



Consultancy Services for carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction service in respect of 2 Laning with paved shoulders of Yaingangpoki-Nagaland Border on NH 202 Engineering Procurement and Construction mode in the state of Manipur

DETAILED PROJECT REPORT

COST ESTIMATE,BILL OF QUANTITY & RATE ANALYSIS REPORT

(PACKAGE-V :53/110 km-95/700km)



Client:



Consultant:



S.M. CONSULTANTS

Plot No. 130, S.M. Tower, Mancheswar

Industrial Estate

Rasulgarh, Bhubaneswar, 751010, ODISHA

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GENERAL ABSTRACT				
Ch from 53/110 Km to 95/700 Km				
SL. NO	TYPE OF WORK		AMOUNT	REMARKS
1	Road Work			
i)	Road Proper	Rs	1,995,968,119.24	
ii)	Curves (Extra Widening)	Rs	39,076,554.91	
2	C.D Works			
i)	Slab Culvert			
a)	PCC Slab Culvert	Rs	401,934,906.00	
b)	RCC Slab Culvert	Rs	18,056,507.00	
c)	Minor Bridge	Rs	8,861,282.00	
3	Miscellaneous Item			
i)	Drain	Rs	28,682,819.00	
ii)	Lined Drain	Rs	97,697,231.00	
iii)	Breast Wall	Rs	518,290,936.00	
iv)	W Metal Beam Crash barrier	Rs	70,859,946.00	
v)	Retaining Wall	Rs	330,930,225.00	
vi)	Junctions	Rs	648,726.00	
vi)	Signs & Safety	Rs	46,517,355.45	
vii)	Overhead Signage	Rs	2,928,322.92	
ix)	Bus Bay	Rs	3,877,164.00	
x)	Seeding and Mulching	Rs	10,822,880.00	
xi)	Soil Nailing	Rs	1,550,080.00	
xii)	Gabion Structure	Rs	79,137,655.13	
4	Toilet Block (5nos @ 15 lakhs)-L.S	Rs	7,500,000.00	
5	Street Lighting (Built-up Section @ Rs 1600- 300 nos)-L.S	Rs	480,000.00	
6	Cost for Utility Shifting (excluding supervision cost & taxes)	Rs	46,654,907.80	
	Sub Total	Rs	3,710,475,617.45	A
	Escalation based on WPI @ 3% on A (for 1 year)	Rs	111,314,268.52	
	Sub Total	Rs	3,821,789,885.97	
	Add GST @12%	Rs	458,614,786.00	A'
	Total Civil Cost (A+A')	Rs	4,280,404,671.97	B
	Add Contingency @ 2.8% on "A"	Rs	107,010,117.00	B'
	Total Cost with contingency (EPC Cost = B+B')	Rs	4,387,414,788.97	C
a)	Supervision Charges @ 3% of (A)	Rs	114,653,697.00	D
b)	Agency Charges @ 3% of (A)	Rs	114,653,697.00	E
c)	Maintenance Charges @ 2.5% of (A) for 5 years	Rs	95,544,747.00	F
d)	Escalation Charges @ 5 % of (A) for 2 years	Rs	191,089,494.00	G
	Sum(C+D+E+F+G)	Rs	4,903,356,424.00	H
	Departmental Cost			
	Tentative Cost for Land Acquisition & R&R	Rs	511,521,341.61	I
	Cost for Environmental Budget and Forest Clearance Cost	Rs	60,499,443.94	J
	Sub Total (I+J)	Rs	572,020,785.55	
	Total Project Cost (H+L)	Rs	5,475,377,209.55	Crores
	SAY		547.54	Crores

DETAILS OF TYPICAL CROSS SECTIONS

Typical Cross Section 1

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts	
1	54.500	54.645	0.145	145.000		145.000	m
2	54.645	56.100	1.455	1455.000	101.500	1353.500	m
3	57.500	58.500	1.000	1000.000	60.600	939.400	m
4	59.200	59.450	0.250	250.000	10.100	239.900	m
5	60.600	62.300	1.700	1700.000	90.900	1609.100	m
6	65.500	67.500	2.000	2000.000	123.700	1876.300	m
7	68.300	69.800	1.500	1500.000	101.000	1399.000	m
8	72.000	74.250	2.250	2250.000	98.000	2152.000	m
9	74.800	75.500	0.700	700.000	35.000	665.000	m
10	76.000	76.300	0.300	300.000	14.000	286.000	m
11	78.600	79.600	1.000	1000.000	56.000	944.000	m
	81.600	83.900	2.300	2300.000	77.000	2223.000	m
	89.600	90.000	0.400	400.000	0.000	400.000	m
	91.300	91.700	0.400	400.000	21.000	379.000	m
	94.400	94.700	0.300	300.000	14.000	286.000	m
	95.500	95.700	0.200	200.000	0.000	200.000	m
			15.900	15900.000		15097.200	m

Typical Cross Section 2

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts	
1			0.000	0.000		0.000	m
2	56.100	56.600	0.500	500.000	10.100	489.900	m
3	58.500	59.200	0.700	700.000	40.400	659.600	m
4	76.300	76.600	0.300	300.000	14.000	286.000	m
5	78.100	78.600	0.500	500.000	21.000	479.000	m
	94.700	95.300	0.600	600.000	35.000	565.000	m
			2.600	2600.000		2479.500	m

Typical Cross Section 2A

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts	
1	56.600	57.500	0.900	900.000	50.500	849.500	m
2	63.300	64.700	1.400	1400.000	84.300	1315.700	m
3	74.250	74.800	0.550	550.000	28.000	522.000	m
4	75.500	76.000	0.500	500.000	21.000	479.000	m
5	77.800	78.100	0.300	300.000	7.000	293.000	m
6	79.600	79.830	0.230	230.000	2.100	227.900	m
	79.830	80.500	0.670	670.000	28.000	642.000	m
	80.900	81.600	0.700	700.000	28.000	672.000	m
	87.000	87.800	0.800	800.000	14.000	786.000	m
	95.300	95.500	0.200	200.000	0.000	200.000	m
			6.250	6250.000		5987.100	m

Typical Cross Section 2B

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts	
1	85.000	86.400	1.400	1400.000	42.000	1358.000	m
2	87.800	88.000	0.200	200.000	7.000	193.000	m
3	90.000	91.300	1.300	1300.000	21.000	1279.000	m
4	91.700	94.400	2.700	2700.000	63.000	2637.000	m
			5.600	5600.000		5467.000	m

Typical Cross Section 3

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts
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1	53.110	54.100	0.990	990.000	110.600	879.400	m
2	86.400	87.000	0.600	600.000	28.000	572.000	m
			1.590	1590.000		1451.400	m

Typical Cross Section 3A

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts	
1	64.700	65.200	0.500	500.000	30.300	469.700	m
2	65.200	65.500	0.300	300.000	0.000	300.000	m
			0.800	800.000		769.700	m

Typical Cross Section 4

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts	
1			0.000	0.000		0.000	m
2	59.450	60.600	1.150	1150.000	50.000	1100.000	m
6	77.100	77.800	0.700	700.000	42.000	658.000	m
			1.850	1850.000		1758.000	m

Typical Cross Section 5

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts	
1	76.600	77.100	0.500	500.000	21.000	479.000	m
	80.500	80.900	0.400	400.000	7.000	393.000	m
	83.900	85.000	1.100	1100.000	49.000	1051.000	m
	88.000	88.800	0.800	800.000	42.000	758.000	m
			2.800	2800.000		2681.000	m

Typical Cross Section 8

SL No	From	To	Length(km)	Length(m)	Deducting Culverts	Length after deducting Culverts	
1							
2	54.100	54.500	0.400	400.000	20.200	379.800	m
3	62.300	63.300	1.000	1000.000	40.400	959.600	m
4	67.500	68.300	0.800	800.000	52.000	748.000	m
5	69.800	71.500	1.700	1700.000	80.300	1619.700	m
6	71.500	72.000	0.500	500.000	49.000	451.000	m
7	88.800	89.600	0.800	800.000	14.000	786.000	m
			5.200	5200.000		4944.100	m

Total length of Road 42590.00 m

Total length of Road after deducting culverts 40635.00 m

DETAILED ESTIMATE OF ROAD

SL No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
	Flexible Pavement								
	Typical Cross Section 1	15097.20							
	Typical Cross Section 2	2479.50							
	Typical Cross Section 2A	5987.10							
	Typical Cross Section 2B	5467.00							
	Typical Cross Section 3	1451.40							
	Typical Cross Section 3A	769.70							
	Typical Cross Section 4	1758.00							
	Typical Cross Section 5	2681.00							
	Typical Cross Section 8	4944.10							
		40635.00							
	Net Length		40635.00						
	Proposed Carriageway Width	1	x	7	m				
	Proposed Paved Shoulder Width	2	x	0	m				
	Proposed Earthen Shoulder	1	x	1.5	m				
	CRUST DETAILS								
	GSB-VI		150	mm					
	GSB-IV		150	mm					
	Wet mix Macadam - 1st layer		150	mm					
	Wet mix Macadam 2nd layer		100	mm					
	Dense Bituminous Macadam		100	mm					
	Bituminous Concrete		40	mm					
			690	mm					
1	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.								
		1	40635.00	8.50		345397.50	sqm		
		Total Qty				345397.50	sqm	7.82	2701008.45
2	Excavation for roadway by mechanical means in all kinds of soil except rock to required size and shape as shown in the drawing, trimming sides, to required shape levelling the bed to line and grade as per Cl. 301 and Cl. 112 of technical specification part I / II specification for road & bridge work MORT&H (5th revision) including stacking the useful material for reuse in embankment within the road land and disposal of unuseful material away from road land including full compensation to all operations, all inclusive costs, contingencies, incidentals involved for the finished defect free item of work to specification complete and as directed by the Engineer or his representative to satisfaction.								
	As per software calculation					4001739.195			
	Cutting on existing road	1	40635.00	8.500	0.300	103619.25	Cum		
	Considering excavation in hilly area @ 85%					3489554.68	Cum	213.50	745019923.81
	Considering ordinary rock not requiring blasting @ 10%					410535.84	Cum	307.61	126284931.13
	Considering hard rock requiring blasting @ 5%					205267.92	Cum	427.33	87717141.22
3	Construction of embankment with materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.								
	Quantity as per software calculation					453409.75			
	Deducting Crust								
	GSB					104338.89			
	WMM					71111.25			
	DBM					28444.50			
	BC					11377.80			
	Earth Filling					11428.68			
	Filling Quantity Required					226708.63			
	Reuse of excavted material					226708.63			
						226708.63		161.80	36681456.33

SL No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
4	Loosening, leveling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150 mm, 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.								
		1	40635.00	8.50	0.15	51809.63	Cum		
		Total Qnty				51809.63	cum	42.42	2197764.50
5	Construction of granular sub-base by providing Grading VI material spreading in uniform layers with motor grader on prepared surface, mixing by place in method rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per clause 401								
		1	38413.90	8.500	0.150	48977.72	Cum		
	Typical 3,3A	1	2221.10	9.73	0.150	3241.70			
		Total Qnty				52219.42	cum	2949.31	154011257.60
6	Construction of granular sub-base by providing Grading IV material spreading in uniform layers with motor grader on prepared surface, mixing by place in method rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per clause 401								
		1	38413.90	8.50	0.150	48977.72	cum		
	Typical 3,3A	1	2221.10	9.43	0.150	3141.75			
		Total Qnty				52119.47	cum	2998.09	156259075.50
7	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.								
		1	40635.00	7.00	0.15	42666.75	Cum		
		1	40635.00	7.00	0.10	28444.50	Cum		
		Total Qnty				71111.25	cum	3020.87	214817841.79
8	Providing and applying prime coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.								
		1	40635.00	7.00		284445.00	sqm		
		Total Qnty				284445.00	sqm	58.50	16640032.50
9	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared primed surface cleaned with mechanical broom.								
		1	40635.00	7.00		284445.00	sqm		
		Total Qnty				284445.00	sqm	16.17	4599475.65
10	Providing and laying dense graded bituminous macadam using 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 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 to 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. 505 complete in all respects.								
		1	40635.00	7.00	0.100	28444.50	cum		
		Total Qnty				28444.50	cum	10858.68	308869723.26
11	Providing and laying bituminous concrete using 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to 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 complete in all respects								

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EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
53110	0.000	19.438	0.355	112.280	0.355	112.280
53120	0.000	26.562	0.000	230.000	0.355	342.280
53130	0.538	10.545	2.690	185.535	3.045	527.815
53140	0.541	1.175	5.395	58.600	8.440	586.415
53150	35.398	0.000	179.695	5.875	188.135	592.290
53160	71.499	0.000	534.485	0.000	722.620	592.290
53170	126.880	0.000	991.895	0.000	1714.515	592.290
53180	213.272	0.000	1700.760	0.000	3415.275	592.290
53190	247.428	0.000	2303.500	0.000	5718.775	592.290
53200	287.962	0.000	2676.950	0.000	8395.725	592.290
53210	352.608	0.000	3202.850	0.000	11598.575	592.290
53220	435.291	0.000	3939.495	0.000	15538.070	592.290
53230	533.467	0.000	4843.790	0.000	20381.860	592.290
53240	640.589	0.000	5870.280	0.000	26252.140	592.290
53250	749.227	0.000	6949.080	0.000	33201.220	592.290
53260	741.754	0.000	7454.905	0.000	40656.125	592.290
53270	712.090	0.000	7269.220	0.000	47925.345	592.290
53280	656.596	0.000	6843.430	0.000	54768.775	592.290
53290	539.618	0.000	5981.070	0.000	60749.845	592.290
53300	410.322	0.000	4749.700	0.000	65499.545	592.290
53310	300.049	0.000	3551.855	0.000	69051.400	592.290
53320	220.715	0.000	2603.820	0.000	71655.220	592.290
53330	158.846	0.000	1897.805	0.000	73553.025	592.290
53340	116.616	0.000	1377.310	0.000	74930.335	592.290
53350	96.541	0.015	1065.785	0.075	75996.120	592.365
53360	92.594	6.428	945.675	32.215	76941.795	624.580
53370	99.905	0.149	962.495	32.885	77904.290	657.465
53380	161.511	0.000	1307.080	0.745	79211.370	658.210
53390	260.891	0.000	2112.010	0.000	81323.380	658.210
53400	314.807	0.000	2878.490	0.000	84201.870	658.210
53410	311.512	0.000	3131.595	0.000	87333.465	658.210
53420	279.324	0.000	2954.180	0.000	90287.645	658.210
53430	230.435	0.000	2548.795	0.000	92836.440	658.210
53440	172.934	0.020	2016.845	0.100	94853.285	658.310
53450	111.379	0.012	1421.565	0.160	96274.850	658.470
53460	46.346	0.998	788.625	5.050	97063.475	663.520
53470	59.692	1.554	530.190	12.760	97593.665	676.280
53480	94.649	0.011	771.705	7.825	98365.370	684.105
53490	108.649	0.000	1016.490	0.055	99381.860	684.160
53500	106.560	0.000	1076.045	0.000	100457.905	684.160
53510	101.458	0.000	1040.090	0.000	101497.995	684.160
53520	96.737	0.000	990.975	0.000	102488.970	684.160
53530	92.523	0.000	946.300	0.000	103435.270	684.160
53540	86.336	0.000	894.295	0.000	104329.565	684.160
53550	69.547	0.000	779.415	0.000	105108.980	684.160
53560	54.798	0.000	621.725	0.000	105730.705	684.160
53570	43.154	0.000	489.760	0.000	106220.465	684.160
53580	27.568	0.000	353.610	0.000	106574.075	684.160
53590	9.622	0.000	185.950	0.000	106760.025	684.160
53600	2.217	1.113	59.195	5.565	106819.220	689.725
53610	0.122	8.556	11.695	48.345	106830.915	738.070
53620	0.000	10.336	0.610	94.460	106831.525	832.530
53630	0.011	9.282	0.055	98.090	106831.580	930.620
53640	0.000	4.525	0.055	69.035	106831.635	999.655
53650	0.061	3.125	0.305	38.250	106831.940	1037.905
53660	0.000	4.215	0.305	36.700	106832.245	1074.605
53670	0.000	5.975	0.000	50.950	106832.245	1125.555
53680	0.000	6.652	0.000	63.135	106832.245	1188.690
53690	0.000	7.668	0.000	71.600	106832.245	1260.290
53700	2.309	10.375	11.545	90.215	106843.790	1350.505
53710	3.141	12.571	27.250	114.730	106871.040	1465.235
53720	6.606	12.318	48.735	124.445	106919.775	1589.680
53730	4.347	7.193	54.765	97.555	106974.540	1687.235
53740	12.636	4.685	84.915	59.390	107059.455	1746.625
53750	22.982	3.198	178.090	39.415	107237.545	1786.040
53760	29.018	3.816	260.000	35.070	107497.545	1821.110
53770	45.317	2.132	371.675	29.740	107869.220	1850.850
53780	56.266	1.008	507.915	15.700	108377.135	1866.550
53790	73.141	0.475	647.035	7.415	109024.170	1873.965
53800	78.258	1.109	756.995	7.920	109781.165	1881.885
53810	73.868	1.148	760.630	11.285	110541.795	1893.170
53820	56.760	2.831	653.140	19.895	111194.935	1913.065
53830	39.780	6.858	482.700	48.445	111677.635	1961.510
53840	48.431	2.043	441.055	44.505	112118.690	2006.015
53850	64.958	0.000	566.945	10.215	112685.635	2016.230
53860	58.547	0.000	617.525	0.000	113303.160	2016.230

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
53870	56.569	0.000	575.580	0.000	113878.740	2016.230
53880	51.703	0.000	541.360	0.000	114420.100	2016.230
53890	36.713	0.000	442.080	0.000	114862.180	2016.230
53900	26.095	1.857	314.040	9.285	115176.220	2025.515
53910	25.676	3.272	258.855	25.645	115435.075	2051.160
53920	20.563	7.895	231.195	55.835	115666.270	2106.995
53930	9.343	12.151	149.530	100.230	115815.800	2207.225
53940	1.033	25.443	51.880	187.970	115867.680	2395.195
53950	0.000	34.168	5.165	298.055	115872.845	2693.250
53960	8.274	15.769	41.370	249.685	115914.215	2942.935
53970	52.181	0.000	302.275	78.845	116216.490	3021.780
53980	101.552	0.000	768.665	0.000	116985.155	3021.780
53990	119.430	0.000	1104.910	0.000	118090.065	3021.780
54000	113.431	0.000	1164.305	0.000	119254.370	3021.780
54010	89.025	0.000	1012.280	0.000	120266.650	3021.780
54020	81.086	0.000	850.555	0.000	121117.205	3021.780
54030	78.593	0.000	798.395	0.000	121915.600	3021.780
54040	75.859	0.000	772.260	0.000	122687.860	3021.780
54050	131.091	0.000	1034.750	0.000	123722.610	3021.780
54060	151.601	0.000	1413.460	0.000	125136.070	3021.780
54070	153.238	0.000	1524.195	0.000	126660.265	3021.780
54080	152.034	0.000	1526.360	0.000	128186.625	3021.780
54090	156.436	0.000	1542.350	0.000	129728.975	3021.780
54100	153.612	0.000	1550.240	0.000	131279.215	3021.780
54110	261.887	0.000	2077.495	0.000	133356.710	3021.780
54120	464.345	0.000	3631.160	0.000	136987.870	3021.780
54130	465.761	0.000	4650.530	0.000	141638.400	3021.780
54140	420.730	0.000	4432.455	0.000	146070.855	3021.780
54150	358.316	0.000	3895.230	0.000	149966.085	3021.780
54160	291.237	0.000	3247.765	0.000	153213.850	3021.780
54170	234.741	0.000	2629.890	0.000	155843.740	3021.780
54180	186.727	0.000	2107.340	0.000	157951.080	3021.780
54190	155.211	0.000	1709.690	0.000	159660.770	3021.780
54200	131.901	0.000	1435.560	0.000	161096.330	3021.780
54210	112.855	0.000	1223.780	0.000	162320.110	3021.780
54220	95.810	0.000	1043.325	0.000	163363.435	3021.780
54230	80.820	0.000	883.150	0.000	164246.585	3021.780
54240	68.004	0.000	744.120	0.000	164990.705	3021.780
54250	64.919	0.000	664.615	0.000	165655.320	3021.780
54260	58.840	0.000	618.795	0.000	166274.115	3021.780
54270	50.263	0.013	545.515	0.065	166819.630	3021.845
54280	37.071	0.963	436.670	4.880	167256.300	3026.725
54290	26.608	2.154	318.395	15.585	167574.695	3042.310
54300	19.039	2.978	228.235	25.660	167802.930	3067.970
54310	10.295	5.351	146.670	41.645	167949.600	3109.615
54320	6.245	8.134	82.700	67.425	168032.300	3177.040
54330	10.016	10.525	81.305	93.295	168113.605	3270.335
54340	13.697	8.989	118.565	97.570	168232.170	3367.905
54350	16.678	12.586	151.875	107.875	168384.045	3475.780
54360	20.612	8.486	186.450	105.360	168570.495	3581.140
54370	33.207	7.888	269.095	81.870	168839.590	3663.010
54380	54.611	7.891	439.090	78.895	169278.680	3741.905
54390	82.595	5.530	686.030	67.105	169964.710	3809.010
54400	127.597	0.000	1050.960	27.650	171015.670	3836.660
54410	166.109	0.000	1468.530	0.000	172484.200	3836.660
54420	187.267	0.000	1766.880	0.000	174251.080	3836.660
54430	208.092	0.000	1976.795	0.000	176227.875	3836.660
54440	229.473	0.000	2187.825	0.000	178415.700	3836.660
54450	250.440	0.000	2399.565	0.000	180815.265	3836.660
54460	270.737	0.000	2605.885	0.000	183421.150	3836.660
54470	288.200	0.000	2794.685	0.000	186215.835	3836.660
54480	268.740	0.000	2784.700	0.000	189000.535	3836.660
54490	182.271	0.000	2255.055	0.000	191255.590	3836.660
54500	89.539	0.000	1359.050	0.000	192614.640	3836.660
54510	15.290	0.000	524.145	0.000	193138.785	3836.660
54520	3.005	19.866	91.475	99.330	193230.260	3935.990
54530	1.216	22.382	21.105	211.240	193251.365	4147.230
54540	1.604	8.867	14.100	156.245	193265.465	4303.475
54550	55.137	1.484	283.705	51.755	193549.170	4355.230
54560	194.209	0.000	1246.730	7.420	194795.900	4362.650
54570	295.149	0.000	2446.790	0.000	197242.690	4362.650
54580	337.680	0.000	3164.145	0.000	200406.835	4362.650
54590	345.251	0.000	3414.655	0.000	203821.490	4362.650
54600	323.273	0.000	3342.620	0.000	207164.110	4362.650
54610	262.156	0.000	2927.145	0.000	210091.255	4362.650
54620	199.764	0.000	2309.600	0.000	212400.855	4362.650
54630	99.223	0.000	1494.935	0.000	213895.790	4362.650

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
54640	3.009	9.987	0.000	0.000	213895.790	4362.650
54650	0.000	26.557	15.045	182.720	213910.835	4545.370
54660	38.646	0.939	193.230	137.480	214104.065	4682.850
54670	101.388	0.000	700.170	4.695	214804.235	4687.545
54680	107.816	0.000	1046.020	0.000	215850.255	4687.545
54690	95.293	0.000	1015.545	0.000	216865.800	4687.545
54700	82.836	0.000	890.645	0.000	217756.445	4687.545
54710	70.328	0.000	765.820	0.000	218522.265	4687.545
54720	57.766	0.000	640.470	0.000	219162.735	4687.545
54730	45.355	0.000	515.605	0.000	219678.340	4687.545
54740	3.539	4.521	244.470	22.605	219922.810	4710.150
54750	0.000	28.326	17.695	164.235	219940.505	4874.385
54760	0.000	37.134	0.000	327.300	219940.505	5201.685
54770	0.000	13.118	0.000	251.260	219940.505	5452.945
54780	13.835	6.431	69.175	97.745	220009.680	5550.690
54790	38.140	2.683	259.875	45.570	220269.555	5596.260
54800	20.920	2.678	295.300	26.805	220564.855	5623.065
54810	5.561	11.723	132.405	72.005	220697.260	5695.070
54820	9.247	10.575	74.040	111.490	220771.300	5806.560
54830	23.275	2.007	162.610	62.910	220933.910	5869.470
54840	53.169	0.000	382.220	10.035	221316.130	5879.505
54850	73.174	0.000	631.715	0.000	221947.845	5879.505
54860	92.362	0.000	827.680	0.000	222775.525	5879.505
54870	106.505	0.000	994.335	0.000	223769.860	5879.505
54880	117.219	0.000	1118.620	0.000	224888.480	5879.505
54890	120.859	0.000	1190.390	0.000	226078.870	5879.505
54900	117.713	0.000	1192.860	0.000	227271.730	5879.505
54910	112.338	0.000	1150.255	0.000	228421.985	5879.505
54920	104.120	0.000	1082.290	0.000	229504.275	5879.505
54930	92.744	0.000	984.320	0.000	230488.595	5879.505
54940	79.411	0.000	860.775	0.000	231349.370	5879.505
54950	64.611	0.000	720.110	0.000	232069.480	5879.505
54960	54.205	0.000	594.080	0.000	232663.560	5879.505
54970	39.931	6.831	470.680	34.155	233134.240	5913.660
54980	86.710	0.000	633.205	34.155	233767.445	5947.815
54990	117.473	0.000	1020.915	0.000	234788.360	5947.815
55000	102.253	0.000	1098.630	0.000	235886.990	5947.815
55010	89.900	0.000	960.765	0.000	236847.755	5947.815
55020	82.020	0.000	859.600	0.000	237707.355	5947.815
55030	79.706	0.000	808.630	0.000	238515.985	5947.815
55040	80.343	0.000	800.245	0.000	239316.230	5947.815
55050	81.113	0.000	807.280	0.000	240123.510	5947.815
55060	81.963	0.000	815.380	0.000	240938.890	5947.815
55070	82.872	0.000	824.175	0.000	241763.065	5947.815
55080	83.776	0.000	833.240	0.000	242596.305	5947.815
55090	84.663	0.000	842.195	0.000	243438.500	5947.815
55100	85.532	0.000	850.975	0.000	244289.475	5947.815
55110	86.384	0.000	859.580	0.000	245149.055	5947.815
55120	87.218	0.000	868.010	0.000	246017.065	5947.815
55130	88.036	0.000	876.270	0.000	246893.335	5947.815
55140	88.836	0.000	884.360	0.000	247777.695	5947.815
55150	82.803	0.000	858.195	0.000	248635.890	5947.815
55160	56.915	0.000	698.590	0.000	249334.480	5947.815
55170	23.243	0.508	400.790	2.540	249735.270	5950.355
55180	0.683	17.271	119.630	88.895	249854.900	6039.250
55190	0.000	55.794	3.415	365.325	249858.315	6404.575
55200	0.000	24.341	0.000	400.675	249858.315	6805.250
55210	0.021	10.883	0.105	176.120	249858.420	6981.370
55220	0.252	5.556	1.365	82.195	249859.785	7063.565
55230	7.623	1.732	39.375	36.440	249899.160	7100.005
55240	19.056	0.087	133.395	9.095	250032.555	7109.100
55250	23.341	0.000	211.985	0.435	250244.540	7109.535
55260	11.137	0.929	172.390	4.645	250416.930	7114.180
55270	3.396	3.043	72.665	19.860	250489.595	7134.040
55280	4.384	1.064	38.900	20.535	250528.495	7154.575
55290	7.869	1.174	61.265	11.190	250589.760	7165.765
55300	16.278	2.079	120.735	16.265	250710.495	7182.030
55310	19.221	2.791	177.495	24.350	250887.990	7206.380
55320	19.548	6.385	193.845	45.880	251081.835	7252.260
55330	25.855	2.703	227.015	45.440	251308.850	7297.700
55340	37.670	0.000	317.625	13.515	251626.475	7311.215
55350	57.574	0.000	476.220	0.000	252102.695	7311.215
55360	72.866	0.000	652.200	0.000	252754.895	7311.215
55370	86.655	0.000	797.605	0.000	253552.500	7311.215
55380	100.029	0.000	933.420	0.000	254485.920	7311.215
55390	113.070	0.000	1065.495	0.000	255551.415	7311.215
55400	126.116	0.000	1195.930	0.000	256747.345	7311.215

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
55410	140.046	0.000	1330.810	0.000	258078.155	7311.215
55420	159.773	0.000	1499.095	0.000	259577.250	7311.215
55430	178.981	0.000	1693.770	0.000	261271.020	7311.215
55440	193.650	0.000	1863.155	0.000	263134.175	7311.215
55450	197.509	0.000	1955.795	0.000	265089.970	7311.215
55460	185.780	0.000	1916.445	0.000	267006.415	7311.215
55470	167.686	0.000	1767.330	0.000	268773.745	7311.215
55480	152.245	0.000	1599.655	0.000	270373.400	7311.215
55490	138.749	0.000	1454.970	0.000	271828.370	7311.215
55500	129.707	0.000	1342.280	0.000	273170.650	7311.215
55510	129.588	0.000	1296.475	0.000	274467.125	7311.215
55520	129.603	0.000	1295.955	0.000	275763.080	7311.215
55530	129.819	0.000	1297.110	0.000	277060.190	7311.215
55540	130.028	0.000	1299.235	0.000	278359.425	7311.215
55550	130.230	0.000	1301.290	0.000	279660.715	7311.215
55560	130.425	0.000	1303.275	0.000	280963.990	7311.215
55570	130.612	0.000	1305.185	0.000	282269.175	7311.215
55580	130.792	0.000	1307.020	0.000	283576.195	7311.215
55590	131.869	0.000	1313.305	0.000	284889.500	7311.215
55600	134.263	0.000	1330.660	0.000	286220.160	7311.215
55610	138.010	0.000	1361.365	0.000	287581.525	7311.215
55620	143.685	0.000	1408.475	0.000	288990.000	7311.215
55630	151.482	0.000	1475.835	0.000	290465.835	7311.215
55640	161.507	0.000	1564.945	0.000	292030.780	7311.215
55650	173.668	0.000	1675.875	0.000	293706.655	7311.215
55660	185.232	0.000	1794.500	0.000	295501.155	7311.215
55670	190.672	0.000	1879.520	0.000	297380.675	7311.215
55680	190.310	0.000	1904.910	0.000	299285.585	7311.215
55690	184.954	0.000	1876.320	0.000	301161.905	7311.215
55700	171.933	0.000	1784.435	0.000	302946.340	7311.215
55710	164.667	0.000	1683.000	0.000	304629.340	7311.215
55720	127.238	0.000	1459.525	0.000	306088.865	7311.215
55730	71.335	0.000	992.865	0.000	307081.730	7311.215
55740	131.466	0.000	1014.005	0.000	308095.735	7311.215
55750	209.354	0.000	1704.100	0.000	309799.835	7311.215
55760	240.882	0.000	2251.180	0.000	312051.015	7311.215
55770	237.776	0.000	2393.290	0.000	314444.305	7311.215
55780	222.071	0.000	2299.235	0.000	316743.540	7311.215
55790	184.095	0.000	2030.830	0.000	318774.370	7311.215
55800	143.573	0.000	1638.340	0.000	320412.710	7311.215
55810	93.021	0.000	1182.970	0.000	321595.680	7311.215
55820	65.635	0.000	793.280	0.000	322388.960	7311.215
55830	72.232	0.000	689.335	0.000	323078.295	7311.215
55840	77.575	0.000	749.035	0.000	323827.330	7311.215
55850	88.103	0.000	828.390	0.000	324655.720	7311.215
55860	99.507	0.000	938.050	0.000	325593.770	7311.215
55870	110.989	0.000	1052.480	0.000	326646.250	7311.215
55880	118.572	0.000	1147.805	0.000	327794.055	7311.215
55890	120.377	0.000	1194.745	0.000	328988.800	7311.215
55900	118.590	0.000	1194.835	0.000	330183.635	7311.215
55910	105.799	0.000	1121.945	0.000	331305.580	7311.215
55920	75.865	0.122	908.320	0.610	332213.900	7311.825
55930	60.294	0.099	680.795	1.105	332894.695	7312.930
55940	58.184	0.035	592.390	0.670	333487.085	7313.600
55950	51.566	0.070	548.750	0.525	334035.835	7314.125
55960	48.825	0.000	501.955	0.350	334537.790	7314.475
55970	75.062	0.000	619.435	0.000	335157.225	7314.475
55980	87.567	0.000	813.145	0.000	335970.370	7314.475
55990	80.107	0.000	838.370	0.000	336808.740	7314.475
56000	74.752	0.000	774.295	0.000	337583.035	7314.475
56010	72.482	0.000	736.170	0.000	338319.205	7314.475
56020	73.543	0.000	730.125	0.000	339049.330	7314.475
56030	78.276	0.000	759.095	0.000	339808.425	7314.475
56040	86.606	0.000	824.410	0.000	340632.835	7314.475
56050	94.769	0.000	906.875	0.000	341539.710	7314.475
56060	95.064	0.000	949.165	0.000	342488.875	7314.475
56070	76.964	0.000	860.140	0.000	343349.015	7314.475
56080	34.856	0.000	559.100	0.000	343908.115	7314.475
56090	6.398	0.000	206.270	0.000	344114.385	7314.475
56100	2.532	0.000	44.650	0.000	344159.035	7314.475
56110	3.336	0.088	29.340	0.440	344188.375	7314.915
56120	1.990	0.138	26.630	1.130	344215.005	7316.045
56130	1.395	1.502	16.925	8.200	344231.930	7324.245
56140	0.796	3.632	10.955	25.670	344242.885	7349.915
56150	6.379	0.260	35.875	19.460	344278.760	7369.375
56160	35.943	0.003	211.610	1.315	344490.370	7370.690
56170	49.526	0.393	427.345	1.980	344917.715	7372.670

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
56180	39.076	1.475	443.010	9.340	345360.725	7382.010
56190	25.827	2.450	324.515	19.625	345685.240	7401.635
56200	16.010	3.121	209.185	27.855	345894.425	7429.490
56210	9.591	3.263	128.005	31.920	346022.430	7461.410
56220	5.917	3.029	77.540	31.460	346099.970	7492.870
56230	4.152	2.583	50.345	28.060	346150.315	7520.930
56240	3.578	2.038	38.650	23.105	346188.965	7544.035
56250	3.554	1.488	35.660	17.630	346224.625	7561.665
56260	3.493	1.190	35.235	13.390	346259.860	7575.055
56270	0.705	1.000	20.990	10.950	346280.850	7586.005
56280	0.000	7.273	3.525	41.365	346284.375	7627.370
56290	0.000	9.391	0.000	83.320	346284.375	7710.690
56300	0.000	6.368	0.000	78.795	346284.375	7789.485
56310	8.270	3.437	41.350	49.025	346325.725	7838.510
56320	23.640	1.467	159.550	24.520	346485.275	7863.030
56330	33.039	0.743	283.395	11.050	346768.670	7874.080
56340	40.105	0.539	365.720	6.410	347134.390	7880.490
56350	60.055	0.000	500.800	2.695	347635.190	7883.185
56360	62.484	0.000	612.695	0.000	348247.885	7883.185
56370	70.820	0.000	666.520	0.000	348914.405	7883.185
56380	74.854	0.000	728.370	0.000	349642.775	7883.185
56390	74.606	0.000	747.300	0.000	350390.075	7883.185
56400	82.489	0.000	785.475	0.000	351175.550	7883.185
56410	82.045	0.000	822.670	0.000	351998.220	7883.185
56420	89.547	0.000	857.960	0.000	352856.180	7883.185
56430	92.860	0.000	912.035	0.000	353768.215	7883.185
56440	92.241	0.000	925.505	0.000	354693.720	7883.185
56450	99.052	0.000	956.465	0.000	355650.185	7883.185
56460	101.932	0.000	1004.920	0.000	356655.105	7883.185
56470	101.281	0.000	1016.065	0.000	357671.170	7883.185
56480	104.038	0.000	1026.595	0.000	358697.765	7883.185
56490	109.704	0.000	1068.710	0.000	359766.475	7883.185
56500	112.007	0.000	1108.555	0.000	360875.030	7883.185
56510	111.537	0.000	1117.720	0.000	361992.750	7883.185
56520	116.226	0.000	1138.815	0.000	363131.565	7883.185
56530	116.272	0.000	1162.490	0.000	364294.055	7883.185
56540	120.462	0.000	1183.670	0.000	365477.725	7883.185
56550	121.066	0.000	1207.640	0.000	366685.365	7883.185
56560	124.553	0.000	1228.095	0.000	367913.460	7883.185
56570	120.300	0.000	1224.265	0.000	369137.725	7883.185
56580	65.070	0.000	926.850	0.000	370064.575	7883.185
56590	0.618	0.309	328.440	1.545	370393.015	7884.730
56600	0.006	2.030	3.120	11.695	370396.135	7896.425
56610	0.005	2.120	0.055	20.750	370396.190	7917.175
56620	0.000	3.246	0.025	26.830	370396.215	7944.005
56630	3.425	2.658	17.125	29.520	370413.340	7973.525
56640	51.009	0.687	272.170	16.725	370685.510	7990.250
56650	76.215	0.000	636.120	3.435	371321.630	7993.685
56660	85.259	0.000	807.370	0.000	372129.000	7993.685
56670	88.223	0.000	867.410	0.000	372996.410	7993.685
56680	91.422	0.000	898.225	0.000	373894.635	7993.685
56690	94.388	0.000	929.050	0.000	374823.685	7993.685
56700	96.506	0.000	954.470	0.000	375778.155	7993.685
56710	97.295	0.000	969.005	0.000	376747.160	7993.685
56720	96.453	0.000	968.740	0.000	377715.900	7993.685
56730	93.966	0.000	952.095	0.000	378667.995	7993.685
56740	87.131	0.000	905.485	0.000	379573.480	7993.685
56750	73.729	0.000	804.300	0.000	380377.780	7993.685
56760	55.654	0.000	646.915	0.000	381024.695	7993.685
56770	36.063	0.000	458.585	0.000	381483.280	7993.685
56780	14.696	1.867	253.795	9.335	381737.075	8003.020
56790	5.916	8.729	103.060	52.980	381840.135	8056.000
56800	2.078	26.019	39.970	173.740	381880.105	8229.740
56810	5.487	17.448	37.825	217.335	381917.930	8447.075
56820	16.203	7.875	108.450	126.615	382026.380	8573.690
56830	20.491	0.000	183.470	39.375	382209.850	8613.065
56840	12.088	0.000	162.895	0.000	382372.745	8613.065
56850	8.610	0.228	103.490	1.140	382476.235	8614.205
56860	9.678	0.634	91.440	4.310	382567.675	8618.515
56870	14.791	0.707	122.345	6.705	382690.020	8625.220
56880	20.231	1.108	175.110	9.075	382865.130	8634.295
56890	27.242	0.100	237.365	6.040	383102.495	8640.335
56900	28.373	5.770	278.075	29.350	383380.570	8669.685
56910	25.438	2.861	269.055	43.155	383649.625	8712.840
56920	25.566	15.200	255.020	90.305	383904.645	8803.145
56930	20.902	8.554	232.340	118.770	384136.985	8921.915
56940	9.307	1.224	151.045	48.890	384288.030	8970.805

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
56950	4.604	0.000	69.555	6.120	384357.585	8976.925
56960	6.174	0.000	53.890	0.000	384411.475	8976.925
56970	0.443	1.582	33.085	7.910	384444.560	8984.835
56980	0.000	1.622	2.215	16.020	384446.775	9000.855
56990	0.742	0.006	3.710	8.140	384450.485	9008.995
57000	0.906	0.009	8.240	0.075	384458.725	9009.070
57010	17.283	0.343	90.945	1.760	384549.670	9010.830
57020	18.757	1.362	180.200	8.525	384729.870	9019.355
57030	29.841	1.518	242.990	14.400	384972.860	9033.755
57040	39.903	0.656	348.720	10.870	385321.580	9044.625
57050	55.955	0.000	479.290	3.280	385800.870	9047.905
57060	75.044	0.000	654.995	0.000	386455.865	9047.905
57070	81.753	0.000	783.985	0.000	387239.850	9047.905
57080	85.639	0.000	836.960	0.000	388076.810	9047.905
57090	80.077	0.000	828.580	0.000	388905.390	9047.905
57100	75.731	0.000	779.040	0.000	389684.430	9047.905
57110	72.144	0.000	739.375	0.000	390423.805	9047.905
57120	68.464	0.000	703.040	0.000	391126.845	9047.905
57130	65.158	0.000	668.110	0.000	391794.955	9047.905
57140	63.161	0.000	641.595	0.000	392436.550	9047.905
57150	62.927	0.000	630.440	0.000	393066.990	9047.905
57160	63.731	0.000	633.290	0.000	393700.280	9047.905
57170	62.142	0.000	629.365	0.000	394329.645	9047.905
57180	57.537	0.000	598.395	0.000	394928.040	9047.905
57190	51.389	0.000	544.630	0.000	395472.670	9047.905
57200	44.154	0.000	477.715	0.000	395950.385	9047.905
57210	35.190	0.000	396.720	0.000	396347.105	9047.905
57220	25.963	0.000	305.765	0.000	396652.870	9047.905
57230	18.239	0.000	221.010	0.000	396873.880	9047.905
57240	11.119	0.000	146.790	0.000	397020.670	9047.905
57250	4.627	0.000	78.730	0.000	397099.400	9047.905
57260	0.368	1.511	24.975	7.555	397124.375	9055.460
57270	0.000	7.001	1.840	42.560	397126.215	9098.020
57280	0.000	13.079	0.000	100.400	397126.215	9198.420
57290	0.000	19.081	0.000	160.800	397126.215	9359.220
57300	0.000	23.563	0.000	213.220	397126.215	9572.440
57310	0.000	27.306	0.000	254.345	397126.215	9826.785
57320	0.000	32.321	0.000	298.135	397126.215	10124.920
57330	0.000	43.173	0.000	377.470	397126.215	10502.390
57340	0.000	54.843	0.000	490.080	397126.215	10992.470
57350	0.000	77.172	0.000	660.075	397126.215	11652.545
57360	0.000	109.866	0.000	935.190	397126.215	12587.735
57370	0.000	123.623	0.000	1167.445	397126.215	13755.180
57380	0.000	130.642	0.000	1271.325	397126.215	15026.505
57390	0.000	139.807	0.000	1352.245	397126.215	16378.750
57400	0.000	155.377	0.000	1475.920	397126.215	17854.670
57410	0.000	171.507	0.000	1634.420	397126.215	19489.090
57420	0.000	182.608	0.000	1770.575	397126.215	21259.665
57430	0.000	192.854	0.000	1877.310	397126.215	23136.975
57440	0.000	204.421	0.000	1986.375	397126.215	25123.350
57450	0.000	211.425	0.000	2079.230	397126.215	27202.580
57460	0.000	221.916	0.000	2166.705	397126.215	29369.285
57470	0.000	224.791	0.000	2233.535	397126.215	31602.820
57480	0.000	215.226	0.000	2200.085	397126.215	33802.905
57490	0.000	206.637	0.000	2109.315	397126.215	35912.220
57500	0.000	195.253	0.000	2009.450	397126.215	37921.670
57510	0.000	177.776	0.000	1865.145	397126.215	39786.815
57520	0.000	157.596	0.000	1676.860	397126.215	41463.675
57530	0.000	131.677	0.000	1446.365	397126.215	42910.040
57540	0.000	115.179	0.000	1234.280	397126.215	44144.320
57550	0.000	99.515	0.000	1073.470	397126.215	45217.790
57560	0.000	85.855	0.000	926.850	397126.215	46144.640
57570	0.000	75.809	0.000	808.320	397126.215	46952.960
57580	0.000	70.792	0.000	733.005	397126.215	47685.965
57590	0.000	70.139	0.000	704.655	397126.215	48390.620
57600	0.000	78.385	0.000	742.620	397126.215	49133.240
57610	0.000	88.670	0.000	835.275	397126.215	49968.515
57620	0.000	90.211	0.000	894.405	397126.215	50862.920
57630	0.000	85.990	0.000	881.005	397126.215	51743.925
57640	0.000	72.447	0.000	792.185	397126.215	52536.110
57650	0.000	66.648	0.000	695.475	397126.215	53231.585
57660	0.000	71.712	0.000	691.800	397126.215	53923.385
57670	0.000	72.397	0.000	720.545	397126.215	54643.930
57680	0.000	71.820	0.000	721.085	397126.215	55365.015
57690	0.000	74.929	0.000	733.745	397126.215	56098.760
57700	0.000	71.161	0.000	730.450	397126.215	56829.210
57710	0.000	60.180	0.000	656.705	397126.215	57485.915

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
57720	0.000	56.095	0.000	581.375	397126.215	58067.290
57730	0.000	59.832	0.000	579.635	397126.215	58646.925
57740	0.000	62.505	0.000	611.685	397126.215	59258.610
57750	0.000	57.118	0.000	598.115	397126.215	59856.725
57760	0.000	31.752	0.000	444.350	397126.215	60301.075
57770	0.000	19.260	0.000	255.060	397126.215	60556.135
57780	0.000	7.972	0.000	136.160	397126.215	60692.295
57790	2.831	3.263	14.155	56.175	397140.370	60748.470
57800	7.348	1.419	50.895	23.410	397191.265	60771.880
57810	11.149	0.690	92.485	10.545	397283.750	60782.425
57820	11.293	0.642	112.210	6.660	397395.960	60789.085
57830	15.552	0.077	134.225	3.595	397530.185	60792.680
57840	19.396	0.044	174.740	0.605	397704.925	60793.285
57850	21.177	0.024	202.865	0.340	397907.790	60793.625
57860	19.478	0.210	203.275	1.170	398111.065	60794.795
57870	20.248	0.135	198.630	1.725	398309.695	60796.520
57880	12.592	7.988	164.200	40.615	398473.895	60837.135
57890	4.964	23.102	87.780	155.450	398561.675	60992.585
57900	2.291	33.351	36.275	282.265	398597.950	61274.850
57910	0.000	34.995	11.455	341.730	398609.405	61616.580
57920	0.000	31.495	0.000	332.450	398609.405	61949.030
57930	2.002	19.691	10.010	255.930	398619.415	62204.960
57940	9.929	5.342	59.655	125.165	398679.070	62330.125
57950	22.221	2.114	160.750	37.280	398839.820	62367.405
57960	37.635	0.000	299.280	10.570	399139.100	62377.975
57970	48.608	0.000	431.215	0.000	399570.315	62377.975
57980	64.073	0.000	563.405	0.000	400133.720	62377.975
57990	77.240	0.000	706.565	0.000	400840.285	62377.975
58000	74.604	0.000	759.220	0.000	401599.505	62377.975
58010	51.805	0.000	632.045	0.000	402231.550	62377.975
58020	15.553	6.152	336.790	30.760	402568.340	62408.735
58030	0.000	16.381	77.765	112.665	402646.105	62521.400
58040	0.017	16.422	0.085	164.015	402646.190	62685.415
58050	0.000	15.772	0.085	160.970	402646.275	62846.385
58060	9.136	9.606	45.680	126.890	402691.955	62973.275
58070	11.841	9.306	104.885	94.560	402796.840	63067.835
58080	15.465	9.897	136.530	96.015	402933.370	63163.850
58090	12.761	13.845	141.130	118.710	403074.500	63282.560
58100	0.000	19.470	63.805	166.575	403138.305	63449.135
58110	0.000	23.853	0.000	216.615	403138.305	63665.750
58120	1.947	19.825	9.735	218.390	403148.040	63884.140
58130	8.107	2.780	50.270	113.025	403198.310	63997.165
58140	24.039	0.000	160.730	13.900	403359.040	64011.065
58150	31.641	0.000	278.400	0.000	403637.440	64011.065
58160	44.215	0.000	379.280	0.000	404016.720	64011.065
58170	58.928	0.000	515.715	0.000	404532.435	64011.065
58180	74.062	0.000	664.950	0.000	405197.385	64011.065
58190	89.480	0.000	817.710	0.000	406015.095	64011.065
58200	105.181	0.000	973.305	0.000	406988.400	64011.065
58210	121.167	0.000	1131.740	0.000	408120.140	64011.065
58220	137.408	0.000	1292.875	0.000	409413.015	64011.065
58230	153.850	0.000	1456.290	0.000	410869.305	64011.065
58240	170.643	0.000	1622.465	0.000	412491.770	64011.065
58250	181.973	0.000	1763.080	0.000	414254.850	64011.065
58260	177.087	0.000	1795.300	0.000	416050.150	64011.065
58270	141.927	0.000	1595.070	0.000	417645.220	64011.065
58280	79.686	0.000	1108.065	0.000	418753.285	64011.065
58290	10.896	4.696	452.910	23.480	419206.195	64034.545
58300	0.000	9.265	54.480	69.805	419260.675	64104.350
58310	4.634	9.270	23.170	92.675	419283.845	64197.025
58320	11.147	6.835	78.905	80.525	419362.750	64277.550
58330	28.481	0.000	198.140	34.175	419560.890	64311.725
58340	35.182	0.000	318.315	0.000	419879.205	64311.725
58350	41.362	0.000	382.720	0.000	420261.925	64311.725
58360	47.187	0.000	442.745	0.000	420704.670	64311.725
58370	52.657	0.000	499.220	0.000	421203.890	64311.725
58380	62.935	0.000	577.960	0.000	421781.850	64311.725
58390	88.766	0.000	758.505	0.000	422540.355	64311.725
58400	110.091	0.000	994.285	0.000	423534.640	64311.725
58410	114.766	0.000	1124.285	0.000	424658.925	64311.725
58420	110.035	0.000	1124.005	0.000	425782.930	64311.725
58430	97.007	0.000	1035.210	0.000	426818.140	64311.725
58440	105.292	0.000	1011.495	0.000	427829.635	64311.725
58450	126.312	0.000	1158.020	0.000	428987.655	64311.725
58460	148.151	0.000	1372.315	0.000	430359.970	64311.725
58470	166.643	0.000	1573.970	0.000	431933.940	64311.725
58480	177.342	0.000	1719.925	0.000	433653.865	64311.725

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
58490	177.709	0.000	1775.255	0.000	435429.120	64311.725
58500	181.124	0.000	1794.165	0.000	437223.285	64311.725
58510	190.104	0.000	1856.140	0.000	439079.425	64311.725
58520	201.115	0.000	1956.095	0.000	441035.520	64311.725
58530	214.014	0.000	2075.645	0.000	443111.165	64311.725
58540	228.276	0.000	2211.450	0.000	445322.615	64311.725
58550	242.199	0.000	2352.375	0.000	447674.990	64311.725
58560	249.952	0.000	2460.755	0.000	450135.745	64311.725
58570	238.114	0.000	2440.330	0.000	452576.075	64311.725
58580	222.098	0.000	2301.060	0.000	454877.135	64311.725
58590	236.115	0.000	2291.065	0.000	457168.200	64311.725
58600	273.020	0.000	2545.675	0.000	459713.875	64311.725
58610	305.029	0.000	2890.245	0.000	462604.120	64311.725
58620	311.681	0.000	3083.550	0.000	465687.670	64311.725
58630	361.070	0.000	3363.755	0.000	469051.425	64311.725
58640	319.206	0.000	3401.380	0.000	472452.805	64311.725
58650	373.656	0.000	3464.310	0.000	475917.115	64311.725
58660	328.180	0.000	3509.180	0.000	479426.295	64311.725
58670	346.189	0.000	3371.845	0.000	482798.140	64311.725
58680	326.313	0.000	3362.510	0.000	486160.650	64311.725
58690	215.375	0.000	2708.440	0.000	488869.090	64311.725
58700	152.920	0.000	1841.475	0.000	490710.565	64311.725
58710	132.189	0.000	1425.545	0.000	492136.110	64311.725
58720	111.003	0.000	1215.960	0.000	493352.070	64311.725
58730	139.389	0.000	1251.960	0.000	494604.030	64311.725
58740	183.345	0.000	1613.670	0.000	496217.700	64311.725
58750	186.437	0.000	1848.910	0.000	498066.610	64311.725
58760	177.154	0.000	1817.955	0.000	499884.565	64311.725
58770	165.167	0.000	1711.605	0.000	501596.170	64311.725
58780	154.766	0.000	1599.665	0.000	503195.835	64311.725
58790	144.533	0.000	1496.495	0.000	504692.330	64311.725
58800	131.331	0.000	1379.320	0.000	506071.650	64311.725
58810	111.035	0.000	1211.830	0.000	507283.480	64311.725
58820	72.834	0.000	919.345	0.000	508202.825	64311.725
58830	86.015	0.000	794.245	0.000	508997.070	64311.725
58840	102.926	0.000	944.705	0.000	509941.775	64311.725
58850	116.699	0.000	1098.125	0.000	511039.900	64311.725
58860	108.143	0.000	1124.210	0.000	512164.110	64311.725
58870	103.037	0.000	1055.900	0.000	513220.010	64311.725
58880	101.030	0.000	1020.335	0.000	514240.345	64311.725
58890	102.529	0.000	1017.795	0.000	515258.140	64311.725
58900	107.977	0.000	1052.530	0.000	516310.670	64311.725
58910	117.104	0.000	1125.405	0.000	517436.075	64311.725
58920	129.731	0.000	1234.175	0.000	518670.250	64311.725
58930	146.181	0.000	1379.560	0.000	520049.810	64311.725
58940	161.464	0.000	1538.225	0.000	521588.035	64311.725
58950	177.592	0.000	1695.280	0.000	523283.315	64311.725
58960	140.169	0.000	1588.805	0.000	524872.120	64311.725
58970	78.897	0.000	1095.330	0.000	525967.450	64311.725
58980	61.504	0.125	702.005	0.625	526669.455	64312.350
58990	47.302	0.000	544.030	0.625	527213.485	64312.975
59000	32.156	0.198	397.290	0.990	527610.775	64313.965
59010	21.021	1.267	265.885	7.325	527876.660	64321.290
59020	11.040	1.463	160.305	13.650	528036.965	64334.940
59030	0.200	3.903	56.200	26.830	528093.165	64361.770
59040	0.000	9.075	1.000	64.890	528094.165	64426.660
59050	0.000	17.979	0.000	135.270	528094.165	64561.930
59060	0.000	30.337	0.000	241.580	528094.165	64803.510
59070	0.000	40.424	0.000	353.805	528094.165	65157.315
59080	0.000	51.297	0.000	458.605	528094.165	65615.920
59090	0.000	64.621	0.000	579.590	528094.165	66195.510
59100	0.000	76.458	0.000	705.395	528094.165	66900.905
59110	0.000	33.156	0.000	548.070	528094.165	67448.975
59120	0.070	22.546	0.350	278.510	528094.515	67727.485
59130	36.411	17.351	182.405	199.485	528276.920	67926.970
59140	84.923	3.863	606.670	106.070	528883.590	68033.040
59150	141.956	0.000	1134.395	19.315	530017.985	68052.355
59160	210.008	0.000	1759.820	0.000	531777.805	68052.355
59170	251.367	0.000	2306.875	0.000	534084.680	68052.355
59180	236.990	0.000	2441.785	0.000	536526.465	68052.355
59190	215.408	0.000	2261.990	0.000	538788.455	68052.355
59200	189.477	0.000	2024.425	0.000	540812.880	68052.355
59210	162.844	0.000	1761.605	0.000	542574.485	68052.355
59220	148.588	0.000	1557.160	0.000	544131.645	68052.355
59230	138.736	0.000	1436.620	0.000	545568.265	68052.355
59240	130.609	0.000	1346.725	0.000	546914.990	68052.355
59250	123.476	0.000	1270.425	0.000	548185.415	68052.355

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
59260	114.018	0.000	1187.470	0.000	549372.885	68052.355
59270	97.600	0.000	1058.090	0.000	550430.975	68052.355
59280	71.792	0.000	846.960	0.000	551277.935	68052.355
59290	50.339	0.012	610.655	0.060	551888.590	68052.415
59300	41.499	0.080	459.190	0.460	552347.780	68052.875
59310	51.942	0.014	467.205	0.470	552814.985	68053.345
59320	49.456	0.000	506.990	0.070	553321.975	68053.415
59330	38.258	0.000	438.570	0.000	553760.545	68053.415
59340	24.675	0.000	314.665	0.000	554075.210	68053.415
59350	8.556	0.525	166.155	2.625	554241.365	68056.040
59360	2.888	0.191	57.220	3.580	554298.585	68059.620
59370	10.758	0.000	68.230	0.955	554366.815	68060.575
59380	30.023	0.000	203.905	0.000	554570.720	68060.575
59390	43.001	0.000	365.120	0.000	554935.840	68060.575
59400	57.712	0.000	503.565	0.000	555439.405	68060.575
59410	71.309	0.000	645.105	0.000	556084.510	68060.575
59420	69.414	0.000	703.615	0.000	556788.125	68060.575
59430	59.548	0.000	644.810	0.000	557432.935	68060.575
59440	4.257	0.738	319.025	3.690	557751.960	68064.265
59450	0.806	7.549	25.315	41.435	557777.275	68105.700
59460	0.388	13.022	5.970	102.855	557783.245	68208.555
59470	0.000	16.739	1.940	148.805	557785.185	68357.360
59480	0.000	13.544	0.000	151.415	557785.185	68508.775
59490	2.312	8.078	11.560	108.110	557796.745	68616.885
59500	7.604	8.462	49.580	82.700	557846.325	68699.585
59510	21.431	13.977	145.175	112.195	557991.500	68811.780
59520	19.689	9.444	205.600	117.105	558197.100	68928.885
59530	28.981	4.849	243.350	71.465	558440.450	69000.350
59540	35.483	2.921	322.320	38.850	558762.770	69039.200
59550	46.937	1.651	412.100	22.860	559174.870	69062.060
59560	58.109	1.300	525.230	14.755	559700.100	69076.815
59570	35.566	0.995	468.375	11.475	560168.475	69088.290
59580	4.195	0.633	198.805	8.140	560367.280	69096.430
59590	4.542	0.056	43.685	3.445	560410.965	69099.875
59600	5.670	0.019	51.060	0.375	560462.025	69100.250
59610	0.454	0.817	30.620	4.180	560492.645	69104.430
59620	7.491	1.581	39.725	11.990	560532.370	69116.420
59630	28.640	6.545	180.655	40.630	560713.025	69157.050
59640	33.484	3.954	310.620	52.495	561023.645	69209.545
59650	35.194	7.031	343.390	54.925	561367.035	69264.470
59660	31.648	10.644	334.210	88.375	561701.245	69352.845
59670	25.720	14.357	286.840	125.005	561988.085	69477.850
59680	21.500	18.548	236.100	164.525	562224.185	69642.375
59690	17.944	20.913	197.220	197.305	562421.405	69839.680
59700	15.998	15.050	169.710	179.815	562591.115	70019.495
59710	18.197	4.885	170.975	99.675	562762.090	70119.170
59720	13.736	3.976	159.665	44.305	562921.755	70163.475
59730	13.671	1.816	137.035	28.960	563058.790	70192.435
59740	20.466	1.217	170.685	15.165	563229.475	70207.600
59750	23.414	0.707	219.400	9.620	563448.875	70217.220
59760	23.252	0.631	233.330	6.690	563682.205	70223.910
59770	23.652	4.446	234.520	25.385	563916.725	70249.295
59780	18.439	2.331	210.455	33.885	564127.180	70283.180
59790	16.421	0.235	174.300	12.830	564301.480	70296.010
59800	13.960	2.287	151.905	12.610	564453.385	70308.620
59810	22.061	0.417	180.105	13.520	564633.490	70322.140
59820	14.236	0.848	181.485	6.325	564814.975	70328.465
59830	14.634	1.640	144.350	12.440	564959.325	70340.905
59840	14.511	1.330	145.725	14.850	565105.050	70355.755
59850	12.813	0.694	136.620	10.120	565241.670	70365.875
59860	24.963	0.551	188.880	6.225	565430.550	70372.100
59870	31.353	0.412	281.580	4.815	565712.130	70376.915
59880	20.097	1.006	257.250	7.090	565969.380	70384.005
59890	9.824	3.697	149.605	23.515	566118.985	70407.520
59900	4.689	5.866	72.565	47.815	566191.550	70455.335
59910	2.803	10.410	37.460	81.380	566229.010	70536.715
59920	0.582	15.528	16.925	129.690	566245.935	70666.405
59930	5.766	17.618	31.740	165.730	566277.675	70832.135
59940	12.577	8.456	91.715	130.370	566369.390	70962.505
59950	24.729	0.137	186.530	42.965	566555.920	71005.470
59960	34.321	0.000	295.250	0.685	566851.170	71006.155
59970	38.908	0.000	366.145	0.000	567217.315	71006.155
59980	42.880	0.000	408.940	0.000	567626.255	71006.155
59990	46.186	0.000	445.330	0.000	568071.585	71006.155
60000	42.448	0.000	443.170	0.000	568514.755	71006.155
60010	21.252	2.901	318.500	14.505	568833.255	71020.660
60020	27.743	16.297	244.975	95.990	569078.230	71116.650

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
60030	28.092	2.165	279.175	92.310	569357.405	71208.960
60040	42.526	0.000	353.090	10.825	569710.495	71219.785
60050	56.361	0.000	494.435	0.000	570204.930	71219.785
60060	64.220	0.000	602.905	0.000	570807.835	71219.785
60070	70.536	0.000	673.780	0.000	571481.615	71219.785
60080	80.030	0.000	752.830	0.000	572234.445	71219.785
60090	90.653	0.000	853.415	0.000	573087.860	71219.785
60100	98.984	0.000	948.185	0.000	574036.045	71219.785
60110	98.664	0.000	988.240	0.000	575024.285	71219.785
60120	94.007	0.000	963.355	0.000	575987.640	71219.785
60130	82.103	0.000	880.550	0.000	576868.190	71219.785
60140	69.049	0.000	755.760	0.000	577623.950	71219.785
60150	72.447	0.000	707.480	0.000	578331.430	71219.785
60160	81.263	0.000	768.550	0.000	579099.980	71219.785
60170	88.188	0.000	847.255	0.000	579947.235	71219.785
60180	91.738	0.000	899.630	0.000	580846.865	71219.785
60190	95.238	0.000	934.880	0.000	581781.745	71219.785
60200	98.364	0.000	968.010	0.000	582749.755	71219.785
60210	97.761	0.000	980.625	0.000	583730.380	71219.785
60220	87.035	0.000	923.980	0.000	584654.360	71219.785
60230	70.322	0.000	786.785	0.000	585441.145	71219.785
60240	53.362	2.017	618.420	10.085	586059.565	71229.870
60250	53.193	1.421	532.775	17.190	586592.340	71247.060
60260	58.450	1.294	558.215	13.575	587150.555	71260.635
60270	75.432	0.194	669.410	7.440	587819.965	71268.075
60280	90.465	0.000	829.485	0.970	588649.450	71269.045
60290	90.151	0.000	903.080	0.000	589552.530	71269.045
60300	84.669	0.000	874.100	0.000	590426.630	71269.045
60310	78.749	0.000	817.090	0.000	591243.720	71269.045
60320	77.698	0.077	782.235	0.385	592025.955	71269.430
60330	64.350	0.502	710.240	2.895	592736.195	71272.325
60340	43.635	2.399	539.925	14.505	593276.120	71286.830
60350	37.082	6.024	403.585	42.115	593679.705	71328.945
60360	45.717	3.155	413.995	45.895	594093.700	71374.840
60370	74.376	0.367	600.465	17.610	594694.165	71392.450
60380	88.377	0.223	813.765	2.950	595507.930	71395.400
60390	92.600	0.000	904.885	1.115	596412.815	71396.515
60400	87.542	0.000	900.710	0.000	597313.525	71396.515
60410	70.720	0.000	791.310	0.000	598104.835	71396.515
60420	59.971	0.000	653.455	0.000	598758.290	71396.515
60430	55.696	0.594	578.335	2.970	599336.625	71399.485
60440	28.760	1.178	422.280	8.860	599758.905	71408.345
60450	26.215	2.137	274.875	16.575	600033.780	71424.920
60460	59.672	0.255	429.435	11.960	600463.215	71436.880
60470	71.645	0.000	656.585	1.275	601119.800	71438.155
60480	134.529	0.000	1030.870	0.000	602150.670	71438.155
60490	138.726	0.000	1366.275	0.000	603516.945	71438.155
60500	189.451	0.000	1640.885	0.000	605157.830	71438.155
60510	214.405	0.000	2019.280	0.000	607177.110	71438.155
60520	235.312	0.000	2248.585	0.000	609425.695	71438.155
60530	222.071	0.000	2286.915	0.000	611712.610	71438.155
60540	218.658	0.000	2203.645	0.000	613916.255	71438.155
60550	190.881	0.000	2047.695	0.000	615963.950	71438.155
60560	153.294	0.000	1720.875	0.000	617684.825	71438.155
60570	119.526	0.420	1364.100	2.100	619048.925	71440.255
60580	83.049	0.743	1012.875	5.815	620061.800	71446.070
60590	35.144	2.161	590.965	14.520	620652.765	71460.590
60600	1.388	4.677	182.660	34.190	620835.425	71494.780
60610	2.160	13.992	17.740	93.345	620853.165	71588.125
60620	18.956	3.307	105.580	86.495	620958.745	71674.620
60630	57.946	0.526	384.510	19.165	621343.255	71693.785
60640	95.168	0.141	765.570	3.335	622108.825	71697.120
60650	120.060	0.000	1076.140	0.705	623184.965	71697.825
60660	113.587	0.000	1168.235	0.000	624353.200	71697.825
60670	86.030	0.000	998.085	0.000	625351.285	71697.825
60680	59.570	0.156	728.000	0.780	626079.285	71698.605
60690	44.825	0.421	521.975	2.885	626601.260	71701.490
60700	36.743	0.323	407.840	3.720	627009.100	71705.210
60710	42.753	0.000	397.480	1.615	627406.580	71706.825
60720	75.407	0.000	590.800	0.000	627997.380	71706.825
60730	125.548	0.000	1004.775	0.000	629002.155	71706.825
60740	147.317	0.000	1364.325	0.000	630366.480	71706.825
60750	140.721	0.000	1440.190	0.000	631806.670	71706.825
60760	122.946	0.000	1318.335	0.000	633125.005	71706.825
60770	106.254	0.000	1146.000	0.000	634271.005	71706.825
60780	93.984	0.000	1001.190	0.000	635272.195	71706.825
60790	96.815	0.000	953.995	0.000	636226.190	71706.825

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
60800	95.534	0.000	961.745	0.000	637187.935	71706.825
60810	93.038	0.000	942.860	0.000	638130.795	71706.825
60820	94.535	0.000	937.865	0.000	639068.660	71706.825
60830	102.808	0.000	986.715	0.000	640055.375	71706.825
60840	117.412	0.000	1101.100	0.000	641156.475	71706.825
60850	123.479	0.000	1204.455	0.000	642360.930	71706.825
60860	120.918	0.000	1221.985	0.000	643582.915	71706.825
60870	106.580	0.000	1137.490	0.000	644720.405	71706.825
60880	88.514	0.000	975.470	0.000	645695.875	71706.825
60890	68.498	0.396	785.060	1.980	646480.935	71708.805
60900	44.404	1.201	564.510	7.985	647045.445	71716.790
60910	36.631	1.005	405.175	11.030	647450.620	71727.820
60920	19.351	4.230	279.910	26.175	647730.530	71753.995
60930	47.337	0.330	333.440	22.800	648063.970	71776.795
60940	63.704	0.566	555.205	4.480	648619.175	71781.275
60950	71.258	0.113	674.810	3.395	649293.985	71784.670
60960	79.950	0.000	756.040	0.565	650050.025	71785.235
60970	92.054	0.000	860.020	0.000	650910.045	71785.235
60980	95.524	0.000	937.890	0.000	651847.935	71785.235
60990	100.853	0.000	981.885	0.000	652829.820	71785.235
61000	91.751	0.000	963.020	0.000	653792.840	71785.235
61010	102.292	0.000	970.215	0.000	654763.055	71785.235
61020	117.716	0.000	1100.040	0.000	655863.095	71785.235
61030	119.031	0.000	1183.735	0.000	657046.830	71785.235
61040	133.344	0.000	1261.875	0.000	658308.705	71785.235
61050	148.856	0.000	1411.000	0.000	659719.705	71785.235
61060	160.023	0.000	1544.395	0.000	661264.100	71785.235
61070	171.138	0.000	1655.805	0.000	662919.905	71785.235
61080	165.758	0.000	1684.480	0.000	664604.385	71785.235
61090	120.394	1.214	1430.760	6.070	666035.145	71791.305
61100	81.144	6.398	1007.690	38.060	667042.835	71829.365
61110	72.510	3.934	768.270	51.660	667811.105	71881.025
61120	75.647	2.437	740.785	31.855	668551.890	71912.880
61130	79.756	3.515	777.015	29.760	669328.905	71942.640
61140	88.643	1.517	841.995	25.160	670170.900	71967.800
61150	97.484	0.252	930.635	8.845	671101.535	71976.645
61160	137.573	0.000	1175.285	1.260	672276.820	71977.905
61170	162.414	0.000	1499.935	0.000	673776.755	71977.905
61180	161.725	0.000	1620.695	0.000	675397.450	71977.905
61190	100.359	0.000	1310.420	0.000	676707.870	71977.905
61200	32.706	0.454	665.325	2.270	677373.195	71980.175
61210	9.376	1.073	210.410	7.635	677583.605	71987.810
61220	0.654	1.647	50.150	13.600	677633.755	72001.410
61230	0.473	2.936	5.635	22.915	677639.390	72024.325
61240	0.029	6.863	2.510	48.995	677641.900	72073.320
61250	0.000	9.469	0.145	81.660	677642.045	72154.980
61260	0.000	13.108	0.000	112.885	677642.045	72267.865
61270	0.000	13.047	0.000	130.775	677642.045	72398.640
61280	0.000	13.482	0.000	132.645	677642.045	72531.285
61290	0.000	14.644	0.000	140.630	677642.045	72671.915
61300	0.000	17.628	0.000	161.360	677642.045	72833.275
61310	0.000	19.639	0.000	186.335	677642.045	73019.610
61320	0.000	22.183	0.000	209.110	677642.045	73228.720
61330	0.000	21.255	0.000	217.190	677642.045	73445.910
61340	0.000	17.295	0.000	192.750	677642.045	73638.660
61350	0.251	9.624	1.255	134.595	677643.300	73773.255
61360	7.465	1.498	38.580	55.610	677681.880	73828.865
61370	52.760	0.000	301.125	7.490	677983.005	73836.355
61380	85.185	0.000	689.725	0.000	678672.730	73836.355
61390	65.481	0.000	753.330	0.000	679426.060	73836.355
61400	56.571	0.000	610.260	0.000	680036.320	73836.355
61410	23.972	1.382	402.715	6.910	680439.035	73843.265
61420	16.433	1.565	202.025	14.735	680641.060	73858.000
61430	17.864	1.784	171.485	16.745	680812.545	73874.745
61440	25.409	0.142	216.365	9.630	681028.910	73884.375
61450	42.112	0.000	337.605	0.710	681366.515	73885.085
61460	72.868	0.000	574.900	0.000	681941.415	73885.085
61470	95.813	0.000	843.405	0.000	682784.820	73885.085
61480	115.224	0.000	1055.185	0.000	683840.005	73885.085
61490	106.212	0.000	1107.180	0.000	684947.185	73885.085
61500	72.604	1.889	894.080	9.445	685841.265	73894.530
61510	45.933	5.998	592.685	39.435	686433.950	73933.965
61520	82.242	1.203	640.875	36.005	687074.825	73969.970
61530	79.411	0.709	808.265	9.560	687883.090	73979.530
61540	72.218	0.000	758.145	3.545	688641.235	73983.075
61550	59.341	0.000	657.795	0.000	689299.030	73983.075
61560	48.522	0.000	539.315	0.000	689838.345	73983.075

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
61570	38.119	0.000	433.205	0.000	690271.550	73983.075
61580	27.495	0.000	328.070	0.000	690599.620	73983.075
61590	18.539	0.000	230.170	0.000	690829.790	73983.075
61600	12.376	0.680	154.575	3.400	690984.365	73986.475
61610	8.236	1.989	103.060	13.345	691087.425	73999.820
61620	5.455	3.688	68.455	28.385	691155.880	74028.205
61630	3.458	4.420	44.565	40.540	691200.445	74068.745
61640	2.784	5.123	31.210	47.715	691231.655	74116.460
61650	5.150	5.325	39.670	52.240	691271.325	74168.700
61660	10.277	4.392	77.135	48.585	691348.460	74217.285
61670	23.570	5.117	169.235	47.545	691517.695	74264.830
61680	50.493	4.115	370.315	46.160	691888.010	74310.990
61690	74.992	3.058	627.425	35.865	692515.435	74346.855
61700	84.825	1.693	799.085	23.755	693314.520	74370.610
61710	70.309	1.262	775.670	14.775	694090.190	74385.385
61720	46.315	10.032	583.120	56.470	694673.310	74441.855
61730	23.947	8.857	351.310	94.445	695024.620	74536.300
61740	7.823	9.243	158.850	90.500	695183.470	74626.800
61750	0.757	12.262	42.900	107.525	695226.370	74734.325
61760	11.808	0.515	62.825	63.885	695289.195	74798.210
61770	36.459	0.000	241.335	2.575	695530.530	74800.785
61780	62.543	0.000	495.010	0.000	696025.540	74800.785
61790	94.182	0.000	783.625	0.000	696809.165	74800.785
61800	127.957	0.000	1110.695	0.000	697919.860	74800.785
61810	161.275	0.000	1446.160	0.000	699366.020	74800.785
61820	187.127	0.000	1742.010	0.000	701108.030	74800.785
61830	202.690	0.000	1949.085	0.000	703057.115	74800.785
61840	205.295	0.000	2039.925	0.000	705097.040	74800.785
61850	195.547	0.000	2004.210	0.000	707101.250	74800.785
61860	52.529	1.372	1240.380	6.860	708341.630	74807.645
61870	0.160	13.794	263.445	75.830	708605.075	74883.475
61880	0.000	18.908	0.800	163.510	708605.875	75046.985
61890	1.511	5.531	7.555	122.195	708613.430	75169.180
61900	20.111	0.031	108.110	27.810	708721.540	75196.990
61910	71.493	0.000	458.020	0.155	709179.560	75197.145
61920	97.921	0.050	847.070	0.250	710026.630	75197.395
61930	112.972	0.627	1054.465	3.385	711081.095	75200.780
61940	134.398	0.000	1236.850	3.135	712317.945	75203.915
61950	154.647	0.000	1445.225	0.000	713763.170	75203.915
61960	166.140	0.000	1603.935	0.000	715367.105	75203.915
61970	168.873	0.000	1675.065	0.000	717042.170	75203.915
61980	162.846	0.000	1658.595	0.000	718700.765	75203.915
61990	149.295	0.000	1560.705	0.000	720261.470	75203.915
62000	115.823	0.000	1325.590	0.000	721587.060	75203.915
62010	91.551	0.000	1036.870	0.000	722623.930	75203.915
62020	82.780	0.000	871.655	0.000	723495.585	75203.915
62030	92.324	0.000	875.520	0.000	724371.105	75203.915
62040	117.109	0.000	1047.165	0.000	725418.270	75203.915
62050	156.592	0.000	1368.505	0.000	726786.775	75203.915
62060	190.535	0.000	1735.635	0.000	728522.410	75203.915
62070	192.360	0.000	1914.475	0.000	730436.885	75203.915
62080	135.517	0.000	1639.385	0.000	732076.270	75203.915
62090	34.631	0.415	850.740	2.075	732927.010	75205.990
62100	3.945	17.861	192.880	91.380	733119.890	75297.370
62110	45.689	2.234	248.170	100.475	733368.060	75397.845
62120	127.264	0.836	864.765	15.350	734232.825	75413.195
62130	179.888	0.000	1535.760	4.180	735768.585	75417.375
62140	244.134	0.000	2120.110	0.000	737888.695	75417.375
62150	287.883	0.000	2660.085	0.000	740548.780	75417.375
62160	302.729	0.000	2953.060	0.000	743501.840	75417.375
62170	309.411	0.000	3060.700	0.000	746562.540	75417.375
62180	312.880	0.000	3111.455	0.000	749673.995	75417.375
62190	319.374	0.000	3161.270	0.000	752835.265	75417.375
62200	331.504	0.000	3254.390	0.000	756089.655	75417.375
62210	349.329	0.000	3404.165	0.000	759493.820	75417.375
62220	374.822	0.000	3620.755	0.000	763114.575	75417.375
62230	402.672	0.000	3887.470	0.000	767002.045	75417.375
62240	448.579	0.000	4256.255	0.000	771258.300	75417.375
62250	508.887	0.000	4787.330	0.000	776045.630	75417.375
62260	445.617	0.000	4772.520	0.000	780818.150	75417.375
62270	147.406	0.000	2965.115	0.000	783783.265	75417.375
62280	62.190	0.000	1047.980	0.000	784831.245	75417.375
62290	161.798	0.000	1119.940	0.000	785951.185	75417.375
62300	290.718	0.000	2262.580	0.000	788213.765	75417.375
62310	425.397	0.000	3580.575	0.000	791794.340	75417.375
62320	442.108	0.000	4337.525	0.000	796131.865	75417.375
62330	429.132	0.000	4356.200	0.000	800488.065	75417.375

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
62340	409.489	0.000	4193.105	0.000	804681.170	75417.375
62350	390.679	0.000	4000.840	0.000	808682.010	75417.375
62360	372.674	0.000	3816.765	0.000	812498.775	75417.375
62370	355.550	0.000	3641.120	0.000	816139.895	75417.375
62380	340.596	0.000	3480.730	0.000	819620.625	75417.375
62390	328.131	0.000	3343.635	0.000	822964.260	75417.375
62400	318.169	0.000	3231.500	0.000	826195.760	75417.375
62410	310.712	0.000	3144.405	0.000	829340.165	75417.375
62420	303.386	0.000	3070.490	0.000	832410.655	75417.375
62430	268.229	0.000	2858.075	0.000	835268.730	75417.375
62440	215.363	0.000	2417.960	0.000	837686.690	75417.375
62450	167.249	0.000	1913.060	0.000	839599.750	75417.375
62460	132.162	0.682	1497.055	3.410	841096.805	75420.785
62470	101.689	0.808	1169.255	7.450	842266.060	75428.235
62480	73.214	1.370	874.515	10.890	843140.575	75439.125
62490	62.054	0.778	676.340	10.740	843816.915	75449.865
62500	61.537	0.000	617.955	3.890	844434.870	75453.755
62510	72.618	0.000	670.775	0.000	845105.645	75453.755
62520	95.250	0.000	839.340	0.000	845944.985	75453.755
62530	139.427	0.000	1173.385	0.000	847118.370	75453.755
62540	162.033	0.000	1507.300	0.000	848625.670	75453.755
62550	163.531	0.000	1627.820	0.000	850253.490	75453.755
62560	166.871	0.000	1652.010	0.000	851905.500	75453.755
62570	173.639	0.000	1702.550	0.000	853608.050	75453.755
62580	180.556	0.000	1770.975	0.000	855379.025	75453.755
62590	187.554	0.000	1840.550	0.000	857219.575	75453.755
62600	194.604	0.000	1910.790	0.000	859130.365	75453.755
62610	201.949	0.000	1982.765	0.000	861113.130	75453.755
62620	216.564	0.000	2092.565	0.000	863205.695	75453.755
62630	234.779	0.000	2256.715	0.000	865462.410	75453.755
62640	251.186	0.000	2429.825	0.000	867892.235	75453.755
62650	266.452	0.000	2588.190	0.000	870480.425	75453.755
62660	290.573	0.000	2785.125	0.000	873265.550	75453.755
62670	293.755	0.000	2921.640	0.000	876187.190	75453.755
62680	300.084	0.000	2969.195	0.000	879156.385	75453.755
62690	313.647	0.000	3068.655	0.000	882225.040	75453.755
62700	296.595	0.000	3051.210	0.000	885276.250	75453.755
62710	272.058	0.000	2843.265	0.000	888119.515	75453.755
62720	258.093	0.000	2650.755	0.000	890770.270	75453.755
62730	253.994	0.000	2560.435	0.000	893330.705	75453.755
62740	250.216	0.000	2521.050	0.000	895851.755	75453.755
62750	209.020	0.000	2296.180	0.000	898147.935	75453.755
62760	166.860	0.000	1879.400	0.000	900027.335	75453.755
62770	133.413	0.000	1501.365	0.000	901528.700	75453.755
62780	112.574	0.000	1229.935	0.000	902758.635	75453.755
62790	113.149	0.000	1128.615	0.000	903887.250	75453.755
62800	120.563	0.000	1168.560	0.000	905055.810	75453.755
62810	129.916	0.000	1252.395	0.000	906308.205	75453.755
62820	136.399	0.000	1331.575	0.000	907639.780	75453.755
62830	138.329	0.000	1373.640	0.000	909013.420	75453.755
62840	135.776	0.000	1370.525	0.000	910383.945	75453.755
62850	129.860	0.000	1328.180	0.000	911712.125	75453.755
62860	120.967	0.000	1254.135	0.000	912966.260	75453.755
62870	109.296	0.000	1151.315	0.000	914117.575	75453.755
62880	94.132	0.000	1017.140	0.000	915134.715	75453.755
62890	71.521	0.000	828.265	0.000	915962.980	75453.755
62900	46.927	1.832	592.240	9.160	916555.220	75462.915
62910	42.001	3.515	444.640	26.735	916999.860	75489.650
62920	72.916	2.628	574.585	30.715	917574.445	75520.365
62930	141.932	0.000	1074.240	13.140	918648.685	75533.505
62940	201.263	0.000	1715.975	0.000	920364.660	75533.505
62950	216.748	0.000	2090.055	0.000	922454.715	75533.505
62960	219.073	0.000	2179.105	0.000	924633.820	75533.505
62970	217.662	0.000	2183.675	0.000	926817.495	75533.505
62980	215.951	0.000	2168.065	0.000	928985.560	75533.505
62990	213.963	0.000	2149.570	0.000	931135.130	75533.505
63000	211.597	0.000	2127.800	0.000	933262.930	75533.505
63010	208.869	0.000	2102.330	0.000	935365.260	75533.505
63020	205.950	0.000	2074.095	0.000	937439.355	75533.505
63030	202.887	0.000	2044.185	0.000	939483.540	75533.505
63040	201.105	0.000	2019.960	0.000	941503.500	75533.505
63050	204.898	0.000	2030.015	0.000	943533.515	75533.505
63060	204.457	0.000	2046.775	0.000	945580.290	75533.505
63070	199.641	0.000	2020.490	0.000	947600.780	75533.505
63080	190.840	0.000	1952.405	0.000	949553.185	75533.505
63090	179.423	0.000	1851.315	0.000	951404.500	75533.505
63100	169.238	0.000	1743.305	0.000	953147.805	75533.505

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
63110	161.601	0.000	1654.195	0.000	954802.000	75533.505
63120	157.490	0.000	1595.455	0.000	956397.455	75533.505
63130	157.892	0.000	1576.910	0.000	957974.365	75533.505
63140	164.046	0.000	1609.690	0.000	959584.055	75533.505
63150	174.264	0.000	1691.550	0.000	961275.605	75533.505
63160	187.388	0.000	1808.260	0.000	963083.865	75533.505
63170	202.222	0.000	1948.050	0.000	965031.915	75533.505
63180	217.816	0.000	2100.190	0.000	967132.105	75533.505
63190	232.973	0.000	2253.945	0.000	969386.050	75533.505
63200	246.319	0.000	2396.460	0.000	971782.510	75533.505
63210	257.849	0.000	2520.840	0.000	974303.350	75533.505
63220	268.857	0.000	2633.530	0.000	976936.880	75533.505
63230	264.702	0.000	2667.795	0.000	979604.675	75533.505
63240	251.563	0.000	2581.325	0.000	982186.000	75533.505
63250	238.278	0.000	2449.205	0.000	984635.205	75533.505
63260	224.846	0.000	2315.620	0.000	986950.825	75533.505
63270	211.266	0.000	2180.560	0.000	989131.385	75533.505
63280	197.705	0.000	2044.855	0.000	991176.240	75533.505
63290	184.518	0.000	1911.115	0.000	993087.355	75533.505
63300	171.717	0.000	1781.175	0.000	994868.530	75533.505
63310	159.515	0.000	1656.160	0.000	996524.690	75533.505
63320	148.466	0.000	1539.905	0.000	998064.595	75533.505
63330	137.712	0.000	1430.890	0.000	999495.485	75533.505
63340	172.485	0.000	1550.985	0.000	1001046.470	75533.505
63350	218.957	0.000	1957.210	0.000	1003003.680	75533.505
63360	249.511	0.000	2342.340	0.000	1005346.020	75533.505
63370	199.777	0.000	2246.440	0.000	1007592.460	75533.505
63380	99.237	0.000	1495.070	0.000	1009087.530	75533.505
63390	11.406	0.031	553.215	0.155	1009640.745	75533.660
63400	47.544	8.661	294.750	43.460	1009935.495	75577.120
63410	76.886	1.853	622.150	52.570	1010557.645	75629.690
63420	122.142	0.000	995.140	9.265	1011552.785	75638.955
63430	163.570	0.000	1428.560	0.000	1012981.345	75638.955
63440	198.541	0.000	1810.555	0.000	1014791.900	75638.955
63450	223.519	0.000	2110.300	0.000	1016902.200	75638.955
63460	235.174	0.000	2293.465	0.000	1019195.665	75638.955
63470	234.455	0.000	2348.145	0.000	1021543.810	75638.955
63480	233.256	0.000	2338.555	0.000	1023882.365	75638.955
63490	231.171	0.000	2322.135	0.000	1026204.500	75638.955
63500	227.300	0.000	2292.355	0.000	1028496.855	75638.955
63510	223.065	0.000	2251.825	0.000	1030748.680	75638.955
63520	211.622	0.000	2173.435	0.000	1032922.115	75638.955
63530	193.721	0.000	2026.715	0.000	1034948.830	75638.955
63540	175.623	0.000	1846.720	0.000	1036795.550	75638.955
63550	147.116	0.000	1613.695	0.000	1038409.245	75638.955
63560	109.074	0.000	1280.950	0.000	1039690.195	75638.955
63570	67.418	0.721	882.460	3.605	1040572.655	75642.560
63580	43.254	2.007	553.360	13.640	1041126.015	75656.200
63590	10.172	7.533	267.130	47.700	1041393.145	75703.900
63600	0.000	21.352	50.860	144.425	1041444.005	75848.325
63610	0.000	42.377	0.000	318.645	1041444.005	76166.970
63620	0.690	9.350	3.450	258.635	1041447.455	76425.605
63630	27.353	0.000	140.215	46.750	1041587.670	76472.355
63640	27.899	0.000	276.260	0.000	1041863.930	76472.355
63650	28.095	0.000	279.970	0.000	1042143.900	76472.355
63660	27.944	0.000	280.195	0.000	1042424.095	76472.355
63670	27.533	0.000	277.385	0.000	1042701.480	76472.355
63680	27.100	0.000	273.165	0.000	1042974.645	76472.355
63690	26.982	0.000	270.410	0.000	1043245.055	76472.355
63700	27.341	0.000	271.615	0.000	1043516.670	76472.355
63710	28.177	0.000	277.590	0.000	1043794.260	76472.355
63720	25.607	0.000	268.920	0.000	1044063.180	76472.355
63730	0.417	4.188	130.120	20.940	1044193.300	76493.295
63740	0.000	14.847	2.085	95.175	1044195.385	76588.470
63750	0.050	34.844	0.250	248.455	1044195.635	76836.925
63760	5.418	24.948	27.340	298.960	1044222.975	77135.885
63770	21.015	6.777	132.165	158.625	1044355.140	77294.510
63780	30.158	6.954	255.865	68.655	1044611.005	77363.165
63790	34.978	5.954	325.680	64.540	1044936.685	77427.705
63800	35.898	4.963	354.380	54.585	1045291.065	77482.290
63810	35.769	1.219	358.335	30.910	1045649.400	77513.200
63820	37.754	0.000	367.615	6.095	1046017.015	77519.295
63830	36.858	0.000	373.060	0.000	1046390.075	77519.295
63840	35.380	0.000	361.190	0.000	1046751.265	77519.295
63850	45.646	0.000	405.130	0.000	1047156.395	77519.295
63860	59.261	0.000	524.535	0.000	1047680.930	77519.295
63870	74.856	0.000	670.585	0.000	1048351.515	77519.295

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
63880	89.975	0.000	824.155	0.000	1049175.670	77519.295
63890	91.585	0.000	907.800	0.000	1050083.470	77519.295
63900	90.450	0.000	910.175	0.000	1050993.645	77519.295
63910	86.268	0.000	883.590	0.000	1051877.235	77519.295
63920	80.856	0.000	835.620	0.000	1052712.855	77519.295
63930	76.524	0.000	786.900	0.000	1053499.755	77519.295
63940	71.686	0.000	741.050	0.000	1054240.805	77519.295
63950	65.641	0.000	686.635	0.000	1054927.440	77519.295
63960	58.639	0.000	621.400	0.000	1055548.840	77519.295
63970	51.004	0.000	548.215	0.000	1056097.055	77519.295
63980	42.787	0.000	468.955	0.000	1056566.010	77519.295
63990	33.704	0.000	382.455	0.000	1056948.465	77519.295
64000	23.005	0.000	283.545	0.000	1057232.010	77519.295
64010	10.000	0.000	165.025	0.000	1057397.035	77519.295
64020	1.916	0.790	59.580	3.950	1057456.615	77523.245
64030	2.494	1.111	22.050	9.505	1057478.665	77532.750
64040	3.826	0.118	31.600	6.145	1057510.265	77538.895
64050	10.085	0.000	69.555	0.590	1057579.820	77539.485
64060	34.470	0.000	222.775	0.000	1057802.595	77539.485
64070	59.495	0.000	469.825	0.000	1058272.420	77539.485
64080	69.046	0.000	642.705	0.000	1058915.125	77539.485
64090	70.036	0.000	695.410	0.000	1059610.535	77539.485
64100	69.601	0.000	698.185	0.000	1060308.720	77539.485
64110	65.216	0.000	674.085	0.000	1060982.805	77539.485
64120	59.802	0.000	625.090	0.000	1061607.895	77539.485
64130	54.746	0.000	572.740	0.000	1062180.635	77539.485
64140	49.857	0.000	523.015	0.000	1062703.650	77539.485
64150	44.733	0.000	472.950	0.000	1063176.600	77539.485
64160	38.218	0.000	414.755	0.000	1063591.355	77539.485
64170	24.994	0.733	316.060	3.665	1063907.415	77543.150
64180	10.182	14.415	175.880	75.740	1064083.295	77618.890
64190	0.000	40.740	50.910	275.775	1064134.205	77894.665
64200	0.000	56.353	0.000	485.465	1064134.205	78380.130
64210	0.000	64.188	0.000	602.705	1064134.205	78982.835
64220	0.000	58.991	0.000	615.895	1064134.205	79598.730
64230	0.000	45.544	0.000	522.675	1064134.205	80121.405
64240	0.000	46.144	0.000	458.440	1064134.205	80579.845
64250	0.000	43.123	0.000	446.335	1064134.205	81026.180
64260	2.114	39.424	10.570	412.735	1064144.775	81438.915
64270	7.828	12.518	49.710	259.710	1064194.485	81698.625
64280	28.606	3.013	182.170	77.655	1064376.655	81776.280
64290	44.719	0.000	366.625	15.065	1064743.280	81791.345
64300	46.404	0.000	455.615	0.000	1065198.895	81791.345
64310	46.994	0.000	466.990	0.000	1065665.885	81791.345
64320	46.852	0.000	469.230	0.000	1066135.115	81791.345
64330	46.261	0.000	465.565	0.000	1066600.680	81791.345
64340	45.693	0.000	459.770	0.000	1067060.450	81791.345
64350	45.102	0.000	453.975	0.000	1067514.425	81791.345
64360	44.449	0.000	447.755	0.000	1067962.180	81791.345
64370	43.734	0.000	440.915	0.000	1068403.095	81791.345
64380	42.967	0.000	433.505	0.000	1068836.600	81791.345
64390	42.387	0.000	426.770	0.000	1069263.370	81791.345
64400	41.739	0.000	420.630	0.000	1069684.000	81791.345
64410	40.824	0.000	412.815	0.000	1070096.815	81791.345
64420	39.642	0.000	402.330	0.000	1070499.145	81791.345
64430	38.193	0.000	389.175	0.000	1070888.320	81791.345
64440	36.518	0.000	373.555	0.000	1071261.875	81791.345
64450	34.832	0.000	356.750	0.000	1071618.625	81791.345
64460	33.166	0.000	339.990	0.000	1071958.615	81791.345
64470	31.521	0.000	323.435	0.000	1072282.050	81791.345
64480	29.897	0.000	307.090	0.000	1072589.140	81791.345
64490	28.292	0.000	290.945	0.000	1072880.085	81791.345
64500	26.708	0.000	275.000	0.000	1073155.085	81791.345
64510	25.145	0.000	259.265	0.000	1073414.350	81791.345
64520	23.602	0.000	243.735	0.000	1073658.085	81791.345
64530	22.974	0.000	232.880	0.000	1073890.965	81791.345
64540	29.531	0.000	262.525	0.000	1074153.490	81791.345
64550	35.732	0.000	326.315	0.000	1074479.805	81791.345
64560	42.094	0.000	389.130	0.000	1074868.935	81791.345
64570	30.887	19.687	364.905	98.435	1075233.840	81889.780
64580	54.384	0.000	426.355	98.435	1075660.195	81988.215
64590	5.400	83.988	298.920	419.940	1075959.115	82408.155
64600	0.000	106.191	27.000	950.895	1075986.115	83359.050
64610	0.000	119.142	0.000	1126.665	1075986.115	84485.715
64620	59.253	0.000	296.265	595.710	1076282.380	85081.425
64630	59.619	0.000	594.360	0.000	1076876.740	85081.425
64640	0.000	121.809	298.095	609.045	1077174.835	85690.470

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
64650	54.169	0.000	270.845	609.045	1077445.680	86299.515
64660	0.000	91.251	270.845	456.255	1077716.525	86755.770
64670	0.000	147.191	0.000	1192.210	1077716.525	87947.980
64680	0.000	251.314	0.000	1992.525	1077716.525	89940.505
64690	0.000	318.087	0.000	2847.005	1077716.525	92787.510
64700	0.000	268.262	0.000	2931.745	1077716.525	95719.255
64710	0.000	172.197	0.000	2202.295	1077716.525	97921.550
64720	0.605	132.261	3.025	1522.290	1077719.550	99443.840
64730	1.874	48.457	12.395	903.590	1077731.945	100347.430
64740	2.572	0.939	22.230	246.980	1077754.175	100594.410
64750	2.768	0.258	26.700	5.985	1077780.875	100600.395
64760	3.440	0.000	31.040	1.290	1077811.915	100601.685
64770	5.221	0.000	43.305	0.000	1077855.220	100601.685
64780	7.658	0.000	64.395	0.000	1077919.615	100601.685
64790	10.695	0.000	91.765	0.000	1078011.380	100601.685
64800	13.940	0.000	123.175	0.000	1078134.555	100601.685
64810	17.297	0.000	156.185	0.000	1078290.740	100601.685
64820	20.769	0.000	190.330	0.000	1078481.070	100601.685
64830	24.354	0.000	225.615	0.000	1078706.685	100601.685
64840	28.053	0.000	262.035	0.000	1078968.720	100601.685
64850	31.865	0.000	299.590	0.000	1079268.310	100601.685
64860	35.791	0.000	338.280	0.000	1079606.590	100601.685
64870	39.830	0.000	378.105	0.000	1079984.695	100601.685
64880	43.984	0.000	419.070	0.000	1080403.765	100601.685
64890	46.570	0.000	452.770	0.000	1080856.535	100601.685
64900	44.364	0.000	454.670	0.000	1081311.205	100601.685
64910	40.941	0.000	426.525	0.000	1081737.730	100601.685
64920	36.471	0.000	387.060	0.000	1082124.790	100601.685
64930	31.266	0.000	338.685	0.000	1082463.475	100601.685
64940	28.744	0.000	300.050	0.000	1082763.525	100601.685
64950	21.190	0.000	249.670	0.000	1083013.195	100601.685
64960	11.725	0.000	164.575	0.000	1083177.770	100601.685
64970	7.538	0.000	96.315	0.000	1083274.085	100601.685
64980	4.487	0.000	60.125	0.000	1083334.210	100601.685
64990	2.287	0.000	33.870	0.000	1083368.080	100601.685
65000	1.048	0.272	16.675	1.360	1083384.755	100603.045
65010	0.300	0.841	6.740	5.565	1083391.495	100608.610
65020	0.014	1.811	1.570	13.260	1083393.065	100621.870
65030	0.000	2.717	0.070	22.640	1083393.135	100644.510
65040	5.849	2.140	29.245	24.285	1083422.380	100668.795
65050	23.545	39.809	146.970	209.745	1083569.350	100878.540
65060	38.867	0.000	312.060	199.045	1083881.410	101077.585
65070	53.246	0.000	460.565	0.000	1084341.975	101077.585
65080	85.656	0.000	694.510	0.000	1085036.485	101077.585
65090	58.726	0.000	721.910	0.000	1085758.395	101077.585
65100	71.175	0.000	649.505	0.000	1086407.900	101077.585
65110	103.048	0.000	871.115	0.000	1087279.015	101077.585
65120	125.877	0.000	1144.625	0.000	1088423.640	101077.585
65130	127.832	0.000	1268.545	0.000	1089692.185	101077.585
65140	100.380	0.000	1141.060	0.000	1090833.245	101077.585
65150	91.058	70.168	957.190	350.840	1091790.435	101428.425
65160	38.844	121.403	649.510	957.855	1092439.945	102386.280
65170	7.201	173.249	230.225	1473.260	1092670.170	103859.540
65180	0.000	233.398	36.005	2033.235	1092706.175	105892.775
65190	0.000	300.689	0.000	2670.435	1092706.175	108563.210
65200	0.000	346.137	0.000	3234.130	1092706.180	111797.340

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
65200	0.000	346.137	0.000	1730.685	0.000	1730.685
65210	0.000	283.484	0.000	3148.105	0.000	4878.790
65220	4.650	139.194	23.250	2113.390	23.250	6992.180
65230	28.462	43.481	165.560	913.375	188.810	7905.555
65240	34.038	0.000	312.500	217.405	501.310	8122.960
65250	28.820	0.000	314.290	0.000	815.600	8122.960
65260	25.053	0.000	269.365	0.000	1084.965	8122.960
65270	24.002	0.000	245.275	0.000	1330.240	8122.960
65280	25.648	0.000	248.250	0.000	1578.490	8122.960
65290	33.793	0.000	297.205	0.000	1875.695	8122.960
65300	24.009	0.000	289.010	0.000	2164.705	8122.960
65310	19.021	0.000	215.150	0.000	2379.855	8122.960
65320	14.230	0.000	166.255	0.000	2546.110	8122.960
65330	9.668	0.000	119.490	0.000	2665.600	8122.960
65340	5.366	0.081	75.170	0.405	2740.770	8123.365
65350	2.392	1.645	38.790	8.630	2779.560	8131.995
65360	0.665	4.684	15.285	31.645	2794.845	8163.640
65370	0.007	8.883	3.360	67.835	2798.205	8231.475
65380	0.000	13.932	0.035	114.075	2798.240	8345.550
65390	0.000	19.393	0.000	166.625	2798.240	8512.175
65400	0.000	25.262	0.000	223.275	2798.240	8735.450
65410	0.000	31.538	0.000	284.000	2798.240	9019.450
65420	0.000	38.222	0.000	348.800	2798.240	9368.250
65430	0.000	44.982	0.000	416.020	2798.240	9784.270
65440	0.000	50.347	0.000	476.645	2798.240	10260.915
65450	0.000	54.144	0.000	522.455	2798.240	10783.370
65460	0.000	56.063	0.000	551.035	2798.240	11334.405
65470	0.000	54.112	0.000	550.875	2798.240	11885.280
65480	0.000	51.042	0.000	525.770	2798.240	12411.050
65490	0.000	50.904	0.000	509.730	2798.240	12920.780
65500	0.000	58.958	0.000	549.310	2798.240	13470.090
65510	0.000	64.896	0.000	619.270	2798.240	14089.360
65520	0.000	66.581	0.000	657.385	2798.240	14746.745
65530	0.000	66.328	0.000	664.545	2798.240	15411.290
65540	0.000	65.907	0.000	661.175	2798.240	16072.465
65550	0.000	66.089	0.000	659.980	2798.240	16732.445
65560	0.000	76.864	0.000	714.765	2798.240	17447.210
65570	0.000	89.526	0.000	831.950	2798.240	18279.160
65580	0.000	88.362	0.000	889.440	2798.240	19168.600
65590	0.000	86.112	0.000	872.370	2798.240	20040.970
65600	0.000	75.189	0.000	806.505	2798.240	20847.475
65610	0.000	67.381	0.000	712.850	2798.240	21560.325
65620	0.000	61.398	0.000	643.895	2798.240	22204.220
65630	0.000	56.892	0.000	591.450	2798.240	22795.670
65640	0.000	53.732	0.000	553.120	2798.240	23348.790
65650	0.000	50.662	0.000	521.970	2798.240	23870.760
65660	0.000	47.684	0.000	491.730	2798.240	24362.490
65670	0.000	44.796	0.000	462.400	2798.240	24824.890
65680	0.000	42.000	0.000	433.980	2798.240	25258.870
65690	0.000	39.294	0.000	406.470	2798.240	25665.340
65700	0.000	36.683	0.000	379.885	2798.240	26045.225
65710	0.000	34.156	0.000	354.195	2798.240	26399.420
65720	0.000	31.723	0.000	329.395	2798.240	26728.815
65730	0.000	29.381	0.000	305.520	2798.240	27034.335
65740	0.000	27.130	0.000	282.555	2798.240	27316.890
65750	0.000	24.970	0.000	260.500	2798.240	27577.390
65760	0.000	22.901	0.000	239.355	2798.240	27816.745
65770	0.065	20.976	0.325	219.385	2798.565	28036.130
65780	0.684	19.605	3.745	202.905	2802.310	28239.035
65790	1.743	18.792	12.135	191.985	2814.445	28431.020
65800	2.666	19.000	22.045	188.960	2836.490	28619.980
65810	2.991	21.066	28.285	200.330	2864.775	28820.310
65820	1.942	27.167	24.665	241.165	2889.440	29061.475
65830	0.000	50.238	9.710	387.025	2899.150	29448.500
65840	0.000	39.179	0.000	447.085	2899.150	29895.585
65850	4.815	24.541	24.075	318.600	2923.225	30214.185
65860	17.673	13.647	112.440	190.940	3035.665	30405.125
65870	35.905	0.000	267.890	68.235	3303.555	30473.360
65880	53.554	0.000	447.295	0.000	3750.850	30473.360
65890	69.596	0.000	615.750	0.000	4366.600	30473.360
65900	84.149	0.000	768.725	0.000	5135.325	30473.360
65910	95.046	0.000	895.975	0.000	6031.300	30473.360
65920	103.026	0.000	990.360	0.000	7021.660	30473.360
65930	109.257	0.000	1061.415	0.000	8083.075	30473.360
65940	114.132	0.000	1116.945	0.000	9200.020	30473.360
65950	117.705	0.000	1159.185	0.000	10359.205	30473.360

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
65960	119.976	0.000	1188.405	0.000	11547.610	30473.360
65970	120.945	0.000	1204.605	0.000	12752.215	30473.360
65980	120.613	0.000	1207.790	0.000	13960.005	30473.360
65990	118.979	0.000	1197.960	0.000	15157.965	30473.360
66000	116.044	0.000	1175.115	0.000	16333.080	30473.360
66010	112.398	0.000	1142.210	0.000	17475.290	30473.360
66020	109.322	0.000	1108.600	0.000	18583.890	30473.360
66030	104.897	0.000	1071.095	0.000	19654.985	30473.360
66040	98.732	0.000	1018.145	0.000	20673.130	30473.360
66050	90.861	0.000	947.965	0.000	21621.095	30473.360
66060	81.763	0.000	863.120	0.000	22484.215	30473.360
66070	68.114	0.000	749.385	0.000	23233.600	30473.360
66080	44.237	25.761	561.755	128.805	23795.355	30602.165
66090	16.711	54.008	304.740	398.845	24100.095	31001.010
66100	0.000	77.353	83.555	656.805	24183.650	31657.815
66110	0.000	84.900	0.000	811.265	24183.650	32469.080
66120	0.000	89.573	0.000	872.365	24183.650	33341.445
66130	0.000	76.541	0.000	830.570	24183.650	34172.015
66140	0.000	70.120	0.000	733.305	24183.650	34905.320
66150	41.722	0.000	208.610	350.600	24392.260	35255.920
66160	158.389	0.000	1000.555	0.000	25392.815	35255.920
66170	139.181	0.000	1487.850	0.000	26880.665	35255.920
66180	130.006	0.000	1345.935	0.000	28226.600	35255.920
66190	128.820	0.000	1294.130	0.000	29520.730	35255.920
66200	127.454	0.000	1281.370	0.000	30802.100	35255.920
66210	125.140	0.000	1262.970	0.000	32065.070	35255.920
66220	122.205	0.000	1236.725	0.000	33301.795	35255.920
66230	119.042	0.000	1206.235	0.000	34508.030	35255.920
66240	115.655	0.000	1173.485	0.000	35681.515	35255.920
66250	112.049	0.000	1138.520	0.000	36820.035	35255.920
66260	108.230	0.000	1101.395	0.000	37921.430	35255.920
66270	104.309	0.000	1062.695	0.000	38984.125	35255.920
66280	100.357	0.000	1023.330	0.000	40007.455	35255.920
66290	96.784	0.000	985.705	0.000	40993.160	35255.920
66300	92.359	0.000	945.715	0.000	41938.875	35255.920
66310	88.327	0.000	903.430	0.000	42842.305	35255.920
66320	84.208	0.000	862.675	0.000	43704.980	35255.920
66330	79.782	0.000	819.950	0.000	44524.930	35255.920
66340	64.747	0.000	722.645	0.000	45247.575	35255.920
66350	37.044	3.283	508.955	16.415	45756.530	35272.335
66360	34.460	0.000	357.520	16.415	46114.050	35288.750
66370	54.367	0.000	444.135	0.000	46558.185	35288.750
66380	86.512	0.000	704.395	0.000	47262.580	35288.750
66390	89.475	0.000	879.935	0.000	48142.515	35288.750
66400	89.431	0.000	894.530	0.000	49037.045	35288.750
66410	90.944	0.000	901.875	0.000	49938.920	35288.750
66420	39.657	0.000	653.005	0.000	50591.925	35288.750
66430	97.306	0.000	684.815	0.000	51276.740	35288.750
66440	56.881	0.000	770.935	0.000	52047.675	35288.750
66450	104.754	0.000	808.175	0.000	52855.850	35288.750
66460	78.547	0.000	916.505	0.000	53772.355	35288.750
66470	91.906	0.000	852.265	0.000	54624.620	35288.750
66480	34.507	0.000	632.065	0.000	55256.685	35288.750
66490	15.702	9.827	251.045	49.135	55507.730	35337.885
66500	44.372	5.435	300.370	76.310	55808.100	35414.195
66510	131.617	0.000	879.945	27.175	56688.045	35441.370
66520	265.727	0.000	1986.720	0.000	58674.765	35441.370
66530	348.083	0.000	3069.050	0.000	61743.815	35441.370
66540	367.099	0.000	3575.910	0.000	65319.725	35441.370
66550	343.039	0.000	3550.690	0.000	68870.415	35441.370
66560	315.327	0.000	3291.830	0.000	72162.245	35441.370
66570	288.522	0.000	3019.245	0.000	75181.490	35441.370
66580	262.624	0.000	2755.730	0.000	77937.220	35441.370
66590	237.631	0.000	2501.275	0.000	80438.495	35441.370
66600	213.546	0.000	2255.885	0.000	82694.380	35441.370
66610	190.366	0.000	2019.560	0.000	84713.940	35441.370
66620	168.093	0.000	1792.295	0.000	86506.235	35441.370
66630	146.726	0.000	1574.095	0.000	88080.330	35441.370
66640	126.266	0.000	1364.960	0.000	89445.290	35441.370
66650	106.712	0.000	1164.890	0.000	90610.180	35441.370
66660	88.065	0.000	973.885	0.000	91584.065	35441.370
66670	70.324	0.000	791.945	0.000	92376.010	35441.370
66680	53.489	0.000	619.065	0.000	92995.075	35441.370
66690	37.467	0.000	454.780	0.000	93449.855	35441.370
66700	22.161	0.173	298.140	0.865	93747.995	35442.235
66710	10.028	2.995	160.945	15.840	93908.940	35458.075

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
66720	1.979	8.850	60.035	59.225	93968.975	35517.300
66730	0.000	17.525	9.895	131.875	93978.870	35649.175
66740	0.000	27.784	0.000	226.545	93978.870	35875.720
66750	0.000	39.109	0.000	334.465	93978.870	36210.185
66760	0.000	51.494	0.000	453.015	93978.870	36663.200
66770	0.000	57.098	0.000	542.960	93978.870	37206.160
66780	0.301	29.560	1.505	433.290	93980.375	37639.450
66790	3.364	12.752	18.325	211.560	93998.700	37851.010
66800	49.215	0.000	262.895	63.760	94261.595	37914.770
66810	52.988	0.000	511.015	0.000	94772.610	37914.770
66820	56.601	0.000	547.945	0.000	95320.555	37914.770
66830	60.251	0.000	584.260	0.000	95904.815	37914.770
66840	63.621	0.000	619.360	0.000	96524.175	37914.770
66850	66.675	0.000	651.480	0.000	97175.655	37914.770
66860	69.376	0.000	680.255	0.000	97855.910	37914.770
66870	71.598	0.000	704.870	0.000	98560.780	37914.770
66880	73.333	0.000	724.655	0.000	99285.435	37914.770
66890	74.581	0.000	739.570	0.000	100025.005	37914.770
66900	75.341	0.000	749.610	0.000	100774.615	37914.770
66910	75.609	0.000	754.750	0.000	101529.365	37914.770
66920	75.382	0.000	754.955	0.000	102284.320	37914.770
66930	74.661	0.000	750.215	0.000	103034.535	37914.770
66940	74.396	0.000	745.285	0.000	103779.820	37914.770
66950	73.856	0.000	741.260	0.000	104521.080	37914.770
66960	72.991	0.000	734.235	0.000	105255.315	37914.770
66970	70.499	0.000	717.450	0.000	105972.765	37914.770
66980	29.992	0.000	502.455	0.000	106475.220	37914.770
66990	0.000	7.387	149.960	36.935	106625.180	37951.705
67000	0.000	13.495	0.000	104.410	106625.180	38056.115
67010	0.000	6.205	0.000	98.500	106625.180	38154.615
67020	5.250	4.647	26.250	54.260	106651.430	38208.875
67030	17.961	1.894	116.055	32.705	106767.485	38241.580
67040	20.261	3.115	191.110	25.045	106958.595	38266.625
67050	5.101	4.154	126.810	36.345	107085.405	38302.970
67060	6.414	3.057	57.575	36.055	107142.980	38339.025
67070	0.000	5.898	32.070	44.775	107175.050	38383.800
67080	0.000	4.254	0.000	50.760	107175.050	38434.560
67090	0.150	2.405	0.750	33.295	107175.800	38467.855
67100	0.318	1.509	2.340	19.570	107178.140	38487.425
67110	0.908	0.615	6.130	10.620	107184.270	38498.045
67120	2.355	0.264	16.315	4.395	107200.585	38502.440
67130	3.488	0.247	29.215	2.555	107229.800	38504.995
67140	1.908	0.064	26.980	1.555	107256.780	38506.550
67150	5.843	5.505	38.755	27.845	107295.535	38534.395
67160	7.967	6.764	69.050	61.345	107364.585	38595.740
67170	10.059	1.611	90.130	41.875	107454.715	38637.615
67180	8.956	0.433	95.075	10.220	107549.790	38647.835
67190	11.661	1.127	103.085	7.800	107652.875	38655.635
67200	15.868	3.102	137.645	21.145	107790.520	38676.780
67210	20.448	3.384	181.580	32.430	107972.100	38709.210
67220	29.402	4.133	249.250	37.585	108221.350	38746.795
67230	28.432	5.988	289.170	50.605	108510.520	38797.400
67240	36.579	5.974	325.055	59.810	108835.575	38857.210
67250	44.483	5.148	405.310	55.610	109240.885	38912.820
67260	35.910	4.087	401.965	46.175	109642.850	38958.995
67270	20.846	2.987	283.780	35.370	109926.630	38994.365
67280	0.084	2.684	104.650	28.355	110031.280	39022.720
67290	1.696	0.373	8.900	15.285	110040.180	39038.005
67300	0.000	18.693	8.480	95.330	110048.660	39133.335
67310	0.000	48.696	0.000	336.945	110048.660	39470.280
67320	0.000	67.176	0.000	579.360	110048.660	40049.640
67330	0.000	70.875	0.000	690.255	110048.660	40739.895
67340	0.000	37.564	0.000	542.195	110048.660	41282.090
67350	4.533	0.081	22.665	188.225	110071.325	41470.315
67360	8.972	0.000	67.525	0.405	110138.850	41470.720
67370	13.361	0.000	111.665	0.000	110250.515	41470.720
67380	12.319	0.000	128.400	0.000	110378.915	41470.720
67390	7.881	0.000	101.000	0.000	110479.915	41470.720
67400	4.640	0.002	62.605	0.010	110542.520	41470.730
67410	3.923	0.144	42.815	0.730	110585.335	41471.460
67420	13.484	0.862	87.035	5.030	110672.370	41476.490
67430	25.764	1.301	196.240	10.815	110868.610	41487.305
67440	41.467	0.845	336.155	10.730	111204.765	41498.035
67450	52.867	0.872	471.670	8.585	111676.435	41506.620
67460	59.459	0.452	561.630	6.620	112238.065	41513.240
67470	58.287	0.283	588.730	3.675	112826.795	41516.915

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
67480	52.032	0.777	551.595	5.300	113378.390	41522.215
67490	36.927	2.912	444.795	18.445	113823.185	41540.660
67500	32.471	3.449	346.990	31.805	114170.175	41572.465
67510	33.070	4.385	327.705	39.170	114497.880	41611.635
67520	35.734	4.663	344.020	45.240	114841.900	41656.875
67530	39.563	4.731	376.485	46.970	115218.385	41703.845
67540	41.743	4.781	406.530	47.560	115624.915	41751.405
67550	39.095	6.303	404.190	55.420	116029.105	41806.825
67560	39.497	8.831	392.960	75.670	116422.065	41882.495
67570	38.821	10.699	391.590	97.650	116813.655	41980.145
67580	37.948	13.322	383.845	120.105	117197.500	42100.250
67590	38.017	13.546	379.825	134.340	117577.325	42234.590
67600	28.990	13.388	335.035	134.670	117912.360	42369.260
67610	18.622	12.997	238.060	131.925	118150.420	42501.185
67620	12.498	14.723	155.600	138.600	118306.020	42639.785
67630	20.933	13.768	167.155	142.455	118473.175	42782.240
67640	19.076	13.216	200.045	134.920	118673.220	42917.160
67650	7.264	15.371	131.700	142.935	118804.920	43060.095
67660	2.498	13.392	48.810	143.815	118853.730	43203.910
67670	0.000	14.039	12.490	137.155	118866.220	43341.065
67680	0.000	17.709	0.000	158.740	118866.220	43499.805
67690	0.000	20.746	0.000	192.275	118866.220	43692.080
67700	0.000	23.416	0.000	220.810	118866.220	43912.890
67710	0.000	22.277	0.000	228.465	118866.220	44141.355
67720	0.000	15.684	0.000	189.805	118866.220	44331.160
67730	0.000	10.045	0.000	128.645	118866.220	44459.805
67740	21.572	6.490	107.860	82.675	118974.080	44542.480
67750	36.100	5.100	288.360	57.950	119262.440	44600.430
67760	38.612	5.253	373.560	51.765	119636.000	44652.195
67770	40.667	4.963	396.395	51.080	120032.395	44703.275
67780	51.944	3.748	463.055	43.555	120495.450	44746.830
67790	72.906	3.039	624.250	33.935	121119.700	44780.765
67800	59.738	3.344	663.220	31.915	121782.920	44812.680
67810	45.680	3.901	527.090	36.225	122310.010	44848.905
67820	28.061	4.796	368.705	43.485	122678.715	44892.390
67830	19.110	5.257	235.855	50.265	122914.570	44942.655
67840	24.498	6.226	218.040	57.415	123132.610	45000.070
67850	31.244	6.190	278.710	62.080	123411.320	45062.150
67860	42.235	6.553	367.395	63.715	123778.715	45125.865
67870	38.239	6.970	402.370	67.615	124181.085	45193.480
67880	29.178	9.080	337.085	80.250	124518.170	45273.730
67890	26.248	10.947	277.130	100.135	124795.300	45373.865
67900	37.420	10.398	318.340	106.725	125113.640	45480.590
67910	58.348	2.579	478.840	64.885	125592.480	45545.475
67920	80.516	0.000	694.320	12.895	126286.800	45558.370
67930	87.887	0.000	842.015	0.000	127128.815	45558.370
67940	93.370	0.000	906.285	0.000	128035.100	45558.370
67950	92.040	0.000	927.050	0.000	128962.150	45558.370
67960	79.383	0.000	857.115	0.000	129819.265	45558.370
67970	60.900	0.000	701.415	0.000	130520.680	45558.370
67980	44.521	0.000	527.105	0.000	131047.785	45558.370
67990	37.775	0.000	411.480	0.000	131459.265	45558.370
68000	35.203	0.000	364.890	0.000	131824.155	45558.370
68010	34.160	0.000	346.815	0.000	132170.970	45558.370
68020	33.248	0.000	337.040	0.000	132508.010	45558.370
68030	29.794	0.000	315.210	0.000	132823.220	45558.370
68040	7.819	13.477	188.065	67.385	133011.285	45625.755
68050	0.319	29.933	40.690	217.050	133051.975	45842.805
68060	0.000	54.936	1.595	424.345	133053.570	46267.150
68070	0.110	33.857	0.550	443.965	133054.120	46711.115
68080	19.467	12.838	97.885	233.475	133152.005	46944.590
68090	23.857	0.000	216.620	64.190	133368.625	47008.780
68100	16.978	0.000	204.175	0.000	133572.800	47008.780
68110	10.389	0.000	136.835	0.000	133709.635	47008.780
68120	4.285	0.000	73.370	0.000	133783.005	47008.780
68130	1.038	1.985	26.615	9.925	133809.620	47018.705
68140	0.854	4.442	9.460	32.135	133819.080	47050.840
68150	1.225	6.931	10.395	56.865	133829.475	47107.705
68160	1.664	7.744	14.445	73.375	133843.920	47181.080
68170	2.179	8.650	19.215	81.970	133863.135	47263.050
68180	0.190	10.588	11.845	96.190	133874.980	47359.240
68190	0.000	20.830	0.950	157.090	133875.930	47516.330
68200	0.000	31.937	0.000	263.835	133875.930	47780.165
68210	7.257	15.593	36.285	237.650	133912.215	48017.815
68220	11.338	10.729	92.975	131.610	134005.190	48149.425
68230	16.246	4.911	137.920	78.200	134143.110	48227.625

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
68240	23.606	0.424	199.260	26.675	134342.370	48254.300
68250	33.021	0.000	283.135	2.120	134625.505	48256.420
68260	38.809	0.000	359.150	0.000	134984.655	48256.420
68270	18.168	0.000	284.885	0.000	135269.540	48256.420
68280	3.210	1.201	106.890	6.005	135376.430	48262.425
68290	8.853	11.508	60.315	63.545	135436.745	48325.970
68300	7.541	0.000	81.970	57.540	135518.715	48383.510
68310	10.842	0.000	91.915	0.000	135610.630	48383.510
68320	22.390	0.000	166.160	0.000	135776.790	48383.510
68330	28.852	0.000	256.210	0.000	136033.000	48383.510
68340	5.015	0.000	169.335	0.000	136202.335	48383.510
68350	0.908	1.156	29.615	5.780	136231.950	48389.290
68360	0.000	3.835	4.540	24.955	136236.490	48414.245
68370	0.000	5.039	0.000	44.370	136236.490	48458.615
68380	0.040	5.790	0.200	54.145	136236.690	48512.760
68390	7.836	5.618	39.380	57.040	136276.070	48569.800
68400	21.583	4.864	147.095	52.410	136423.165	48622.210
68410	36.713	3.622	291.480	42.430	136714.645	48664.640
68420	52.881	2.372	447.970	29.970	137162.615	48694.610
68430	70.196	0.404	615.385	13.880	137778.000	48708.490
68440	81.448	2.034	758.220	12.190	138536.220	48720.680
68450	97.236	0.000	893.420	10.170	139429.640	48730.850
68460	103.448	0.000	1003.420	0.000	140433.060	48730.850
68470	146.285	0.000	1248.665	0.000	141681.725	48730.850
68480	171.246	0.000	1587.655	0.000	143269.380	48730.850
68490	163.583	0.000	1674.145	0.000	144943.525	48730.850
68500	152.312	0.000	1579.475	0.000	146523.000	48730.850
68510	141.388	0.000	1468.500	0.000	147991.500	48730.850
68520	130.784	0.000	1360.860	0.000	149352.360	48730.850
68530	120.500	0.000	1256.420	0.000	150608.780	48730.850
68540	110.536	0.000	1155.180	0.000	151763.960	48730.850
68550	100.892	0.000	1057.140	0.000	152821.100	48730.850
68560	91.568	0.000	962.300	0.000	153783.400	48730.850
68570	82.563	0.000	870.655	0.000	154654.055	48730.850
68580	73.836	0.000	781.995	0.000	155436.050	48730.850
68590	63.239	0.000	685.375	0.000	156121.425	48730.850
68600	46.225	1.761	547.320	8.805	156668.745	48739.655
68610	19.626	11.911	329.255	68.360	156998.000	48808.015
68620	18.883	5.170	192.545	85.405	157190.545	48893.420
68630	77.747	2.300	483.150	37.350	157673.695	48930.770
68640	149.694	0.269	1137.205	12.845	158810.900	48943.615
68650	214.129	0.138	1819.115	2.035	160630.015	48945.650
68660	237.559	0.000	2258.440	0.690	162888.455	48946.340
68670	237.433	0.000	2374.960	0.000	165263.415	48946.340
68680	250.245	0.000	2438.390	0.000	167701.805	48946.340
68690	252.401	0.000	2513.230	0.000	170215.035	48946.340
68700	247.827	0.000	2501.140	0.000	172716.175	48946.340
68710	236.522	0.000	2421.745	0.000	175137.920	48946.340
68720	218.353	0.000	2274.375	0.000	177412.295	48946.340
68730	185.652	0.000	2020.025	0.000	179432.320	48946.340
68740	139.955	5.353	1628.035	26.765	181060.355	48973.105
68750	104.319	11.046	1221.370	81.995	182281.725	49055.100
68760	84.769	11.639	945.440	113.425	183227.165	49168.525
68770	85.780	11.174	852.745	114.065	184079.910	49282.590
68780	101.258	12.402	935.190	117.880	185015.100	49400.470
68790	99.169	10.606	1002.135	115.040	186017.235	49515.510
68800	109.533	8.428	1043.510	95.170	187060.745	49610.680
68810	132.216	4.220	1208.745	63.240	188269.490	49673.920
68820	134.353	0.000	1332.845	21.100	189602.335	49695.020
68830	136.635	0.000	1354.940	0.000	190957.275	49695.020
68840	154.611	0.000	1456.230	0.000	192413.505	49695.020
68850	165.290	0.000	1599.505	0.000	194013.010	49695.020
68860	149.133	0.000	1572.115	0.000	195585.125	49695.020
68870	141.250	0.000	1451.915	0.000	197037.040	49695.020
68880	141.198	0.000	1412.240	0.000	198449.280	49695.020
68890	147.882	0.000	1445.400	0.000	199894.680	49695.020
68900	150.447	0.000	1491.645	0.000	201386.325	49695.020
68910	155.078	0.000	1527.625	0.000	202913.950	49695.020
68920	172.533	0.000	1638.055	0.000	204552.005	49695.020
68930	170.748	86.427	1716.405	432.135	206268.410	50127.155
68940	157.969	65.851	1643.585	761.390	207911.995	50888.545
68950	147.299	38.666	1526.340	522.585	209438.335	51411.130
68960	143.279	0.000	1452.890	193.330	210891.225	51604.460
68970	167.259	0.000	1552.690	0.000	212443.915	51604.460
68980	204.456	0.000	1858.575	0.000	214302.490	51604.460
68990	203.674	0.000	2040.650	0.000	216343.140	51604.460

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
69000	127.767	0.000	1657.205	0.000	218000.345	51604.460
69010	98.362	0.000	1130.645	0.000	219130.990	51604.460
69020	152.437	0.000	1253.995	0.000	220384.985	51604.460
69030	263.850	0.000	2081.435	0.000	222466.420	51604.460
69040	299.079	0.000	2814.645	0.000	225281.065	51604.460
69050	325.833	0.000	3124.560	0.000	228405.625	51604.460
69060	306.083	0.000	3159.580	0.000	231565.205	51604.460
69070	268.924	0.000	2875.035	0.000	234440.240	51604.460
69080	242.692	0.000	2558.080	0.000	236998.320	51604.460
69090	209.259	0.000	2259.755	0.000	239258.075	51604.460
69100	184.549	0.000	1969.040	0.000	241227.115	51604.460
69110	185.213	0.000	1848.810	0.000	243075.925	51604.460
69120	212.434	0.000	1988.235	0.000	245064.160	51604.460
69130	207.199	0.000	2098.165	0.000	247162.325	51604.460
69140	194.188	0.000	2006.935	0.000	249169.260	51604.460
69150	179.403	0.000	1867.955	0.000	251037.215	51604.460
69160	162.969	0.000	1711.860	0.000	252749.075	51604.460
69170	145.021	0.000	1539.950	0.000	254289.025	51604.460
69180	125.823	0.000	1354.220	0.000	255643.245	51604.460
69190	105.384	0.000	1156.035	0.000	256799.280	51604.460
69200	83.703	0.000	945.435	0.000	257744.715	51604.460
69210	55.347	0.000	695.250	0.000	258439.965	51604.460
69220	10.528	0.208	329.375	1.040	258769.340	51605.500
69230	27.865	1.094	191.965	6.510	258961.305	51612.010
69240	87.807	0.000	578.360	5.470	259539.665	51617.480
69250	124.382	0.000	1060.945	0.000	260600.610	51617.480
69260	160.952	0.000	1426.670	0.000	262027.280	51617.480
69270	166.743	0.000	1638.475	0.000	263665.755	51617.480
69280	171.070	0.000	1689.065	0.000	265354.820	51617.480
69290	176.932	0.000	1740.010	0.000	267094.830	51617.480
69300	178.382	0.000	1776.570	0.000	268871.400	51617.480
69310	168.570	0.000	1734.760	0.000	270606.160	51617.480
69320	161.930	0.000	1652.500	0.000	272258.660	51617.480
69330	154.688	0.000	1583.090	0.000	273841.750	51617.480
69340	154.922	0.000	1548.050	0.000	275389.800	51617.480
69350	163.310	0.000	1591.160	0.000	276980.960	51617.480
69360	170.070	0.000	1666.900	0.000	278647.860	51617.480
69370	167.706	0.000	1688.880	0.000	280336.740	51617.480
69380	167.614	0.000	1676.600	0.000	282013.340	51617.480
69390	164.689	0.000	1661.515	0.000	283674.855	51617.480
69400	159.817	0.000	1622.530	0.000	285297.385	51617.480
69410	150.615	0.000	1552.160	0.000	286849.545	51617.480
69420	141.996	0.000	1463.055	0.000	288312.600	51617.480
69430	136.323	0.000	1391.595	0.000	289704.195	51617.480
69440	131.780	0.000	1340.515	0.000	291044.710	51617.480
69450	117.456	0.000	1246.180	0.000	292290.890	51617.480
69460	67.207	0.000	923.315	0.000	293214.205	51617.480
69470	25.518	0.000	463.625	0.000	293677.830	51617.480
69480	4.846	0.000	151.820	0.000	293829.650	51617.480
69490	21.412	0.000	131.290	0.000	293960.940	51617.480
69500	80.976	0.000	511.940	0.000	294472.880	51617.480
69510	232.891	0.000	1569.335	0.000	296042.215	51617.480
69520	358.366	0.000	2956.285	0.000	298998.500	51617.480
69530	353.704	0.000	3560.350	0.000	302558.850	51617.480
69540	353.620	0.000	3536.620	0.000	306095.470	51617.480
69550	351.214	0.000	3524.170	0.000	309619.640	51617.480
69560	346.027	0.000	3486.205	0.000	313105.845	51617.480
69570	340.472	0.000	3432.495	0.000	316538.340	51617.480
69580	334.679	0.000	3375.755	0.000	319914.095	51617.480
69590	328.220	0.000	3314.495	0.000	323228.590	51617.480
69600	320.874	0.000	3245.470	0.000	326474.060	51617.480
69610	315.127	0.000	3180.005	0.000	329654.065	51617.480
69620	311.156	0.000	3131.415	0.000	332785.480	51617.480
69630	308.304	0.000	3097.300	0.000	335882.780	51617.480
69640	304.116	0.000	3062.100	0.000	338944.880	51617.480
69650	302.202	0.000	3031.590	0.000	341976.470	51617.480
69660	289.615	0.000	2959.085	0.000	344935.555	51617.480
69670	258.137	0.000	2738.760	0.000	347674.315	51617.480
69680	224.247	0.000	2411.920	0.000	350086.235	51617.480
69690	187.653	0.000	2059.500	0.000	352145.735	51617.480
69700	149.903	0.000	1687.780	0.000	353833.515	51617.480
69710	152.523	0.000	1512.130	0.000	355345.645	51617.480
69720	155.538	0.000	1540.305	0.000	356885.950	51617.480
69730	155.366	0.000	1554.520	0.000	358440.470	51617.480
69740	156.969	0.000	1561.675	0.000	360002.145	51617.480
69750	160.690	0.000	1588.295	0.000	361590.440	51617.480

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
69760	166.608	0.000	1636.490	0.000	363226.930	51617.480
69770	174.604	0.000	1706.060	0.000	364932.990	51617.480
69780	164.713	0.000	1696.585	0.000	366629.575	51617.480
69790	122.334	0.000	1435.235	0.000	368064.810	51617.480
69800	89.758	0.000	1060.460	0.000	369125.270	51617.480
69810	85.350	0.000	875.540	0.000	370000.810	51617.480
69820	89.579	0.666	874.645	3.330	370875.455	51620.810
69830	109.377	0.961	994.780	8.135	371870.235	51628.945
69840	130.055	0.000	1197.160	4.805	373067.395	51633.750
69850	164.019	0.000	1470.370	0.000	374537.765	51633.750
69860	190.302	0.000	1771.605	0.000	376309.370	51633.750
69870	202.422	0.000	1963.620	0.000	378272.990	51633.750
69880	214.144	0.000	2082.830	0.000	380355.820	51633.750
69890	226.021	0.000	2200.825	0.000	382556.645	51633.750
69900	238.162	0.000	2320.915	0.000	384877.560	51633.750
69910	250.465	0.000	2443.135	0.000	387320.695	51633.750
69920	258.725	0.000	2545.950	0.000	389866.645	51633.750
69930	229.601	0.000	2441.630	0.000	392308.275	51633.750
69940	183.827	0.000	2067.140	0.000	394375.415	51633.750
69950	137.652	0.000	1607.395	0.000	395982.810	51633.750
69960	103.411	0.000	1205.315	0.000	397188.125	51633.750
69970	88.493	0.000	959.520	0.000	398147.645	51633.750
69980	89.415	0.000	889.540	0.000	399037.185	51633.750
69990	107.697	0.000	985.560	0.000	400022.745	51633.750
70000	129.267	0.000	1184.820	0.000	401207.565	51633.750
70010	125.363	0.000	1273.150	0.000	402480.715	51633.750
70020	123.004	0.000	1241.835	0.000	403722.550	51633.750
70030	119.177	0.000	1210.905	0.000	404933.455	51633.750
70040	110.735	0.000	1149.560	0.000	406083.015	51633.750
70050	92.077	0.000	1014.060	0.000	407097.075	51633.750
70060	72.515	0.000	822.960	0.000	407920.035	51633.750
70070	63.847	0.000	681.810	0.000	408601.845	51633.750
70080	72.296	0.000	680.715	0.000	409282.560	51633.750
70090	81.111	0.000	767.035	0.000	410049.595	51633.750
70100	90.293	0.000	857.020	0.000	410906.615	51633.750
70110	99.841	0.000	950.670	0.000	411857.285	51633.750
70120	109.756	0.000	1047.985	0.000	412905.270	51633.750
70130	120.038	0.000	1148.970	0.000	414054.240	51633.750
70140	130.686	0.000	1253.620	0.000	415307.860	51633.750
70150	141.701	0.000	1361.935	0.000	416669.795	51633.750
70160	153.083	0.000	1473.920	0.000	418143.715	51633.750
70170	164.831	0.000	1589.570	0.000	419733.285	51633.750
70180	176.946	0.000	1708.885	0.000	421442.170	51633.750
70190	189.427	0.000	1831.865	0.000	423274.035	51633.750
70200	202.276	0.000	1958.515	0.000	425232.550	51633.750
70210	215.490	0.000	2088.830	0.000	427321.380	51633.750
70220	229.026	0.000	2222.580	0.000	429543.960	51633.750
70230	241.473	0.000	2352.495	0.000	431896.455	51633.750
70240	252.348	0.000	2469.105	0.000	434365.560	51633.750
70250	263.292	0.000	2578.200	0.000	436943.760	51633.750
70260	274.265	0.000	2687.785	0.000	439631.545	51633.750
70270	279.722	0.000	2769.935	0.000	442401.480	51633.750
70280	277.996	0.000	2788.590	0.000	445190.070	51633.750
70290	269.082	0.000	2735.390	0.000	447925.460	51633.750
70300	253.067	0.000	2610.745	0.000	450536.205	51633.750
70310	232.533	0.000	2428.000	0.000	452964.205	51633.750
70320	209.799	0.000	2211.660	0.000	455175.865	51633.750
70330	186.998	0.000	1983.985	0.000	457159.850	51633.750
70340	165.925	0.000	1764.615	0.000	458924.465	51633.750
70350	148.683	0.000	1573.040	0.000	460497.505	51633.750
70360	134.718	0.000	1417.005	0.000	461914.510	51633.750
70370	123.443	0.000	1290.805	0.000	463205.315	51633.750
70380	114.420	0.000	1189.315	0.000	464394.630	51633.750
70390	107.503	0.000	1109.615	0.000	465504.245	51633.750
70400	99.246	0.000	1033.745	0.000	466537.990	51633.750
70410	92.729	0.000	959.875	0.000	467497.865	51633.750
70420	89.657	0.000	911.930	0.000	468409.795	51633.750
70430	88.785	0.000	892.210	0.000	469302.005	51633.750
70440	88.821	0.000	888.030	0.000	470190.035	51633.750
70450	88.247	0.000	885.340	0.000	471075.375	51633.750
70460	87.069	0.000	876.580	0.000	471951.955	51633.750
70470	85.288	0.000	861.785	0.000	472813.740	51633.750
70480	82.903	0.000	840.955	0.000	473654.695	51633.750
70490	81.128	0.000	820.155	0.000	474474.850	51633.750
70500	80.735	0.000	809.315	0.000	475284.165	51633.750
70510	81.082	0.000	809.085	0.000	476093.250	51633.750

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
70520	82.171	0.000	816.265	0.000	476909.515	51633.750
70530	84.000	0.000	830.855	0.000	477740.370	51633.750
70540	86.571	0.000	852.855	0.000	478593.225	51633.750
70550	89.883	0.000	882.270	0.000	479475.495	51633.750
70560	93.937	0.000	919.100	0.000	480394.595	51633.750
70570	98.731	0.000	963.340	0.000	481357.935	51633.750
70580	104.266	0.000	1014.985	0.000	482372.920	51633.750
70590	110.543	0.000	1074.045	0.000	483446.965	51633.750
70600	117.561	0.000	1140.520	0.000	484587.485	51633.750
70610	125.320	0.000	1214.405	0.000	485801.890	51633.750
70620	133.832	0.000	1295.760	0.000	487097.650	51633.750
70630	143.105	0.000	1384.685	0.000	488482.335	51633.750
70640	152.966	0.000	1480.355	0.000	489962.690	51633.750
70650	163.281	0.000	1581.235	0.000	491543.925	51633.750
70660	173.902	0.000	1685.915	0.000	493229.840	51633.750
70670	184.660	0.000	1792.810	0.000	495022.650	51633.750
70680	195.492	0.000	1900.760	0.000	496923.410	51633.750
70690	206.292	0.000	2008.920	0.000	498932.330	51633.750
70700	217.063	0.000	2116.775	0.000	501049.105	51633.750
70710	230.558	0.000	2238.105	0.000	503287.210	51633.750
70720	232.956	0.000	2317.570	0.000	505604.780	51633.750
70730	192.153	0.000	2125.545	0.000	507730.325	51633.750
70740	131.716	0.000	1619.345	0.000	509349.670	51633.750
70750	87.781	0.000	1097.485	0.000	510447.155	51633.750
70760	57.639	1.628	727.100	8.140	511174.255	51641.890
70770	42.731	19.036	501.850	103.320	511676.105	51745.210
70780	4.446	31.034	235.885	250.350	511911.990	51995.560
70790	41.256	13.803	228.510	224.185	512140.500	52219.745
70800	98.741	0.000	699.985	69.015	512840.485	52288.760
70810	128.188	0.000	1134.645	0.000	513975.130	52288.760
70820	147.639	0.000	1379.135	0.000	515354.265	52288.760
70830	161.497	0.000	1545.680	0.000	516899.945	52288.760
70840	174.570	0.000	1680.335	0.000	518580.280	52288.760
70850	186.864	0.000	1807.170	0.000	520387.450	52288.760
70860	198.097	0.000	1924.805	0.000	522312.255	52288.760
70870	206.503	0.000	2023.000	0.000	524335.255	52288.760
70880	215.094	0.000	2107.985	0.000	526443.240	52288.760
70890	221.589	0.000	2183.415	0.000	528626.655	52288.760
70900	227.238	0.000	2244.135	0.000	530870.790	52288.760
70910	231.991	0.000	2296.145	0.000	533166.935	52288.760
70920	236.053	0.000	2340.220	0.000	535507.155	52288.760
70930	239.821	0.000	2379.370	0.000	537886.525	52288.760
70940	243.668	0.000	2417.445	0.000	540303.970	52288.760
70950	247.785	0.000	2457.265	0.000	542761.235	52288.760
70960	252.194	0.000	2499.895	0.000	545261.130	52288.760
70970	256.765	0.000	2544.795	0.000	547805.925	52288.760
70980	261.453	0.000	2591.090	0.000	550397.015	52288.760
70990	266.182	0.000	2638.175	0.000	553035.190	52288.760
71000	270.949	0.000	2685.655	0.000	555720.845	52288.760
71010	276.658	0.000	2738.035	0.000	558458.880	52288.760
71020	284.143	0.000	2804.005	0.000	561262.885	52288.760
71030	293.679	0.000	2889.110	0.000	564151.995	52288.760
71040	305.353	0.000	2995.160	0.000	567147.155	52288.760
71050	319.145	0.000	3122.490	0.000	570269.645	52288.760
71060	335.553	0.000	3273.490	0.000	573543.135	52288.760
71070	354.343	0.000	3449.480	0.000	576992.615	52288.760
71080	375.798	0.000	3650.705	0.000	580643.320	52288.760
71090	400.095	0.000	3879.465	0.000	584522.785	52288.760
71100	427.283	0.000	4136.890	0.000	588659.675	52288.760
71110	456.861	0.000	4420.720	0.000	593080.395	52288.760
71120	487.446	0.000	4721.535	0.000	597801.930	52288.760
71130	518.600	0.000	5030.230	0.000	602832.160	52288.760
71140	550.254	0.000	5344.270	0.000	608176.430	52288.760
71150	582.410	0.000	5663.320	0.000	613839.750	52288.760
71160	615.066	0.000	5987.380	0.000	619827.130	52288.760
71170	648.223	0.000	6316.445	0.000	626143.575	52288.760
71180	681.881	0.000	6650.520	0.000	632794.095	52288.760
71190	716.040	0.000	6989.605	0.000	639783.700	52288.760
71200	750.651	0.000	7333.455	0.000	647117.155	52288.760
71210	783.409	0.000	7670.300	0.000	654787.455	52288.760
71220	813.352	0.000	7983.805	0.000	662771.260	52288.760
71230	844.450	0.000	8289.010	0.000	671060.270	52288.760
71240	875.620	0.000	8600.350	0.000	679660.620	52288.760
71250	903.895	0.000	8897.575	0.000	688558.195	52288.760
71260	933.013	0.000	9184.540	0.000	697742.735	52288.760
71270	990.648	0.000	9618.305	0.000	707361.040	52288.760

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
71280	1048.821	0.000	10197.345	0.000	717558.385	52288.760
71290	1093.765	0.000	10712.930	0.000	728271.315	52288.760
71300	1027.865	0.000	10608.150	0.000	738879.465	52288.760
71310	1026.076	0.000	10269.705	0.000	749149.170	52288.760
71320	1084.817	0.000	10554.465	0.000	759703.635	52288.760
71330	1177.812	0.000	11313.145	0.000	771016.780	52288.760
71340	1281.301	0.000	12295.565	0.000	783312.345	52288.760
71350	1368.768	0.000	13250.345	0.000	796562.690	52288.760
71360	1442.582	0.000	14056.750	0.000	810619.440	52288.760
71370	1478.377	0.000	14604.795	0.000	825224.235	52288.760
71380	1527.670	0.000	15030.235	0.000	840254.470	52288.760
71390	1559.736	0.000	15437.030	0.000	855691.500	52288.760
71400	1574.535	0.000	15671.355	0.000	871362.855	52288.760
71410	1579.128	0.000	15768.315	0.000	887131.170	52288.760
71420	1581.697	0.000	15804.125	0.000	902935.295	52288.760
71430	1582.495	0.000	15820.960	0.000	918756.255	52288.760
71440	1587.290	0.000	15848.925	0.000	934605.180	52288.760
71450	1600.214	0.000	15937.520	0.000	950542.700	52288.760
71460	1621.266	0.000	16107.400	0.000	966650.100	52288.760
71470	1648.356	0.000	16348.110	0.000	982998.210	52288.760
71480	1675.439	0.000	16618.975	0.000	999617.185	52288.760
71490	1702.133	0.000	16887.860	0.000	1016505.045	52288.760
71500	1728.440	0.000	17152.865	0.000	1033657.910	52288.760
71510	1754.357	0.000	17413.985	0.000	1051071.895	52288.760
71520	1779.886	0.000	17671.215	0.000	1068743.110	52288.760
71530	1799.801	0.000	17898.435	0.000	1086641.545	52288.760
71540	1811.751	0.000	18057.760	0.000	1104699.305	52288.760
71550	1835.591	0.000	18236.710	0.000	1122936.015	52288.760
71560	1850.043	0.000	18428.170	0.000	1141364.185	52288.760
71570	1861.216	0.000	18556.295	0.000	1159920.480	52288.760
71580	1870.094	0.000	18656.550	0.000	1178577.030	52288.760
71590	1876.721	0.000	18734.075	0.000	1197311.105	52288.760
71600	1881.097	0.000	18789.090	0.000	1216100.195	52288.760
71610	1883.222	0.000	18821.595	0.000	1234921.790	52288.760
71620	1883.097	0.000	18831.595	0.000	1253753.385	52288.760
71630	1880.720	0.000	18819.085	0.000	1272572.470	52288.760
71640	1880.958	0.000	18808.390	0.000	1291380.860	52288.760
71650	1890.627	0.000	18857.925	0.000	1310238.785	52288.760
71660	1900.563	0.000	18955.950	0.000	1329194.735	52288.760
71670	1909.596	0.000	19050.795	0.000	1348245.530	52288.760
71680	1911.684	0.000	19106.400	0.000	1367351.930	52288.760
71690	1900.837	0.000	19062.605	0.000	1386414.535	52288.760
71700	1872.555	0.000	18866.960	0.000	1405281.495	52288.760
71710	1827.977	0.000	18502.660	0.000	1423784.155	52288.760
71720	1762.417	0.000	17951.970	0.000	1441736.125	52288.760
71730	1680.684	0.000	17215.505	0.000	1458951.630	52288.760
71740	1590.045	0.000	16353.645	0.000	1475305.275	52288.760
71750	1498.202	0.000	15441.235	0.000	1490746.510	52288.760
71760	1399.079	0.000	14486.405	0.000	1505232.915	52288.760
71770	1291.617	0.000	13453.480	0.000	1518686.395	52288.760
71780	1179.095	0.000	12353.560	0.000	1531039.955	52288.760
71790	1064.295	0.000	11216.950	0.000	1542256.905	52288.760
71800	949.632	0.000	10069.635	0.000	1552326.540	52288.760
71810	837.114	0.000	8933.730	0.000	1561260.270	52288.760
71820	728.274	0.000	7826.940	0.000	1569087.210	52288.760
71830	624.643	0.000	6764.585	0.000	1575851.795	52288.760
71840	527.524	0.000	5760.835	0.000	1581612.630	52288.760
71850	437.823	0.000	4826.735	0.000	1586439.365	52288.760
71860	356.361	0.000	3970.920	0.000	1590410.285	52288.760
71870	283.795	0.000	3200.780	0.000	1593611.065	52288.760
71880	222.005	0.000	2529.000	0.000	1596140.065	52288.760
71890	168.612	0.000	1953.085	0.000	1598093.150	52288.760
71900	121.998	0.000	1453.050	0.000	1599546.200	52288.760
71910	81.615	0.000	1018.065	0.000	1600564.265	52288.760
71920	47.463	0.000	645.390	0.000	1601209.655	52288.760
71930	19.540	0.000	335.015	0.000	1601544.670	52288.760
71940	0.777	3.534	101.585	17.670	1601646.255	52306.430
71950	0.000	27.517	3.885	155.255	1601650.140	52461.685
71960	0.000	61.903	0.000	447.100	1601650.140	52908.785
71970	0.000	106.178	0.000	840.405	1601650.140	53749.190
71980	0.000	160.340	0.000	1332.590	1601650.140	55081.780
71990	0.000	224.283	0.000	1923.115	1601650.140	57004.895
72000	0.000	295.948	0.000	2601.155	1601650.140	59606.050
72010	0.000	374.541	0.000	3352.445	1601650.140	62958.495
72020	0.000	469.047	0.000	4217.940	1601650.140	67176.435
72030	0.000	546.959	0.000	5080.030	1601650.140	72256.465

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
72040	0.000	594.990	0.000	5709.745	1601650.140	77966.210
72050	0.000	588.991	0.000	5919.905	1601650.140	83886.115
72060	0.000	567.149	0.000	5780.700	1601650.140	89666.815
72070	0.000	540.022	0.000	5535.855	1601650.140	95202.670
72080	0.000	504.832	0.000	5224.270	1601650.140	100426.940
72090	0.000	477.296	0.000	4910.640	1601650.140	105337.580
72100	0.000	461.304	0.000	4693.000	1601650.140	110030.580
72110	0.000	455.759	0.000	4585.315	1601650.140	114615.895
72120	0.000	447.621	0.000	4516.900	1601650.140	119132.795
72130	0.000	435.946	0.000	4417.835	1601650.140	123550.630
72140	0.000	418.594	0.000	4272.700	1601650.140	127823.330
72150	0.000	411.858	0.000	4152.260	1601650.140	131975.590
72160	0.000	407.764	0.000	4098.110	1601650.140	136073.700
72170	0.000	404.007	0.000	4058.855	1601650.140	140132.555
72180	0.000	399.611	0.000	4018.090	1601650.140	144150.645
72190	0.000	394.295	0.000	3969.530	1601650.140	148120.175
72200	0.000	383.368	0.000	3888.315	1601650.140	152008.490
72210	0.000	376.905	0.000	3801.365	1601650.140	155809.855
72220	0.000	349.170	0.000	3630.375	1601650.140	159440.230
72230	0.000	338.499	0.000	3438.345	1601650.140	162878.575
72240	0.000	328.066	0.000	3332.825	1601650.140	166211.400
72250	0.000	319.691	0.000	3238.785	1601650.140	169450.185
72260	0.000	314.200	0.000	3169.455	1601650.140	172619.640
72270	0.000	309.534	0.000	3118.670	1601650.140	175738.310
72280	0.000	304.501	0.000	3070.175	1601650.140	178808.485
72290	0.000	296.055	0.000	3002.780	1601650.140	181811.265
72300	0.000	271.607	0.000	2838.310	1601650.140	184649.575
72310	0.000	257.606	0.000	2646.065	1601650.140	187295.640
72320	0.000	253.121	0.000	2553.635	1601650.140	189849.275
72330	0.000	226.440	0.000	2397.805	1601650.140	192247.080
72340	0.000	219.409	0.000	2229.245	1601650.140	194476.325
72350	0.000	226.485	0.000	2229.470	1601650.140	196705.795
72360	0.000	238.657	0.000	2325.710	1601650.140	199031.505
72370	0.000	249.941	0.000	2442.990	1601650.140	201474.495
72380	0.000	255.218	0.000	2525.795	1601650.140	204000.290
72390	0.000	231.361	0.000	2432.895	1601650.140	206433.185
72400	0.000	219.246	0.000	2253.035	1601650.140	208686.220
72410	0.000	226.728	0.000	2229.870	1601650.140	210916.090
72420	0.000	225.228	0.000	2259.780	1601650.140	213175.870
72430	0.000	229.080	0.000	2271.540	1601650.140	215447.410
72440	0.000	234.410	0.000	2317.450	1601650.140	217764.860
72450	0.000	235.608	0.000	2350.090	1601650.140	220114.950
72460	0.000	234.247	0.000	2349.275	1601650.140	222464.225
72470	0.000	212.543	0.000	2233.950	1601650.140	224698.175
72480	0.000	184.405	0.000	1984.740	1601650.140	226682.915
72490	0.000	154.578	0.000	1694.915	1601650.140	228377.830
72500	0.000	148.730	0.000	1516.540	1601650.140	229894.370
72510	0.000	141.116	0.000	1449.230	1601650.140	231343.600
72520	0.000	135.600	0.000	1383.580	1601650.140	232727.180
72530	0.000	132.844	0.000	1342.220	1601650.140	234069.400
72540	0.000	131.983	0.000	1324.135	1601650.140	235393.535
72550	0.000	132.342	0.000	1321.625	1601650.140	236715.160
72560	0.000	133.598	0.000	1329.700	1601650.140	238044.860
72570	0.000	135.702	0.000	1346.500	1601650.140	239391.360
72580	0.000	135.197	0.000	1354.495	1601650.140	240745.855
72590	0.000	130.614	0.000	1329.055	1601650.140	242074.910
72600	0.000	118.023	0.000	1243.185	1601650.140	243318.095
72610	0.000	98.606	0.000	1083.145	1601650.140	244401.240
72620	0.000	76.174	0.000	873.900	1601650.140	245275.140
72630	0.000	51.022	0.000	635.980	1601650.140	245911.120
72640	0.000	23.149	0.000	370.855	1601650.140	246281.975
72650	0.000	16.871	0.000	200.100	1601650.140	246482.075
72660	0.000	17.449	0.000	171.600	1601650.140	246653.675
72670	0.000	18.032	0.000	177.405	1601650.140	246831.080
72680	0.000	18.620	0.000	183.260	1601650.140	247014.340
72690	0.000	19.212	0.000	189.160	1601650.140	247203.500
72700	0.000	19.809	0.000	195.105	1601650.140	247398.605
72710	0.000	20.410	0.000	201.095	1601650.140	247599.700
72720	0.000	21.016	0.000	207.130	1601650.140	247806.830
72730	0.000	21.626	0.000	213.210	1601650.140	248020.040
72740	0.000	22.193	0.000	219.095	1601650.140	248239.135
72750	0.000	20.632	0.000	214.125	1601650.140	248453.260
72760	0.000	24.603	0.000	226.175	1601650.140	248679.435
72770	0.000	80.245	0.000	524.240	1601650.140	249203.675
72780	0.000	107.655	0.000	939.500	1601650.140	250143.175
72790	0.000	87.314	0.000	974.845	1601650.140	251118.020

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
72800	57.251	0.000	286.255	436.570	1601936.395	251554.590
72810	68.709	0.000	629.800	0.000	1602566.195	251554.590
72820	67.881	0.000	682.950	0.000	1603249.145	251554.590
72830	70.527	0.000	692.040	0.000	1603941.185	251554.590
72840	77.868	0.000	741.975	0.000	1604683.160	251554.590
72850	88.536	0.000	832.020	0.000	1605515.180	251554.590
72860	95.739	0.000	921.375	0.000	1606436.555	251554.590
72870	98.611	0.000	971.750	0.000	1607408.305	251554.590
72880	96.998	0.000	978.045	0.000	1608386.350	251554.590
72890	90.825	0.000	939.115	0.000	1609325.465	251554.590
72900	82.441	0.000	866.330	0.000	1610191.795	251554.590
72910	79.875	0.000	811.580	0.000	1611003.375	251554.590
72920	80.626	0.000	802.505	0.000	1611805.880	251554.590
72930	82.453	0.000	815.395	0.000	1612621.275	251554.590
72940	84.088	0.000	832.705	0.000	1613453.980	251554.590
72950	85.532	0.000	848.100	0.000	1614302.080	251554.590
72960	86.784	0.000	861.580	0.000	1615163.660	251554.590
72970	87.845	0.000	873.145	0.000	1616036.805	251554.590
72980	88.713	0.000	882.790	0.000	1616919.595	251554.590
72990	89.390	0.000	890.515	0.000	1617810.110	251554.590
73000	88.860	0.000	891.250	0.000	1618701.360	251554.590
73010	88.064	0.000	884.620	0.000	1619585.980	251554.590
73020	53.163	13.867	706.135	69.335	1620292.115	251623.925
73030	30.749	26.834	419.560	203.505	1620711.675	251827.430
73040	20.924	33.832	258.365	303.330	1620970.040	252130.760
73050	9.087	34.154	150.055	339.930	1621120.095	252470.690
73060	6.758	8.324	79.225	212.390	1621199.320	252683.080
73070	37.913	0.000	223.355	41.620	1621422.675	252724.700
73080	46.758	0.000	423.355	0.000	1621846.030	252724.700
73090	43.681	0.000	452.195	0.000	1622298.225	252724.700
73100	36.776	0.000	402.285	0.000	1622700.510	252724.700
73110	49.329	0.000	430.525	0.000	1623131.035	252724.700
73120	0.000	7.700	246.645	38.500	1623377.680	252763.200
73130	0.000	32.760	0.000	202.300	1623377.680	252965.500
73140	0.000	47.335	0.000	400.475	1623377.680	253365.975
73150	0.000	43.511	0.000	454.230	1623377.680	253820.205
73160	0.000	20.704	0.000	321.075	1623377.680	254141.280
73170	24.531	0.000	122.655	103.520	1623500.335	254244.800
73180	63.621	0.000	440.760	0.000	1623941.095	254244.800
73190	89.149	0.000	763.850	0.000	1624704.945	254244.800
73200	107.947	0.000	985.480	0.000	1625690.425	254244.800
73210	112.634	0.000	1102.905	0.000	1626793.330	254244.800
73220	118.155	0.000	1153.945	0.000	1627947.275	254244.800
73230	132.043	0.000	1250.990	0.000	1629198.265	254244.800
73240	143.066	0.000	1375.545	0.000	1630573.810	254244.800
73250	150.043	0.000	1465.545	0.000	1632039.355	254244.800
73260	153.727	0.000	1518.850	0.000	1633558.205	254244.800
73270	155.988	0.000	1548.575	0.000	1635106.780	254244.800
73280	157.669	0.000	1568.285	0.000	1636675.065	254244.800
73290	141.944	0.000	1498.065	0.000	1638173.130	254244.800
73300	124.799	0.000	1333.715	0.000	1639506.845	254244.800
73310	81.161	0.000	1029.800	0.000	1640536.645	254244.800
73320	27.725	1.900	544.430	9.500	1641081.075	254254.300
73330	10.638	5.083	191.815	34.915	1641272.890	254289.215
73340	6.201	11.001	84.195	80.420	1641357.085	254369.635
73350	3.717	14.784	49.590	128.925	1641406.675	254498.560
73360	2.606	18.204	31.615	164.940	1641438.290	254663.500
73370	3.052	26.064	28.290	221.340	1641466.580	254884.840
73380	9.241	27.566	61.465	268.150	1641528.045	255152.990
73390	11.240	25.993	102.405	267.795	1641630.450	255420.785
73400	2.885	24.531	70.625	252.620	1641701.075	255673.405
73410	2.711	24.044	27.980	242.875	1641729.055	255916.280
73420	1.902	20.311	23.065	221.775	1641752.120	256138.055
73430	0.000	15.809	9.510	180.600	1641761.630	256318.655
73440	3.324	7.192	16.620	115.005	1641778.250	256433.660
73450	9.643	1.121	64.835	41.565	1641843.085	256475.225
73460	19.764	0.000	147.035	5.605	1641990.120	256480.830
73470	34.732	0.000	272.480	0.000	1642262.600	256480.830
73480	47.665	0.000	411.985	0.000	1642674.585	256480.830
73490	60.849	0.000	542.570	0.000	1643217.155	256480.830
73500	67.816	0.000	643.325	0.000	1643860.480	256480.830
73510	56.090	0.000	619.530	0.000	1644480.010	256480.830
73520	43.815	0.000	499.525	0.000	1644979.535	256480.830
73530	33.044	0.000	384.295	0.000	1645363.830	256480.830
73540	16.327	2.668	246.855	13.340	1645610.685	256494.170
73550	14.775	2.200	155.510	24.340	1645766.195	256518.510

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
73560	23.282	0.000	190.285	11.000	1645956.480	256529.510
73570	41.939	0.000	326.105	0.000	1646282.585	256529.510
73580	79.790	0.000	608.645	0.000	1646891.230	256529.510
73590	136.204	0.000	1079.970	0.000	1647971.200	256529.510
73600	161.469	0.000	1488.365	0.000	1649459.565	256529.510
73610	117.005	0.000	1392.370	0.000	1650851.935	256529.510
73620	74.685	0.000	958.450	0.000	1651810.385	256529.510
73630	71.247	0.000	729.660	0.000	1652540.045	256529.510
73640	82.453	0.000	768.500	0.000	1653308.545	256529.510
73650	96.709	0.000	895.810	0.000	1654204.355	256529.510
73660	90.281	0.000	934.950	0.000	1655139.305	256529.510
73670	62.793	0.053	765.370	0.265	1655904.675	256529.775
73680	42.877	1.541	528.350	7.970	1656433.025	256537.745
73690	44.270	2.118	435.735	18.295	1656868.760	256556.040
73700	65.482	0.417	548.760	12.675	1657417.520	256568.715
73710	94.194	0.000	798.380	2.085	1658215.900	256570.800
73720	115.775	0.000	1049.845	0.000	1659265.745	256570.800
73730	137.717	0.000	1267.460	0.000	1660533.205	256570.800
73740	167.207	0.000	1524.620	0.000	1662057.825	256570.800
73750	204.149	0.000	1856.780	0.000	1663914.605	256570.800
73760	215.003	0.000	2095.760	0.000	1666010.365	256570.800
73770	171.818	0.000	1934.105	0.000	1667944.470	256570.800
73780	90.322	0.000	1310.700	0.000	1669255.170	256570.800
73790	4.789	4.962	475.555	24.810	1669730.725	256595.610
73800	0.922	10.853	28.555	79.075	1669759.280	256674.685
73810	36.019	0.274	184.705	55.635	1669943.985	256730.320
73820	71.026	0.000	535.225	1.370	1670479.210	256731.690
73830	88.783	0.000	799.045	0.000	1671278.255	256731.690
73840	88.947	0.000	888.650	0.000	1672166.905	256731.690
73850	52.021	0.000	704.840	0.000	1672871.745	256731.690
73860	24.281	0.078	381.510	0.390	1673253.255	256732.080
73870	11.257	0.613	177.690	3.455	1673430.945	256735.535
73880	3.948	1.005	76.025	8.090	1673506.970	256743.625
73890	2.139	1.301	30.435	11.530	1673537.405	256755.155
73900	5.370	0.075	37.545	6.880	1673574.950	256762.035
73910	8.348	0.000	68.590	0.375	1673643.540	256762.410
73920	11.644	0.000	99.960	0.000	1673743.500	256762.410
73930	15.028	0.000	133.360	0.000	1673876.860	256762.410
73940	18.552	0.000	167.900	0.000	1674044.760	256762.410

EARTHWORK CALCULATION						
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
79830	73.582	0.000	642.730	0.000	23516.275	0.000
79840	80.728	0.000	771.550	0.000	24287.825	0.000
79850	81.150	0.000	809.390	0.000	25097.215	0.000
79860	80.159	0.000	806.545	0.000	25903.760	0.000
79870	79.138	0.000	796.485	0.000	26700.245	0.000
79880	78.154	0.000	786.460	0.000	27486.705	0.000
79890	77.207	0.000	776.805	0.000	28263.510	0.000
79900	76.297	0.000	767.520	0.000	29031.030	0.000
79910	75.362	0.000	758.295	0.000	29789.325	0.000
79920	73.441	0.000	744.015	0.000	30533.340	0.000
79930	71.119	0.000	722.800	0.000	31256.140	0.000
79940	70.722	0.000	709.205	0.000	31965.345	0.000
79950	74.844	0.000	727.830	0.000	32693.175	0.000
79960	60.334	0.000	675.890	0.000	33369.065	0.000
79970	33.885	4.042	471.095	20.210	33840.160	20.210
79980	34.539	3.407	342.120	37.245	34182.280	57.455
79990	45.294	2.172	399.165	27.895	34581.445	85.350
80000	52.455	0.741	488.745	14.565	35070.190	99.915
80010	55.783	0.367	541.190	5.540	35611.380	105.455
80020	40.783	0.240	482.830	3.035	36094.210	108.490
80030	31.295	0.930	360.390	5.850	36454.600	114.340
80040	29.650	1.193	304.725	10.615	36759.325	124.955
80050	31.153	0.018	304.015	6.055	37063.340	131.010
80060	56.291	0.000	437.220	0.090	37500.560	131.100
80070	60.457	0.000	583.740	0.000	38084.300	131.100
80080	59.327	0.000	598.920	0.000	38683.220	131.100
80090	57.031	0.000	581.790	0.000	39265.010	131.100
80100	53.573	0.000	553.020	0.000	39818.030	131.100
80110	48.811	0.000	511.920	0.000	40329.950	131.100
80120	42.643	0.000	457.270	0.000	40787.220	131.100
80130	35.075	0.000	388.590	0.000	41175.810	131.100
80140	26.439	0.000	307.570	0.000	41483.380	131.100
80150	17.497	0.000	219.680	0.000	41703.060	131.100
80160	9.812	0.526	136.545	2.630	41839.605	133.730
80170	5.824	3.517	78.180	20.215	41917.785	153.945
80180	3.780	5.808	48.020	46.625	41965.805	200.570
80190	2.865	18.712	33.225	122.600	41999.030	323.170
80200	0.000	47.893	14.325	333.025	42013.355	656.195
80210	0.000	41.580	0.000	447.365	42013.355	1103.560
80220	0.000	39.472	0.000	405.260	42013.355	1508.820
80230	0.000	38.859	0.000	391.655	42013.355	1900.475
80240	0.000	36.578	0.000	377.185	42013.355	2277.660
80250	0.000	33.360	0.000	349.690	42013.355	2627.350
80260	0.000	26.680	0.000	300.200	42013.355	2927.550
80270	1.190	16.546	5.950	216.130	42019.305	3143.680
80280	11.598	9.467	63.940	130.065	42083.245	3273.745
80290	13.705	8.647	126.515	90.570	42209.760	3364.315
80300	9.357	12.742	115.310	106.945	42325.070	3471.260
80310	10.862	11.146	101.095	119.440	42426.165	3590.700
80320	3.618	11.958	72.400	115.520	42498.565	3706.220
80330	11.662	5.411	76.400	86.845	42574.965	3793.065
80340	30.737	0.000	211.995	27.055	42786.960	3820.120
80350	69.429	0.000	500.830	0.000	43287.790	3820.120
80360	63.913	0.000	666.710	0.000	43954.500	3820.120
80370	55.481	0.000	596.970	0.000	44551.470	3820.120
80380	47.506	0.000	514.935	0.000	45066.405	3820.120
80390	40.209	0.000	438.575	0.000	45504.980	3820.120
80400	34.189	0.000	371.990	0.000	45876.970	3820.120
80410	27.119	0.000	306.540	0.000	46183.510	3820.120
80420	20.902	0.000	240.105	0.000	46423.615	3820.120
80430	15.407	0.000	181.545	0.000	46605.160	3820.120
80440	7.158	2.716	112.825	13.580	46717.985	3833.700
80450	7.318	5.378	72.380	40.470	46790.365	3874.170
80460	14.176	0.000	107.470	26.890	46897.835	3901.060
80470	17.878	0.000	160.270	0.000	47058.105	3901.060
80480	9.972	0.000	139.250	0.000	47197.355	3901.060
80490	2.405	0.000	61.885	0.000	47259.240	3901.060
80500	0.000	4.580	12.025	22.900	47271.265	3923.960
80510	0.000	12.398	0.000	84.890	47271.265	4008.850
80520	0.000	21.295	0.000	168.465	47271.265	4177.315
80530	0.000	31.040	0.000	261.675	47271.265	4438.990
80540	0.000	40.620	0.000	358.300	47271.265	4797.290
80550	0.000	49.395	0.000	450.075	47271.265	5247.365
80560	0.000	60.618	0.000	550.065	47271.265	5797.430
80570	0.000	70.902	0.000	657.600	47271.265	6455.030
80580	0.000	80.622	0.000	757.620	47271.265	7212.650

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
80590	0.000	90.723	0.000	856.725	47271.265	8069.375
80600	0.000	101.782	0.000	962.525	47271.265	9031.900
80610	0.000	116.236	0.000	1090.090	47271.265	10121.990
80620	0.000	135.084	0.000	1256.600	47271.265	11378.590
80630	0.000	158.887	0.000	1469.855	47271.265	12848.445
80640	0.000	187.970	0.000	1734.285	47271.265	14582.730
80650	0.000	220.976	0.000	2044.730	47271.265	16627.460
80660	0.000	163.489	0.000	1922.325	47271.265	18549.785
80670	0.000	104.939	0.000	1342.140	47271.265	19891.925
80680	0.000	57.608	0.000	812.735	47271.265	20704.660
80690	0.000	21.494	0.000	395.510	47271.265	21100.170
80700	3.883	0.000	19.415	107.470	47290.680	21207.640
80710	31.723	0.000	178.030	0.000	47468.710	21207.640
80720	67.976	0.000	498.495	0.000	47967.205	21207.640
80730	112.643	0.000	903.095	0.000	48870.300	21207.640
80740	165.534	0.000	1390.885	0.000	50261.185	21207.640
80750	200.370	0.000	1829.520	0.000	52090.705	21207.640
80760	179.196	0.000	1897.830	0.000	53988.535	21207.640
80770	159.200	0.000	1691.980	0.000	55680.515	21207.640
80780	140.220	0.000	1497.100	0.000	57177.615	21207.640
80790	118.320	0.000	1292.700	0.000	58470.315	21207.640
80800	92.175	0.000	1052.475	0.000	59522.790	21207.640
80810	52.357	0.195	722.660	0.975	60245.450	21208.615
80820	27.552	1.349	399.545	7.720	60644.995	21216.335
80830	12.223	0.397	198.875	8.730	60843.870	21225.065
80840	11.621	0.187	119.220	2.920	60963.090	21227.985
80850	20.515	0.000	160.680	0.935	61123.770	21228.920
80860	25.352	0.000	229.335	0.000	61353.105	21228.920
80870	25.130	0.000	252.410	0.000	61605.515	21228.920
80880	25.271	0.000	252.005	0.000	61857.520	21228.920
80890	20.925	0.464	230.980	2.320	62088.500	21231.240
80900	24.282	1.608	226.035	10.360	62314.535	21241.600
80910	23.911	5.513	240.965	35.605	62555.500	21277.205
80920	26.544	5.648	252.275	55.805	62807.775	21333.010
80930	32.100	2.539	293.220	40.935	63100.995	21373.945
80940	48.060	0.000	400.800	12.695	63501.795	21386.640
80950	60.936	0.000	544.980	0.000	64046.775	21386.640
80960	64.562	0.000	627.490	0.000	64674.265	21386.640
80970	67.621	0.000	660.915	0.000	65335.180	21386.640
80980	70.702	0.000	691.615	0.000	66026.795	21386.640
80990	73.542	0.000	721.220	0.000	66748.015	21386.640
81000	74.717	0.000	741.295	0.000	67489.310	21386.640
81010	74.286	0.000	745.015	0.000	68234.325	21386.640
81020	75.934	0.000	751.100	0.000	68985.425	21386.640
81030	76.496	0.000	762.150	0.000	69747.575	21386.640
81040	77.058	0.000	767.770	0.000	70515.345	21386.640
81050	77.605	0.000	773.315	0.000	71288.660	21386.640
81060	78.128	0.000	778.665	0.000	72067.325	21386.640
81070	78.629	0.000	783.785	0.000	72851.110	21386.640
81080	77.363	0.000	779.960	0.000	73631.070	21386.640
81090	79.560	0.000	784.615	0.000	74415.685	21386.640
81100	78.201	0.000	788.805	0.000	75204.490	21386.640
81110	78.612	0.000	784.065	0.000	75988.555	21386.640
81120	80.783	0.000	796.975	0.000	76785.530	21386.640
81130	79.422	0.000	801.025	0.000	77586.555	21386.640
81140	79.771	0.000	795.965	0.000	78382.520	21386.640
81150	81.252	0.000	805.115	0.000	79187.635	21386.640
81160	79.022	0.000	801.370	0.000	79989.005	21386.640
81170	79.314	0.000	791.680	0.000	80780.685	21386.640
81180	79.492	0.000	794.030	0.000	81574.715	21386.640
81190	77.480	0.000	784.860	0.000	82359.575	21386.640
81200	76.123	0.000	768.015	0.000	83127.590	21386.640
81210	72.164	0.000	741.435	0.000	83869.025	21386.640
81220	66.171	0.000	691.675	0.000	84560.700	21386.640
81230	59.564	0.000	628.675	0.000	85189.375	21386.640
81240	47.918	2.285	537.410	11.425	85726.785	21398.065
81250	26.523	0.710	372.205	14.975	86098.990	21413.040
81260	27.954	0.542	272.385	6.260	86371.375	21419.300
81270	37.979	0.000	329.665	2.710	86701.040	21422.010
81280	40.212	0.000	390.955	0.000	87091.995	21422.010
81290	41.453	0.000	408.325	0.000	87500.320	21422.010
81300	41.455	0.000	414.540	0.000	87914.860	21422.010
81310	42.326	0.000	418.905	0.000	88333.765	21422.010
81320	37.206	0.000	397.660	0.000	88731.425	21422.010
81330	28.920	6.752	330.630	33.760	89062.055	21455.770
81340	19.432	9.357	241.760	80.545	89303.815	21536.315
81350	8.797	22.302	141.145	158.295	89444.960	21694.610

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
81360	0.000	36.416	43.985	293.590	89488.945	21988.200
81370	0.000	30.711	0.000	335.635	89488.945	22323.835
81380	10.149	21.382	50.745	260.465	89539.690	22584.300
81390	28.116	19.474	191.325	204.280	89731.015	22788.580
81400	44.010	9.524	360.630	144.990	90091.645	22933.570
81410	49.969	10.932	469.895	102.280	90561.540	23035.850
81420	66.553	2.457	582.610	66.945	91144.150	23102.795
81430	75.275	0.000	709.140	12.285	91853.290	23115.080
81440	75.137	0.000	752.060	0.000	92605.350	23115.080
81450	75.336	0.000	752.365	0.000	93357.715	23115.080
81460	77.041	0.000	761.885	0.000	94119.600	23115.080
81470	80.249	0.000	786.450	0.000	94906.050	23115.080
81480	84.746	0.000	824.975	0.000	95731.025	23115.080
81490	90.293	0.000	875.195	0.000	96606.220	23115.080
81500	96.872	0.000	935.825	0.000	97542.045	23115.080
81510	104.652	0.000	1007.620	0.000	98549.665	23115.080
81520	114.097	0.000	1093.745	0.000	99643.410	23115.080
81530	124.367	0.000	1192.320	0.000	100835.730	23115.080
81540	129.669	0.000	1270.180	0.000	102105.910	23115.080
81550	126.330	0.000	1279.995	0.000	103385.905	23115.080
81560	6.275	0.000	663.025	0.000	104048.930	23115.080
81570	2.096	0.811	41.855	4.055	104090.785	23119.135
81580	3.755	0.018	29.255	4.145	104120.040	23123.280
81590	7.721	0.000	57.380	0.090	104177.420	23123.370
81600	10.858	0.000	92.895	0.000	104270.315	23123.370
81610	13.878	0.000	123.680	0.000	104393.995	23123.370
81620	16.067	0.000	149.725	0.000	104543.720	23123.370
81630	16.926	0.000	164.965	0.000	104708.685	23123.370
81640	15.754	0.000	163.400	0.000	104872.085	23123.370
81650	14.583	0.000	151.685	0.000	105023.770	23123.370
81660	13.659	0.000	141.210	0.000	105164.980	23123.370
81670	13.308	0.000	134.835	0.000	105299.815	23123.370
81680	13.398	0.000	133.530	0.000	105433.345	23123.370
81690	13.304	0.000	133.510	0.000	105566.855	23123.370
81700	12.526	0.000	129.150	0.000	105696.005	23123.370
81710	12.136	0.000	123.310	0.000	105819.315	23123.370
81720	15.579	0.000	138.575	0.000	105957.890	23123.370
81730	33.462	0.000	245.205	0.000	106203.095	23123.370
81740	43.170	0.000	383.160	0.000	106586.255	23123.370
81750	54.827	0.000	489.985	0.000	107076.240	23123.370
81760	67.599	0.000	612.130	0.000	107688.370	23123.370
81770	81.850	0.000	747.245	0.000	108435.615	23123.370
81780	79.417	0.000	806.335	0.000	109241.950	23123.370
81790	73.521	0.000	764.690	0.000	110006.640	23123.370
81800	19.679	0.000	466.000	0.000	110472.640	23123.370
81810	5.704	7.489	126.915	37.445	110599.555	23160.815
81820	0.305	20.210	30.045	138.495	110629.600	23299.310
81830	0.000	20.655	1.525	204.325	110631.125	23503.635
81840	0.000	16.809	0.000	187.320	110631.125	23690.955
81850	0.040	13.177	0.200	149.930	110631.325	23840.885
81860	0.403	9.780	2.215	114.785	110633.540	23955.670
81870	1.152	6.420	7.775	81.000	110641.315	24036.670
81880	2.182	3.258	16.670	48.390	110657.985	24085.060
81890	3.358	0.739	27.700	19.985	110685.685	24105.045
81900	6.460	0.918	49.090	8.285	110734.775	24113.330
81910	9.063	1.458	77.615	11.880	110812.390	24125.210
81920	11.055	2.280	100.590	18.690	110912.980	24143.900
81930	12.162	3.425	116.085	28.525	111029.065	24172.425
81940	12.497	4.782	123.295	41.035	111152.360	24213.460
81950	12.062	6.067	122.795	54.245	111275.155	24267.705
81960	10.857	7.192	114.595	66.295	111389.750	24334.000
81970	9.091	8.220	99.740	77.060	111489.490	24411.060
81980	10.129	9.163	96.100	86.915	111585.590	24497.975
81990	14.827	9.184	124.780	91.735	111710.370	24589.710
82000	25.883	3.345	203.550	62.645	111913.920	24652.355
82010	48.220	0.000	370.515	16.725	112284.435	24669.080
82020	57.317	0.000	527.685	0.000	112812.120	24669.080
82030	60.882	0.000	590.995	0.000	113403.115	24669.080
82040	64.530	0.000	627.060	0.000	114030.175	24669.080
82050	53.093	0.000	588.115	0.000	114618.290	24669.080
82060	33.263	0.000	431.780	0.000	115050.070	24669.080
82070	19.550	0.000	264.065	0.000	115314.135	24669.080
82080	7.440	0.000	134.950	0.000	115449.085	24669.080
82090	4.816	0.085	61.280	0.425	115510.365	24669.505
82100	2.056	0.671	34.360	3.780	115544.725	24673.285
82110	0.606	2.766	13.310	17.185	115558.035	24690.470
82120	0.045	5.501	3.255	41.335	115561.290	24731.805

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
82130	0.000	8.483	0.225	69.920	115561.515	24801.725
82140	0.000	11.263	0.000	98.730	115561.515	24900.455
82150	0.000	13.697	0.000	124.800	115561.515	25025.255
82160	0.000	15.778	0.000	147.375	115561.515	25172.630
82170	0.000	17.446	0.000	166.120	115561.515	25338.750
82180	0.000	18.666	0.000	180.560	115561.515	25519.310
82190	0.000	19.477	0.000	190.715	115561.515	25710.025
82200	0.000	20.113	0.000	197.950	115561.515	25907.975
82210	0.000	20.723	0.000	204.180	115561.515	26112.155
82220	0.000	21.307	0.000	210.150	115561.515	26322.305
82230	0.000	21.865	0.000	215.860	115561.515	26538.165
82240	0.000	22.397	0.000	221.310	115561.515	26759.475
82250	0.000	22.903	0.000	226.500	115561.515	26985.975
82260	0.000	23.383	0.000	231.430	115561.515	27217.405
82270	0.000	23.837	0.000	236.100	115561.515	27453.505
82280	0.000	24.265	0.000	240.510	115561.515	27694.015
82290	0.000	24.668	0.000	244.665	115561.515	27938.680
82300	0.000	25.044	0.000	248.560	115561.515	28187.240
82310	0.000	25.394	0.000	252.190	115561.515	28439.430
82320	0.000	25.718	0.000	255.560	115561.515	28694.990
82330	0.000	25.991	0.000	258.545	115561.515	28953.535
82340	0.000	26.008	0.000	259.995	115561.515	29213.530
82350	0.000	25.725	0.000	258.665	115561.515	29472.195
82360	0.000	25.187	0.000	254.560	115561.515	29726.755
82370	0.000	24.554	0.000	248.705	115561.515	29975.460
82380	0.000	23.839	0.000	241.965	115561.515	30217.425
82390	0.000	23.042	0.000	234.405	115561.515	30451.830
82400	0.000	22.164	0.000	226.030	115561.515	30677.860
82410	0.000	21.205	0.000	216.845	115561.515	30894.705
82420	0.000	20.164	0.000	206.845	115561.515	31101.550
82430	0.000	19.042	0.000	196.030	115561.515	31297.580
82440	0.000	17.258	0.000	181.500	115561.515	31479.080
82450	0.000	13.707	0.000	154.825	115561.515	31633.905
82460	0.000	9.784	0.000	117.455	115561.515	31751.360
82470	2.777	2.639	13.885	62.115	115575.400	31813.475
82480	6.676	2.896	47.265	27.675	115622.665	31841.150
82490	2.757	3.476	47.165	31.860	115669.830	31873.010
82500	2.765	3.519	27.610	34.975	115697.440	31907.985
82510	2.848	3.047	28.065	32.830	115725.505	31940.815
82520	2.931	2.058	28.895	25.525	115754.400	31966.340
82530	2.124	1.584	25.275	18.210	115779.675	31984.550
82540	0.190	2.849	11.570	22.165	115791.245	32006.715
82550	0.000	10.115	0.950	64.820	115792.195	32071.535
82560	0.000	17.776	0.000	139.455	115792.195	32210.990
82570	0.000	26.645	0.000	222.105	115792.195	32433.095
82580	0.000	34.350	0.000	304.975	115792.195	32738.070
82590	0.000	26.505	0.000	304.275	115792.195	33042.345
82600	34.939	0.036	174.695	132.705	115966.890	33175.050
82610	97.269	0.000	661.040	0.180	116627.930	33175.230
82620	111.546	0.000	1044.075	0.000	117672.005	33175.230
82630	104.215	0.000	1078.805	0.000	118750.810	33175.230
82640	90.039	0.000	971.270	0.000	119722.080	33175.230
82650	76.047	0.000	830.430	0.000	120552.510	33175.230
82660	61.401	0.000	687.240	0.000	121239.750	33175.230
82670	29.657	0.000	455.290	0.000	121695.040	33175.230
82680	6.654	3.944	181.555	19.720	121876.595	33194.950
82690	6.513	14.218	65.835	90.810	121942.430	33285.760
82700	20.525	0.913	135.190	75.655	122077.620	33361.415
82710	30.916	0.007	257.205	4.600	122334.825	33366.015
82720	44.505	0.023	377.105	0.150	122711.930	33366.165
82730	55.087	0.000	497.960	0.115	123209.890	33366.280
82740	52.869	0.000	539.780	0.000	123749.670	33366.280
82750	41.897	0.403	473.830	2.015	124223.500	33368.295
82760	28.515	1.008	352.060	7.055	124575.560	33375.350
82770	16.377	18.826	224.460	99.170	124800.020	33474.520
82780	4.883	27.766	106.300	232.960	124906.320	33707.480
82790	22.973	12.872	139.280	203.190	125045.600	33910.670
82800	50.830	0.190	369.015	65.310	125414.615	33975.980
82810	97.938	0.000	743.840	0.950	126158.455	33976.930
82820	150.423	0.000	1241.805	0.000	127400.260	33976.930
82830	166.174	0.000	1582.985	0.000	128983.245	33976.930
82840	146.843	0.000	1565.085	0.000	130548.330	33976.930
82850	128.245	0.036	1375.440	0.180	131923.770	33977.110
82860	94.585	8.708	1114.150	43.720	133037.920	34020.830
82870	48.792	9.475	716.885	90.915	133754.805	34111.745
82880	16.607	7.420	326.995	84.475	134081.800	34196.220
82890	13.933	5.077	152.700	62.485	134234.500	34258.705

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
82900	22.376	3.121	181.545	40.990	134416.045	34299.695
82910	32.012	2.253	271.940	26.870	134687.985	34326.565
82920	40.927	2.566	364.695	24.095	135052.680	34350.660
82930	56.113	3.926	485.200	32.460	135537.880	34383.120
82940	69.886	6.386	629.995	51.560	136167.875	34434.680
82950	88.130	0.465	790.080	34.255	136957.955	34468.935
82960	94.662	0.000	913.960	2.325	137871.915	34471.260
82970	91.151	0.000	929.065	0.000	138800.980	34471.260
82980	72.755	0.000	819.530	0.000	139620.510	34471.260
82990	49.265	0.071	610.100	0.355	140230.610	34471.615
83000	28.005	5.425	386.350	27.480	140616.960	34499.095
83010	16.483	12.847	222.440	91.360	140839.400	34590.455
83020	11.113	18.597	137.980	157.220	140977.380	34747.675
83030	12.239	11.420	116.760	150.085	141094.140	34897.760
83040	24.008	2.207	181.235	68.135	141275.375	34965.895
83050	30.661	1.076	273.345	16.415	141548.720	34982.310
83060	37.937	0.718	342.990	8.970	141891.710	34991.280
83070	44.346	0.286	411.415	5.020	142303.125	34996.300
83080	49.009	0.075	466.775	1.805	142769.900	34998.105
83090	55.746	0.000	523.775	0.375	143293.675	34998.480
83100	59.784	0.000	577.650	0.000	143871.325	34998.480
83110	60.774	0.000	602.790	0.000	144474.115	34998.480
83120	61.217	0.000	609.955	0.000	145084.070	34998.480
83130	61.803	0.000	615.100	0.000	145699.170	34998.480
83140	62.533	0.000	621.680	0.000	146320.850	34998.480
83150	63.406	0.000	629.695	0.000	146950.545	34998.480
83160	64.422	0.000	639.140	0.000	147589.685	34998.480
83170	65.582	0.000	650.020	0.000	148239.705	34998.480
83180	66.885	0.000	662.335	0.000	148902.040	34998.480
83190	68.316	0.000	676.005	0.000	149578.045	34998.480
83200	69.691	0.000	690.035	0.000	150268.080	34998.480
83210	70.955	0.000	703.230	0.000	150971.310	34998.480
83220	72.109	0.000	715.320	0.000	151686.630	34998.480
83230	73.152	0.000	726.305	0.000	152412.935	34998.480
83240	74.085	0.000	736.185	0.000	153149.120	34998.480
83250	74.908	0.000	744.965	0.000	153894.085	34998.480
83260	75.599	0.000	752.535	0.000	154646.620	34998.480
83270	76.054	0.000	758.265	0.000	155404.885	34998.480
83280	76.257	0.000	761.555	0.000	156166.440	34998.480
83290	76.170	0.000	762.135	0.000	156928.575	34998.480
83300	77.748	0.000	769.590	0.000	157698.165	34998.480
83310	78.495	0.000	781.215	0.000	158479.380	34998.480
83320	60.834	0.000	696.645	0.000	159176.025	34998.480
83330	14.487	5.211	376.605	26.055	159552.630	35024.535
83340	0.000	24.163	72.435	146.870	159625.065	35171.405
83350	0.000	21.218	0.000	226.905	159625.065	35398.310
83360	36.058	0.459	180.290	108.385	159805.355	35506.695
83370	89.777	0.000	629.175	2.295	160434.530	35508.990
83380	110.298	0.000	1000.375	0.000	161434.905	35508.990
83390	110.360	0.000	1103.290	0.000	162538.195	35508.990
83400	108.950	0.000	1096.550	0.000	163634.745	35508.990
83410	104.098	0.000	1065.240	0.000	164699.985	35508.990
83420	89.946	0.000	970.220	0.000	165670.205	35508.990
83430	74.195	0.000	820.705	0.000	166490.910	35508.990
83440	53.976	0.218	640.855	1.090	167131.765	35510.080
83450	48.943	0.629	514.595	4.235	167646.360	35514.315
83460	53.946	3.016	514.445	18.225	168160.805	35532.540
83470	62.550	0.000	582.480	15.080	168743.285	35547.620
83480	71.734	0.000	671.420	0.000	169414.705	35547.620
83490	68.799	0.113	702.665	0.565	170117.370	35548.185
83500	63.136	0.000	659.675	0.565	170777.045	35548.750
83510	53.323	0.000	582.295	0.000	171359.340	35548.750
83520	38.696	0.216	460.095	1.080	171819.435	35549.830
83530	27.875	0.456	332.855	3.360	172152.290	35553.190
83540	16.049	2.256	219.620	13.560	172371.910	35566.750
83550	3.468	7.609	97.585	49.325	172469.495	35616.075
83560	7.833	9.354	56.505	84.815	172526.000	35700.890
83570	4.384	14.401	61.085	118.775	172587.085	35819.665
83580	0.000	18.442	21.920	164.215	172609.005	35983.880
83590	0.000	19.981	0.000	192.115	172609.005	36175.995
83600	0.117	10.606	0.585	152.935	172609.590	36328.930
83610	2.591	2.646	13.540	66.260	172623.130	36395.190
83620	6.551	0.663	45.710	16.545	172668.840	36411.735
83630	8.869	0.031	77.100	3.470	172745.940	36415.205
83640	13.171	0.028	110.200	0.295	172856.140	36415.500
83650	21.897	2.100	175.340	10.640	173031.480	36426.140
83660	23.389	10.730	226.430	64.150	173257.910	36490.290

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
83670	26.352	13.243	248.705	119.865	173506.615	36610.155
83680	29.438	13.523	278.950	133.830	173785.565	36743.985
83690	34.557	12.091	319.975	128.070	174105.540	36872.055
83700	17.946	9.317	262.515	107.040	174368.055	36979.095
83710	6.832	8.803	123.890	90.600	174491.945	37069.695
83720	0.751	9.658	37.915	92.305	174529.860	37162.000
83730	3.366	6.576	20.585	81.170	174550.445	37243.170
83740	26.140	8.144	147.530	73.600	174697.975	37316.770
83750	22.539	12.063	243.395	101.035	174941.370	37417.805
83760	27.020	10.598	247.795	113.305	175189.165	37531.110
83770	29.976	10.425	284.980	105.115	175474.145	37636.225
83780	34.235	10.399	321.055	104.120	175795.200	37740.345
83790	38.754	5.082	364.945	77.405	176160.145	37817.750
83800	45.672	1.145	422.130	31.135	176582.275	37848.885
83810	56.304	0.377	509.880	7.610	177092.155	37856.495
83820	54.999	0.073	556.515	2.250	177648.670	37858.745
83830	62.468	0.000	587.335	0.365	178236.005	37859.110
83840	41.243	0.115	518.555	0.575	178754.560	37859.685
83850	21.893	0.141	315.680	1.280	179070.240	37860.965
83860	6.060	2.183	139.765	11.620	179210.005	37872.585
83870	0.608	6.687	33.340	44.350	179243.345	37916.935
83880	0.000	19.002	3.040	128.445	179246.385	38045.380
83890	3.659	10.753	18.295	148.775	179264.680	38194.155
83900	19.314	5.645	114.865	81.990	179379.545	38276.145
83910	33.873	0.738	265.935	31.915	179645.480	38308.060
83920	30.412	7.152	321.425	39.450	179966.905	38347.510
83930	16.717	1.079	235.645	41.155	180202.550	38388.665
83940	15.906	22.813	163.115	119.460	180365.665	38508.125
83950	17.138	34.679	165.220	287.460	180530.885	38795.585
83960	25.047	32.946	210.925	338.125	180741.810	39133.710
83970	45.514	24.716	352.805	288.310	181094.615	39422.020
83980	37.764	1.219	416.390	129.675	181511.005	39551.695
83990	33.727	1.408	357.455	13.135	181868.460	39564.830
84000	24.759	11.244	292.430	63.260	182160.890	39628.090
84010	23.767	7.310	242.630	92.770	182403.520	39720.860
84020	49.798	0.221	367.825	37.655	182771.345	39758.515
84030	79.790	0.000	647.940	1.105	183419.285	39759.620
84040	91.700	0.000	857.450	0.000	184276.735	39759.620
84050	93.293	0.000	924.965	0.000	185201.700	39759.620
84060	86.294	0.000	897.935	0.000	186099.635	39759.620
84070	79.036	0.000	826.650	0.000	186926.285	39759.620
84080	72.299	0.000	756.675	0.000	187682.960	39759.620
84090	66.079	0.000	691.890	0.000	188374.850	39759.620
84100	60.376	0.000	632.275	0.000	189007.125	39759.620
84110	55.189	0.000	577.825	0.000	189584.950	39759.620
84120	50.518	0.000	528.535	0.000	190113.485	39759.620
84130	46.364	0.000	484.410	0.000	190597.895	39759.620
84140	42.660	0.000	445.120	0.000	191043.015	39759.620
84150	39.131	0.000	408.955	0.000	191451.970	39759.620
84160	23.490	1.269	313.105	6.345	191765.075	39765.965
84170	0.000	32.018	117.450	166.435	191882.525	39932.400
84180	0.000	58.420	0.000	452.190	191882.525	40384.590
84190	1.605	32.734	8.025	455.770	191890.550	40840.360
84200	5.004	12.443	33.045	225.885	191923.595	41066.245
84210	8.415	10.285	67.095	113.640	191990.690	41179.885
84220	9.690	11.458	90.525	108.715	192081.215	41288.600
84230	9.946	6.693	98.180	90.755	192179.395	41379.355
84240	11.551	8.106	107.485	73.995	192286.880	41453.350
84250	10.576	6.830	110.635	74.680	192397.515	41528.030
84260	8.988	6.579	97.820	67.045	192495.335	41595.075
84270	6.027	5.369	75.075	59.740	192570.410	41654.815
84280	4.997	0.814	55.120	30.915	192625.530	41685.730
84290	0.745	5.413	28.710	31.135	192654.240	41716.865
84300	0.000	12.659	3.725	90.360	192657.965	41807.225
84310	23.767	1.618	118.835	71.385	192776.800	41878.610
84320	56.763	0.178	402.650	8.980	193179.450	41887.590
84330	100.605	0.000	786.840	0.890	193966.290	41888.480
84340	130.665	0.000	1156.350	0.000	195122.640	41888.480
84350	163.256	0.000	1469.605	0.000	196592.245	41888.480
84360	183.903	0.000	1735.795	0.000	198328.040	41888.480
84370	187.956	0.000	1859.295	0.000	200187.335	41888.480
84380	160.578	0.000	1742.670	0.000	201930.005	41888.480
84390	121.837	0.000	1412.075	0.000	203342.080	41888.480
84400	71.688	0.071	967.625	0.355	204309.705	41888.835
84410	47.697	1.518	596.925	7.945	204906.630	41896.780
84420	33.599	9.924	406.480	57.210	205313.110	41953.990
84430	34.832	6.660	342.155	82.920	205655.265	42036.910

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
84440	36.798	2.529	358.150	45.945	206013.415	42082.855
84450	38.749	0.087	377.735	13.080	206391.150	42095.935
84460	37.534	0.000	381.415	0.435	206772.565	42096.370
84470	41.073	0.000	393.035	0.000	207165.600	42096.370
84480	43.623	0.000	423.480	0.000	207589.080	42096.370
84490	49.998	0.000	468.105	0.000	208057.185	42096.370
84500	63.109	0.000	565.535	0.000	208622.720	42096.370
84510	75.074	0.000	690.915	0.000	209313.635	42096.370
84520	85.056	0.000	800.650	0.000	210114.285	42096.370
84530	90.161	0.000	876.085	0.000	210990.370	42096.370
84540	86.298	0.000	882.295	0.000	211872.665	42096.370
84550	72.896	0.000	795.970	0.000	212668.635	42096.370
84560	61.669	0.000	672.825	0.000	213341.460	42096.370
84570	56.772	0.000	592.205	0.000	213933.665	42096.370
84580	35.531	3.007	461.515	15.035	214395.180	42111.405
84590	29.098	3.930	323.145	34.685	214718.325	42146.090
84600	36.343	11.064	327.205	74.970	215045.530	42221.060
84610	32.837	5.124	345.900	80.940	215391.430	42302.000
84620	36.435	9.377	346.360	72.505	215737.790	42374.505
84630	23.592	13.281	300.135	113.290	216037.925	42487.795
84640	17.962	11.999	207.770	126.400	216245.695	42614.195
84650	12.231	12.199	150.965	120.990	216396.660	42735.185
84660	9.742	17.047	109.865	146.230	216506.525	42881.415
84670	6.573	17.698	81.575	173.725	216588.100	43055.140
84680	4.484	18.667	55.285	181.825	216643.385	43236.965
84690	7.058	4.217	57.710	114.420	216701.095	43351.385
84700	13.289	1.044	101.735	26.305	216802.830	43377.690
84710	17.370	0.036	153.295	5.400	216956.125	43383.090
84720	24.887	0.000	211.285	0.180	217167.410	43383.270
84730	36.788	0.000	308.375	0.000	217475.785	43383.270
84740	40.454	0.000	386.210	0.000	217861.995	43383.270
84750	41.854	0.000	411.540	0.000	218273.535	43383.270
84760	43.134	0.000	424.940	0.000	218698.475	43383.270
84770	44.288	0.000	437.110	0.000	219135.585	43383.270
84780	44.984	0.000	446.360	0.000	219581.945	43383.270
84790	45.130	0.000	450.570	0.000	220032.515	43383.270
84800	44.655	0.000	448.925	0.000	220481.440	43383.270
84810	34.426	0.000	395.405	0.000	220876.845	43383.270
84820	28.400	2.841	314.130	14.205	221190.975	43397.475
84830	32.656	0.085	305.280	14.630	221496.255	43412.105
84840	41.904	0.000	372.800	0.425	221869.055	43412.530
84850	51.145	0.000	465.245	0.000	222334.300	43412.530
84860	43.449	0.000	472.970	0.000	222807.270	43412.530
84870	30.665	0.000	370.570	0.000	223177.840	43412.530
84880	19.376	1.312	250.205	6.560	223428.045	43419.090
84890	9.714	12.250	145.450	67.810	223573.495	43486.900
84900	0.000	25.961	48.570	191.055	223622.065	43677.955
84910	0.000	31.144	0.000	285.525	223622.065	43963.480
84920	6.975	16.993	34.875	240.685	223656.940	44204.165
84930	25.682	0.003	163.285	84.980	223820.225	44289.145
84940	55.532	0.000	406.070	0.015	224226.295	44289.160
84950	82.766	0.000	691.490	0.000	224917.785	44289.160
84960	102.461	0.000	926.135	0.000	225843.920	44289.160
84970	100.998	0.000	1017.295	0.000	226861.215	44289.160
84980	97.862	0.000	994.300	0.000	227855.515	44289.160
84990	107.686	0.000	1027.740	0.000	228883.255	44289.160
85000	67.646	0.398	876.660	1.990	229759.915	44291.150
85010	37.360	1.007	525.030	7.025	230284.945	44298.175
85020	38.792	1.868	380.760	14.375	230665.705	44312.550
85030	27.980	2.276	333.860	20.720	230999.565	44333.270
85040	40.410	0.401	341.950	13.385	231341.515	44346.655
85050	51.618	0.000	460.140	2.005	231801.655	44348.660
85060	54.133	0.076	528.755	0.380	232330.410	44349.040
85070	65.579	0.000	598.560	0.380	232928.970	44349.420
85080	93.571	0.000	795.750	0.000	233724.720	44349.420
85090	83.970	0.000	887.705	0.000	234612.425	44349.420
85100	92.055	0.000	880.125	0.000	235492.550	44349.420
85110	100.037	0.000	960.460	0.000	236453.010	44349.420
85120	107.916	0.000	1039.765	0.000	237492.775	44349.420
85130	115.702	0.000	1118.090	0.000	238610.865	44349.420
85140	123.459	0.000	1195.805	0.000	239806.670	44349.420
85150	131.200	0.000	1273.295	0.000	241079.965	44349.420
85160	138.926	0.000	1350.630	0.000	242430.595	44349.420
85170	146.953	0.000	1429.395	0.000	243859.990	44349.420
85180	155.456	0.000	1512.045	0.000	245372.035	44349.420
85190	163.143	0.000	1592.995	0.000	246965.030	44349.420
85200	169.892	0.000	1665.175	0.000	248630.205	44349.420

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
85210	290.026	0.000	2299.590	0.000	250929.795	44349.420
85220	284.666	0.000	2873.460	0.000	253803.255	44349.420
85230	271.159	0.000	2779.125	0.000	256582.380	44349.420
85240	266.819	0.000	2689.890	0.000	259272.270	44349.420
85250	147.562	0.000	2071.905	0.000	261344.175	44349.420
85260	254.165	0.000	2008.635	0.000	263352.810	44349.420
85270	144.954	0.000	1995.595	0.000	265348.405	44349.420
85280	143.823	0.000	1443.885	0.000	266792.290	44349.420
85290	143.187	0.000	1435.050	0.000	268227.340	44349.420
85300	232.057	0.000	1876.220	0.000	270103.560	44349.420
85310	143.916	0.000	1879.865	0.000	271983.425	44349.420
85320	145.310	0.000	1446.130	0.000	273429.555	44349.420
85330	147.404	0.000	1463.570	0.000	274893.125	44349.420
85340	150.223	0.000	1488.135	0.000	276381.260	44349.420
85350	220.436	0.000	1853.295	0.000	278234.555	44349.420
85360	157.030	0.000	1887.330	0.000	280121.885	44349.420
85370	219.186	0.000	1881.080	0.000	282002.965	44349.420
85380	163.881	0.000	1915.335	0.000	283918.300	44349.420
85390	167.012	0.000	1654.465	0.000	285572.765	44349.420
85400	216.650	0.000	1918.310	0.000	287491.075	44349.420
85410	172.519	0.000	1945.845	0.000	289436.920	44349.420
85420	174.893	0.000	1737.060	0.000	291173.980	44349.420
85430	177.016	0.000	1759.545	0.000	292933.525	44349.420
85440	178.886	0.000	1779.510	0.000	294713.035	44349.420
85450	180.503	0.000	1796.945	0.000	296509.980	44349.420
85460	181.869	0.000	1811.860	0.000	298321.840	44349.420
85470	203.850	0.000	1928.595	0.000	300250.435	44349.420
85480	202.070	0.000	2029.600	0.000	302280.035	44349.420
85490	187.182	0.000	1946.260	0.000	304226.295	44349.420
85500	188.412	0.000	1877.970	0.000	306104.265	44349.420
85510	197.602	0.000	1930.070	0.000	308034.335	44349.420
85520	161.865	0.000	1797.335	0.000	309831.670	44349.420
85530	118.900	0.000	1403.825	0.000	311235.495	44349.420
85540	139.666	0.000	1292.830	0.000	312528.325	44349.420
85550	183.043	0.000	1613.545	0.000	314141.870	44349.420
85560	228.419	0.000	2057.310	0.000	316199.180	44349.420
85570	242.342	0.000	2353.805	0.000	318552.985	44349.420
85580	237.619	0.000	2399.805	0.000	320952.790	44349.420
85590	232.895	0.000	2352.570	0.000	323305.360	44349.420
85600	228.115	0.000	2305.050	0.000	325610.410	44349.420
85610	223.339	0.000	2257.270	0.000	327867.680	44349.420
85620	218.502	0.000	2209.205	0.000	330076.885	44349.420
85630	213.672	0.000	2160.870	0.000	332237.755	44349.420
85640	208.782	0.000	2112.270	0.000	334350.025	44349.420
85650	203.896	0.000	2063.390	0.000	336413.415	44349.420
85660	198.953	0.000	2014.245	0.000	338427.660	44349.420
85670	194.010	0.000	1964.815	0.000	340392.475	44349.420
85680	189.016	0.000	1915.130	0.000	342307.605	44349.420
85690	184.016	0.000	1865.160	0.000	344172.765	44349.420
85700	178.971	0.000	1814.935	0.000	345987.700	44349.420
85710	173.914	0.000	1764.425	0.000	347752.125	44349.420
85720	168.817	0.000	1713.655	0.000	349465.780	44349.420
85730	163.704	0.000	1662.605	0.000	351128.385	44349.420
85740	158.556	0.000	1611.300	0.000	352739.685	44349.420
85750	153.387	0.000	1559.715	0.000	354299.400	44349.420
85760	148.199	0.000	1507.930	0.000	355807.330	44349.420
85770	143.043	0.000	1456.210	0.000	357263.540	44349.420
85780	137.712	0.000	1403.775	0.000	358667.315	44349.420
85790	131.615	0.000	1346.635	0.000	360013.950	44349.420
85800	124.712	0.000	1281.635	0.000	361295.585	44349.420
85810	117.005	0.000	1208.585	0.000	362504.170	44349.420
85820	108.481	0.000	1127.430	0.000	363631.600	44349.420
85830	99.013	0.000	1037.470	0.000	364669.070	44349.420
85840	88.567	0.000	937.900	0.000	365606.970	44349.420
85850	77.142	0.000	828.545	0.000	366435.515	44349.420
85860	65.075	0.000	711.085	0.000	367146.600	44349.420
85870	54.953	0.000	600.140	0.000	367746.740	44349.420
85880	47.318	0.000	511.355	0.000	368258.095	44349.420
85890	42.171	0.000	447.445	0.000	368705.540	44349.420
85900	41.145	0.000	416.580	0.000	369122.120	44349.420
85910	43.482	0.000	423.135	0.000	369545.255	44349.420
85920	46.274	0.000	448.780	0.000	369994.035	44349.420
85930	51.777	0.000	490.255	0.000	370484.290	44349.420
85940	63.865	0.000	578.210	0.000	371062.500	44349.420
85950	76.615	0.000	702.400	0.000	371764.900	44349.420
85960	69.081	0.000	728.480	0.000	372493.380	44349.420
85970	0.000	17.701	345.405	88.505	372838.785	44437.925

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
85980	0.000	23.111	0.000	204.060	372838.785	44641.985
85990	0.000	10.309	0.000	167.100	372838.785	44809.085
86000	16.576	1.931	82.880	61.200	372921.665	44870.285
86010	48.428	0.000	325.020	9.655	373246.685	44879.940
86020	82.197	0.000	653.125	0.000	373899.810	44879.940
86030	99.855	0.000	910.260	0.000	374810.070	44879.940
86040	91.498	0.000	956.765	0.000	375766.835	44879.940
86050	85.163	0.000	883.305	0.000	376650.140	44879.940
86060	82.055	0.000	836.090	0.000	377486.230	44879.940
86070	81.945	0.000	820.000	0.000	378306.230	44879.940
86080	82.950	0.000	824.475	0.000	379130.705	44879.940
86090	83.990	0.000	834.700	0.000	379965.405	44879.940
86100	84.564	0.000	842.770	0.000	380808.175	44879.940
86110	85.036	0.000	848.000	0.000	381656.175	44879.940
86120	85.510	0.000	852.730	0.000	382508.905	44879.940
86130	85.984	0.000	857.470	0.000	383366.375	44879.940
86140	86.459	0.000	862.215	0.000	384228.590	44879.940
86150	86.935	0.000	866.970	0.000	385095.560	44879.940
86160	87.412	0.000	871.735	0.000	385967.295	44879.940
86170	87.890	0.000	876.510	0.000	386843.805	44879.940
86180	88.369	0.000	881.295	0.000	387725.100	44879.940
86190	88.849	0.000	886.090	0.000	388611.190	44879.940
86200	89.330	0.000	890.895	0.000	389502.085	44879.940
86210	89.812	0.000	895.710	0.000	390397.795	44879.940
86220	90.295	0.000	900.535	0.000	391298.330	44879.940
86230	90.779	0.000	905.370	0.000	392203.700	44879.940
86240	91.264	0.000	910.215	0.000	393113.915	44879.940
86250	89.033	0.000	901.485	0.000	394015.400	44879.940
86260	91.553	0.000	902.930	0.000	394918.330	44879.940
86270	95.533	0.000	935.430	0.000	395853.760	44879.940
86280	96.265	0.000	958.990	0.000	396812.750	44879.940
86290	94.489	0.000	953.770	0.000	397766.520	44879.940
86300	102.423	0.000	984.560	0.000	398751.080	44879.940
86310	46.318	0.000	743.705	0.000	399494.785	44879.940
86320	41.385	0.000	438.515	0.000	399933.300	44879.940
86330	28.082	0.000	347.335	0.000	400280.635	44879.940
86340	17.525	0.000	228.035	0.000	400508.670	44879.940
86350	7.140	0.000	123.325	0.000	400631.995	44879.940
86360	2.716	1.569	49.280	7.845	400681.275	44887.785
86370	0.359	5.308	15.375	34.385	400696.650	44922.170
86380	0.000	12.891	1.795	90.995	400698.445	45013.165
86390	0.000	21.034	0.000	169.625	400698.445	45182.790
86400	0.000	22.019	0.000	215.265	400698.445	45398.055
86410	4.179	8.941	20.895	154.800	400719.340	45552.855
86420	34.903	0.000	195.410	44.705	400914.750	45597.560
86430	49.822	0.000	423.625	0.000	401338.375	45597.560
86440	60.843	0.000	553.325	0.000	401891.700	45597.560
86450	69.056	0.000	649.495	0.000	402541.195	45597.560
86460	76.165	0.000	726.105	0.000	403267.300	45597.560
86470	84.394	0.000	802.795	0.000	404070.095	45597.560
86480	35.744	0.000	600.690	0.000	404670.785	45597.560
86490	0.000	0.870	178.720	4.350	404849.505	45601.910
86500	0.000	8.084	0.000	44.770	404849.505	45646.680
86510	0.000	17.087	0.000	125.855	404849.505	45772.535
86520	0.000	27.089	0.000	220.880	404849.505	45993.415
86530	0.000	38.089	0.000	325.890	404849.505	46319.305
86540	0.000	34.569	0.000	363.290	404849.505	46682.595
86550	0.899	7.794	4.495	211.815	404854.000	46894.410
86560	26.257	1.563	135.780	46.785	404989.780	46941.195
86570	4.560	3.803	154.085	26.830	405143.865	46968.025
86580	0.003	9.273	22.815	65.380	405166.680	47033.405
86590	9.455	6.068	47.290	76.705	405213.970	47110.110
86600	25.070	3.203	172.625	46.355	405386.595	47156.465
86610	41.275	1.138	331.725	21.705	405718.320	47178.170
86620	44.570	0.944	429.225	10.410	406147.545	47188.580
86630	34.650	1.569	396.100	12.565	406543.645	47201.145
86640	25.076	1.397	298.630	14.830	406842.275	47215.975
86650	23.656	0.084	243.660	7.405	407085.935	47223.380
86660	29.222	0.000	264.390	0.420	407350.325	47223.800
86670	30.232	0.000	297.270	0.000	407647.595	47223.800
86680	29.180	0.000	297.060	0.000	407944.655	47223.800
86690	27.293	0.000	282.365	0.000	408227.020	47223.800
86700	24.554	0.000	259.235	0.000	408486.255	47223.800
86710	20.972	0.009	227.630	0.045	408713.885	47223.845
86720	16.085	0.031	185.285	0.200	408899.170	47224.045
86730	9.821	1.782	129.530	9.065	409028.700	47233.110
86740	0.296	6.538	50.585	41.600	409079.285	47274.710

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
86750	0.639	3.234	4.675	48.860	409083.960	47323.570
86760	0.623	2.617	6.310	29.255	409090.270	47352.825
86770	0.614	6.849	6.185	47.330	409096.455	47400.155
86780	0.807	11.117	7.105	89.830	409103.560	47489.985
86790	2.541	8.601	16.740	98.590	409120.300	47588.575
86800	16.743	0.000	96.420	43.005	409216.720	47631.580
86810	33.109	0.000	249.260	0.000	409465.980	47631.580
86820	35.543	0.000	343.260	0.000	409809.240	47631.580
86830	32.421	0.000	339.820	0.000	410149.060	47631.580
86840	25.886	0.000	291.535	0.000	410440.595	47631.580
86850	15.113	0.014	204.995	0.070	410645.590	47631.650
86860	0.854	1.261	79.835	6.375	410725.425	47638.025
86870	0.000	3.928	4.270	25.945	410729.695	47663.970
86880	0.308	7.016	1.540	54.720	410731.235	47718.690
86890	2.505	8.600	14.065	78.080	410745.300	47796.770
86900	10.499	13.624	65.020	111.120	410810.320	47907.890
86910	11.572	15.221	110.355	144.225	410920.675	48052.115
86920	11.872	10.080	117.220	126.505	411037.895	48178.620
86930	6.378	5.190	91.250	76.350	411129.145	48254.970
86940	31.840	1.585	191.090	33.875	411320.235	48288.845
86950	73.669	0.000	527.545	7.925	411847.780	48296.770
86960	70.185	0.000	719.270	0.000	412567.050	48296.770
86970	65.423	0.000	678.040	0.000	413245.090	48296.770
86980	61.078	0.000	632.505	0.000	413877.595	48296.770
86990	57.391	0.000	592.345	0.000	414469.940	48296.770
87000	49.306	0.000	533.485	0.000	415003.425	48296.770
87010	31.361	0.090	403.335	0.450	415406.760	48297.220
87020	17.843	0.940	246.020	5.150	415652.780	48302.370
87030	15.287	0.963	165.650	9.515	415818.430	48311.885
87040	14.652	0.357	149.695	6.600	415968.125	48318.485
87050	16.119	0.000	153.855	1.785	416121.980	48320.270
87060	20.515	0.000	183.170	0.000	416305.150	48320.270
87070	24.835	0.000	226.750	0.000	416531.900	48320.270
87080	31.951	0.209	283.930	1.045	416815.830	48321.315
87090	38.075	0.633	350.130	4.210	417165.960	48325.525
87100	37.433	3.401	377.540	20.170	417543.500	48345.695
87110	21.899	7.863	296.660	56.320	417840.160	48402.015
87120	0.000	15.064	109.495	114.635	417949.655	48516.650
87130	0.000	16.593	0.000	158.285	417949.655	48674.935
87140	0.000	18.150	0.000	173.715	417949.655	48848.650
87150	0.000	16.624	0.000	173.870	417949.655	49022.520
87160	0.000	15.930	0.000	162.770	417949.655	49185.290
87170	0.000	17.943	0.000	169.365	417949.655	49354.655
87180	0.000	21.043	0.000	194.930	417949.655	49549.585
87190	0.000	23.704	0.000	223.735	417949.655	49773.320
87200	0.000	27.047	0.000	253.755	417949.655	50027.075
87210	0.903	22.685	4.515	248.660	417954.170	50275.735
87220	12.843	6.683	68.730	146.840	418022.900	50422.575
87230	29.546	0.033	211.945	33.580	418234.845	50456.155
87240	48.147	0.000	388.465	0.165	418623.310	50456.320
87250	63.768	0.000	559.575	0.000	419182.885	50456.320
87260	74.109	0.000	689.385	0.000	419872.270	50456.320
87270	79.038	0.000	765.735	0.000	420638.005	50456.320
87280	80.062	0.000	795.500	0.000	421433.505	50456.320
87290	78.719	0.000	793.905	0.000	422227.410	50456.320
87300	75.034	0.000	768.765	0.000	422996.175	50456.320
87310	69.062	0.000	720.480	0.000	423716.655	50456.320
87320	61.648	0.000	653.550	0.000	424370.205	50456.320
87330	54.293	0.000	579.705	0.000	424949.910	50456.320
87340	48.464	0.000	513.785	0.000	425463.695	50456.320
87350	44.094	0.000	462.790	0.000	425926.485	50456.320
87360	41.138	0.000	426.160	0.000	426352.645	50456.320
87370	39.595	0.000	403.665	0.000	426756.310	50456.320
87380	39.467	0.000	395.310	0.000	427151.620	50456.320
87390	40.752	0.000	401.095	0.000	427552.715	50456.320
87400	43.392	0.000	420.720	0.000	427973.435	50456.320
87410	47.279	0.000	453.355	0.000	428426.790	50456.320
87420	51.722	0.000	495.005	0.000	428921.795	50456.320
87430	56.146	0.000	539.340	0.000	429461.135	50456.320
87440	60.549	0.000	583.475	0.000	430044.610	50456.320
87450	64.933	0.000	627.410	0.000	430672.020	50456.320
87460	69.296	0.000	671.145	0.000	431343.165	50456.320
87470	73.638	0.000	714.670	0.000	432057.835	50456.320
87480	77.960	0.000	757.990	0.000	432815.825	50456.320
87490	81.999	0.000	799.795	0.000	433615.620	50456.320
87500	85.543	0.000	837.710	0.000	434453.330	50456.320
87510	88.523	0.000	870.330	0.000	435323.660	50456.320

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
87520	91.615	0.000	900.690	0.000	436224.350	50456.320
87530	98.879	0.000	952.470	0.000	437176.820	50456.320
87540	110.816	0.000	1048.475	0.000	438225.295	50456.320
87550	116.491	0.000	1136.535	0.000	439361.830	50456.320
87560	122.575	0.000	1195.330	0.000	440557.160	50456.320
87570	127.723	0.000	1251.490	0.000	441808.650	50456.320
87580	132.581	0.000	1301.520	0.000	443110.170	50456.320
87590	137.323	0.000	1349.520	0.000	444459.690	50456.320
87600	140.947	0.000	1391.350	0.000	445851.040	50456.320
87610	145.844	0.000	1433.955	0.000	447284.995	50456.320
87620	148.076	0.000	1469.600	0.000	448754.595	50456.320
87630	151.422	0.000	1497.490	0.000	450252.085	50456.320
87640	157.380	0.000	1544.010	0.000	451796.095	50456.320
87650	159.372	0.000	1583.760	0.000	453379.855	50456.320
87660	169.146	0.000	1642.590	0.000	455022.445	50456.320
87670	172.372	0.000	1707.590	0.000	456730.035	50456.320
87680	171.980	0.000	1721.760	0.000	458451.795	50456.320
87690	165.083	0.000	1685.315	0.000	460137.110	50456.320
87700	145.307	0.000	1551.950	0.000	461689.060	50456.320
87710	132.125	0.000	1387.160	0.000	463076.220	50456.320
87720	103.035	0.813	1175.800	4.065	464252.020	50460.385
87730	95.578	1.361	993.065	10.870	465245.085	50471.255
87740	73.368	3.475	844.730	24.180	466089.815	50495.435
87750	91.680	1.125	825.240	23.000	466915.055	50518.435
87760	96.132	0.865	939.060	9.950	467854.115	50528.385
87770	103.618	0.639	998.750	7.520	468852.865	50535.905
87780	104.981	0.421	1042.995	5.300	469895.860	50541.205
87790	100.512	0.423	1027.465	4.220	470923.325	50545.425
87800	103.731	0.032	1021.215	2.275	471944.540	50547.700
87810	110.178	0.000	1069.545	0.160	473014.085	50547.860
87820	121.798	0.000	1159.880	0.000	474173.965	50547.860
87830	139.867	0.000	1308.325	0.000	475482.290	50547.860
87840	160.553	0.000	1502.100	0.000	476984.390	50547.860
87850	148.496	0.000	1545.245	0.000	478529.635	50547.860
87860	161.325	0.000	1549.105	0.000	480078.740	50547.860
87870	136.635	0.000	1489.800	0.000	481568.540	50547.860
87880	161.102	0.000	1488.685	0.000	483057.225	50547.860
87890	161.714	0.000	1614.080	0.000	484671.305	50547.860
87900	162.113	0.000	1619.135	0.000	486290.440	50547.860
87910	162.505	0.000	1623.090	0.000	487913.530	50547.860
87920	162.749	0.000	1626.270	0.000	489539.800	50547.860
87930	162.314	0.000	1625.315	0.000	491165.115	50547.860
87940	160.847	0.000	1615.805	0.000	492780.920	50547.860
87950	106.918	0.000	1338.825	0.000	494119.745	50547.860
87960	104.678	0.000	1057.980	0.000	495177.725	50547.860
87970	156.244	0.000	1304.610	0.000	496482.335	50547.860
87980	153.064	0.000	1546.540	0.000	498028.875	50547.860
87990	149.009	0.000	1510.365	0.000	499539.240	50547.860
88000	92.129	0.000	1205.690	0.000	500744.930	50547.860
88010	88.862	0.000	904.955	0.000	501649.885	50547.860
88020	89.823	0.000	893.425	0.000	502543.310	50547.860
88030	89.578	0.000	897.005	0.000	503440.315	50547.860
88040	130.222	0.000	1099.000	0.000	504539.315	50547.860
88050	76.460	0.367	1033.410	1.835	505572.725	50549.695
88060	33.980	1.521	552.200	9.440	506124.925	50559.135
88070	37.243	8.864	356.115	51.925	506481.040	50611.060
88080	50.634	10.998	439.385	99.310	506920.425	50710.370
88090	62.869	8.838	567.515	99.180	507487.940	50809.550
88100	81.446	0.995	721.575	49.165	508209.515	50858.715
88110	91.861	0.418	866.535	7.065	509076.050	50865.780
88120	101.078	0.049	964.695	2.335	510040.745	50868.115
88130	112.232	0.000	1066.550	0.245	511107.295	50868.360
88140	119.608	0.000	1159.200	0.000	512266.495	50868.360
88150	125.937	0.000	1227.725	0.000	513494.220	50868.360
88160	132.207	0.000	1290.720	0.000	514784.940	50868.360
88170	142.590	0.000	1373.985	0.000	516158.925	50868.360
88180	153.666	0.000	1481.280	0.000	517640.205	50868.360
88190	156.621	0.000	1551.435	0.000	519191.640	50868.360
88200	157.243	0.000	1569.320	0.000	520760.960	50868.360
88210	157.639	0.000	1574.410	0.000	522335.370	50868.360
88220	156.873	0.000	1572.560	0.000	523907.930	50868.360
88230	154.963	0.000	1559.180	0.000	525467.110	50868.360
88240	152.713	0.000	1538.380	0.000	527005.490	50868.360
88250	147.140	0.000	1499.265	0.000	528504.755	50868.360
88260	134.187	0.000	1406.635	0.000	529911.390	50868.360
88270	121.214	0.000	1277.005	0.000	531188.395	50868.360
88280	101.972	0.000	1115.930	0.000	532304.325	50868.360

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
88290	77.726	0.000	898.490	0.000	533202.815	50868.360
88300	53.369	0.587	655.475	2.935	533858.290	50871.295
88310	9.256	7.233	313.125	39.100	534171.415	50910.395
88320	0.000	10.593	46.280	89.130	534217.695	50999.525
88330	0.000	5.384	0.000	79.885	534217.695	51079.410
88340	18.338	2.518	91.690	39.510	534309.385	51118.920
88350	46.668	1.646	325.030	20.820	534634.415	51139.740
88360	86.041	0.000	663.545	8.230	535297.960	51147.970
88370	123.526	0.000	1047.835	0.000	536345.795	51147.970
88380	144.244	0.000	1338.850	0.000	537684.645	51147.970
88390	148.891	0.000	1465.675	0.000	539150.320	51147.970
88400	140.550	0.000	1447.205	0.000	540597.525	51147.970
88410	134.465	0.000	1375.075	0.000	541972.600	51147.970
88420	128.837	0.000	1316.510	0.000	543289.110	51147.970
88430	112.828	0.000	1208.325	0.000	544497.435	51147.970
88440	102.541	0.000	1076.845	0.000	545574.280	51147.970
88450	104.815	0.000	1036.780	0.000	546611.060	51147.970
88460	111.363	0.000	1080.890	0.000	547691.950	51147.970
88470	148.257	0.000	1298.100	0.000	548990.050	51147.970
88480	176.441	0.000	1623.490	0.000	550613.540	51147.970
88490	190.553	0.000	1834.970	0.000	552448.510	51147.970
88500	189.804	0.000	1901.785	0.000	554350.295	51147.970
88510	186.854	0.000	1883.290	0.000	556233.585	51147.970
88520	184.249	0.000	1855.515	0.000	558089.100	51147.970
88530	180.939	0.000	1825.940	0.000	559915.040	51147.970
88540	165.818	0.000	1733.785	0.000	561648.825	51147.970
88550	152.083	0.000	1589.505	0.000	563238.330	51147.970
88560	158.167	0.000	1551.250	0.000	564789.580	51147.970
88570	161.234	0.000	1597.005	0.000	566386.585	51147.970
88580	169.039	0.000	1651.365	0.000	568037.950	51147.970
88590	154.726	0.000	1618.825	0.000	569656.775	51147.970
88600	94.555	0.000	1246.405	0.000	570903.180	51147.970
88610	53.370	0.092	739.625	0.460	571642.805	51148.430
88620	69.117	0.000	612.435	0.460	572255.240	51148.890
88630	98.569	0.000	838.430	0.000	573093.670	51148.890
88640	139.036	0.000	1188.025	0.000	574281.695	51148.890
88650	181.329	0.000	1601.825	0.000	575883.520	51148.890
88660	167.847	0.000	1745.880	0.000	577629.400	51148.890
88670	153.869	0.000	1608.580	0.000	579237.980	51148.890
88680	141.098	0.000	1474.835	0.000	580712.815	51148.890
88690	128.844	0.000	1349.710	0.000	582062.525	51148.890
88700	116.745	0.000	1227.945	0.000	583290.470	51148.890
88710	104.875	0.000	1108.100	0.000	584398.570	51148.890
88720	93.267	0.000	990.710	0.000	585389.280	51148.890
88730	69.292	0.000	812.795	0.000	586202.075	51148.890
88740	31.202	0.000	502.470	0.000	586704.545	51148.890
88750	37.950	0.000	345.760	0.000	587050.305	51148.890
88760	55.279	0.000	466.145	0.000	587516.450	51148.890
88770	79.385	0.000	673.320	0.000	588189.770	51148.890
88780	114.057	0.000	967.210	0.000	589156.980	51148.890
88790	140.244	0.000	1271.505	0.000	590428.485	51148.890
88800	150.274	0.000	1452.590	0.000	591881.075	51148.890
88810	155.445	0.000	1528.595	0.000	593409.670	51148.890
88820	152.666	0.000	1540.555	0.000	594950.225	51148.890
88830	135.972	0.000	1443.190	0.000	596393.415	51148.890
88840	113.446	0.000	1247.090	0.000	597640.505	51148.890
88850	91.439	0.000	1024.425	0.000	598664.930	51148.890
88860	74.266	0.000	828.525	0.000	599493.455	51148.890
88870	58.855	0.000	665.605	0.000	600159.060	51148.890
88880	40.892	0.000	498.735	0.000	600657.795	51148.890
88890	29.563	0.000	352.275	0.000	601010.070	51148.890
88900	18.386	0.061	239.745	0.305	601249.815	51149.195
88910	17.987	0.053	181.865	0.570	601431.680	51149.765
88920	22.768	0.000	203.775	0.265	601635.455	51150.030
88930	30.007	0.000	263.875	0.000	601899.330	51150.030
88940	50.820	0.000	404.135	0.000	602303.465	51150.030
88950	66.931	0.000	588.755	0.000	602892.220	51150.030
88960	84.186	0.000	755.585	0.000	603647.805	51150.030
88970	100.237	0.000	922.115	0.000	604569.920	51150.030
88980	114.210	0.000	1072.235	0.000	605642.155	51150.030
88990	126.663	0.000	1204.365	0.000	606846.520	51150.030
89000	138.350	0.000	1325.065	0.000	608171.585	51150.030
89010	149.601	0.000	1439.755	0.000	609611.340	51150.030
89020	160.490	0.000	1550.455	0.000	611161.795	51150.030
89030	170.483	0.000	1654.865	0.000	612816.660	51150.030
89040	183.531	0.000	1770.070	0.000	614586.730	51150.030
89050	210.824	0.000	1971.775	0.000	616558.505	51150.030

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
89060	224.667	0.000	2177.455	0.000	618735.960	51150.030
89070	236.011	0.000	2303.390	0.000	621039.350	51150.030
89080	237.331	0.000	2366.710	0.000	623406.060	51150.030
89090	233.766	0.000	2355.485	0.000	625761.545	51150.030
89100	231.003	0.000	2323.845	0.000	628085.390	51150.030
89110	228.426	0.000	2297.145	0.000	630382.535	51150.030
89120	225.693	0.000	2270.595	0.000	632653.130	51150.030
89130	223.200	0.000	2244.465	0.000	634897.595	51150.030
89140	221.411	0.000	2223.055	0.000	637120.650	51150.030
89150	220.244	0.000	2208.275	0.000	639328.925	51150.030
89160	219.642	0.000	2199.430	0.000	641528.355	51150.030
89170	219.409	0.000	2195.255	0.000	643723.610	51150.030
89180	219.152	0.000	2192.805	0.000	645916.415	51150.030
89190	218.861	0.000	2190.065	0.000	648106.480	51150.030
89200	218.537	0.000	2186.990	0.000	650293.470	51150.030
89210	218.178	0.000	2183.575	0.000	652477.045	51150.030
89220	217.786	0.000	2179.820	0.000	654656.865	51150.030
89230	217.361	0.000	2175.735	0.000	656832.600	51150.030
89240	216.901	0.000	2171.310	0.000	659003.910	51150.030
89250	216.408	0.000	2166.545	0.000	661170.455	51150.030
89260	215.881	0.000	2161.445	0.000	663331.900	51150.030
89270	215.320	0.000	2156.005	0.000	665487.905	51150.030
89280	214.725	0.000	2150.225	0.000	667638.130	51150.030
89290	214.097	0.000	2144.110	0.000	669782.240	51150.030
89300	213.435	0.000	2137.660	0.000	671919.900	51150.030
89310	212.739	0.000	2130.870	0.000	674050.770	51150.030
89320	212.009	0.000	2123.740	0.000	676174.510	51150.030
89330	211.246	0.000	2116.275	0.000	678290.785	51150.030
89340	210.448	0.000	2108.470	0.000	680399.255	51150.030
89350	209.618	0.000	2100.330	0.000	682499.585	51150.030
89360	208.753	0.000	2091.855	0.000	684591.440	51150.030
89370	207.854	0.000	2083.035	0.000	686674.475	51150.030
89380	206.922	0.000	2073.880	0.000	688748.355	51150.030
89390	205.956	0.000	2064.390	0.000	690812.745	51150.030
89400	204.956	0.000	2054.560	0.000	692867.305	51150.030
89410	203.923	0.000	2044.395	0.000	694911.700	51150.030
89420	202.856	0.000	2033.895	0.000	696945.595	51150.030
89430	201.755	0.000	2023.055	0.000	698968.650	51150.030
89440	200.620	0.000	2011.875	0.000	700980.525	51150.030
89450	199.457	0.000	2000.385	0.000	702980.910	51150.030
89460	198.293	0.000	1988.750	0.000	704969.660	51150.030
89470	197.132	0.000	1977.125	0.000	706946.785	51150.030
89480	195.974	0.000	1965.530	0.000	708912.315	51150.030
89490	194.819	0.000	1953.965	0.000	710866.280	51150.030
89500	193.666	0.000	1942.425	0.000	712808.705	51150.030
89510	192.517	0.000	1930.915	0.000	714739.620	51150.030
89520	191.371	0.000	1919.440	0.000	716659.060	51150.030
89530	190.228	0.000	1907.995	0.000	718567.055	51150.030
89540	189.088	0.000	1896.580	0.000	720463.635	51150.030
89550	187.950	0.000	1885.190	0.000	722348.825	51150.030
89560	186.816	0.000	1873.830	0.000	724222.655	51150.030
89570	185.685	0.000	1862.505	0.000	726085.160	51150.030
89580	184.556	0.000	1851.205	0.000	727936.365	51150.030
89590	183.431	0.000	1839.935	0.000	729776.300	51150.030
89600	182.308	0.000	1828.695	0.000	731604.995	51150.030
89610	181.189	0.000	1817.485	0.000	733422.480	51150.030
89620	180.073	0.000	1806.310	0.000	735228.790	51150.030
89630	178.959	0.000	1795.160	0.000	737023.950	51150.030
89640	177.848	0.000	1784.035	0.000	738807.985	51150.030
89650	176.741	0.000	1772.945	0.000	740580.930	51150.030
89660	175.636	0.000	1761.885	0.000	742342.815	51150.030
89670	174.535	0.000	1750.855	0.000	744093.670	51150.030
89680	173.436	0.000	1739.855	0.000	745833.525	51150.030
89690	172.340	0.000	1728.880	0.000	747562.405	51150.030
89700	171.247	0.000	1717.935	0.000	749280.340	51150.030
89710	170.158	0.000	1707.025	0.000	750987.365	51150.030
89720	169.071	0.000	1696.145	0.000	752683.510	51150.030
89730	167.987	0.000	1685.290	0.000	754368.800	51150.030
89740	166.906	0.000	1674.465	0.000	756043.265	51150.030
89750	165.828	0.000	1663.670	0.000	757706.935	51150.030
89760	164.753	0.000	1652.905	0.000	759359.840	51150.030
89770	163.681	0.000	1642.170	0.000	761002.010	51150.030
89780	162.612	0.000	1631.465	0.000	762633.475	51150.030
89790	161.546	0.000	1620.790	0.000	764254.265	51150.030
89800	160.483	0.000	1610.145	0.000	765864.410	51150.030
89810	159.423	0.000	1599.530	0.000	767463.940	51150.030
89820	158.366	0.000	1588.945	0.000	769052.885	51150.030

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
89830	157.312	0.000	1578.390	0.000	770631.275	51150.030
89840	156.261	0.000	1567.865	0.000	772199.140	51150.030
89850	155.212	0.000	1557.365	0.000	773756.505	51150.030
89860	154.167	0.000	1546.895	0.000	775303.400	51150.030
89870	153.125	0.000	1536.460	0.000	776839.860	51150.030
89880	152.086	0.000	1526.055	0.000	778365.915	51150.030
89890	151.049	0.000	1515.675	0.000	779881.590	51150.030
89900	150.016	0.000	1505.325	0.000	781386.915	51150.030
89910	148.986	0.000	1495.010	0.000	782881.925	51150.030
89920	147.958	0.000	1484.720	0.000	784366.645	51150.030
89930	146.934	0.000	1474.460	0.000	785841.105	51150.030
89940	145.912	0.000	1464.230	0.000	787305.335	51150.030
89950	144.894	0.000	1454.030	0.000	788759.365	51150.030
89960	143.878	0.000	1443.860	0.000	790203.225	51150.030
89970	142.866	0.000	1433.720	0.000	791636.945	51150.030
89980	141.856	0.000	1423.610	0.000	793060.555	51150.030
89990	140.849	0.000	1413.525	0.000	794474.080	51150.030
90000	139.846	0.000	1403.475	0.000	795877.555	51150.030
90010	138.845	0.000	1393.455	0.000	797271.010	51150.030
90020	137.847	0.000	1383.460	0.000	798654.470	51150.030
90030	136.852	0.000	1373.495	0.000	800027.965	51150.030
90040	135.861	0.000	1363.565	0.000	801391.530	51150.030
90050	134.872	0.000	1353.665	0.000	802745.195	51150.030
90060	133.886	0.000	1343.790	0.000	804088.985	51150.030
90070	132.903	0.000	1333.945	0.000	805422.930	51150.030
90080	131.923	0.000	1324.130	0.000	806747.060	51150.030
90090	130.946	0.000	1314.345	0.000	808061.405	51150.030
90100	130.100	0.000	1305.230	0.000	809366.635	51150.030
90110	129.723	0.000	1299.115	0.000	810665.750	51150.030
90120	129.804	0.000	1297.635	0.000	811963.385	51150.030
90130	130.487	0.000	1301.455	0.000	813264.840	51150.030
90140	130.880	0.000	1306.835	0.000	814571.675	51150.030
90150	130.964	0.000	1309.220	0.000	815880.895	51150.030
90160	130.758	0.000	1308.610	0.000	817189.505	51150.030
90170	130.374	0.000	1305.660	0.000	818495.165	51150.030
90180	129.931	0.000	1301.525	0.000	819796.690	51150.030
90190	128.298	0.000	1291.145	0.000	821087.835	51150.030
90200	126.987	0.000	1276.425	0.000	822364.260	51150.030
90210	125.758	0.000	1263.725	0.000	823627.985	51150.030
90220	124.504	0.000	1251.310	0.000	824879.295	51150.030
90230	123.223	0.000	1238.635	0.000	826117.930	51150.030
90240	121.915	0.000	1225.690	0.000	827343.620	51150.030
90250	120.276	0.000	1210.955	0.000	828554.575	51150.030
90260	117.989	0.000	1191.325	0.000	829745.900	51150.030
90270	115.055	0.000	1165.220	0.000	830911.120	51150.030
90280	111.474	0.000	1132.645	0.000	832043.765	51150.030
90290	107.245	0.000	1093.595	0.000	833137.360	51150.030
90300	102.369	0.000	1048.070	0.000	834185.430	51150.030
90310	97.208	0.000	997.885	0.000	835183.315	51150.030
90320	92.124	0.000	946.660	0.000	836129.975	51150.030
90330	87.115	0.000	896.195	0.000	837026.170	51150.030
90340	82.182	0.000	846.485	0.000	837872.655	51150.030
90350	77.376	0.000	797.790	0.000	838670.445	51150.030
90360	73.372	0.000	753.740	0.000	839424.185	51150.030
90370	70.380	0.000	718.760	0.000	840142.945	51150.030
90380	68.400	0.000	693.900	0.000	840836.845	51150.030
90390	66.953	0.000	676.765	0.000	841513.610	51150.030
90400	65.524	0.000	662.385	0.000	842175.995	51150.030
90410	64.239	0.000	648.815	0.000	842824.810	51150.030
90420	64.492	0.000	643.655	0.000	843468.465	51150.030
90430	74.547	0.000	695.195	0.000	844163.660	51150.030
90440	87.776	0.000	811.615	0.000	844975.275	51150.030
90450	95.578	0.000	916.770	0.000	845892.045	51150.030
90460	99.759	0.000	976.685	0.000	846868.730	51150.030
90470	101.099	0.000	1004.290	0.000	847873.020	51150.030
90480	100.830	0.000	1009.645	0.000	848882.665	51150.030
90490	99.593	0.000	1002.115	0.000	849884.780	51150.030
90500	97.635	0.000	986.140	0.000	850870.920	51150.030
90510	95.088	0.000	963.615	0.000	851834.535	51150.030
90520	92.152	0.000	936.200	0.000	852770.735	51150.030
90530	89.225	0.000	906.885	0.000	853677.620	51150.030
90540	86.311	0.000	877.680	0.000	854555.300	51150.030
90550	83.411	0.000	848.610	0.000	855403.910	51150.030
90560	80.525	0.000	819.680	0.000	856223.590	51150.030
90570	77.654	0.000	790.895	0.000	857014.485	51150.030
90580	74.796	0.000	762.250	0.000	857776.735	51150.030
90590	71.952	0.000	733.740	0.000	858510.475	51150.030

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
90600	69.123	0.000	705.375	0.000	859215.850	51150.030
90610	66.307	0.000	677.150	0.000	859893.000	51150.030
90620	63.506	0.000	649.065	0.000	860542.065	51150.030
90630	60.719	0.000	621.125	0.000	861163.190	51150.030
90640	58.001	0.000	593.600	0.000	861756.790	51150.030
90650	55.380	0.000	566.905	0.000	862323.695	51150.030
90660	52.783	0.000	540.815	0.000	862864.510	51150.030
90670	50.259	0.000	515.210	0.000	863379.720	51150.030
90680	47.996	0.000	491.275	0.000	863870.995	51150.030
90690	45.992	0.000	469.940	0.000	864340.935	51150.030
90700	44.112	0.000	450.520	0.000	864791.455	51150.030
90710	24.616	0.562	343.640	2.810	865135.095	51152.840
90720	15.129	5.313	198.725	29.375	865333.820	51182.215
90730	32.774	0.000	239.515	26.565	865573.335	51208.780
90740	35.439	0.000	341.065	0.000	865914.400	51208.780
90750	33.922	0.000	346.805	0.000	866261.205	51208.780
90760	36.362	0.000	351.420	0.000	866612.625	51208.780
90770	39.064	0.000	377.130	0.000	866989.755	51208.780
90780	41.813	0.000	404.385	0.000	867394.140	51208.780
90790	44.607	0.000	432.100	0.000	867826.240	51208.780
90800	47.447	0.000	460.270	0.000	868286.510	51208.780
90810	50.334	0.000	488.905	0.000	868775.415	51208.780
90820	53.266	0.000	518.000	0.000	869293.415	51208.780
90830	56.245	0.000	547.555	0.000	869840.970	51208.780
90840	59.270	0.000	577.575	0.000	870418.545	51208.780
90850	62.341	0.000	608.055	0.000	871026.600	51208.780
90860	65.458	0.000	638.995	0.000	871665.595	51208.780
90870	68.588	0.000	670.230	0.000	872335.825	51208.780
90880	71.474	0.000	700.310	0.000	873036.135	51208.780
90890	74.064	0.000	727.690	0.000	873763.825	51208.780
90900	76.332	0.000	751.980	0.000	874515.805	51208.780
90910	78.154	0.000	772.430	0.000	875288.235	51208.780
90920	79.516	0.000	788.350	0.000	876076.585	51208.780
90930	80.417	0.000	799.665	0.000	876876.250	51208.780
90940	80.857	0.000	806.370	0.000	877682.620	51208.780
90950	80.836	0.000	808.465	0.000	878491.085	51208.780
90960	80.354	0.000	805.950	0.000	879297.035	51208.780
90970	79.411	0.000	798.825	0.000	880095.860	51208.780
90980	78.008	0.000	787.095	0.000	880882.955	51208.780
90990	76.144	0.000	770.760	0.000	881653.715	51208.780
91000	72.696	0.000	744.200	0.000	882397.915	51208.780
91010	48.650	3.018	606.730	15.090	883004.645	51223.870
91020	9.471	18.034	290.605	105.260	883295.250	51329.130
91030	0.000	37.949	47.355	279.915	883342.605	51609.045
91040	0.000	38.222	0.000	380.855	883342.605	51989.900
91050	0.000	37.103	0.000	376.625	883342.605	52366.525
91060	0.000	42.159	0.000	396.310	883342.605	52762.835
91070	0.000	39.935	0.000	410.470	883342.605	53173.305
91080	2.807	20.417	14.035	301.760	883356.640	53475.065
91090	13.961	3.138	83.840	117.775	883440.480	53592.840
91100	30.146	0.000	220.535	15.690	883661.015	53608.530
91110	44.988	0.000	375.670	0.000	884036.685	53608.530
91120	57.964	0.000	514.760	0.000	884551.445	53608.530
91130	68.888	0.000	634.260	0.000	885185.705	53608.530
91140	77.693	0.000	732.905	0.000	885918.610	53608.530
91150	85.683	0.000	816.880	0.000	886735.490	53608.530
91160	79.026	0.000	823.545	0.000	887559.035	53608.530
91170	72.816	0.000	759.210	0.000	888318.245	53608.530
91180	66.552	0.000	696.840	0.000	889015.085	53608.530
91190	60.233	0.000	633.925	0.000	889649.010	53608.530
91200	53.860	0.000	570.465	0.000	890219.475	53608.530
91210	47.433	0.000	506.465	0.000	890725.940	53608.530
91220	40.951	0.000	441.920	0.000	891167.860	53608.530
91230	34.414	0.000	376.825	0.000	891544.685	53608.530
91240	27.801	0.000	311.075	0.000	891855.760	53608.530
91250	21.234	0.000	245.175	0.000	892100.935	53608.530
91260	13.590	0.358	174.120	1.790	892275.055	53610.320
91270	8.327	2.852	109.585	16.050	892384.640	53626.370
91280	6.864	9.246	75.955	60.490	892460.595	53686.860
91290	7.833	5.894	73.485	75.700	892534.080	53762.560
91300	10.424	1.630	91.285	37.620	892625.365	53800.180
91310	13.999	0.000	122.115	8.150	892747.480	53808.330
91320	16.868	0.000	154.335	0.000	892901.815	53808.330
91330	19.139	0.000	180.035	0.000	893081.850	53808.330
91340	19.502	0.000	193.205	0.000	893275.055	53808.330
91350	20.506	0.000	200.040	0.000	893475.095	53808.330
91360	22.228	0.000	213.670	0.000	893688.765	53808.330

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
91370	24.576	0.000	234.020	0.000	893922.785	53808.330
91380	27.107	0.000	258.415	0.000	894181.200	53808.330
91390	29.594	0.000	283.505	0.000	894464.705	53808.330
91400	31.965	0.000	307.795	0.000	894772.500	53808.330
91410	34.235	0.000	331.000	0.000	895103.500	53808.330
91420	36.406	0.000	353.205	0.000	895456.705	53808.330
91430	38.480	0.000	374.430	0.000	895831.135	53808.330
91440	40.530	0.000	395.050	0.000	896226.185	53808.330
91450	42.718	0.000	416.240	0.000	896642.425	53808.330
91460	45.153	0.000	439.355	0.000	897081.780	53808.330
91470	47.505	0.000	463.290	0.000	897545.070	53808.330
91480	49.496	0.000	485.005	0.000	898030.075	53808.330
91490	51.183	0.000	503.395	0.000	898533.470	53808.330
91500	52.583	0.000	518.830	0.000	899052.300	53808.330
91510	53.713	0.000	531.480	0.000	899583.780	53808.330
91520	54.581	0.000	541.470	0.000	900125.250	53808.330
91530	55.058	0.000	548.195	0.000	900673.445	53808.330
91540	55.019	0.000	550.385	0.000	901223.830	53808.330
91550	54.474	0.000	547.465	0.000	901771.295	53808.330
91560	54.429	0.000	544.515	0.000	902315.810	53808.330
91570	55.709	0.000	550.690	0.000	902866.500	53808.330
91580	58.125	0.000	569.170	0.000	903435.670	53808.330
91590	62.228	0.000	601.765	0.000	904037.435	53808.330
91600	68.705	0.000	654.665	0.000	904692.100	53808.330
91610	74.573	0.000	716.390	0.000	905408.490	53808.330
91620	79.480	0.000	770.265	0.000	906178.755	53808.330
91630	84.989	0.000	822.345	0.000	907001.100	53808.330
91640	92.176	0.000	885.825	0.000	907886.925	53808.330
91650	88.976	0.000	905.760	0.000	908792.685	53808.330
91660	42.464	0.033	657.200	0.165	909449.885	53808.495
91670	5.756	0.095	241.100	0.640	909690.985	53809.135
91680	0.500	33.937	31.280	170.160	909722.265	53979.295
91690	0.883	40.437	6.915	371.870	909729.180	54351.165
91700	3.914	23.028	23.985	317.325	909753.165	54668.490
91710	12.799	13.092	83.565	180.600	909836.730	54849.090
91720	28.500	0.000	206.495	65.460	910043.225	54914.550
91730	19.283	0.000	238.915	0.000	910282.140	54914.550
91740	56.124	0.000	377.035	0.000	910659.175	54914.550
91750	79.279	0.000	677.015	0.000	911336.190	54914.550
91760	82.058	0.000	806.685	0.000	912142.875	54914.550
91770	64.374	0.000	732.160	0.000	912875.035	54914.550
91780	58.167	0.000	612.705	0.000	913487.740	54914.550
91790	53.391	0.000	557.790	0.000	914045.530	54914.550
91800	53.318	0.000	533.545	0.000	914579.075	54914.550
91810	49.451	0.000	513.845	0.000	915092.920	54914.550
91820	45.420	0.000	474.355	0.000	915567.275	54914.550
91830	41.075	0.000	432.475	0.000	915999.750	54914.550
91840	40.235	0.000	406.550	0.000	916406.300	54914.550
91850	50.980	0.000	456.075	0.000	916862.375	54914.550
91860	53.328	0.000	521.540	0.000	917383.915	54914.550
91870	66.265	0.000	597.965	0.000	917981.880	54914.550
91880	79.527	0.000	728.960	0.000	918710.840	54914.550
91890	90.511	0.000	850.190	0.000	919561.030	54914.550
91900	110.498	0.000	1005.045	0.000	920566.075	54914.550
91910	132.844	0.000	1216.710	0.000	921782.785	54914.550
91920	141.722	0.000	1372.830	0.000	923155.615	54914.550
91930	145.117	0.000	1434.195	0.000	924589.810	54914.550
91940	144.379	0.000	1447.480	0.000	926037.290	54914.550
91950	142.301	0.000	1433.400	0.000	927470.690	54914.550
91960	140.854	0.000	1415.775	0.000	928886.465	54914.550
91970	147.924	0.000	1443.890	0.000	930330.355	54914.550
91980	153.982	0.000	1509.530	0.000	931839.885	54914.550
91990	157.971	0.000	1559.765	0.000	933399.650	54914.550
92000	164.226	0.000	1610.985	0.000	935010.635	54914.550
92010	191.410	0.000	1778.180	0.000	936788.815	54914.550
92020	252.889	0.000	2221.495	0.000	939010.310	54914.550
92030	291.724	0.000	2723.065	0.000	941733.375	54914.550
92040	325.017	0.000	3083.705	0.000	944817.080	54914.550
92050	333.858	0.000	3294.375	0.000	948111.455	54914.550
92060	326.550	0.000	3302.040	0.000	951413.495	54914.550
92070	317.352	0.000	3219.510	0.000	954633.005	54914.550
92080	307.919	0.000	3126.355	0.000	957759.360	54914.550
92090	298.252	0.000	3030.855	0.000	960790.215	54914.550
92100	288.351	0.000	2933.015	0.000	963723.230	54914.550
92110	278.216	0.000	2832.835	0.000	966556.065	54914.550
92120	267.865	0.000	2730.405	0.000	969286.470	54914.550
92130	257.683	0.000	2627.740	0.000	971914.210	54914.550

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
92140	247.761	0.000	2527.220	0.000	974441.430	54914.550
92150	238.015	0.000	2428.880	0.000	976870.310	54914.550
92160	228.443	0.000	2332.290	0.000	979202.600	54914.550
92170	219.045	0.000	2237.440	0.000	981440.040	54914.550
92180	209.822	0.000	2144.335	0.000	983584.375	54914.550
92190	200.774	0.000	2052.980	0.000	985637.355	54914.550
92200	191.900	0.000	1963.370	0.000	987600.725	54914.550
92210	183.201	0.000	1875.505	0.000	989476.230	54914.550
92220	174.676	0.000	1789.385	0.000	991265.615	54914.550
92230	166.325	0.000	1705.005	0.000	992970.620	54914.550
92240	158.149	0.000	1622.370	0.000	994592.990	54914.550
92250	150.148	0.000	1541.485	0.000	996134.475	54914.550
92260	142.321	0.000	1462.345	0.000	997596.820	54914.550
92270	134.669	0.000	1384.950	0.000	998981.770	54914.550
92280	127.191	0.000	1309.300	0.000	1000291.070	54914.550
92290	119.688	0.000	1234.395	0.000	1001525.465	54914.550
92300	107.371	0.000	1135.295	0.000	1002660.760	54914.550
92310	88.316	0.000	978.435	0.000	1003639.195	54914.550
92320	68.071	0.000	781.935	0.000	1004421.130	54914.550
92330	49.725	0.000	588.980	0.000	1005010.110	54914.550
92340	37.755	0.000	437.400	0.000	1005447.510	54914.550
92350	41.370	0.000	395.625	0.000	1005843.135	54914.550
92360	48.687	0.000	450.285	0.000	1006293.420	54914.550
92370	56.595	0.000	526.410	0.000	1006819.830	54914.550
92380	65.149	0.000	608.720	0.000	1007428.550	54914.550
92390	74.028	0.000	695.885	0.000	1008124.435	54914.550
92400	83.080	0.000	785.540	0.000	1008909.975	54914.550
92410	92.174	0.000	876.270	0.000	1009786.245	54914.550
92420	101.140	0.000	966.570	0.000	1010752.815	54914.550
92430	107.326	0.000	1042.330	0.000	1011795.145	54914.550
92440	112.227	0.000	1097.765	0.000	1012892.910	54914.550
92450	116.429	0.000	1143.280	0.000	1014036.190	54914.550
92460	122.448	0.000	1194.385	0.000	1015230.575	54914.550
92470	129.175	0.000	1258.115	0.000	1016488.690	54914.550
92480	137.192	0.000	1331.835	0.000	1017820.525	54914.550
92490	146.368	0.000	1417.800	0.000	1019238.325	54914.550
92500	155.924	0.000	1511.460	0.000	1020749.785	54914.550
92510	164.183	0.000	1600.535	0.000	1022350.320	54914.550
92520	168.095	0.000	1661.390	0.000	1024011.710	54914.550
92530	169.052	0.000	1685.735	0.000	1025697.445	54914.550
92540	167.986	0.000	1685.190	0.000	1027382.635	54914.550
92550	165.246	0.000	1666.160	0.000	1029048.795	54914.550
92560	161.156	0.000	1632.010	0.000	1030680.805	54914.550
92570	156.018	0.000	1585.870	0.000	1032266.675	54914.550
92580	150.115	0.000	1530.665	0.000	1033797.340	54914.550
92590	143.714	0.000	1469.145	0.000	1035266.485	54914.550
92600	137.065	0.000	1403.895	0.000	1036670.380	54914.550
92610	130.406	0.000	1337.355	0.000	1038007.735	54914.550
92620	123.963	0.000	1271.845	0.000	1039279.580	54914.550
92630	117.952	0.000	1209.575	0.000	1040489.155	54914.550
92640	112.579	0.000	1152.655	0.000	1041641.810	54914.550
92650	108.042	0.000	1103.105	0.000	1042744.915	54914.550
92660	104.019	0.000	1060.305	0.000	1043805.220	54914.550
92670	99.487	0.000	1017.530	0.000	1044822.750	54914.550
92680	94.016	0.000	967.515	0.000	1045790.265	54914.550
92690	87.488	0.000	907.520	0.000	1046697.785	54914.550
92700	79.446	0.000	834.670	0.000	1047532.455	54914.550
92710	71.231	0.000	753.385	0.000	1048285.840	54914.550
92720	65.779	0.000	685.050	0.000	1048970.890	54914.550
92730	62.523	0.000	641.510	0.000	1049612.400	54914.550
92740	60.636	0.000	615.795	0.000	1050228.195	54914.550
92750	58.931	0.000	597.835	0.000	1050826.030	54914.550
92760	57.411	0.000	581.710	0.000	1051407.740	54914.550
92770	56.087	0.000	567.490	0.000	1051975.230	54914.550
92780	54.973	0.000	555.300	0.000	1052530.530	54914.550
92790	54.079	0.000	545.260	0.000	1053075.790	54914.550
92800	53.419	0.000	537.490	0.000	1053613.280	54914.550
92810	53.006	0.000	532.125	0.000	1054145.405	54914.550
92820	52.852	0.000	529.290	0.000	1054674.695	54914.550
92830	53.027	0.000	529.395	0.000	1055204.090	54914.550
92840	54.362	0.000	536.945	0.000	1055741.035	54914.550
92850	57.044	0.000	557.030	0.000	1056298.065	54914.550
92860	60.992	0.000	590.180	0.000	1056888.245	54914.550
92870	65.330	0.000	631.610	0.000	1057519.855	54914.550
92880	69.770	0.000	675.500	0.000	1058195.355	54914.550
92890	74.312	0.000	720.410	0.000	1058915.765	54914.550
92900	78.956	0.000	766.340	0.000	1059682.105	54914.550

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
92910	83.701	0.000	813.285	0.000	1060495.390	54914.550
92920	88.549	0.000	861.250	0.000	1061356.640	54914.550
92930	93.498	0.000	910.235	0.000	1062266.875	54914.550
92940	98.463	0.000	959.805	0.000	1063226.680	54914.550
92950	101.978	0.000	1002.205	0.000	1064228.885	54914.550
92960	103.511	0.000	1027.445	0.000	1065256.330	54914.550
92970	103.062	0.000	1032.865	0.000	1066289.195	54914.550
92980	100.630	0.000	1018.460	0.000	1067307.655	54914.550
92990	96.217	0.000	984.235	0.000	1068291.890	54914.550
93000	90.614	0.000	934.155	0.000	1069226.045	54914.550
93010	85.121	0.000	878.675	0.000	1070104.720	54914.550
93020	79.827	0.000	824.740	0.000	1070929.460	54914.550
93030	76.746	0.000	782.865	0.000	1071712.325	54914.550
93040	74.741	0.000	757.435	0.000	1072469.760	54914.550
93050	75.436	0.000	750.885	0.000	1073220.645	54914.550
93060	79.924	0.000	776.800	0.000	1073997.445	54914.550
93070	87.464	1.130	836.940	5.650	1074834.385	54920.200
93080	103.116	1.145	952.900	11.375	1075787.285	54931.575
93090	124.310	0.578	1137.130	8.615	1076924.415	54940.190
93100	203.210	0.000	1637.600	2.890	1078562.015	54943.080
93110	236.437	0.000	2198.235	0.000	1080760.250	54943.080
93120	241.679	0.000	2390.580	0.000	1083150.830	54943.080
93130	238.383	0.000	2400.310	0.000	1085551.140	54943.080
93140	232.947	0.000	2356.650	0.000	1087907.790	54943.080
93150	227.123	0.000	2300.350	0.000	1090208.140	54943.080
93160	221.338	0.000	2242.305	0.000	1092450.445	54943.080
93170	215.707	0.000	2185.225	0.000	1094635.670	54943.080
93180	210.229	0.000	2129.680	0.000	1096765.350	54943.080
93190	204.905	0.000	2075.670	0.000	1098841.020	54943.080
93200	199.735	0.000	2023.200	0.000	1100864.220	54943.080
93210	194.718	0.000	1972.265	0.000	1102836.485	54943.080
93220	189.855	0.000	1922.865	0.000	1104759.350	54943.080
93230	185.145	0.000	1875.000	0.000	1106634.350	54943.080
93240	180.552	0.000	1828.485	0.000	1108462.835	54943.080
93250	175.980	0.000	1782.660	0.000	1110245.495	54943.080
93260	171.427	0.000	1737.035	0.000	1111982.530	54943.080
93270	166.892	0.000	1691.595	0.000	1113674.125	54943.080
93280	162.375	0.000	1646.335	0.000	1115320.460	54943.080
93290	157.875	0.000	1601.250	0.000	1116921.710	54943.080
93300	153.394	0.000	1556.345	0.000	1118478.055	54943.080
93310	148.930	0.000	1511.620	0.000	1119989.675	54943.080
93320	144.484	0.000	1467.070	0.000	1121456.745	54943.080
93330	140.056	0.000	1422.700	0.000	1122879.445	54943.080
93340	135.646	0.000	1378.510	0.000	1124257.955	54943.080
93350	131.254	0.000	1334.500	0.000	1125592.455	54943.080
93360	126.880	0.000	1290.670	0.000	1126883.125	54943.080
93370	122.524	0.000	1247.020	0.000	1128130.145	54943.080
93380	118.185	0.000	1203.545	0.000	1129333.690	54943.080
93390	113.865	0.000	1160.250	0.000	1130493.940	54943.080
93400	109.562	0.000	1117.135	0.000	1131611.075	54943.080
93410	105.277	0.000	1074.195	0.000	1132685.270	54943.080
93420	101.010	0.000	1031.435	0.000	1133716.705	54943.080
93430	96.761	0.000	988.855	0.000	1134705.560	54943.080
93440	92.541	0.000	946.510	0.000	1135652.070	54943.080
93450	88.427	0.000	904.840	0.000	1136556.910	54943.080
93460	84.434	0.000	864.305	0.000	1137421.215	54943.080
93470	80.562	0.000	824.980	0.000	1138246.195	54943.080
93480	76.812	0.000	786.870	0.000	1139033.065	54943.080
93490	73.184	0.000	749.980	0.000	1139783.045	54943.080
93500	69.677	0.000	714.305	0.000	1140497.350	54943.080
93510	66.291	0.000	679.840	0.000	1141177.190	54943.080
93520	62.992	0.000	646.415	0.000	1141823.605	54943.080
93530	59.751	0.000	613.715	0.000	1142437.320	54943.080
93540	56.568	0.000	581.595	0.000	1143018.915	54943.080
93550	53.443	0.000	550.055	0.000	1143568.970	54943.080
93560	50.376	0.000	519.095	0.000	1144088.065	54943.080
93570	47.367	0.000	488.715	0.000	1144576.780	54943.080
93580	44.416	0.000	458.915	0.000	1145035.695	54943.080
93590	41.522	0.000	429.690	0.000	1145465.385	54943.080
93600	38.687	0.000	401.045	0.000	1145866.430	54943.080
93610	35.909	0.000	372.980	0.000	1146239.410	54943.080
93620	33.190	0.000	345.495	0.000	1146584.905	54943.080
93630	30.528	0.000	318.590	0.000	1146903.495	54943.080
93640	27.924	0.000	292.260	0.000	1147195.755	54943.080
93650	25.378	0.000	266.510	0.000	1147462.265	54943.080
93660	22.891	0.000	241.345	0.000	1147703.610	54943.080
93670	20.460	0.000	216.755	0.000	1147920.365	54943.080

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
93680	18.008	0.000	192.340	0.000	1148112.705	54943.080
93690	14.974	0.000	164.910	0.000	1148277.615	54943.080
93700	11.017	0.000	129.955	0.000	1148407.570	54943.080
93710	5.840	0.000	84.285	0.000	1148491.855	54943.080
93720	0.000	3.133	29.200	15.665	1148521.055	54958.745
93730	0.000	21.873	0.000	125.030	1148521.055	55083.775
93740	0.000	46.253	0.000	340.630	1148521.055	55424.405
93750	0.000	74.785	0.000	605.190	1148521.055	56029.595
93760	0.000	88.494	0.000	816.395	1148521.055	56845.990
93770	0.000	109.402	0.000	989.480	1148521.055	57835.470
93780	0.000	105.040	0.000	1072.210	1148521.055	58907.680
93790	0.170	77.615	0.850	913.275	1148521.905	59820.955
93800	12.153	47.129	61.615	623.720	1148583.520	60444.675
93810	15.896	27.074	140.245	371.015	1148723.765	60815.690
93820	12.069	23.346	139.825	252.100	1148863.590	61067.790
93830	7.838	31.008	99.535	271.770	1148963.125	61339.560
93840	4.071	34.849	59.545	329.285	1149022.670	61668.845
93850	1.295	46.423	26.830	406.360	1149049.500	62075.205
93860	0.018	54.903	6.565	506.630	1149056.065	62581.835
93870	0.404	82.270	2.110	685.865	1149058.175	63267.700
93880	1.806	110.314	11.050	962.920	1149069.225	64230.620
93890	2.615	84.947	22.105	976.305	1149091.330	65206.925
93900	3.367	49.796	29.910	673.715	1149121.240	65880.640
93910	4.175	131.953	37.710	908.745	1149158.950	66789.385
93920	4.836	123.243	45.055	1275.980	1149204.005	68065.365
93930	4.260	69.017	45.480	961.300	1149249.485	69026.665
93940	4.154	47.494	42.070	582.555	1149291.555	69609.220
93950	4.808	74.922	44.810	612.080	1149336.365	70221.300
93960	7.536	34.074	61.720	544.980	1149398.085	70766.280
93970	12.212	10.216	98.740	221.450	1149496.825	70987.730
93980	19.149	0.000	156.805	51.080	1149653.630	71038.810
93990	19.331	0.000	192.400	0.000	1149846.030	71038.810
94000	8.922	7.638	141.265	38.190	1149987.295	71077.000
94010	3.932	18.197	64.270	129.175	1150051.565	71206.175
94020	1.168	41.233	25.500	297.150	1150077.065	71503.325
94030	0.000	61.815	5.840	515.240	1150082.905	72018.565
94040	0.000	72.725	0.000	672.700	1150082.905	72691.265
94050	0.000	57.964	0.000	653.445	1150082.905	73344.710
94060	0.341	41.188	1.705	495.760	1150084.610	73840.470
94070	1.285	35.285	8.130	382.365	1150092.740	74222.835
94080	2.952	24.094	21.185	296.895	1150113.925	74519.730
94090	6.010	16.051	44.810	200.725	1150158.735	74720.455
94100	8.016	13.152	70.130	146.015	1150228.865	74866.470
94110	8.884	13.031	84.500	130.915	1150313.365	74997.385
94120	10.698	12.716	97.910	128.735	1150411.275	75126.120
94130	16.895	10.536	137.965	116.260	1150549.240	75242.380
94140	23.497	8.043	201.960	92.895	1150751.200	75335.275
94150	25.222	6.282	243.595	71.625	1150994.795	75406.900
94160	23.804	6.332	245.130	63.070	1151239.925	75469.970
94170	27.957	4.830	258.805	55.810	1151498.730	75525.780
94180	26.460	4.904	272.085	48.670	1151770.815	75574.450
94190	18.296	7.846	223.780	63.750	1151994.595	75638.200
94200	7.716	11.880	130.060	98.630	1152124.655	75736.830
94210	0.000	17.212	38.580	145.460	1152163.235	75882.290
94220	0.000	24.046	0.000	206.290	1152163.235	76088.580
94230	0.000	36.147	0.000	300.965	1152163.235	76389.545
94240	0.000	29.642	0.000	328.945	1152163.235	76718.490
94250	12.194	9.584	60.970	196.130	1152224.205	76914.620
94260	55.834	0.000	340.140	47.920	1152564.345	76962.540
94270	62.191	0.000	590.125	0.000	1153154.470	76962.540
94280	65.011	0.000	636.010	0.000	1153790.480	76962.540
94290	65.552	0.000	652.815	0.000	1154443.295	76962.540
94300	66.207	0.000	658.795	0.000	1155102.090	76962.540
94310	67.636	0.000	669.215	0.000	1155771.305	76962.540
94320	69.780	0.000	687.080	0.000	1156458.385	76962.540
94330	73.738	0.000	717.590	0.000	1157175.975	76962.540
94340	76.998	0.000	753.680	0.000	1157929.655	76962.540
94350	70.809	0.000	739.035	0.000	1158668.690	76962.540
94360	63.300	0.000	670.545	0.000	1159339.235	76962.540
94370	61.714	0.000	625.070	0.000	1159964.305	76962.540
94380	64.241	0.000	629.775	0.000	1160594.080	76962.540
94390	66.623	0.000	654.320	0.000	1161248.400	76962.540
94400	57.464	0.000	620.435	0.000	1161868.835	76962.540
94410	44.660	0.000	510.620	0.000	1162379.455	76962.540
94420	46.529	0.000	455.945	0.000	1162835.400	76962.540
94430	48.003	0.000	472.660	0.000	1163308.060	76962.540
94440	41.532	0.000	447.675	0.000	1163755.735	76962.540

CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
94450	44.223	0.000	428.775	0.000	1164184.510	76962.540
94460	50.908	0.000	475.655	0.000	1164660.165	76962.540
94470	57.816	0.000	543.620	0.000	1165203.785	76962.540
94480	56.175	0.000	569.955	0.000	1165773.740	76962.540
94490	58.074	0.000	571.245	0.000	1166344.985	76962.540
94500	58.422	0.000	582.480	0.000	1166927.465	76962.540
94510	58.661	0.000	585.415	0.000	1167512.880	76962.540
94520	60.299	0.000	594.800	0.000	1168107.680	76962.540
94530	63.331	0.000	618.150	0.000	1168725.830	76962.540
94540	67.520	0.000	654.255	0.000	1169380.085	76962.540
94550	72.608	0.000	700.640	0.000	1170080.725	76962.540
94560	78.304	0.000	754.560	0.000	1170835.285	76962.540
94570	84.275	0.000	812.895	0.000	1171648.180	76962.540
94580	90.145	0.000	872.100	0.000	1172520.280	76962.540
94590	95.501	0.000	928.230	0.000	1173448.510	76962.540
94600	99.631	0.000	975.660	0.000	1174424.170	76962.540
94610	100.165	0.000	998.980	0.000	1175423.150	76962.540
94620	105.281	0.000	1027.230	0.000	1176450.380	76962.540
94630	84.817	0.000	950.490	0.000	1177400.870	76962.540
94640	54.141	0.000	694.790	0.000	1178095.660	76962.540
94650	32.395	0.000	432.680	0.000	1178528.340	76962.540
94660	30.698	0.000	315.465	0.000	1178843.805	76962.540
94670	37.991	0.000	343.445	0.000	1179187.250	76962.540
94680	50.818	0.000	444.045	0.000	1179631.295	76962.540
94690	59.220	0.168	550.190	0.840	1180181.485	76963.380
94700	57.753	0.000	584.865	0.840	1180766.350	76964.220
94710	40.207	0.000	489.800	0.000	1181256.150	76964.220
94720	25.113	0.389	326.600	1.945	1181582.750	76966.165
94730	27.139	1.163	261.260	7.760	1181844.010	76973.925
94740	26.986	1.851	270.625	15.070	1182114.635	76988.995
94750	21.334	3.140	241.600	24.955	1182356.235	77013.950
94760	11.120	4.803	162.270	39.715	1182518.505	77053.665
94770	2.321	7.843	67.205	63.230	1182585.710	77116.895
94780	0.000	11.131	11.605	94.870	1182597.315	77211.765
94790	0.000	21.826	0.000	164.785	1182597.315	77376.550
94800	0.000	15.618	0.000	187.220	1182597.315	77563.770
94810	10.373	0.003	51.865	78.105	1182649.180	77641.875
94820	15.626	0.014	129.995	0.085	1182779.175	77641.960
94830	18.879	0.000	172.525	0.070	1182951.700	77642.030
94840	20.716	0.000	197.975	0.000	1183149.675	77642.030
94850	21.536	0.000	211.260	0.000	1183360.935	77642.030
94860	22.643	0.000	220.895	0.000	1183581.830	77642.030
94870	24.234	0.000	234.385	0.000	1183816.215	77642.030
94880	26.352	0.000	252.930	0.000	1184069.145	77642.030
94890	29.303	0.000	278.275	0.000	1184347.420	77642.030
94900	20.714	1.385	250.085	6.925	1184597.505	77648.955
94910	4.564	13.097	126.390	72.410	1184723.895	77721.365
94920	4.295	11.572	44.295	123.345	1184768.190	77844.710
94930	4.141	12.078	42.180	118.250	1184810.370	77962.960
94940	0.000	22.933	20.705	175.055	1184831.075	78138.015
94950	0.000	31.830	0.000	273.815	1184831.075	78411.830
94960	26.542	7.346	132.710	195.880	1184963.785	78607.710
94970	36.262	0.000	314.020	36.730	1185277.805	78644.440
94980	34.078	0.000	351.700	0.000	1185629.505	78644.440
94990	32.029	0.000	330.535	0.000	1185960.040	78644.440
95000	30.013	0.000	310.210	0.000	1186270.250	78644.440
95010	28.032	0.000	290.225	0.000	1186560.475	78644.440
95020	26.174	0.000	271.030	0.000	1186831.505	78644.440
95030	25.071	0.000	256.225	0.000	1187087.730	78644.440
95040	24.841	0.000	249.560	0.000	1187337.290	78644.440
95050	25.485	0.000	251.630	0.000	1187588.920	78644.440
95060	23.660	0.000	245.725	0.000	1187834.645	78644.440
95070	27.133	0.000	253.965	0.000	1188088.610	78644.440
95080	32.660	0.000	298.965	0.000	1188387.575	78644.440
95090	36.798	0.000	347.290	0.000	1188734.865	78644.440
95100	41.744	0.000	392.710	0.000	1189127.575	78644.440
95110	47.427	0.000	445.855	0.000	1189573.430	78644.440
95120	53.934	0.000	506.805	0.000	1190080.235	78644.440
95130	60.712	0.000	573.230	0.000	1190653.465	78644.440
95140	67.685	0.000	641.985	0.000	1191295.450	78644.440
95150	74.856	0.000	712.705	0.000	1192008.155	78644.440
95160	82.222	0.000	785.390	0.000	1192793.545	78644.440
95170	88.629	0.000	854.255	0.000	1193647.800	78644.440
95180	61.414	0.000	750.215	0.000	1194398.015	78644.440
95190	4.085	26.681	327.495	133.405	1194725.510	78777.845
95200	0.000	61.667	20.425	441.740	1194745.935	79219.585
95210	8.318	43.357	41.590	525.120	1194787.525	79744.705

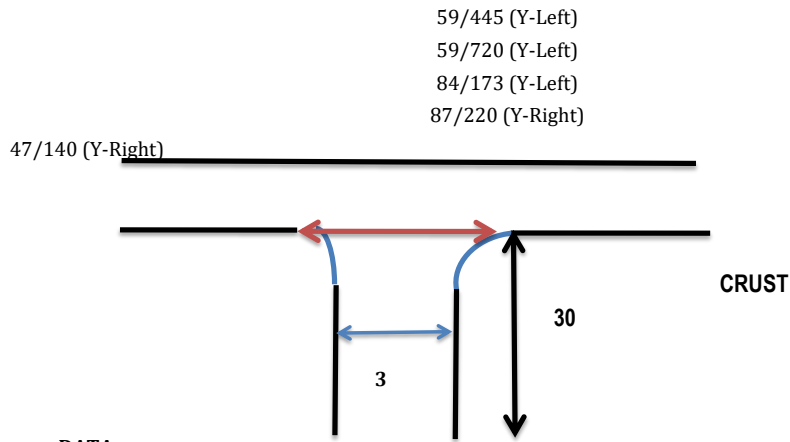
CHAINAGE	End Area Cut (m2)	End Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Cum. Volume Cut (m3)	Cum. Volume Fill (m3)
95220	41.330	27.729	248.240	355.430	1195035.765	80100.135
95230	78.239	8.279	597.845	180.040	1195633.610	80280.175
95240	87.852	19.866	830.455	140.725	1196464.065	80420.900
95250	54.560	36.016	712.060	279.410	1197176.125	80700.310
95260	29.010	47.088	417.850	415.520	1197593.975	81115.830
95270	7.827	76.625	184.185	618.565	1197778.160	81734.395
95280	0.000	68.305	39.135	724.650	1197817.295	82459.045
95290	12.417	14.290	62.085	412.975	1197879.380	82872.020
95300	76.770	0.000	445.935	71.450	1198325.315	82943.470
95310	78.584	0.000	776.770	0.000	1199102.085	82943.470
95320	79.586	0.000	790.850	0.000	1199892.935	82943.470
95330	80.492	0.000	800.390	0.000	1200693.325	82943.470
95340	82.098	0.000	812.950	0.000	1201506.275	82943.470
95350	83.982	0.000	830.400	0.000	1202336.675	82943.470
95360	86.476	0.000	852.290	0.000	1203188.965	82943.470
95370	88.006	0.000	872.410	0.000	1204061.375	82943.470
95380	91.983	0.000	899.945	0.000	1204961.320	82943.470
95390	92.425	0.000	922.040	0.000	1205883.360	82943.470
95400	98.748	0.000	955.865	0.000	1206839.225	82943.470
95410	97.438	0.000	980.930	0.000	1207820.155	82943.470
95420	100.132	0.000	987.850	0.000	1208808.005	82943.470
95430	102.950	0.000	1015.410	0.000	1209823.415	82943.470
95440	105.892	0.000	1044.210	0.000	1210867.625	82943.470
95450	108.867	0.000	1073.795	0.000	1211941.420	82943.470
95460	111.650	0.000	1102.585	0.000	1213044.005	82943.470
95470	131.057	0.000	1213.535	0.000	1214257.540	82943.470
95480	116.608	0.000	1238.325	0.000	1215495.865	82943.470
95490	118.783	0.000	1176.955	0.000	1216672.820	82943.470
95500	120.770	0.000	1197.765	0.000	1217870.585	82943.470
95510	123.073	0.000	1219.215	0.000	1219089.800	82943.470
95520	157.828	0.000	1404.505	0.000	1220494.305	82943.470
95530	130.048	0.000	1439.380	0.000	1221933.685	82943.470
95540	131.851	0.000	1309.495	0.000	1223243.180	82943.470
95550	156.711	0.000	1442.810	0.000	1224685.990	82943.470
95560	109.074	0.000	1328.925	0.000	1226014.915	82943.470
95570	140.411	0.000	1247.425	0.000	1227262.340	82943.470
95580	108.955	0.000	1246.830	0.000	1228509.170	82943.470
95590	105.161	0.000	1070.580	0.000	1229579.750	82943.470
95600	99.918	0.000	1025.395	0.000	1230605.145	82943.470
95610	94.117	0.000	970.175	0.000	1231575.320	82943.470
95620	83.933	0.000	890.250	0.000	1232465.570	82943.470
95630	72.282	0.000	781.075	0.000	1233246.645	82943.470
95640	57.372	0.048	648.270	0.240	1233894.915	82943.710
95650	40.913	0.194	491.425	1.210	1234386.340	82944.920
95660	26.417	15.804	336.650	79.990	1234722.990	83024.910
95670	13.318	32.954	198.675	243.790	1234921.665	83268.700
95680	0.000	53.025	66.590	429.895	1234988.255	83698.595
95690	0.000	60.733	0.000	568.790	1234988.255	84267.385
95700	0.000	55.790	0.000	582.615	1234988.255	84850.000

T JUNCTION/Y JUNCTION

Chainage

Chainage

Chainage



DATA

On existing

GSB grade VI	150	mm					
GSB grade IV	150	mm					
WMM	250	mm	100	for	10	m	
DBM	100	mm	80	mm	10	m	
BC	40	mm	40	mm	30	m	
	690						

Area of widening portion in T/Y junction	22	sqm					
Length of improvement on existing road	30	m					
Width of existing B.T road	3	m					
Left Side , Right Side	4	30	=		120		
Total junction	4				120		

SL No.	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
1	Excavation of earthwork in all kinds of soil with all leads & lift								
		4	22.000		0.69	60.72			
			Total Qty			60.72	cum	213.50	12963.72
2	Loosening and Recompaction								
		4	22		0.15	13.20			
						13.20	cum	42.42	559.94
3	Scarifying existing Bituminous surface								
		4	10.00	3.00		120.00			
						120.00	sqm	57.65	6918.00
4	Providing Granular sub-base grade-VI								
		4	22		0.150	13.20			
						13.20	cum	2949.31	38930.89
5	Providing Granular sub-base grade-IV								
		4	22		0.150	13.20			
						13.20	cum	2998.09	39574.84

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DETAIL ESTIMATE FOR BUS SHELTER

			Chainage		
Length of bay	45	m			
Shelter	5	m			
Length on both sides	15	m			
Width of footpath	1.5	m			
Width of halting of bus	15	m			
Lane width	3.5	m			
Kerb stone					
Height above Road level	0.25	m			
Width at top	0.115	m	58/736	1	L
Width of filling	1.27	m	60/736	1	R
Depth of sand filling	0.15	m	75/236	1	L
PCC layer depth	0.075	m	80/636	1	R
Chequered tile	0.025	m	91/436	1	R

				Total		5	Nos
Crust							
	GSB VI	150	mm	0.150	m		
	GSB IV	150	mm	0.150	m		
	WMM	250	mm	0.25	m		
	DBM	100	mm	0.1	m		
	BC	40	mm	0.04	m		

BUS SHELTER									
SL No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
1	Excavation in foundation								
		5	1.2	1.2	1.5	10.8			
		10	5	0.3	0.375	5.63			
		10	3.4	0.3	0.375	3.83			
						20.260	cum	369.13	7478.57
2	Providing PCC M 15								
		5	1.2	1.2	0.15	1.08			
		10	5	0.375	0.15	2.81			
		10	3.4	0.375	0.15	1.91			
						5.800	cum	8912.95	51695.11
3	Providing RCC M 20								
	Base	5	1	1	0.45	2.25			
		5	0.65	0.625	0.45	0.91			
	Column	5	2.95	0.3	0.25	1.11			
	Beam	5	5	0.25	0.32	1.98			
		5	3.75	0.2	0.25	0.94			
	Slab	5	5	4	0.075	7.5			
	End beam	5	5	0.2	0.15	0.75			
						15.440	cum	9774.98	150925.69
4	Providing brickwork								
		10	5	0.375	0.3	5.63			
		10	3.25	0.375	0.3	3.66			
		10	5	0.25	0.6	7.5			
		10	3.5	0.25	0.6	5.25			
						22.040	cum	2078.35	45806.83
5	Providing sand filling inside shelter								
		5	4.5	3.5	0.6	47.25	cum	2554.1	120679.81
6	Providing PCC M15								
		5	4.5	3.5	0.15	11.81	cum	8912.95	105261.94

7	Providing plane tiles								
		5	5	4		100	sqm	900.05	90005.00
8	Providing cement plaster 1:3								
		5	5	1.8		45			
		5	4	1.8		36			
						81	sqm	77.98	6316.38
9	Providing cement wash								
	Column	10	2.5	1.1		27.5			
	Roof slab	5	5	4		100			
						127.5	sqm	116.94	14909.85
10	HYSD bar								
	1 qtl /cum					15.440	qtl		
						1.540	MT	128774.1	198312.08
	Dismantling existing Bus shelters								
1	RCC					1320	cum	1756.4	2318448.00
2	PCC					1760	cum	435.98	767324.80
									3877164.07
	Total estimate for 5 Bus Stops						5		3877164.07

SL No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
	Overhead Sign Board	2	Nos						
i)	Earthwork in excavation for foundation by mechanical means								
		2	1.80	1.80	1.19	7.71			
		Total Qnty				7.71	Cum	213.50	1646.09
ii)	Providing PCC M15 in foundation								
		2	1.80	1.80	0.10	0.65			
		Total Qnty					Cum	8912.95	5793.42
iii)	Providing RCC M 20 in foundation.								
		2	1.60	1.60	0.30	1.54	Cum		
		2	1.00	1.00	1.80	3.60	Cum		
		Total Qnty				5.14	Cum	9774.98	50243.4
iv)	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level-Thermo-Mechanically Treated Bars								
	7.7 cum @ 70 kg/cum					0.539	MT	128774.08	69409.22912
i)	Providing structural steel for truss								
	Chord.80X80X5mmSq. Bars	2	2.00	16.00	64.00				
	Cross Bars80 X80X5mm	2x2	75.00	0.75	225.00				
		total			289.00				
	10.87 kg/ Rmt					3837.11	kg		
	Vertical sq bars 50X50X4.5mm	2	72.00	1.20	172.80				
		2	72.00	1.75	216.00				
		4	40.00	1.750	140.00				
	6.02 kg/Rmt				528.80	3183.37	kg		
	Frame for Sign Board								
	25X25x3 mm	4	32.00		128.00				
		2	30.00	1.20	72.00				
		2	30.00	2.50	90.00				
					290.00				
	1.1 kg/Rmt					319.00	kg		
						7339.00	kg		
	Base Plate 12mm thick.	8	0.90	0.9000	0.0120	0.08	Cum		
	Gusset Plate 8 mm thick.	10	0.20	0.0150	0.0080	0.0002	Cum		
	Gusset Plate 12 mm thick.	24	0.25	0.4500	0.0120	0.032			
						0.11	Cum		
	7850 kg / Cum		7850.00			866.64	kg		
						8205.64	kg		
						8.21	MT	128774.08	1057235.2
v)	Aluminium Plate for Overhead Sign								
		2	16.00	1.20		38.40	Sqm	5926.24	227567.62
vi)	Cost for vertical Support G.I. Pipe 350 dia								
		2	5.50			11.00	Rmt	4751.50	52266.5
						Sub-Total			1464161.46
						For 2 nos			2928322.92

Seeding and Mulching

SL No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
		From	To	Length	Height	Sq mt	Side		
		62300	62410	110	10	1100			
		74270	74330	60	12	720			
		89020	89980	960	12	11520			
		85210	85260	50	10	500			
		Both side of Carriageway		2	x	13840			
	Total					27680			
	Seeding and Mulching								
1	Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, ferilizer, 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								
		1		27680		27680	Sqm	371	10269280.00
2	Hydroseeding of cut slopes in soil								
		1		27680		27680	Sqm	20	553600.00
3	Soil Nailing	1		27680		27680	Sqm	56	1550080.00
	Total Amount								12372960.00

DETAILED ESTIMATE OF CURVE									
SL No.	Description	No	Length	Width	Dept h	Volume	Unit	Rate	Amount
DETAIL ESTIMATE FOR SHARP CURVE									
	Total length of Curve on radius 61 to 100 m	3364.64	m						
	Total Transition length of Curve on radius 61 to 100 m	3223.33	m						
	Crust Provided								
			Widening						
	GSB-VI		0.150						
	GSB-IV		0.150						
	WMM		0.250						
	DBM =		0.100						
	BC =		0.040						
			0.690						
	Proposed Embankment height for TY-I	=	2.00	m					
	Proposed Embankment height for TY-II	=	2.00	m					
1	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.								
	Length of Curve radius 61 to 100 m	2	3364.64	0.90		6056.35			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33	0.900		5802.00			
		Total Qty				11858.35	Sqm	7.82	92732.30
2	Loosening, leveling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150 mm, 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.								
	Length of Curve radius 61 to 100 m	2	3364.64	0.90	0.15	908.45			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33	0.90	0.15	870.30			
		Total Qty				1778.75	cum	42.42	75454.58
3	Construction of granular sub-base by providing close graded Material- grade IV , spreading in uniform layers with motor grader on prepared surface, mixing by place in method rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per clause 501								
	Length of Curve radius 61 to 100 m	2	3364.64	0.90	0.150	908.45			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33	0.90	0.150	870.30			
		Total Qty				1778.75	cum	2998.09	5332859.88
4	Construction of granular sub-base by providing close graded Material- grade VI , spreading in uniform layers with motor grader on prepared surface, mixing by place in method rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per clause 501								
	Length of Curve radius 61 to 100 m	2	3364.64	0.90	0.150	908.45			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33333	0.90	0.150	870.30			
		Total Qty				1778.75	cum	2949.31	5246085.16
5	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.								
	Length of Curve radius 61 to 100 m	2	3364.64	0.90	0.250	1514.09			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33	0.90	0.250	1450.50			
		Total Qty				2964.59	cum	3020.87	8955640.99

6	Providing and applying prime coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.								
	Length of Curve radius 61 to 100 m	2	3364.64	0.90		6056.35			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33	0.900		5802.00			
		Total Qty				11858.35	sqm	58.50	693713.48
7	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.25-0.3 kg per sqm on the prepared Bituminous surface cleaned with mechanical broom.								
	Length of Curve radius 61 to 100 m	2	3364.64	0.90		6056.35			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33	0.900		5802.00			
		Total Qty				11858.35	sqm	16.17	191749.52
8	Providing and laying grading-I dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 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 to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH (5th Revision) specification clause No. 505								
	Length of Curve radius 61 to 100 m	2	3364.64	0.90	0.100	605.64			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33	0.90	0.100	580.20			
		Total Qty				1185.84	cum	10858.68	12876657.09
9	Providing and laying bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH (5th Revision) specification clause No. 507 complete in all respects.								
	Length of Curve radius 61 to 100 m	2	3223.33	0.90	0.040	232.08			
	Length of Transition of Curve radius 61 to 100 m	4	3223.33	0.90	0.040	232.08			
		Total Qty				464.16	cum	12089.93	5611661.91
								TOTAL =	39076554.91

DETAILED ESTIMATE OF GABION WALL

Sl No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
Length of Gabion wall required T = 567.00									
1	Excavation of earth work in all kinds of soil within 50Mtr initial lead and 1.5Mtr initial lift including rough dressing and breaking clods to maximum 5cm to 7cm and laying in layers not exceeding 3.0M in depth and as per direction of the Engineer-in-charge.	1	567.00	5.00	3.000	8505.00			
						8505.00	cum	213.50	1815817.50
2	Granular bed in foundation as per approved drawing and technical specifications as per Clause 407 of MORT&H Specifications for Road & Bridge works (5th Revision) complete in all respect & as per direction of the Engineer-in-Charge.	1	567.00	5.00	0.20	567.00	cum		
						567.00	cum	2773.80	1572744.60
3	Providing and constructing Gabion structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m 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 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire.								
	Step 1	1	567.00	4.40	2.00	4989.60			
	Step 2	1	567.00	3.40	2.00	3855.60			
	Step 3	1	567.00	2.40	2.00	2721.60			
	Step 4	1	567.00	1.40	1.00	793.80			
	Step 3	1	567.00	0.40	1.00	226.80			
	Step 1	1	567.00	3.00	1.00	1701.00			
	Step 2	1	567.00	2.00	1.00	1134.00			
	Step 3	1	567.00	1.00	1.00	567.00			
						15989.40	cum	4697.75	75114203.85
4	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification (Sand)	1	567.00	1.10	1.000	623.70	cum		
						623.70	cum	1017.94	634889.18
Total Amount								7,91,37,655.13	

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DETAILED ESTIMATE OF LINED DRAIN

Typical Section I	15097.20	m
Typical Section 2A(Both sides)	11974.2	m
Typical Section 2B(Both sides)	10934	m
Typical Section 3	1451.40	m
Typical Section 5	2681.00	m

Total 42138.00 m

SL No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
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1	Earth work in excavation of foundation of structure in all kind of soil	1	42138.00	0.80	0.80	26968.32	cum	307.61	8295724.92
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2	P.C.C 1:3:6 Base	1	42138.00	0.60	0.10	2528.28	cum	6962.77	17603832.14
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3	PCC M15	1	42138.00	0.80	0.10	3371.04	cum		
				Total=		3371.04	cum	8912.95	30045910.97

4	PCC M20 Wall	2	42138.00	0.10	0.50	4213.80	cum		
				Total=		4213.80	cum	9908.34	41751763.09

Total Amount 97697231.11

DETAILED ESTIMATE OF BREAST WALL of RR masonry for 2m height

Typical Section 4	1058.00	m	
Total	1058	m	

SL No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
1	Earth work in excavation of foundation of structure in all kind of soil	1	1058.00	1.70	1.25	2248.25	cum	Rs. 307.61	Rs. 6,91,584.18
2	P.C.C M15	1	1058.00	1.50	0.30	476.10	cum	Rs. 8,912.95	Rs. 42,43,455.50
3	RR Stone masonry	1	1058.00	1.15	3.12	3796.10	cum		
	Total Volume								
					Total=	3796.10	cum	Rs. 7,230.28	Rs. 2,74,46,894.83
								Total Amount	Rs. 3,23,81,934.51

DETAILED ESTIMATE OF BREAST WALL of RR masonry for 2.5m height

Typical Section 8(Both Side) 10388.20 m
 Total 10388.20 m

SL No	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
1	Earth work in excavation of foundation of structure in all kind of soil	1	10388.20	2.10	1.25	27269.03	cum	Rs. 307.61	Rs. 83,88,224.78
2	P.C.C M15	1	10388.20	1.90	0.30	5921.27	cum	Rs. 8,912.95	Rs. 5,27,76,019.10
3	PCC M20 in foundation Base rectangular portion	1	10388.20	1.45	3.90	58745.27	cum		
Total=						58745.27	cum	Rs. 7,230.28	Rs. 42,47,44,758.01
Total Amount									Rs. 48,59,09,001.88

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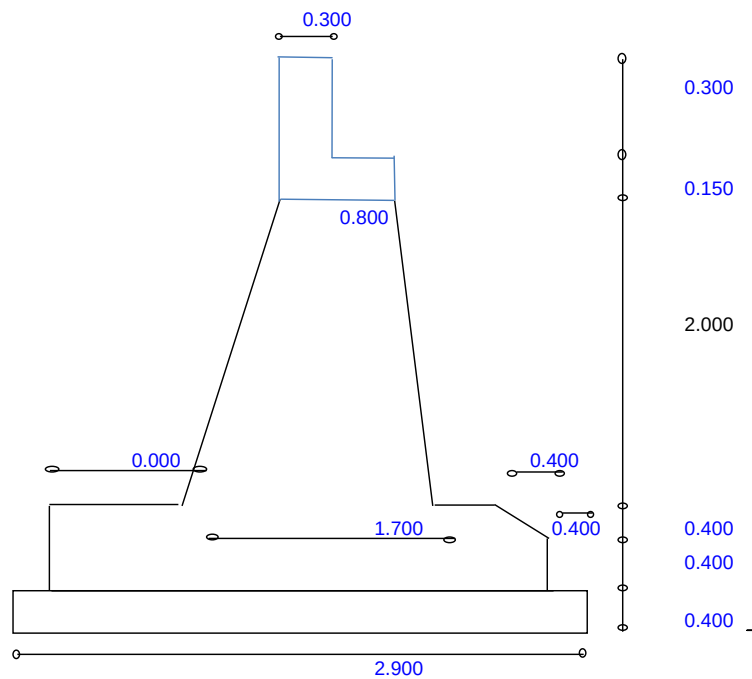
DETAILED ESTIMATE OF RETAINING WALL									
SL No.	Description	No	Length	Width	Depth	Volume	Unit	Rate	Amount
	Typical -5	2681.00							
		2681.00							
	Deducting Culverts								
		2681							
1	Earthwork in excavation of foundation in all kinds of soil with all leads & lift								
		1	2681	3.8	1.85	18847.43	cum		
						18847.43	cum	307.61	5797657.94
2	Providing PCC M 15 in foundation								
		1	2681	3.8	0.1	1018.78	cum		
						1018.78	cum	8912.95	9080335.20
3	Providing RCC M25 in foundation								
	Rectangular portion	1	2681	3.6	0.5	4825.80	cum		
	Trapezium Portion	1	2681	2.15	0.5	2882.08	cum		
						7707.87	cum	10680.45	82323573.54
4	Providing RCC M25 for retaining wall in substructure								
		1	2681	0.5	3.75	5026.87			
						5026.87	cum	10385.53	52206761.12
5	Supplying, bending, binding,tying and placing HYSD bar reinforcement in complete including cost of binding wire as per drawing and Technical Specifications & as per clause no 1600.of Specification for road & bridge work of MORT&H (5th Revision) & Direction of Engineer in charge.								
	for retaining wall.@ 1.0qntl/cum.					12734.75	qntl		
						12734.75	qntl		
						1273.48	MT	128774.08	163990571.53
6	Providing weep holes including cost carriage of all materials labour & t&P etc complete								
		3	2679	0.5		4018.50	rmt		
						4018.50	rmt	494.78	1988273.43
7	Back filling with excavated material well rammed and wel compacted								
		1	2681	1.4	1.25	4691.75			
						4691.75	cum	1017.94	4775920.00
8	Providing Filter media								
		1	2681	4.5	0.6	7238.70	cum	1487.44	10767131.93
								TOTAL =	330930224.69

DETAILED ESTIMATE FOR ROAD SIGNAGE AND KM STONE								
1	Providing and fixing mandatory signs							
	60 cm circular	255			255	Nos	4485.21	1143728.55
	90 cm octagon	15			15	Nos	8246.90	123703.50
2	Providing and fixing cautionary signs							
	90 cm equilateral triangle	253			253	Nos	4980.66	1260106.98
3	Providing and fixing informatory signs							
	80 cm x 60 cm rectangular	380			380	Nos	5763.29	2190050.20
	Hazard Marker	239			239	Nos	550.96	131679.44
4								
i)	Providing and fixing 5th km stone							
		8			8	Nos	4602.41	37403.79
ii)	Providing and fixing ordinary km stone							
		33			33	Nos	2703.00	87869.12
ii)	Providing and fixing hectometer stones							
		163			163	Nos	951.79	154703.95
5	Providing Delinators	539			539	Nos	550.96	296967.44
6	Fluorescent Strips (3 mtr per roll) for marking the structures	7	Rolls		7	Rolls	450.00	3150.00
7	Road Marking with Hot Applied Thermoplastic Compound with Reflectorisng Glass Beads on Bituminous Surface							
	Bothside Edge	6	40635.00	0.15	36571.50	sqm		
	Centre line	3	40635.00	0.10	0.33	4022.87	sqm	
					40594.37	sqm	1012.16	41087992.48
							Total Cost	46517355.45

ABSTRACT OF QUANTITY																					
Sl. No	Description	Unit	Quantity of 3.0 m span	3 nos 3.0 m span widening	Quantity of 3.0 m span	2 nos 3.0 m span New construction	Quantity of 3.0 m span	5 nos 3.0 m span Reconstruction	Quantity of 2.0 m span	1 no 2.0 m span	Quantity of 1.5 m span	5 nos 1.5 m span widening	Quantity of 1.5 m span	99 nos 1.5 m span reconstruction	Quantity of 1.5 m span	85 nos 1.5 m span New construction	Quantity of 1.0 m span	27 nos 1.0 m span widening	Total Quantity = 228 nos	Analysis Rate	Amount
				3		2		5		1		6		99		85		27			
	Foundation																				
1	Earth work in excavation of foundation of structures in all kinds of soil 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 and backfilling with approved material. as per clause 304 of MORTH specification for Road and Bridge works (5th revision) and as directed by the Engineer in charge																				
	For abutment & pier	Cum	30.33	91.00	36.28	72.57	36.28	181.42	62.46	62.46	26.69	160.11	24.78	2453.22	24.78	2106.30	17.01	459.25	5586.329	427.33	2387206.08
2	Supplying, Providing & laying Plain cement concrete M-15 grade (cast-in-situ) in nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days as levelling course as per drawing and technical specification section 1000, 1500 & 2100 of MORTH specification for Road & Bridge works (5th revision) as directed by Engineer in charge																		0.000		
		Cum	5.033	0.00	15.10	0.00	10.985	0.00	10.920	0.00	4.707	0.00	10.659	0.00	10.659	0.00	4.598	0.00	2216.567	8912.95	19756153.07
3	Supplying, Providing & laying Plain cement concrete M-20 grade (cast-in-situ) in nominal mix as per drawing and technical specification section 1000, 1500 & 2100 of MORTH specification for Road & Bridge works (5th revision) as directed by Engineer in charge																		0.000		
		Cum	55.902	0.00	167.71	0.00	123.230	0.00	122.351	0.00	53.607	0.00	120.935	0.00	120.935	0.00	52.992	0.00	25157.133	9908.34	249265427.19
4	Reinforced cement concrete in M25 (Cast - in - Situ) for sub-structure complete as per drawing and Technical Specifications in Abutment/Pier Cap , Dirt wall , as per approved drawings and sections 1000, 1500, 1600, 1700 and 2200 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer -in - charge.																		0.000		
		Cum	1.35	0.00	4.05	0.00	3.27	0.00	2.94	0.00	1.22	0.00	2.94	0.00	2.94	0.00	1.22	0.00	611.490	10385.53	6350647.74
	Superstructure			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	0.000		
5	Providing supplying and laying Reinforced Cement Concrete of grade M25 (Cast - in - Situ) using graded crushed stone aggregate and coarse sand, cement of approved quality (IRC 383) in RCC Deck slab as per approved drawings and sections 1000, 1500, 1600, 1700 and 2300 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer -in - charge.																				
		Cum	6.21	18.63	15.04	30.08	15.04	75.21	9.81	9.81	3.49	20.93	8.45	836.30	8.45	718.04	2.93	78.98	1787.974	12205.85	21823742.45
6	Supplying, decoiling, straightening, cutting, bending, placing in position and tying the grills of HYSD steel reinforcement Fe 500 conforming to IS-1786, 2008 in position binding with galvanized binding works of 18 gauge complete for all RCC works in foundation, deck slab, Abutment/Pier shaft, cap, return wall, fly wing & dirt wall as per working drawing and technical specification section 1000,1500,1600, 2300 of MORTH specification for Road & Bridge works (5th revision) as directed by Engineer in charge.																		0.000		
				0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00			
		MT	0.454	1.36	1.099	2.20	1.099	5.49	0.765	0.77	0.282	1.69	0.683	67.66	0.683	58.09	0.248	6.71	143.968	128774.08	18539326.15
7	Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications section Clause 2608 of MORTH specification for Road & Bridge works, (5th revision).																		0.000		
				0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00			
		rm	9.00	27.00	21.80	43.60	21.80	109.00	21.80	21.80	9.00	54.00	21.80	2158.20	21.80	1853.00	9.00	243.00	4509.600	1298.44	5855445.02

8	Supplying, Providing & laying reinforced cement concrete M-30 grade (cast-in-situ) as per mix design prepared under relevant IS/IRC concrete codes using graded crushed stone aggregates cement and coarse sand of approved quality and quantities in Wearing coat using weigh batching, mechanically mixing, vibrating, centering & shuttering, decentering using necessary plant equipments & machinery including full compensation to all inclusive costs all operations contingencies incidentals involved for the finished defect free item of work complete to specification including cost of reinforcement complete																	0.000			
		cum	3.90	11.70	3.90	7.80	3.90	19.50	5.29	5.29	2.78	16.65	2.78	274.73	2.78	235.88	2.40	64.80	636.342	19318.23	12293001.11
9	Provision of an Reinforced cement concrete crash barrier at the edges of the bridge and approaches to bridge structures, constructed with M-40 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 Engineer-in-Charge.																	0.000			
				0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00			
		rm	10.40	31.20	10.40	20.80	10.40	52.00	8.40	8.40	7.40	44.40	7.40	732.60	7.40	629.00	6.40	172.80	1691.200	5330.31	9014620.27
10	Supplying, fabricating welded water tight drainage spout as per technical specification clause 2705 of specification road and bridge work MORT&H (5th revision) assembly to dimensions shown on drawing of dia not less than 100mm with galvanized steel conforming to IS 226 & fixing in position with suitable fixtures at specified locations on bridge decks including painting two coats with bituminous paint sealed with sealant as per IS 1834 around the spout to the deck slab including full compensation to all operations, all inclusive costs, contingencies, incidental involved for the finished defect free item of work complete to specification & as directed by engineer in charge.																	0.000			
				0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00			
		nos	2.00	6.00	2.00	4.00	2.00	10.00	2.00	2.00	2.00	12.00	2.00	198.00	2.00	170.00	2.00	54.00	456.000	2180.58	994344.48
11	Supplying, Providing, fixing weep holes in plain / reinforced concrete abutments / return walls as per drawings and technical specifications section 2200, 2700 (Clause 2706) of MORTH specification for Road & Bridge works (5th revision) with 100mm dia PVC pipe extending through the full width of the structure with slope of one vertical x 20 horizontal towards drainage face complete including full compensation to all inclusive costs all operations, contingencies incidetals involved for the finished defect free item of work complete to specification and instruction of Engineer in charge.																	0.000			
				0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00			
		mtr	10.000	30.00	10.000	20.00	22.500	112.50	10.000	10.00	10.000	60.00	10.000	990.00	10.000	850.00	10.000	270.00	2342.500	494.78	1159022.15
12	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2200, 2504.2.2. of MoRTH specifications for Road & Bridge works (5th revision) & 710.1.4.of IRC:78 to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification and instruction of Engineer in charge..																	0.000			
				0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00			
		Cum	7.344	22.03	20.400	40.80	20.400	102.00	20.400	20.40	7.344	44.06	20.400	2019.60	20.400	1734.00	7.344	198.29	4181.184	1487.44	6219260.33
13	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification section 2200, IRC-78 and instruction of Engineer in charge.																	0.000			
		Cum	27.69	83.07	76.92	153.83	76.92	384.59	27.69	27.69	26.94	161.62	74.82	7407.63	74.82	6360.09	26.94	727.30	15305.825	1017.94	15580411.76
14	Providing fixing and laying tar paper on pier and abutment cap	Sqm	4.50	13.50	10.90	21.80	10.90	54.50	10.90	10.90	4.50	27.00	10.90	1079.10	10.90	926.50	4.50	121.50	2254.800	17.00	38331.60
				0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	0.000		
15	Providing Stone apron for cascading		15.12	45.36	15.12	30.24	15.12	75.60	45.36	45.36	15.71	94.28	45.36	4490.64	45.36	3855.60	14.90	402.41	9039.492	3612.81	32657967.09
						0.00		0.00		0.00				0.00		0.00		0.00	0.000		
																		0.00		Total =	40,19,34,906.0

QUANTITY OF SLAB CULVERT (FO 3.0 M SPAN) - TYPICAL (WIDENING)



DIMENSION OF ABUTMENT

Width of New Slab :	4.5 m	Road Top Level	m	h
Width of Old Slab :	6.4 m	Average GL at Wall Face	m	1.575
Clear Span :	3.000 m	Founding Level	m	2.000
Lenght of New Slab :	4.600	Thickness of Crash Barrier	0.450 m	
		Width of Median	0.00 m	
		Side Slope	2.0	

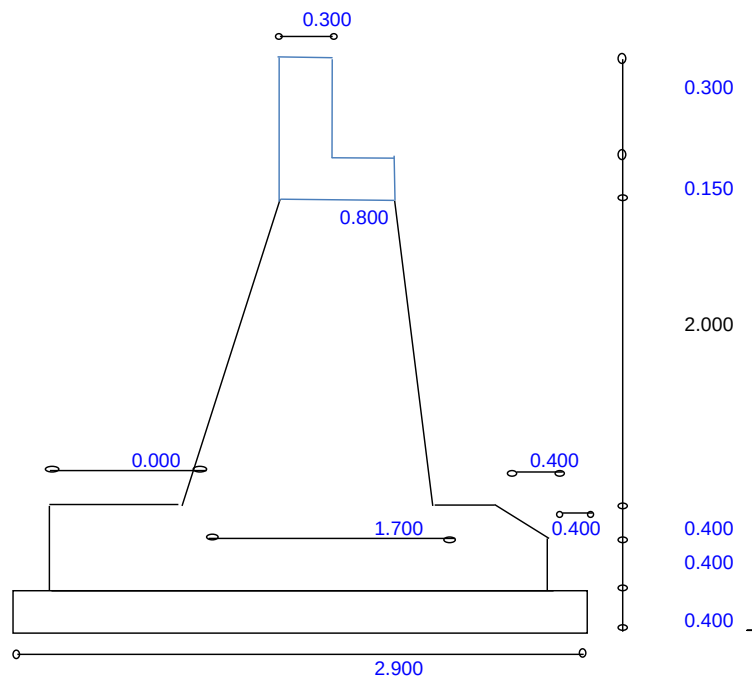
Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m²	
1	Earth Work in Excavation		2	4.5	3.100	0.150	0.47	4.19
2	Leveling Course below Abutment	PCC M15	2	4.5	3.100	0.150	0.465	4.185
3	Vertical Portion of Abutment	PCC M 20	2	4.5	1.250	2.000	2.500	22.50
4	Trapezodial Portion of Abutment Foundation	PCC M 20	2	4.5	1.900	0.400	0.760	6.84
	Rectangular Portion of Abutment Foundation 1	PCC M 20	2	4.5	2.100	0.400	0.840	7.56
	Rectangular Portion of Abutment Foundation 2	PCC M 20	2	4.5	2.900	0.400	1.160	10.44
	Total							47.34
5	Vertical Portion of Dirt Wall	Concrete	2	4.5	0.300	0.300	0.09	0.81
	Abutment cap	Concrete	2	4.5	0.800	0.150	0.06	0.54
		Reinforcement	60 kg/cum					0.081

6	Super Structure (slab)	Concrete	1	4.5	4.600	0.300	1.38	6.21
		Reinforcement	60 kg/cum					0.373
7	Backfill Behind Abutment		2	3.6	2.107	3.650	3.85	27.69
8	Crash barrier		2	5.2	10.400			
9	Drainage Spouts	-	1	2.0	-	-	-	2.00
10	Wearing Coat	-	-	5.2	10.00	0.075	52.00	3.90
11	Filter Material Behind Abutment	-	2	3.6	0.600	1.700	1.02	7.34
12	Weep holes	-	8.00	1.3	-			10.00
13	Tar paper Bearing	-	2	4.5	0.50	-		4.50
14	Expansion Joint	-	2	4.5	-	-	-	9.00

QUANTITY OF catchpit & cascading FOR Culvert (FO 3.0 M SPAN) - TYPICAL

Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Cascading D/S	Earth Work	2	3.000	5.600	0.450	2.520	15.120
	Catch Pit U/S	Earth Work	1	3.900	1.450	1.950	2.828	11.027
Total								26.147
2	Leveling Course below Catch pit U/S	PCC M 15	1	3.900	1.450	0.150	0.218	0.848
Total								0.848
3	Catch Pit U/S	PCC M 20	1	3.600	1.300	0.300	0.390	1.404
			1	3.600	1.800	0.300	0.540	1.944
			2	1.300	1.800	0.300	0.540	1.404
Total								4.752
4	Toe Wall	PCC M 20	2	6.350	0.300	1.000	0.300	3.810
5	Cascading D/S	FLOORING	2	3.000	5.600	0.450	2.520	15.120

QUANTITY OF SLAB CULVERT (FO 3.0 M SPAN) - TYPICAL (WIDENING)



DIMENSION OF ABUTMENT

Width of New Slab :	10.9 m	Road Top Level	m	h
Width of Old Slab :	0.0 m	Average GL at Wall Face	m	1.575
Clear Span :	3.000 m	Founding Level	m	2.000
Lenght of New Slab :	4.600	Thickness of Crash Barrier	0.450 m	
		Width of Median	0.00 m	
		Side Slope	2.0	

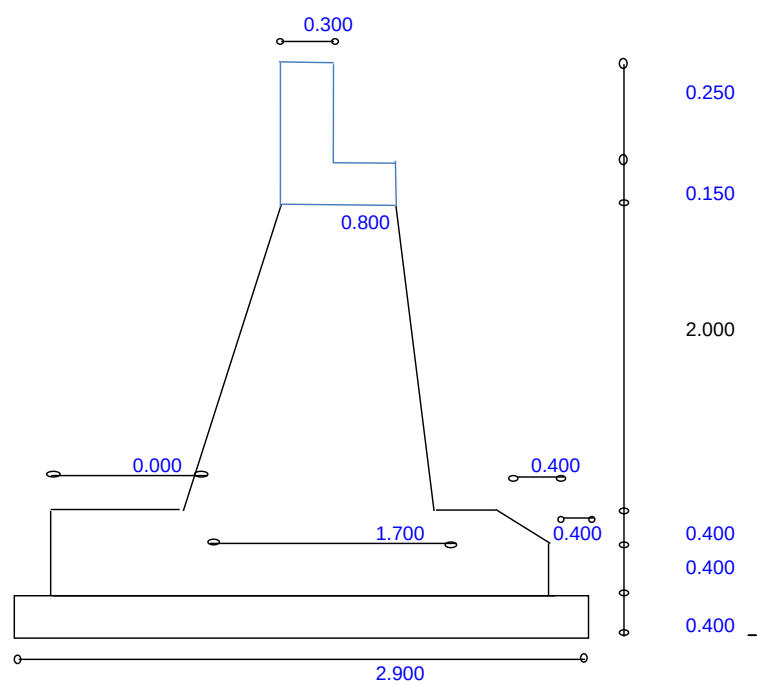
Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Earth Work in Excavation		2	10.9	3.100	0.150	0.47	10.14
2	Leveling Course below Abutment	PCC M15	2	10.9	3.100	0.150	0.465	10.137
3	Vertical Portion of Abutment	PCC M 20	2	10.9	1.250	2.000	2.500	54.50
4	Trapezodial Portion of Abutment Foundation	PCC M 20	2	10.9	1.900	0.400	0.760	16.57
	Rectangular Portion of Abutment Foundation 1	PCC M 20	2	10.9	2.100	0.400	0.840	18.31
	Rectangular Portion of Abutment Foundation 2	PCC M 20	2	10.9	2.900	0.400	1.160	25.29
	Total							114.67
5	Vertical Portion of Dirt Wall	Concrete	2	10.9	0.300	0.300	0.09	1.962
	Abutment cap	Concrete	2	10.9	0.800	0.150	0.06	1.31
		Reinforcement	60 kg/cum					0.196

6	Super Structure (slab)	Concrete	1	10.9	4.600	0.300	1.38	15.042
		Reinforcement	60 kg/cum					0.903
7	Backfill Behind Abutment		2	10.0	2.107	3.650	3.85	76.92
8	Crash barrier		2	5.2	10.400			
9	Drainage Spouts	-	1	2.0	-	-	-	2.00
10	Wearing Coat	-	-	5.2	10.00	0.075	52.00	3.90
11	Filter Material Behind Abutment	-	2	10.0	0.600	1.700	1.02	20.40
12	Weep holes	-	18.00	1.3	-			22.50
13	Tar paper Bearing	-	2	10.9	0.50	-		10.90
14	Expansion Joint	-	2	10.9	-	-	-	21.80

QUANTITY OF catchpit & cascading FOR Culvert (FO 3.0 M SPAN) - TYPICAL

Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Cascading D/S	Earth Work	2	3.000	5.600	0.450	2.520	15.120
	Catch Pit U/S	Earth Work	1	3.900	1.450	1.950	2.828	11.027
Total								26.147
2	Leveling Course below Catch pit U/S	PCC M 15	1	3.900	1.450	0.150	0.218	0.848
Total								0.848
3	Catch Pit U/S	PCC M 20	1	3.600	1.300	0.300	0.390	1.404
			1	3.600	1.800	0.300	0.540	1.944
			2	1.300	1.800	0.300	0.540	1.404
Total								4.752
4	Toe Wall	PCC M 20	2	6.350	0.300	1.000	0.300	3.810
5	Cascading D/S	FLOORING	2	3.000	5.600	0.450	2.520	15.120

QUANTITY OF SLAB CULVERT (FO 2.0 M SPAN) - TYPICAL



DIMENSION OF ABUTMENT

Width of New Slab :	10.9 m	Road Top Level	m	h
Width of Old Slab :	6.8 m	Average GL at Wall Face	m	1.525
Clear Span :	2.000 m	Founding Level	m	2.000
Lenght of New Slab :	3.600	Thickness of Crash Barrier	0.450 m	
		Width of Median	0.00 m	
		Side Slope	2.0	

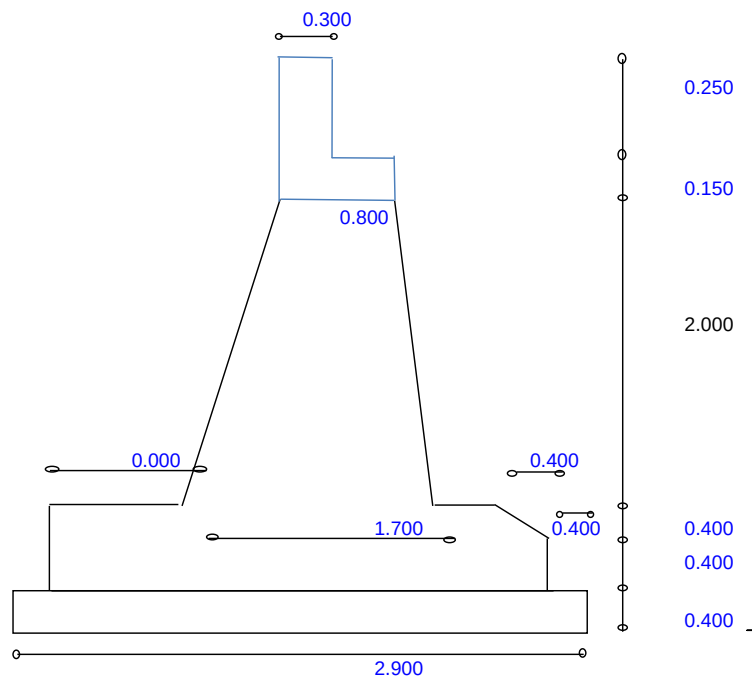
Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m²	
1	Earth Work in Excavation		2	10.9	3.100	0.150	0.47	10.14
2	Leveling Course below Abutment	PCC M15	2	10.9	3.100	0.150	0.465	10.137
3	Vertical Portion of Abutment	PCC M 20	2	10.9	1.250	2.000	2.500	54.50
4	Trapezodial Portion of Abutment Foundation	PCC M 20	2	10.9	1.900	0.400	0.760	16.57
	Rectangular Portion of Abutment Foundation 1	PCC M 20	2	10.9	2.100	0.400	0.840	18.31
	Rectangular Portion of Abutment Foundation 2	PCC M 20	2	10.9	2.900	0.400	1.160	25.29
	Total							114.67
5	Vertical Portion of Dirt Wall	Concrete	2	10.9	0.300	0.250	0.075	1.635
	Abutment cap	Concrete	2	10.9	0.800	0.150	0.06	1.31
		Reinforcement	60 kg/cum					0.177

6	Super Structure (slab)	Concrete	1	10.9	3.600	0.250	0.9	9.81
		Reinforcement	60 kg/cum					0.589
7	Backfill Behind Abutment		2	10.0	2.078	3.600	3.74	74.82
8	Crash barrier		2	4.2	8.400			
9	Drainage Spouts	-	1	2.0	-	-	-	2.00
10	Wearing Coat	-	-	4.2	16.80	0.075	70.56	5.29
11	Filter Material Behind Abutment	-	2	10.0	0.600	1.700	1.02	20.40
12	Weep holes	-	18.00	1.3	-			22.50
13	Tar paper Bearing	-	2	10.9	0.50	-		10.90
14	Expansion Joint	-	2	10.9	-	-	-	21.80

QUANTITY OF catchpit & cascading FOR Culvert (FO 2.0 M SPAN) - TYPICAL

Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Cascading D/S	Earth Work	2	3.600	5.100	0.450	2.295	16.524
	Catch Pit U/S	Earth Work	1	3.600	5.100	1.950	9.945	35.802
Total								52.326
2	Leveling Course below Catch pit U/S	PCC M 15	1	3.600	1.450	0.150	0.218	0.783
Total								0.783
3	Catch Pit U/S	PCC M 20	1	3.300	1.300	0.300	0.390	1.287
			1	3.300	1.800	0.300	0.540	1.782
			2	1.300	1.800	0.300	0.540	1.404
Total								4.473
4	Toe Wall	PCC M 20	2	5.350	0.300	1.000	0.300	3.210
5	Cascading D/S	FLOORING	2	3.600	5.100	0.450	2.295	16.524

QUANTITY OF SLAB CULVERT (FO 1.5 M SPAN) - TYPICAL (WIDENING)



DIMENSION OF ABUTMENT

Width of New Slab :	4.5 m	Road Top Level	m	h
Width of Old Slab :	6.4 m	Average GL at Wall Face	m	1.525
Clear Span :	1.500 m	Founding Level	m	2.000
Lenght of New Slab :	3.100	Thickness of Crash Barrier	0.450 m	
		Width of Median	0.00 m	
		Side Slope	2.0	

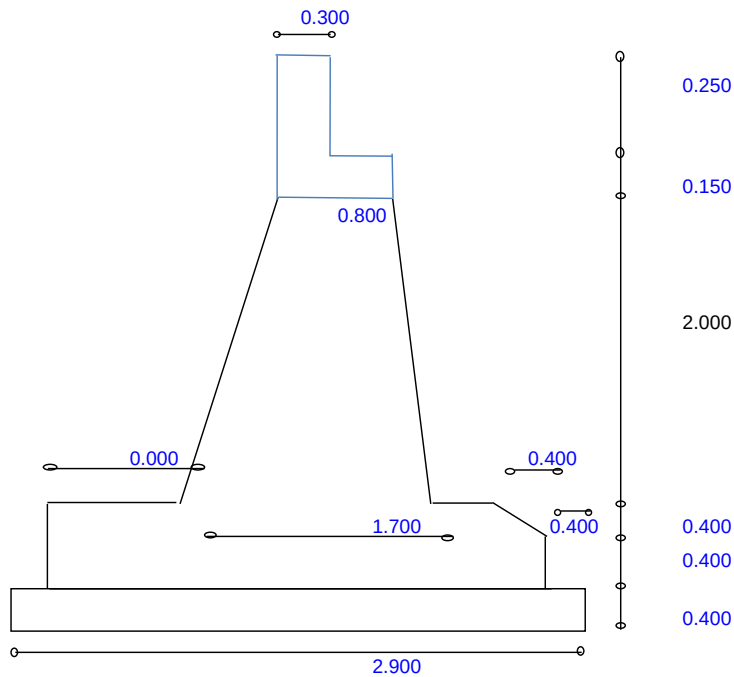
Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m²	
1	Earth Work in Excavation		2	4.5	3.100	0.150	0.47	4.19
2	Leveling Course below Abutment	PCC M15	2	4.5	3.100	0.150	0.465	4.185
3	Vertical Portion of Abutment	PCC M 20	2	4.5	1.250	2.000	2.500	22.50
4	Trapezodial Portion of Abutment Foundation	PCC M 20	2	4.5	1.900	0.400	0.760	6.84
	Rectangular Portion of Abutment Foundation 1	PCC M 20	2	4.5	2.100	0.400	0.840	7.56
	Rectangular Portion of Abutment Foundation 2	PCC M 20	2	4.5	2.900	0.400	1.160	10.44
	Total							47.34
5	Vertical Portion of Dirt Wall	Concrete	2	4.5	0.300	0.250	0.075	0.675
	Abutment cap	Concrete	2	4.5	0.800	0.150	0.06	0.54
		Reinforcement	60 kg/cum					0.073

6	Super Structure (slab)	Concrete	1	4.5	3.100	0.250	0.775	3.4875
		Reinforcement	60 kg/cum					0.209
7	Backfill Behind Abutment		2	3.6	2.078	3.600	3.74	26.94
8	Crash barrier		2	3.7	7.400			
9	Drainage Spouts	-	1	2.0	-	-	-	2.00
10	Wearing Coat	-	-	3.7	10.00	0.075	37.00	2.78
11	Filter Material Behind Abutment	-	2	3.6	0.600	1.700	1.02	7.34
12	Weep holes	-	8.00	1.3	-			10.00
13	Tar paper Bearing	-	2	4.5	0.50	-		4.50
14	Expansion Joint	-	2	4.5	-	-	-	9.00

QUANTITY OF catchpit & cascading FOR Culvert (FO 1.5 M SPAN) - TYPICAL

Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Cascading D/S	Earth Work	2	3.600	4.850	0.450	2.183	15.714
	Catch Pit U/S	Earth Work	1	2.400	1.450	1.950	2.828	6.786
Total								22.500
2	Leveling Course below Catch pit U/S	PCC M 15	1	2.400	1.450	0.150	0.218	0.522
Total								0.522
3	Catch Pit U/S	PCC M 20	1	2.100	1.300	0.300	0.390	0.819
			1	2.100	1.800	0.300	0.540	1.134
			2	1.300	1.800	0.300	0.540	1.404
Total								3.357
4	Toe Wall	PCC M 20	2	4.850	0.300	1.000	0.300	2.910
5	Cascading D/S	FLOORING	2	3.600	4.850	0.450	2.183	15.714

QUANTITY OF SLAB CULVERT (FO 1.5 M SPAN) - TYPICAL - Reconstruction



DIMENSION OF ABUTMENT

Width of New Slab :	10.9 m	Road Top Level	m	h
Width of Old Slab :	0.0 m	Average GL at Wall Face	m	1.525
Clear Span :	1.500 m	Founding Level	m	2.000
Lenght of New Slab :	3.100	Thickness of Crash Barrier	0.450 m	
		Width of Median	0.00 m	
		Side Slope	2.0	

Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Earth Work in Excavation		2	10.9	3.100	0.150	0.47	10.14
2	Leveling Course below Abutment	PCC M15	2	10.9	3.100	0.150	0.465	10.137
3	Vertical Portion of Abutment	PCC M 20	2	10.9	1.250	2.000	2.500	54.50
4	Trapezodial Portion of Abutment Foundation	PCC M 20	2	10.9	1.900	0.400	0.760	16.57
	Rectangular Portion of Abutment Foundation 1	PCC M 20	2	10.9	2.100	0.400	0.840	18.31
	Rectangular Portion of Abutment Foundation 2	PCC M 20	2	10.9	2.900	0.400	1.160	25.29
	Total							114.67
5	Vertical Portion of Dirt Wall	Concrete	2	10.9	0.300	0.250	0.075	1.635
	Abutment cap	Concrete	2	10.9	0.800	0.150	0.06	1.31
		Reinforcement	60 kg/cum					0.177

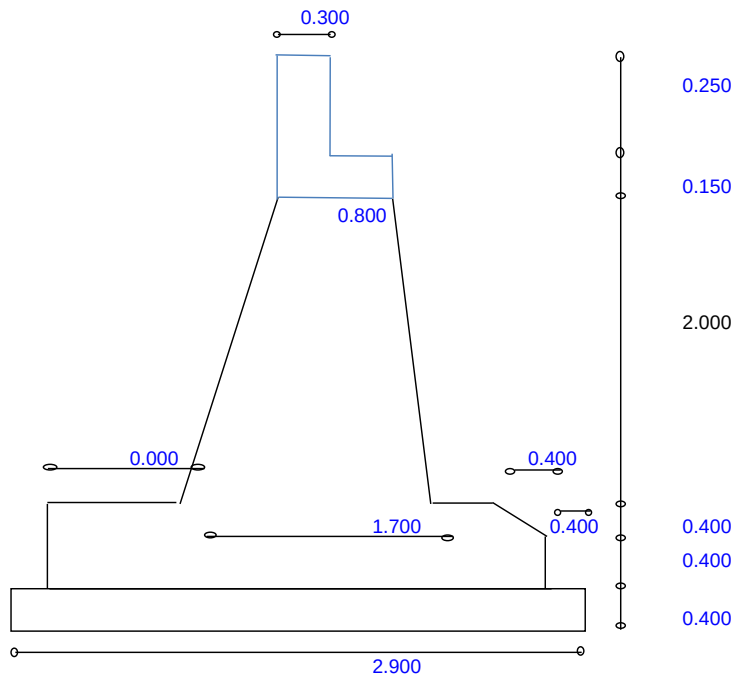
6	Super Structure (slab)	Concrete	1	10.9	3.100	0.250	0.775	8.4475
		Reinforcement	60 kg/cum					0.507
7	Backfill Behind Abutment		2	10.0	2.078	3.600	3.74	74.82
8	Crash barrier		2	3.7	7.400			
9	Drainage Spouts	-	1	2.0	-	-	-	2.00
10	Wearing Coat	-	-	3.7	10.00	0.075	37.00	2.78
11	Filter Material Behind Abutment	-	2	10.0	0.600	1.700	1.02	20.40
12	Weep holes	-	18.00	1.3	-			22.50
13	Tar paper Bearing	-	2	10.9	0.50	-		10.90
14	Expansion Joint	-	2	10.9	-	-	-	21.80

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QUANTITY OF catchpit & cascading FOR Culvert (FO 1.5 M SPAN) - TYPICAL - reconstruction

Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Cascading D/S	Earth Work	1	3.600	4.850	0.450	2.183	7.857
	Catch Pit U/S	Earth Work	1	2.400	1.450	1.950	2.828	6.786
Total								14.643
2	Leveling Course below Catch pit U/S	PCC M 15	1	2.400	1.450	0.150	0.218	0.522
Total								0.522
3	Catch Pit U/S	PCC M 20	1	2.100	1.300	0.300	0.390	0.819
			1	2.100	1.800	0.300	0.540	1.134
			2	1.300	1.800	0.300	0.540	1.404
Total								3.357
4	Toe Wall	PCC M 20	2	4.850	0.300	1.000	0.300	2.910
5	Cascading D/S	FLOORING	2	3.600	4.850	0.450	2.183	15.714

QUANTITY OF SLAB CULVERT (FO 1.0 M SPAN) - TYPICAL (WIDENING)



DIMENSION OF ABUTMENT

Width of New Slab :	4.5 m	Road Top Level	m	h
Width of Old Slab :	6.4 m	Average GL at Wall Face	m	1.575
Clear Span :	1.000 m	Founding Level	m	2.000
Lenght of New Slab :	2.600	Thickness of Crash Barrier	0.450 m	
		Width of Median	0.00 m	
		Side Slope	2.0	

Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Earth Work in Excavation		2	4.5	3.100	0.150	0.47	4.19
2	Leveling Course below Abutment	PCC M15	2	4.5	3.100	0.150	0.465	4.185
3	Vertical Portion of Abutment	PCC M 20	2	4.5	1.250	2.000	2.500	22.50
4	Trapezodial Portion of Abutment Foundation	PCC M 20	2	4.5	1.900	0.400	0.760	6.84
	Rectangular Portion of Abutment Foundation 1	PCC M 20	2	4.5	2.100	0.400	0.840	7.56
	Rectangular Portion of Abutment Foundation 2	PCC M 20	2	4.5	2.900	0.400	1.160	10.44
	Total							47.34
5	Vertical Portion of Dirt Wall	Concrete	2	4.5	0.300	0.250	0.075	0.675
	Abutment cap	Concrete	2	4.5	0.800	0.150	0.06	0.54
		Reinforcement	60 kg/cum					0.073

6	Super Structure (slab)	Concrete	1	4.5	2.600	0.250	0.65	2.925
		Reinforcement	60 kg/cum					0.176
7	Backfill Behind Abutment		2	3.6	2.078	3.600	3.74	26.94
8	Crash barrier		2	3.2	6.400			
9	Drainage Spouts	-	1	2.0	-	-	-	2.00
10	Wearing Coat	-	-	3.2	10.00	0.075	32.00	2.40
11	Filter Material Behind Abutment	-	2	3.6	0.600	1.700	1.02	7.34
12	Weep holes	-	8.00	1.3	-			10.00
13	Tar paper Bearing	-	2	4.5	0.50	-		4.50
14	Expansion Joint	-	2	4.5	-	-	-	9.00

QUANTITY OF catchpit & cascading FOR Culvert (FO 1.0 M SPAN) - TYPICAL

Sl. No.	Component	Material	No.	Length	Width	Height	Area	Quantity
				m	m	m	m ²	
1	Cascading D/S	Earth Work	1	3.600	4.600	0.450	2.070	7.452
	Catch Pit U/S	Earth Work	1	1.900	1.450	1.950	2.828	5.372
Total								12.824
2	Leveling Course below Catch pit U/S	PCC M 15	1	1.900	1.450	0.150	0.218	0.413
Total								0.413
3	Catch Pit U/S	PCC M 20	1	1.600	1.300	0.300	0.390	0.624
			1	1.600	1.800	0.300	0.540	0.864
			2	1.300	1.800	0.300	0.540	1.404
Total								2.892
4	Toe Wall	PCC M 20	2	4.600	0.300	1.000	0.300	2.760
5	Cascading D/S	FLOORING	2	3.600	4.600	0.450	2.070	14.904

ABSTRACT OF QUANTITY FOR RCC SLAB CULVERTS									
Sl. No.	Description	Unit	Quantity of 64 / 685	Quantity of 63 / 605	Quantity of 67 / 310	Quantity of 68 / 290	Total Quantity = 4 nos	Analysis Rate	Amount
	Foundation								
1	Earth work in excavation of foundation of structures in all kinds of soil 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 and backfilling with approved material. as per clause 304 of MORTH specification for Road and Bridge works (5th revision) and as directed by the Engineer in charge								
	For abutment & pier	Cum	148.18	165.82	395.14	165.82	874.960	427.33	373896.66
2	Supplying, Providing & laying Plain cement concrete M-15 grade (cast-in-situ) in nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days as levelling course as per drawing and technical specification section 1000, 1500 & 2100 of MORTH specification for Road & Bridge works (5th revision) as directed by Engineer in charge								
		Cum	7.060	7.900	18.820	7.90	41.680	8912.95	371491.76
3	Providing supplying and laying Design Mix Reinforced Cement Concrete with grade M25 in Open Foundation complete as per Drawing and Technical Specifications as per approved drawings and sections 1000, 1500, 1600, 1700 and 2100 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer in charge								
		Cum	29.61	34.72	126.55	34.72	225.600	10680.45	2409509.52
	Substructure								
4	Providing supplying and laying Design Mix Reinforced Cement Concrete of grade M25 (Cast - in - Situ) using graded crushed stone aggregate and coarse sand, cement of approved quality (IRC 383) in RCC substructure (Abutment/Pier shaft, return wall & fly wing) as per approved drawings and sections 1000, 1500, 1600, 1700 and 2200 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer -in - charge.								
	(Abutment/Pier shaft & return wall	Cum	25.90	17.52	73.24	21.04	137.700	10385.53	1430087.48
5	Reinforced cement concrete in M30 (Cast - in - Situ) for sub-structure complete as per drawing and Technical Specifications in Abutment/Pier Cap , Dirt wall , as per approved drawings and sections 1000, 1500, 1600, 1700 and 2200 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer - in - charge.								
	Abutment/Pier Cap , Dirt wall	Cum	2.54	2.70	6.68	2.70	14.620	12251.75	179120.59
	Superstructure								
6	Providing supplying and laying Reinforced Cement Concrete of grade M30 (Cast - in - Situ) using graded crushed stone aggregate and coarse sand, cement of approved quality (IRC 383) in RCC Deck slab as per approved drawings and sections 1000, 1500, 1600, 1700 and 2300 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer -in - charge.								
		Cum	13.31	10.03	30.03	10.66	64.030	14550.79	931687.08
7	Supplying, decoiling, straightening, cutting, bending, placing in position and tying the grills of HYSD steel reinforcement Fe 500 conforming to IS-1786, 2008 in position binding with galvanized binding works of 18 gauge complete for all RCC works in foundation, deck slab, Abutment/Pier shaft, cap, return wall, fly wing & dirt wall as per working drawing and technical specification section 1000,1500,1600, 2300 of MORTH specification for Road & Bridge works (5th revision) as directed by Engineer in charge.								
		MT	13.040	10.310	32.920	11.540	67.810	128774.08	8732170.36

8	Supplying, Providing & laying Plain cement concrete M-15 grade (cast-in-situ) as per mix prepared under relevant IS/IRC codes concrete using graded crushed stone aggregate, cement and coarse sand of approved quality and quantity below approach slab as levelling course as per drawing and technical specification section 1000, 1500,1700 & 2700 of MORTH specification for Road & Bridge works (5th revision) and as directed by Engineer in charge								
		Cum	4.25	4.25	9.66	4.25	22.410	8912.95	199739.21
9	Supplying, Providing & laying Reinforced Cement Concrete M-25 grade (cast-in-situ) design mix using graded crushed stone aggregates, cement and coarse sand of approved quality and quantity in approach slab as per drawing and technical specification sections 1000, 1500, 1600,1700, 2700 (Cl.2704), of MORTH specification for Road & Bridge works (5th revision) but including reinforcement complete as directed by Engineer in charge.								
		Cum	9.24	9.24	21.00	9.24	48.720	14550.79	708914.49
10	Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications section Clause 2608 of MORTH specification for Road & Bridge works, (5th revision).								
		rm	3.90	4.40	21.80	4.40	34.500	1298.44	44796.18
11	Supplying, Providing & laying reinforced cement concrete M-30 grade (cast-in-situ) as per mix design prepared under relevant IS/IRC concrete codes using graded crushed stone aggregates cement and coarse sand of approved quality and quantities in Wearing coat using weigh batching, mechanically mixing, vibrating, centering & shuttering, decentering using necessary plant equipments & machinery including full compensation to all inclusive costs all operations contingencies incidentals involved for the finished defect free item of work complete to specification including cost of reinforcement complete as per drawing and technical specification and section 1000, 1600, 2700, 900, 100 of MORTH specification for Road &								
		cum	6.06	4.78	5.53	5.01	21.380	19318.23	413023.76
12	Provision of an Reinforced cement concrete crash barrier at the edges of the bridge and approaches to bridge structures, constructed with M-40 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 Engineerand as per Technical Specifications section 809 of MORTH specification for Road & Bridge works (5th revision).								
		rm	27.00	23.60	25.60	24.20	100.400	5330.31	535163.12
13	Supplying, fabricating welded water tight drainage spout as per technical specification clause 2705 of specification road and bridge work MORT&H (5th revision) assembly to dimensions shown on drawing of dia not less than 100mm with galvanized steel conforming to IS 226 & fixing in position with suitable fixtures at specified locations on bridge decks including painting two coats with bituminous paint sealed with sealant as per IS 1834 around the spout to the deck slab including full compensation to all operations, all inclusive costs, contingencies, incidental involved for the finished defect free item of work complete to specifacaton & as directed by engineer in charge.								
		nos	2.00	2.00	2.00	2.00	8.000	2180.58	17444.64
14	Providing& fixing PVC 100mm pipe dia of material duly approved in drainage spouts with all costs, all operations contingencies, incidentals involved in the finished defect free item of work as per Drawings and directions of the Engineer in charge.								
		mtr	1.350	1.250	1.250	1.250	5.100	175.00	892.50

15	Supplying, Providing, fixing weep holes in plain / reinforced concrete abutments / return walls as per drawings and technical specifications section 2200, 2700 (Clause 2706) of MORTH specification for Road & Bridge works (5th revision) with 100mm dia PVC pipe extending through the full width of the structure with slope of one vertical x 20 horizontal towards drainage face complete including full compensation to all inclusive costs all operations, contingencies incidental involved for the finished defect free item of work complete to								
		mtr	8.400	5.200	34.000	5.200	52.800	494.78	26124.38

16	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2200, 2504.2.2. of MoRTH specifications for Road & Bridge works (5th revision) & 710.1.4.of IRC:78 to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment and return wall to the full height compacted to a firm condition								
		Cum	35.680	25.420	63.960	31.940	157.000	1487.44	233528.08
17	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification section 2200, IRC-78 and instruction of Engineer in charge.								
		Cum	85.28	51.83	171.38	65.15	373.640	1017.94	380343.10
18	Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm to the bridge superstructure as per section 800 of MoRTH specifications for Road & Bridge works (5th revision) and instruction of Engineer in charge								
		Sqm	47.86	39.90	95.61	41.48	224.845	94.34	21212.80
19	Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces as per section 800 of MoRTH specifications for Road & Bridge works (5th revision) and instruction of Engineer in charge								
	For kerbs, guard posts	Sqm	43.29	31.49	41.92	32.08	148.794	94.34	14037.21
20	Supplying, Providing and laying gravel backing /Filter material underneath stone / Cement Concrete Block pitching on slopes complete as per drawing and Technical Specifications Section 2504 of MORTH specification for Road & Bridge works (5th revision) and and as per								
		Cum	36.086	12.761	37.934	16.524	103.305	2773.80	286546.62
21	Supplying and provding stone Pitching on slopes using sound ,hard, durable and fairly regular in shape and weighing each stone not less than 40 kg, as per drawings and Clause 2504 of Technical specification for Road & Bridge works MORTH (5th revision) and as direction of								
		Cum	72.171	25.522	75.868	33.048	206.609	3612.81	746440.63
22	Providing fixing and laying tar paper on pier and abutment cap	Sqm	3.28	3.70	9.16	3.70	19.824	17.00	337.01
								Total =	1,80,56,507.0

DETAILED ESTIMATE OF SLAB CULVERT AT CH 63 / 605

Chainage	63 / 605
Overall length of slab	4.8 m
Clear span	4 m
No of span	1 nos
Width of deck slab (Existing)	6.5 m
Width of deck slab (Proposed)	2.2 m
Type of superstructure	Solid Slab
Depth of slab	0.475 m
Deck level	m
Bed Level	m
Thickness of wearing coat =	0.075 m
No of Abutment =	2 nos
Length of retaining wall =	0 m
Approach slab	3.5 m
Levelling course below approach slab	3.5 m
Width of foundation=	5.3 m
Depth of foundation below LBL =	3 m
Depth of foundation for abutment =	1.2 m

DETAILED ESTIMATE OF SLAB CULVERT AT CH 63 / 605 (1 X 4.0)

SUBSTRUCTURE & FOUNDATION

	No	Length	Breadth	Depth	Volume	Unit
1 Earthwork in excavation in soil						
foundation	4	5.6	2.35	3.15	165.820	
				Total =	165.82	Cum
2 PCC below foundation M15						
foundation	4	5.6	2.35	0.15	7.900	
				Total =	7.90	Cum
3 Foundation M25						
Rectangular Portion	4	2.20	2.2	0.6	11.620	
Trapizodal portion	4	4.38	2.2	0.6	23.100	
				Total =	34.720	Cum
4 HYSD Fe500 for foundation	34.72 cum			1 Qntl/cum	34.72	
				Total =	3.470	MT
5 Abutment Shaft M25						
A1	2	2.20	0.8	2.49	8.760	
A2	2	2.20	0.8	2.49	8.760	
				Total =	17.520	Cum
6 Return Wall & fly wing in Abutment M25						
Return wall						
A1	2	2.5	0.5	3.115	7.790	
A2	2	2.5	0.5	3.115	7.790	
				Total =	15.580	Cum
7 Cap & corbel M 25						

		2	2.20			4.4	rm
17	Drainage spout	2				2	nos
18	Crash barrier	2	11.8			23.6	rm
19	Drainage Pipe 100mm 100mm dia PVC pipes Vertical drop	2	0.625			1.25	rm
20	PCC M15 Grade leveling course below approach slab	4	2.20	3.22	0.15	4.250	cum
21	Approach Slab in M 25	4	2.20	3.5	0.3	9.240	
22	Guard posts	20				20	nos
23	Providing and applying 2 coats of water based cement paint						
	Sides of deck slab	2	4.8		0.48	4.560	
	Bottom of deck slab	1	4.8	2.200		10.560	sqm
	Crash barrier outer side	1	23.6		1.05	24.780	
					Total =	39.900	sqm
24	Painting Two Coats on New Concrete Surfaces						
	Crash barrier inner side	1	23.6		0.98	23.010	
	Guard posts	20			0.42	8.482	
					Total =	31.492	sqm
25	Providing Tar paper for bearing						
	Abutment & pier	4	2.20	0.42		3.696	
					Total =	3.696	sqm
26	Granular material below slope pitching	4		21.268	0.15	12.761	cum
27	Side slope stone pitching	4		21.268	0.3	25.522	cum

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DETAILED ESTIMATE OF SLAB CULVERT AT CH 64 / 685

Chainage	64 / 685
Overall length of slab	6.5 m
Clear span	5.7 m
No of span	1 nos
Width of deck slab (Existing)	7 m
Width of deck slab (Proposed)	1.95 m
Type of superstructure	Solid Slab
Depth of slab	0.525 m
Deck level	m
Bed Level	m
Thickness of wearing coat =	0.075 m
No of Abutment =	2 nos
Length of retaining wall =	0 m
Approach slab	3.5 m
Levelling course below approach slab	3.5 m
Width of foundation=	5.3 m
Depth of foundation below LBL =	3 m
Depth of foundation for abutment =	1.2 m

DETAILED ESTIMATE OF SLAB CULVERT AT CH 64 / 685 (1 X 5.7)

SUBSTRUCTURE & FOUNDATION

	No	Length	Breadth	Depth	Volume	Unit
1 Earthwork in excavation in soil						
foundation	4	5.6	2.10	3.15	148.180	
				Total =	148.18	Cum
2 PCC below foundation M15						
foundation	4	5.6	2.10	0.15	7.060	
				Total =	7.06	Cum
3 Foundation M25						
Rectangular Portion	4	1.95	1.95	0.6	9.130	
Trapizodal portion	4	4.38	1.95	0.6	20.480	
				Total =	29.610	Cum
4 HYSD Fe500 for foundation						
	29.61 cum			1 Qntl/cum	29.61	
				Total =	2.960	MT
5 Abutment Shaft M25						
A1	2	1.95	0.8	4.15	12.950	
A2	2	1.95	0.8	4.15	12.950	
				Total =	25.900	Cum
6 Return Wall & fly wing in Abutment M25						
Return wall						
A1	2	2.5	0.5	5.125	12.810	
A2	2	2.5	0.5	5.125	12.810	
				Total =	25.620	Cum
7 Cap & corbel M 25						

Abutment						
	Rectangular Portion	4	1.95	0.8	0.3	1.870
					Total =	1.870
						Cum
8	Dirt Wall in Abutment M25					
	A1 & A2	4	1.95	0.38	0.23	0.67
					Total =	0.670
						Cum
9	HYSD Fe 500 for substructure					
	i Shaft	25.900 cum		1.5 Qntl/cum		38.85
	ii Cap	1.870 cum		1.5 Qntl/cum		2.81
	iii Return wall	25.620 cum		1.5 Qntl/cum		38.43
	iv Dirt Wall	0.670 cum		1 Qntl/cum		0.67
						80.76
						8.080
						Qntl MT
10	Weep holes					
	In abutment					
	A1	4	0.800			3.200
	A2	4	0.800			3.200
	In return wall					
	A1	2	0.500			1.000
	A2	2	0.500			1.000
					Total =	8.400
						rm
11	Filter media behind abutment					
	A1	4	1.45	0.6	5.13	17.840
	A2	4	1.45	0.6	5.13	17.840
					Total =	35.680
						Cum
12	Back filling					
	Behind Abutment	4	1.3	3.2	5.13	85.280
					Total =	85.280
						cum

13	Deck Slab RCC M25							
	Rectangular portion	2	1.950	6.5	0.53	13.310		
	Qty per span					13.310		cum
	Total qty					13.310		
					Total =	13.310		cum
14	HYSD Fe 500 In deck slab							
	Qty per span			1.5	Qntl/cum	2.000		
	Total qty					2.00		
					Total =	2.00		MT
15	Wearing Coat							
	Qty per span	1	10.00	6.5	0.075	4.880		
	Total qty					4.88		
	For Approach slab	2	2.25	3.5	0.075	1.180		
					Total =	6.06		rm
16	Providing and laying of asphaltic plug expansionjoint							

		2	1.95			3.9	rm
17	Drainage spout	2				2	nos
18	Crash barrier	2	13.5			27	rm
19	Drainage Pipe 100mm 100mm dia PVC pipes Vertical drop	2	0.675			1.35	rm
20	PCC M15 Grade leveling course below approach slab	4	2.20	3.22	0.15	4.250	cum
21	Approach Slab in M 25	4	2.20	3.5	0.3	9.240	
22	Guard posts	40				40	nos
23	Providing and applying 2 coats of water based cement paint						
	Sides of deck slab	2	6.5		0.53	6.830	
	Bottom of deck slab	1	6.5	1.950		12.675	sqm
	Crash barrier outer side	1	27		1.05	28.350	
					Total =	47.855	sqm
24	Painting Two Coats on New Concrete Surfaces						
	Crash barrier inner side	1	27		0.98	26.330	
	Guard posts	40			0.42	16.965	
					Total =	43.295	sqm
25	Providing Tar paper for bearing						
	Abutment & pier	4	1.95	0.42		3.276	
					Total =	3.276	sqm
26	Granular material below slope pitching	4		60.143	0.15	36.086	cum
27	Side slope stone pitching	4		60.143	0.3	72.171	cum

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DETAILED ESTIMATE OF SLAB CULVERT AT CH 67 /310

Chainage	67 / 310
Overall length of slab	5.8 m
Clear span	5 m
No of span	1 nos
Width of deck slab (Existing)	0 m
Width of deck slab (Proposed)	10.9 m
Type of superstructure	Solid Slab
Depth of slab	0.475 m
Deck level	m
Bed Level	m
Thickness of wearing coat =	0.075 m
No of Abutment =	2 nos
Length of retaining wall =	0 m
Approach slab	3.5 m
Levelling course below approach slab	3.5 m
Width of foundation=	5.3 m
Depth of foundation below LBL =	3 m
Depth of foundation for abutment =	1.2 m

DETAILED ESTIMATE OF SLAB CULVERT AT CH 67 / 310 (1 X 5.0)

SUBSTRUCTURE & FOUNDATION

	No	Length	Breadth	Depth	Volume	Unit
1 Earthwork in excavation in soil						
foundation	2	11.20	5.6	3.15	395.140	
				Total =	395.14	Cum
2 PCC below foundation M15						
foundation	2	11.20	5.6	0.15	18.820	
				Total =	18.82	Cum
3 Foundation M25						
Rectangular Portion	2	10.9	5.30	0.6	69.320	
Trapizodal portion	2	10.9	4.38	0.6	57.230	
				Total =	126.550	Cum
4 HYSD Fe500 for foundation	126.55 cum			1 Qntl/cum	126.55	
				Total =	12.660	MT
5 Abutment Shaft M25						
A1	1	10.90	0.8	4.20	36.620	
A2	1	10.90	0.8	4.20	36.620	
				Total =	73.240	Cum
6 Return Wall & fly wing in Abutment M25						
Return wall						
A1	2	2.5	0.5	5.125	12.810	
A2	2	2.5	0.5	5.125	12.810	
				Total =	25.620	Cum
7 Cap & corbel M 25						

		2	10.90			21.8	rm
17	Drainage spout	2				2	nos
18	Crash barrier	2	12.8			25.60	rm
19	Drainage Pipe 100mm 100mm dia PVC pipes Vertical drop	2	0.625			1.25	rm
20	PCC M15 Grade leveling course below approach slab	2	10.00	3.22	0.15	9.660	cum
21	Approach Slab in M 25	2	10.00	3.5	0.3	21.000	
22	Guard posts	40				40	nos
23	Providing and applying 2 coats of water based cement paint						
	Sides of deck slab	2	5.8		0.48	5.510	
	Bottom of deck slab	1	5.8	10.900		63.220	sqm
	Crash barrier outer side	1	25.6		1.05	26.880	
					Total =	95.610	sqm
24	Painting Two Coats on New Concrete Surfaces						
	Crash barrier inner side	1	25.6		0.98	24.960	
	Guard posts	40			0.42	16.965	
					Total =	41.925	sqm
25	Providing Tar paper for bearing						
	Abutment & pier	2	10.90	0.42		9.156	
					Total =	9.156	sqm
26	Granular material below slope pitching	4		63.223	0.15	37.934	cum
27	Side slope stone pitching	4		63.223	0.3	75.868	cum

DETAILED ESTIMATE OF SLAB CULVERT AT CH 68 / 290

Chainage	68 / 290
Overall length of slab	5.1 m
Clear span	4.3 m
No of span	1 nos
Width of deck slab (Existing)	6.5 m
Width of deck slab (Proposed)	2.2 m
Type of superstructure	Solid Slab
Depth of slab	0.475 m
Deck level	m
Bed Level	m
Thickness of wearing coat =	0.075 m
No of Abutment =	2 nos
Length of retaining wall =	0 m
Approach slab	3.5 m
Levelling course below approach slab	3.5 m
Width of foundation=	5.3 m
Depth of foundation below LBL =	3 m
Depth of foundation for abutment =	1.2 m

DETAILED ESTIMATE OF SLAB CULVERT AT CH 68 / 290 (1 X 4.3)

SUBSTRUCTURE & FOUNDATION

	No	Length	Breadth	Depth	Volume	Unit
1 Earthwork in excavation in soil						
foundation	4	5.6	2.35	3.15	165.820	
				Total =	165.82	Cum
2 PCC below foundation M15						
foundation	4	5.6	2.35	0.15	7.900	
				Total =	7.90	Cum
3 Foundation M25						
Rectangular Portion	4	2.20	2.2	0.6	11.620	
Trapizodal portion	4	4.38	2.2	0.6	23.100	
				Total =	34.720	Cum
4 HYSD Fe500 for foundation	34.72 cum			1 Qntl/cum	34.72	
				Total =	3.470	MT
5 Abutment Shaft M25						
A1	2	2.20	0.8	2.99	10.520	
A2	2	2.20	0.8	2.99	10.520	
				Total =	21.040	Cum
6 Return Wall & fly wing in Abutment M25						
Return wall						
A1	2	2.5	0.5	3.915	9.790	
A2	2	2.5	0.5	3.915	9.790	
				Total =	19.580	Cum
7 Cap & corbel M 25						

		2	2.20			4.4	rm
17	Drainage spout	2				2	nos
18	Crash barrier	2	12.1			24.2	rm
19	Drainage Pipe 100mm 100mm dia PVC pipes Vertical drop	2	0.625			1.25	rm
20	PCC M15 Grade leveling course below approach slab	4	2.20	3.22	0.15	4.250	cum
21	Approach Slab in M 25	4	2.20	3.5	0.3	9.240	
22	Guard posts	20				20	nos
23	Providing and applying 2 coats of water based cement paint						
	Sides of deck slab	2	5.1		0.48	4.850	
	Bottom of deck slab	1	5.1	2.200		11.220	sqm
	Crash barrier outer side	1	24.2		1.05	25.410	
					Total =	41.480	sqm
24	Painting Two Coats on New Concrete Surfaces						
	Crash barrier inner side	1	24.2		0.98	23.600	
	Guard posts	20			0.42	8.482	
					Total =	32.082	sqm
25	Providing Tar paper for bearing						
	Abutment & pier	4	2.20	0.42		3.696	
					Total =	3.696	sqm
26	Granular material below slope pitching	4		27.540	0.15	16.524	cum
27	Side slope stone pitching	4		27.540	0.3	33.048	cum

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ABSTRACT OF QUANTITY FOR MINOR BRIDGE

Sl. No.	Description	Unit	Quantity of 93 / 765	total quantity 1 nos	Analysis Rate	Amount
	Foundation					
1	Earth work in excavation of foundation of structures in all kinds of soil 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 and backfilling with approved material. as per clause 304 of MORTH specification for Road and Bridge works (5th revision) and as directed by the Engineer in charge					
	For abutment & pier	Cum	395.14	395.14	427.33	168855.18
2	Supplying, Providing & laying Plain cement concrete M-15 grade (cast-in-situ) in nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days as levelling course as per drawing and technical specification section 1000, 1500 & 2100 of MORTH specification for Road & Bridge works (5th revision) as directed by Engineer in charge					
		Cum	18.820	18.82	8912.95	167741.72
3	Providing supplying and laying Design Mix Reinforced Cement Concrete with grade M25 in Open Foundation complete as per Drawing and Technical Specifications as per approved drawings and sections 1000, 1500, 1600, 1700 and 2100 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer in charge					
		Cum	125.56	125.56	10680.45	1341037.30
	Substructure					
4	Providing supplying and laying Design Mix Reinforced Cement Concrete of grade M25 (Cast - in - Situ) using graded crushed stone aggregate and coarse sand, cement of approved quality (IRC 383) in RCC substructure (Abutment/Pier shaft, return wall & fly wing) as per approved drawings and sections 1000, 1500, 1600, 1700 and 2200 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer -in - charge.					
	(Abutment/Pier shaft & return wall	Cum	72.38	72.38	10385.53	751704.66
5	Reinforced cement concrete in M30 (Cast - in - Situ) for sub-structure complete as per drawing and Technical Specifications in Abutment/Pier Cap , Dirt wall , as per approved drawings and sections 1000, 1500, 1600, 1700 and 2200 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer -in - charge.					
	Abutment/Pier Cap , Dirt wall	Cum	8.96	8.96	12251.75	109775.68
	Superstructure					
6	Providing supplying and laying Reinforced Cement Concrete of grade M30 (Cast - in - Situ) using graded crushed stone aggregate and coarse sand, cement of approved quality (IRC 383) in RCC Deck slab as per approved drawings and sections 1000, 1500, 1600, 1700 and 2300 of MORTH specifications for road and bridge works(5th revision) excluding the cost of reinforcement complete as directed by Engineer -in - charge.					
		Cum	36.62	36.62	14550.79	532849.93
7	Supplying, decoiling, straightening, cutting, bending, placing in position and tying the grills of HYSD steel reinforcement Fe 500 conforming to IS-1786, 2008 in position binding with galvanized binding works of 18 gauge complete for all RCC works in foundation, deck slab, Abutment/Pier shaft, cap, return wall, fly wing & dirt wall as per working drawing and technical specification section 1000,1500,1600, 2300 of MORTH specification for Road & Bridge works (5th revision) as directed by Engineer in charge.					
		MT	33.520	33.52	128774.08	4316507.16

8	Supplying, Providing & laying Plain cement concrete M-15 grade (cast-in-situ) as per mix prepared under relevant IS/IRC codes concrete using graded crushed stone aggregate, cement and coarse sand of approved quality and quantity below approach slab as levelling course as per drawing and technical specification section 1000, 1500, 1700 & 2700 of MORTH specification for Road & Bridge works (5th revision) and as directed by Engineer in charge					
		Cum	9.66	9.66	8912.95	86099.10
9	Supplying, Providing & laying Reinforced Cement Concrete M-25 grade (cast-in-situ) design mix using graded crushed stone aggregates, cement and coarse sand of approved quality and quantity in approach slab as per drawing and technical specification sections 1000, 1500, 1600, 1700, 2700 (Cl.2704), of MORTH specification for Road & Bridge works (5th revision) but including reinforcement complete as directed by Engineer in charge.					
		Cum	21.00	21.00	14550.79	305566.59
10	Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications section Clause 2608 of MORTH specification for Road & Bridge works, (5th revision).					
		rm	21.80	21.80	1298.44	28305.99
11	Supplying, Providing & laying reinforced cement concrete M-30 grade (cast-in-situ) as per mix design prepared under relevant IS/IRC concrete codes using graded crushed stone aggregates cement and coarse sand of approved quality and quantities in Wearing coat using weigh batching, mechanically mixing, vibrating, centering & shuttering, decentering using necessary plant equipments & machinery including full compensation to all inclusive costs all operations contingencies incidentals involved for the finished defect free item of work complete to specification including cost of reinforcement complete as per drawing and technical specification and section 1000, 1600, 2700, 900, 100 of MORTH specification for Road & Bridge works, (5th revision) as directed by Engineer in charge.					
		cum	10.05	10.05	19318.23	194148.21
12	Provision of an Reinforced cement concrete crash barrier at the edges of the bridge and approaches to bridge structures, constructed with M-40 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 Engineer and as per Technical Specifications section 809 of MORTH specification for Road & Bridge works (5th revision).					
		rm	27.00	27.00	5330.31	143918.37
13	Supplying, fabricating welded water tight drainage spout as per technical specification clause 2705 of specification road and bridge work MORTH (5th revision) assembly to dimensions shown on drawing of dia not less than 100mm with galvanized steel conforming to IS 226 & fixing in position with suitable fixtures at specified locations on bridge decks including painting two coats with bituminous paint sealed with sealant as per IS 1834 around the spout to the deck slab including full compensation to all operations, all inclusive costs, contingencies, incidental involved for the finished defect free item of work complete to specification & as directed by engineer in charge.					
		nos	2.00	2.00	2180.58	4361.16
14	Providing & fixing PVC 100mm pipe dia of material duly approved in drainage spouts with all costs, all operations contingencies, incidentals involved in the finished defect free item of work as per Drawings and directions of the Engineer in charge.					
		mtr	1.350	1.35	175	236.25
15	Supplying, Providing, fixing weep holes in plain / reinforced concrete abutments / return walls as per drawings and technical specifications section 2200, 2700 (Clause 2706) of MORTH specification for Road & Bridge works (5th revision) with 100mm dia PVC pipe extending through the full width of the structure with slope of one vertical x 20 horizontal towards drainage face complete including full compensation to all inclusive costs all operations, contingencies incidentals involved for the finished defect free item of work complete to specification and instruction of					

		mtr	64.000	64.00	494.78	31665.92
16	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2200, 2504.2.2. of MoRTH specifications for Road & Bridge works (5th revision) & 710.1.4. of IRC:78 to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification and instruction of Engineer in charge..					
		Cum	54.640	54.64	1487.44	81273.72
17	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification section 2200, IRC-78 and instruction of Engineer in charge.					
		Cum	91.08	91.08	1017.94	92713.98
18	Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm to the bridge superstructure as per section 800 of MoRTH specifications for Road & Bridge works (5th revision) and instruction of Engineer in charge					
		Sqm	104.83	104.83	94.3441	9890.09
19	Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces as per section 800 of MoRTH specifications for Road & Bridge works (5th revision) and instruction of Engineer in charge					
	For kerbs, guard posts	Sqm	39.05	39.05	94.34	3684.30
20	Supplying, Providing and laying gravel backing /Filter material underneath stone / Cement Concrete Block pitching on slopes complete as per drawing and Technical Specifications Section 2504 of MORTH specification for Road & Bridge works (5th revision) and as per direction of Engineer in charge.					
		Cum	36.086	36.09	2773.8	100094.43
21	Supplying and providing stone Pitching on slopes using sound ,hard, durable and fairly regular in shape and weighing each stone not less than 40 kg, as per drawings and Clause 2504 of Technical specification for Road & Bridge works MORTH (5th revision) and as direction of Engineer in charge.					
		Cum	72.171	72.17	3612.81	260741.34
22	Providing fixing and laying tar paper on pier and abutment cap	Sqm	4.578	4.58	17	77.83
23	Dismantling of existing structure					
	a) RCC	Cum	34.53	34.53	1756.40	60644.63
	b) PCC	Cum	33.02	33.02	700.51	23130.84
	C) RR Masonry	Cum	93.6	93.60	494.21	46258.06
					Total =	88,61,282.0

DETAILED ESTIMATE OF SLAB CULVERT AT CH 93 / 765

Chainage	93 / 765
Overall length of slab	6.4 m
Clear span	5.6 m
No of span	1 nos
Width of deck slab (Existing)	0 m
Width of deck slab (Proposed)	10.9 m
Type of superstructure	Solid Slab
Depth of slab	0.525 m
Deck level	1390.127 m
Bed Level	m
Thickness of wearing coat =	0.075 m
No of Abutment =	2 nos
Length of retaining wall =	0 m
Approach slab	3.5 m
Levelling course below approach slab	3.5 m
Width of foundation=	m
Depth of foundation below LBL =	3 m

DETAILED ESTIMATE OF SLAB CULVERT AT CH 93 / 765 (1 X 6.0)

SUBSTRUCTURE & FOUNDATION

	No	Length	Breadth	Depth	Volume	Unit
1 Earthwork in excavation in soil						
A1	1	11.2	5.60	3.15	197.570	
A2	1	11.2	5.60	3.15	197.570	
				Total =	395.14	Cum
2 PCC below foundation M15						
A1	1	11.2	5.60	0.15	9.410	
A2	1	11.2	5.60	0.15	9.410	
				Total =	18.82	Cum
3 Foundation M25						
Abutment						
Rectangular Portion	2	10.90	5.30	0.6	69.320	
Trapizodal portion	2	10.90	4.30	0.6	56.240	
				Total =	125.560	Cum
4 HYSD Fe500 for foundation						
	125.56 cum			1 Qntl/cum	125.56	
				Total =	12.560	MT
5 Abutment / pier Shaft M25						
A1	1	10.90	0.8	4.15	36.190	
A2	1	10.90	0.8	4.15	36.190	
				Total =	72.380	Cum
6 Return Wall & fly wing in Abutment M25						
Return wall						
A1	2	2.5	0.5	4.600	11.500	
A2	2	2.5	0.5	4.600	11.500	
				Total =	23.000	Cum
7 Cap & corbel M 25						
Abutment						
Rectangular Portion	2	10.9	0.8	0.3	5.230	
				Total =	5.230	Cum

8	Dirt Wall in Abutment M25						
	A1 & A2	2	10.90	0.38	0.45	3.73	
					Total =	3.730	Cum
9	HYSD Fe 500 for substructure						
	i Shaft	72.380	cum		1.5 Qntl/cum	108.57	
	ii Cap	5.230	cum		1.5 Qntl/cum	7.85	
	iii Return wall	23.000	cum		1.5 Qntl/cum	34.5	
	iv Dirt Wall	3.730	cum		1 Qntl/cum	3.73	
						154.65	Qntl
						15.470	MT
10	Weep holes						
	In abutment						
	A1	30	0.800			24.000	
	A2	30	0.800			24.000	
	In return wall						
	A1	16	0.500			8.000	
	A2	16	0.500			8.000	
					Total =	64.000	rm
11	Filter media behind abutment						
	A1	1	9.90	0.6	4.60	27.320	
	A2	1	9.9	0.6	4.60	27.320	
					Total =	54.640	Cum
12	Back filling						
	Behind Abutment	1	9.9	2	4.60	91.080	cum
					Total =	91.080	cum
SUPERSTRUCTURE							
13	Deck Slab RCC M25						
	Rectangular portion	1	10.900	6.4	0.53	36.620	
	Qty per span					36.620	cum
	Total qty	0				36.620	
					Total =	36.620	cum
14	HYSD Fe 500						
	In deck slab						
	Qty per span			1.5 Qntl/cum		5.490	
	Total qty					5.49	
					Total =	5.49	MT
15	Wearing Coat						
	Qty per span	1	10.00	6.4	0.075	4.800	
	Total qty					4.80	
	For Approach slab	2	10.00	3.5	0.075	5.250	
					Total =	10.05	rm
16	Providing and laying of asphaltic plug expansionjoint						
		2	10.90			21.8	rm
17	Drainage spout						
		2				2	nos

18	Crash barrier	2	13.5			27.00	rm
19	Drainage Pipe 100mm 100mm dia PVC pipes Vertical drop	2	0.675			1.35	rm
20	PCC M15 Grade leveling course below approach slab	2	10.00	3.22	0.15	9.660	cum
21	Approach Slab in M 25	2	10.00	3.5	0.3	21.000	
22	Guard posts	30				30	nos
23	Providing and applying 2 coats of water based cement paint						
	Sides of deck slab	2	6.4		0.53	6.720	
	Bottom of deck slab	1	6.4	10.900		69.760	sqm
	Crash barrier outer side	1	27		1.05	28.350	
					Total =	104.830	sqm
24	Painting Two Coats on New Concrete Surfaces						
	Crash barrier inner side	1	27		0.98	26.330	
	Guard posts	30			0.42	12.723	
					Total =	39.053	sqm
25	Providing Tar paper for bearing						
	Abutment & pier	1	10.90	0.42		4.578	
					Total =	4.578	sqm
26	Granular material below slope pitching	4		60.143	0.15	36.086	cum
27	Side slope stone pitching	4		60.143	0.3	72.171	cum

Dismantling of Structures

29	Wearing coat	1	6.200	7	0.075	3.255	cum
30	Railing & kerb						
	Kerb	0	6.200	0.55	0.3	0.000	
	Railing & posts	2	6.200	0.2	0.86	2.133	
					Total =	2.133	cum
31	Cement Concrete Grade M-15 & M-20						
	PCC below footing and approach slab					33.020	cum
32	Prestressed / reinforced cement concrete grade M-20 & above						
	deck slab	1	6.200	7	0.6	26.040	
	Abutment cap	2	6.200	0.8	0.2	1.984	
	Pier cap	0	6.200	0.82	0.2	0.000	
	dirt wall	2	6.200	0.3	0.30	1.116	
					Total =	29.140	cum
33	Rubble stone masonry in cement mortar.						
	footing	2				72.00	
	shaft	2				9.600	
	return wall	4				12.000	
					Total =	93.600	cum

LEAD STATEMENT 53.110 km to 95.700 km

Statement of material, Lead and Royalty from Quarry to site									
Sl No	Name of material	Name of quarry	Units	Lead in KM	Basic Cost	Lead cost	Royalty	Lead+ Basic Cost	Total cost
1	2	3	4	5	6	7	8	9	10
1	45mm size CB metal (Passing through 53 mm sieve & retained on 22.4mm sieve)	Kanglatongbi	Cum	130	0.00	1980.60	0.00	1980.60	1980.60
2	40mm size CB metal	Kanglatongbi	Cum	130	0.00	1980.60	0.00	1980.60	1980.60
3	26.5mm size CB metal(Passing through 45 mm sieve & retained on 22.4mm sieve)	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
4	25mm size CB metal	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
5	22.4mm size CB metal (Passing through 25 mm sieve & retained on 10 mm sieve)	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
6	20mm size CB chips	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
7	13.2mm size CB chips	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
8	12mm size CB chips(Rate of 12.5mm)	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
9	11.2mm size CB chips(Passing through 13.2 mm sieve & retained on 5.6 mm sieve)	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
10	10mm size CB chips	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
11	6.7mm size CB chips	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
12	4.7mm size CB chips	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
13	Granite stone screening	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
14	Stone dust	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
15	Sand for filling (Fine Sand)	Sekmai	Cum	112	0.00	0.00	0.00	0.00	0.00
16	Sand for mortar (Coarse Sand)	Sekmai	Cum	112	0.00	0.00	0.00	0.00	0.00
17	Cement 43 Grade	Imphal	MT	128	0.00	1323.91		1323.91	1323.91
18	HYSD bar AUGUST 2018	Imphal	MT	128	0.00	1654.89		1654.89	1654.89
19	Gravel/Moorum	Local	Cum	10	0.00	319.38	0.00	319.38	319.38
20	Stone Other than Granite (300mm for pitching at site)	Kanglatongbi	Cum	130	0.00	1921.39	0.00	1921.39	1921.39
21	Bitumen 80/100 Bulk	Imphal	tonne	128	0.00	1323.91		1323.91	1323.91
22	Emulsion(R.S) Bulk	Imphal	tonne	128	0.00	1323.91		1323.91	1323.91
23	Emulsion(S.S) Bulk	Imphal	tonne	128	0.00	1323.91		1323.91	1323.91
25	Binding wire	Local	Kg		0.00				0.00
26	AC pipe 100 mm dia		RM						160.00
27	Water base paint		Lit						136.00
28	S.E. paint		Lit						235.94
29	Elastomeric bearing		No.						14400.00
30	Strip seal element		RM						8500.00
31	Hot Thermoplastic Paint		Lit						316.07
32	Reflectorising glass bead		Kg						128.57
33	Chequered Tile	Imphal	Sqm	128	0	23.6		23.60	23.60
34	Brick 1st Class	Imphal	1no	128	0	1.136		1.14	1.14

LABOUR

Sl. No.	Description of Labour	Unit	Rate
L-01	Blacksmith (IInd class)	day	500.00
L-02	Blacksmith (Ist class)/ Welder/ Plumber/ Electrician	day	550.00
L-03	Blaster (Stone cutter)	day	400.00
L-04	Carpenter I Class	day	550.00
L-05	Chiseller (Head Mazdoor)	day	450.00
L-06	Driller (Jumper)	day	400.00
L-07	Driver	day	500.00
L-08	Fitter	day	500.00
L-09	Mali	day	400.00
L-10	Mason (IInd class)	day	500.00
L-11	Mason (Ist class)	day	550.00
L-12	Mate / Supervisor	day	550.00
L-13	Mazdoor	day	400.00
L-14	Mazdoor/Dresser (Semi Skilled)	day	400.00
L-15	Mazdoor/Dresser/Sinker (Skilled)	day	450.00
L-17	Operator(grouting)	day	550.00
L-18	Painter I class	day	550.00
L-19	Para medical personnel	day	550.00

HIRING CHARGES OF PLANTS AND MACHINERY						
Sl.No.	Description of		Unit	Output	Usage Rates in Rs.	
	Machine	Activity			Unit	Rates as per SOR 2017
1	Dozer D-50-A-15	Spreading	capacity in cfm	200cum /hour	per hour	2814.54
		cutting		100cum/hour	per hour	
		clearing		150cum/hour	per hour	
2	Dozer D-80-A-12	Spreading	cum/hour	300cum/hour	per hour	3914.88
		cutting		150cum/hour	per hour	
		clearing		250cum/hour	per hour	
3	Motor grade 3.35meter blade	clearing	cum/hour	200cum/hour	per hour	3786.88
		Spreading		200cum/hour	per hour	
		GSB		50cum/hour	per hour	
		WMM		50cum/hour	per hour	
4	Hydraulic Excavator of 1 cum bucket	Soil ordinary	cum/hour	60cum/hour	per hour	1129.75
		Soil Marshy		60cum/hour	per hour	
		Soil unsuitable		60cum/hour	per hour	
5	Front End loader 1 cum bucket capacity	Soil loading	capacity in litre	60cum/hour	per hour	850.00
		Aggregate loading		25cum/hour	per hour	
6	Tipper-5cum	Transportation of soil, GSB, WMM, Hotmix etc.	cum / hour	5.5cum	per km	25.00
					per tonne.km	3.00
					per hour	849.00
7	Vibratory Roller 8-10 tonne	Earth/Soil	cum / hour	100cum/hour	per hour	1085.00
		GSB	cum / hour	60cum/hour	per hour	
		WMM	capacity in cum	60cum/hour	per hour	
8	Smooth wheeled roller 8-10 tonne	soil compaction		70cum/hour	per hour	587.50
		BM compaction		25cum/hour	per hour	
9	Tractor	pulling		50HP	per hour	382.00
10	Rotavator	mixing		25cum/hour	per hour	18.00
11	Ripper	Scarifying		60cum/hour	per hour	30.00
12	Air compressor	general purpose		170/250cfm	per hour	1359.78
13	Wet mix plant 60 TPH	Wet mix		25cum/hour	per hour	1727.00
14	Mechanical broom hydraulic	Surface cleaning		1250sqm/hour	per hour	505.00
15	Bitumen pressure distributor	Applying bitumen tack coat		1750sqm/hour	per hour	1150.50
16	Emulsion Pressure Distributor	Applying emulsion tack coat		1750sqm/hour	per hour	843.00
17	Hotmix plant-120 TPH	DBM/BM/SDC/premix		40cum/hour	per hour	24671.00
18	Hotmix plant-100 TPH	DBM/BM/SDC/premix		30cum/hour	per hour	18245.00
19	Hotmix plant-60 to 90 TPH	DBM/BM/SDC/premix		25cum/hour	per hour	14590.00
20	Hotmix plant-40 to 60 TPH	DBM/BM/SDC/premix		17cum/hour	per hour	18598.31
21	Paver finisher hydrostatic with sensor control 100 TPH	Paving of DBM/BM/SDC/premix		40cum/hour	per hour	2569.85

Sl.No.	Description of		Unit	Output	Usage Rates in Rs.	
	Machine	Activity			Unit	Rates as per SOR 2017
22	paver finisher Mechanical 100 TPH	Paving of WMM/PMC		40cum/hour	per hour	1716.41
		Paving of DLC		30cum/hour	per hour	
23	Hydraulic chips spreader	Surface Dressing		1500sqm/hour	per hour	2091.00
24	Tandem road roller	Rolling of asphalt surface		30cum/hour	per hour	894.00
25	Pneumatic road roller	Rolling of asphalt surface		25cum/hour	per hour	1231.00
26	Pot hole repair machine	Repair of pot holes		4cum/hour	per hour	956.00
27	Bitumen boiler oil fired	Bitumen spraying		1500litre	per hour	1321.43
28	GSB plant 50 cum	Producing GSB		40cum/hour	per hour	1095.00
29	Mastic cooker	Mastic Wearing Coat		1tonne	per hour	450.00
30	Batching and Mixing plant 15-20cum	Concrete Mixing		13cum/hour	per hour	1961.00
31	Batching and Mixing plant 30cum	Concrete Mixing		20cum/hour	per hour	2353.00
32	Transit Mixer	Transportation of concrete mix to site		4.5cum/hour	per hour	980.00
				3cum/hour	per hour	899.00
33	Concrete pump of 45 & 30 cum	Pumping concrete		33cum/hour 22cum/hour	per hour	750.00
34	Cranes 80 tonnes	Lifting Purpose			per hour	1348.00
35	Cranes 35 tonnes	Lifting Purpose			per hour	899.00
36	Cranes 3 tonnes	Lifting Purpose			per hour	375.00
37	Concrete bucket	For pouring concrete		1 Cum	per hour	17.00
38	Kerb casting machine	Kerb making		80 RM/hour	per hour	327.00
39	Concrete Mixer	Concrete Mixing		2.5cum/hour	per hour	187.50 202.00
	a)04/.28 cum			7.5cum/hour	per hour	
	b)01cum					
40	Piling Rig with Bantonite Pump	0.75m dia to 1.2m dia Boring Attachment		2 to 3RM/hour	per hour	5759.00
41	Concrete Paver Finisher with 40HP motor	Paving of concrete surface		20cum/hour	per hour	3023.00
42	Integrated stone crusher	Crushing of Spalls		100TPH	per hour	9133.00
		Crushing of Spalls		200TPH	per hour	19214.00
43	Prestressing Jack with Pump & Access	Stressing of steel wires/stand			per hour	136.00
44	Generator 100KVA	Generation of Electric Energy		100KVA	per hour	735.00
45	Generator 33KVA	Generation of Electric Energy		50KVA	per hour	392.00
46	Pneumatic Sinking Plant	Pneumatic Sinking of Wells		1.5 to 2.0cum/hour	per hour	4395.00
47	Truck 5.5cum per 10 tonnes	Material Transport		4.5cum	Per Km.	24.00
					per tonne.Km.	3.00
48	Road Marking Machine	Road Marking		100sqm/hour	per hour	213.00
49	Mobile Slurry Seal Equipment	Mixing & laying slurry seal		2700sqm/hour	per hour	1062.00
50	Water Tanker				per hour	744.25
51	Generator 125 KVA			KVA	per hour	900.00

ANALYSIS OF RATE					
Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
A	SITE CLEARANCE				
1	Clearing and Grubbing Road Land .				
	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.				
	<i>Pg 23 of MORTH Data Book</i>				
	Unit = Hectare				
	Taking output = 1 Hectare				
	By Manual Means:-				
	In area of light jungle				
	a) Labour				
	Mate	day	6.00	550.00	3300.00
	Mazdoor	day	150.00	400.00	60000.00
	b) Machinery				
	Tractor-trolley	hour	1.00	382.00	382.00
	c) Overhead charges @ 10% on (a+b)				6368.20
	d) Contractor's profit @ 10 % on (a+b+c)				7005.02
	Rate per Hectare = a+b+c+d (As per rate taken from SOR 2018 directly)				77440.00
				say	77440.00
				cess (1%)	774.40
	Rate per sqm=(a+b+c+d)/10,000			say	7.82
2	Dismantling of Structures				
	<i>Ref: Data Book/ Pg. 25</i>				
	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres				
	Unit = cum				
	Taking output = 1.25 cum				
(i)	Cement Concrete grade M-15 and above				
	a) Labour				
	Mate	day	0.02	550.00	11.00
	Mazdoor for loading and unloading.	day	0.25	400.00	100.00
	Mazdoor with pneumatic breaker	day	0.25	450.00	112.50
	b) Machinery				
	Air compressor 250 cfm with 2 leads of Pneumatic breaker @ 1.5 cum per hour	hour	0.67	1359.78	911.05
	Tractor-trolley	hour	0.27	382.00	103.14
	c) Overhead charges @ 10% on (a+b)				123.77
	d) Contractor's profit @ 10 % on (a+b+c)				136.15
	Cost for 1.25 cum = a+b+c+d				1497.61
	Rate per cum = (a+b+c+d)/ 1.25				1198.09
	(As per rate taken from SOR 2018 directly)			say	693.57
				cess (1%)	6.94
				say	700.51
(ii)	Dismantling of Hume Pipe				
	<i>Ref: Data Book/ Pg. 35</i>				
	Removing all type of hume pipes and stacking within a lead of 1000mtr including earthwork and dismantling of masonry works including T&P, sorting the dismantled material, disposal of unservicable material and stacking the servicable material with all lifts & leads of 1000mtrs				
	Unit = Metre				
	Taking output = 1 Metre				
	Up to 600 mm dia				
	a) Labour				
	Mate	day	0.021	550.00	11.55
	Mazdoor for dismantling, loading and unloading.	day	0.52	400.00	208.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	b) Overhead charges @ 10% on (a)				21.96
	c) Contractor's profit @ 10 % on (a+b)				24.15
	Cost for 1 metre= a+b+c				265.66
	(As per rate taken from SOR 2018 directly)			say	264.99
				cess (1%)	2.65
				say	267.64
3	Scarifying Existing Bituminous Surface to a depth of 50 mm by Mechanical Means				
	Ref: Data Book/ Pg. 67				
	Scarifying the existing bituminous road surface to a depth of 50 mm and disposal of scarified material with in all lifts and lead upto 1000 metres.				
	Unit = sqm				
	Taking output = 100 sqm				
	a) Labour				
	Mate	day	0.010	550.00	5.50
	Mazdoor	day	0.250	400.00	100.00
	b) Machinery				
	Tractor with ripper attachment @ 60 cum per hour	hour	0.080	412.00	32.96
	Front end loader 1 cum bucket capacity @ 25 cum per hour	hour	0.200	850.00	170.00
	Tipper 5.5 cum capacity, 4 trips per hour.	hour	0.230	849.00	195.27
	c) Overhead charges @ 10 % on (a+b)				50.37
	d) Contractor's profit @ 10 % on (a+b+c)				55.41
	Cost for 100 sqm = a+b+c+d				609.51
	Rate per sqm = (a+b+c+d)/100				6.10
	As per rate taken from SOR 2018 directly (pg 17 item 4-VIII-f-ii) after adding lead cost of material			say	57.08
				cess (1%)	0.57
				say	57.65
4	Compacting original ground supporting embankment				
	Ref: Data Book/ Pg. 73				
	Loosening, leveling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150 mm, 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.				
	Unit = cum				
	Taking output = 600 cum				
	a) Labour				
	Mate	day	0.08	550.00	44.00
	Mazdoor	day	2.00	400.00	800.00
	b) Machinery				
	Tractor with ripper attachment	hour	6.00	412.00	2472.00
	Vibratory road roller 8-10 tonne capacity	hour	7.50	1085.00	8137.50
	Water tanker 6 KL capacity	hour	4.00	744.25	2977.00
	c) Material				
	Cost of water	KL	24.00	75.00	1800.00
	d) Overhead charges @ 10% on (a+b+c)				1623.05
	e) Contractor's profit @ 10 % on (a+b+c+d)				1785.36
	Cost for 600 cum = (a+b+c+d+e)				19638.91
	Rate per sqm = (a+b+c+d+e)/600				32.73
	As per rate taken from SOR 2018 directly (pg 24 item 16) after adding lead cost of material			say	42.00
				cess (1%)	0.42
				say	42.42
B	EARTHWORK				

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
5 (i)	Excavation in soil using Hydraulic Excavator CK-90 & Tipper with Disposal upto 1000 metres-Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000 metres.				
	Ref: Data Book/ Pg. 52				
	Unit = Cum				
	Taking output = 360cum				
	a) Labour				
	Mate	day	0.08	550.00	44.00
	Mazdoor	day	2.00	400.00	800.00
	b) Machinery				
	Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	6.00	1129.75	6778.50
	Tipper 5.5 cum Capacity, 4 trips per hour	hour	16.00	849.00	13584.00
	c) Overhead charges @ 10% on (a+b)				2120.65
	d) Contractor's profit @ 10 % on (a+b+c)				2332.72
	Rate per 360 cum = (a+b+c+d)				25659.87
	As per rate taken from SOR 2018 directly (pg 27 item 31) after adding lead cost of material			Say	211.39
				cess 1 %	2.11
				say	213.50
5 (ii)	Earthwork 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 materials,dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.				
	Ref: Data Book/ Pg.62 (ordinary rock)				
	Unit=Cum				
	Taking output = 216 cum				
	a) Labour				
	Mate	day	0.24	550.00	132.00
	Mazdoor	day	6.00	400.00	2400.00
	b) Machinery				
	Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	1129.75	6778.50
	b) Overhead charges @ 10% on (a)				931.05
	c) Contractor's profit @ 10 % on (a+b)				1024.16
	Rate per 216 cum = (a+b+c)				11265.71
	As per rate taken from SOR 2018 directly (pg 27 item 32) after adding lead cost of material				304.56
				cess 1 %	3.05
				say	307.61
	For foundation add 20%				365.47
				cess 1 %	3.65
				say	369.13
6	Construction of Embankment with Material Deposited from Roadway Cutting				
	Ref: Data Book/ Pg.70				
	Construction of embankment with materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.				
	Unit = cum				
	Taking output = 100 cum				
	a) Labour				
	Mate	day	0.02	550.00	11.00
	Mazdoor	day	0.50	400.00	200.00
	b) Machinery				
	Dozer 80 HP for spreading @ 200 cum per hour	hour	0.50	2814.54	1407.27
	Motor grader for grading @ 100 cum per hour	hour	1.00	1893.44	1893.44
	Water tanker6 KL capacity	hour	4.00	744.25	2977.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Vibratory roller 8-10 tonnes @ 100 cum per hour	hour	1.00	1085.00	1085.00
	c) Material				
	Cost of water	KL	24.00	75.00	1800.00
	d) Overhead charges @ 10% on (a+b+c)				937.37
	e) Contractor's profit @ 10 % on (a+b+c+d)				1031.11
	Rate for 100 cum = a+b+c+d				11342.19
	Rate per cum = (a+b+c+d+e)/100				<u>113.42</u>
	As per rate taken from SOR 2018 directly (pg 24 item 13) after adding lead cost of material			say	160.20
				cess (1%)	<u>1.60</u>
				say	161.80
7	Construction of Embankment with Material obtained from Borrowpits				
	Ref: Data Book/ Pg.68				
	Construction of embankment with earth approved material obtained locally with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.				
	Unit = cum				
	Taking output = 100 cum				
	a) Labour				
	Mate	day	0.04	550.00	22.00
	Mazdoor	day	1.00	400.00	400.00
	b) Machinery				
	Hydraulic Excavator 1 cum bucket capacity @ 60 cum per hour	hour	1.67	1129.75	1886.68
	Tipper 10 tonne capacity (L = 5Km)	tonne.k	160 x L	3.50	2800.00
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				280.00
	Dozer 80 HP for spreading @ 200 cum per hour	hour	0.50	2814.54	1407.27
	Motor grader for grading @ 100 cum per hour	hour	1.00	1893.44	1893.44
	Water tanker 6 KL capacity	hour	4.00	744.25	2977.00
	Vibratory roller 8 -10 tonnes @ 100 cum per hour	hour	1.00	1085.00	1085.00
	c) Material				
	Cost of water	KL	24.00	63.56	1525.44
	d) Overhead charges @ 10% on (a+b+c)				1427.68
	e) Contractor's profit @ 10 % on (a+b+c+d)				1570.45
	f) Add for lead and royalty				
	Compensation for earth taken from private land	cum	100.00	55.00	5500.00
	Cost for 100 cum = a+b+c+d+e+f				22774.97
	Rate per cum = (a+b+c+d+e+f)/100				227.75
	As per rate taken from SOR 2018 directly (pg 24 item 12) after adding lead cost of material			say	226.26
				cess (1%)	<u>2.26</u>
				say	228.52
8	Construction of Subgrade and Earthen Shoulders				
	Construction of subgrade and earthen shoulders with approved material obtained from borrowpits having CBR not less than 5% with all lifts and leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of Table 300-2				
	Ref: Data Book/ Pg.71				
	Unit = sqm				
	Taking output = 100 sqm				
	a) Labour				
	Mate	day	0.040	550.00	22.00
	Mazdoor	day	1.000	400.00	400.00
	b) Machinery				
	Hydraulic Excavator 1 cum bucket capacity @ 60 cum per hour	hour	1.67	1129.75	1886.68
	Tipper 10 tonne capacity (L = 5Km)	tonne.km	175 x L	3.50	3062.50
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				306.25

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Dozer 80 HP for spreading @ 200 cum per hour	hour	0.50	2814.54	1407.27
	Motor grader for grading @ 50 cum per hour	hour	1.00	3786.88	3786.88
	Water tanker 6 KL capacity	hour	4.00	744.25	2977.00
	Vibratory roller 8 -10 tonnes @ 80 cum per hour	hour	1.25	1085.00	1356.25
	c) Material				
	Cost of water	KL	24.00	63.56	1525.44
	d) Overhead charges @ 10% on (a+b+c)				1673.03
	e) Contractor's profit @ 10 % on (a+b+c+d)				1840.33
	f) Add for lead and royalty				
	Compensation for earth taken from private land	cum	100.00	55.00	5500.00
	Cost for 100 cum = a+b+c+d+e+f				25743.63
	Rate per cum = (a+b+c+d+e+f)/100				257.44
	As per rate taken from SOR 2018 directly (pg 24 item 14) after adding lead cost of material			say	312.34
				cess (1%)	3.12
				say	315.46
9	Granular Sub-Base with Grading IV Material (Table:- 402)				
	Ref: Data Book/ Pg.95				
	Construction of granular sub-base by providing Grading IV Material, spreading in uniform layers with motor grader on prepared surface, mixing by place in method rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per clause 401				
	Unit = cum				
	Taking output = 300cum				
	a) Labour				
	Mate	day	4.00	550.00	2200.00
	Mazdoor skilled	day	2.00	450.00	900.00
	Mazdoor	day	8.00	400.00	3200.00
	b) Machinery				
	Motor Grader 110 HP@50 cum per hour	hour	6.00	3786.88	22721.28
	Vibratory roller 8-10 tonne	hour	6.00	1085.00	6510.00
	Water tanker	hour	3.00	744.25	2232.75
	c) Material with lead cost				
	Close graded Granular sub-base Material as per table 400-1				
	For Grading-IV Material				
	26.5 mm to 4.75 mm @ 45 per cent	cum	288.00	2621.04	754859.23
	2.36 mm below @ 20 per cent	cum	96.00	2940.58	282296.06
	Cost of water	KL	18.00	63.56	1144.08
	Rate per cum for Grading-IV Material				
	d) Overhead charges @ 10% on (a+b+c)				107606.34
	e) Contractor's profit @ 10 % on (a+b+c+d)				118366.97
	f) Add for royalty				
	26.5 mm to 4.75 mm @ 45 per cent	cum	288.00	0.00	0.00
	2.36 mm below @ 20 per cent	cum	96.00	0.00	0.00
	Cost for 300 cum = a+b+c+d+e+f				890522.62
	As per rate taken from SOR 2018 directly (pg 30 item 3-i) after adding lead cost of material				
	Rate per cum = (a+b+c+d+e+f)/300				2968.41
	As per rate taken from SOR 2018 directly (pg 30 item 3) after adding lead cost of material			say	2968.41
				cess (1%)	29.68
				say	2998.09
10	Granular Sub-Base with Grading VI Material (Table:- 402)				
	Ref: Data Book/ Pg.94				
	Construction of granular sub-base by providing Grading VI Material, spreading in uniform layers with motor grader on prepared surface, mixing by place in method rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per clause 401				
	Unit = cum				
	Taking output = 300cum				

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	a) Labour				
	Mate	day	0.48	550.00	264.00
	Mazdoor skilled	day	2.00	450.00	900.00
	Mazdoor	day	10.00	400.00	4000.00
	b) Machinery				
	Motor Grader 110 HP@50 cum per hour	hour	6.00	3786.88	22721.28
	Vibratory roller 8-10 tonne	hour	6.00	1085.00	6510.00
	Tractor rotavator	hour	12.00	400.00	4800.00
	Water tanker	hour	3.00	744.25	2232.75
	c) Material with lead cost				
	Close graded Granular sub-base Material as per table 400-1				
	For Grading-VI Material				
	26.5 mm to 9.5 mm @ 35 per cent	cum	134.40	2587.31	347735.00
	9.5 mm to 2.36 mm @ 25 per cent	cum	96.00	2604.41	250023.74
	2.36 mm below @ 40 per cent	cum	153.60	2940.58	451673.70
	Cost of water	KL	18.00	63.56	1144.08
	Rate per cum for Grading-VI Material				
	d) Overhead charges @ 10% on (a+b+c)				109200.46
	e) Contractor's profit @ 10 % on (a+b+c+d)				120120.50
	f) Add for royalty				
	26.5 mm to 4.75 mm @ 45 per cent	cum	134.40	0.00	0.00
	9.5 mm to 2.36 mm @ 25 per cent	cum	96.00	0.00	0.00
	2.36 mm below @ 20 per cent	cum	153.60	0.00	0.00
	Cost for 300 cum = a+b+c+d+e+f				876032.31
	Rate per cum = (a+b+c+d+e+f)/300				2920.11
	As per rate taken from SOR 2018 directly (pg 30 item 3) after adding lead cost of material			say	2920.11
				cess (1%)	29.20
				say	2949.31
11	Wet Mix Macadam				
	Ref: Data Book/ Pg.110				
	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.				
	Unit = cum				
	Taking output = 225 cum (495 tonnes)				
	a) Labour				
	Mate	day	0.48	550.00	264.00
	Mazdoor skilled	day	2.00	450.00	900.00
	Mazdoor	day	10.00	400.00	4000.00
	b) Machinery				
	Wet mix plant of 75 tonne hourly capacity (Rate of 60 TPH taken)	hour	6.60	1727.00	11398.20
	Electric generator 125 KVA	hour	6.00	900.00	5400.00
	Front end loader 1 cum capacity	hour	6.00	850.00	5100.00
	Paver finisher	hour	6.00	1716.41	10298.46
	Vibratory roller 8 - 10 tonne	hour	6x0.65	1085.00	4231.50
	Water tanker 6 KL capacity	hour	3.00	744.25	2232.75
	Tipper (L/4 = 10/4 = 3 km)	tonne.km	495 X L	3.00	4455.00
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				445.50
	c) Material with Lead cost (Table 400-11)				
	45 mm to 22.4 mm@ 30 per cent	cum	89.10	1921.39	171196.03
	22.4 mm to 2.36 mm @ 40 per cent	cum	118.80	1921.39	228261.37
	2.36 mm to 75 micron@ 30 per cent	cum	89.10	1921.39	171196.03
	Cost of water	KL	18.00	63.56	1144.08
	d) Overhead charges @ 10%on (a+b+c)				62052.29
	e) Contractor's profit @ 10 % on (a+b+c+d)				68257.52
	f) Add for royalty				
	45 mm to 22.4 mm@ 30 per cent	cum	89.10	0.00	0.00
	22.4 mm to 2.36 mm @ 40 per cent	cum	118.80	0.00	0.00
	2.36 mm to 75 micron@ 30 per cent	cum	89.10	0.00	0.00
	Cost for 225 cum = a+b+c+d+e+f As per rate taken from SOR 2018 directly (pg 32 item 02) after adding lead cost of material				672965.68
	Rate per cum = (a+b+c+d+e+f)/225				2990.96

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	As per rate taken from SOR 2018 directly (pg 32 item 2) after adding lead cost of material			say	<u>2990.96</u>
				cess (1%)	<u>29.91</u>
				say	<u>3020.87</u>
12	Prime Coat				
	Ref: Data Book/ Pg.123				
	Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.				
	Unit = sqm				
	Taking output = 3500 sqm				
	a) Labour				
	Mate	day	0.08	550.00	44.00
	Mazdoor	day	2.00	400.00	800.00
	b) Machinery				
	Mechanical broom @ 1250 sqm per hour	hour	2.80	505.00	1414.00
	Air compressor 250 cfm	hour	2.80	1359.78	3807.38
	Emulsion pressure distributor @ 1750 sqm per hour	hour	2.00	843.00	1686.00
	Water tanker 6 KL capacity @ 1 trip per hour	hour	1.00	744.25	744.25
	c) Material with lead cost				
	Slow Setting Bitumen emulsion @ 0.6 kg per sqm	tonne	2.10	1323.91	2780.22
	Cost of water	KL	6.00	63.56	381.36
	d) Overhead charges @ 10% on (a+b+c)				1165.72
	e) Contractor's profit @ 10 % on (a+b+C+d)				1282.29
	f) Add for royalty				
	Bitumen emulsion @ 0.6 kg per sqm	tonne	2.10	0.00	0.00
	Cost for 3500 sqm = a+b+c+d+e+f As per rate taken from SOR 2018 directly (pg 33 item 1-A) after adding lead cost of material				202713.91
	Rate per sqm = (a+b+c+d+e+f)/3500				57.92
	As per rate taken from SOR 2018 directly (pg 33 item 1 A) after adding lead cost of material			say	<u>57.92</u>
				cess (1%)	<u>0.579</u>
				say	<u>58.50</u>
13	Tack Coat				
	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.				
	Unit = sqm				
	Taking output = 3500 sqm				
	a) Labour				
	Mate	day	0.08	550.00	44.00
	Mazdoor	day	2.00	400.00	800.00
	b) Machinery				
	Mechanical broom @ 1250 sqm per hour	hour	2.80	505.00	1414.00
	Air compressor 250 cfm	hour	2.80	1359.78	3807.38
	Emulsion pressure distributor @ 1750 sqm per hour	hour	2.00	843.00	1686.00
	c) Material with lead cost				
	Bitumen emulsion @ 0.20 kg per sqm (R.S)	tonne	0.700	1323.91	926.74
	d) Overhead charges @ 10% on (a+b+c)				867.81
	e) Contractor's profit @ 10 % on (a+b+c+d)				954.59
	f) Add for royalty				
	Bitumen emulsion @ 0.25 kg per sqm	tonne	0.700	0.00	0.00
	Cost for 3500 sqm = a+b+c+d+e+f As per rate taken from SOR 2018 directly (pg 33 item 2-I) after adding lead cost of material				56028.91
	Rate per sqm = (a+b+c+d+e+f)/3500				16.01
	As per rate taken from SOR 2018 directly (pg 33 item 2 A) after adding lead cost of material			say	<u>16.01</u>
				cess (1%)	<u>0.160</u>
				say	<u>16.17</u>
14	Dense Graded Bituminous Macadam				
	Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 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 to 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 complete in all respects.				
	Unit = cum				

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Taking output = 195 cum (450 tonnes)				
	a) Labour				
	Mate	day	0.84	550.00	462.00
	Mazdoor working with HMP, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	14.00	400.00	5600.00
	Skilled mazdoor for checking line & levels	day	5.00	450.00	2250.00
	b) Machinery				
	Batch mix HMP @ 75 tonne per hour	hour	6.00	18245.00	109470.00
	Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.00	2569.85	15419.10
	Generator 250 KVA (Rate for 125KVA taken)	hour	6.00	900.00	5400.00
	Front end loader 1 cum bucket capacity	hour	6.00	850.00	5100.00
	Tipper 10 tonne capacity ,(L/4 = 10/4 = 3 km)	tonne.km	450 x L	3.00	4050.00
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				405.00
	smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	587.50	2291.25
	Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	1085.00	4231.50
	Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	894.00	3486.60
	c) Materials with lead cost				
	Bitumen @ 4.25 per cent of weight of mix	tonne	19.13	1323.91	25326.44
	Aggregate				
	Total weight of mix = 450 tonnes				
	Weight of bitumen = 19.13 tonnes				
	Weight of aggregate = 450 - 19.13 = 430.87 tonnes				
	Taking density of aggregate = 1.5 ton/cum				
	Volume of aggregate = 287.25 cum				
	Grading - II 19 mm (Nominal Size)				
	25-10mm 30 per cent	cum	86.16	1921.39	165547.13
	10 -5mm 28 per cent	cum	80.43	1921.39	154537.56
	5mm below 40 percent	cum	114.90	1921.39	220767.94
	Filler @ 2 per cent of weight of aggregates.	cum	5.73	1921.39	11009.58
	d) Overhead charges @ 10 % on (a+b+c)				73535.41
	e) Contractor Profit charges @ 10 % on (a+b+c+d)				80888.95
	f) Add for royalty				
	Bitumen	tonne	19.13	0.00	0.00
	25 - 10 mm 30 per cent	cum	86.16	0.00	0.00
	10 - 5 mm 28 per cent	cum	80.43	0.00	0.00
	5 mm and below 40 per cent	cum	114.90	0.00	0.00
	Filler @ 2 per cent of weight of aggregates.	cum	5.73	0.00	0.00
	Cost for 195cum = a+b+c+d+e+f As per rate taken from SOR 2018 directly (pg 34 item 2-I) after adding lead cost of material				2096478.56
	Rate per cum = (a+b+c+d+e+f)/195 (For Grading II)				10751.17
	As per rate taken from SOR 2018 directly (pg 34 item 6-II-A) after adding lead cost of material			say	10751.17
				cess (1%)	107.51
				say	10858.68
15	Bituminous Concrete				
	Ref: Data Book/ Pg.138				
	Providing and laying bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to 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 complete in all respects				
	Unit = cum				
	Taking output = 191 cum (450 tonnes)				
	a) Labour				
	Mate	day	0.84	550.00	462.00
	Mazdoor working with HMP, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	14.00	400.00	5600.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Skilled mazdoor for checking line & levels	day	5.00	450.00	2250.00
	b) Machinery				
	Batch mix HMP @ 75 tonne per hour	hour	6.00	18245.00	109470.00
	Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.00	2569.85	15419.10
	Generator 250 KVA	hour	6.00	900.00	5400.00
	Front end loader 1 cum bucket capacity	hour	6.00	850.00	5100.00
	Tipper 10 tonne capacity (L/4 = 10/4 = 3 km)	tonne.km	450 x L	3.00	4050.00
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				405.00
	Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	587.50	2291.25
	Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	1085.00	4231.50
	Finish rolling with 6-8 tonnes smooth wheeled tandem roller	hour	6.00x0.65*	894.00	3486.60
	c) Material with lead cost				
	i) Bitumen@ 5 per cent of weight of mix	tonne	22.50	1323.91	29788.02
	ii) Aggregate				
	Total weight of mix = 450 tonnes				
	Weight of bitumen = 22.5 tonnes				
	Weight of aggregate = 450 - 22.50 = 427.50 tonnes				
	Taking density of aggregate = 1.5 ton/cum				
	Volume of aggregate = 285 cum				
	10 - 5 mm@ 28 per cent (Price for 10 mm +4.7 mm)/2	cum	162.45	1921.39	312130.13
	5 mm and below@ 40 per cent	cum	116.85	1921.39	224514.66
	Filler @ 32 per cent of weight of aggregates.	tonne	8.62	1921.39	16562.40
	d) Overhead charges @ 10 % on (a+b+c)				74116.07
	e) Contractor's profit @ 10 % on (a+b+c+d)				81527.67
	f) Add for Royalty				
	Bitumen	tonne	22.50	0.00	0.00
	9.5 - 4.75 mm@ 57 per cent	cum	162.45	0.00	0.00
	4.75 mm and below@ 41 per cent	cum	116.85	0.00	0.00
	Filler @ 2 per cent of weight of aggregates.	tonne	8.62	0.00	0.00
	Cost for 191 cum = a+b+c+d+e+f As per rate taken from SOR 2018 directly (pg 35 item 8-II A) after adding lead cost of material				2286313.01
	Rate per cum = (a+b+c+d+e)/191 (For Grading II)				11970.23
	As per rate taken from SOR 2018 directly (pg 35 item 8-II A) after adding lead cost of material				11970.23
				cess 1%	119.70
				Say	12089.93
16	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface				
	Ref: Data Book/ Pg.225				
	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.				
	Unit = sqm				
	Taking output = 640 sqm				
	a) Labour				
	Mate	day	0.50	550.00	275.00
	Mazdoor	day	2.00	400.00	800.00
	b) Machinery				
	Road marking machine @ 60 sqm per hour	hour	8.00	213.00	1704.00
	Tractor-trolley	hour	8.00	382.00	3056.00
	c) Material				
	Hot applied thermoplastic compound	Litre	2000.00	316.07	632140.00
	Reflectorising glass beads	kg	200.00	128.57	25714.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	d) Overhead charges @ 10% on (a+b+c)				66368.90
	e) Contractor's profit @ 10 % on (a+b+c+d)				73005.79
	Cost for 640 sqm = a+b+c+d+e				803063.69
	Rate per sqm = a+b+c+d+e)/640 As per rate taken from SOR 2018 directly (pg 43 item 14) after adding lead cost of material				1002.14
				Say	1002.14
				cess (1%)	10.02
				say	1012.16
17	GUARD POST As per SOR				
	Supplying and fixing 15cm dia 1.0m long guard post of RCC 1:2:4 using 7.5 kg of steel for each guard post with 12mm size aggregate, including cost of all reinforcement and materials centring and shuttering and watering, carrying complete.				
	Cost of RCC 1:2:4	Cum	0.018	10276.11	184.97
	Reinforcement	MT	0.0035	127499.08	446.25
				Say	631.22
				cess(1%)	6.31
				say	637.53
18	Cement concrete 1:2:4 with 12mm size aggregate				
	a) Material				
	12mm size agg.	Cum	0.90	2821.96	2539.77
	Sand	Cum	0.45	1612.00	725.40
	Cement	MT	0.323	9434.94	3047.48
	b) Labour				
	Masson 2nd class	day	0.18	500.00	90.00
	Man mulia	day	1.80	400.00	720.00
	Woman mulia	day	1.40	400.00	560.00
	(c)Extra labour				
	Man mulia for mixing	day	1.40	400.00	560.00
	Masson 2nd class	day	0.50	500.00	250.00
	(d) Over head charge @ 10% (a+b+c)				849.27
	(e) Contractor's profit @ 10 % (a+b+c+d)				934.19
	Add for royalty				
	12mm size agg.	Cum	0.900	0.00	0.00
	Sand	Cum	0.450	0.00	0.00
	Cement	MT	0.323	0.00	0.00
	Rate per cum (a+b+c+d+e)=			Say	10276.11
				cess(1%)	102.76
				say	10378.87
	Ref: Data Book/ Pg.226				
	Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc				
(I)	Ordinary kilometer stone (precast)				
	Unit = Nos.				
	Taking output = 14 Nos.				
	a) M-15 grade of concrete	cum	3.77	8824.70	33269.11
	b) Steel reinforcement @ 5 kg per sqm	kg	26.32	127.50	3355.78
	c) Excavation in soil for foundation	cum	2.77	365.47	1012.36
	d) Painting two coats on concrete surface	sqm	11.41	93.41	1065.81
	e) Lettering on km post (average 12 letters of 10 cm height each)	per cm per letter	1680.00	1.34	2251.20
	Transportation and fixing				
	f) Labour				
	Mate	day	0.32	550.00	176.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Mason	day	1.00	450.00	450.00
	Mazdoor	day	7.00	400.00	2800.00
	g) Machinery				
	Tractor-trolley	hour	6.00	382.00	2292.00
	h) Overhead charges @ 10 % on (f+g)				571.80
	i) Contractor's profit @ 10 % on (f+g+h)				628.98
	Cost for 14 Nos. ordinary km stone = (a+b+ c +d+e+f+g+h+i)				47873.03
	Rate for each ordinary km stone = (a+b+ c +d+e+f+g+h+i)/14				3419.50
	As per rate taken from SOR 2018 directly (pg 41 item 2a) after adding lead cost of material			say	2676.24
				cess (1%)	26.76
				say	2703.00
(II)	Hectometer stone (precast)				
	Unit = Nos.				
	Taking output = 33 Nos.				
	a) M-15 grade of concrete	cum	1.58	8824.70	13943.02
	b) Steel reinforcement @ 5 kg per sqm	kg	66.00	127.50	8414.94
	c) Excavation in soil for foundation	cum	1.39	365.47	508.01
	d) Painting two coats on concrete surface	sqm	6.27	93.41	585.68
	e) Lettering on km post (average 1 letter of 10 cm height each)	per cm per letter	330.00	1.34	442.20
	Transportation and fixing				
	f) Labour				
	Mate	day	0.34	550.00	187.00
	Mason	day	1.50	450.00	675.00
	Mazdoor	day	7.00	400.00	2800.00
	g) Machinery				
	Tractor-trolley	hour	6.00	382.00	2292.00
	h) Overhead charges @ 10 % on (f+g)				595.40
	i) Contractor's profit @ 10 % on (f+g+h)				654.94
	Cost for 33 Nos. Hectometer stone = (a+b +c +d+e+f+ g+h+i)				31098.19
	Rate for each Hectometer stone = (a+b +c +d+e+f+ g+h+i)/33				942.37
				say	942.37
				cess (1%)	9.42
				say	951.79
iii)	5th kilometre stone (precast)				
	Unit = Nos.				
	Taking output = 6 Nos.				
	a) M-15 grade of concrete	cum	2.350	8824.70	20738.04
	b) Steel reinforcement @ 5 kg per sqm	kg	22.080	127.50	2815.18
	c) Excavation in soil for foundation	cum	1.680	365.47	613.99
	d) Painting two coats on concrete surface	sqm	9.850	93.41	920.09
	e) Lettering on km post (average 30 letters of 10 cm height each)	per cm per letter	1800.000	1.34	2412.00
	Transportation and fixing				
	f) Labour				
	Mate	day	0.260	550.00	143.00
	Mason	day	0.600	450.00	270.00
	Mazdoor including loading/unloading	day	6.000	400.00	2400.00
	g) Machinery				
	Tractor-trolley	hour	6.000	382.00	2292.00
	h) Overhead charges @ 10%on (a+b+c+d+e+f+g)				510.50

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	i) Contractor's Profit @ 10% on (a+b+c+d+e+f+g)				561.55
	Cost for 6 Nos. 5th km stone = a+b+c+d+e+f+g+h				33676.35
	Rate for each 5th km stone = (a+b+c+d+e+f+g+h)/6 As per rate taken from SOR 2018 directly (pg 41 item 2b) after adding lead cost of material				4556.84
			Labour Cess 1%		45.57
				say	<u>4602.41</u>
18	Painting on Steel Surface				
	Ref: Data Book/ Pg.221				
	Painting on steel surface				
	Stone/Boulder				
	Unit = Sqm				
	Taking output = 10 Sqm				
	a) Material				
	Paint	Lt	1.25	223.00	278.75
	b) Labour				
	Mate	day	0.03	550.00	16.50
	Painter	day	0.45	550.00	247.50
	Mazdoor	day	0.25	400.00	100.00
	c) Overhead charges @ 10% on (a+b)				64.28
	d) Contractor's profit @ 10 % on (a+b+c)				70.70
	Rate per Sqm = (a+b+c+d)/10				85.06
	As per rate taken from SOR 2018 directly (pg 41 item 6)			Say	<u>85.06</u>
19	Stone pitching				
	Ref: Data Book/ Pg.522				
	Providing and laying Pitching on slopes laid over prepared filter material including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications(15cm to 30 cm size).				
	Stone/Boulder				
	Unit = cum				
	Taking output = 1 cum				
	a) Material with lead cost				
	Rough stone granites including spalls for filling and wedging	cum	1.00	1921.39	1921.39
	b) Labour				
	stone packer	day	0.35	400.00	140.00
	Mason special	day	0.17	550.00	93.50
	Man & woman mulia	day	1.04	400.00	416.00
	c) Overhead charges @ 10% on (a+b)				257.09
	d) Contractor's profit @ 10 % on (a+b+c)				282.80
	e) Add for royalty				
	Rough stone granites including spalls for filling and wedging	cum	1.00	0.00	0.00
	Rate per cum = (a+b+c+d+e)				3110.78
	As per rate taken from SOR 2018 directly (pg 72 item 3a) after adding lead cost of material				<u>3577.04</u>
				cess (1%)	<u>35.77</u>
				say	<u>3612.81</u>
20	Gravel Backing to revetments (filter material underneath pitching)				
	Ref: Data Book/ Pg.523				
	Unit = cum				
	Taking output = 1.0 cum				
	a) Material with lead cost				
	Gravel	cum	1.00	319.38	319.38
	b) Labour				
	Man Mulia	day	0.71	400.00	284.00
	Woman Mulia	day	0.35	400.00	140.00
	c) Overhead charges @ 10% on (a+b)				74.34
	d) Contractor's profit @ 10 % on (a+b+c)				81.77
	e) Add for royalty				

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Gravel	cum	1.00	0.00	0.00
	Cost for 1 cum(a+b+c+d+e)			Total	899.50
	Rate for 1.0cum(a+b+c+d+e) As per rate taken from SOR 2018 directly (pg 72 item 2) after adding lead cost of material				2746.33
				cess (1%)	27.46
				say	2773.80
21	Providing R.R Stone Masonary walls including cost of all & complete with cement motar (1:3)				
	Ref: Data Book/ Pg.334				
	Taking output = 5 cum				
	a) Material with lead cost				
	Stone	cum	5.50	2880.60	15843.30
	Through and Bond Stone	Nos	0.79	57.14	45.14
	Cement Mortar 1:3	Cum	1.55	1195.20	1852.55
	Mate	day	0.62	550.00	341.00
	Mason	day	6	500.00	3000.00
	Mazdoor	day	9	400.00	3600.00
	c) Over head 10% on (a+b)				2468.20
	d) Contractor's profit @ 10% on (a+b)				2715.02
	Add for royalty	Cum	6.29	0.00	0.00
	Cement	tonne	0.51	0.00	0.00
	Sand	Cum	1.05	0.00	0.00
	As per rate taken from SOR 2018 directly (pg 58 item 2b) after adding lead cost of material				7158.69
				cess (1%)	71.59
				say	7230.28
22	PCC Grade M-15 Foundation				
	Unit : cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	Cement	MT	4.13	1323.91	5467.76
	Coarse sand	cum	6.75	0.00	0.00
	40 mm Aggregate	cum	8.10	1980.60	16042.86
	20 mm Aggregate	cum	4.05	1921.39	7781.64
	10 mm Aggregate	cum	1.35	1921.39	2593.88
	b) Labour				
	mate	day	0.86	550.00	473.00
	Mason 2nd class	day	1.50	500.00	750.00
	Mulia for mixing	day	20.00	400.00	8000.00
	c) Machinery				
	Concrete mixer (0.40/0.28 cum)	Hour	6.00	187.50	1125.00
	Generetor	Hour	6.00	392.00	2352.00
	Formwork @ 4%				1783.45
	Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		44586.14		
	d) Overhead charges @ 10% on (a+b+c)				4636.96
	e) Contractor's profit @ 10 % on (a+b+c+d)				5100.65
	f) Add for royalty				
	Cement	mt	4.13	0.00	0.00
	Coarse sand	cum	6.75	0.00	0.00
	40 mm Aggregate	cum	8.10	0.00	0.00
	20 mm Aggregate	cum	4.05	0.00	0.00
	10 mm Aggregate	cum	1.35	0.00	0.00
	Cost for 15 cum = a+b+c+d+e+f				132370.45
	Rate per cum = (a+b+c+d+e+f)/15				8824.70
	As per rate taken from SOR 2018 directly (pg 58 item 3a) after adding lead cost of material				8824.70
				say	
				cess (1%)	88.25
				say	8912.95

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
23	PCC Grade M20 for foundation				
	Ref: Data Book/ Pg.336				
	Unit : cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	Cement	mt	5.16	1323.91	6831.39
	Coarse sand	cum	6.75	0.00	0.00
	40 mm Aggregate	cum	5.40	1980.60	10695.24
	20 mm Aggregate	cum	5.40	1921.39	10375.52
	10 mm Aggregate	cum	2.70	1921.39	5187.76
	b) Labour				
	Mate	day	0.86	400.00	344.00
	Mason 2 nd class	day	1.50	450.00	675.00
	Mulia	day	20.00	400.00	8000.00
	c) Machinery				
	Concrete mixer (0.40/0.28 cum)	Hour	6.00	187.50	1125.00
	Generetor	Hour	6.00	392.00	2352.00
	Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)				45585.90
	Forwork @ 4%				1823.44
	d) Overhead charges @ 10% on (a+b+c)				4740.93
	e) Contractor's profit @ 10 % on (a+b+c+d)				5215.03
	f) Add for royalty				
	Cement	MT	5.16	0.00	0.00
	Coarse sand	cum	6.75	0.00	0.00
	40 mm Aggregate	cum	5.40	0.00	0.00
	20 mm Aggregate	cum	5.40	0.00	0.00
	12 mm Aggregate	cum	2.70	0.00	0.00
	Total = (a+b+c+d+e)				147153.55
	Rate per cum = (a+b+c+d+e)/15			Say	9810.24
	As per rate taken from SOR 2018 directly (pg 58 item 3b) after adding lead cost of material			cess (1%)	98.10
				say	9908.34
24	Supplying, fitting and placing HYSD bar reinforcement in foundation sub-structure & super-structure complete as per drawing and technical specifications				
	Ref: Data Book/ Pg.459				
	Unit = 1 MT				
	Taking output = 1 MT				
	a) Material				
	HYSD bars including 5 per cent for laps and wastage	tonne	1.05	50071.43	52575.01
	Binding wire	Kg	6.00	0.00	0.00
	b) Labour for Cutting, bending, tying and placing in position				
	Mate	day	2.00	550.00	1100.00
	Blacksmith	day	6.50	550.00	3575.00
	Mazdoor	day	8.00	400.00	3200.00
	Basic Cost of Labour & Material (a+b)				60450.01
	c) Overhead charges @ 10% on (a+b)				6045.00
	d) Contractor's profit @ 10 % on (a+b+c)				6649.50
	e) Add for royalty				
	HYSD bars including 5 per cent for laps and wastage	tonne	1.05	0.00	0.00
	Rate per MT = a+b+c+d+e			say	127499.08
				cess (1%)	1274.99
				say	128774.08
25	Sand Filling in foundation & plinth with water & ramming with roller complete as per the direction of Engineer in charge.				

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Ref: Data Book/ Pg.331				
	Taking output = 1cum				
	a) Labour				
	Mate	day	0.01	550.00	5.50
	Mazdoor	day	0.30	400.00	120.00
	b) Material with lead cost				
	Sand	cum	1.20	0.00	0.00
	c) Overhead charges @ 10% on (a+b)				12.55
	d) Contractor's profit @ 10 % on (a+b+c)				13.81
	e) Add for royalty				
	Sand	cum	1.20	0.00	0.00
	Rate per cum				151.86
	As per rate taken from SOR 2018 directly (pg 57 item 2-i) after adding lead cost of material			say	2528.78
				cess (1%)	25.29
				say	2554.07
26	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.				
	Ref: Data Book/ Pg.463				
	Unit = cum				
	Taking output = 10 cum.				
	a) Labour				
	Mate	day	0.32	550.00	176.00
	Mazdoor for filling, watering, ramming etc.	day	7.00	400.00	2800.00
	Mazdoor (Skilled)	day	1.00	450.00	450.00
	b) Material with lead cost				
	Filter media of stone aggregate conforming to clause 2504.2.2. of MoRTH specifications.	cum	12.00	1980.60	23767.20
	c) Machinery				
	Water Tanker of 6 KL capacity	hour	0.06	744.25	44.66
	d) Overhead charges @ 10% on (a+b+c)				2723.79
	e) Contractor's profit @ 10 % on (a+b+c+d)				2996.16
	f) Add for royalty				
	stone aggregate	cum	12.00	0.00	0.00
	cost for 10 cum of Fiter Media = a+b+c+d+e+f				14727.10
	Rate per cum = (a+b+c+d+e+f)/10				1472.71
	As per rate taken from SOR 2018 directly (pg 57 item 4) after adding lead cost of material			say	1472.71
				cess(1%)	14.73
				say	1487.44
27	WEEP HOLE				
	Ref: Data Book/ Pg.461				
	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia PVC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical Specifications				
	Unit = Nos.				
	Taking output = 30 Nos				
	a) Material				
	PVC pipe 100 mm dia. (including wastage @ 5 per cent)	metre	31.50	132.00	4158.00
	Average length of weep hole is taken as one metre for the purpose of estimating.				
	MS clamp	each.	30.00	55.00	1650.00
	collar for PVC pipe (average) taking 10% of above pipe rate	each.	10.00	206.64	2066.40
	Cement mortar 1:3 (Rate as in Item 42 (i))	cum	0.05	1195.20	59.76
	b) Labour				
	Mate	day	0.03	550.00	16.50
	Mason second class	day	0.50	500.00	250.00
	Mulia unskilled	day	0.25	400.00	100.00
	c) Overhead charges @ 10% on (a+b)				830.07

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	d) Contractor's profit @ 10 % on (a+b+c)				913.07
	e) Add for royalty				
	Cement	tonne	0.025	0.00	0.00
	Sand	cum	0.05	0.00	0.00
	Lead cost for 0.05 cum				0.00
	Cost for 30 m = a+b+c+d+e				14696.41
	Rate per Each (a+b+c+d+e)/30				489.88
	As per rate taken from SOR 2018 directly (pg 66 item 12) after adding lead cost of material			say	489.88
				cess(1%)	4.90
				say	494.78
28	Cement Mortar 1:3 (1 cement :3 sand)				
	<i>Ref: Data Book/ Pg.333</i>				
	Unit = 1 cum				
	Taking output = 1 cum				
	a) Materials				
	Cement	tonne	0.51	1323.91	675.20
	Sand	cum	1.05	0.00	0.00
	b) Labour				
	Mate	day	0.40	400.00	160.00
	Mazdoor	day	0.90	400.00	360.00
	Total Material and Labour = (a+b)			say	1195.20
29	Painting two coats over a coat of priming after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces				
	<i>Ref: Data Book/ Pg.220</i>				
	Taking output = 40 Sqm				
	a) Labour				
	Mate	day	0.120	550.00	66.00
	Painter	day	2.000	550.00	1100.00
	Mazdoor	day	1.000	400.00	400.00
	b) Material				
	Paint	lit	6.000	223.00	1338.00
	Add for scaffolding @ 1 per cent of labour cost where required				15.66
	c) Overhead charges @ 10% on (a+b)				291.97
	d) Contractor Profit@ 10% on (a+b+c)				321.16
	Cost for 40 sqm				3532.79
	Rate per sqm = (a+b+c+d)/40.0				88.32
					93.41
				Say	93.41
				cess (1%)	0.93
				say	94.34
29 (a)	Printing with New letter and figures of any synthetic enamel paint black or any other approved colour to give an even shade.				
	English and roman				
	hyphens and the like not to be measured and paid for				
	Detail for 100 letters of 16 cm height i.e 1600cm				
	unit =per cm height per letter				
	data book page no- 212				
	a) Labour				
	mate	day	0.07	550.00	38.50
	painter 1st class	day	1.25	550.00	687.50
	mazdoor	day	0.5	400.00	200.00
	b) material				
	paint	litre	0.5	223.00	111.50
	c) Overhead charges @ 10% on (a+b)				103.75
	d)Contractors Profit @ 10% on (a+b+c)				114.13
	cost for 1600cm=a+b+c+d				1255.38
	Rate per cm height per letter = (a+b+c+d)/1600			Say	1.34
	Add labour cess 1%			cess (1%)	0.001

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
				say	1.34
30	Retro-Reflectorised Traffic Signs				
	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing Ref: Data Book/ Pg.213				
	Unit = Each				
	Taking output = one traffic sign				
	i) Excavation for foundation	cum	0.216	365.47	78.94
	ii) Cement concrete M15 grade	cum	0.120	8824.70	1058.96
	iii) Painting angle iron post two coats	sqm	0.430	93.41	40.17
	a) Labour (For fixing at site)				
	Mate	day	0.010	550.00	5.50
	Mazdoor	day	0.250	400.00	100.00
	b) Material				
	Mild steel angle iron 75 x 75 x 6 mm	kg	19.000	1.65	31.44
	c) Machinery				
	Tractor-trolley	hour	0.010	382.00	3.82
					140.76
	Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable				
	Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.				
					2.82
	90 cm equilateral triangle				<u>143.58</u>
		sqm	0.350	7000.00	2450.00
					2593.58
	d) Overhead charges @ 10% on (a+b+c)				259.36
	e) Contractor's profit @ 10% on (a+b+c+d)				285.29
	As per rate taken from SOR 2018 directly (pg 42 item 11-i) after adding lead cost of material				4931.35
				Labour cess @1%	49.31
				say	<u>4980.66</u>
	60 cm equilateral triangle				143.58
		sqm	0.156	7000.00	1092.00
					1235.58
	d) Overhead charges @ 10% on (a+b+c)				123.56
	e) Contractor's profit @ 10% on (a+b+c+d)				135.91
	As per rate taken from SOR 2018 directly (pg 42 item 11-ii) after adding lead cost of material				3621.96
				Labour cess @1%	36.22
				say	<u>3658.18</u>
	60 cm circular				143.58
		sqm	0.283	7000.00	1981.00
					2124.58
	d) Overhead charges @ 10% on (a+b+c)				212.46
	e) Contractor's profit @ 10% on (a+b+c+d)				233.70
	As per rate taken from SOR 2018 directly (pg 42 item 11-iii) after adding lead cost of material				4440.80
				Labour cess @1%	44.41
				say	<u>4485.2</u>
	80 cm x 60 cm rectangular				143.58
		sqm	0.480	7000.00	3360.00
					3503.58
	d) Overhead charges @ 10% on (a+b+c)				350.36
	e) Contractor's profit @ 10% on (a+b+c+d)				385.39
	As per rate taken from SOR 2018 directly (pg 42 item 11-iv) after adding lead cost of material				5706.23
				Labour cess @1%	57.06
				say	<u>5763.29</u>

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	60 cm x 45 cm rectangular				143.58
		sqm	0.270	7000.00	1890.00
					2033.58
	d) Overhead charges @ 10% on (a+b+c)				203.36
	e) Contractor's profit @ 10% on (a+b+c+d)				223.69
	As per rate taken from SOR 2018 directly (pg 42 item 11-v) after adding lead cost of material				4249.15
				Labour cess @1%	42.49
				say	4291.64
	60 cm x 60 cm square				143.58
		sqm	0.360	7000.00	2520.00
					2663.58
	d) Overhead charges @ 10% on (a+b+c)				266.36
	e) Contractor's profit @ 10% on (a+b+c+d)				292.99
	As per rate taken from SOR 2018 directly (pg 42 item 11-vi) after adding lead cost of material				5200.94
				Labour cess @1%	52.01
				say	5252.95
	90 cm high octagon				143.58
		sqm	0.672	7000.00	4704.00
					4847.58
	d) Overhead charges @ 10% on (a+b+c)				484.76
	e) Contractor's profit @ 10% on (a+b+c+d)				533.23
	As per rate taken from SOR 2018 directly (pg 42 item 11-vii) after adding lead cost of material				8165.25
				Labour cess @1%	81.65
				say	8246.90
31	BACK FILLING				
	MORTH- 462				
	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification (Sand)				
	Pg 462 of MORTH Specification				
	Unit = cum				
	Taking output = 10 cum				
	Granular material				
	a) Labour				
	Mate	day	0.28	550.00	154.00
	Mazdoor	day	7.00	400.00	2800.00
	b) Material with lead cost				
	Granular material(SAND)	cum	12.00	0.00	0.00
	c) Machinery				
	Plate compactor/power rammer	hour	2.50	100.00	250.00
	Water Tanker	hour	0.06	744.25	44.66
	d) Overhead charges @ 10% on (a+b+c)				324.87
	e) Contractor's profit @ 10% on (a+b+c+d)				357.35
	f) Add for royalty				
	Granular material(SAND)	cum	12.00	0.00	0.00
	Cost for 10 cum of granular backfill = a+b+c+d+e+f				10078.60
	Rate per cum = (a+b+c+d+e+f)/10				1007.86
	As per rate taken from SOR 2018 directly (pg 57 item 3-a) after adding lead cost of material				
				Labour Cess 1%	10.08
				say	1017.94
32	Painting on concrete surface				
	Ref: Data Book/ Pg.505				
	Providing and applying 2 coats of water based cement paint over a coat of cement wash to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.				
	Unit = sqm				
	Taking output = 10 sqm				
	a) Labour				
	Painter(spl)	day	0.22	550.00	121.00
	Man mulia and woman mulia for preparation of surface	day	0.32	400.00	128.00
	b) Overhead charges @ 10% on (a)				24.90
	c) Contractor Profit@ 10% on (a+b)				27.39
					301.29
	Rate per sqm (a+b+c)/10				30.13
	Cost of paint=(2.5x35.00)/10				8.75

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	As per rate taken from SOR 2018 directly (pg 41 item 4)				93.41
				cess (1%)	0.93
				say	94.34
33	Cement wash in one coat				
	Unit = sqm				
	Taking output = 93.00sqm				
	a) Material				
	Cement	Tonne	0.1001	9434.94	944.44
	b) Labour				
	Painter 2nd class	day	0.75	500.00	375.00
	Man mulia	day	0.50	400.00	200.00
	Man mulia for surface preparation	day	0.50	400.00	200.00
	c) Overhead charges @ 10% on (a+b)				171.94
	d) Contractor Profit@ 10% on (a+b+c)				189.14
	e) Add for royalty				
	Cement	Tonne	0.1001	0.00	0.00
	Rate per 93 sqm				2080.52
	Rate per 1 sqm				22.37
	Rate of cement wash and cement paint				115.78
				say	115.78
				cess (1%)	1.16
				say	116.94
34	Drainage Spouts complete as per drawing and Technical specification				
	Ref: Data Book/ Pg.449				
	Unit = 1 No.				
	Taking output = 1 No.				
	a) Material				
	Corrosion resistant Structural steel including 5 per cent wastage	Kg	4.00	1.65	6.62
	GI pipe 100mm dia	metre	0.60	400.00	240.00
	GI bolt 10 mm Dia	each	6.00	38.00	228.00
	Galvanised MS flat clamp	each	2.00	20.00	40.00
	b) Labour				
	For fabrication				
	Mate	day	0.02	550.00	11.00
	Skilled (Blacksmith, welder etc.)	day	0.02	400.00	8.00
	Mazdoor	day	0.02	400.00	8.00
	For fixing in position				
	Mate	day	0.01	550.00	5.50
	Mason	day	0.01	500.00	5.00
	Mazdoor	day	0.20	400.00	80.00
	Add @ 5 per cent of cost of material and labour for electrodes, cutting gas, sealant, anti-corrosive bituminous paint, mild steel grating etc.				31.61
	c) Overhead charges @ 10% on (a+b)				66.37
	d) Contractor Profit@ 10% on (a+b+c)				73.01
	Rate per Each (a+b+c+d)				2158.99
	As per rate taken from SOR 2018 directly (pg 70 item 11)			say	2158.99
				cess (1%)	21.59
				say	2180.58
35	Dismantling				
	Prestressed / Reinforced cement concrete grade M-20 & above				
	Ref: Data Book/ Pg.26				
	a) Labour				
	Mate	day	0.50	550.00	275.00
	Blacksmith	day	0.25	500.00	125.00
	Mazdoor for dismantling, loading and unloading	day	3.50	400.00	1400.00
	b)Machinery				
	Tractor-trolley	hour	0.27	382.00	103.14
	c) Overhead charges @ 10% on (a+b)				190.31
	d) Contractor's profit @ 10% on (a+b+c)				209.35
	Cost for 1.25 cum = a+b+c+d				2302.80
	Rate per cum = (a+b+c+d)/ 1.25				1739.01
	As per rate taken from SOR 2018 directly (pg 15 item 4-l-c) after adding lead cost of material			Labour Cess 1%	17.39
				say	1756.40

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Dismantling Rubble stone masonry in cement mortar.				
	<i>Ref: Data Book/ Pg.28</i>				
	a) Labour				
	Mate	day	0.030	550.00	16.50
	Mazdoor for dismantling, loading and unloading.	day	0.750	400.00	300.00
	b) Machinery				
	Tractor-trolley	hour	0.270	382.00	103.14
	c) Overhead charges @ 10% on (a+b)				41.96
	d) Contractor's profit @ 10% on (a+b+c)				46.16
	Cost for 1.25 cum = a+b+c+d				507.76
	Rate per cum = (a+b+c+d)/ 1.25				489.32
	As per rate taken from SOR 2018 directly (pg 16 item 4-III-b)			Labour Cess 1%	4.89
				say	<u>494.21</u>
36	RCC M20 in Foundation				
	<i>Ref: Data Book/ Pg.336</i>				
	Unit=cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	20 mm size chips	cum	8.100	1921.39	15563.28
	10mm size chips	cum	5.400	1921.39	10375.52
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	5.210	1323.91	6897.58
	b) Labour				
	Mate	day	0.860	550.00	473.00
	Mason 2nd class	day	1.500	500.00	750.00
	Man Mulia	day	20.000	400.00	8000.00
	c) Machinery				
	Concrete mixer	hour	6.000	187.50	1125.00
	Generator 33 KVA	hour	6.000	392.00	2352.00
					45536.37
	Formwork @ 4%				1821.45
	d) Overhead charges @ 10 % on (a+b+c)				4735.78
	e) Contractor's profit @ 10 % on (a+b+c+d)				5209.36
	Add for royalty				
	20 mm size chips	cum	8.100	0.00	0.00
	10mm size chips	cum	5.400	0.00	0.00
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	5.210	0.00	0.00
	Cost of 15 cum=(a+b+c+d)				145172.95
	Rate per cum=(a+b+c+d)/15				9678.20
				Labour cess @1%	96.78
				say	<u>9774.98</u>
37	Providing reinforced cement concrete crash barrier at the edges of road, approaches to bridge structures and medians,constructed with M40 grade concrete with HYSD reinforcement conforming to IRC :21 and dowel bars 25mm dia , 450 mm long at expansion joints filled with pre-moulded asphalt filler board keyed to the structure and installed as per design given in the MOST circular No RW/NH-33022/1/94-DO III dated 24th June,1994 and as per dimensionsin the approved drawing and at locations directed by the Engineer.				
	<i>Ref: Data Book/ Pg.237</i>				
	Unit = linear meter				
	Taking Output=10m				
	a)M40 grade concrete	cum	3	12131.68	36395.04
	b) Labour				
	Mate	day	0.04	550.00	22.00
	Mazdoor	day	1.00	400.00	400.00
	c) Material				
	HYSD Steel reinforcement	tonne	0.28	127499.08	35699.74
	Pre-moulded asphalt filler board	sqm	0.32	1320.00	422.40
	cost of 150 mm dia PVC pipe.	rm	1.00	70.00	70.00
					914.40
	d) Overhead charges @ 10% on (a+b+c)				91.44
	e) Contractor's profit @ 10% on (a+b+c+d)				100.58
	Cost for 10meter				52775.30
	Rate per meter=(a+b+c+d+e)/10				5277.53

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	As per rate taken from SOR 2018 directly (pg 45 item 17)			Labour cess @1%	52.78
				say	<u>5330.31</u>
38	RCC Grade M25 for Foundation				
	<i>Ref: Data Book/ Pg.340</i>				
	Using Concrete Mixer				
	Unit = 1 cum				
	Taking output = 15cum				
	a) Material with lead cost				
	Cement	tonne	6.05	1323.91	8009.67
	Coarse sand	cum	6.75	0.00	0.00
	20 mm Aggregate	cum	8.10	1921.39	15563.28
	10 mm Aggregate	cum	5.40	1921.39	10375.52
	b) Labour				
	Mate	day	0.86	550.00	473.00
	Mason	day	1.50	500.00	750.00
	Mazdoor	day	20.00	400.00	8000.00
	c) Machinery				
	Concrete mixer (cap 0.40/0.28 cum)	hour	6.00	187.50	1125.00
	Generator 33 KVA	hour	6.00	392.00	2352.00
	Basic Cost of Labour, Material & Machinery (a+b+c) for 15cum		46648.46		
	Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum				46648.46
	Formwork @ 3.75%				1749.32
	d) Overhead charges @ 10% on (a+b+c)				4839.78
	e) Contractor's profit @ 10 % on (a+b+c+d)				5323.76
	f) Add for royalty				
	Cement	tonne	6.05	0.00	0.00
	Coarse sand	cum	6.75	0.00	0.00
	20 mm Aggregate	cum	8.10	0.00	0.00
	10 mm Aggregate	cum	5.40	0.00	0.00
	Cost for 15 cum = a+b+c+d+e+e				158620.45
	Rate per cum = (a+b+c+d+e+e)/15				10574.70
	As per rate taken from SOR 2018 directly (pg 58 item 3-e)				<u>10574.70</u>
				cess (1%)	<u>105.75</u>
				say	<u>10680.45</u>
41	Asphaltic Plug joint				
	Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications.				
	DATA BOOK PAGE 510 SI No-14.19				
	Unit = Running meter				
	Taking output = 12 m				
	a) Labour				
	Mate	day	0.052	550.00	28.60
	Mazdoor	day	1.00	400.00	400.00
	Mazdoor (Skilled)	day	0.30	450.00	135.00
	b) Material				
	Crushed stone aggregate 12.5 mm nominal size	cum	0.75	2967.25	2225.44
	Polymer modified bitumen	kg	77.50	39.58	3067.57
	Galvanised structural steel plate 200 mm wide,6 mm thick, 12 m long (2.4 sqm) @ 47.10 kg/sqm including 5 per cent wastage	kg	113.00	55.34	6253.18
	Add 1 per cent for welding and foam caulking/backer rod and other incidentals.				121.10
	c) Machinery				
	Mastic cooker 1 tonne capacity	hour	0.50	450.00	225.00
	Smooth 3-wheeled steel roller 8-10 capacity	hour	0.50	587.50	293.75
	d) Overhead charges @ 10% on (a+b+c)				1274.96
	e) Contractor's profit @ 10% on (a+b+c+d)				1402.46
	f) Add for Royalty				
	Crushed stone aggregate 12.5 mm nominal size	cum	0.75	0.00	0.00
	Cost for 12 m asphalt plug joint = (a+b+c+d+e+f)				15427.06
	Rate per m = (a+b+c+d+e+f)/12				1285.59
				Labour Cess 1%	12.86
				say	<u>1298.44</u>

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
42	PCC 1:3:6 in Foundation				
	Ref: Data Book/ Pg.271				
	Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.				
	Unit = cum				
	Taking output = 15 cum				
	a) Labour				
	Mate	day	0.64	550.00	352.00
	Mason	day	1.00	500.00	500.00
	Mazdoor	day	15.00	400.00	6000.00
	b) Material with lead cost				
	40 mm Aggregate	cum	13.80	1980.60	27332.28
	coarse Sand	cum	6.90	0.00	0.00
	cement	tonne	3.300	1323.91	4368.91
	Cost of water	KL	18.000	75.00	1350.00
	c) Overhead charges @ 10% on (a+b)				3990.32
	d) Contractor's profit @ 10% on (a+b+c)				4389.35
					48282.86
	e) Add for royalty				
	40 mm Aggregate	cum	13.80	0.00	0.00
	coarse Sand	cum	6.90	0.00	0.00
	cement	tonne	3.30	0.00	0.00
	Cost for 1.0 cum = a+b+c+d				6893.83
	As per rate taken from SOR 2018 directly (pg 49 item 1-c) after adding lead cost of material			Labour Cess 1%	68.94
				say	6962.77
43	RCC M20 for Superstructure				
	Ref: Data Book/ Pg.336				
	Unit=cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	20 mm size chips	cum	8.100	2861.40	23177.37
	10mm size chips	cum	5.400	2654.76	14335.73
	Coarse Sand	cum	6.750	1612.00	10881.00
	Cement	MT	5.210	9434.94	49156.02
	b) Labour				
	Mate	day	0.860	550.00	473.00
	Mason 2nd class	day	1.500	500.00	750.00
	Man Mulia	day	20.000	400.00	8000.00
	c) Machinery				
	Concrete mixer	hour	6.000	187.50	1125.00
	Generator 33 KVA	hour	6.000	392.00	2352.00
					110250.11
	Formwork @ 20%				22050.02
	d) Overhead charges @ 10 % on (a+b+c)				13230.01
	e) Contractor's profit @ 10 % on (a+b+c+d)				14553.02
	Add for royalty				
	20 mm size chips	cum	8.100	0.00	0.00
	10mm size chips	cum	5.400	0.00	0.00
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	5.210	0.00	0.00
	Cost of 15 cum=(a+b+c+d)				160083.17
	Rate per cum=(a+b+c+d)/15				10672.21
				Labour cess @1%	106.72
				say	10778.93
44	Dry Lean Cement Concrete Sub-Base				
	Construction of dry lean cement concrete sub base over a prepared subgrade with coarse and fine aggregate, conforming to IS: 383, the size of coarse aggregate not exceeding 25mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after behind.				
	Taking out put -75.00 Cum				
	A) Labour				
	Mate	Each	6.00	550.00	3300.00
	Mason 1st Class	Each	4.00	550.00	2200.00
	Mason 2nd Class	Each	4.00	500.00	2000.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Unskilled Mazdoor	Each	132.00	400.00	52800.00
	Surveyer	Each	2.00	550.00	1100.00
	Bhisti	Each	14.00	400.00	5600.00
					67000.00
	B) Machinery				
	Cement concrete mixture 0.28 / 0.40 Cum	Hour	36.00	187.50	6750.00
	S W roller 8-10 Capacity	Hour	6.00	587.50	3525.00
	Water Tanker 6 KL Capacity	Hour	5.00	744.25	3721.25
	Air compressor	Hour	2.00	1359.78	2719.56
					16715.81
	C) Materials with lead cost				
	Chips (25mm to 12mm)	Cum	67.50	1921.39	129693.96
	Sand	Cum	33.75	0.00	0.00
	Cement @ 150 Kg / Cum	MT	11.25	1323.91	14894.01
	Water Tanker 6 KL Capacity	KL	18.00	63.56	1144.08
					145732.05
	Total (A+B+C)				229447.86
	D) 10 % OHC on (A+B+C)				22944.786
	E) 10 % PC on (A+B+C+D)				25239.26
	Chips	Cum	67.50	0.00	0.00
	sand	Cum	33.75	0.00	0.00
	Cement	MT	11.25	0.00	0.00
					0.00
	Total (A+B+C+D+E)				726931.55
	Rate per 1.00 Cum				9692.42
	As per rate taken from SOR 2018 directly (pg 53 item 1) after adding lead cost of material		Labour cess (1%)		96.92
				say	9789.34
45	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 leads and lifts.				
	Ref: Data Book/ Pg.85				
	Unit=Cum				
	Taking output = 170 cum				
	a) Labour				
	Mate	day	0.32	550.00	176.00
	Mazdoor	day	8.00	400.00	3200.00
	b) Machinery				
	Dozer 180 HP	hour	6.00	3914.88	23489.28
	Front end loader	hour	7.00	850.00	5950.00
	Tipper 5.5 cum capacity,4 trips per hour	hour	7.00	849.00	5943.00
	C) Overhead charges @ 10% on (a)				3875.83
	D) Contractor's profit @ 10 % on (a+b+c)				4263.41
	Rate per 170 cum = (a+b+c+d)				51775.20
	Rate per one cum				304.56
	As per rate taken from SOR 2018 directly (pg 27 item 32) after adding lead cost of material				
				cess 1 %	3.05
				say	307.61
46	Excavation in soil in hilly area by mechanical means including cutting and trimming of slopes and disposal of cut material with all leads and lifts. Ref: Data Book/ Pg.84				
	Unit=Cum				
	Taking output = 260 cum				
	a) Labour				
	Mate	day	0.24	550.00	132.00
	Mazdoor	day	6.00	400.00	2400.00
	b) Machinery				
	Dozer 180 HP	hour	6.00	3914.88	23489.28
	Front end loader	hour	6.00	850.00	5100.00
	Tipper 5.5 cum capacity,4 trips per hour	hour	12.00	849.00	10188.00
	b) Overhead charges @ 10% on (a)				4130.93
	c) Contractor's profit @ 10 % on (a+b)				4544.02

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Rate per 260 cum = (a+b+c)				54961.40
	Rate per one cum As per rate taken from SOR 2018 directly (pg 27 item 31) after adding lead cost of material				211.39
				cess 1 %	2.11
				say	213.50
47	RCC Grade M25 in Sub Structure				
	<i>Ref: Data Book/ Pg.340</i>				
	Using Concrete Mixer				
	Unit = 1 cum				
	Taking output = 15cum				
	a) Material with lead cost				
	Cement	tonne	6.05	1323.91	8009.67
	Coarse sand	cum	6.75	0.00	0.00
	20 mm Aggregate	cum	8.10	1921.39	15563.28
	10 mm Aggregate	cum	5.40	1921.39	10375.52
	b) Labour				
	Mate	day	0.86	550.00	473.00
	Mason	day	1.50	500.00	750.00
	Mazdoor	day	20.00	400.00	8000.00
	c) Machinery				
	Concrete mixer (cap 0.40/0.28 cum)	hour	6.00	187.50	1125.00
	Generator 33 KVA	hour	6.00	392.00	2352.00
	Basic Cost of Labour, Material & Machinery (a+b+c) for 15cum		46648.46		
	Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum				46648.46
	Formwork @ 10%				4664.85
	d) Overhead charges @ 10% on (a+b+c)				5131.33
	e) Contractor's profit @ 10 % on (a+b+c+d)				5644.46
	f) Add for royalty				
	Cement	tonne	6.05	0.00	0.00
	Coarse sand	cum	6.75	0.00	0.00
	20 mm Aggregate	cum	8.10	0.00	0.00
	10 mm Aggregate	cum	5.40	0.00	0.00
	Cost for 15 cum = a+b+c+d+e+f				154240.45
	Rate per cum = (a+b+c+d+e+f)/15				10282.70
	As per rate taken from SOR 2018 directly (pg 65 item 3-f) after adding lead cost of material				10282.70
				cess (1%)	102.83
				say	10385.53
48	RCC Grade M25 in Super Structure				
	<i>Ref: Data Book/ Pg.340</i>				
	Using Concrete Mixer				
	Unit = 1 cum				
	Taking output = 15cum				
	a) Material with lead cost				
	Cement	tonne	5.99	1323.91	7930.23
	Coarse sand	cum	6.75	0.00	0.00
	20 mm Aggregate	cum	8.10	1921.39	15563.28
	10 mm Aggregate	cum	5.40	1921.39	10375.52
	b) Labour				
	Mate	day	0.86	550.00	473.00
	Mason	day	1.50	500.00	750.00
	Mazdoor	day	20.00	400.00	8000.00
	c) Machinery				
	Concrete mixer (cap 0.40/0.28 cum)	hour	6.00	187.50	1125.00
	Generator 33 KVA	hour	6.00	392.00	2352.00
	Basic Cost of Labour, Material & Machinery (a+b+c) for 15cum		46569.02		
	Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum				46569.02
	Formwork @ 20%				9313.80
	d) Overhead charges @ 10% on (a+b+c)				5588.28
	e) Contractor's profit @ 10 % on (a+b+c+d)				6147.11
	f) Add for royalty				
	Cement	tonne	5.99	0.00	0.00
	Coarse sand	cum	6.75	0.00	0.00
	20 mm Aggregate	cum	8.10	0.00	0.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	10 mm Aggregate	cum	5.40	0.00	0.00
	Cost for 15 cum = a+b+c+d+e+f				181274.95
	Rate per cum = (a+b+c+d+e+f)/15				12085.00
	As per rate taken from SOR 2018 directly (pg 67 item A-1) after adding lead cost of material				12085.00
				cess (1%)	120.85
				say	12205.85
49	Supplying & Laying Reinforced Cement Concrete Pipe NP4/ Prestressed Concrete Pipe on First Class Bedding in Single Row .				
	Supplying & Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .				
	Unit = metre				
	1000 mm dia				
	Labour				
	Mate	day	0.180	550.00	99.00
	Mason	day	0.500	550.00	275.00
	Mazdoor	day	4.000	400.00	1600.00
	Material				
	Sand at site	cum	0.070	0.00	0.00
	Cement at site	tonne	0.050	1323.91	66.20
	RCC pipe NP 4	mtr	12.500	8488.66	106108.30
	Overheads @10 %(a+b)				8111.14
	Contractors profit @10 %(a+b+c)				11625.96
	Royalty				
	Sand at site	cum	0.070	0.00	0.00
	Cement at site	tonne	0.050	0.00	0.00
	RCC pipe NP 4	mtr	12.500	390.00	4875.00
	Cost of 12.5 m				132760.60
	Cost per meter				10620.85
				Labour Cess 1%	106.21
				say	10727.06
	1200 mm dia				
	Labour				
	Mate	day	0.280	550.00	154.00
	Mason	day	1.000	550.00	550.00
	Mazdoor	day	6.000	400.00	2400.00
	Material				
	Sand at site	cum	0.090	0.00	0.00
	Cement at site	tonne	0.070	1323.91	92.67
	RCC pipe NP 4	mtr	12.500	9488.66	118608.30
	Overheads @10 %(a+b)				9135.37
	Contractors profit @10 %(a+b+c)				13094.04
	Royalty and lead				
	Sand at site	cum	0.090	0.00	0.00
	Cement at site	tonne	0.070	0.00	0.00
	RCC pipe NP 4	mtr	12.500	440.00	5500.00
	Cost of 12.5 m				149534.39
	Cost per meter				11962.75
				Labour Cess 1%	119.63
				say	12082.38
50	RCC M20 in Sub Structure				
	Ref: Data Book/ Pg.457				

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Unit=cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	20 mm size chips	cum	8.100	1921.39	15563.28
	10mm size chips	cum	5.400	1921.39	10375.52
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	5.210	1323.91	6897.58
	b) Labour				
	Mate	day	0.860	550.00	473.00
	Mason 2nd class	day	1.500	500.00	750.00
	Man Mulia	day	20.000	400.00	8000.00
	c) Machinery				
	Concrete mixer	hour	6.000	187.50	1125.00
	Generator 33 KVA	hour	6.000	392.00	2352.00
					45536.37
	Formwork @ 10%				4553.64
	d) Overhead charges @ 10 % on (a+b+c)				5009.00
	e) Contractor's profit @ 10 % on (a+b+c+d)				5509.90
	f) Add for royalty				
	20 mm size chips	cum	8.100	0.00	0.00
	10mm size chips	cum	5.400	0.00	0.00
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	5.210	0.00	0.00
	Cost of 15 cum=(a+b+c+d+e+f)				142998.40
	Rate per cum=(a+b+c+d+e+f)/15				9533.23
	As per rate taken from SOR 2018 directly (pg 65 item 3-e) after adding lead cost of material			Labour cess @1%	95.33
				say	<u>9628.56</u>
51	Dismantling of flexible pavements				
	Dismantling of flexible pavements and disposal of dismantled materials upto a lead of 1000m stacking serviceable and unserviceable materials separately				
	Pg 36 of MORTH Data Book				
	Unit- cum				
	Taking output= 1 cum				
	By Manual means				
	Bituminous courses				
	Labour				
	Mate	day	0.060	550.00	33.00
	Mazdoor	day	1.500	400.00	600.00
	Machinery				
	Tractor trolley	hour	0.380	382.00	145.16
	Overheads @ 10 % on (a+b)				77.82
	Contractors profit @ 10 % on (a+b)				85.60
	Rate per cum = (a+b+c+d)				<u>941.57</u>
				Labour Cess 1%	<u>9.42</u>
				say	<u>950.99</u>
52	Fine Dressing and Turfing using sods with Initial Lead and Lift.				
	Furnishing and laying of the live sods of perrinial turf forming grass on embankment slope , verges or other locations shown on the drawing or as directed by Engineer including preparation of ground, fetching of sods and watering.				
	Pg 75,item no 307, MORTH Data Book				
	Unit = sqm				
	Taking output = 100 sqm				
	a) Labour				
	Mate	day	0.120	550.00	66.00
	Mazdoor for preparation of ground and fetching of sods	day	3.000	400.00	1200.00
	b) Machinery				
	Water tanker including watering for 3 months	hour	2.000	744.25	1488.50
	Tractor-trolley	hour	1.000	382.00	382.00
	b) Material				
	Farmyard manure @ 0.18 cum per 100 sqm at site work	cum	0.180	121.00	21.78
	Cost of water	KL	12.000	63.56	762.72

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	b) Overhead charges @ 10% on (a)				392.10
	c) Contractor's profit @ 10% on (a)				431.31
	Cost for 100 sqm = (a+b+c+d)				4744.41
	Rate per sqm = (a+b+c+d)/100				47.44
				Labour Cess 1%	0.47
				say	47.92
	RCC Railing				
53	Construction of RCC railing of M30 Grade aggregate size not exceeding 20 mm, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.				
	Unit = 1 RM				
	Taking output = 2 x 24 m span = 48 m.				
	a) Material				
	Cement concrete M30 Grade	cum	4.092	12433.93	50879.63
	No. of vertical posts = (12 + 2)2 = 28 Nos., External area of vertical post 0.25x0.275 = 0.0687sqm, Concrete in vehicle posts = 0.0687 x 28 = 1.9326 cum, Hand rail in 2 tiers = 2 x 24 = 48 m, External area = 0.170 x 0.175 = 0.0297 sqm, Concrete in hand rails = 0.03 x 48 = 2.16 cum, Total Concrete = 1.932 + 1.4256 = 3.349 cum. (Refer MoRTH SD / 202).				
	b) Add 12 per cent of above cost for form work for casting in casting yard.				6105.56
	c) HYSD bar reinforcement Rate	MT	0.865	127499.08	110286.71
	Rate for 48 m (a+b+c)				167271.89
	Rate per metre (a+b+c)/48				3484.83
					3484.83
				cess (1%)	34.85
				say	3519.68
55	Excavation for Road roadway in hard Rock (blasting prohibited) with rock breakers including breaking rock, loading in tippers and disposal within all lifts and lead upto 1000 metres, trimming boottom and side slopes in accordance with requirements of lines, grades, and cross-sections.				
	Unit=Cum				
	Taking output = 36 cum				
	a) Labour				
	Mate	day	0.40	550.00	220.00
	Mazdoor for trimming slopes including manual loadings in truck	day	10.00	400.00	4000.00
	b) Machinery				
	Hydraulic excavator with rock breaker attachment @ 6cum per hour	hour	6.00	1129.75	6778.50
	Tipper 5.5 cum capacity, 1 trip per hour	hour	6.50	849.00	5518.50
	Credit for excavated rock found suitable for use @ 50% of excavated quantity	cum	18.00	200.00	1800.00
	c) Overhead charges @ 10% on (a+b)				1831.70
	d) Contractor's profit @ 10 % on (a+b+c)				2014.87
	Rate per 36 cum = (a+b+c+d)				20363.57
	Rate per one cum = (a+b+c+d)/36				565.65
				cess 1 %	5.66
				say	571.31
56	Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross-sections and transporting to the embankment location within all lift and lead upto 1000m				
	Unit=Cum				
	Taking output = 360 cum				
	a) Labour				
	Mate	day	0.08	550.00	44.00
	Mazdoor	day	2.00	400.00	800.00
	b) Machinery				
	Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	6.00	1129.75	6778.50
	Tipper 5.5 cum capacity, 4 trips per hour	hour	16.00	849.00	13584.00
	c) Overhead charges @ 10% on (a+b)				2120.65
	d) Contractor's profit @ 10 % on (a+b+c)				2332.72
	Rate per 360 cum = (a+b+c+d)				25659.87

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Rate per one cum=(a+b+c+d)/360				71.28
				cess 1 %	0.71
				say	71.99
57	Excavation for roadway in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, transporting to embankment site within all leads and lifts upto 1000m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections				
	Unit=Cum				
	Taking output = 240 cum				
	a) Labour				
	Mate	day	0.08	550.00	44.00
	Mazdoor	day	2.00	400.00	800.00
	b) Machinery				
	Hydraulic Excavator 0.9 cum bucket capacity @36 cum per hour	hour	6.00	1129.75	6778.50
	Tipper 5.5 cum capacity,4 trips per hour	hour	11.00	849.00	9339.00
	c) Overhead charges @ 10% on (a+b)				1696.15
	d) Contractor's profit @ 10 % on (a+b+c)				1865.77
	Rate per 240 cum = (a+b+c+d)				20523.42
	Rate per one cum=(a+b+c+d)/240				85.51
				cess 1 %	0.86
				say	86.37
58	RCC Grade M30 for Foundation				
	Ref: Data Book/ Pg.344				
	Using Concrete Mixer				
	Unit=cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	20 mm size chips	cum	8.100	1921.39	15563.28
	10mm size chips	cum	5.400	1921.39	10375.52
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	6.100	1323.91	8075.86
	b) Labour				
	Mate	day	0.860	550.00	473.00
	Mason 2nd class	day	1.500	500.00	750.00
	Man Mulia	day	20.000	400.00	8000.00
	c) Machinery				
	Concrete mixer	hour	6.000	187.50	1125.00
	Generator 33 KVA	hour	6.000	392.00	2352.00
					46714.66
	Formwork @ 3.5%				1635.01
	d) Overhead charges @ 10 % on (a+b+c)				4834.97
	e) Contractor's profit @ 10 % on (a+b+c+d)				5318.46
	Add for royalty				
	20 mm size chips	cum	8.100	0.00	0.00
	10mm size chips	cum	5.400	0.00	0.00
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	6.100	0.00	0.00
	Cost of 15 cum=(a+b+c+d)				186508.90
	Rate per cum=(a+b+c+d)/15				12433.93
	As per rate taken from SOR 2018 directly (pg 58 item 3-e) after adding lead cost of material			Labour cess @1%	124.34
				say	12558.27
59	RCC Grade M30 for Substructure				
	Ref: Data Book/ Pg.458				
	Using Concrete Mixer				
	Unit=cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	20 mm size chips	cum	8.100	1921.39	15563.28
	10mm size chips	cum	5.400	1921.39	10375.52
	Coarse Sand	cum	6.750	0.00	0.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Cement	MT	6.100	1323.91	8075.86
	b) Labour				
	Mate	day	0.860	550.00	473.00
	Mason 2nd class	day	1.500	500.00	750.00
	Man Mulia	day	20.000	400.00	8000.00
	c) Machinery				
	Concrete mixer	hour	6.000	187.50	1125.00
	Generator 33 KVA	hour	6.000	392.00	2352.00
					46714.66
	Formwork @ 10%				4671.47
	d) Overhead charges @ 10 % on (a+b+c)				5138.61
	e) Contractor's profit @ 10 % on (a+b+c+d)				5652.47
	Add for royalty				
	20 mm size chips	cum	8.100	0.00	0.00
	10mm size chips	cum	5.400	0.00	0.00
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	6.100	0.00	0.00
	Cost of 15 cum=(a+b+c+d)				181956.70
	Rate per cum=(a+b+c+d)/15				12130.45
	As per rate taken from SOR 2018 directly (pg 65 item 3-g) after adding lead cost of material			Labour cess @1%	121.30
				say	<u>12251.75</u>
60	RCC Grade M30 for Supersturcture				
	<i>Ref: Data Book/ Pg.477</i>				
	Using Concrete Mixer				
	Unit=cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	20 mm size chips	cum	8.100	1921.39	15563.28
	10mm size chips	cum	5.400	1921.39	10375.52
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	6.100	1323.91	8075.86
	b) Labour				
	Mate	day	0.900	550.00	495.00
	Mason 2nd class	day	1.500	500.00	750.00
	Man Mulia	day	21.000	400.00	8400.00
	c) Machinery				
	Concrete mixer	hour	6.000	187.50	1125.00
	Generator 33 KVA	hour	6.000	392.00	2352.00
					47136.66
	Formwork @ 20%				9427.33
	d) Overhead charges @ 10 % on (a+b+c)				5656.40
	e) Contractor's profit @ 10 % on (a+b+c+d)				6222.04
	Add for royalty				
	20 mm size chips	cum	8.100	0.00	0.00
	10mm size chips	cum	5.400	0.00	0.00
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	6.100	0.00	0.00
	Cost of 15 cum=(a+b+c+d)				216100.90
	Rate per cum=(a+b+c+d)/15				14406.73
				Labour cess @1%	144.07
				say	<u>14550.79</u>
61	RCC Grade M30 for Wearing Coat				
	<i>Ref: Data Book/ Pg.344</i>				
	Using Concrete Mixer				
	Unit = 1 cum				
	Taking output = 15cum				
	a) Material with lead cost				
	Cement	tonne	6.10	1323.91	8075.86
	Coarse sand	cum	6.75	0.00	0.00
	20 mm Aggregate	cum	8.10	1921.39	15563.28

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	10 mm Aggregate	cum	5.40	1921.39	10375.52
	b) Labour				
	Mate	day	0.86	550.00	473.00
	Mason	day	1.50	500.00	750.00
	Mazdoor	day	20.00	400.00	8000.00
	c) Machinery				
	Concrete mixer (cap 0.40/0.28 cum)	hour	6.00	187.50	1125.00
	Generator 33 KVA	hour	6.00	392.00	2352.00
	Basic Cost of Labour, Material & Machinery (a+b+c) for 15cum		46714.66		
	Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum				46714.66
	d) Overhead charges @ 10% on (a+b+c)				4671.47
	e) Contractor's profit @ 10 % on (a+b+c+d)				5138.61
	f) Add for royalty				
	Cement	tonne	6.10	0.00	0.00
	Coarse sand	cum	6.75	0.00	0.00
	20 mm Aggregate	cum	8.10	0.00	0.00
	10 mm Aggregate	cum	5.40	0.00	0.00
	Cost for 15 cum = a+b+c+d+e+e				286904.35
	Rate per cum = (a+b+c+d+e+e)/15				19126.96
	As per rate taken from SOR 2018 directly (pg 67 item A-1) after adding lead cost of material				19126.96
				cess (1%)	191.27
				say	19318.23
62	WEARING COAT				
	Ref: Data Book/ Pg.492				
	Providing and laying Cement concrete wearing coat M-30 grade excluding reinforcement complete as per drawing and Technical Specifications				
	Unit = 1 cum				
	Material				
	Cement Concrete M- 30	cum	1.00	19318.23	19318.23
	HYSD bar reinforcement.	MT	0.075	128774.08	0.00
	Labour for clearing.	day	0.150	400.00	0.00
	c) Overhead charges @ 10% on labour				0.00
	d) Contractor Profit@ 10% on labour.				0.00
				cess (1%)	0.00
					19318.23
45	Excavation in hilly area in hard rock requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all leads and lifts.				
	Ref: Data Book/ Pg.85				
	Unit=Cum				
	Taking output = 170 cum				
	a) Labour				
	Mate	day	0.49	550.00	269.50
	Mazdoor	day	10.00	400.00	4000.00
	Driller	day	2.00	400.00	800.00
	Blaster	day	0.25	400.00	100.00
	b) Machinery				
	Dozer 180 HP	hour	6.00	3914.88	23489.28
	Air compressor 250 cfm	hour	5.00	1359.78	6798.90
	Front end loader	hour	7.00	850.00	5950.00
	Tipper 5.5 cum capacity,4 trips per hour	hour	7.00	849.00	5943.00
	c) Materials				
	Gelatine 80 per cent	kg	35.00		0.00
	Electric detonators @ 1 detonator for 2 Gelatine sticks of 125 gms each	nos	140.00		0.00
	d) Overhead charges @ 10% on (a+b+c)				4735.07
	e) Contractor's profit @ 10 % on (a+b+c+d)				5208.57
	Rate per 170 cum = (a+b+c+d)				71927.00
	Rate per one cum				423.10
	As per rate taken from SOR 2018 directly (pg 28 item 33) after adding lead cost of material			cess 1 %	4.23
				say	427.33

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
60	RCC Grade M40 for Superstructure				
	Using Concrete Mixer				
	Unit=cum				
	Taking output = 15 cum				
	a) Material with lead cost				
	20 mm size chips	cum	8.100	2861.40	23177.37
	10mm size chips	cum	5.400	2654.76	14335.73
	Coarse Sand	cum	6.750	1612.00	10881.00
	Cement	MT	6.450	9434.94	60855.34
	Admixture @ 0.40 per cent of cement	kg	25.800	40.00	1032.00
	b) Labour				
	Mate	day	0.960	550.00	528.00
	Mason 2nd class	day	2.000	500.00	1000.00
	Man Mulia	day	22.000	400.00	8800.00
	c) Machinery				
	Concrete mixer	hour	6.000	187.50	1125.00
	Generator 33 KVA	hour	6.000	392.00	2352.00
					124086.44
	Formwork @ 20%				24817.29
	d) Overhead charges @ 10 % on (a+b+c)				14890.37
	e) Contractor's profit @ 10 % on (a+b+c+d)				16379.41
	Add for royalty				
	20 mm size chips	cum	8.100	0.00	0.00
	10mm size chips	cum	5.400	0.00	0.00
	Coarse Sand	cum	6.750	0.00	0.00
	Cement	MT	6.450	0.00	0.00
	Cost of 15 cum=(a+b+c+d)				180173.50
	Rate per cum=(a+b+c+d)/15				12011.57
				Labour cess @1%	120.12
				say	12131.68
61	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical Specifications.				
MoRT H 14.11-1500,1600,17	Unit = 1 cum				
	Taking output = 1um				
	a) Material				
	Cement Concrete M25 grade	Cum	1.00	12205.85	12205.85
	HYSD bar reinforcement	MT	0.05	128774.08	6438.70
	Rate per 1 cum			say	18644.55
49	Supplying & Laying Reinforced Cement Concrete Pipe NP4/ Prestressed Concrete Pipe on First Class Bedding in Single Row .				
	Supplying & Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .				
	Unit = metre				
	900 mm dia				
	Labour				
	Mate	day	0.180	550.00	99.00
	Mason	day	0.500	500.00	250.00
	Mazdoor	day	4.000	400.00	1600.00
	Material				
	Sand at site	cum	0.070	0.00	0.00
	Cement at site	tonne	0.050	1323.91	66.20
	RCC pipe NP 4	mtr	12.500	7316.50	91456.30
	Overheads @10 %(a+b)				7010.36

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Contractors profit @10 %(a+b+c)				10048.19
	Royalty				
	Sand at site	cum	0.070	0.00	0.00
	Cement at site	tonne	0.050	0.00	0.00
	RCC pipe NP 4	mtr	12.500	340.00	4250.00
	Cost of 12.5 m				114780.05
	Cost per meter				9182.40
				Labour Cess 1%	91.82
				say	<u>9274.23</u>
	Overhead Signs				
	Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet with high intensity grade retro-reflective sheeting of encapsulated lens type with vertical and lateral clearance given in Clauses 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.				
A.	Truss and Vertical Support				
	Unit = tonne				
	Taking output = 1 tonne				
	a) Labour				
	Mate	day	0.240	400.00	96.00
	Blacksmith	day	2.000	550.00	1100.00
	Mazdoor	day	4.000	400.00	1600.00
	b) Material				
	Aluminium alloy/galvanised steel including 5 per cent wastage	tonne	1.050	46360.00	48678.00
	Add 1 per cent on cost of materials for nuts,bolts and drilling and welding consumables				486.78
	Add 15 per cent of cost of materials for fabrication of trusses as per approved design				7301.70
	c) Machinery				
	Crane 3 tonne capacity	hour	3.000	375.00	1125.00
	Truck	hour	0.500	212.50	106.25
	Cost of Painting	LS			375.00
	Cost of Fixing,using nuts & Bolts etc.	LS			1250.00
					62118.73
	d) Overhead charges @ 10% on (a+b+c)				6211.87
	e) Contractor's profit @ 10% on (a+b+c+d)				6833.06
	Rate per tonne				75163.66
				Labour cess @1%	751.64
				say	<u>75915.30</u>
	Transportation to work site @108.85 per tonne per 5km				<u>108.85</u>
					<u>76024.15</u>
B.	Aluminium Alloy Plate for Overhead sign				
	Unit = sqm				
	Taking output = 1 sqm				
	a) Labour				
	Mate	day	0.020	400.00	8.00
	Blacksmith	day	0.100	550.00	55.00
	Mazdoor	day	0.150	400.00	60.00
	b) Material				
	Aluminium alloy plate,2mm thick, fixed with high intensity grade sheeting vide Clause 801.3	Sqm	1.000	4725.00	4725.00
	Miscellaneous				
	Add 1 per cent of cost of labour for lifting arrangemnet, like ladders,pulleys,ropes etc.				1.23
					4849.23
	c) Overhead charges @ 10% on (a+b)				484.92
	d) Contractor's profit @10% on (a+b+c)				533.42
	Rate per sqm				5867.57
				Labour cess @1%	58.68
				say	<u>5926.24</u>
	Road Delineators				
83	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 strips, 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.				

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Ref: Data Book/ Pg. 228				
	Unit = Each				
	Taking output = 30 Nos				
	a) Labour				
	Mate	day	0.04	550.00	22.00
	Mazdoor	day	1.00	400.00	400.00
	b) Material				
	Cost of approved type of delineators from ISI certified firm as per the standard drawing given in IRC:79	Nos	30.00	275.00	8250.00
	Add 10 per cent cost of material for installation				825.00
	c) Overhead charges @ 10% on (a+b)				949.70
	d) Contractor's profit @ 10 % on (a+b+c)				1044.67
	Cost for 30 Nos = a+b+c+d				11491.37
	Rate per 1 No = (a+b+c+d)/30				383.05
	As per rate taken from SOR 2018 directly (pg 43 item 15-b) after adding lead cost of material			say	545.50
				cess (1%)	5.46
				say	550.96
84	Cast in Situ Cement Concrete M20 Kerb				
	Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408				
	Unit = Running metre				
	Taking output = 360 metre				
	Using Concrete Mixer				
	Cement Concrete				
	Cement concrete of grade M20 = 12.60 cum				
	Cement concrete of grade M10 for base= 11.61 cum				
	Total Concrete = 24.21 cu.m				
	a) Labour				
	Mate	day	0.720	550.00	396.00
	Mason	day	2.000	500.00	1000.00
	Mazdoor	day	16.000	400.00	6400.00
	b) Machinery				
	Kerb casting machine @ 60 metres/hour	hour	6.000	327.00	1962.00
	Concrete mixer 0.48/0.28 cum capacity	hour	12.000	187.50	2250.00
	Water tanker 6 KL capacity	hour	5.000	744.25	3721.25
	c) Material				
	Crushed stone aggregate 20 mm nominal size 59 per cent	cum	21.790	1921.39	41867.13
	Coarse sand 30 per cent	cum	10.900	0.00	0.00
	Cement 11 per cent	tonne	5.700	1323.91	7546.30
	Cost of water	KL	30.000	75.00	2250.00
	d) Overhead charges @ 10 % on (a+b+c)				6739.27
	e) Contractor's profit @ 10 % on (a+b+c)				7413.19
	Lead & royalty				
	Crushed stone aggregate 20 mm nominal size 59 per cent	cum	21.790	0.00	0.00
	Coarse sand 30 per cent	cum	10.900	0.00	0.00
	Cement 11 per cent	tonne	5.700	0.00	0.00
	Cost for 360 meter = a+b+c+d+e				227524.70
	Rate per metre = (a+b+c+d+e)/360				632.01
	As per rate taken from SOR 2018 directly (pg 41 item 1) after adding lead cost of material				632.01
				cess (1%)	6.32
				say	638.30
	Chequered terrazzo tiles 22 mm thick with graded marble chips of size up to 6 mm in floors, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand) :Light shade pigment using white cement				
	Unit = sqm				
	Taking output = 10 sqm				
	a) Labour				
	Mason II class	day	1.60	500.00	800.00
	Mate	day	2.00	550.00	1100.00
	Mazdoor	day	2.00	400.00	800.00

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	b) Material				
	Chequered terrazzo tiles 22 mm thick(light shade) including 10% wastage	sqm	11.00	289.22	3181.42
	Cement mortar 1:3	cum	0.224	1195.20	267.72
	Grey cement for slurry @ 4.4kg/sqm	MT	0.044	9434.94	415.14
	White cement for grouting	MT	0.044	14000.00	616.00
	Red, light shade pigment	kg	3.08	75.00	231.00
	c) Overhead charges @ 10% on (a+b)				714.36
	d) Contractor's profit @ 10 % on (a+b+c)				785.79
	Cost for 10 sqm = a+b+c+d				8911.43
	Rate per 1 sqm = (a+b+c+d)/10				891.14
				say	891.14
				cess (1%)	8.91
				say	900.05
	Plastering with cement mortar 1:3 on brickwork in substructure as per drawing and technical specification.				
	Unit = sqm				
	Taking output = 10 sqm				
	a) Labour				
	Mate	day	0.04	400.00	16.00
	Mason	day	0.50	500.00	250.00
	Mazdoor	day	0.50	400.00	200.00
	b) Material				
	Cement mortar 1:3	cum	0.144	1195.20	172.11
	c) Overhead charges @ 10% on (a+b+c)				63.81
	d) Contractor's profit @ 10 % on (a+b+c+d)				70.19
	f) Add for royalty				
	Cement mortar 1:3 (Sand)	cum	0.14	0.00	0.00
	Cost for 10 sqm = a+b+c+d				772.11
	Cost for 1 sqm = (a+b+c+d)/10			say	77.21
				cess (1%)	0.77
				say	77.98
	Brick masonry work in 1:3 in substructure complete excluding pointing and plastering, as per drawing and technical specification.				
	Unit = cum				
	Taking output = 1 cum				
	a) Labour				
	Mate	day	0.06	400.00	24.00
	Mason	day	0.80	500.00	400.00
	Mazdoor	day	0.80	400.00	320.00
	b) Material				
	Brick 1st class	Nos	500.00	1.14	568.00
	Cement mortar 1:3	cum	0.25	1195.20	298.80
	Add for scaffolding @ 5 per cent of cost of material and labour				80.54
	c) Overhead charges @ 10% on (a+b+c)				169.13
	d) Contractor's profit @ 10 % on (a+b+c+d)				186.05
	f) Add for royalty				
	Cement mortar 1:3 (Sand)	cum	0.25	45.00	11.25
	Cost for 1 cum = a+b+c+d				2057.77
				say	2057.77
				cess (1%)	20.58
				say	2078.35

Sl. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
	Metal Beam crash barrier				
	Providing and erecting "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, 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 fitments 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 space of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810.				
	<i>Ref: Data Book/ Pg.238</i>				
	Unit = Running meter				
	Taking Output=4.5 m				
	a) Labour				
	Mate	day	0.06	550.00	33.00
	Blacksmith	day	0.50	500.00	250.00
	Mazdoor	day	1.00	400.00	400.00
	b) Machinery				
	Tractor-trolley	hour	0.10	382.00	38.20
	c) Material				
	Corrugated sheet, 3 mm thick, "W" beam section railing, 4.5 m in length	kg	41.21	0.000	0.00
	channel post, 150 x 75 x 5 mm, 1.8 m long, 3 Nos @ 16.4 kg per mtr	kg	88.56	0.000	0.00
	Spacer 150 x 75 x 5 mm channel 0.33 m long, 3 Nos @ 16.4 kg per m	kg	16.24	0.000	0.00
	Nuts and bolts	kg	20.00	70.00	1400.00
	Add 25 per cent of the cost of material for fabrication, nuts, bolts, washers, etc.				350.00
					2471.20
	d) Overhead charges @ 10% on (a+b+c)				247.12
	e) Contractor's profit @ 10% on (a+b+c+d)				271.83
	Cost for 4.5meter				16160.40
	Rate per meter=(a+b+c+d+e)/4.5				3591.20
	As per rate taken from SOR 2018 directly (pg 45 item 18) after adding lead cost of material			Labour cess @1%	35.91
				say	<u>3627.11</u>
	Gabion Structure for Retaining Earth				
	Providing and constructing Gabion structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m 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 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire.				
	Unit = cum				
	Taking Output= 2x1x0.3x10 no.s = 6.00cum				
	a) Labour				
	Mate	day	0.14	550.00	77.00
	Mazdoor	day	2.50	400.00	1000.00
	Mazdoor (Skilled)	day	1.00	450.00	450.00
	b) Material				
	Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4 mm dia GI wire in rolls of required size to cover 6.00 cum	sqm	65.00	280.000	18200.00
	Stone boulders with least dimension of 200 mm	cum	6.00	575.000	3450.00
	Stone spalls of minimum size 25mm	cum	1.20	66.000	79.20
	c) Overhead charges @ 10% on (a+b+c)				2325.62
	d) Contractor's profit @ 10% on (a+b+c+d)				2325.62
	e) Add for lead and royalty				
	Stone boulders with least dimension of 200 mm		6.00	1921.39	0.00
	Stone spalls of minimum size 25mm		1.20	1921.39	0.00
	Cost for 6 cumec				27907.44
	Rate per meter=(a+b+c+d+e)/6				4651.24
				Labour cess @1%	46.51
				say	<u>4697.75</u>