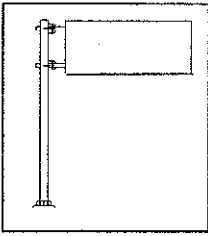
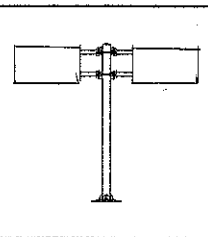
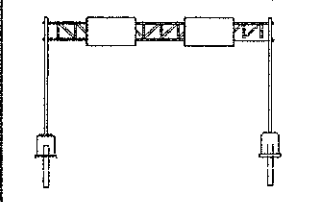
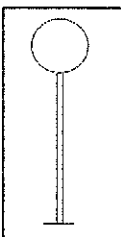
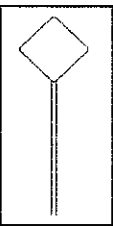
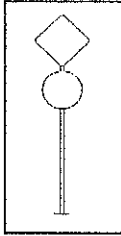
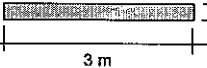

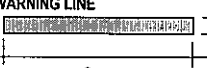
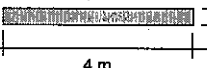



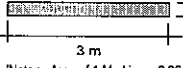
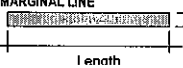
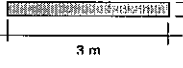
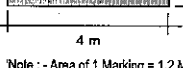


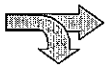


DIVISION 8.
Miscellaneous

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared :		Sheet : 1 of 3	
PROJECT : MERAK FLYOVER				BACK UP QUANTITY SOLID SODING		
NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO :		ESTIMATOR :			CHECKED BY :	
SKETCH DRAWING		QUANTITY CALCULATION				REMARKS
		PROJECT : MERAK FLYOVER				
		STA	Length	Average	Area	
		Start	End	Width	(Sq.M)	
MAIN ROAD / FLY OVER		00 + 552.71	00 + 702.00	149.287	1.000	149.287
		00 + 863.25	00 + 876.64	13.392	6.719	89.981
		00 + 876.64	00 + 890.05	13.408	4.437	59.491
		00 + 890.05	00 + 890.91	0.859	2.629	2.258
		00 + 890.91	00 + 891.42	0.510	1.131	0.577
		00 + 899.59	00 + 899.80	0.206	0.395	0.081
		00 + 899.80	00 + 900.10	0.304	0.956	0.291
		00 + 900.10	00 + 901.99	1.885	1.858	3.502
		00 + 901.99	00 + 902.31	0.322	2.687	0.865
		00 + 902.31	00 + 902.68	0.370	2.807	1.039
		00 + 902.68	00 + 904.50	1.819	2.792	5.079
		00 + 904.50	00 + 905.18	0.686	2.450	1.681
		00 + 905.18	00 + 905.47	0.292	1.483	0.433
		00 + 913.37	00 + 913.73	0.356	0.501	0.178
		00 + 913.73	00 + 913.86	0.139	1.051	0.146
		00 + 913.86	00 + 916.48	2.619	1.634	4.279
		00 + 916.48	00 + 919.65	3.170	2.372	7.519
		00 + 919.65	00 + 944.66	25.005	2.453	61.337
		00 + 944.66	00 + 948.53	3.867	2.433	9.408
		00 + 948.53	00 + 952.40	3.873	2.559	9.911
		00 + 952.40	00 + 963.70	11.299	2.880	32.541
		00 + 963.70	00 + 975.05	11.352	3.460	39.278
		00 + 975.05	00 + 981.58	6.528	3.838	25.054
		00 + 981.58	00 + 984.21	2.628	3.896	10.239
		00 + 984.21	00 + 988.31	4.102	3.524	14.455
		00 + 988.31	00 + 989.24	0.933	2.933	2.736
		00 + 989.24	00 + 989.89	0.646	2.022	1.306
		00 + 989.89	00 + 990.05	0.162	0.685	0.111
		01 + 031.13	01 + 031.46	0.328	0.751	0.246
		01 + 031.46	01 + 032.13	0.667	1.762	1.175
01 + 032.13	01 + 038.39	6.267	2.583	16.188		
01 + 038.39	01 + 045.28	6.891	3.699	25.490		
01 + 045.28	01 + 045.77	0.490	4.230	2.073		
01 + 045.77	01 + 046.23	0.457	4.071	1.860		
		TOTAL			580.098	Sq.M

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		BACK UP QUAMTITY ROAD SIGN	
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :		ESTIMATOR :	CHECKED BY :
SKETCH DRAWING		CALCULATION	
		REMARKS Drawing No.	
	Overhead Sign Type A	- Overhead Sign Type B = 1 Each	NTR - 003
		1	
	Overhead Sign Type B	- Overhead Sign Type B = 1 Each	NTR - 001
		1	
	Overhead Sign Type C		
	Regulatory and Warning Sign Type A	- Reg & Warning Sign Type A = 3 Each	NTR - 001
		- Reg & Warning Sign Type A = 0 Each	NTR - 002
		- Reg & Warning Sign Type A = 2 Each	NTR - 003
		- Reg & Warning Sign Type A = 7 Each	NTR - 004
		- Reg & Warning Sign Type A = 9 Each	NTR - 005
		- Reg & Warning Sign Type A = 4 Each	NTR - 006
		25	
	Regulatory and Warning Sign Type A	- Reg & Warning Sign Type A = 0 Each	NTR - 001
		- Reg & Warning Sign Type A = 7 Each	NTR - 002
		- Reg & Warning Sign Type A = 2 Each	NTR - 003
		- Reg & Warning Sign Type A = 1 Each	NTR - 004
		- Reg & Warning Sign Type A = 7 Each	NTR - 005
		- Reg & Warning Sign Type A = 5 Each	NTR - 006
		22	
	Regulatory and Warning Sign Type A	- Reg & Warning Sign Type B = 5 Each	NTR - 005
SUMMARY QUANTITY ROAD SIGN			
		- Overhead Sign Type A 1 Each	
		- Overhead Sign Type B 1 Each	
		- Overhead Sign Type C 0 Each	
		- Regulatory & Warning Sign Type A 47 Each	
		- Regulatory & Warning Sign Type B 5 Each	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet: of																																					
PROJECT : MERAK FLY OVER NORTH JAVA CORRIDOR FLYOVER PROJECT																																								
KATAHIRA AND ENGINEERS INTERNATIONAL																																								
DRAWING NO :		ESTIMATOR :	CHECKED BY :																																					
SKETCH DRAWING		CALCULATION		REMARKS																																				
		Merak Flyover - Contract Package 1																																						
1	SEPARATOR LINE  0.12 3 m 'Note : - Area of 1 Marking = 0.36 M ²	Item No. - Road Marking ROAD MARKING FLYOVER Note: See Detailed Construction Layout Plan Dwg. # MTR-003 - MTR-008 for reference.																																						
2	MARGINAL LINE  0.12 Length 'Note : - Area of Marking = Length x 0.12 m	<table border="1"> <thead> <tr> <th>Station</th> <th>Marginal Strip Length</th> <th>Separator Line Sum of Marks</th> <th>Warning Line Sum of Marks</th> <th>Zebra Cross Sum of Marks</th> <th>Area (m²)</th> </tr> </thead> <tbody> <tr> <td>00 + 000.00</td> <td>1416.0</td> <td>0</td> <td>0</td> <td>0</td> <td>169.920</td> </tr> <tr> <td>00 + 500.00</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>00 + 000.00</td> <td>796.0</td> <td>0</td> <td>0</td> <td>0</td> <td>95.520</td> </tr> <tr> <td>00 + 500.00</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>SUM</td> <td>265.44</td> </tr> </tbody> </table>		Station	Marginal Strip Length	Separator Line Sum of Marks	Warning Line Sum of Marks	Zebra Cross Sum of Marks	Area (m ²)	00 + 000.00	1416.0	0	0	0	169.920	00 + 500.00						00 + 000.00	796.0	0	0	0	95.520	00 + 500.00										SUM	265.44	
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3	WARNING LINE  0.12 3 m 'Note : - Area of 1 Marking = 0.36 M ²	<table border="1"> <thead> <tr> <th>Station</th> <th>CHEVRON Length</th> <th>STOP LINE Length</th> <th>AREA (m²)</th> </tr> </thead> <tbody> <tr> <td>00 + 000.00</td> <td>125.5</td> <td>0</td> <td>37.65</td> </tr> <tr> <td>00 + 500.00</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>SUM</td> </tr> <tr> <td></td> <td></td> <td></td> <td>37.65</td> </tr> </tbody> </table>		Station	CHEVRON Length	STOP LINE Length	AREA (m ²)	00 + 000.00	125.5	0	37.65	00 + 500.00							SUM				37.65																	
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			SUM																																					
			37.65																																					
4	ZEBRA CROSS  0.3m 4 m 'Note : - Area of 1 Marking = 1.2 M ²																																							
5	ARROW a. TYPE 1 (DIRECT)  'Note : - Area of 1 Arrow = 1.1M ² b. TYPE 2 (TURN LEFT/RIGHT)  'Note : - Area of 1 Marking = 1.18 M ² c. TYPE 3 (DIRECT AND TURN LEFT/RIGHT)  'Note : - Area of 1 Marking = 1.48 M ²																																							
		<table border="1"> <thead> <tr> <th colspan="2">TOTAL AREA ROAD MARKING FLYOVER =</th> <th colspan="2">303.09 (m²)</th> </tr> </thead> <tbody> <tr> <td>TOTAL AREA</td> <td>916.20 (m²)</td> <td></td> <td></td> </tr> </tbody> </table>		TOTAL AREA ROAD MARKING FLYOVER =		303.09 (m ²)		TOTAL AREA	916.20 (m ²)																															
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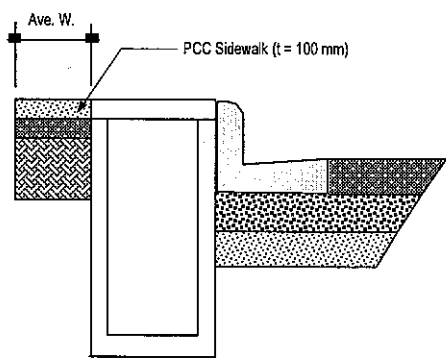
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of				
PROJECT : MERAK FLY OVER NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL							
DRAWING NO :		ESTIMATOR :	CHECKED BY :				
SKETCH DRAWING		CALCULATION			REMARKS		
		Merak Flyover - Contract Package 1					
1 SEPARATOR LINE  3 m Note :- Area of 1 Marking = 0.36 M ²		Item No. : Road Marking			ROAD MARKING		
					AT GRADE		
		Note : See Detailed Construction Layout Plan Dwg. # MTR-003 - MTR-008 for reference.					
2 MARGINAL LINE  Length Note :- Area of Marking = Length x 0.12 m		Station	Marginal Strip Length	Separator Line Sum of Marks	Warning Line Sum of Marks	Zebra Cross Sum of Marks	Area (m ²)
		00 + 500.00	396.2	25	0	0	56.538
		00 + 702.00	852.3	32	11	68	199.357
3 WARNING LINE  3 m Note :- Area of 1 Marking = 0.36 M ²		01 + 187.29	509.3	56	0	0	81.278
		01 + 410.00	314.03	42	17	0	58.923
4 ZEBRA CROSS  4 m Note :- Area of 1 Marking = 1.2 M ²		00 + 000.00	396.8	10	10	0	54.821
		00 + 500.00					
5 ARROW a. TYPE 1 (DIRECT)  Note :- Area of 1 Arrow = 1.1M ² b. TYPE 2 (TURN LEFT/RIGHT)  Note :- Area of 1 Marking = 1.18 M ² c. TYPE 3 (DIRECT AND TURN LEFT/RIGHT)  Note :- Area of 1 Marking = 1.48 M ²							
							SUM 450.92
		ARROW					
		Station	TYPE 1 Qty	TYPE 2 Qty	TYPE 3 Qty	AREA (m ²)	
		00 + 500.00	31	4	1	40.30	
		01 + 543.95					
		00 + 000.00	6	0	0	6.60	
		00 + 500.00					
							SUM 45.90
		CHEVRON AND STOP LINE					
		Station	CHEVRON Length	STOP LINE Length	AREA (m ²)		
		00 + 500.00	151.1	0	45.34		
		00 + 702.00	102.4	0	30.73		
		01 + 187.29	0.0	0	0.00		
		01 + 410.00	39.7	0	11.92		
		01 + 543.95					
		00 + 000.00	91.0	0	27.30		
		00 + 500.00					
							SUM 115.29
		TOTAL AREA ROAD MARKING AT GRADE =				613.11 (m ²)	

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

DRAWING NO : ESTIMATOR : CHECKED BY :

SKETCH DRAWING	CALCULATION	REMARKS
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Merak 1 Flyover - Contract Package 1



Section of PCC Sidewalk at Left Service Road

Item No. 8.4.13 - Concrete Sidewalk	Location : At Shoulder
--------------------------------------------	------------------------

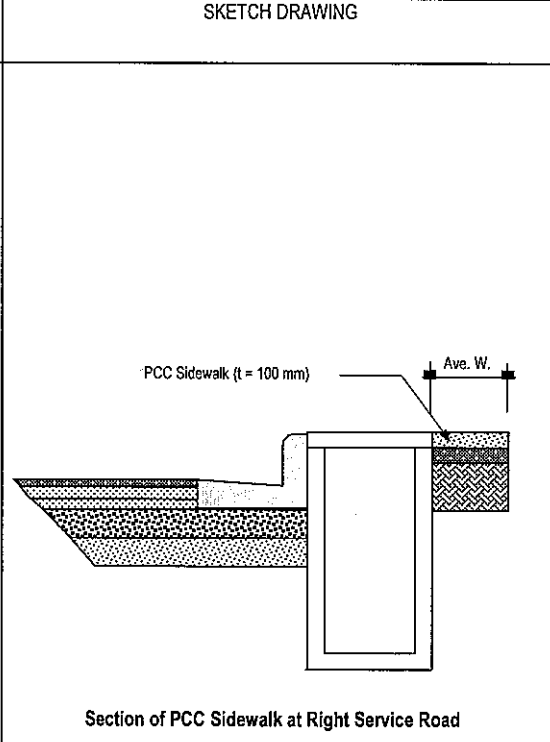
Note: See Detailed Construction Layout Plan

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

At Left Service Road

Length (m)	Ave. Width (m)	Area (m ²)	
201.694	0.397	80.073	
133.571	0.397	53.028	
14.639	0.397	5.812	
323.901	0.399	129.236	
10.000	1.117	11.170	
Total Area =		279.318	sqm.

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/22/2006 11:35	Sheet : of
PROJECT : MERAK FLYOVER			
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	



CALCULATION			REMARKS
Merak 1 Flyover - Contract Package 1			
Item No. B.4.13 - Concrete Sidewalk			Location : At Shoulder
Note: See Detailed Construction Layout Plan			
Dwg. # MRD-025 - MRD-033 for reference.			
At Right Service Road			
Length	Ave. Width	Area	
(m)	(m)	(m ²)	
188.000	0.784	147.392	
33.812	1.390	46.999	
308.760	0.401	123.813	
Total Area =		318.203	sqm.

DIVISION 9.
Facilities

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		BACK UP ELECTRICAL		
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		ESTIMATOR :	CHECKED BY :	
SKETCH DRAWING	CALCULATION		REMARKS	
ELECTRICAL UNDER VIADUCT	1. Panel LP-PJU FO = 0 Each			
	2. Cealling sont 150 watt = 17 Each			
FLY OVER	3. Cealling sont 250 watt = 6 Each			
	4. Cable NYY 2 x 2.5 mm ² = 30+(430-300)+(1200-992)+(975-870)+23x5 = 558 m			
	1. Panel LP-PJU.FO = 1 Each			
	2. Ligthing Pole (sont 250 watt)= 30 Each			
SERVICE ROAD	3. Cable NYY 2x2.5mm ² = 30x11.5 = 345 m			
	4. Cable NYFGBY 4 x 10mm ² = (1370-703)+(470-120)+60+(1400-1220)+30X2 = 1317 M			
	1. Panel LP-PJU.1 = 1 Each			
	2. Panel LP-PJU.2 = 1 Each			
	3. Panel LP-PJU.3 = 1 Each			
	4. Panel LP-PJU.4 = 1 Each			
	5. Panel LP-PJU.5 = 1 Each			
	6. Lighting Pole (sont 250 watt) = 49 Each			
	7. Cable NYY 2x2.5 mm ² = 49 x 11.5 = 563.5 M			
	8. Cable NYFGBY 4 x 10 mm ² = 47X2+440+340+1000 = 1874 m			
	9 Cable NYFGBY 4 x 25 mm ² :			
	PLN1 to LP-PJU.1 = 310 m			
	PLN2 to LP-PJU.2 = 195 m			
	PLN1 to LP-PJU.3 = 280 m			
	PLN1 to LP-PJU.4 = 165 m			
	PLN2 to LP-PJU.5 = 150 m			
	1100 M			
	Cable NYFGBY 4 x 50 mm ² = 200 M			
	SUMMARY QUANTITY MERAK FO			
	1. Panel LP-PJU.FO = 1 Each			
Panel LP-PJU.1 = 1 Each				
Panel LP-PJU.2 = 1 Each				
Panel LP-PJU.3 = 1 Each				
Panel LP-PJU.4 = 1 Each				
Panel LP-PJU.5 = 1 Each				
2. Ligthing Pole (sont 250 watt) = 79 Each				
3. Ceilling Sont 150 watt = 17 Each				
4. Ceilling Sont 250 watt = 6 Each				
5. Cable NYY 2 x 2.5 mm ² = 1496.5 M				
Cable NYFGBY 4 x 10 mm ² = 3191 M				
Cable NYFGBY 4 x 25 mm ² = 1100 M				
Cable NYFGBY 4 x 50 mm ² = 200 M				

**Relocation & Protection
of Existing Utilities**

COST ESTIMATE FOR UTILITY PROTECTION AND RELOCATION

MERAK FLYOVER

No.	Description	Unit	Estimate Quantity	Unit Price (Rp.)	Amount (Rp.)	Remarks
	ABOVE GROUND					
1	Relocation of Existing Electricity (PLN), Pole medium Voltage	Each	2.00			
2	Relocation of Existing Electricity (PLN), Pole Low Voltage	Each	5.00			
3	Electric Cable Above Ground	Ln.M	1335.00			
4	Relocation of Existing Telephone Utility pole	Each	18.00			
5	Telephone Cable Above Ground	Ln.M	1460.00			
	UNDER GROUND					
6	Electric Cable Optic Relocation	Ln.M	31.00			
7	Under Ground Cable Duct with PVC dia.4" (include telephone and electric cable)	Ln.M	85.00			
			TOTAL COST		0.00	



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
BALARAJA FLYOVER

CONTRACT PACKAGE 1
(MERAK - BALARAJA)



KATAHIRA & ENGINEERS INTERNATIONAL

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

TABLE OF CONTENTS

	Page
1 Division - 1 : General	1-1
2 Division - 2 : Drainage	2-1 -- 2-2
3 Division - 3 : Earthworks	3-1 -- 3-24
4 Division - 4 : Pavement Widening and Shoulders	4-1 -- 4-3
5 Division - 5 : Granular Pavement	4-1 -- 4-3
6 Division - 6 : Asphalt Pavement	6-1 -- 6-15
7 Division - 7 : Structures	7-1 -- 7-63
8 Division - 8 : Miscellaneous	8-1 -- 8-9
9 Division - 9 : Facilities	9-1
10 Relocation & Protection of Existing Utilities	Add-1

DIVISION 1.
General

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared :	Sheet : of
PROJECT : BALARAJA FLYOVER		BACK QUANTITY GENERAL	
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :		ESTIMATOR :	CHECKED BY :
SKETCH DRAWING	QUANTITY CALCULATION		REMARKS
	PROJECT : BALARAJA FLYOVER		
	Pay Item	Unit Quantity	
	1.2 Mobilization and Demobilization	Ls 1	
	1.2 (1)b. Engineer facilities	Ls 1	
	1.8 Maintenance and Protection of traffic	Ls 1	

DIVISION 2.
Drainage

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : 1 of 1
PROJECT : BALARAJA 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. BDV 001: Drainage Schedule - Deck drain Type II (L) = 6 Each - Deck drain Type II (R) = 10 Each - PVC dia 200 mm = 117.2 M Approach 1 - Deck drain Type II (L) = 4 Each - Deck drain Type II (R) = 7 Each - PVC dia 200 mm = 27.91 M Approach 2 - Deck drain Type II (L) = 4 Each - Deck drain Type II (R) = 6 Each - PVC dia 200 mm = 14.75 M		
Drainage Schedule Under Flyover	Drawing No. BDV 002 : - Uditch DS 1 = 170.7 M - Uditch DS 5 = 233 M - PVC dia 250 mm = 202.2 M - RCP dia 600 mm = 31 M (Type B) - Manhole Type VII = 15 Each - Manhole Type VIII = 2 Each - Catch Basin Type I = 11 Each		
SUMMARY QUANTITY OF DRAINAGE	Drawing No. BDG 001 : Drainage Slope Right - Uditch DS 2 = 567.7 M - RCP dia 600 mm = 288 M (Type A) - RCP dia 800 mm = 38 M (Type A) - Manhole Type I = 26 Each - Manhole Type II = 0 Each - Manhole Type III = 13 Each - Manhole Type IV = 0 Each - Manhole Type V = 1 Each - Manhole Type VI = 5 Each Drainage Slope Left - Uditch DS 2 = 604.9 M - RCP dia 800 mm = 306 M (Type A) - Manhole Type I = 28 Each - Manhole Type II = 0 Each - Manhole Type III = 12 Each - Manhole Type IV = 2 Each - Manhole Type V = 3 Each - Manhole Type VI = 3 Each		
- PVC Drain Pipe dia 150 mm	0.00 M		
- PVC Drain Pipe dia 200 mm	159.86 M		
- PVC Drain Pipe dia 250 mm	202.20 M		
- RCP dia 600 mm (Type A)	288.00 M		
- RCP dia 600 mm (Type B)	31.00 M		
- RCP dia 800 mm (Type A)	344.00 M		
- Manhole Type I	54.00 Each		
- Manhole Type II	0.00 Each		
- Manhole Type III	25.00 Each		
- Manhole Type IV	2.00 Each		
- Manhole Type V	4.00 Each		
- Manhole Type VI	8.00 Each		
- Manhole Type VII	15.00 Each		
- Manhole Type VIII	2.00 Each		
- Catch Basin Type I	11.00 Each		
- Uditch DS 1	170.70 M		
- Uditch DS 2	1172.60 M		
- Uditch DS 5	233.00 M		
- Deck Drain Type I	0.00 Each		
- Deck Drain Type II	37.00 Each		
- Steel Gutter	0.00 M		
- Outer Gutter	0.00 M		

DIVISION 3.
Earthworks

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/16/2006 17:13	Sheet : (of 7		
PROJECT : BALARAJA PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024		ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING		CALCULATION Balaraja Fly Over - Contract Package 1			REMARKS
Item No. 3-1(1) - Clearing and Grubbing					
MAIN ROAD BEFORE FLYOVER					
STA	LEFT SIDE WIDTH	AVE. LEFT WIDTH	LENGTH	AREA	
0+000.000	0.000	0.000	0.000	0.000	
0+077.277	2.260	1.130	77.277	87.323	
0+134.848	2.258	2.259	57.571	130.053	
0+163.811	2.359	2.309	28.963	66.861	
0+192.743	3.515	2.937	28.932	84.973	
0+216.004	4.577	4.046	23.261	94.114	
0+238.856	4.759	4.668	22.852	106.673	
SUB TOTAL LEFT AREA				569.997	
STA	RIGHT SIDE WIDTH	AVE. RIGHT WIDTH	LENGTH	AREA	
0+000.000	0.000	0.000	0.000	0.000	
0+081.050	2.510	1.255	81.050	101.718	
0+125.809	4.415	3.463	44.759	154.978	
0+163.245	6.890	5.653	37.436	211.607	
0+231.525	10.443	8.667	68.280	591.749	
0+238.856	10.368	10.406	7.331	76.283	
0+000.000	0.000	0.000	0.000	0.000	
SUB TOTAL RIGHT AREA				1,136.334	
MAIN ROAD AFTER FLYOVER					
STA	LEFT SIDE WIDTH	AVE. LEFT WIDTH	LENGTH	AREA	
0+755.059	12.008	6.004	0.000	0.000	
0+760.134	11.849	11.929	5.075	60.537	
0+785.248	8.630	10.240	25.114	257.155	
0+805.407	6.006	7.318	20.159	147.524	
0+818.264	4.755	5.381	12.857	69.177	
0+831.140	4.000	4.378	12.876	56.365	
0+882.576	2.671	3.336	51.436	171.565	
0+882.576	0.621	1.646	0.000	0.000	
0+919.766	0.817	0.719	37.190	26.740	
0+939.483	0.000	0.409	19.717	8.054	
0+000.000	0.000	0.000	0.000	0.000	
SUB TOTAL LEFT AREA				797.116	
STA	RIGHT SIDE WIDTH	AVE. RIGHT WIDTH	LENGTH	AREA	
0+755.059	2.809	1.405	0.000	0.000	
0+773.945	2.975	2.892	18.886	54.618	
0+792.263	2.223	2.599	18.318	47.608	
0+792.811	0.000	1.112	0.548	0.609	
0+795.753	1.255	0.628	2.942	1.846	
0+796.023	1.466	0.000	0.270	0.000	
0+796.886	2.434	1.950	0.863	1.683	
0+807.859	2.060	2.247	10.973	24.656	
0+822.706	2.050	2.055	14.847	30.511	
0+837.605	2.050	2.050	14.899	30.543	
0+882.576	2.050	2.050	44.971	92.191	
SUB TOTAL RIGHT AREA				284.265	
					3-1

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/16/2006 17:13		Sheet : 2 of 5		
PROJECT : BALARAJA PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024		ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING		CALCULATION Balaraja Fly Over - Contract Package 1				REMARKS
		Item No. 3.1(1) - Clearing and Grubbing				
		SERVICE ROAD				
	STA	LEFT SIDE WIDTH	AVE. LEFT WIDTH	LENGTH	AREA	
	0+238.856	4.759	2.380	0.000	0.000	
	0+248.663	4.533	4.646	9.807	45.563	
	0+274.641	5.274	4.904	25.978	127.383	
	0+300.619	5.369	5.322	25.978	138.242	
	0+324.056	5.260	5.315	23.437	124.556	
	0+355.482	5.387	5.324	31.426	167.296	
	0+365.755	5.435	5.411	10.273	55.587	
	0+388.255	5.664	5.550	22.500	124.864	
	0+404.327	5.863	5.764	16.072	92.631	
	0+430.865	5.906	5.885	26.538	156.163	
	0+440.911	5.541	5.724	10.046	57.498	
	0+450.898	4.324	4.933	9.987	49.261	
	0+469.048	2.069	3.197	18.150	58.016	
	0+474.945	2.056	2.063	5.897	12.163	
	0+484.064	2.051	2.054	9.119	18.726	
	0+499.122	2.050	2.051	15.058	30.876	
	0+508.480	2.054	2.052	9.358	19.203	
	0+517.797	2.068	2.061	9.317	19.202	
	0+523.772	2.109	2.089	5.975	12.479	
	0+539.681	4.003	3.056	15.909	48.618	
	0+546.323	4.561	4.282	6.642	28.441	
	0+552.995	4.727	4.644	6.672	30.985	
	0+565.537	4.688	4.708	12.542	59.041	
	0+581.644	5.658	5.173	16.107	83.322	
	0+594.682	4.600	5.129	13.038	66.872	
	0+596.395	3.336	3.968	1.713	6.797	
	0+596.820	0.000	1.668	0.425	0.709	
	0+610.008	0.000	0.000	13.188	0.000	
	0+615.522	4.958	2.479	5.514	13.669	
	0+616.931	6.389	5.674	1.409	7.994	
	0+622.453	7.617	7.003	5.522	38.671	
	0+635.132	7.550	3.775	12.679	47.863	
	0+635.898	10.005	8.778	0.766	6.724	
	0+637.963	9.250	9.628	2.065	19.881	
	0+637.963	7.588	8.419	0.000	0.000	
	0+737.880	7.297	7.443	99.917	743.632	
	0+738.590	10.063	8.680	0.710	6.163	
	0+741.903	10.179	10.121	3.313	33.531	
	0+742.658	7.275	8.727	0.755	6.589	
	0+755.059	7.500	7.388	12.401	91.612	
	SUB TOTAL LEFT AREA				2,650.823	
	STA	RIGHT SIDE WIDTH	AVE. RIGHT WIDTH	LENGTH	AREA	
	0+238.856	7.550	3.775	0.000	0.000	
	0+260.346	7.577	7.564	21.490	162.540	
	0+261.660	11.816	9.697	1.314	12.741	
	0+264.394	11.171	11.494	2.734	31.423	
	0+265.047	7.472	9.322	0.653	6.087	
	0+300.619	7.550	7.511	35.572	267.181	
	0+396.781	7.530	7.540	96.162	725.061	
	0+397.771	11.347	9.439	0.990	9.344	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/16/2006 17:13		Sheet : 3 of 5		
PROJECT : BALARAJA PROJECT						
NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024		ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING		CALCULATION				REMARKS
		Balaraja Fly Over - Contract Package 1				
		Item No. 3.1(1) - Clearing and Grubbing				
	0+400.955	10.864	11.106	3.184	35.360	
	0+401.623	7.510	9.187	0.668	6.137	
	0+424.431	7.529	7.520	22.808	171.505	
	0+425.307	9.145	8.337	0.876	7.303	
	0+438.299	8.270	8.708	12.992	113.128	
	0+441.088	7.601	7.936	2.789	22.132	
	0+443.310	7.601	7.601	2.222	16.889	
	0+459.076	5.638	6.620	15.766	104.363	
	0+479.071	4.608	5.123	19.995	102.434	
	0+499.122	4.121	4.365	20.051	87.513	
	0+508.480	4.476	4.299	9.358	40.225	
	0+517.797	5.541	5.009	9.317	46.664	
	0+531.858	7.616	6.579	14.061	92.500	
	0+541.324	7.600	7.608	9.466	72.017	
	0+543.877	8.119	7.860	2.553	20.065	
	0+546.125	9.559	8.839	2.248	19.870	
	0+557.127	9.885	9.722	11.002	106.961	
	0+557.127	7.750	8.818	0.000	0.000	
	0+565.701	7.754	7.752	8.574	66.466	
	0+573.067	8.297	8.026	7.366	59.116	
	0+580.327	9.944	9.121	7.260	66.215	
	0+617.601	7.550	8.747	37.274	326.036	
	0+620.000	7.165	7.358	2.399	17.651	
	0+632.422	4.957	6.061	12.422	75.290	
	0+636.742	4.163	4.560	4.320	19.699	
	0+649.769	2.234	3.199	13.027	41.667	
	0+675.755	2.050	2.142	25.986	55.662	
	0+698.680	2.050	2.050	22.925	46.996	
	0+721.604	2.050	2.050	22.924	46.994	
	0+755.059	2.809	2.430	33.455	81.279	
	0+000.000	0.000	0.000	0.000	0.000	
	SUB TOTAL RIGHT AREA				3,182.516	
	KRONJO BOUND LEFT					
	0+000.000	21.634	10.817	0.000	0.000	
	0+005.086	6.674	14.154	5.086	71.987	
	0+010.067	5.551	6.113	4.981	30.446	
	0+020.804	5.500	5.526	10.737	59.327	
	0+052.261	5.348	5.424	31.457	170.623	
	0+065.443	5.500	5.424	13.182	71.499	
	0+080.577	5.500	5.500	15.134	83.237	
	SUB TOTAL LEFT AREA				487.120	
	KRONJO BOUND RIGHT					
	0+000.000	14.048	7.024	0.000	0.000	
	0+002.186	4.624	9.336	2.186	20.408	
	0+005.086	2.994	3.809	2.900	11.046	
	0+011.045	2.196	2.595	5.959	15.464	
	0+030.669	2.050	2.123	19.624	41.662	
	0+052.643	2.050	2.050	21.974	45.047	
	0+000.000	0.000	0.000	0.000	0.000	
	SUB TOTAL RIGHT AREA				133.627	
			9,241,000			
	Total Area		= 9,241.80 sqm.			
						3-3

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared :		Sheet : of	
PROJECT : BALARAJA FLYOVER			BACK QUANTITY SELECTED TREE REMOVAL		
NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO :		ESTIMATOR :		CHECKED BY	
SKETCH DRAWING		QUANTITY CALCULATION PROJECT : BALARAJA FLYOVER			REMARKS
		Selected Tree Removal Dia \leq 300 mm			
		Main Road			
		Sta	L/R	Quantity	Unit
		0 + 170	L R	2.00	Each
		0+757	L	1.00	Each
		0+763	L	1.00	Each
		0+786	L	1.00	Each
		TOTAL		5.00	Each
		Service Road			
		Sta	L/R	Quantity	Unit
		0 + 262	R	1.00	Each
		0+287	R	1.00	Each
		0+605	L	1.00	Each
		0+700	L	1.00	Each
		TOTAL		4.00	Each
		Selected Tree Removal Dia \geq 300 mm			
		Main Road			
		Sta	L/R	Quantity	Unit
		0 + 119	R	1.00	Each
		0+180	L	1.00	Each
		0+776	L	1.00	Each
		TOTAL		3.00	Each
		Service Road			
		Sta	L/R	Quantity	Unit
		0 + 635	L	1.00	Each
		0+650	L	1.00	Each
		0+708	L	1.00	Each
		0+746	R	1.00	Each
		TOTAL		4.00	Each
		SUMMARY QUANTITY SELECTED TREE REMOVAL			
		Selected Tree Removal Dia \leq 300 mm	=	9.00	Each
		Selected Tree Removal Dia \geq 300 mm	=	7.00	Each

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/22/2006 11:41			Sheet : of	
PROJECT : BALARAJA PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024		ESTIMATOR :			CHECKED BY :	
SKETCH DRAWING		CALCULATION Balaraaja Fly Over - Contract Package 1				REMARKS
Item No. 3.2 (1) - Common Excavation						
MAIN ROAD BEFORE FLYOVER						
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME		
0+154.300	0.000	0.000	0.000	0.000		
0+201.892	1.363	0.681	47.592	32.428		
0+214.310	1.718	1.540	12.418	19.125		
0+227.318	1.841	1.779	13.008	23.146		
0+238.856	1.881	1.861	11.538	21.474		
SUB TOTAL LEFT VOLUME				96.173		
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME		
0+074.146	0.000	0.000	0.000	0.000		
0+083.600	0.413	0.207	9.454	1.953		
0+125.865	1.776	1.095	42.265	46.264		
0+163.358	3.634	2.705	37.493	101.414		
0+200.803	5.312	4.473	37.445	167.491		
0+231.582	6.297	5.805	30.779	178.661		
0+238.856	6.239	6.268	7.274	45.592		
SUB TOTAL RIGHT VOLUME				541.375		
MAIN ROAD AFTER FLYOVER						
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME		
0+755.059	7.506	3.753	0.000	0.000		
0+760.000	7.310	7.408	4.941	36.602		
0+805.212	2.979	5.144	45.212	232.582		
0+818.165	2.032	2.505	12.953	32.452		
0+831.140	1.463	1.747	12.975	22.669		
0+855.567	1.098	1.280	24.427	31.273		
0+880.000	0.507	0.803	24.433	19.607		
0+919.766	0.613	0.560	39.766	22.264		
0+939.448	0.000	0.306	19.682	6.030		
SUB TOTAL LEFT VOLUME				403.479		
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME		
0+755.059	0.569	0.285	0.000	0.000		
0+772.385	0.707	0.638	17.326	11.052		
0+789.710	0.251	0.479	17.325	8.290		
0+791.632	0.656	0.453	1.922	0.871		
0+792.263	1.096	0.876	0.631	0.553		
0+792.849	0.000	0.000	0.586	0.000		
0+795.849	0.000	0.000	3.000	0.000		
0+796.366	0.890	0.445	0.517	0.230		
0+798.516	0.183	0.536	2.150	1.153		
0+801.437	0.000	0.092	2.921	0.267		
SUB TOTAL RIGHT VOLUME				22.415		
SERVICE ROAD						
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME		
0+238.856	1.881	0.941	0.000	0.000		
0+251.100	1.898	1.890	12.244	23.137		
0+265.409	2.002	1.950	14.309	27.903		
						3-5

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/22/2006 11:41			Sheet : of		
PROJECT : BALARAJA PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL							
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024			ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING			CALCULATION				REMARKS
			Balaraja Fly Over - Contract Package 1				
			Item No. 3:2 (1) - Common Excavation				
	0+269.740	2.210	2.106	4.331	9.121		
	0+291.993	2.561	2.386	22.253	53.090		
	0+324.056	2.405	2.483	32.063	79.608		
	0+355.482	2.495	2.450	31.426	76.978		
	0+388.255	2.697	2.596	32.773	85.071		
	0+404.327	2.844	2.771	16.072	44.527		
	0+424.332	2.866	2.855	20.005	57.112		
	0+433.494	2.876	2.871	9.162	26.301		
	0+442.061	2.512	2.694	8.567	23.076		
	0+450.587	1.727	2.119	8.526	18.068		
	0+459.797	0.707	1.217	9.210	11.207		
	0+469.040	0.000	0.354	9.243	3.269		
	0+523.403	0.000	0.000	54.363	0.000		
	0+539.950	1.475	0.738	16.547	12.205		
	0+546.458	1.885	1.680	6.508	10.933		
	0+546.458	1.885	1.885	0.000	0.000		
	0+552.995	2.008	1.946	6.537	12.723		
	0+565.597	1.978	1.993	12.602	25.113		
	0+581.767	2.709	2.343	16.170	37.892		
	0+594.682	3.670	3.189	12.915	41.191		
	0+596.395	2.721	3.195	1.713	5.474		
	0+598.009	0.000	1.361	1.614	2.196		
	0+609.735	0.000	0.000	11.726	0.000		
	0+615.709	3.079	1.539	5.974	9.196		
	0+616.931	3.840	3.459	1.222	4.227		
	0+622.453	4.144	3.992	5.522	22.043		
	0+632.624	4.171	4.157	10.171	42.283		
	0+634.188	4.754	4.463	1.564	6.979		
	0+635.898	7.504	3.752	0.000	0.000		
	0+637.963	6.938	7.221	2.065	14.911		
	0+638.379	5.006	5.972	0.416	2.484		
	0+640.467	4.125	4.565	2.088	9.532		
	0+675.755	4.125	4.125	35.288	145.563		
	0+734.016	4.028	4.077	58.261	237.508		
	0+737.318	5.063	4.546	3.302	15.010		
	0+738.590	7.548	6.306	1.272	8.021		
	0+741.903	7.634	7.591	3.313	25.149		
	0+743.311	4.983	6.309	1.408	8.883		
	0+746.493	4.046	4.515	3.182	14.366		
	0+755.059	4.125	4.086	8.566	34.997		
	SUB TOTAL LEFT VOLUME				1,287.347		
	STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME		
	0+238.856	4.125	2.063	0.000	0.000		
	0+256.451	4.125	4.125	17.595	72.579		
	0+259.315	4.853	4.489	2.864	12.857		
	0+261.660	8.862	6.858	2.345	16.081		
	0+264.394	8.378	8.620	2.734	23.567		
	0+265.206	5.444	6.911	0.812	5.612		
	0+268.870	4.125	4.785	3.664	17.531		
	0+284.745	4.125	4.125	15.875	65.484		
	0+393.015	4.125	4.125	108.270	446.614		
	0+395.949	4.941	4.533	2.934	13.300		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/22/2006 11:41			Sheet : of		
PROJECT : BALARAJA PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL							
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024		ESTIMATOR :			CHECKED BY :		
SKETCH DRAWING		CALCULATION					REMARKS
		Balaraja Fly Over - Contract Package 1					
		Item No. 3.2 (1) - Common Excavation					
	0+397.771	8.510	6.726	1.822	12.254		
	0+400.955	8.148	8.329	3.184	26.520		
	0+401.897	5.355	6.752	0.942	6.360		
	0+405.371	4.125	4.740	3.474	16.467		
	0+413.674	4.125	4.125	8.303	34.250		
	0+424.431	4.109	4.117	10.757	44.284		
	0+425.351	5.315	4.712	0.920	4.335		
	0+429.867	5.183	5.249	4.516	23.702		
	0+438.307	4.622	4.902	8.440	41.376		
	0+441.088	4.148	4.385	2.781	12.195		
	0+443.415	4.140	4.144	2.327	9.643		
	0+458.860	2.693	3.417	15.445	52.770		
	0+478.963	1.921	2.307	20.103	46.378		
	0+499.122	1.553	1.737	20.159	35.016		
	0+508.614	1.824	1.689	9.492	16.028		
	0+518.066	2.634	2.229	9.452	21.069		
	0+531.892	4.175	3.404	13.826	47.067		
	0+541.462	4.162	4.168	9.570	39.889		
	0+546.125	5.628	4.895	4.663	22.825		
	0+554.507	5.880	5.754	8.382	48.230		
	0+556.889	6.027	5.954	2.382	14.181		
	0+556.889	4.275	5.151	0.000	0.000		
	0+567.703	4.311	4.293	10.814	46.425		
	0+576.220	5.113	4.712	8.517	40.131		
	0+580.327	5.921	5.517	4.107	22.657		
	0+592.486	6.019	5.970	12.159	72.585		
	0+592.486	4.125	5.072	0.000	0.000		
	0+600.193	4.125	4.125	7.707	31.791		
	0+617.601	4.125	4.125	17.408	71.808		
	0+632.422	2.180	3.153	14.821	46.725		
	0+651.645	0.000	1.090	19.223	20.955		
	0+737.144	0.000	0.000	85.499	0.000		
	0+755.059	0.569	0.285	17.915	5.099		
	SUB TOTAL RIGHT VOLUME				1,606.640		
	KRONJO BOUND						
	0+000.000	9.342	4.671	0.000	0.000		
	0+003.683	6.954	8.148	3.683	30.009		
	0+011.823	3.652	5.303	8.140	43.165		
	0+020.523	1.534	2.593	8.700	22.557		
	0+037.819	1.111	1.322	17.296	22.870		
	0+050.328	1.286	1.199	12.509	14.992		
	0+051.613	1.700	1.493	1.285	1.918		
	0+058.624	1.613	1.656	7.011	11.613		
	0+065.347	0.970	1.292	6.723	8.683		
	0+073.092	0.299	0.634	7.745	4.911		
	0+080.585	0.000	0.149	7.493	1.118		
	SUB TOTAL LEFT VOLUME				161.837		
	KRONJO BOUND						
	0+000.000	2.633	1.316	0.000	0.000		
	0+003.683	0.000	1.316	3.683	4.848		
	SUB TOTAL RIGHT VOLUME				4.848		
	TOTAL	= 4,124.114 cum.					
						3-7	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/20/2006 8:55	Sheet : of		
PROJECT : BALARAJA PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024		ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING		CALCULATION Balaraja Fly Over - Contract Package 1			REMARKS
Item No. 3.1(3) - Excavation of Existing Pavement					
EXCAVATION OF EXISTING PAVEMENT					
MAIN ROAD BEFORE FLYOVER					
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME	
0+154.300	0.150	0.075	0.000	0.000	
0+201.892	0.150	0.150	136.545	20.482	
0+214.310	0.150	0.150	141.218	21.183	
0+227.318	0.150	0.150	146.733	22.010	
0+238.856	0.150	0.150	11.538	1.731	
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
SUB TOTAL LEFT VOLUME				65.406	
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME	
0+074.146	0.150	0.075	0.000	0.000	
0+083.600	0.150	0.150	9.454	1.418	
0+125.865	0.150	0.150	42.265	6.340	
0+163.358	0.150	0.150	37.493	5.624	
0+200.803	0.150	0.150	37.445	5.617	
0+231.582	0.150	0.150	30.779	4.617	
0+238.856	0.150	0.150	7.274	1.091	
SUB TOTAL RIGHT VOLUME				24.707	
MAIN ROAD AFTER FLYOVER					
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME	
0+755.059	0.150	0.075	0.000	0.000	
0+760.000	0.150	0.150	4.941	0.741	
0+805.212	0.150	0.150	45.212	6.782	
0+818.165	0.150	0.150	12.953	1.943	
0+831.140	0.150	0.150	12.975	1.946	
0+855.567	0.150	0.150	24.427	3.664	
0+880.000	0.150	0.150	24.433	3.665	
0+919.766	0.150	0.150	39.766	5.965	
0+939.448	0.150	0.150	19.682	2.952	
0+000.000	0.000	0.000	0.000	0.000	
SUB TOTAL LEFT VOLUME				27.658	
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME	
0+755.059	0.150	0.075	0.000	0.000	
0+772.385	0.150	0.150	17.326	2.599	
0+789.710	0.150	0.150	17.325	2.599	
0+791.632	0.150	0.150	1.922	0.288	
0+792.263	0.150	0.150	0.631	0.095	
0+792.849	0.150	0.150	0.586	0.088	
0+795.849	0.150	0.150	3.000	0.450	
0+796.366	0.150	0.150	0.517	0.078	
0+798.516	0.150	0.150	2.150	0.322	
0+801.437	0.150	0.150	2.921	0.438	
SUB TOTAL RIGHT VOLUME				6.957	
SERVICE ROAD					3-8

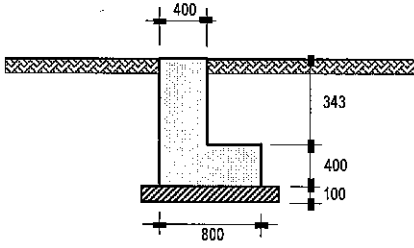
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/20/2006 8:55	Sheet : of		
PROJECT : BALARAJA PROJECT					
NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024		ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING		CALCULATION Balaraja Fly Over - Contract Package 1			REMARKS
Item No. 3.1(3) - Excavation of Existing Pavement					
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME	
0+238.856	0.150	0.075	0.000	0.000	
0+469.040	0.150	0.150	230.184	34.528	
0+523.403	0.150	0.150	0.000	0.000	
0+560.000	0.150	0.150	36.597	5.490	
0+000.000	0.000	0.075	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
SUB TOTAL LEFT VOLUME				40.017	
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME	
0+425.351	0.150	0.075	0.000	0.000	
0+438.307	0.150	0.150	12.956	1.943	
0+443.415	0.150	0.150	0.000	0.000	
0+531.892	0.150	0.150	88.477	13.272	
0+546.110	0.150	0.150	0.000	0.000	
0+557.352	0.150	0.150	11.242	1.686	
0+617.601	0.150	0.150	0.000	0.000	
0+651.645	0.150	0.150	34.044	5.107	
0+737.144	0.150	0.150	0.000	0.000	
0+755.059	0.150	0.150	17.915	2.687	
SUB TOTAL RIGHT VOLUME				24.695	
KRONJO BOUND					
0+000.000	2.487	1.244	0.000	0.000	
0+002.437	2.147	2.317	2.437	5.646	
0+002.786	2.174	2.160	0.349	0.754	
0+005.167	0.000	1.087	2.381	2.588	
SUB TOTAL LEFT VOLUME				8.988	
KRONJO BOUND					
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
SUB TOTAL RIGHT VOLUME				0.000	
TOTAL	= 198.427 cum.				

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 21 - 09 - 2006	Sheet : 2 of 2	
PROJECT : BALARAJA FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
3.2 (3)	Structure Excavation to a depth not exceeding 2 m	A1		Stub Wall
		W = 1.50 m		
		L = 31.75 m		
		H = 1.386 m		
		W = 1.00 m		
		L = 30.00 m		
		H = 0.80 m		
		Quantity		
		= 1.50 x 1.386 x 31.75 x 2	132.02	
		= 1.00 x 0.80 x 30.00 x 2	48.00	
		sub total	180.02	
		A2		Stub Wall
		W = 1.50 m		
		L = 40.00 m		
		H = 2.00 m		
		W = 1.00 m		
		L = 25.25 m		
		H = 0.80 m		
		Quantity		
		= 1.50 x 2.00 x 40.00 x 2	240.00	
		= 1.00 x 0.80 x 25.25 x 2	40.40	
		sub total	280.40	
		SUMMARY	597.70	

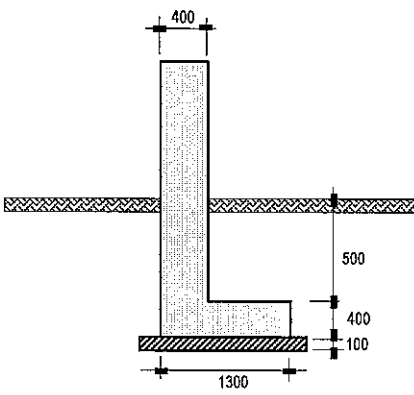
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of		
PROJECT : FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO :	ESTIMATOR :	CHECKED BY :			
SKETCH DRAWING		CALCULATION		REMARKS	
		Balaraja Flyover - Contract Package 1			
		3.1(13) - Embankment with Materials from Borrow Excavation			
		I. At Abutment A2 (Sta. 0 + 621.25 - 0 + 760.00)			
		A. Along MSE Wall (Sta 0 + 621.25 - Sta 0 + 694.75)			
		Input Data:			
		H1cb = 4.161 m.	Ht. Borrow Materials at the start of MSE Wall (ave.)		
		H2cb = 0.555 m.	Ht. Borrow Materials at the end of MSE Wall		
		W = 12.419 m.	Width of Borrow Materials		
		Lm = 73.500 m.	Total length of MSE Wall		
		Volume(m) = $\left(\frac{H1cb + H2cb}{2} \times W \times Lm \right) =$		2,152.37	cum.
B. Along Stub Wall (Sta 0 + 694.75 - Sta 0 + 760.00)					
Input Data:					
H2cb = 0.555 m.	Ht. Borrow Materials at the start of Stub Wall				
H3cb = 0.000 m.	Ht. Borrow Materials at the end of Stub Wall				
W = 12.419 m.	Width of Borrow Materials				
Ls = 65.250 m.	Total length of MSE Wall				
Volume(s) = $\left(\frac{H2cb + H3cb}{2} \times W \times Lm \right) =$		224.87	cum.		
Total Volume of Borrow Materials along Approach B					
Vtb =		2,377.24	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	
		Balaraja Flyover - Contract Package 1			
		3.1(13) - Embankment with Materials from Borrow Excavation			
		I. At Abutment A1 (Sta. 0 + 240.00 - 0 + 397.75)			
		A. Along MSE Wall (Sta 0 + 301.75 - Sta 0 + 397.75)			
		Input Data:			
		H1cb =	4.879 m.	Ht. Borrow Materials at the start of MSE Wall	
		H2cb =	0.512 m.	Ht. Borrow Materials at the end of MSE Wall	
		W =	12.419 m.	Width of Borrow Materials	
		Lm =	96.000 m.	Total length of MSE Wall	
		Volume(m) = $\left(\frac{H1cb + H2cb}{2} \times W \times Lm \right) =$		3,213.64	cum.
		B. Along Stub Wall (Sta 0 + 240.00 - Sta 0 + 301.75)			
		Input Data:			
		H2cb =	0.512 m.	Ht. Borrow Materials at the start of Stub Wall	
		H3cb =	0.000 m.	Ht. Borrow Materials at the end of Stub Wall	
		W =	12.419 m.	Width of Borrow Materials	
Ls =	61.750 m.	Total length of Stub Wall			
Volume(s) = $\left(\frac{H2cb + H3cb}{2} \times W \times Lm \right) =$		196.32	cum.		
Total Volume of Borrow Materials along Approach A					
Vta =		3,409.96	cum.		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of
PROJECT : BALARAJA. FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	
SKETCH DRAWING	CALCULATION		REMARKS
	Balaraja Flyover - Contract Package 1		
	Item No. 3.2(2) - Structural Backfill		
	Input Data: At Approach B Side of Flyover		
	for excavation (Section 1)		
	Lwf1 = 33.900	m	
	Wwf1 = 0.800	m	
	twf1 = 0.400	m	
	Tlc1 = 0.100	m	
	h1 = 0.343	m	
	for excavation (Section 2)		
	Lwf2 = 33.900	m	
	Wwf2 = 1.300	m	
	twf2 = 0.400	m	
	Tlc2 = 0.100	m	
	h2 = 0.500	m	
	Volume of Backfill = (Volume of Excavation - Volume of Concrete & Lean Conc.)		
	1.0 Excavation for section 1		
	Vol. of Exc.=	$(33.900 + 0.450) \times (0.100 + 0.400 + 0.343)$	
		$\times (0.800 + 0.900)$	= 49.227 cum.
	2.0 Excavation for section 2		
	Vol. of Exc.=	$(33.900 + 0.450) \times (0.100 + 0.400 + 0.500)$	
		$\times (1.300 + 0.450)$	= 60.113 cum.
	3.0 Volume of Concrete for section 1		
	Vol of Conc.=	$(0.800 \times 0.400) + (0.400 \times 0.343)$	
		$+ (0.100 \times 1.000)$	$\times 33.900 = 18.889$ cum.
	4.0 Volume of Concrete for section 2		
	Vol of Conc.=	$(1.300 \times 0.400) + (0.400 \times 0.500)$	
		$+ (0.100 \times 1.500)$	$\times 33.900 = 29.493$ cum.
	Volume of Backfill =	60.958 x 2 =	side
	Volume of Backfill =	121.916	cum.
	Total =	280.808	cum.



Section 1 at End of Stubwall



Section 2 at Beg. of Stub Wall

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

KATAHIRA AND ENGINEERS INTERNATIONAL

DRAWING NO: <i>100000-011</i>	ESTIMATOR:	CHECKED BY :
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SKETCH DRAWING	CALCULATION	REMARKS
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Balaraja Flyover - Contract Package 1

Item No. 3.2(2) - Structural Backfill

Input Data: At Approach A Side of Flyover

for excavation (Section 1)	
Lwf1 =	34.900 m
Wwf1 =	0.800 m
twf1 =	0.400 m
Ttc1 =	0.100 m
h1 =	0.357 m
for excavation (Section 2)	
Lwf2 =	34.900 m
Wwf2 =	1.300 m
twf2 =	0.400 m
Ttc2 =	0.100 m
h2 =	0.500 m

Volume of Backfill = (Volume of Excavation - Volume of Concrete & Lean Conc.)

1.0 Excavation for section 1

$$\text{Vol. of Exc.} = (34.900 + 0.450) \times (0.100 + 0.400 + 0.357) \times (0.800 + 0.900) = 51.501 \text{ cum.}$$

2.0 Excavation for section 2

$$\text{Vol. of Exc.} = (34.900 + 0.450) \times (0.100 + 0.400 + 0.500) \times (1.300 + 0.900) = 77.770 \text{ cum.}$$

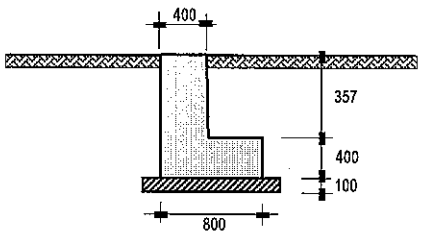
3.0 Volume of Concrete for section 1

$$\text{Vol of Conc.} = \left[(0.800 \times 0.400) + (0.400 \times 0.357) + (0.100 \times 1.000) \right] \times 34.900 = 19.642 \text{ cum.}$$

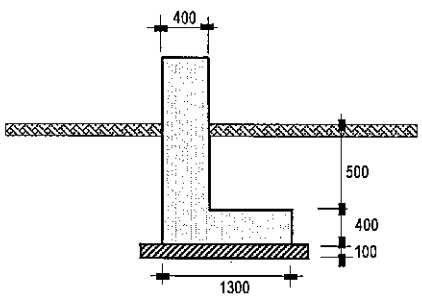
4.0 Volume of Concrete for section 2

$$\text{Vol of Conc.} = \left[(1.300 \times 0.400) + (0.400 \times 0.500) + (0.100 \times 1.500) \right] \times 34.900 = 30.363 \text{ cum.}$$

Volume of Backfill = 79.266 x 2 = side
Volume of Backfill = 158.532 cum.



Section 1 at End of Stubwall



Section 2 at Beg. of Stub Wall

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/20/2006 14:29	Sheet : of			
PROJECT : BALARAJA PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : BRS-019, BRD-020, BRD-021, BRD-022, BRD-023, BRD024		ESTIMATOR :	CHECKED BY :			
SKETCH DRAWING		CALCULATION			REMARKS	
		Balaraja Fly Over - Contract Package 1				
		Item No. 3.2 (3) - Permeable backfill				
		SERVICE ROAD				
	STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE		VOLUME
				START	END	LENGTH
	0+640.000	0.000	0.000	0+000.000	0+000.000	0.000
	0+660.000	0.341	0.171	0+659.269	0+660.000	0.731
	0+680.000	1.029	0.685	0+660.000	0+680.000	20.000
	0+700.000	0.997	1.013	0+680.000	0+700.000	20.000
	0+720.000	0.903	0.966	0+700.000	0+720.000	20.000
	0+740.000	0.000	0.452	0+720.000	0+738.949	18.949
	0+760.000	0.000	0.000	0+738.949	0+760.000	21.051
	SUB TOTAL LEFT VOLUME					61.960
	RIGHT SIDE AREA	AVE. RIGHT AREA	DISTANCE			VOLUME
			START	END	LENGTH	
	0.000	0.000	0+000.000	0+000.000	0.000	0.000
	0.000	0.000	0+000.000	0+000.000	0.000	0.000
	0.000	0.000	0+000.000	0+000.000	0.000	0.000
	0.000	0.000	0+000.000	0+000.000	0.000	0.000
	SUB TOTAL RIGHT VOLUME					0.000
	TOTAL	= 61.960 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
		Balaraja Flyover - Contract Package 1			
No. Pay Items	Description	Sub-Total	Total	Unit	
	DIVISION 3 - EARTHWORKS				
3.1(13)	Embankment with Materials from Borrow Excavation		= 5,957.73	cum.	
	1. At Approach of Flyover Abutment A1 Side	= 3,327.28			
	2. At Approach of Flyover Abutment A2 Side	= 2,630.45			
3.1(19)	Structure Backfill		= 294.89	cum.	
	1. At Approach of Flyover Abutment A1 Side	= 166.84			
	2. At Approach of Flyover Abutment A2 Side	= 128.05			
3.1(22)	Subgrade Preparation in Earth Cut		= 8,257.68	sqm.	
	1. Right Service Road	= 3,042.27			
	2. Left Service Road	= 5,215.41			
3.1(23)	Subgrade Preparation on Embankment		= 3,679.13	sqm.	
	1. At Approach of Flyover Abutment A1 Side	= 1,955.99			
	2. At Approach of Flyover Abutment A2 Side	= 1,723.14			
SS 3.1(22)	Mechanical Stabilized Earthwall		= 1,563.28	sqm.	
	1. At Abutment A1 (Sta. 0 + 301.75 - 0 + 397.75)	= 911.12			
	2. At Abutment A2 (Sta 0 + 621.25 - Sta 0 + 694.750)	= 652.16			

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	
	Balaraja Flyover - Contract Package 1			
	Item No. 3.1(22) - Subgrade Preparation on Embankment			
	A. Along Approach A (Sta 0 + 240.00 - Sta 0 + 397.75)			
	Input Data:			
	W = 12.419 m.	Width of Borrow Materials		
	Lm = 157.500 m.	Total length of Approach		
	Area 1 = 12.419	x	157.500	
	Area 1 = 1,955.99	sqm.		
	B. Along Approach B (Sta 0 + 621.25 - Sta 0 + 760.00)			
	Input Data:			
	W = 12.419 m.	Width of Borrow Materials		
	Lm = 138.750 m.	Total length of Approach		
	Area 2 = 12.419	x	138.750	
	Area 2 = 1,723.14	sqm.		
	Total Area = 3,679.13	sqm.		

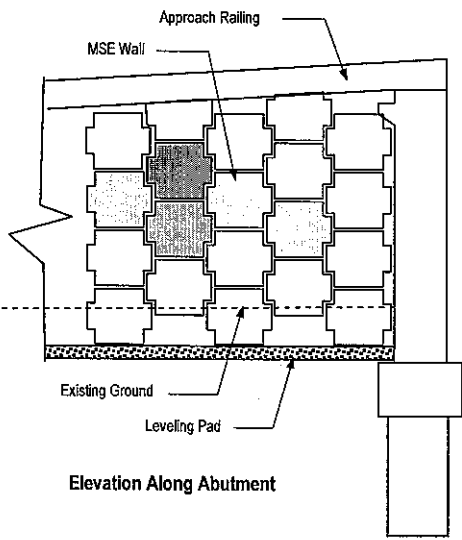
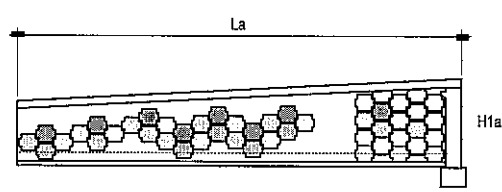
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet: of	
PROJECT : FLYOVER				
NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :	ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING	CALCULATION			REMARKS
	Balaraaja Flyover - Contract Package 1			
	Item No. 3.1(22) - Subgrade Preparation in Earth Cut			
	Subgrade Preparation for Widening :			
	From AutoCad Area :			
	A. For Right Service Road			
	Area 1 =	2,018.32		
	Area 2 =	121.19		
	Area 3 =	902.76		
	Sub-Total=	3,042.27	sqm.	
	B. For Left Service Road			
	Area 1 =	2,395.52		
	Area 2 =	1,366.67		
	Area 3 =	1,451.22		
	Sub-Total=	5,215.41	sqm.	
	Total=	8257.68	sqm.	

PROJECT : FLYOVER
 NORTH JAVA CORRIDOR FLYOVER PROJECT

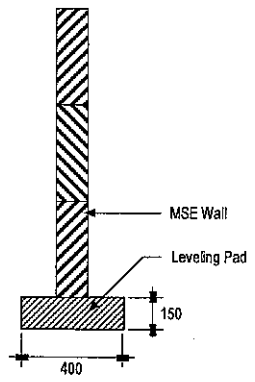
KATAHIRA AND ENGINEERS INTERNATIONAL

DRAWING NO :	ESTIMATOR :	CHECKED BY :	
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SKETCH DRAWING	CALCULATION	REMARKS
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Elevation Along Abutment



Section of Leveling Pad

Balaraja Flyover - Contract Package 1

Leveling Pad

I. At Abutment A2 (Sta 0 + 621.25 - Sta 0 + 694.750)

Input Data:

A. At Right Side of Abutment A2

t = 0.150 m.	Thickness of Leveling Pad
W = 0.400 m.	Width of Leveling Pad
Lar = 96.000 m.	Total length of Leveling Pad

$$\text{Volume (r)} = (0.150 \times 0.400 \times 96.000) = 5.76 \text{ cum.}$$

Input Data:

B. At Left Side of Abutment A2

t = 0.150 m.	Thickness of Leveling Pad
W = 0.400 m.	Width of Leveling Pad
Lal = 96.000 m.	Total length of Leveling Pad

$$\text{Volume (l)} = (0.150 \times 0.400 \times 96.000) = 5.76 \text{ cum.}$$

Input Data:

C. Along Abutment A2

t = 0.150 m.	Thickness of Leveling Pad
W = 0.400 m.	Width of Leveling Pad
Lw = 12.700 m.	Total length of Leveling Pad

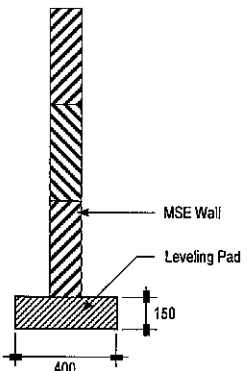
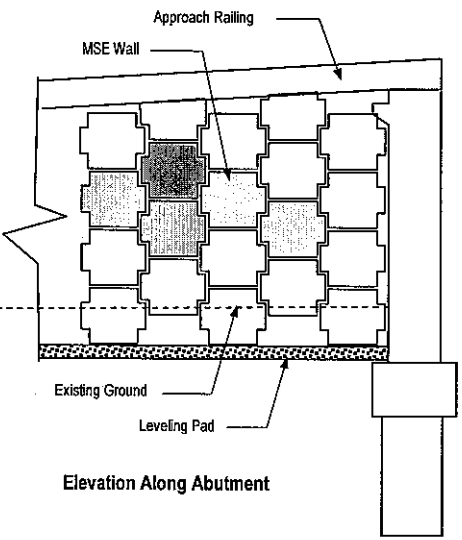
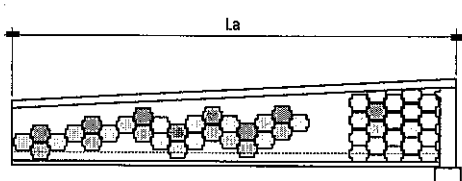
$$\text{Volume} = (0.150 \times 0.400 \times 12.700) = 0.76 \text{ cum.}$$

Total Volume of Leveling Pad at Approach B = 12.28 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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Balaraja Flyover - Contract Package 1

- Leveling Pad

I. At Abutment A1 (Sta. 0 + 301.75 - 0 + 397.75)

Input Data:

A. At Right Side of Abutment A1

t =	0.150 m.	Thickness of Leveling Pad
W =	0.400 m.	Width of Leveling Pad
Lar =	96.000 m.	Total length of Leveling Pad

Volume (r) = $(0.150 \times 0.400 \times 96.000) = 5.76 \text{ cum.}$

Input Data:

B. At Left Side of Abutment A1

t =	0.150 m.	Thickness of Leveling Pad
W =	0.400 m.	Width of Leveling Pad
Lal =	96.000 m.	Total length of Leveling Pad

Volume (l) = $(0.150 \times 0.400 \times 96.000) = 5.76 \text{ cum.}$

Input Data:

C. Along Abutment A1

t =	0.150 m.	Thickness of Leveling Pad
W =	0.400 m.	Width of Leveling Pad
Lw =	12.700 m.	Total length of Leveling Pad

Volume = $(0.150 \times 0.400 \times 12.700) = 0.76 \text{ cum.}$

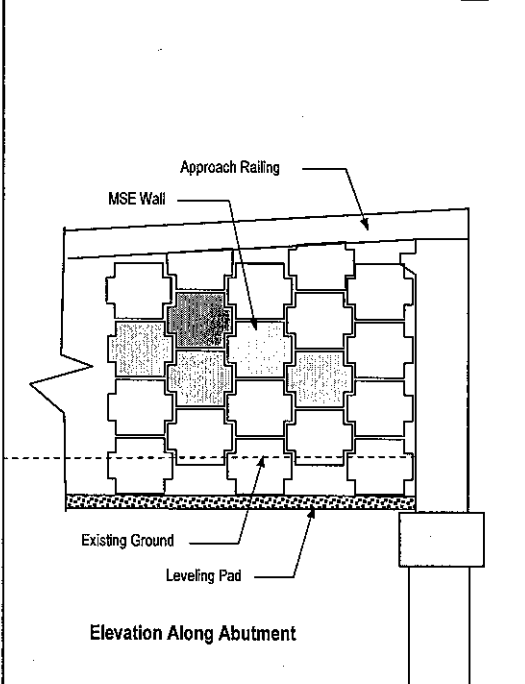
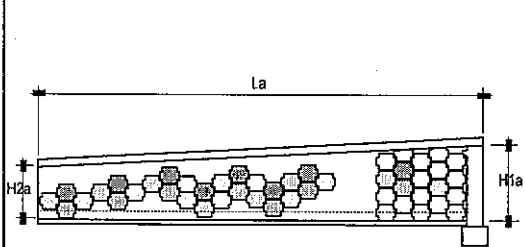
Total Volume of Leveling Pad at Approach A = 12.28 cum.

PROJECT : FLYOVER
 NORTH JAVA CORRIDOR FLYOVER PROJECT

KATAHIRA AND ENGINEERS INTERNATIONAL

DRAWING NO : ESTIMATOR : CHECKED BY :

SKETCH DRAWING	CALCULATION	REMARKS
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Balaraja Flyover - Contract Package 1

SS.3.4(1) - Mechanical Stabilized Earthwall and Accessories (MSE)

I. At Abutment A2 (Sta 0 + 621.25 - Sta 0 + 694.750)

Input Data:

A. At Right Side of Abutment A2

H1ar = 5.899 m.	Ht. of MSE Wall at the start of MSE Wall
H2ar = 2.124 m.	Ht. of MSE Wall at the end of MSE Wall
Lar = 73.500 m.	Total length of MSE Wall

$$\text{Area}(r) = \left(\frac{5.899 + 2.124}{2.00} \right) \times 73.500 = 294.85 \text{ sqm.}$$

Input Data:

B. At Left Side of Abutment A2

H1al = 5.560 m.	Ht. of MSE Wall at the start of MSE Wall
H2al = 2.124 m.	Ht. of MSE Wall at the end of MSE Wall
Lal = 73.500 m.	Total length of MSE Wall

$$\text{Area}(l) = \left(\frac{5.560 + 2.124}{2.00} \right) \times 73.500 = 282.39 \text{ sqm.}$$

Input Data:

C. Along Abutment A2

H1a = 5.899 m.	Ht. of MSE Wall at the start of MSE Wall
W1 = 12.700 m.	Width of MSE Wall at Abutment A1

$$\text{Area} = \left(5.899 \times 12.700 \right) = 74.92 \text{ sqm.}$$

Total Area = 652.160 sqm.

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;">Elevation Along Abutment</p>	Balaraia Flyover - Contract Package 1			
	SS.3.4(1)- Mechanical Stabilized Earthwall and Accessories (MSE)			
	I. At Abutment A1 (Sta. 0 + 301.75 - 0 + 397.75)			
	Input Data:			
	A. At Right Side of Abutment A1			
	H1ar = 6.499 m.	Ht. of MSE Wall at the start of MSE Wall		
	H2ar = 2.132 m.	Ht. of MSE Wall at the end of MSE Wall		
	Lar = 96.000 m.	Total length of MSE Wall		
	$\text{Area(r)} = \left(\frac{6.499 + 2.132}{2.00} \right) \times 96.000 = 414.29 \text{ sqm.}$			
	Input Data:			
	B. At Left Side of Abutment A1			
	H1al = 6.499 m.	Ht. of MSE Wall at the start of MSE Wall		
	H2al = 2.132 m.	Ht. of MSE Wall at the end of MSE Wall		
	Lal = 96.000 m.	Total length of MSE Wall		
	$\text{Area(l)} = \left(\frac{6.499 + 2.132}{2.00} \right) \times 96.000 = 414.29 \text{ sqm.}$			
Input Data:				
C. Along Abutment A1				
H1al = 6.499 m.	Ht. of MSE Wall at the start of MSE Wall			
W1 = 12.700 m.	Width of MSE Wall at Abutment A1			
$\text{Area} = \left(6.499 \times 12.700 \right) = 82.54 \text{ sqm.}$				
Total Area =	911.120	sqm.		

**DIVISION 4.
Pavement Widening
and Shoulders**

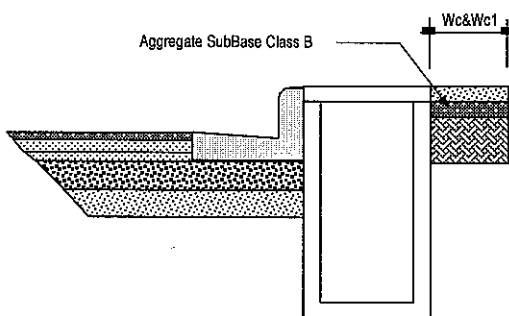
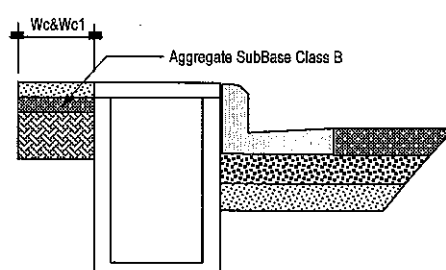
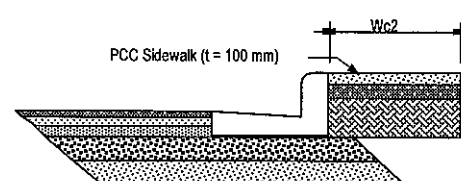
**DIVISION 5.
Granular Pavement**

**DIVISION 6.
Asphalt Pavement**

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
		Balaraja Flyover - Contract Package 1		
No. Pay Items	Description	Sub-Total	Total	Unit
	DIVISION 4 PAVEMENT WIDENING AND SHOULDERS			
4.2.1	Aggregate SubBase Class B		= 117.32	cum.
	1. Bound to Serang	= 35.16		
	2. Bound to Tangerang	= 60.88		
	3. Along Intersection Road (PCC Shoulder)	= 21.29		
	DIVISION 5 GRANULAR PAVEMENT			
5.1.1	Aggregate SubBase Class A		= 3,235.08	cum.
	1. Road Widening Bound to Serang	= 1,144.66		
	2. Road Widening Bound to Tangerang	= 1,047.56		
	3. Along Intersection Road	= 157.07		
	4. At Approach of Viaduct	= 885.80		
5.1.2	Aggregate SubBase Class B		= 2,980.08	cum.
	1. Road Widening Bound to Serang	= 942.84		
	2. Road Widening Bound to Tangerang	= 847.16		
	3. Along Intersection Road	= 130.89		
	4. At Approach of Viaduct	= 1,059.20		
	DIVISION 6 ASPHALT PAVEMENT			
6.1.1	Prime Coat		= 10,295.04	Liters
	1. Road Widening Bound to Serang	= 3,271.18		
	2. Road Widening Bound to Tangerang	= 3,031.59		
	3. Along Intersection Road	= 523.56		
	4. At Approach of Viaduct	= 3,468.71		
6.1.2	Tact Coat		= 16,013.04	Liters
	1. Road Widening Bound to Serang	= 3,271.18		
	2. Road Widening Bound to Tangerang	= 3,031.59		
	3. Along Intersection Road	= 523.56		
	4. At Approach of Viaduct	= 3,588.73		
	5. At Viaduct	= 2,652.98		
	6. Overlay Bound to Serang and U-Turn Portion	= 1,301.29		
	7. Overlay Bound to Tangerang and Intersection Road	= 1,643.70		
6.3.5	Asphalt Concrete Wearing Course (AC-WC)		= 1,888.49	tonne
	1. Road Widening Bound to Serang	= 341.53		
	2. Road Widening Bound to Tangerang	= 277.71		
	3. Along Intersection Road	= 48.17		
	4. At Approach of Viaduct	= 330.16		
	5. At Viaduct	= 213.57		
	6. Overlay Bound to Serang and U-Turn Portion	= 299.30		
	7. Overlay Bound to Tangerang and Intersection Road	= 378.05		
6.3.6	Asphalt Concrete Binders Course (AC-BC)		= 1,472.03	tonne
	1. Road Widening Bound to Serang	= 508.91		
	2. Road Widening Bound to Tangerang	= 412.19		
	3. Along Intersection Road	= 72.25128		
	4. At Approach of Viaduct	= 478.68		

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

DRAWING NO :	ESTIMATOR :	CHECKED BY :	
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SKETCH DRAWING	CALCULATION	REMARKS																																																																																
Balaraja Flyover - Contract Package 1																																																																																		
 <p style="text-align: center;">Section of Aggregate Subbase Class B Right</p>  <p style="text-align: center;">Section of Aggregate Subbase Class B Left</p>  <p style="text-align: center;">Section of PCC Sidewalk</p>	<p>Item No. 4.2.1 - Aggregate SubBase Class B</p> <p>Note: See Detailed Construction Layout Plan Dwg. # BRD-019 - BRD-023 for reference.</p> <p>Input Data :</p> <p style="margin-left: 20px;">Wc= 0.45 m</p> <p style="margin-left: 20px;">Thickness= 0.10 m</p> <p style="margin-left: 20px;">Volume = (Difference in Station) x Wc x Thickness</p> <p>Right Service Road</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Station</th> <th>Area</th> <th>Volume</th> </tr> <tr> <th>From</th> <th>To</th> <th>(m²)</th> <th>(m³)</th> </tr> </thead> <tbody> <tr> <td>00 + 081.00</td> <td>00 + 257.97</td> <td>79.81</td> <td>7.98</td> </tr> <tr> <td>00 + 265.00</td> <td>00 + 395.00</td> <td>58.63</td> <td>5.86</td> </tr> <tr> <td>00 + 402.00</td> <td>00 + 788.00</td> <td>174.09</td> <td>17.41</td> </tr> <tr> <td>00 + 795.41</td> <td>00 + 882.00</td> <td>39.05</td> <td>3.91</td> </tr> <tr> <td colspan="2" style="text-align: right;">Sub-Total =</td> <td></td> <td>35.16 cum</td> </tr> </tbody> </table> <p>Input Data :</p> <p style="margin-left: 20px;">Wc1= 0.500 ave.</p> <p style="margin-left: 20px;">Thickness= 0.10 m</p> <p style="margin-left: 20px;">Volume = (Difference in Station) x Wc x Thickness</p> <p>Left Service Road</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Station</th> <th>Area</th> <th>Volume</th> </tr> <tr> <th>From</th> <th>To</th> <th>(m²)</th> <th>(m³)</th> </tr> </thead> <tbody> <tr> <td>00 + 078.00</td> <td>00 + 128.93</td> <td>25.47</td> <td>2.55</td> </tr> <tr> <td>00 + 136.00</td> <td>00 + 460.00</td> <td>162.00</td> <td>16.20</td> </tr> <tr> <td>00 + 710.00</td> <td>00 + 741.90</td> <td>15.95</td> <td>1.60</td> </tr> <tr> <td>00 + 744.20</td> <td>00 + 882.00</td> <td>68.90</td> <td>6.89</td> </tr> <tr> <td colspan="2" style="text-align: right;">Sub-Total =</td> <td></td> <td>27.23 cum</td> </tr> </tbody> </table> <p>Input Data :</p> <p style="margin-left: 20px;">Wc2= 1.350 ave.</p> <p style="margin-left: 20px;">Thickness= 0.10 m</p> <p style="margin-left: 20px;">Area= (Difference in Station) x Wc2</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Station</th> <th>Area</th> <th>Volume</th> </tr> <tr> <th>From</th> <th>To</th> <th>(m²)</th> <th>(m³)</th> </tr> </thead> <tbody> <tr> <td>00 + 460.00</td> <td>00 + 594.00</td> <td>180.90</td> <td>18.09</td> </tr> <tr> <td>00 + 600.00</td> <td>00 + 635.00</td> <td>61.06</td> <td>6.11</td> </tr> <tr> <td>00 + 640.00</td> <td>00 + 710.00</td> <td>94.50</td> <td>9.45</td> </tr> <tr> <td colspan="2" style="text-align: right;">Sub-Total =</td> <td></td> <td>33.65 cum</td> </tr> </tbody> </table> <p>Total Volume of Aggregate SubBase Class B</p> <p style="text-align: right;">Total volume = 96.04 cum</p>	Station		Area	Volume	From	To	(m ²)	(m ³)	00 + 081.00	00 + 257.97	79.81	7.98	00 + 265.00	00 + 395.00	58.63	5.86	00 + 402.00	00 + 788.00	174.09	17.41	00 + 795.41	00 + 882.00	39.05	3.91	Sub-Total =			35.16 cum	Station		Area	Volume	From	To	(m ²)	(m ³)	00 + 078.00	00 + 128.93	25.47	2.55	00 + 136.00	00 + 460.00	162.00	16.20	00 + 710.00	00 + 741.90	15.95	1.60	00 + 744.20	00 + 882.00	68.90	6.89	Sub-Total =			27.23 cum	Station		Area	Volume	From	To	(m ²)	(m ³)	00 + 460.00	00 + 594.00	180.90	18.09	00 + 600.00	00 + 635.00	61.06	6.11	00 + 640.00	00 + 710.00	94.50	9.45	Sub-Total =			33.65 cum	<p>Location : At Shoulder</p>
	Station		Area	Volume																																																																														
	From	To	(m ²)	(m ³)																																																																														
	00 + 081.00	00 + 257.97	79.81	7.98																																																																														
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	00 + 078.00	00 + 128.93	25.47	2.55																																																																														
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	00 + 744.20	00 + 882.00	68.90	6.89																																																																														
	Sub-Total =			27.23 cum																																																																														
Station		Area	Volume																																																																															
From	To	(m ²)	(m ³)																																																																															
00 + 460.00	00 + 594.00	180.90	18.09																																																																															
00 + 600.00	00 + 635.00	61.06	6.11																																																																															
00 + 640.00	00 + 710.00	94.50	9.45																																																																															
Sub-Total =			33.65 cum																																																																															
<p>Total Volume of Aggregate SubBase Class B</p> <p style="text-align: right;">Total volume = 96.04 cum</p>																																																																																		

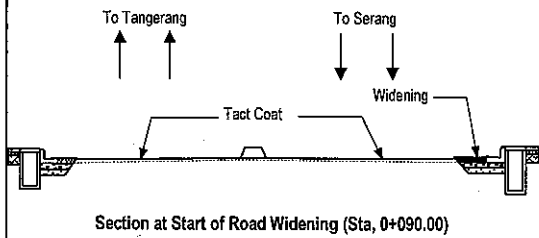
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
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PROJECT : FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT	
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KATAHIRA AND ENGINEERS INTERNATIONAL	
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DRAWING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

Item No: 6.1.2 - Tact Coat	Pavement Overlay
	Bound to Tangerang

Note: See Detailed Construction Layout Plan
Dwg. # BRD-019 - BRD-024 for reference.

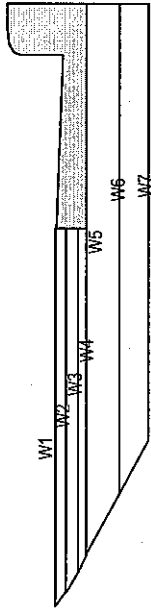
Station	Distance (m)	Width (m)	Ave Width (m)	Area (m ²)
00 + 080.00		6.497		
00 + 100.00	20.00	7.038	6.768	135.350
00 + 120.00	20.00	7.511	7.275	145.490
00 + 140.00	20.00	8.023	7.767	155.340
00 + 160.00	20.00	8.638	8.331	166.610
00 + 180.00	20.00	9.042	8.840	176.800
00 + 200.00	20.00	9.109	9.076	181.510
00 + 220.00	20.00	8.995	9.052	181.040
00 + 240.00	20.00	8.995	8.995	179.900
00 + 240.00		2.267		
00 + 260.00	20.00	2.126	5.561	111.210
00 + 280.00	20.00	1.437	1.782	35.630
00 + 300.00	20.00	1.445	1.441	28.820
00 + 320.00	20.00	1.445	1.445	28.900
00 + 340.00	20.00	1.509	1.477	29.540
00 + 360.00	20.00	1.417	1.463	29.260
00 + 380.00	20.00	1.264	1.341	26.810
00 + 400.00	20.00	1.016	1.140	22.800
00 + 420.00	20.00	0.937	0.977	19.530
00 + 440.00	20.00	1.251	1.094	21.880
00 + 460.00	20.00	3.896	2.574	51.470
00 + 480.00	20.00	4.790	4.343	86.860
00 + 500.00	20.00	4.775	4.783	95.650
00 + 520.00	20.00	4.813	4.794	95.880
00 + 540.00	20.00	2.851	3.832	76.640
00 + 560.00	20.00	2.851	2.851	57.020
00 + 760.00		1.684		
00 + 780.00	20.00	2.493	2.089	41.770
00 + 800.00	20.00	3.248	2.871	57.410
00 + 820.00	20.00	3.910	3.579	71.580
00 + 840.00	20.00	4.543	4.227	84.530
00 + 860.00	20.00	4.854	4.699	93.970
00 + 880.00	20.00	5.599	5.227	104.530

Along Intersection
from AutoCad Area = 693.674
Total Area = 3,287.40 sqm.

Volume = (3,287.40 x 0.50) = 1,643.70 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		REMARKS
	Balaraaja Flyover - Contract Package 1		
	Additional Pavement :		Location : At Intersection
	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)		
	Input Data :		
	Thickness	Ave. Area	
	AC - WC = 0.040 m	523.56 m ²	
	AC - BC = 0.060 m	523.56 m ²	
	AC - Base = 0.100 m	523.56 m ²	
	SBC (Type -A) = 0.300 m	523.56 m ²	
	SBC (Type -B) = 0.250 m	523.56 m ²	
	Prime Coat =	523.56 m ²	
	Tact Coat =	523.56 m ²	
	A. Aggregate Subbase		
	Item # 5.1.1 Aggregate Subbase (Class A)		
	Vol =	$523.56 \times 0.300 = 157.07 \text{ cum}$	
	Item # 5.1.2 Aggregate Subbase (Class B)		
	Vol =	$523.56 \times 0.250 = 130.89 \text{ cum}$	
	B. Pavement		
	Item # 6.1.1 Prime Coat		
	Vol =	$523.56 \times 1.000 = 523.56 \text{ Lit.}$	
	Item # 6.1.2 Tact Coat		
	Vol =	$523.56 \times 0.500 \times 2.0 = 523.56 \text{ Lit.}$	
	Item # 6.3.5 Asphalt Concrete Wearing Course (AC - WC)		
	Wt =	$523.56 \times 0.040 \times 2.30 = 48.17 \text{ Ton}$	
	Item # 6.3.6 Asphalt Concrete Binders Course (AC - BC)		
	Wt =	$523.56 \times 0.060 \times 2.30 = 72.25 \text{ Ton}$	
	Item # 6.3.7 Asphalt Concrete Base (AC - Base)		
	Wt =	$523.56 \times 0.100 \times 2.30 = 120.42 \text{ Ton}$	

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) 0.300
 SBC (Type -B) 0.250

Balaraja Pavement at Left Service Road

STATION	DISTANCE			AC - WC			AC - BC			AC - Base			SBC (Type A)			SBC (Type B)			Tonne	Volume			PAVEMENT				
	00 + 060.00	00 + 080.00	00 + 100.00	width		w2	width		w3	width		w4	width		w5	width		w6		w7	AC - Base Tonne	SBC (Type A) Tonne	SBC (Type B) Tonne	Prime Coat Liters	Tack Coat Liters	AC - BC Tonne	AC - WC Tonne
				w1	w2		w3	w4		w5	w6		w7	SBC (Type A)		SBC (Type B)											
00 + 060.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
00 + 080.00	0.781	0.738	0.738	0.673	0.673	0.555	1.273	0.961	0.961	0.961	0.706	0.706	0.706	1.42	3.35	2.08	7.81	7.81	7.81	0.97	0.97	0.97	7.81	7.81	0.97	0.70	
00 + 100.00	0.788	0.744	0.744	0.679	0.679	0.569	1.278	0.961	0.961	0.961	0.702	0.702	0.702	2.86	6.71	4.16	15.69	15.69	15.69	1.96	1.96	1.96	15.69	15.69	1.96	1.40	
00 + 120.00	0.815	0.722	0.722	0.706	0.706	0.592	1.298	0.961	0.961	0.961	0.701	0.701	0.701	2.93	6.75	4.16	16.03	16.03	16.03	1.97	1.97	1.97	16.03	16.03	1.97	1.41	
00 + 140.00	0.778	0.742	0.742	0.674	0.674	0.570	1.271	0.960	0.960	0.960	0.703	0.703	0.703	2.92	6.74	4.16	15.93	15.93	15.93	1.96	1.96	1.96	15.93	15.93	1.96	1.41	
00 + 160.00	0.777	0.734	0.734	0.673	0.673	0.570	1.270	0.960	0.960	0.960	0.703	0.703	0.703	2.86	6.69	4.16	15.55	15.55	15.55	1.95	1.95	1.95	15.55	15.55	1.95	1.39	
00 + 180.00	1.354	1.301	1.301	1.239	1.239	1.131	1.835	1.529	1.529	1.529	1.274	1.274	1.274	4.15	8.39	5.58	21.31	21.31	21.31	2.72	2.72	2.72	21.31	21.31	2.72	1.92	
00 + 200.00	2.479	2.438	2.438	2.376	2.376	2.276	2.976	2.670	2.670	2.670	2.417	2.417	2.417	8.08	13.52	9.86	38.33	38.33	38.33	5.07	5.07	5.07	38.33	38.33	5.07	3.48	
00 + 220.00	3.142	3.108	3.108	3.046	3.046	2.945	3.646	3.339	3.339	3.339	3.084	3.084	3.084	12.24	18.95	14.39	56.21	56.21	56.21	7.57	7.57	7.57	56.21	56.21	7.57	5.14	
00 + 240.00	3.257	3.232	3.232	3.170	3.170	3.066	3.770	3.464	3.464	3.464	3.208	3.208	3.208	14.06	21.33	16.37	63.99	63.99	63.99	8.66	8.66	8.66	63.99	63.99	8.66	5.86	
00 + 260.00	3.413	3.375	3.375	3.314	3.314	3.212	3.912	3.605	3.605	3.605	3.350	3.350	3.350	14.68	22.13	17.03	66.70	66.70	66.70	9.03	9.03	9.03	66.70	66.70	9.03	6.11	
00 + 280.00	4.103	4.067	4.067	4.005	4.005	3.901	4.601	4.294	4.294	4.294	4.039	4.039	4.039	16.80	24.62	19.11	75.16	75.16	75.16	10.19	10.19	10.19	75.16	75.16	10.19	6.88	
00 + 300.00	4.098	4.064	4.064	4.003	4.003	3.901	4.601	4.294	4.294	4.294	4.039	4.039	4.039	18.18	26.69	20.83	82.01	82.01	82.01	11.14	11.14	11.14	82.01	82.01	11.14	7.51	
00 + 320.00	4.098	4.067	4.067	4.005	4.005	3.901	4.601	4.294	4.294	4.294	4.039	4.039	4.039	18.18	26.69	20.83	81.96	81.96	81.96	11.14	11.14	11.14	81.96	81.96	11.14	7.51	
00 + 340.00	4.031	3.991	3.991	3.930	3.930	3.828	4.480	4.222	4.222	4.222	3.967	3.967	3.967	18.01	26.40	20.65	81.29	81.29	81.29	11.04	11.04	11.04	81.29	81.29	11.04	7.45	
00 + 360.00	4.124	4.084	4.084	4.023	4.023	3.920	4.621	4.314	4.314	4.314	4.062	4.062	4.062	18.06	26.46	20.71	81.55	81.55	81.55	11.06	11.06	11.06	81.55	81.55	11.06	7.47	
00 + 380.00	4.279	4.237	4.237	4.176	4.176	4.074	4.774	4.467	4.467	4.467	4.212	4.212	4.212	18.62	27.26	21.32	84.03	84.03	84.03	11.40	11.40	11.40	84.03	84.03	11.40	7.69	
00 + 400.00	4.527	4.485	4.485	4.423	4.423	4.321	5.021	4.715	4.715	4.715	4.465	4.465	4.465	19.54	28.47	22.32	88.06	88.06	88.06	11.95	11.95	11.95	88.06	88.06	11.95	8.06	
00 + 420.00	4.598	4.564	4.564	4.503	4.503	4.401	5.101	4.795	4.795	4.795	4.539	4.539	4.539	20.30	29.45	23.14	91.25	91.25	91.25	12.40	12.40	12.40	91.25	91.25	12.40	8.36	
00 + 440.00	4.319	4.276	4.276	4.215	4.215	4.112	4.813	4.507	4.507	4.507	4.251	4.251	4.251	19.82	28.82	22.62	89.17	89.17	89.17	12.12	12.12	12.12	89.17	89.17	12.12	8.17	
00 + 460.00	1.683	1.645	1.645	1.583	1.583	1.481	2.331	2.345	2.345	2.345	1.816	1.816	1.816	13.10	20.99	16.15	60.02	60.02	60.02	8.09	8.09	8.09	60.02	60.02	8.09	5.48	
00 + 480.00	0.760	0.719	0.719	0.658	0.658	0.555	1.408	1.425	1.425	1.425	1.425	1.425	1.425	4.92	11.26	8.76	24.43	24.43	24.43	3.18	3.18	3.18	24.43	24.43	3.18	2.21	
00 + 500.00	0.766	0.724	0.724	0.662	0.662	0.557	1.411	1.425	1.425	1.425	1.425	1.425	1.425	2.80	8.50	7.13	15.26	15.26	15.26	1.91	1.91	1.91	15.26	15.26	1.91	1.37	
00 + 520.00	0.794	0.734	0.734	0.670	0.670	0.563	1.419	1.425	1.425	1.425	1.425	1.425	1.425	2.82	8.52	7.13	15.20	15.20	15.20	1.93	1.93	1.93	15.20	15.20	1.93	1.37	
00 + 540.00	2.734	2.697	2.697	2.636	2.636	2.534	3.384	3.397	3.397	3.397	3.397	3.397	3.397	7.36	14.44	12.06	34.88	34.88	34.88	4.65	4.65	4.65	34.88	34.88	4.65	3.18	
00 + 560.00	5.501	5.501	5.501	5.501	5.501	5.501	6.351	7.256	7.256	7.256	7.256	7.256	7.256	18.60	30.58	27.22	82.35	82.35	82.35	11.27	11.27	11.27	82.35	82.35	11.27	7.56	

Balaraja Pavement at Left Service Road

STATION	DISTANCE	AC - WC						AC - BC			AC - Base			SBC (Type A)			SBC (Type B)		Tonnes	Volume			PAVEMENT			
		width		width		width		width		width		width		width		w6	w7	AC - Base		SBC (Type A)	SBC (Type B)	Prime Coat Liters	Tack Coat Liters	AC - BC Tonnes	AC - WC Tonnes	
		W1	W2	W2	W3	W3	W4	W5	W6	W6	W7	W7	W7	SBC (Type A)	SBC (Type B)											
00 + 580.00	20.00	5.860	5.860	5.860	5.860	5.860	5.860	5.860	5.860	5.860	5.860	7.057	7.616	7.616	7.616	7.562	7.562	26.13	42.42	37.70	113.61	113.61	15.68	10.45		
00 + 590.00	10.00	5.860	5.860	5.860	5.860	5.860	5.860	5.860	5.860	5.860	5.860	7.057	7.616	7.616	7.562	7.562	13.48	22.01	18.97	58.60	58.60	8.09	5.39			
00 + 610.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
00 + 620.00	10.00	5.750	5.750	5.750	5.750	5.750	5.750	5.750	5.750	5.750	5.750	6.946	7.974	7.974	7.102	7.102	6.61	11.19	9.42	28.75	28.75	3.97	2.65			
00 + 640.00	20.00	5.550	5.550	5.550	5.550	5.550	5.550	5.550	5.550	5.550	5.550	6.747	7.336	7.336	7.045	7.045	25.99	43.50	36.82	113.00	113.00	15.59	10.40			
00 + 660.00	20.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.698	7.256	7.256	7.047	7.047	25.42	42.06	35.86	110.51	110.51	15.25	10.17			
00 + 680.00	20.00	5.500	5.500	5.500	5.500	5.500	5.500	5.500	5.500	5.500	5.500	6.698	7.256	7.256	7.084	7.084	25.30	41.86	35.80	110.01	110.01	15.18	10.12			
00 + 700.00	20.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.698	7.256	7.256	6.999	6.999	25.30	41.88	35.76	110.01	110.01	15.18	10.12			
00 + 720.00	20.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.548	6.786	6.786	6.803	6.803	25.30	40.95	34.82	110.02	110.02	15.18	10.12			
00 + 740.00	20.00	10.252	10.252	10.252	10.252	10.252	10.252	10.252	10.252	10.252	10.252	9.556	10.448	10.448	10.724	10.724	36.23	50.01	43.45	157.53	157.53	21.74	14.49			
00 + 760.00	20.00	10.521	10.471	10.471	10.410	10.410	10.305	11.008	10.701	10.701	10.446	10.446	10.446	10.446	10.446	10.446	47.40	62.57	52.90	207.73	207.73	28.56	19.09			
00 + 780.00	20.00	8.036	7.982	7.982	7.920	7.920	7.818	8.518	8.212	8.212	7.957	7.957	7.957	7.957	7.957	41.92	57.66	46.65	185.57	185.57	25.38	17.02				
00 + 800.00	20.00	5.487	5.431	5.431	5.370	5.370	5.268	5.968	5.662	5.662	5.406	5.406	5.406	5.406	5.406	30.33	42.54	34.05	135.23	135.23	18.43	12.39				
00 + 820.00	20.00	3.509	3.468	3.468	3.407	3.407	3.305	4.005	3.699	3.699	3.444	3.444	3.444	3.444	3.444	19.95	29.00	22.76	89.96	89.96	12.20	8.23				
00 + 840.00	20.00	2.753	2.708	2.708	2.647	2.647	2.544	3.244	2.938	2.938	2.683	2.683	2.683	2.683	2.683	13.69	20.83	15.96	62.62	62.62	8.44	5.72				
00 + 860.00	20.00	2.440	2.396	2.396	2.335	2.335	2.233	2.933	2.627	2.627	2.371	2.371	2.371	2.371	2.371	11.22	17.61	13.27	51.93	51.93	6.96	4.74				
00 + 880.00	20.00	1.690	1.651	1.651	1.590	1.590	1.488	2.188	1.882	1.882	1.626	1.626	1.626	1.626	1.626	8.79	14.45	10.63	41.30	41.30	5.50	3.76				
00 + 900.00	20.00	1.363	1.363	1.363	1.363	1.363	1.363	1.363	1.363	1.363	1.363	1.363	1.363	1.363	1.363	6.67	10.19	7.79	30.53	30.53	4.12	2.79				
00 + 915.42	15.42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.42	3.15	2.63	10.51	10.51	1.45	0.97			
		TOTAL																		675.27	1,047.56	847.16	3,031.59	3,031.59	412.19	277.71

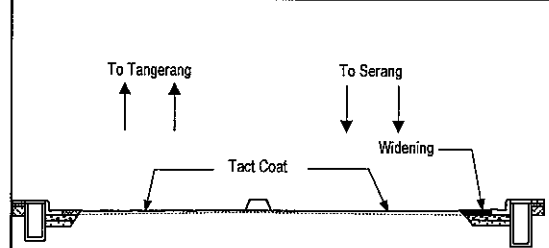
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
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PROJECT : FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT	
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KATAHIRA AND ENGINEERS INTERNATIONAL	
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DRAWING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

Item No. 6.1.2 - Tact Coat	Pavement Overlay
	Bound to Serang

Note: See Detailed Construction Layout Plan
Dwg. # BRD-019 - BRD-024 for reference.

Station	Distance (m)	Width (m)	Ave Width (m)	Area (m ²)
00 + 080.00		6.579		
00 + 100.00	20.00	5.267	5.923	118.460
00 + 120.00	20.00	4.601	4.934	98.680
00 + 140.00	20.00	3.998	4.300	85.990
00 + 160.00	20.00	3.551	3.775	75.490
00 + 180.00	20.00	3.345	3.448	68.960
00 + 200.00	20.00	3.256	3.301	66.010
00 + 220.00	20.00	3.270	3.263	65.260
00 + 240.00	20.00	3.270	3.270	65.400
00 + 440.00		0.000		
00 + 460.00	20.00	1.289	0.645	12.890
00 + 480.00	20.00	2.270	1.780	35.590
00 + 500.00	20.00	2.703	2.487	49.730
00 + 520.00	20.00	1.750	2.227	44.530
00 + 530.00	10.00	0.000	0.875	8.750
00 + 620.00		0.000		
00 + 640.00	20.00	3.199	1.600	31.990
00 + 660.00	20.00	4.781	3.990	79.800
00 + 680.00	20.00	4.782	4.782	95.630
00 + 700.00	20.00	4.783	4.783	95.650
00 + 720.00	20.00	4.774	4.779	95.570
00 + 740.00	20.00	4.784	4.779	95.580
00 + 760.00	20.00	4.784	4.784	95.680
00 + 760.00		10.604		
00 + 780.00	20.00	9.799	10.202	204.030
00 + 800.00	20.00	8.613	9.206	184.120
00 + 820.00	20.00	6.929	7.771	155.420
00 + 840.00	20.00	6.535	6.732	134.640
00 + 860.00	20.00	6.532	6.534	130.670
00 + 880.00	20.00	6.316	6.424	128.480

Along U-Turn :				
00 + 430.00	12.20		11.330	138.226
00 + 553.00	11.78		12.000	141.360
Total Area =			2,602.59 sqm.	

Volume = $\left(\frac{2,602.59 \text{ sqm.}}{\text{sqm.}} \times \frac{0.50 \text{ lit./sqm.}}{\text{lit./sqm.}} \right) = 1,301.29 \text{ lit.}$

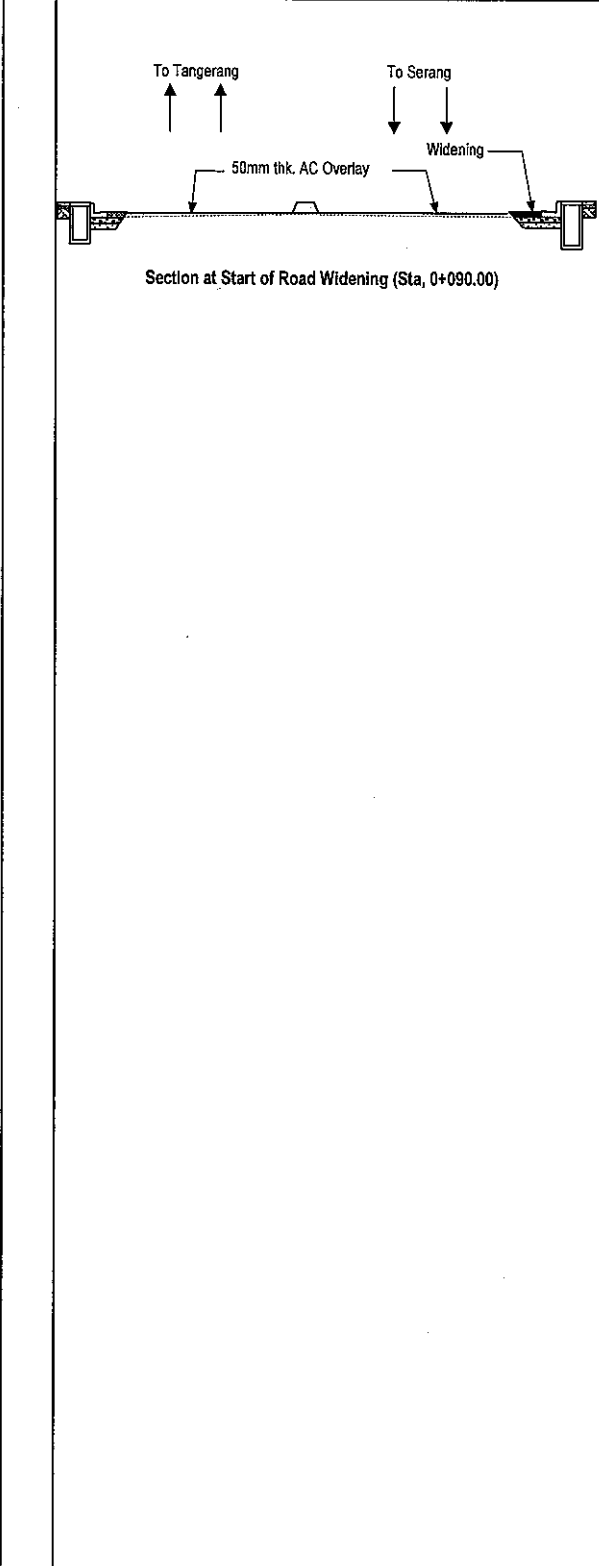
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
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PROJECT : FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT	
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KATAHIRA AND ENGINEERS INTERNATIONAL	
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DRAWING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

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

Bound to Serang

Note: See Detailed Construction Layout Plan

Dwg. # BRD-019 - BRD-024 for reference.

Station	Distance (m)	Width (m)	Ave Width (m)	Area (m ²)
00 + 080.00		6.579		
00 + 100.00	20.00	5.267	5.923	118.460
00 + 120.00	20.00	4.601	4.934	98.680
00 + 140.00	20.00	3.998	4.300	85.990
00 + 160.00	20.00	3.551	3.775	75.490
00 + 180.00	20.00	3.345	3.448	68.960
00 + 200.00	20.00	3.256	3.301	66.010
00 + 220.00	20.00	3.270	3.263	65.260
00 + 240.00	20.00	3.270	3.270	65.400
00 + 440.00		0.000		
00 + 460.00	20.00	1.289	0.645	12.890
00 + 480.00	20.00	2.270	1.780	35.590
00 + 500.00	20.00	2.703	2.487	49.730
00 + 520.00	20.00	1.750	2.227	44.530
00 + 530.00	10.00	0.000	0.875	8.750
00 + 620.00		0.000		
00 + 640.00	20.00	3.199	1.600	31.990
00 + 660.00	20.00	4.781	3.990	79.800
00 + 680.00	20.00	4.782	4.782	95.630
00 + 700.00	20.00	4.783	4.783	95.650
00 + 720.00	20.00	4.774	4.779	95.570
00 + 740.00	20.00	4.784	4.779	95.580
00 + 760.00	20.00	4.784	4.784	95.680
00 + 760.00		10.604		
00 + 780.00	20.00	9.799	10.202	204.030
00 + 800.00	20.00	8.613	9.206	184.120
00 + 820.00	20.00	6.929	7.771	155.420
00 + 840.00	20.00	6.535	6.732	134.640
00 + 860.00	20.00	6.532	6.534	130.670
00 + 880.00	20.00	6.316	6.424	128.480

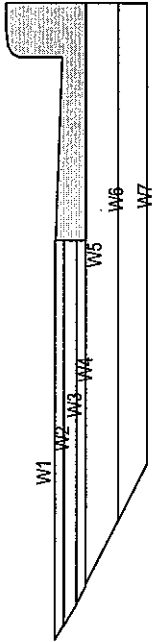
Along U-Turn :

00 + 430.00	12.20	11.330	138.226
00 + 553.00	11.78	12.000	141.360
Total Area = 2,602.59 sqm.			

Input Data :
 thickness = 0.05 m

$Wt = (2,602.59 \times 0.050 \times 2.30) = 299.30 \text{ Ton}$

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) 0.300
- SBC (Type -B) 0.250

Balaraja Pavement at Right Service Road

STATION	DISTANCE		AC - WC			AC - BC			AC - Base			SBC (Type A)			SBC (Type B)			Tonne AC - Base	Volume		Prime Coat Liters	Tack Coat Liters	AC - BC Tonne	AC - WC Tonne
	W1	W2	W2	W2	W3	W3	W3	W4	W4	W4	W5	W5	W6	W6	W6	W7	SBC (Type A)		SBC (Type B)					
	width	width	width	width	width	width	width	width	width	width	width	width	width	width	width	width	Tonne		SBC (Type A)	SBC (Type B)				
00 + 060.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
00 + 080.00	2.012	1.982	1.982	1.920	1.920	1.920	1.816	2.520	2.214	2.214	1.958	4.30	7.10	5.22	20.12	20.12	20.12	20.12	20.12	20.12	20.12	20.12	2.69	1.84
00 + 100.00	2.012	1.982	1.982	1.920	1.920	1.920	1.816	2.520	2.214	2.214	1.958	8.59	14.20	10.43	40.24	40.24	40.24	40.24	40.24	40.24	40.24	40.24	5.38	3.67
00 + 120.00	2.816	2.799	2.799	2.737	2.737	2.737	2.633	3.330	3.027	3.027	2.772	10.47	16.64	12.46	48.28	48.28	48.28	48.28	48.28	48.28	48.28	48.28	6.51	4.42
00 + 140.00	3.966	3.946	3.946	3.884	3.884	3.884	3.780	4.419	4.173	4.173	3.918	14.99	22.42	17.36	67.82	67.82	67.82	67.82	67.82	67.82	67.82	67.82	9.22	6.22
00 + 160.00	5.363	5.331	5.331	5.270	5.270	5.270	5.168	5.868	5.562	5.562	5.306	20.82	30.03	23.70	93.29	93.29	93.29	93.29	93.29	93.29	93.29	93.29	12.72	8.56
00 + 180.00	6.661	6.625	6.625	6.562	6.562	6.562	6.463	7.163	6.857	6.857	6.601	26.98	38.18	30.41	120.14	120.14	120.14	120.14	120.14	120.14	120.14	120.14	16.41	11.03
00 + 200.00	7.795	7.765	7.765	7.703	7.703	7.703	7.601	8.301	7.995	7.995	7.743	32.58	45.47	36.50	144.46	144.46	144.46	144.46	144.46	144.46	144.46	144.46	19.77	13.26
00 + 220.00	8.717	8.673	8.673	8.611	8.611	8.611	8.511	9.211	8.904	8.904	8.649	37.29	51.62	41.61	165.12	165.12	165.12	165.12	165.12	165.12	165.12	165.12	22.60	15.16
00 + 240.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.702	6.801	6.801	6.803	32.34	47.43	38.95	142.18	142.18	142.18	142.18	142.18	142.18	142.18	142.18	19.52	13.06
00 + 260.00	6.223	6.223	6.223	6.223	6.223	6.223	6.223	6.750	6.805	6.805	6.820	26.97	40.59	34.04	117.24	117.24	117.24	117.24	117.24	117.24	117.24	117.24	16.18	10.79
00 + 280.00	5.496	5.496	5.496	5.496	5.496	5.496	5.496	6.548	6.787	6.787	6.752	26.95	40.34	33.96	117.19	117.19	117.19	117.19	117.19	117.19	117.19	117.19	16.17	10.78
00 + 300.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.548	6.787	6.787	6.801	25.29	40.01	33.91	109.97	109.97	109.97	109.97	109.97	109.97	109.97	109.97	15.18	10.12
00 + 320.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.548	6.787	6.787	6.851	25.30	40.01	34.03	110.02	110.02	110.02	110.02	110.02	110.02	110.02	110.02	15.18	10.12
00 + 340.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.548	6.787	6.787	6.851	25.30	40.01	34.10	110.02	110.02	110.02	110.02	110.02	110.02	110.02	110.02	15.18	10.12
00 + 360.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.548	6.787	6.787	6.854	25.30	40.01	34.10	110.02	110.02	110.02	110.02	110.02	110.02	110.02	110.02	15.18	10.12
00 + 380.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.548	6.787	6.787	6.851	25.30	40.01	34.10	110.02	110.02	110.02	110.02	110.02	110.02	110.02	110.02	15.18	10.12
00 + 400.00	11.011	11.011	11.011	11.011	11.011	11.011	11.011	10.662	11.207	11.207	11.707	37.98	52.81	45.69	165.12	165.12	165.12	165.12	165.12	165.12	165.12	165.12	22.79	15.19
00 + 420.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	6.548	6.787	6.787	7.032	37.98	52.81	45.92	165.12	165.12	165.12	165.12	165.12	165.12	165.12	165.12	53.84	35.89
00 + 440.00	5.627	5.627	5.627	5.627	5.627	5.627	5.627	6.674	6.913	6.913	7.158	25.59	40.38	34.86	111.28	111.28	111.28	111.28	111.28	111.28	111.28	111.28	46.41	30.94
00 + 460.00	4.288	4.244	4.244	4.181	4.181	4.181	4.077	4.777	4.471	4.471	4.216	22.44	34.25	28.45	99.15	99.15	99.15	99.15	99.15	99.15	99.15	99.15	13.58	9.10
00 + 480.00	3.275	3.238	3.238	3.176	3.176	3.176	3.074	3.774	3.910	3.910	3.558	16.68	25.40	20.19	75.63	75.63	75.63	75.63	75.63	75.63	75.63	75.63	10.24	6.92
00 + 500.00	2.840	2.799	2.799	2.738	2.738	2.738	2.636	3.336	3.472	3.472	3.472	13.37	21.74	18.02	61.15	61.15	61.15	61.15	61.15	61.15	61.15	61.15	8.25	5.59
00 + 520.00	3.800	3.800	3.800	3.800	3.800	3.800	3.800	4.622	4.942	4.942	5.197	14.92	24.56	21.35	66.40	66.40	66.40	66.40	66.40	66.40	66.40	66.40	9.06	6.09
00 + 540.00	5.549	5.549	5.549	5.549	5.549	5.549	5.549	6.746	7.304	7.304	7.805	21.50	35.42	31.56	93.49	93.49	93.49	93.49	93.49	93.49	93.49	93.49	12.90	8.60

Balaraja Pavement 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			width			AC - Base		SBC (Type A)	SBC (Type B)	Prime Coat	Tack Coat	AC - BC	AC - WC					
		W1	W2	W3	W2	W3	W4	W3	W4	W5	W6	W6	W7	w6	w7	w6	w7	w6	w7	w6	w7	w6	w7	w6	w7	AC - Base	SBC (Type A)	SBC (Type B)	Liters	Liters	Tonne	Tonne									
00 + 560.00	20.00	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	5.701	25.88	42.31	38.15	112.50	112.50	15.53	10.35										
00 + 580.00	20.00	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	7.795	31.04	48.12	42.29	134.96	134.96	18.62	12.42										
00 + 600.00	20.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	30.58	46.90	40.30	132.96	132.96	18.35	12.23										
00 + 620.00	20.00	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	5.501	25.30	40.02	34.16	110.02	110.02	15.18	10.12										
00 + 640.00	20.00	2.342	2.301	2.240	2.301	2.240	2.138	2.842	2.536	2.536	2.536	2.281	2.281	2.281	2.281	2.281	2.281	2.281	2.281	2.281	2.281	2.281	2.281	2.281	17.69	28.08	22.89	78.43	78.43	10.72	7.20										
00 + 660.00	20.00	0.760	0.719	0.659	0.719	0.659	0.555	1.262	0.958	0.958	0.958	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	6.43	11.40	8.10	31.02	31.02	4.08	2.82										
00 + 680.00	20.00	0.759	0.718	0.657	0.718	0.657	0.554	1.262	0.955	0.955	0.955	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	2.79	6.66	4.15	15.19	15.19	1.90	1.36										
00 + 700.00	20.00	0.758	0.717	0.656	0.717	0.656	0.553	1.255	0.955	0.955	0.955	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	2.78	6.64	4.14	15.17	15.17	1.90	1.36										
00 + 720.00	20.00	0.767	0.726	0.664	0.726	0.664	0.558	1.262	0.955	0.955	0.955	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	2.80	6.64	4.14	15.25	15.25	1.91	1.37											
00 + 740.00	20.00	0.756	0.716	0.655	0.716	0.655	0.553	1.255	0.955	0.955	0.955	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	2.79	6.64	4.14	15.23	15.23	1.91	1.36											
00 + 760.00	20.00	1.635	1.595	1.533	1.595	1.533	1.429	2.129	1.827	1.827	1.827	1.572	1.572	1.572	1.572	1.572	1.572	1.572	1.572	1.572	1.572	1.572	1.572	4.80	9.25	6.32	23.91	23.91	3.10	2.16											
00 + 780.00	20.00	1.547	1.503	1.442	1.503	1.442	1.342	2.042	1.738	1.738	1.738	1.483	1.483	1.483	1.483	1.483	1.483	1.483	1.483	1.483	1.483	1.483	1.483	6.61	11.60	8.28	31.82	31.82	4.19	2.89											
00 + 800.00	20.00	0.770	0.727	0.666	0.727	0.666	0.559	1.263	0.955	0.955	0.955	0.707	0.707	0.707	0.707	0.707	0.707	0.707	0.707	0.707	0.707	0.707	0.707	4.61	9.00	6.10	23.17	23.17	2.99	2.09											
00 + 820.00	20.00	0.754	0.713	0.653	0.713	0.653	0.553	1.253	0.960	0.960	0.960	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	2.68	6.65	4.16	15.24	15.24	1.83	1.36											
00 + 840.00	20.00	0.755	0.715	0.654	0.715	0.654	0.552	1.258	0.960	0.960	0.960	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	0.704	2.66	6.65	4.16	15.09	15.09	1.82	1.35											
00 + 860.00	20.00	0.759	0.718	0.656	0.718	0.656	0.554	1.256	0.955	0.955	0.955	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	2.78	6.64	4.15	15.14	15.14	1.89	1.36											
00 + 880.00	20.00	0.751	0.711	0.651	0.711	0.651	0.551	1.274	0.979	0.979	0.979	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	2.77	6.70	4.20	15.10	15.10	1.89	1.35											
00 + 900.00	20.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.38	3.38	2.13	7.51	7.51	0.94	0.67											
		TOTAL																								735.62	1,144.66	942.84	3,271.18	3,271.18	508.91	341.53									

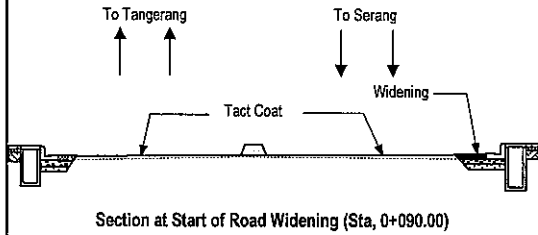
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of
---------------------------------------------	---------------	------------

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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Balaraaja Flyover - Contract Package 1

Item No. 6.1.2 - Tact Coat	Pavement Overlay
	Bound to Serang

Note: See Detailed Construction Layout Plan

Dwg. # BRD-019 - BRD-024 for reference.

At Right Side

Station	Distance (m)	Width (m)	Ave Width (m)	Area (m ²)
00+050.00		7.250		
00+060.00	10.00	7.250	7.250	72.500
00+080.00	20.00	6.579	6.915	138.290
00+880.00		6.316		
00+900.00	20.00	7.118	6.717	134.340
00+915.43	15.43	7.118	7.118	109.831

Total Area = 454.96 sqm.

$$\text{Volume} = \left(\begin{matrix} 454.96 \\ \text{sqm.} \end{matrix} \times \begin{matrix} 0.50 \\ \text{lit./sqm.} \end{matrix} \right) = 227.48 \text{ lit.}$$

At Left Side

Station	Distance (m)	Width (m)	Ave Width (m)	Area (m ²)
00+050.00		7.250		
00+060.00	10.00	7.250	7.250	72.500
00+080.00	20.00	6.497	6.874	137.470
00+880.00		5.599		
00+900.00	20.00	6.328	5.964	119.270
00+915.42	15.42	6.328	6.328	97.597

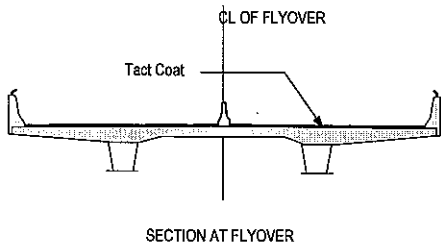
Total Area = 426.84 sqm.

$$\text{Volume} = \left(\begin{matrix} 426.84 \\ \text{sqm.} \end{matrix} \times \begin{matrix} 0.50 \\ \text{lit./sqm.} \end{matrix} \right) = 213.42 \text{ lit.}$$

Total Volume = 440.899 Liters

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 at Start of Road Widening (Sta. 0+090.00)</p>		Balaraja Flyover - Contract Package 1				
		Item No. 6.3.5 - Asphalt Concrete Wearing Course (AC - WC)		Pavement Overlay		
				Bound to Serang		
		Note: See Detailed Construction Layout Plan				
		Dwg. # BRD-019 - BRD-024 for reference.				
		At Right Side				
		Station	Distance (m)	Width (m)	Ave Width (m)	Area (m ²)
		00 + 050.00		7.250		
		00 + 060.00	10.00	7.250	7.250	72.500
		00 + 080.00	20.00	6.579	6.915	138.290
		00 + 880.00		6.316		
		00 + 900.00	20.00	7.118	6.717	134.340
		00 + 915.43	15.43	7.118	7.118	109.831
		Total Area =				454.96 sqm.
		Input Data :				
thickness = 0.05 m						
$Wt = (454.96 \times 0.050 \times 2.30)$		= 52.32 Ton				
At Left Side						
Station	Distance (m)	Width (m)	Ave Width (m)	Area (m ²)		
00 + 050.00		7.250				
00 + 060.00	10.00	7.250	7.250	72.500		
00 + 080.00	20.00	6.497	6.874	137.470		
00 + 880.00		5.599				
00 + 900.00	20.00	6.328	5.964	119.270		
00 + 915.42	15.42	6.328	6.328	97.597		
Total Area =				426.84 sqm.		
Input Data :						
thickness = 0.05 m						
$Wt = (426.84 \times 0.050 \times 2.30)$		= 49.09 Ton				
Total Wt. =		101.407 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
Balaraja Flyover - Contract Package 1				
Item No. 5.1.2 - Tact Coat				Location : At Viaduct
Note: See Detailed Construction Layout Plan				
Dwg. # BRD-019 - BRD-024 for reference.				
At Viaduct :				
Station	Distance	Width	Area	Slope is considered
	(m)	(m)	(m ²)	
00 + 399.00				
00 + 420.00	21.00	12.002	252.042	
00 + 440.00	20.00	12.002	240.04	
00 + 460.00	20.00	12.002	240.04	
00 + 480.00	20.00	12.002	240.04	
00 + 500.00	20.00	12.002	240.04	
00 + 520.00	20.00	12.002	240.04	
00 + 540.00	20.00	12.002	240.04	
00 + 560.00	20.00	12.002	240.04	
00 + 580.00	20.00	12.004	240.08	
00 + 600.00	20.00	12.011	240.22	
00 + 620.00	20.00	12.018	240.36	
		Total Area =	2,652.98 sqm.	
Total Volume = Total Area x 0.50 lit/sqm. x 2 face = 2,652.98 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		REMARKS		
		Balaraja Flyover - Contract Package 1				
		Item No. 6.3.6 - Asphalt Concrete Wearing Course (AC - BC)		Location : At Viaduct		
		Note: See Detailed Construction Layout Plan				
		Dwg. # BRD-019 - BRD-024 for reference.				
		At Viaduct :				
		Station	Distance	Ave. Width	Area	Slope is considered
			(m)	(m)	(m ²)	
		00 + 399.00				
		00 + 420.00	21.00	12.002	252.042	
		00 + 440.00	20.00	12.002	240.04	
		00 + 460.00	20.00	12.002	240.04	
		00 + 480.00	20.00	12.002	240.04	
		00 + 500.00	20.00	12.002	240.04	
		00 + 520.00	20.00	12.002	240.04	
		00 + 540.00	20.00	12.002	240.04	
		00 + 560.00	20.00	12.002	240.04	
		00 + 580.00	20.00	12.004	240.08	
		00 + 600.00	20.00	12.011	240.22	
		00 + 620.00	20.00	12.018	240.36	
				Total Area =	2,652.98 sqm.	
		Input Data :				
		thickness = 0.040 m				
		Total Wt = (Total Area x Thickness) x 2.30 = 244.07 Ton				

