><td></td><td></td></tr> <tr> <td>5</td><td></td><td>Providing and supply of 11 kV Line for from Luangmul Sub-station to Aizawl Bypass inter substation (7km length) & Zungtui Sub-station to Aizawl Bypass Tunnel outlet substation (2km length)</td><td>1.44%</td></tr> <tr> <td>6</td><td></td><td>Tunnel lighting</td><td>2.40%</td></tr> <tr> <td>7</td><td></td><td>Emergency Communication</td><td></td></tr> <tr> <td>8</td><td></td><td>CCTV, LAN system, EPABX system etc.</td><td></td></tr> <tr> <td>9</td><td></td><td></td><td></td></tr> <tr> <td>10</td><td></td><td></td><td></td></tr> <tr> <td>11</td><td></td><td></td><td></td></tr> <tr> <td>12</td><td></td><td></td><td></td></tr> <tr> <td>13</td><td></td><td></td><td>6.88%</td></tr> </tbody> </table>	Item	Weightage in the contract Price	Stage for payment	Percentage Weightage	1				2	15.50%			3				4				5		Providing and supply of 11 kV Line for from Luangmul Sub-station to Aizawl Bypass inter substation (7km length) & Zungtui Sub-station to Aizawl Bypass Tunnel outlet substation (2km length)	1.44%	6		Tunnel lighting	2.40%	7		Emergency Communication		8		CCTV, LAN system, EPABX system etc.		9				10				11				12				13			6.88%
Item	Weightage in the contract Price	Stage for payment	Percentage Weightage																																																																																																																
1																																																																																																																			
2	15.50%																																																																																																																		
3																																																																																																																			
4																																																																																																																			
5		Roof top solar photo voltaic power generation system including space frame	1.44%																																																																																																																
6		Tunnel lighting	2.40%																																																																																																																
7		CCTV system	1.30%																																																																																																																
8		LAN system	2.17%																																																																																																																
9		EPABX system	2.17%																																																																																																																
10		Driver	0.52%																																																																																																																
11			0.51%																																																																																																																
12			0.04%																																																																																																																
13		Illuminated signages	0.17%																																																																																																																
Item	Weightage in the contract Price	Stage for payment	Percentage Weightage																																																																																																																
1																																																																																																																			
2	15.50%																																																																																																																		
3																																																																																																																			
4																																																																																																																			
5		Providing and supply of 11 kV Line for from Luangmul Sub-station to Aizawl Bypass inter substation (7km length) & Zungtui Sub-station to Aizawl Bypass Tunnel outlet substation (2km length)	1.44%																																																																																																																
6		Tunnel lighting	2.40%																																																																																																																
7		Emergency Communication																																																																																																																	
8		CCTV, LAN system, EPABX system etc.																																																																																																																	
9																																																																																																																			
10																																																																																																																			
11																																																																																																																			
12																																																																																																																			
13			6.88%																																																																																																																
9	D. Other Items S.No. 7 to 13 Table 1.	<table border="1"> <thead> <tr> <th>Sr.No.</th><th>Stage of Payment</th><th>Percentage weightage</th><th>Payment Procedure</th></tr> </thead> <tbody> <tr> <td>D</td><td>Other Items</td><td>100.00%</td><td></td></tr> <tr> <td>7</td><td>Supplying,era in the control room:</td><td>1.30%</td><td>Unit measurement of is</td></tr> </tbody> </table>	Sr.No.	Stage of Payment	Percentage weightage	Payment Procedure	D	Other Items	100.00%		7	Supplying,era in the control room:	1.30%	Unit measurement of is	<table border="1"> <thead> <tr> <th>Sr.No.</th><th>Stage of Payment</th><th>Percentage weightage</th><th>Payment Procedure</th></tr> </thead> <tbody> <tr> <td>D</td><td>Other Items</td><td>100.00%</td><td></td></tr> </tbody> </table>	Sr.No.	Stage of Payment	Percentage weightage	Payment Procedure	D	Other Items	100.00%																																																																																													
Sr.No.	Stage of Payment	Percentage weightage	Payment Procedure																																																																																																																
D	Other Items	100.00%																																																																																																																	
7	Supplying,era in the control room:	1.30%	Unit measurement of is																																																																																																																
Sr.No.	Stage of Payment	Percentage weightage	Payment Procedure																																																																																																																
D	Other Items	100.00%																																																																																																																	

S.N.	Reference section/ clause no./ Item	Existing Provision					Modified Provision				
	3.3 of (iii) Tunnel work and structures of the Schedule-H	8	Supplying,, OFC etc.	2.17%	linear Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5 (Five) percent of the total length.	7	Emergency Communication CCTV, LAN System, EPABX system etc.	6.88%	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5 (Five) percent of the total length.		
		9	Supplying....., OFC etc.	2.17%		8					
		10	Supplying, number plate recording	0.52%		9					
		11	 as required.	0.51%		10					
		12	l length.	0.04%		11					
		13	Illuminated signages	0.17%		12					
						13					
10	Section 2.2 0.1 of the RFP	The Bidder shall e-Bank Guarantee issued or e-Bank Guarantee shall referred.					The Bidder shall ... e-Bank Guarantee/ Physical BG (in case it is not possible to furnish e-BG) issued ... or e-Bank Guarantee / Physical BG (in case it is not possible to furnish e-BG) shall refer red.				
11	Bid Due Date	18.01.2024 upto 1500 Hrs					01.02.2024 upto 1500 Hrs				
12	Physical Submission of Bid Security/P OA etc.	18.01.2024 upto 1500 Hrs					01.02.2024 upto 1500 Hrs				
13	Opening of Technical BIDS at venue 2.1 1.4 (i)	19.01.2024 after 1530 Hrs.					02.02.2024 after 1530 Hrs.				


 (Mohammed Khalid)
 General Manager(T)