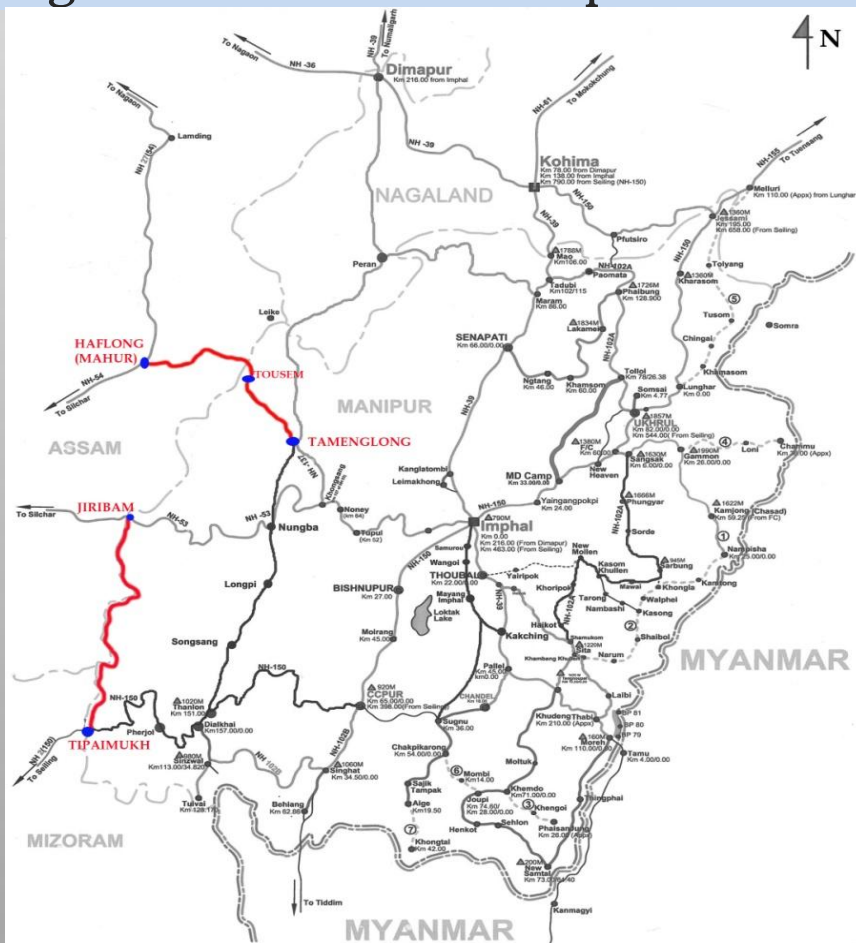


# NATIONAL HIGHWAY INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

Consultancy Services for preparation of Feasibility Study and Detailed Project Report for Two Lane with Paved Shoulders of Tamenglong-Tousem-Haflong Road in the State of Manipur and Assam.



## DRAFT DETAILED PROJECT REPORT VOL-V BILL OF QUANTITIES PKG-5

**AZURAM- MAKRU RIVER SECTION  
(FROM KM 54+180 TO KM 69+500) LENGTH-15.32 KM**

Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram - Makru River section ( Pkg-5) of Tamenglong- Mahur road in the state of Manipur on EPC mode.

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**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram - Makru River section ( Pkg-5) of Tamenglong- Mahur road in the state of Manipur on EPC mode.**

**Abstract of Bill wise Cost**

Design Length	15.320 Km
Construction Period	18 Months

<b>S No.</b>	<b>Bills</b>		<b>Amount (Rs.)</b>	<b>% of Total Cost</b>
1	Bill 1	Site Clearance and Dismantling	0.09 Crs	0.05%
2	Bill 2	Earth Work	51.92 Crs	25.30%
	Bill 3	Granular Sub Base and Base Courses		
3	Bill 3A	Granular Sub Base Courses	8.99 Crs	4.38%
4	Bill 3B	Non Bituminuos Base Courses	11.73 Crs	5.71%
	Bill 4	Bituminous Course (Flexible Pavement)		
5	Bill 4A	Bituminous Base Course	16.04 Crs	7.81%
6	Bill 4B	Bituminous Wearing Course	5.78 Crs	2.82%
5	Bill 5	Culverts		
7	Bill 5A	Pipe Culvert	0.00 Crs	0.00%
8	Bill 5B	Box & Slab Culvert	18.45 Crs	8.99%
	Bill 6	Bridges		
9	Bill 6A	Major Bridges	0.00 Crs	0.00%
10	Bill 6B	Minor Bridges	4.20 Crs	2.05%
	Bill 7	Drainage and Protection works		0.00%
11	Bill 7A	Drainage works	4.61 Crs	2.24%
12	Bill 7B	Protection works	73.47 Crs	35.79%
13	Bill 9	Traffic Signs, marking and Appurtenances	4.00 Crs	1.95%
<b>Total Civil Construction Cost</b>			<b>199.29 Crs</b>	
Price Escalation for one year (from 2018-19 to 2020-21) @ 3%			5.98 Lacs	
<b>Total Civil Construction Cost (A)</b>			<b>205.26 Lacs</b>	



Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram - Makru River section ( Pkg-5) of Tamenglong- Mahur road in the state of Manipur on EPC mode.

**Bill of Quantities (BILL No. - 1)**

<i>Item No.</i>	<i>SOR Ref.</i>	<i>Descriptions</i>	<i>Total Qty</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
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**BILL No. - 1 SITE CLEARANCE AND DISMANTLING**

<b>1.01</b>	<i>Ch - 1/3</i>	Clearing and grubbing road land including uprooting rank vegetation, grass, brush shrubs, saplings and trees of girth upto 300mm. Remobal of stumps, disposal of unserviceable material and stacking of serviceable materials upto 100m. From road boundary.				
	<i>b</i>	By Mechanical Means				
<b>A</b>	<i>i</i>	In area of light jungle	19.24	hectare	48711	937396

Total of Site Clearance & Dismantling      Rs.    937396  
Lac      9.374

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram - Makru River section ( Pkg-5) of Tamenglong- Mahur road in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 2)**

<b>Item No.</b>	<b>SOR Ref.</b>	<b>Descriptions</b>	<b>Total Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount</b>
<b>BILL No. - 2 EARTH WORK</b>						
2.01	Ch - 2/ 31	Earthwork in excavation (Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 meters)	1776035	cum	211	375436077
2.02	Ch - 2/ 32	Excavation in hilly area in Ordinary Rock by Mechanical Means not Requiring Blasting. (Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres)	313418	cum	305	95454578
2.02	Ch - 3/ 33	Earth work in excavation of foundation of structure as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.				
(i)	i	Ordinary soil				
(i) B	b	Mechanical Means (Depth upto 3m)	13227	cum	106	1400477
2.05	Ch - 2/ 13	Construction of Embankment with material Deposited from Roadway Cutting (Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structure graded and compacted to meet requirement of table 300-2)	286276	cum	160	45861423
2.06	Ch - 2/ 16	Compacting original ground supporting embankment (Loosening, leveling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in table 300-2 for embankment construction.)	25873	cum	42.0	1086675
					<b>Total of Earth work</b>	<b>Rs. 519239229</b>
					<b>Lac</b>	<b>5192.392</b>

Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram - Makru River section ( Pkg-5) of Tamenglong- Mahur road in the state of Manipur on EPC mode.

**Bill of Quantities (BILL No. - 3)**

<i>Item No.</i>	<i>SOR Ref.</i>	<i>Descriptions</i>	<i>Total Qty</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
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**BILL No. - 3 GRANULAR SUB-BASES, BASES COURSES**

**3.01 Granular Sub-base with Close Graded Material (Table:- 400-1)**

<b>A</b>	Ch -3/2	By Mix in Place Method (Construction of Granular Sub-base by providing close Graded Material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per Clause 401.)				
	(i) i	for grading- II Material	37268	cum	2413	89931193
<b>3.02</b>	Ch -4/2	Providing, laying, spreading and compacting stone aggregats to wet mix macadam specification including premixing the material with water to OMC in mechanical mix(Pug Mill), carriage of of mixed material by tiper/dumper to site, laying uniform layers in base course on a well prepared underbase and compacting with ower vibratory roller to achive the desiried density i/c Lighting, guarding, barricading and maintenace of diversion etc.(By Mechanical Means)	39549	cum	2965	117274879

**Total of Granular Sub-Bases & Base Courses**      **Rs. 207206072**  
**Lac 2072.061**

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram - Makru River section ( Pkg-5) of Tamenglong- Mahur road in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 4A)**

<i>Item No.</i>	<i>SOR Ref.</i>	<i>Descriptions</i>	<i>Total Qty</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
<b>BILL No. - 4 (A) BITUMINOUS COURSES (FLEXIBLE PAVEMENT)</b>						
<b>4A.01</b>	Ch -5/ 1	Providing and applying primer coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular base including clearing of road surface and spraying primer using mechanical means.)	<b>154487</b>	<b>sqm</b>	<b>57.540</b>	<b>8889153</b>
<b>4A.02</b>	<b>Tack coat</b>					
	Ch -5/ 2	Providing and applying tack coat (Providing and applying track coat with bitumen emulsion using emulsion pressure distributor m on the prepared bituminous/granular surface cleaned with mechanical broom.)				
A	iii	On Granular surface pre treated with priming coat @ 0.25-0.30 kg/sqm	<b>154487</b>	<b>sqm</b>	<b>17.160</b>	<b>2650988</b>
B	i	On bituminous surface @ 0.20-0.30 Kg/Sqm	<b>154487</b>	<b>sqm</b>	<b>15.630</b>	<b>2414624</b>
<b>4A.03</b>	Ch -5/ 6	Dense Graded Bituminous Macadam (Providing and laying dense graded bituminous macadam with 40-60 TPH batch type HMP producing an average output of 35 tonnes per hour using crushed aggregates of specified grading primixed with bituminous binder @ 4.25 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause no. 507 compete in all respects.)				
(ii)	ii B	Grading - II 19 mm (Nominal Size) Using Bitumen 60/70	<b>13904</b>	<b>cum</b>	<b>10707</b>	<b>148869912</b>
<b>4A.04</b>	Ch -5/ 8	Bituminous Concrete (Providing and laying bituminous Concrete with 40-60 TPH batch type hot mix plant producing an average output of 35 tonnes per hour using crushed aggregates of specified grading, primixed with bituminous binder @ 5.5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause no. 509 compete in all respects.)				
(i)	ii A	for Grading II ( 13 mm nominal size ) Using Bitumen 60/70	<b>4635</b>	<b>cum</b>	<b>11950</b>	<b>55385079</b>
<b>Total of Bituminous Course</b>					<b>Rs. Lac</b>	<b>218209756 2182.098</b>



**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River  
Section of Tamenglong-Mahur Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 5B)**

Sr. No.		ITEM	Quantity	Rate (Rs)	Amount (Rs)
		<b>Chapter No. 8 - TRAFFIC AND TRANSPORTATION</b>			
	5	Painting two coat after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces	661.600	93.41	61800.06
	17	<b>Reinforced Cement Concrete Crush Barrier</b>			
		Provision of an Reinforced cement concrete crush barrier at the edges of the road, approaches to bridge structures and medians constructed with M 20 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre- moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular no. RW/NH - 33022/1,94-DO III dated 24 june 1994 as per dimensions in the approved drawing and at locations directed by the Enginee, all as specified	330.800	5277.53	1745806.92
		<b>Chapter No. 13 - EARTH WORK</b>			
1	1	Earth work in excavation in foundation for structures complete as per drawing and technical specification			
	a)	Ordinary Soil			
	ii)	Depth 3.0 m.			
			18146.332	218.93	3972776.56

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River  
Section of Tamenglong-Mahur Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 5B)**

Sr. No.		ITEM	Quantity	Rate (Rs)	Amount (Rs)
	3	Back filling behind abutment, wing wall and return wall complete as per drawing and technical specification.			
	a)	Gravelly material	16403.410	1007.86	16532340.80
	4	Filter medium behind abutment, wing wall and return wall complete as per drawing and technical specification.	3266.320	1274.65	4163414.79
		<b>Chapter No. 14 - FOUNDATION</b>			
3	3	Cement concrete for plain concrete/reinforced concrete in open foundation i/c cost of form work complete as per Drawing and technicle specification.			
	f)	P.C.C. M-15 grade			
			1154.076	8348.21	9634466.90
		<b>Chapter No. 15 - Sub Structure</b>			
	3	Cement concrete for plain concrete/reinforced concrete for sub-structure i/c form work complete as per drawing and technical specification.			
	b)	PCC M-20 grade			
	i)	Upto 5m. Height			
		Wing Wall Height	2094.718	9067.33	18993499.36

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River  
Section of Tamenglong-Mahur Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 5B)**

Sr. No.		ITEM	Quantity	Rate (Rs)	Amount (Rs)
	f)	RCC M-30 grade			
		Upto 5m. Height			
			<b>1739.166</b>	11786.08	<b>20497949.61</b>
	5	HYSD bar reinforcement in substructure complete as per drawing and technical specification.	<b>200.004</b>	77427.7	<b>15485846.68</b>
	12	Providing weep holes in plain concrete reinforced concrete abutment, wing wall/ return wall complete as per drawing and technical specification.	<b>4968.000</b>	445.75	<b>2214486.00</b>
		<b>Chapter No. 16 - Superstructure</b>			
	1	Cement concrete for reinforced concrete in superstructure i/c form work complete as per drawing and technical specification.			
	a)	M-30 grade			
		Top Slab	<b>595.440</b>	11740.55	<b>6990793.09</b>
	3	HYSD bar reinforcement in substructure complete as per drawing and technical specification.	<b>68.476</b>	85183.86	<b>5833015.92</b>
7	5.0	Cement concrete wearing coat M-30 grade including form work and reinforcement complete as per drawing and technical specification.	<b>1819.400</b>	18782.51	<b>34172898.69</b>

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River  
Section of Tamenglong-Mahur Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 5B)**

Sr. No.		ITEM	Quantity	Rate (Rs)	Amount (Rs)
	11.0	Drainage spouts complete as per drawing and technical specification. (Size 260 x 260 mm)	118.000	2158.99	254760.82
	12.0	Reinforced cement concrete approach slab M-25 grade including reinforcement and form work complete as per drawing and technical specification.	1486.800	14481.39	21530930.65
	13.0	Plain cement concrete M-15 ordinary grade levelling coarse below approach slab complete as per drawing and technical specification.	743.400	8109.93	6028921.96
	NSOR	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.	1416.000	621.00	879336.00
		<b>Chapter No. 17 - Protective Work</b>			
	1.0	Laying apron complete as per drawing and technical specifications.			
		Boulder	4015.150	2280.25	9155545.79
	2.0	Filter material underneath pitching in slop complete as per drawing and technical specification	493.540	2426.95	1197796.90

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River  
Section of Tamenglong-Mahur Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 5B)**

Sr. No.		ITEM	Quantity	Rate (Rs)	Amount (Rs)
	3.0	Pitching on slopes completes as per drawing and technical specification.			
		Stone	987.080	1655.65	1634259.00
	4.0	Flooring complete as per drawing and technical specification.			
	a)	Rubble Stone laid in cement mortar 1:3			
		P.C.C. M-15 grade			
			711.950	4996.59	3557322.25
				Total	184537968.78
				Say `	18.45

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River Section of Tamenglong-Mahur Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 6B)**

Item No.	Item Description	Unit	QTY	Item Rate	Amount
	<b>Total of Chapter - 4</b>				<b>0</b>
	<b>Chapter No. 5 - BASE</b>				
3	Construction of footpath/separater by providing a 150mm compacted granular sub base as per clouse 401 and 25mm thick cement concrete grade M15, over laid with pre-cast concrete tiles in cement motar 1:3 including provision of all drainage arrangements but excluding kerb channel .	Sqm	111.60	1374.51	153395.316
	<b>Total of Chapter - 5</b>				<b>153395.316</b>
	<b>Chapter No. 8 - TRAFFIC AND TRANSPORTATION</b>				
5	Painting two coat after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces	sqm	74.40	93.4	6949.704
<b>17</b>	<b>Reinforced Cement Concrete Crash Barrier</b>				<b>0</b>
	Provision of an Reinforced cement concrete crush barrier at the edges of the road, appoches to bridge structures and medians constructed with M 20 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre- moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular no. RW/NH - 33022/1,94-DO III dated 24 june 1994 as per dimensions in the approved drawing and at locations directed by the Enginee, all as specified	Linear metre	148.80	5277.53	785296.464
	<b>Total of Chapter - 8</b>				<b>792246.168</b>
	<b>Chapter No. 13 - EARTH WORK</b>				
1	Earth work in excavation in foundation for structures complete as per drawing and technical specification	--			-
a)	Ordinary Soil	cum			-
(i)	Depth 3.0 m.	cum	2,223.62	218.93	486,816.88
3	Back filling behind abutment, wing wall and return wall complete as per drawing and technical specification.	cum			-
a)	Gravelly material	cum	4,317.42	1007.86	4,351,351.34
4	Filter medium behind abutment, wing wall and return wall complete as per drawing and technical specification.	cum	453.00	1274.65	577,416.45
	<b>Total of Chapter - 13</b>				<b>5415584.674</b>
	<b>Chapter No. 14 - FOUNDATION</b>				
3	Cement concrete for plain concrete/reinforced concrete in open foundation i/c cost of form work complete as per Drawing and technicle specification.	--			-
a)	P.C.C. M-15 grade	cum	164.80	8348.21	1,375,810.52
b)	P.C.C. M-20 grade	cum	20.36	9333.75	190,012.45
	<b>Total of Chapter - 14</b>				<b>1565822.974</b>
	<b>Chapter No. 15 - Sub Structure</b>				
3	<b>Cement concrete for plain concrete/reinforced concrete for sub-structure</b> i/c form work complete as per drawing and technical specification.				-
g)	RCC M-30 grade				-
i)	Upto 5m. Height	Cum	1,308.84	11786.08	15,426,034.02
5	HYSD bar reinforcement in substructure complete as per drawing and technical specification.	MT	154.08	77427.65	11,930,214.91
12	<b>Providing weep holes</b> in plain concrete reinforced concrete abutment, wing wall/ return wall complete as per drawing and technical specification.	Rm	704.00	445.75	313,808.00
	<b>Total of Chapter - 14</b>				<b>27670056.93</b>
	<b>Chapter No. 16 - Super structure</b>				

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River Section of Tamenglong-Mahur Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quantities (BILL No. - 6B)**

Item No.	Item Description	Unit	QTY	Item Rate	Amount
5	Cement concrete wearing coat M-30 grade including form work and reinforcement complete as per drawing and technical specification.	cum	30.69	18782.51	576,435.23
11	<b>Drainage spouts</b> complete as per drawing and technical specification. (Size 260 x 260 mm)	Each	12.00	2158.99	25,907.88
NSOR	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.	RM	128.00	621	79,488.00
12	Reinforced cement concrete approach slab M-25 grade including reinforcement and form work complete as per drawing and technical specification.	cum	134.40	14481.39	1,946,298.82
13	Plain cement concrete M-15 ordinary grade levelling coarse below approach slab complete as per drawing and technical specification.	cum	69.12	8109.93	560,558.36
<b>Total of Chapter - 16</b>					<b>3188688.29</b>
<b>Chapter No. 17 - Protective Work</b>					
NSOR	Curtain wall complete as per drawing and Technical specification				
	B. Cement concrete Grade M15	cum	144.11	9452.00	1,362,137.32
1	Laying apron complete as per drawing and technical specifications.				-
a)	Boulder	cum	485.60	2280.25	1,107,279.22
b)	Boulder in wire crates	cum		2169.83	-
c)	Cement concrete blocks (M-15) i/c form work	cum		8348.21	-
2	Filter material underneath pitching in slop complete as per drawing and technical specification	cum	51.61	2426.95	125,253.52
3	Pitching on slopes completes as per drawing and technical specification.				-
a)	Stone	cum	103.22	1655.65	170,894.32
b)	Cement concrete block (M-15 grade)	cum		8515.17	-
4	Flooring complete as per drawing and technical specification.				-
a)	Rubble Stone laid in cement mortar 1:3	cum	99.12	4996.59	495,238.05
b)	Cement Concrete Block in M-15 i/c form work.	cum		8348.21	-
<b>Total of Chapter - 17</b>					<b>3,260,802</b>
<b>Total Cost of BOX MNB</b>					<b>42,046,596.78</b>
<b>Total Cost (say) in Cr.</b>					<b>4.20</b>

Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram - Makru River section ( Pkg-5) of Tamenglong- Mahur road in the state of Manipur on EPC mode.

**Bill of Quantities (BILL No. - 7A)**

<i>Item No.</i>	<i>SOR Ref.</i>	<i>Descriptions</i>	<i>Total Qty</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
<b><u>BILL NO. - 7A DRAINAGE WORKS</u></b>						
<b>7.01</b>	10-1 c	Cement concrete for plain concrete/reinforced concrete for sub-structure i/c form work complete as per drawing and technical specification.	<b>6872</b>	<b>cum</b>	<b>6674</b>	<b>45863218</b>
<b>Case I</b>	Ch -14-3	Providing and laying Plain/Reinforced cement concrete in sub-structure complete as per drawing and technical specifications section 1500, 1700 and 2200	<b>16</b>	<b>cum</b>	<b>9459</b>	<b>153062</b>
<b>7.04</b>	Ch -14-8	Providing and laying steel reinforcement at any level in foundation complete as per drawing and technical specification. [MoRTH Specification : Section 1600].	<b>0.445</b>	<b>MT</b>	<b>77428</b>	<b>34424</b>
<b>Total of Drainage &amp; Protection work</b>					<b>Rs.</b>	<b>46050704</b>
					<b>Lac</b>	<b>460.507</b>



**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River Section of Tamenglong-Haflong Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quntities- 7B**

Item No.	Item Description	Unit	QTY	Item Rate	Amount
	<b>Total of Chapter - 12</b>				0
	<b>Chapter No. 13 - EARTH WORK</b>				
1	Earth work in excavation in foundation for structures complete as per drawing and technical specification	--			-
a)	Ordinary Soil	cum			-
(i)	Depth 3.0 m.	cum	103,952.50	218.93	22,758,320.83
3	Back filling behind abutment, wing wall and return wall complete as per drawing and technical specification.	cum			-
a)	Gravelly material	cum	9,195.90	1007.86	9,268,179.77
4	Filter medium behind abutment, wing wall and return wall complete as per drawing and technical specification.	cum	25,822.80	1274.65	32,915,032.02
	<b>Total of Chapter - 13</b>				<b>64941532.62</b>
	<b>Chapter No. 14 - FOUNDATION</b>				
3	Cement concrete for plain concrete/reinforced concrete in open foundation i/c cost of form work complete as per Drawing and technicle specification.	--			-
a)	P.C.C. M-15 grade	cum	3,978.70	8348.21	33,215,023.13
e)	R.C.C. M-20 grade	cum			-
	Case-II: With Batching Plant, Transit Mixer and Concrete Pump		36,959.55	8327.62	307,785,087.77

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River Section of Tamenglong-Haflong Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quntities- 7B**

Item No.	Item Description	Unit	QTY	Item Rate	Amount
8	HYSD Bar reinforcement in foundation complete as per drawing & technical specification.	cum	2,956.76	77427.65	228,935,288.12
	<b>Total of Chapter - 14</b>				<b>569935399</b>
	<b>Chapter No. 15 - Sub Structure</b>				
12	<b>Providing weep holes</b> in plain concrete reinforced concrete abutment, wing wall/ return wall complete as per drawing and technical specification.	Rm	10,570.00	445.75	4,711,577.50
	<b>Total of Chapter - 14</b>				<b>4711577.5</b>
	<b>Chapter No. 17 - Protective Work</b>				
NSOR	Seeding and Mulching				
	Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulsion at the rate of 0.23 litres per sqm and laying and fixing jute netting, including watering for 3 months all as per clause 308.	sqm	113,000.00	192.00	21,696,000.00
NSOR	Gabian Structure for Retaining Earth				

**Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram- Makru River Section of Tamenglong-Haflong Road (Pkg-5) in the state of Manipur on EPC mode.**

**Bill of Quntities- 7B**

Item No.	Item Description	Unit	QTY	Item Rate	Amount
	Providing and construction of a gabian structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire	Cum	16,605.00	4421.00	73,410,705.00
	<b>Total of Chapter - 17</b>				<b>95,106,705</b>
	<b>Total Cost</b>				<b>734,695,214.14</b>
	<b>Total Cost (say) in Cr.</b>				<b>73.47</b>

Consultancy Services for preparation of Detailed Project Report for Two Lane with Paved Shoulders of Azuram - Makru River section ( Pkg-5) of Tamenglong- Mahur road in the state of Manipur on EPC mode.

**Bill of Quantities (BILL No. - 9 )**

Item No.	SOR Ref.	Descriptions	Total Qty	Unit	Rate	Amount
<b><u>BILL No. - 9 TRAFFIC SIGNS, MARKINGS &amp; APPURTENANCES</u></b>						
9.02	Ch - 5/ 11	Supply of mandatory/ regulatory reflective sign board fixed on 3 meter long angle iron of size 65x65x6 mm complete as per IRC -67-1977 made of 2 mm thick M.S. sheet stove enameled paint and reflective symbol.				
	i	90 cm equilateral triangle	280	each	4931	1380778
		80 mm x 60 mm rectangular	10	each	5706	57062
		Direction and Place Identification Signs upro 0.9 sqm Size Board. Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminum sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing				
9.03	Ch - 5/ 12	for 600 X 900 mm size board (For Villages)	2	sqm	6600	13201
		for 1200 X750 mm size board	5	sqm	11001	55004
		for 900 X 750 mm size board	5	sqm	8251	41253
9.04	NS	<b>Overhead Signs</b> (Providing and erecting overhead signs with a corrosion resistant aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lense type with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans)				
		Truss and Vertical Support	5	MT	135474	609633
		Aluminium alloy plate for over head sign	105	sqm	711	74300
9.05	Ch - 8/ 14	Road Making with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied Thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes.)	4923	sqm	1002	4933378
9.06	Ch - 5/ 2	Reinforced cement concrete M15 kilometre stone of standard design fixed in position including painting, and printing letters etc.				
	a	(a) 5th Km. Stone	3	each	4557	13671
	b	(b) Ordinary Km. Stone	12	each	2676	32115
	Ch -	Providing and Fixing in position reinforced cement concrete 200 mtr. Stone of standard IRC design, including painting and printing	61	each	843	51425

**Bill of Quantities (BILL No. - 9 )**

<b>Item No.</b>	<b>SOR Ref.</b>	<b>Descriptions</b>	<b>Total Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount</b>
<b>9.07</b>		Road Delineators (Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide stripes, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and confirming to IRC-79 and the drawings.)	<b>1433</b>	<b>each</b>	<b>1063</b>	<b>1523551</b>
<b>9.08</b>	Ch - 5/ 4	Providing and fixing in position reinforced cement concrete boundary pillars of standard IRC-25 design including finishing but excluding painting. (MoRTH specification : section 800).	<b>91</b>	<b>each</b>	<b>843</b>	<b>76716</b>
<b>9.09</b>	Ch - 5/ 18	"W" : Metal Beam Crash Barrier Providing and erecting a "w" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post ISMB 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fittings to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364 metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long compete as per clause 810	<b>8830</b>	<b>metre</b>	<b>2758</b>	<b>24350083</b>
<b>9.11</b>	Ch - 5/ 19	Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC:98-1997 and approved drawings.				
	b	Double row for two utility services	<b>620</b>	<b>metre</b>	<b>5687</b>	<b>3526244</b>
<b>9.12</b>	Ch - 5/ 20	Road Markers/Road Stud with Lense Reflector (Providing and fixing stud 100 x 100 mm, die-cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS 873 part4:1973)	<b>2303</b>	<b>each</b>	<b>384</b>	<b>883385</b>
<b>9.13</b>	<b>NS</b>	<b>Supply of Chevron</b> sign of size 600x450 mm thick with fixing provision on MS angle iron post 50x50x6mm 3M long screwed with stainless steel nut bolts of 8mm dia plate is covered by high intensity grade retro reflective sheeting and black reflective arrow, complete in all respect	<b>612</b>	<b>each</b>	<b>3500</b>	<b>2142000</b>
<b>9.14</b>	Ch - 5/ 4	Guide Stone on CD works	<b>252</b>	<b>each</b>	<b>843</b>	<b>212444</b>
<b>Total of Traffic Signs, Markings &amp; Appurtenances</b>					<b>Rs. Lac</b>	<b>39976240 399.762</b>