



JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)



MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

**DETAILED DESIGN STUDY
OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
IN THE REPUBLIC OF INDONESIA**

**FINAL REPORT
QUANTITY CALCULATION**

**PACKAGE I
(MERAK - BALARAJA)**

DECEMBER 2006

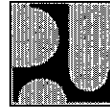


KATAHIRA & ENGINEERS INTERNATIONAL

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06-090



JAPAN INTERNATIONAL
COOPERATION AGENCY



DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

DETAILED DESIGN STUDY
OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
IN THE REPUBLIC OF INDONESIA

QUANTITY CALCULATION
MERAK FLYOVER

CONTRACT PACKAGE 1
(MERAK - BALARAJA)



KATAHIRA & ENGINEERS INTERNATIONAL

**THE NORTH JAVA CORRIDOR FLYOVER PROJECT
QUANTITY CALCULATION
MERAK FLYOVER**

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DIVISION 1.
General

DIVISION 2.
Drainage

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	BACK UP QUANTITY OF MORTARED STONE WORK		Sheet : of			
PROJECT : MERAK FLYOVER								
NORTH JAVA CORRIDOR FLYOVER PROJECT								
KATAHIRA AND ENGINEERS INTERNATIONAL								
DRAWING NO :			ESTIMATOR :		CHECKED BY :			
SKETCH DRAWING			CALCULATION		REMARKS			
<p>MORTARED STONE WORK TYPE III</p>			PROJECT : MERAK FLYOVER					
			Drawing MDG - 001 (Drainage Schedule at grade)					
			DMH to DMH		Heigh	Length	Area	Quantity
					M	M	Sq.M	Cu. M
			DMH-87A	DMH-87B	0.717	9.500	1.114	10.579
								Type III
			TOTAL					10.579
			QUANTITY OF MORTARED STONEWORK =					10.579 Cu. M

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		BACK UP DRAINAGE	
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :		ESTIMATOR :	CHECKED BY :
SKETCH DRAWING	CALCULATION		REMARKS
Drainage Schedule at Flyover	Drawing No. MDV 001: Drainage Schedule - Deck drain Type II (L) = 14 Each - Deck drain Type II (R) = 0 Each - PVC dia 200 mm = 185.1 M - Steel Gutter = 28 M - Outer Gutter = 105 M Approach 1 - Deck drain Type II (L) = 4 Each - Deck drain Type II (R) = 2 Each - PVC dia 200 mm = 11.28 M Approach 2 - Deck drain Type II (L) = 0 Each - Deck drain Type II (R) = 9 Each - PVC dia 200 mm = 20.36 M Approach B - Deck drain Type II (L) = 2 Each - Deck drain Type II (R) = 6 Each - PVC dia 200 mm = 15.6 M		
Drainage Schedule at Under Flyover	Drawing No. MDV 002: - Uditch DS 1 = 201.6 M - Uditch DS 5 = 260 M - PVC dia 250 mm = 213.3 M - RCP dia 600 mm = 39.7 M (Type B) - Manhole Type VII = 21 Each - Manhole Type VIII = 1 Each - Catch Basin Type I = 18 Each		
SUMMARY QUANTITY OF DRAINAGE - PVC Drain Pipe dia 150 mm 0.00 M - PVC Drain Pipe dia 200 mm 232.34 M - PVC Drain Pipe dia 250 mm 213.30 M - RCP dia 600 mm (Type A) 0.00 M - RCP dia 600 mm (Type B) 39.70 M - RCP dia 800 mm (Type A) 631.70 M - RCP dia 800 mm (Type B) 401.10 M	Drawing No. MDG 001: Drainage Slope Right - Uditch DS 4 = 346 M - RCP dia 800 mm (A) = 435.5 M - Manhole Type I = 17 Each - Manhole Type II = 0 Each - Manhole Type III = 8 Each - Manhole Type IV = 0 Each - Manhole Type V = 0 Each - Manhole Type VI = 5 Each - Manhole Type VII = 1.00 Each - Manhole Type VIII = 1.00 Each - Manhole Type IX = 33.00 Each - Manhole Type X = 3.00 Each - Catch Basin Type I = 18.00 Each - Uditch DS 1 = 201.60 M - Uditch DS 4 = 1148.50 M - Uditch DS 4A = 60.00 M - Uditch DS 5 = 260.00 M - Deck Drain Type I = 0.00 Each - Deck Drain Type II = 37.00 Each - Steel Gutter = 28.00 M - Outer Gutter = 105.00 M		- Uditch DS 4A = 60 RCP dia 800 mm(B) = 344.9
	Drainage Slope Left - Uditch DS 4 = 802.5 M - RCP dia 800 mm (A) = 196.2 M - Manhole Type I = 43 Each - Manhole Type II = 0 Each - Manhole Type III = 9 Each - Manhole Type IV = 0 Each - Manhole Type V = 6 Each - Manhole Type VI = 4 Each		RCP dia 800 mm(B) = 56.2 - Manhole Type IX = 1

DIVISION 3.
Earthworks

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/16/2006 17:13		Sheet : of		
PROJECT : MERAK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024		ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING		CALCULATION Merak Fly Over - Contract Package 1				REMARKS
Item No. 3-1(1) - Cleaning and Grubbing						
MAIN ROAD BEFORE FLYOVER						
STA	LEFT SIDE WIDTH	AVE. LEFT WIDTH	LENGTH	AREA		
MERAK-1						
0+503.141	0.000	0.000	0.000	0.000		
0+510.451	0.592	0.296	7.310	2.164		
0+518.081	1.978	1.285	7.630	9.805		
0+520.000	2.195	2.087	1.919	4.004		
0+522.422	2.422	2.309	2.422	5.591		
0+524.430	2.465	2.444	2.008	4.907		
0+531.110	3.358	2.912	6.680	19.449		
0+535.689	3.695	1.848	0.000	0.000		
0+540.000	4.351	4.023	4.311	17.343		
0+543.287	4.963	4.657	3.287	15.308		
0+546.909	4.544	4.754	3.622	17.217		
0+549.363	4.231	4.388	2.454	10.767		
0+552.409	4.096	4.164	3.046	12.682		
0+555.094	4.053	4.075	2.685	10.940		
0+560.000	4.147	4.100	4.906	20.115		
0+568.940	4.286	4.217	8.940	37.696		
0+580.000	4.062	4.174	11.060	46.164		
0+600.000	3.420	3.741	20.000	74.820		
0+620.000	3.222	3.321	20.000	66.420		
0+625.441	3.304	3.263	5.441	17.754		
0+630.165	3.456	3.380	4.724	15.967		
0+634.750	3.675	3.566	4.585	16.348		
0+640.000	4.070	3.873	5.250	20.331		
0+651.824	5.286	4.678	11.824	55.313		
0+660.000	6.217	5.752	8.176	47.024		
0+669.342	7.054	6.636	9.342	61.989		
0+680.000	7.487	7.271	10.658	77.489		
0+690.596	7.722	7.605	10.596	80.577		
0+700.000	7.673	7.698	9.404	72.387		
0+702.000	7.673	7.673	2.000	15.346		
SUB TOTAL LEFT AREA				855.915		
STA	RIGHT SIDE WIDTH	AVE. RIGHT WIDTH	LENGTH	AREA		
1+410.000	5.944	2.972	0.000	0.000		
1+420.000	5.791	5.868	10.000	58.675		
1+426.591	4.305	5.048	6.591	33.271		
1+429.932	1.335	2.820	3.341	9.422		
1+440.000	5.629	3.482	10.068	35.057		
1+460.000	5.116	5.373	20.000	107.450		
1+480.000	4.683	4.900	20.000	97.990		
1+487.512	4.040	4.362	7.512	32.764		
1+497.035	1.656	2.848	9.523	27.122		
1+500.000	0.683	1.170	2.965	3.468		
1+515.899	0.000	0.342	0.000	0.000		
MERAK-2						
0+070.110	1.000	0.500	70.110	35.055		3-1
0+080.000	1.033	1.017	9.890	10.053		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/16/2006 17:13		Sheet : 1 of 1		
PROJECT : MERAK PROJECT						
NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : MRS-019, MRD-020, MRD-021, MRD-022, MRD-023, MRD-024		ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING		CALCULATION				REMARKS
		Merak Fly Over - Contract Package 1				
		Item No. 3.1(1) - Clearing and Grubbing				
	0+100.000	1.175	1.104	20.000	22.080	
	0+107.552	1.312	1.244	7.552	9.391	
	0+108.689	4.024	2.668	1.137	3.034	
	0+109.073	3.500	3.762	0.384	1.445	
	0+110.122	2.820	3.160	1.049	3.315	
	0+111.422	2.380	2.600	1.300	3.380	
	0+115.000	2.441	2.411	3.578	8.625	
	SUB TOTAL RIGHT AREA				501.594	
		SERVICE ROAD				
	STA	LEFT SIDE WIDTH	AVE. LEFT WIDTH	LENGTH	AREA	
	0+702.000	5.000	5.000	0.000	0.000	
	0+860.000	5.000	5.000	158.000	790.000	
	0+874.832	4.992	4.996	14.832	74.101	
	0+880.000	4.477	4.735	5.168	24.468	
	0+887.998	3.380	3.929	7.998	31.420	
	0+895.990	2.910	3.145	7.992	25.135	
	0+898.099	3.051	2.981	2.109	6.286	
	0+900.000	3.576	3.314	1.901	6.299	
	0+901.983	4.651	4.114	1.983	8.157	
	0+904.129	6.656	5.654	2.146	12.132	
	0+905.520	0.000	3.328	1.391	4.629	
	0+907.958	3.838	3.838	2.438	9.357	
	0+908.359	7.722	5.780	0.401	2.318	
	0+909.278	3.958	5.840	0.919	5.367	
	0+910.941	2.586	3.272	1.663	5.441	
	0+912.557	2.132	2.359	1.616	3.812	
	0+920.000	2.096	2.114	7.443	15.735	
	0+940.000	2.209	2.153	20.000	43.050	
	0+960.000	2.135	2.172	20.000	43.440	
	0+980.000	2.432	2.284	20.000	45.670	
	1+000.000	3.067	2.750	20.000	54.990	
	1+007.019	3.245	3.156	7.019	22.152	
	1+012.348	2.948	3.097	5.329	16.501	
	1+020.000	1.768	2.358	7.652	18.043	
	1+027.937	0.000	0.884	7.937	7.016	
	1+064.622	0.000	0.000	36.685	0.000	
	1+073.898	3.214	1.607	9.276	14.907	
	1+080.000	5.597	4.406	6.102	26.882	
	1+089.813	8.805	7.201	9.813	70.663	
	1+095.357	6.845	7.825	5.544	43.382	
	1+098.487	6.207	6.526	3.130	20.426	
	1+100.000	6.206	3.103	0.000	0.000	
	1+109.252	6.061	6.134	9.252	56.747	
	1+114.022	4.620	5.341	4.770	25.474	
	1+120.000	3.162	3.891	5.978	23.260	
	1+122.551	2.642	2.902	2.551	7.403	
	1+131.328	1.633	2.138	8.777	18.761	
	1+140.000	1.757	1.695	8.672	14.699	
	1+151.714	2.196	1.977	11.714	23.153	
	1+160.000	2.212	2.204	8.286	18.262	
	1+168.973	2.040	2.126	8.973	19.077	
	1+180.000	1.584	1.812	11.027	19.981	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/16/2006 17:13			Sheet : 2 of 7		
PROJECT : MERAK PROJECT							
NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL							
DRAWING NO : MRS-019, MRD-020, MRD-021, MRD-022, MRD-023, MRD024		ESTIMATOR :			CHECKED BY :		
SKETCH DRAWING		CALCULATION					REMARKS
Merak Fly Over - Contract Package 1							
Item No. 3.1(1) - Cleaning and Grubbing							
1+200.000	0.826	1.205	20.000	24.100			
1+217.113	0.000	0.413	17.113	7.068			
0+000.000	0.000	0.000	0.000	0.000			
SUB TOTAL LEFT AREA				1,709.765			
STA	RIGHT SIDE WIDTH	AVE. RIGHT WIDTH	LENGTH	AREA			
0+960.638	0.000	0.000	0.000	0.000			
0+980.000	0.596	0.298	19.362	5.770			
0+981.388	0.639	0.618	1.388	0.857			
0+985.289	0.672	0.656	3.901	2.557			
0+988.588	0.486	0.579	3.299	1.910			
0+992.390	0.000	0.243	3.802	0.924			
1+076.513	0.000	0.000	84.123	0.000			
1+097.657	0.729	0.365	21.144	7.707			
1+099.530	1.576	1.153	1.873	2.159			
1+100.000	1.923	1.750	0.470	0.822			
1+101.162	3.609	2.766	1.162	3.214			
1+101.791	4.631	4.120	0.629	2.591			
1+103.996	4.229	4.430	2.205	9.768			
1+104.176	1.641	2.935	0.180	0.528			
1+105.695	0.000	0.821	1.519	1.246			
1+111.200	0.000	0.000	5.505	0.000			
1+120.000	0.219	0.110	8.800	0.964			
1+140.000	0.326	0.273	20.000	5.450			
1+160.000	0.953	0.640	20.000	12.790			
1+180.000	1.873	1.413	20.000	28.260			
1+200.000	2.728	2.301	20.000	46.010			
1+211.774	3.670	3.199	11.774	37.665			
1+220.000	3.829	3.750	8.226	30.843			
1+240.000	3.788	3.809	20.000	76.170			
1+260.000	3.563	3.676	20.000	73.510			
1+280.000	3.600	3.582	20.000	71.630			
1+300.000	3.969	3.785	20.000	75.690			
1+320.000	4.179	4.074	20.000	81.480			
1+340.000	4.331	4.255	20.000	85.100			
1+360.000	4.353	4.342	20.000	86.840			
1+380.000	4.283	4.318	20.000	86.360			
1+400.000	4.098	4.191	20.000	83.810			
1+410.000	3.935	4.017	10.800	40.165			
MERAK-2							
0+115.000	0.864	0.432	0.000	0.000			
0+120.000	0.850	0.857	5.000	4.285			
0+140.000	1.034	0.942	20.000	18.840			
0+140.655	1.067	1.051	0.655	0.688			
0+142.924	1.741	1.404	2.269	3.186			
0+144.308	2.847	2.294	1.384	3.175			
0+146.029	0.000	1.424	1.721	2.450			
0+151.643	0.000	0.000	5.614	0.000			
0+152.960	4.128	2.064	1.317	2.718			
0+153.072	3.212	3.670	0.112	0.411			
0+154.829	1.951	2.582	1.757	4.536			
0+156.285	1.463	1.707	1.456	2.485			
0+160.000	1.527	1.495	3.715	5.554			

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/16/2006 17:13		Sheet : 1 of 57		
PROJECT : MERAK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : MRS-019, MRD-020, MRD-021, MRD-022, MRD-023, MRD024		ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING		CALCULATION Merak Fly Over - Contract Package 1				REMARKS
		Item No. 3.1(1) - Clearing and Grubbing				
		0+165.271	1.808	1.668	5.271	8.789
		0+171.075	0.093	0.951	5.804	5.517
		0+171.397	0.529	0.311	0.322	0.100
		0+176.894	0.000	0.265	5.497	1.454
		0+228.129	0.000	0.000	51.235	0.000
		0+228.996	1.271	0.636	0.867	0.551
		0+230.735	0.908	1.090	1.739	1.895
		0+232.135	1.314	1.111	1.400	1.555
		0+240.000	1.810	1.562	7.865	12.285
		0+260.000	0.885	1.348	20.000	26.950
		0+280.000	0.098	0.492	20.000	9.830
		0+282.482	0.000	0.049	2.482	0.122
		SUB TOTAL RIGHT AREA			1,080.167	
		Total Area		= 4,147.44 sqm.		

CONSTRUCTION COST ESTIMATE WORKSHEET Date Prepared 9/22/2006 11:41 Sheet : of

PROJECT : MERAK PROJECT
NORTH JAVA CORRIDOR FLYOVER PROJECT

KATAHIRA AND ENGINEERS INTERNATIONAL

DRAWING NO : ESTIMATOR : CHECKED BY :

MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024

SKETCH DRAWING CALCULATION REMARKS

Merak Fly Over - Contract Package 1

Item No. 3.2 (1) - Common Excavation

MAIN ROAD BEFORE FLYOVER

STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME
0+503.141	0.000	0.000	0.000	0.000
0+510.451	0.681	0.340	7.310	2.488
0+518.081	2.275	1.478	7.630	11.275
0+520.000	2.524	2.399	1.919	4.605
0+522.422	2.785	2.655	2.422	6.430
0+524.430	2.835	2.810	2.008	5.643
0+531.110	3.862	3.348	6.680	22.366
0+535.689	4.249	2.125	0.000	0.000
0+540.000	5.004	4.626	4.311	19.945
0+543.287	5.707	5.356	3.287	17.604
0+546.909	5.226	5.467	3.622	19.800
0+549.363	4.866	5.046	2.454	12.382
0+552.409	4.710	4.788	3.046	14.584
0+555.094	4.661	4.686	2.685	12.581
0+560.000	4.769	4.715	4.906	23.132
0+568.940	4.929	4.849	8.940	43.350
0+580.000	4.671	4.800	11.060	53.089
0+600.000	3.933	4.302	20.000	86.043
0+620.000	3.705	3.819	20.000	76.383
0+625.441	3.800	3.752	5.441	20.417
0+630.165	3.974	3.887	4.724	18.362
0+634.750	4.226	4.100	4.585	18.800
0+640.000	4.681	4.453	5.250	23.380
0+651.824	6.079	5.380	11.824	63.610
0+660.000	7.150	6.614	8.176	54.078
0+669.342	8.112	7.631	9.342	71.287
0+680.000	8.610	8.361	10.658	89.112
0+690.596	8.880	8.745	10.596	92.664
0+700.000	8.824	8.852	9.404	83.245
0+702.000	8.824	8.824	2.000	17.648
SUB TOTAL LEFT VOLUME				984.302

STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME
1+410.000	6.836	3.418	0.000	0.000
1+420.000	6.660	6.748	10.000	67.476
1+426.591	4.951	5.805	6.591	38.262
1+429.932	1.535	3.243	3.341	10.835
1+440.000	6.473	4.004	10.068	40.315
1+460.000	5.883	6.178	20.000	123.568
1+480.000	5.385	5.634	20.000	112.689
1+487.512	4.646	5.016	7.512	37.678
1+497.035	1.904	3.275	9.523	31.190
1+500.000	0.785	1.345	2.965	3.988
1+515.899	0.000	0.393	0.000	0.000
MERAK-2				
0+070.110	1.150	0.575	0.000	0.000
0+080.000	1.188	1.169	9.890	11.561
0+100.000	1.351	1.270	20.000	25.392
0+107.552	1.509	1.430	7.552	10.800
0+108.689	4.628	3.068	1.137	3.489
0+109.073	4.025	4.326	0.384	1.661

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/22/2006 11:41			Sheet : of		
PROJECT : MERAK PROJECT							
NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL							
DRAWING NO : MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024		ESTIMATOR :			CHECKED BY :		
SKETCH DRAWING		CALCULATION Merak Fly Over - Contract Package 1					REMARKS
Item No. 3.2 (1) - Common Excavation							
0+110.122	3.243	3.634	1.049	3.812			
0+111.422	2.737	2.990	1.300	3.887			
0+115.000	2.807	2.772	3.578	9.918			
SUB TOTAL RIGHT VOLUME					536.520		
SERVICE ROAD							
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME			
0+702.000	5.750	2.875	0.000	0.000			
0+860.000	5.750	5.750	158.000	908.500			
0+874.832	5.741	5.745	14.832	85.216			
0+880.000	5.149	5.445	5.168	28.138			
0+887.998	3.887	4.518	7.998	36.133			
0+895.990	3.347	3.617	7.992	28.905			
0+898.099	3.509	3.428	2.109	7.229			
0+900.000	4.112	3.811	1.901	7.244			
0+901.983	5.349	4.731	1.983	9.381			
0+904.129	7.654	6.502	2.146	13.952			
0+905.520	0.000	3.827	1.391	5.324			
0+907.958	4.414	2.207	2.438	5.380			
0+908.359	8.880	6.647	0.401	2.665			
0+909.278	4.552	6.716	0.919	6.172			
0+910.941	2.974	3.763	1.663	6.258			
0+912.557	2.452	2.713	1.616	4.384			
0+920.000	2.410	2.431	7.443	18.095			
0+940.000	2.540	2.475	20.000	49.508			
0+960.000	2.455	2.498	20.000	49.956			
0+980.000	2.797	2.626	20.000	52.521			
1+000.000	3.527	3.162	20.000	63.239			
1+007.019	3.732	3.629	7.019	25.475			
1+012.348	3.390	3.561	5.329	18.976			
1+020.000	2.033	2.712	7.652	20.750			
1+027.937	0.000	1.017	7.937	8.069			
1+064.622	0.000	0.000	36.685	0.000			
1+073.898	3.696	1.848	9.276	17.143			
1+080.000	6.437	5.066	6.102	30.915			
1+089.813	10.126	8.281	9.813	81.263			
1+095.357	7.872	8.999	5.544	49.889			
1+098.487	7.138	7.505	3.130	23.490			
1+100.000	7.137	3.568	0.000	0.000			
1+109.252	6.970	7.054	9.252	65.259			
1+114.022	5.313	6.142	4.770	29.295			
1+120.000	3.636	4.475	5.978	26.749			
1+122.551	3.038	3.337	2.551	8.513			
1+131.328	1.878	2.458	8.777	21.575			
1+140.000	2.021	1.949	8.672	16.904			
1+151.714	2.525	2.273	11.714	26.626			
1+160.000	2.544	2.535	8.286	21.002			
1+168.973	2.346	2.445	8.973	21.938			
1+180.000	1.822	2.084	11.027	22.978			
1+200.000	0.950	1.386	20.000	27.715			
1+217.113	0.000	0.475	17.113	8.128			
SUB TOTAL LEFT VOLUME					1,960.850		
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME			

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/22/2006 11:41			Sheet : of		
PROJECT : MERAK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL							
DRAWING NO : MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024		ESTIMATOR :			CHECKED BY :		
SKETCH DRAWING		CALCULATION Merak Fly Over - Contract Package 1					REMARKS
Item No. 3.2 (1) - Common Excavation							
0+960.638	0.000	0.000	0.000	0.000	0.000		
0+980.000	0.685	0.343	19.362	6.635			
0+981.388	0.735	0.710	1.388	0.986			
0+985.289	0.773	0.754	3.901	2.941			
0+988.588	0.559	0.666	3.299	2.197			
0+992.390	0.000	0.279	3.802	1.062			
1+076.513	0.000	0.000	84.123	0.000			
1+097.657	0.838	0.419	21.144	8.863			
1+099.530	1.812	1.325	1.873	2.482			
1+100.000	2.211	2.012	0.470	0.946			
1+101.162	4.150	3.181	1.162	3.696			
1+101.791	5.326	4.738	0.629	2.980			
1+103.996	4.863	5.095	2.205	11.233			
1+104.176	1.887	3.375	0.180	0.608			
1+105.695	0.000	0.944	1.519	1.433			
1+111.200	0.000	0.000	5.505	0.000			
1+120.000	0.252	0.126	8.800	1.108			
1+140.000	0.375	0.313	20.000	6.268			
1+160.000	1.096	0.735	20.000	14.709			
1+180.000	2.154	1.625	20.000	32.499			
1+200.000	3.137	2.646	20.000	52.912			
1+211.774	4.221	3.679	11.774	43.315			
1+220.000	4.403	4.312	8.226	35.470			
1+240.000	4.356	4.380	20.000	87.596			
1+260.000	4.097	4.227	20.000	84.537			
1+280.000	4.140	4.119	20.000	82.375			
1+300.000	4.564	4.352	20.000	87.044			
1+320.000	4.806	4.685	20.000	93.702			
1+340.000	4.981	4.893	20.000	97.865			
1+360.000	5.006	4.993	20.000	99.866			
1+380.000	4.925	4.966	20.000	99.314			
1+400.000	4.713	4.819	20.000	96.382			
1+410.000	4.525	4.619	10.000	46.190			
0+000.000	0.000	2.263	0.000	0.000			
MERAK-2							
0+115.000	0.994	0.497	0.000	0.000			
0+120.000	0.978	0.986	5.000	4.928			
0+140.000	1.189	1.083	20.000	21.666			
0+140.655	1.227	1.208	0.655	0.791			
0+142.924	2.002	1.615	2.269	3.664			
0+144.308	3.274	2.638	1.384	3.651			
0+146.029	0.000	1.637	1.721	2.817			
0+151.643	0.000	0.000	5.614	0.000			
0+152.960	4.747	2.374	1.317	3.126			
0+153.072	3.694	4.221	0.112	0.473			
0+154.829	2.244	2.969	1.757	5.216			
0+156.285	1.682	1.963	1.456	2.858			
0+160.000	1.756	1.719	3.715	6.387			
0+165.271	2.079	1.918	5.271	10.108			
0+171.075	0.107	1.093	5.804	6.344			
0+171.397	0.608	0.358	0.322	0.115			
0+176.894	0.000	0.304	5.497	1.672			
0+228.129	0.000	0.000	51.235	0.000			
0+228.996	1.462	0.731	0.867	0.634		3-8	
0+230.735	1.044	1.253	1.739	2.179			
0+232.135	1.511	1.278	1.400	1.789			

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/22/2006 11:41			Sheet : of			
PROJECT : MERAK PROJECT								
NORTH JAVA CORRIDOR FLYOVER PROJECT								
KATAHIRA AND ENGINEERS INTERNATIONAL								
DRAWING NO : MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024				ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING				CALCULATION Merak Fly Over - Contract Package 1				REMARKS
Item No: 3.2(1) - Common Excavation								
0+240.000	2.082	1.796	7.865	14.128				
0+260.000	1.018	1.550	20.000	30.993				
0+280.000	0.113	0.565	20.000	11.305				
0+282.482	0.000	0.056	2.482	0.140				
SUB TOTAL RIGHT VOLUME				1,242.192				
TOTAL	= 4,723.864 cum.							

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/23/2006 14:42	Sheet : of
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PROJECT : MERAK PROJECT
NORTH JAVA CORRIDOR FLYOVER PROJECT

KATAHIRA AND ENGINEERS INTERNATIONAL

DRAWING NO :
MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024

ESTIMATOR :

CHECKED BY :

SKETCH DRAWING

CALCULATION

Merak Fly Over - Contract Package 1

REMARKS

Item No. 3.1(3) - Excavation of Existing Pavement

MAIN ROAD BEFORE FLYOVER

STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE			VOL
			START	END	LENGTH	
0+503.141	2.350	1.175	0+503.141	0+510.451	7.310	8.589
0+510.451	0.250	1.300	0+510.451	0+518.081	7.630	9.919
0+518.081	1.250	0.750	0+518.081	0+520.000	1.919	1.439
0+520.000	2.250	1.750	0+520.000	0+522.422	2.422	4.239
0+522.422	2.250	2.250	0+522.422	0+524.430	2.008	4.518
0+524.430	1.280	1.765	0+524.430	0+531.110	6.680	11.790
0+531.110	2.598	1.939	0+531.110	0+535.689	4.579	8.879
0+535.689	1.253	1.926	0+535.689	0+540.000	4.311	8.301
0+540.000	2.002	1.628	0+540.000	0+543.287	3.287	5.350
0+543.287	3.301	2.652	0+543.287	0+546.909	3.622	9.604
0+546.909	2.390	2.846	0+546.909	0+549.363	2.454	6.983
0+549.363	2.598	2.494	0+549.363	0+552.409	3.046	7.597
0+552.409	1.258	1.928	0+552.409	0+555.094	2.685	5.177
0+555.094	3.659	2.459	0+555.094	0+560.000	4.906	12.061
SUB TOTAL LEFT VOLUME						104.445

RIGHT SIDE AREA	AVE. RIGHT AREA	DISTANCE			VOL
		START	END	LENGTH	
2.360	1.180	1+410.000	1+410.000	0.000	0.000
1.258	1.809	1+420.000	1+426.591	6.591	11.923
0.259	0.759	1+426.591	1+429.932	3.341	2.534
0.289	0.274	1+429.932	1+440.000	10.068	2.759
0.896	0.593	1+440.000	1+460.000	20.000	11.850
1.570	1.233	1+460.000	1+480.000	20.000	24.660
2.360	1.965	1+480.000	1+487.512	7.512	14.761
2.369	2.365	1+487.512	1+497.035	9.523	22.517
0.980	1.675	1+497.035	1+500.000	2.965	4.965
2.369	1.675	1+500.000	1+515.899	15.899	26.623
1.369	0.000	1+515.899	1+515.899	0.000	0.000
MERAK-2					
2.369	2.369	0+552.409	0+555.094	2.685	6.361
4.000	3.185	0+555.094	0+556.094	1.000	3.185
3.580	3.790	0+556.094	0+557.094	1.000	3.790
3.690	3.635	0+557.094	0+558.094	1.000	3.635
2.369	3.030	0+558.094	0+559.094	1.000	3.030
5.690	4.030	0+559.094	0+560.094	1.000	4.030
2.369	4.030	0+560.094	0+561.094	1.000	4.030
1.987	2.178	0+561.094	0+562.094	1.000	2.178
2.369	0.000	0+562.094	0+562.094	0.000	0.000
SUB TOTAL RIGHT VOLUME					152.829

MAIN ROAD AFTER FLYOVER

STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE			VOLUME
			START	END	LENGTH	
1+073.344	0.897	0.449	1+073.344	1+074.738	1.394	0.625
1+074.738	1.259	1.078	1+074.738	1+080.000	5.262	5.672
1+080.000	2.369	1.814	1+080.000	1+080.534	0.534	0.969
1+080.534	0.258	1.314	1+080.534	1+090.999	10.465	13.748
1+090.999	3.369	1.814	1+090.999	1+099.429	8.430	15.288
1+099.429	1.258	2.314	1+099.429	1+100.000	0.571	1.321
1+100.000	2.258	1.758	1+100.000	1+105.981	5.981	10.515

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 21 - 09 - 2006	Sheet : 2 of 2
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :		QUANTITY :	CHECKED BY :
NO	DESCRIPTION	CALCULATION	QTY (Cu M)
3.2 (3)	Structure Excavation to a depth not exceeding 2 m	A1	Stub Wall
		W = 1.50 m	
		L = 33.50 m	
		H = 1.80 m	
		W = 1.00 m	
		L = 33.00 m	
		H = 0.50 m	
		Quantity	
		= 1.50 x 1.80 x 33.5 x 2	180.90
		= 1.00 x 0.50 x 33.00 x 2	33.00
		sub total	213.90
		A2	Stub Wall
		W = 1.50 m	
		L = 39.15 m	
		H = 2.00 m	
		W = 1.00 m	
		L = 39.15 m	
		H = 0.50 m	
		Quantity	
		= 1.50 x 2.00 x 39.15 x 2	234.90
		= 1.00 x 0.50 x 39.15 x 2	39.15
		sub total	274.05
		AB1	Stub Wall
		W = 1.50 m	
		L = 30.861 m	
		H = 1.40 m	
		W = 1.00 m	
		L = 30.00 m	
		H = 0.50 m	
		Quantity	
		= 1.50 x 1.40 x 30.861 x 2	129.62
		= 1.00 x 0.50 x 30.00 x 2	30.00
		sub total	159.62
		Sub Total Stub Wall	647.57
		SUMMARY	759.35

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/20/2006 14:29	Sheet : of			
PROJECT : MERAK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : MRS-019, MRD-020, MRD-021, MRD-022, MRD-023, MRD024		ESTIMATOR :	CHECKED BY :			
SKETCH DRAWING		CALCULATION Merak Fly Over - Contract Package 1			REMARKS	
		Item No. 3.2 (3) - Permeable backfill				
		SERVICE ROAD				
STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE			VOLUME
			START	END	LENGTH	
1+108.606	0.000	0.000	0+000.000	0+000.000	0.000	0.000
1+120.000	0.000	0.000	0+000.000	0+000.000	0.000	0.000
1+124.552	0.000	0.000	0+000.000	0+000.000	0.000	0.000
1+460.000	0.000	0.000	0+000.000	0+000.000	0.000	0.000
1+480.000	0.000	0.000	0+000.000	0+000.000	0.000	0.000
1+486.072	0.000	0.000	0+000.000	0+000.000	0.000	0.000
SUB TOTAL LEFT VOLUME						0.000
RIGHT SIDE AREA	AVE. RIGHT AREA	DISTANCE			VOLUME	
		START	END	LENGTH		
0.248	0.000	1+108.606	1+108.606	0.000	0.000	
0.242	0.245	1+108.606	1+120.000	11.394	2.792	
0.000	0.121	1+120.000	1+124.552	4.552	0.551	
0.249	0.125	1+460.000	1+460.000	0.000	0.000	
0.458	0.229	1+460.000	1+480.000	20.000	4.580	
0.000	0.229	1+480.000	1+486.072	6.072	1.390	
SUB TOTAL RIGHT VOLUME						9.313
TOTAL	= 9.313 cum.					

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of
PROJECT : MERAK 1 FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : 170 073 - 027	ESTIMATOR :	CHECKED BY :	
SKETCH DRAWING	CALCULATION		REMARKS
	Merak 1 Flyover - Contract Package 1		
	Item No. 3.1(22) - Subgrade Preparation in Earthcut		
	Subgrade Preparation for Widening :		
	From AutoCad Area :		
	A. For Right Service Road		
	Area 1 =	928.20	
	Area 2 =	1,374.22	Additional Area
	Sub-Total=	2,302.42 sqm.	
	B. For Left Service Road		
	Area 1 =	1290.03	
	Area 2 =	431.75	
	Area 3 =	1017.95	Additional Area
	Sub-Total=	2,739.73 sqm.	
	C. For Main Road		
	At Approach A		
	Area 1 =	861.21	
	Area 2 =	296.78	Additional Area
	Area 3 =	401.80	Additional Area
	Sub-Total=	1,559.79 sqm.	
	At Approach B		
	Area 1 =	271.17	
	Area 2 =	32.91	
	Area 3 =	135.93	
	Area 4 =	251.00	Additional Area
	Area 5 =	659.90	Additional Area
	Area 6 =	208.90	Additional Area
	Sub-Total=	1,559.82 sqm.	
	Total Area=	8161.755 sqm.	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of	
PROJECT : MERAK 2 FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :	ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING	CALCULATION			REMARKS
	Merak 2 Flyover - Contract Package 1			
	Item No. 3.1(22) - Subgrade Preparation in Earthcut			
	Subgrade Preparation for Widening :			
	A. For Right Service Road			
	Area 1 =	100.77		
	Area 2 =	72.43		
	Area 3 =	230.98		
	Sub-Total=	404.18	sqm.	
	B. For Main Road			
	At Approach A			
	Area 1 =	25.60		
	Sub-Total=	25.60	sqm.	
	Total Area=	429.780	sqm.	

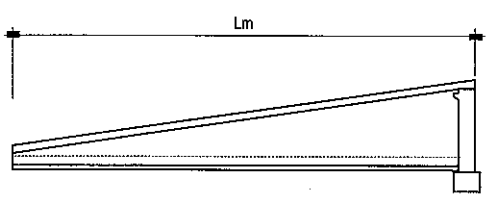
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared :	Sheet : of	
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PROJECT : MERAK 2 FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT	
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KATAHIRA AND ENGINEERS INTERNATIONAL	
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DRAWING NO :	ESTIMATOR :	CHECKED BY :
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SKETCH DRAWING	CALCULATION	REMARKS
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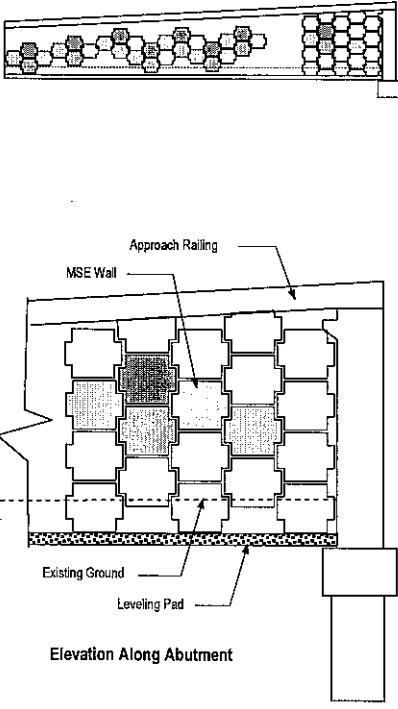
Merak 2 Flyover - Contract Package 1

Item No. 3.1(23) : Subgrade Preparation on Embankment

A. Along Approach AB1

Input Data:

W =	6.207 m.	Ave. Width of Borrow Materials			
Lm =	176.861 m.	Total length of Approach			
Area 1 =	6.207	x	176.861		
Area 1 =	1,097.78	sqm.			
Total =	1,527.56	sqm.			

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/26/2006 17:31	Sheet : of					
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT								
KATAHIRA AND ENGINEERS INTERNATIONAL								
DRAWING NO : MMS 001 - MMS 017		ESTIMATOR :		CHECKED BY :				
SKETCH DRAWING		CALCULATION				REMARKS		
		Merak 1 Flyover - Contract Package 1						
		SS.3.5 (f) - Mechanical Stabilized Earthwall and Accessories (MSE)						
		I. At Abutment						
		Input Data:						
		A. At Abutment Pulorida Bound						
		Sta	Elev		High	Length	Width	MSE Wall Area
			EG	FG				
		00 + 702.00	4.759	4.759	-	-	6.750	-
		00 + 862.50	4.459	10.061	5.602	160.500	6.750	899.121
		Input Data:						
B. At Abutment Serang Bound								
Sta	Elev		High	Length	Width	MSE Wall Area		
	EG	FG						
01 + 207.50	3.376	9.785	6.409	202.500	9.000	1,297.823		
01 + 410.00	2.677	2.677	-	-	9.000	-		
Input Data:								
C. At Abutment Merak Bound								
Sta	Elev		High	Length	Width	MSE Wall Area		
	EG	FG						
00 + 112.00	2.665	2.665	-	-	7.000	-		
00 + 288.86	2.899	9.357	6.458	176.861	7.000	1,142.168		
Total :						3,339.11 cu.m.		

**DIVISION 4.
Pavement Widening
and Shoulders**

**DIVISION 5.
Granular Pavement**

**DIVISION 6.
Asphalt Pavement**

CONSTRUCTION COST ESTIMATE WORKSHEET

PROJECT : FLYOVER
 NORTH JAVA CORRIDOR FLYOVER PROJECT
 KATAHIRA AND ENGINEERS INTERNATIONAL

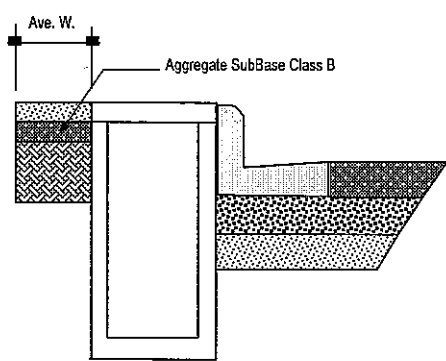
MERAK FLYOVER

Item No.	Description	Unit	Main Road / Flyover	Right Service Road	Left Service Road	Total
A. AT MERAK - 1						
Division 4 - PAVEMENT WIDENING AND SHOULDERS						
4.2.1	Aggregate SubBase Class B	cum.	38.95	23.15	34.90	97.00
Division 5 - GRANULAR PAVEMENT						
5.1.1	Aggregate SubBase Class A	cum.	1,653.29	843.71	1,073.89	3,570.89
5.1.2	Aggregate SubBase Class B	cum.	2,287.66	1,065.75	1,370.28	4,723.69
Division 6 - ASPHALT PAVEMENT						
6.1.1	Prime Coat	Lit.	5,145.86	1,756.93	2,378.92	9,281.71
6.1.2	Tact Coat	Lit.	8,962.54	3,510.32	3,405.14	15,878.00
6.3.5	Asphalt Concrete Wearing Course (AC-WC)	tonne	1,020.75	564.19	453.95	2,038.89
6.3.6	Asphalt Concrete Binder Course (AC-BC)	tonne	900.36	237.36	323.35	1,461.07
6.3.7	Asphalt Concrete Base (AC-Base)	tonne	1,160.00	382.94	528.12	2,071.06
A. AT MERAK - 2						
Division 4 - PAVEMENT WIDENING AND SHOULDERS						
4.2.1	Aggregate SubBase Class B	cum.				
Division 5 - GRANULAR PAVEMENT						
5.1.1	Aggregate SubBase Class A	cum.	201.55	137.16		338.71
5.1.2	Aggregate SubBase Class B	cum.	382.02	288.29		670.31
Division 6 - ASPHALT PAVEMENT						
6.1.1	Prime Coat	Lit.	1,031.90	163.07		1,194.97
6.1.2	Tact Coat	Lit.	2,344.78	163.07		2,507.85
6.3.5	Asphalt Concrete Wearing Course (AC-WC)	tonne	200.97	14.98		215.95
6.3.6	Asphalt Concrete Binder Course (AC-BC)	tonne	260.42	22.41		282.83
6.3.7	Asphalt Concrete Base (AC-Base)	tonne	237.34	37.15		274.49

PROJECT : FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT KATAHIRA AND ENGINEERS INTERNATIONAL	
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DRAWING NO :	ESTIMATOR :	CHECKED BY :
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SKETCH DRAWING	CALCULATION	REMARKS
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Section of Aggregate Subbase Class B Left

Merak Flyover - Contract Package 1

Item No. 4.2.1 - Aggregate SubBase Class B	Location : At Shoulder
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Note: See Detailed Construction Layout Plan

Dwg. # MRD-025 - MRD-033 for reference.

At Left Service Road

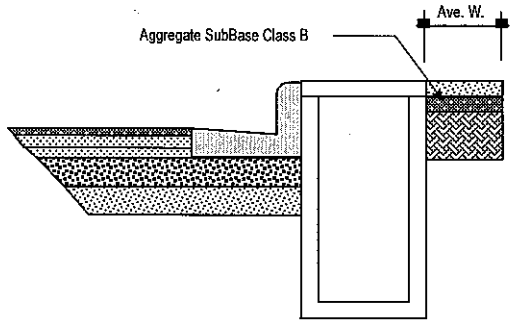
Length (m)	Ave. Width (m)	Thickness (m)	Volume (m ³)
201.694	0.397	0.100	8.007
133.571	0.404	0.100	5.396
14.639	0.397	0.100	0.581
323.901	0.399	0.100	12.924
10.000	1.117	0.100	1.117
Total Volume =			28.03 cum

PROJECT : FLYOVER	
NORTH JAVA CORRIDOR FLYOVER PROJECT	
KATAHIRA AND ENGINEERS INTERNATIONAL	

DRAWING NO :	ESTIMATOR :	CHECKED BY :
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SKETCH DRAWING	CALCULATION	REMARKS
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Merak Flyover - Contract Package 1



Section of Aggregate Subbase Class B Right

Item No. 4.2.1 - Aggregate SubBase Class B	Location : At Shoulder
--	------------------------

Note: See Detailed Construction Layout Plan
Dwg. # MRD-025 - MRD-033 for reference.

At Right Service Road			
Length	Ave. Width	Thickness	Volume
(m)	(m)	(m)	(m ³)
188.000	0.770	0.100	14.476
33.812	1.390	0.100	4.700
100.000	0.397	0.100	3.970
Total Volume =			23.15 cum

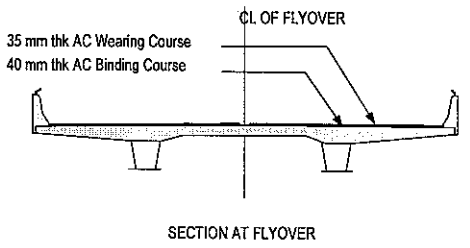
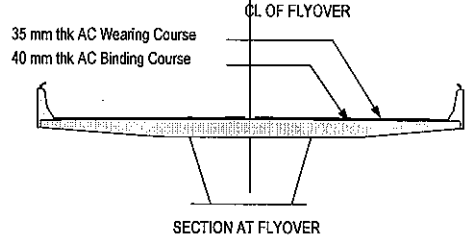
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of	
PROJECT : FLYOVER				
NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		ESTIMATOR :	CHECKED BY :	
SKETCH DRAWING		CALCULATION		REMARKS
		Merak Flyover - Contract Package 1		
		Item No. 6.1.2 - Tact Coat		Location : At Viaduct
		Note: See Detailed Construction Layout Plan		
		Dwg. # MRD-025 - MRD-033 for reference.		
		At Viaduct :		
Station	Distance	Width	Area	Slope is considered
	(m)	(m)	(m ²)	
00 + 288.86				
00 + 300.00	11.14	6.001	66.85	
00 + 320.00	20.00	6.001	120.02	
00 + 340.00	20.00	6.001	120.02	
00 + 360.00	20.00	6.001	120.02	
00 + 380.00	20.00	6.003	120.06	
00 + 400.00	20.00	6.003	120.06	
00 + 420.00	20.00	6.003	120.06	
00 + 440.00	40.00	7.294	291.76	
00 + 460.00	20.00	4.463	89.26	
00 + 480.00	20.00	3.702	74.04	
00 + 491.00	11.00	3.702	40.72	
		Total Area =	1,282.87 sqm.	
		Total Volume = (Total Area x 0.50 lit/sqm. x 2 face) = 1,282.87 lit.		

PROJECT : FLYOVER		
NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		

DRAWING NO :	ESTIMATOR :	CHECKED BY :
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SKETCH DRAWING	CALCULATION	REMARKS
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Merak - 2 Flyover - Contract Package 1



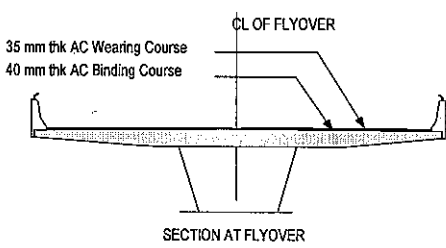
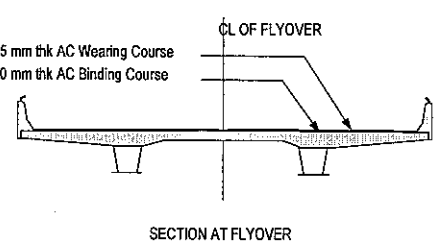
Item No. 6.3.6 - Asphalt Concrete Wearing Course (AC - BC)	Location : At Viaduct
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Note: See Detailed Construction Layout Plan
Dwg. # MRD-025 - MRD-033 for reference.

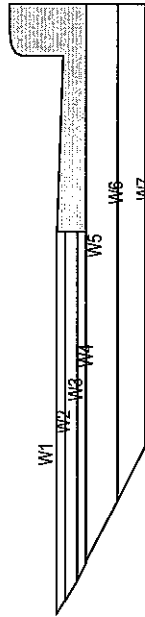
At Viaduct :				Slope is considered
Station	Distance (m)	Ave. Width (m)	Area (m ²)	
00 + 288.86				
00 + 300.00	11.14	6.001	66.85	
00 + 320.00	20.00	6.001	120.02	
00 + 340.00	20.00	6.001	120.02	
00 + 360.00	20.00	6.001	120.02	
00 + 380.00	20.00	6.003	120.06	
00 + 400.00	20.00	6.003	120.06	
00 + 420.00	20.00	6.003	120.06	
00 + 440.00	40.00	7.294	291.76	merging to viaduct
00 + 460.00	20.00	4.463	89.26	merging to viaduct
00 + 480.00	20.00	3.702	74.04	merging to viaduct
00 + 491.00	11.00	3.702	40.72	merging to viaduct
Total Area =			1,282.87 sqm.	

Input Data :
thickness = 0.040 m

Total Wt = (Total Area x Thickness) x 2.30 = 118.02 Ton

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet: of			
PROJECT : FLYOVER						
NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO :		ESTIMATOR :	CHECKED BY :			
SKETCH DRAWING		CALCULATION			REMARKS	
<div style="text-align: center;">  <p>SECTION AT FLYOVER</p> </div> <div style="text-align: center;">  <p>SECTION AT FLYOVER</p> </div>		Merak - 2 Flyover - Contract Package 1				
		Item No. 6.3.5 - Asphalt Concrete Wearing Course (AC - WC)			Location : At Viaduct	
		Note: See Detailed Construction Layout Plan				
		Dwg. # MRD-025 - MRD-033 for reference.				
		At Viaduct :				
		Station	Distance	Ave. Width	Area	Slope is considered
			(m)	(m)	(m ²)	
		00 + 288.86				
		00 + 300.00	11.14	6.001	66.85	
		00 + 320.00	20.00	6.001	120.02	
		00 + 340.00	20.00	6.001	120.02	
		00 + 360.00	20.00	6.001	120.02	
		00 + 380.00	20.00	6.003	120.06	
		00 + 400.00	20.00	6.003	120.06	
		00 + 420.00	20.00	6.003	120.06	
00 + 440.00	40.00	7.294	291.76	merging to viaduct		
00 + 460.00	20.00	4.463	89.26	merging to viaduct		
00 + 480.00	20.00	3.702	74.04	merging to viaduct		
00 + 491.00	11.00	3.702	40.72	merging to viaduct		
Total Area =			1,282.87 sqm.			
Input Data :						
thickness = 0.035 m						
Total Wt = (Total Area x Thickness) x 2.30 = 103.27 Ton						

PROJECT : FLYOVER
NORTH JAVA CORRIDOR FLYOVER PROJECT
KATAHIRA AND ENGINEERS INTERNATIONAL



Note:

- AC - WC = Asphalt Concrete Wearing Course
- AC - BC = Asphalt Concrete Binder Course
- AC - Base = Asphalt Concrete Base
- SBC - Type A = Sub-Base Course (Agg. Class A)
- SBC - Type B = Sub-Base Course (Agg. Class B)

Thickness

- AC - WC 0.040
- AC - BC 0.060
- AC - Base 0.100
- SBC (Type A) 0.400
- SBC (Type B) 0.550

Merak - 2 Flyover Left & Right Side

STATION	DISTANCE	AC - WC		AC - BC		AC - Base			SBC (Type A)			SBC (Type B)			Tonne AC - Base	Volume		PAVEMENT			AC - WC Tonne	
		width		width		width			width			width				SBC (Type A)	SBC (Type B)	Prime Coat Liters	Tack Coat Liters	AC - BC Tonne		
		W1	W2	W2	W3	W3	W4	W4	W5	W5	W6	W6	W7	W7								SBC (Type A)
00 + 080.00		0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400								
00 + 100.00	20.00	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	3.680	6.400	8.800	16.00	16.00	2.21	1.47	
00 + 120.00	20.00	0.851	0.851	0.851	0.851	0.851	0.851	1.701	2.122	2.122	2.122	2.122	2.683	4.717	12.45	19.81	19.81	20.51	20.51	2.83	1.89	
00 + 140.00	20.00	1.093	1.093	1.093	1.093	1.093	1.093	1.942	2.364	2.364	2.364	2.924	4.471	4.471	16.26	27.76	27.76	19.44	19.44	2.68	1.79	
00 + 146.00	6.00	1.093	1.093	1.093	1.093	1.093	1.093	1.942	2.364	2.364	2.364	2.924	4.471	1.508	5.17	8.73	8.73	6.56	6.56	0.91	0.60	
00 + 151.00		1.532	1.532	1.532	1.532	1.532	1.532	2.382	2.803	2.803	2.803	3.364	3.364									
00 + 170.00	19.00	1.532	1.532	1.532	1.532	1.532	1.532	2.382	2.803	2.803	2.803	3.364	3.364	6.69	19.70	32.22	32.22	29.11	29.11	4.02	2.68	
00 + 228.00		1.786	1.786	1.786	1.786	1.786	1.786	2.636	3.057	3.057	3.057	3.618	3.618									
00 + 240.00	12.00	1.786	1.786	1.786	1.786	1.786	1.786	2.636	3.057	3.057	3.057	3.618	3.618	4.93	13.66	22.03	22.03	21.43	21.43	2.96	1.97	
00 + 260.00	20.00	0.915	0.915	0.915	0.915	0.915	0.915	2.636	3.057	3.057	3.057	3.618	3.618	6.21	22.77	36.71	36.71	27.01	27.01	3.73	2.48	
00 + 280.00	20.00	0.117	0.117	0.117	0.117	0.117	0.117	0.967	1.377	1.377	1.377	1.932	1.932	2.37	16.07	27.46	27.46	10.32	10.32	1.42	0.95	
00 + 300.00	20.00	-	-	-	-	-	-	0.850	1.271	1.271	1.271	1.832	1.832	0.27	8.93	17.63	17.63	1.17	1.17	0.16	0.11	
00 + 320.00	20.00	-	-	-	-	-	-	0.850	1.271	1.271	1.271	1.832	1.832									
00 + 340.00	20.00	-	-	-	-	-	-	-	-	-	-	-	-		4.24	8.53	8.53	-	-	-	-	
00 + 360.00	20.00	-	-	-	-	-	-	0.850	1.271	1.271	1.271	1.832	1.832									
00 + 380.00	20.00	1.152	1.112	1.112	1.052	1.052	0.952	1.802	1.832	1.832	1.832	1.832	1.832	2.30	11.51	18.61	18.61	11.52	11.52	1.49	1.04	
														37.15	137.16	228.29	163.07	163.07	163.07	22.41	14.98	14.98

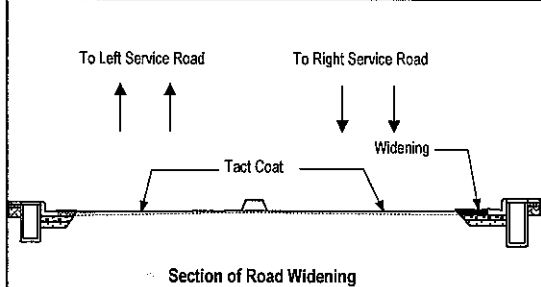
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
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PROJECT : FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT	
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KATAHIRA AND ENGINEERS INTERNATIONAL	
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DRAWING NO :	ESTIMATOR :	CHECKED BY :
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SKETCH DRAWING	CALCULATION	REMARKS
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Merak Flyover - Contract Package 1

Item No. 6.1.2 - Tact Coat	Pavement Overlay
	Left Service Road

Note: See Detailed Construction Layout Plan
Dwg. # MRD-025 - MRD-033 for reference.

Input Data :			
Area from AutoCad			
Area =	2,613.08	sqm.	
Area to be deducted from Auto Cad Area :			
Ave. Width =	1.168	m	
Total Length =	480.00	m	
Area =	560.64	sqm.	
Total Area =	2,052.44	sqm.	

Volume =	2,052.44	x	0.5	
	sqm.		lit/sqm.	= 1,026.22 lit.

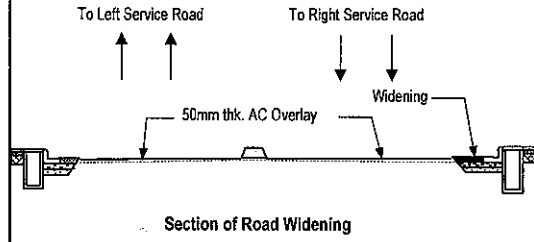
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of
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PROJECT : FLYOVER
 NORTH JAVA CORRIDOR FLYOVER PROJECT

KATAHIRA AND ENGINEERS INTERNATIONAL

DRAWING NO :	ESTIMATOR :	CHECKED BY :
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SKETCH DRAWING



CALCULATION

Merak Flyover - Contract Package 1

REMARKS

Item No. 6.3.5 - Asphalt Concrete Wearing Course (AC - WC)

Pavement Overlay

Left Service Road

Note: See Detailed Construction Layout Plan

Dwg. # MRD-025 - MRD-033 for reference.

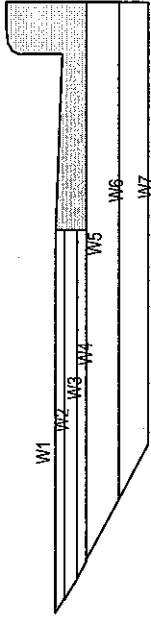
At Left Service Road

Input Data :

Area from AutoCad					
Area =	2,613.08	sqm.			
Area to be deducted from Auto Cad Area : <input checked="" type="checkbox"/>					
Ave. Width =	1.168	m			
Total Length =	480.00	m			
Area =	560.64	sqm.			
Total Area =	2,052.44	sqm.			
thickness =	0.05	m			

$$Wt = (2,052.44 \times 0.050 \times 2.30) = 236.03 \text{ Ton}$$

PROJECT : FLYOVER
NORTH JAVA CORRIDOR FLYOVER PROJECT
KATAHIRA AND ENGINEERS INTERNATIONAL



Note:
 AC - WC = Asphalt Concrete Wearing Course
 AC - BC = Asphalt Concrete Binder Course
 AC - Base = Asphalt Concrete Base
 SBC - Type A = Sub-Base Course (Agg. Class A)
 SBC - Type B = Sub-Base Course (Agg. Class B)

Thickness
 AC - WC 0.040
 AC - BC 0.060
 AC - Base 0.100
 SBC (Type -A) 0.400
 SBC (Type -B) 0.550

Merak Flyover (At Left Service Road)

STATION	DISTANCE		AC - WC			AC - BC			AC - Base			SBC (Type A)			SBC (Type B)			Tonne AC - Base	Volume			PAVEMENT			AC - WC Tonne
		20.00	width		W3	width		W3	width		W4	width		W5	width		W6		W7	AC - BC Tonne	Prime Coat Liters	Tack Coat Liters	AC - BC Tonne		
			W1	W2		W2	W3		W3	W4		W4	W5		W5	W6								W6	
00 + 702.00			8.844	8.802	8.739	8.639	8.639	8.639	8.931	8.931	8.370	8.370	8.370	8.370	8.370	8.370	8.370	35.97	159.19	159.19	21.79	14.61			
00 + 720.00		18.00	8.844	8.802	8.739	8.639	8.639	8.639	8.931	8.931	8.370	8.370	8.370	8.370	8.370	8.370	8.370	31.48	138.44	138.44	19.00	12.72			
00 + 740.00		20.00	5.000	5.000	5.000	5.000	5.000	5.000	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	23.00	100.00	100.00	13.80	9.20			
00 + 760.00		20.00	5.000	5.000	5.000	5.000	5.000	5.000	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	23.00	100.00	100.00	13.80	9.20			
00 + 780.00		20.00	5.000	5.000	5.000	5.000	5.000	5.000	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	23.00	100.00	100.00	13.80	9.20			
00 + 800.00		20.00	5.000	5.000	5.000	5.000	5.000	5.000	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	23.00	100.00	100.00	13.80	9.20			
00 + 820.00		20.00	5.000	5.000	5.000	5.000	5.000	5.000	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	23.00	100.00	100.00	13.80	9.20			
00 + 840.00		20.00	5.000	5.000	5.000	5.000	5.000	5.000	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	23.00	100.00	100.00	13.80	9.20			
00 + 860.00		20.00	5.000	5.000	5.000	5.000	5.000	5.000	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	5.700	23.00	100.00	100.00	13.80	9.20			
00 + 880.00		20.00	5.007	5.007	5.007	5.007	5.007	5.007	6.054	6.054	6.390	6.390	6.390	6.390	6.390	6.390	6.390	23.02	100.07	100.07	13.81	9.21			
00 + 900.00		20.00	4.725	4.684	4.622	4.622	4.622	4.622	5.382	5.382	5.396	5.396	5.396	5.396	5.396	5.396	5.396	22.05	97.32	97.32	13.33	8.93			
00 + 920.00		20.00	3.270	3.228	3.166	3.166	3.166	3.166	3.766	3.766	3.357	3.357	3.357	3.357	3.357	3.357	3.357	17.70	79.95	79.95	10.83	7.32			
00 + 940.00		20.00	3.383	3.341	3.279	3.279	3.279	3.279	3.879	3.879	3.470	3.470	3.470	3.470	3.470	3.470	3.470	13.74	66.53	66.53	8.98	6.08			
00 + 960.00		20.00	3.295	3.257	3.195	3.195	3.195	3.195	3.791	3.791	3.382	3.382	3.382	3.382	3.382	3.382	3.382	13.80	66.78	66.78	9.02	6.11			
00 + 980.00		20.00	3.573	3.532	3.421	3.421	3.421	3.421	4.090	4.090	3.681	3.681	3.681	3.681	3.681	3.681	3.681	15.06	68.68	68.68	9.25	6.28			
01 + 000.00		20.00	4.220	4.179	4.118	4.118	4.118	4.118	4.794	4.794	4.346	4.346	4.346	4.346	4.346	4.346	4.346	17.21	77.93	77.93	10.52	7.13			
01 + 020.00		20.00	2.950	2.903	2.841	2.841	2.841	2.841	3.445	3.445	3.037	3.037	3.037	3.037	3.037	3.037	3.037	15.80	71.70	71.70	9.69	6.56			
01 + 030.00		10.00	2.950	2.903	2.841	2.841	2.841	2.841	3.445	3.445	3.037	3.037	3.037	3.037	3.037	3.037	3.037	6.42	29.50	29.50	3.96	2.69			
01 + 060.00																									
01 + 080.00		20.00	6.787	6.745	6.683	6.683	6.683	6.683	7.287	7.287	6.879	6.879	6.879	6.879	6.879	6.879	6.879	15.26	67.87	67.87	9.27	6.22			
01 + 100.00		20.00	6.193	6.193	6.193	6.193	6.193	6.193	7.254	7.254	7.590	7.590	7.590	7.590	7.590	7.590	7.590	29.50	129.80	129.80	17.81	11.92			
01 + 120.00		20.00	4.335	4.293	4.231	4.231	4.231	4.231	4.989	4.989	5.003	5.003	5.003	5.003	5.003	5.003	5.003	23.86	105.28	105.28	14.43	9.67			
01 + 140.00		20.00	3.058	3.016	2.954	2.954	2.954	2.954	3.563	3.563	3.155	3.155	3.155	3.155	3.155	3.155	3.155	16.30	73.93	73.93	10.00	6.76			
01 + 160.00		20.00	3.215	3.173	3.111	3.111	3.111	3.111	3.711	3.711	3.303	3.303	3.303	3.303	3.303	3.303	3.303	13.72	62.73	62.73	8.46	5.73			
01 + 180.00		20.00	2.772	2.731	2.668	2.668	2.668	2.668	3.269	3.269	2.861	2.861	2.861	2.861	2.861	2.861	2.861	13.06	59.87	59.87	8.06	5.47			
01 + 200.00		20.00	1.999	1.957	1.894	1.894	1.894	1.894	2.495	2.495	2.087	2.087	2.087	2.087	2.087	2.087	2.087	10.26	47.71	47.71	6.38	4.35			
01 + 220.00		20.00	1.174	1.132	1.070	1.070	1.070	1.070	1.670	1.670	1.262	1.262	1.262	1.262	1.262	1.262	1.262	6.58	31.73	31.73	4.18	2.88			

Merak Flyover (At Left Service Road)

STATION	DISTANCE m	AC - WC			AC - BC			AC - Base			SBC (Type A)			SBC (Type B)			Tonne	Volume		PAVEMENT			
		width			width			width			width			width				SBC (Type A)	SBC (Type B)	Tack Coat Liters	Prime Coat Liters	AC - BC Tonne	AC - WC Tonne
		W1	W2	W3	W2	W3	W3	W3	W4	W5	W6	W6	W7	W7	AC - Base	SBC (Type A)							
01 + 240.00	20.00	1.174	1.132	1.070	1.132	1.070	1.070	0.966	1.670	1.262	1.262	0.701	0.701	4.68	11.73	10.80	23.48	23.48	23.48	3.04	2.12		
01 + 260.00	20.00	1.174	1.132	1.070	1.132	1.070	1.070	0.966	1.670	1.262	1.262	0.701	0.701	4.68	11.73	10.80	23.48	23.48	23.48	3.04	2.12		
01 + 280.00	20.00	1.174	1.132	1.070	1.132	1.070	1.070	0.966	1.670	1.262	1.262	0.701	0.701	4.68	11.73	10.80	23.48	23.48	23.48	3.04	2.12		
01 + 300.00	20.00	1.174	1.132	1.070	1.132	1.070	1.070	0.966	1.670	1.262	1.262	0.701	0.701	4.68	11.73	10.80	23.48	23.48	23.48	3.04	2.12		
01 + 320.00	20.00	1.493	1.451	1.389	1.451	1.389	1.389	1.289	1.989	1.589	1.589	1.019	1.019	5.42	13.02	12.57	26.67	26.67	26.67	3.48	2.42		
01 + 340.00	20.00	1.410	1.369	1.306	1.369	1.306	1.306	1.199	1.903	1.493	1.493	0.937	0.937	5.96	13.95	13.85	29.03	29.03	29.03	3.81	2.63		
01 + 360.00	20.00	1.408	1.376	1.315	1.376	1.315	1.315	1.206	1.907	1.520	1.520	0.958	0.958	5.78	13.65	13.50	28.18	28.18	28.18	3.70	2.56		
01 + 380.00	20.00	1.388	1.347	1.284	1.347	1.284	1.284	1.184	1.884	1.476	1.476	0.915	0.915	5.74	13.57	13.39	27.96	27.96	27.96	3.67	2.54		
01 + 400.00	20.00	1.174	1.132	1.070	1.132	1.070	1.070	0.965	1.669	1.261	1.261	0.700	0.700	5.18	12.58	11.97	25.62	25.62	25.62	3.33	2.32		
01 + 410.00	10.00	1.332	1.291	1.230	1.291	1.230	1.230	1.128	1.830	1.434	1.434	0.872	0.872	2.53	6.19	5.87	12.53	12.53	12.53	1.63	1.13		
TOTAL																528.12	1,073.89	1,370.28	2,378.92	2,378.92	323.35	217.92	

Merak Flyover (At Right Service Road)

STATION	DISTANCE	AC - WC						AC - BC			AC - Base			SBC (Type A)						SBC (Type B)		Tonne	Volume		PAVEMENT				
		width		width		width		width		width		width		width		width		w6	w7	AC - Base Tonne	SBC (Type A)		SBC (Type B)	Prime Coat Liters	Tack Coat Liters	AC - BC Tonne	AC - WC Tonne		
		w1	w2	w2	w3	w3	w4	w4	w5	w5	w6	w6	w6	w7	SBC (Type A)	SBC (Type B)													
01 + 180.00	20.00	3.105	3.068	3.068	3.001	3.001	2.897	3.601	3.193	3.193	2.632	10.47	21.80	24.64	48.57	48.57	6.51	4.43											
01 + 200.00	20.00	3.863	3.821	3.821	3.759	3.759	3.659	4.359	3.951	3.951	3.390	15.31	30.21	36.21	69.68	69.68	9.42	6.37											
01 + 220.00	20.00	5.068	5.026	5.026	4.964	4.964	4.864	5.564	5.156	5.156	4.595	19.83	38.06	47.00	89.31	89.31	12.12	8.18											
01 + 240.00	20.00	5.026	4.985	4.985	4.923	4.923	4.834	5.534	5.125	5.125	4.564	22.52	42.76	53.46	100.94	100.94	13.73	9.25											
01 + 260.00	20.00	4.777	4.736	4.736	4.674	4.674	4.585	5.285	4.877	4.877	4.315	21.87	41.64	51.92	98.03	98.03	13.33	8.98											
01 + 280.00	20.00	4.769	4.727	4.727	4.665	4.665	4.565	5.265	4.856	4.856	4.295	21.26	40.57	50.44	95.46	95.46	12.97	8.74											
01 + 300.00	20.00	5.143	5.101	5.101	5.039	5.039	4.939	5.639	5.230	5.230	4.669	22.09	41.98	52.39	99.12	99.12	13.48	9.08											
01 + 320.00	20.00	5.356	5.314	5.314	5.252	5.252	5.152	5.852	5.443	5.443	4.882	23.44	44.33	55.62	104.99	104.99	14.29	9.62											
01 + 340.00	20.00	5.484	5.443	5.443	5.380	5.380	5.280	5.980	5.572	5.572	5.011	24.22	45.69	57.50	108.40	108.40	14.76	9.93											
01 + 360.00	20.00	5.526	5.485	5.485	5.422	5.422	5.322	6.022	5.614	5.614	5.053	24.61	46.38	58.44	110.10	110.10	14.99	10.09											
01 + 380.00	20.00	5.457	5.415	5.415	5.353	5.353	5.253	5.953	5.544	5.544	4.983	24.55	46.27	58.28	109.83	109.83	14.96	10.07											
01 + 400.00	20.00	5.272	5.230	5.230	5.168	5.168	5.068	5.768	5.359	5.359	4.798	23.97	45.25	56.88	107.29	107.29	14.60	9.83											
01 + 410.00	10.00	5.272	5.230	5.230	5.168	5.168	5.068	5.768	5.359	5.359	4.798	11.77	22.25	27.93	52.72	52.72	7.17	4.83											
		TOTAL																				382.94	843.71	1,065.75	1,756.93	1,756.93	1,756.93	237.36	160.91

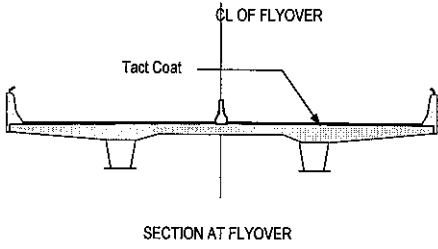
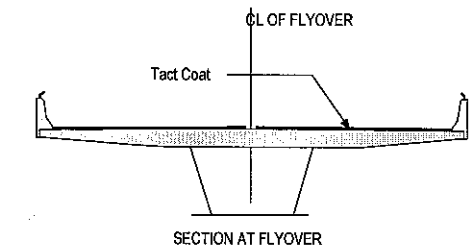
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of
PROJECT : FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	
SKETCH DRAWING	CALCULATION		REMARKS
<p style="text-align: center;">Section of Road Widening</p>	Merak Flyover - Contract Package 1		
	Item No. 6.3.5 - Asphalt Concrete Wearing Course (AC - WC)		Pavement Overlay
			Main Road
	Note: See Detailed Construction Layout Plan		
	Dwg. # MRD-025 - MRD-033 for reference.		
	At Approach A		
	Input Data :		
	Area from AutoCad		
	Area =	1,967.01	sqm.
	Area to be deducted from Auto Cad Area : Right Service Road		
	Ave. Width =	1.162	m
	Total Length =	262.00	m
	Area =	304.44	sqm.
	Area to be deducted from Auto Cad Area : Left Service Road		
	Ave. Width =	1.174	m
Total Length =	102.00	m	
Area =	119.75	sqm.	
Total Area =	1,542.82	sqm.	
thickness =	0.05 m		
Wt =	(1,542.82 × 0.050 × 2.30) = 177.42 Ton		
At Approach B			
Input Data :			
Area from AutoCad			
Area 2 =	2,172.13	sqm.	
Area to be deducted from Auto Cad Area : Right Service Road			
Ave. Width =	1.168	m	
Total Length =	213.95	m	
Area =	249.89	sqm.	
Area to be deducted from Auto Cad Area : Left Service Road			
Ave. Width =	1.149	m	
Total Length =	213.95	m	
Area =	245.83	sqm.	
Total Area =	1,676.41	sqm.	
thickness =	0.05 m		
Wt =	(1,676.41 × 0.050 × 2.30) = 192.79 Ton		

PROJECT : FLYOVER	
NORTH JAVA CORRIDOR FLYOVER PROJECT	
KATAHIRA AND ENGINEERS INTERNATIONAL	

DRAWING NO :	ESTIMATOR :	CHECKED BY :
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SKETCH DRAWING	CALCULATION	REMARKS
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Merak Flyover - Contract Package 1



Item No. 6.1.2 - Tact Coat	Location : At Viaduct
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Note: See Detailed Construction Layout Plan
Dwg. # MRD-025 - MRD-033 for reference.

At Viaduct :				Slope is considered
Station	Distance (m)	Width (m)	Area (m ²)	
00 + 862.50				
00 + 880.00	17.50	5.756	100.73	
00 + 900.00	20.00	5.756	115.12	
00 + 920.00	20.00	5.756	115.12	
00 + 940.00	20.00	5.756	115.12	
00 + 960.00	20.00	5.758	115.16	
00 + 980.00	20.00	5.760	115.20	
01 + 000.00	20.00	5.667	113.34	
01 + 020.00	40.00	5.754	230.16	
01 + 040.00	20.00	5.751	115.02	
01 + 060.00	20.00	5.752	115.04	
01 + 080.00	20.00	5.756	115.12	
01 + 100.00	20.00	5.759	115.18	
01 + 120.00	20.00	5.759	115.18	
01 + 140.00	20.00	5.900	118.00	
01 + 160.00	20.00	5.552	111.04	
01 + 180.00	20.00	4.684	93.68	
01 + 200.00	20.00	8.002	160.04	
01 + 207.50	7.50	8.002	60.02	
		Total Area =	2,138.27 sqm.	

Total Volume = Total Area x 0.50 lit/sqm. x 2 face = 2,138.27 lit.

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of		
PROJECT : FLYOVER					
NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO :		ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING		CALCULATION			
		Merak Flyover - Contract Package 1			
		Item No. 6.3.5 - Asphalt Concrete Wearing Course (AC - WC)			Location : At Viaduct
		Note: See Detailed Construction Layout Plan Dwg. # MRD-025 - MRD-033 for reference.			
		At Viaduct :			
	Station	Distance (m)	Ave. Width (m)	Area (m ²)	
				Slope is considered	
	00 + 862.50				
	00 + 880.00	17.50	5.756	100.73	
	00 + 900.00	20.00	5.756	115.12	
	00 + 920.00	20.00	5.756	115.12	
	00 + 940.00	20.00	5.756	115.12	
	00 + 960.00	20.00	5.758	115.16	
	00 + 980.00	20.00	5.760	115.20	
	01 + 000.00	20.00	5.667	113.34	
	01 + 020.00	40.00	5.754	230.16	
	01 + 040.00	20.00	5.751	115.02	
	01 + 060.00	20.00	5.752	115.04	
	01 + 080.00	20.00	5.756	115.12	
	01 + 100.00	20.00	5.759	115.18	
	01 + 120.00	20.00	5.759	115.18	
	01 + 140.00	20.00	5.900	118.00	merging to viaduct
	01 + 160.00	20.00	5.552	111.04	merging to viaduct
	01 + 180.00	20.00	4.684	93.68	merging to viaduct
	01 + 200.00	20.00	8.002	160.04	
	01 + 207.50	7.50	8.002	60.02	
			Total Area =	2,138.27 sqm.	
Input Data :					
	thickness = 0.035 m				
	Total Wt = (Total Area x Thickness) x 2.30 =		172.13 Ton		

PROJECT : FLYOVER
 NORTH JAVA CORRIDOR FLYOVER PROJECT
 KATAHIRA AND ENGINEERS INTERNATIONAL

Note:

- AC - WC = Asphalt Concrete Wearing Course
- AC - BC = Asphalt Concrete Binder Course
- AC - Base = Asphalt Concrete Base
- SBC - Type A = Sub-Base Course (Agg. Class A)
- SBC - Type B = Sub-Base Course (Agg. Class B)

- Thickness
- AC - WC 0.040
 - AC - BC 0.060
 - AC - Base 0.100
 - SBC (Type-A) 0.400
 - SBC (Type-B) 0.550

Merak Flyover Left Side (Main Road)

STATION	DISTANCE	AC - WC			AC - BC			AC - Base			SBC (Type A)			SBC (Type B)			Tonne	Volume			PAVEMENT													
		width			width			width			width			width				AC - Base	SBC (Type A)	SBC (Type B)	Prime Coat Liters	Tack Coat Liters	AC - BC Tonne	AC - WC Tonne										
		W1	W2	W3	W2	W3	W4	W5	W6	W6	W7	W7	AC - Base	SBC (Type A)	SBC (Type B)																			
00 + 500.00		1.095	1.137	1.199	1.137	1.199	1.199	1.303	1.303	1.303	1.712	1.712	1.712	1.712	2.295	5.755	12.060	22.039	21.90	21.90	21.90	2.05	2.05											
00 + 520.00	20.00	1.095	1.137	1.199	1.137	1.199	1.303	1.303	1.303	1.712	1.712	1.712	1.712	2.295	5.75	12.06	22.04	21.90	21.90	21.90	2.05	2.05												
00 + 540.00	20.00	1.095	1.137	1.199	1.137	1.199	1.303	1.303	1.303	1.712	1.712	1.712	1.712	2.295	2.58	5.40	9.86	9.80	9.80	9.80	1.44	0.92												
00 + 548.95	8.95	1.095	1.137	1.199	1.137	1.199	1.303	1.303	1.303	1.712	1.712	1.712	1.712	2.295	14.09	29.52	53.94	53.60	53.60	53.60	7.88	5.02												
TOTAL																																		