



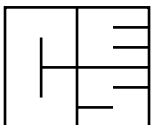
RAJIV GANDHI INDIAN INSTITUTE OF MANAGEMENT

**TENDER DOCUMENTS
FOR
CONSTRUCTION OF ROADS & PATHWAYS INCLUDING
RETAINING WALL, SITE GRADING & PREPARATION
FOR PROPOSED STATE-OF-THE-ART
ACADEMIC CUM RESIDENTIAL CAMPUS
OF RAJIV GANDHI INDIAN INSTITUTE OF MANAGEMENT
AT UMSAWLI, SHILLONG**

BILL OF QUANTITIES

VOLUME - III

MARCH 2010



CONSULTING ENGINEERING SERVICES (INDIA) PRIVATE LIMITED
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**CONSTRUCTION OF ROADS & PATHWAYS INCLUDING RETAINING WALL, SITE GRADING & PREPARATION FOR
PROPOSED STATE-OF-THE-ART ACADEMIC CUM RESIDENTIAL CAMPUS OF
RAJIV GANDHI INDIAN INSTITUTE OF MANAGEMENT
AT UMSAWLI, SHILLONG**

**Bill of Quantities for Retaining Wall
VOLUME - III**

SI.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
1	Earthwork in excavation in foundation trenches, including dressing of sides and ramming of the bottom including stacking of serviceable stones, disposal and removal of excavated earth within a lead of 50m and lift of 1.50m complete.					
a)	In ordinary soil	cum	20000			
b)	Hard soil or soil mixed with moorum, gravel, boulders upto one man size (above 0.03m each)	cum	4300			
c)	Loose boulder above one man size or soil mixed with boulders above one man size of soft shale	cum	2900			
d)	Soft laminated rock or medium shale	cum	2500			
e)	Hard shale or medium rock of the hardness of the building stones, laterite and the like	cum	1500			
f)	Very hard shale or hard rock such as hard stone fit for road metal, limestone and the like (requiring blasting)	cum	1800			
g)	Very hard shale or hard rock such as hard stone fit for road metal etc. (requiring chiseling) where blasting is prohibited	cum	3300			
2	Earthwork in filling with available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20cm thick including breaking clods consolidating each layer by ramming and watering, lead upto 50m and lift upto 1.50m	cum	12000			
3	Disposal of surplus earth from the work site including loading and unloading complete as directed					
a)	Lead upto 5 kms	cum				
b)	Lead 5 kms to 10 kms	cum				

SI.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
c)	Lead 10 kms to 15 kms	cum				
4	Providing and laying cement concrete in proportion 1:3:6 corresponding to M100 (1-cement, 3-sand, 6-stone aggregate of 40mm and down graded) including necessary curing complete excluding suttering					
a)	Cement procured by contractor	cum	5250			
5	Providing and laying cement concrete in proportion 1:2:4 corresponding to M150 (1-cement, 2-sand,4-stone aggregate of 20mm and down graded) including necessary curing complete, excluding suttering, in foundation and below plinth and in septic tank inspection pits etc., complete					
a)	Cement procured by contractor	cum	4100			
6	Providing and laying cement concrete in proportion 1:1:2 corresponding to M250 (1-cement, 1-sand, 2-stone aggregates of 12mm and down graded) including necessary curing etc. complete (excluding shuttering and reinforcement).					
a)	Cement procured by contractor	cum	29000			
7	Extra labour for providing and laying cement concrete for RCC works	cum	29000			
8(a)	Providing shuttering including centering for flat surface such as slabs, shelves, chajja and for vertical faces such as columns, walls, ends of beams etc. with dressed plank not less than 25cm thick firmly fixed etc.complete as directed (applicable upto 3.30m	sqm				
b)	Beyond 3.30m height	sqm	21000			
c)	-Do- steel shuttering - 0.80m2	sqm	189000			
9	Porviding Tor Steel (Fe 500) reinforcement for RCC work including cutting, bending, cranking and tying in position with binding wire, 20 gauge, as shown in drawings complete upto floor two level.					
a)	Steel procured by contractor	qntl	58000			

SI.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
10	Providing coursed random rubble stone masonry in foundation and plinth with unsized stone (mawthup) bonded with cement mortar of proportion 1:6 (1-cement, 6-sand) including curing complete. (Average size is not less than 20cm x 20cm x 25cm)					
a)	Cement procured by contractor	cum	4500			
11	Providing coursed random rubble stone masonry in superstructure above plinth with unsized stone (mawthup) bonded with cement mortar of proportion 1:6 (1-cement, 6-sand) including curing complete. (Average size is not less than 20cm x 20cm x 25cm)					
a)	Cement procured by contractor	cum	39800			
12	Providing 12mm thick cement plaster i/c cleaning the surface and curing complete as directed.					
a)	Proportion 1:4 Cement procured by contractor	sqm	38670			
13	Providing cement pointing in proportion 1:2 (1-cement & 2-sand) on stone work or brick work including curing complete as directed.					
a)	Cement procured by contractor	sqm	34350			
14	Providing Weep Holes (150x75mm) in Abutment/Retaining Wall or wing wall for the entire thickness, with slope 1:20 towards drainage surface, including packing with different sizes of brick bats or boulders of approved quality and sizes at the back side as per direction of Engineer-in-charge.	No	37000			
15	Providing and fixing premoulded Bituminous Filler ('Shalitek' or other approved manufacture) for expansion joints including cutting, positioning supporting, scaffolding and filling with approved sealing compound etc. complete.					
a)	25mm thick	Sq.	500			

SI.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
16	Providing steel works in tees, flats, angles and channels including cutting, drilling holes, hoisting and fixing in position complete.	qntl	100			
17	Disposal of surplus earth from the work site including loading and unloading complete as directed.					
	Lead upto 5Km	Cum	24000			
	Total carried over to Summary					

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Bill of Quantities for Roads & Pathways

VOLUME - III

SI.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
1	Earth work in excavation to the proper level and grade including light dressing, providing cambering and super elevation as directed and removal of spoil upto 30 m lead and all lift. (All measurements are to be taken from pits. No profile measurement are admissible.)					
a)	Ordinary soil comprising of black cotton soil, green vegetation soil, red soil, loamy soil, clay, soft shale, loose moorum.	Cum	96000			
b)	Soil mixed with moorum, gravels, boulders upto one man size (above 0.03 m ³)	Cum	14500			
c)	Loose boulders above one man size or soil mixed with boulders above one man size or soft shale.	Cum	7000			
d)	Soft or laminated rock or medium shale.	Cum	6300			
e)	Hard shale or medium rock of the hardness of building stones, laterite and the like.	Cum	6000			
f)	Very hard shale.	Cum	5200			
g)	Hard rock such as hard sand stone fit for road metal, lime stone and the like (payable after Engineer-in-charge has passed the classification).	Cum	8000			
h)	Very hard rock such as quartz hard conglomerate gneisses, granite, blue whim stone and the like (payable after Engineer-in-charge has passed the classification).	Cum	7000			
i)	Extra for excavation in through cutting over 150 cm height at the lowest point.	Cum	97500			

Sl.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
2	Earthwork in filling with approved earth like sandy soil, moorum etc. in an embankment in layers not exceeding 20 cm thick including breaking clods, dressing and ramming and lead upto 30.00 m and lift upto 150 cm, and conforming to all tests as per IS:2386 Pt:IV as required completed as directed.	Cum	77250			
3	Extra for rolling the embankment in layers of 20 cm with power roller 8 to 10 tonnes capacity to run at least 10 passes until the embankment is compacted, the rate is inclusive of watering, hire charge of roller and supply of necessary fuel etc complete. (Sequence of operation should be filled in layers including breaking clods etc up to the desired thickness to be followed by rolling operation, alternately directed). Analysis worked out considering an output decreased by 20% for sequence of operation, rolling and filling alternately.	Cum	77250			
4	Providing centre line with approved road marking paint (including supply paint) to the proper line and dimension as per IRC specification including cleaning the surface of all dirt, dust and other impurities complete as directed.					
a)	One coat	Sqm	100			
b)	Two coats	Sqm	100			
5	Providing and Consolidation of hard stone metals for making Water Bound Macadam including rolling the road sub-grade to proper camber, superelevation and grade by using templates, straight edges and spirit levels in layers not exceeding 100 mm to 130 mm thick, dry and wet rolling with 8-10 tonnes roller, beginning from the lower edge, including earth edging 30 cm wide on both sides of the specified quantity. The rate is also inclusive of the local carriage of all grades of metal, cost of metals etc. screening and binding materials, thereafter wet rolling again with copious quantity of water complete as directed.					
a)	With 45 mm to 90 mm size Metal	Cum	3900			

Sl.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
b)	With 45 mm to 63 mm size Metal	Cum	3900			
c)	With 22.4 mm to 53 mm size Metal	Cum	3900			
6	Providing 20 mm thick Premix Carpet (open graded) using 0.18 m ³ /10 m ² of 13.2 mm size stone chip and 0.09 m ³ /10 m ² of 11.2 mm chips including thoroughly cleaning of the surface and screening of chips and preheating the stone chips to the required temperature thoroughly in heating device/mixing drum with binder @ 14.6 kg/10 m ² and including laying the premix materials uniformly to the proper grade line and cross section and applying of tack coat at specified quantity including rolling with power roller including cost of stone chips and bitumen and carriage of stone chips within 200 metres and carriage of binder up to work site complete as directed.					
a)	Over water bound macadam	Sqm	29960			
7	Providing premixed Seal Coat on black topped surface using 6.7 mm chip @ 0.09 m ³ /10 m ² including thoroughly clearing the surface, screening and cleaning preheated stone chips after mixing thoroughly with the heated bitumen @ 9.8 kg /10 m ² in a heating device or mixing drum etc. Laying the premixed materials uniformly over the surface to proper line, grade and camber and rolling by roller 8-10 tonnes including carriage, cost of chips, bitumen and carriage of chips within 200 metres and bitumen upto work site complete as directed.	Sqm	29960			

Sl.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
10	Collection and supply of granular materials such as natural sand, moorum, gravels, crushed stone, crushed slag etc. or combination thereof and conforming to the grading specified in table 400-1 of I.R.C specification (second edition). The material is to be free from organic or other deleterious constituents and including laying of the same uniformly over the prepared sub-grade not exceeding in one time the loose thickness of about 200 mm and compacted by a power roller or by hand ramming to 150 mm thick including cost of the granular materials and carriage within 200 m as directed.	Cum	8600			
8	Consolidation of granular materials consisting of river sand and gravel (for making sub-base of road pavement) including rolling the sub-grade to the proper camber, superelevation and grade by using templates, straight edges and spirit levels in layers not exceeding 100 mm - 130 mm thickness. The layer is than dry and wet rolled with 8-10 ton roller beginning from the lower edge including earth edging 30 cm wide on both sides of the road and carriage of river sand and gravels from the stock piles within 200 metres and spreading the same quantity of a road and thereafter wet rolling again with copious quantity of water etc complete as directed.	Cum	8600			
9	Providing & laying 80mm thick (M-30 grade) interlocking Paving Blocks of approved manufacturer and pattern and colour over 75mm thick well compacted flat brick soling including placing in correct line, level and slope, interlocking firmly and compacting by mechanical vibrator with 50mm thick sand bedding, cleaning removing excess sand complete as per specifications and as directed by the Engineer-in-charge.	Sq.	23000			

Sl.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
10	Construction of Surface Drain of PCC M-20 of clear width 500mm X 550mm depth including all necessary earth work and surface finishing as per specifications and drawing.	Rm	5800			
11	Providing and laying and making Kerb Channel 30cm wide and 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) over 75mm bed of dry brick ballst 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth etc. complete and as per direction of Engineer-in-charge.	Rm	5800			
12	Providing and laying non-pressure NP-2 class RCC Pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints.					
(a)	150 mm dia RCC pipe.	Rm	70			
(b)	250 mm dia RCC pipe.	Rm	70			
(c)	300 mm dia RCC pipe.	Rm	70			
(d)	450 mm dia RCC pipe.	Rm	50			
(e)	600 mm dia RCC pipe.	Rm	130			
13	Providing and laying non-pressure NP-3 class RCC Pipes with collars instead of NP-2 class RCC Pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints.					
a)	300 mm dia RCC pipe.	Rm	170			
b)	450 mm dia RCC pipe.	Rm	400			
c)	600 mm dia RCC pipe.	Rm	510			

Sl.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
14	Providing cement concrete work for bed concrete of RCC Hume pipe in proportion 1:3:6 with hard broken stone aggregates 40mm down graded including necessary carriage of all materilas, curing etc. complete but excluding shuttering.	Cum	400			
15	Disposal of surplus earth from the work site including loading and unloading complete as directed.					
a)	Lead upto 5Km	Cum	70000			
	Total carried over to Summary					

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Bill of Quantites for Site Grading & Prparation

VOLUME - III

SI.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
1	Jungle clearance of the proposed site including cutting muli bamboo, bamboo clumps, and uprooting stumps and trees below 50.0 cm girth and removing outside the road way limit as directed.					
	a) Light jungle (occurring in grazing areas)	Sqm	150000			
	b) Heavy jungle in thick shrubs, muli bamboos and deep forest, full of creepers, canes and the like.	Sqm	92400			
	N.B: if variation in the width of jungle clearance desired the rate might be adjusted proportionately.					
2	Felling, uprooting removing of Trees:					
	a) Above 50 cm to 100 cm girth considering one tree:	No.	500			
3	Earth work in excavation to the proper level and grade including light dressing, providing cambering and super elevation as directed and removal of spoil upto 30 m lead and all lift. (All measurements are to be taken from pits. No profile measurement are admissible.)					
	a) Ordinary soil comprising of black cotton soil, green vegetation soil, red soil, loamy soil, clay, soft shale, loose moorum.	Cum	126698			
	b) Soil mixed with moorum, gravels, boulders upto one man size (above 0.03 m ³)	Cum	27643			
	c) Loose boulders above one man size or soil mixed with boulders above one man size or soft shale.	Cum	18429			
	d) Soft or laminated rock or medium shale.	Cum	16125			
	e) Hard shale or medium rock of the hardness of building stones, laterite and the like.	Cum	9214			

Sl.No	Description of Item	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
				In Figures	In Words	
f)	Very hard shale.	Cum	11518			
g)	Hard rock such as hard sand stone fit for road metal, lime stone and the like (payable after Engineer-in-charge has passed the classification).	Cum	13822			
h)	Very hard rock such as quartz hard conglomerate gneisses, granite, blue whim stone and the like (payable after Engineer-in-charge has passed the classification).	Cum	6911			
i)	Extra for excavation in through cutting over 150 cm height at the lowest point.	Cum	230361			
4	Earthwork in filling with approved earth like sandy soil, moorum etc. in an embankment in layers not exceeding 20 cm thick including breaking clods, dressing and ramming and lead upto 30.00 m and lift upto 150 cm, and conforming to all tests as per IS:2386 Pt:IV as required completed as directed.	Cum	25214			
5	Extra for rolling the embankment in layers of 20 cm with power roller 8 to 10 tonnes capacity to run at least 10 passes until the embankment is compacted, the rate is inclusive of watering, hire charge of roller and supply of necessary fuel etc complete. (Sequence of operation should be filled in layers including breaking clods etc up to the desired thickness to be followed by rolling operation, alternately directed). Analysis worked out considering an output decreased by 20% for sequence of operation, rolling and filling alternately.	Cum	25214			
6	Disposal of surplus earth from the work site including loading and unloading complete as directed.					
a)	Lead upto 5Km	Cum	130000			
Total carried over to Summary						

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Summary of Bill of Quantites

VOLUME - III

Sl.No	Description of Item	Amount (Rs.)
1.00	ROADS & PATHWAYS	
2.00	RETAINING WALL	
3.00	SITE GRADING & PREPARATION	
TOTAL		

(Rupees.....)