DIVISION 7.
Structures

THE NORTH JAVA CORRIDOR FLYOVER PROJECT
BILL OF QUANTITIES

MERAK FLYOVER

FINAL
up to september 30 ' 2006

To' : Mr. Matsukawa
Cc : Mr. Sumarsono
Mr. Hasmi

NO. PAY ITEM	DESCRIPTION	UNIT	ESTIMATE QUANTITY	REMARKS
	DIVISION 7 STRUCTURES			
7.1.2(1)	Structure Concrete , Class A (35 Mpa)	Cu M	1,057.99	
	(for Post Tension Double Girder)			
7.1.2(2)	Structure Concrete , Class A (35 Mpa) for Steel Girder	Cu M	560.12	
7.1.3(1)	Structure Concrete , Class B (30 Mpa) for Pier Head	Cu M	151.58	
7.1.3(2)	Structure Concrete , Class B (30 Mpa) for Column	Cu M	254.10	
7.1.3(3)	Structure Concrete , Class B (30 Mpa) for Composite Column	Cu M	72.47	
7.1.3(4)	Structure Concrete , Class B (30 Mpa) for Abutment	Cu M	151.36	
7.1.4(1)	Structure Concrete , Class B-1 (28 Mpa) for Barrier , Median	Cu M	-	Div 8
7.1.4(2)	Structure Concrete , Class B-1 (28 Mpa) for Parapet Wall	Cu M	1,263.13	
7.1.5	Structure Concrete , Class C (24 Mpa) for Footing, Approach Slab			
	and Retaining Wall	Cu M	394.91	
7.1.6	Structure Concrete, Class D	Cu M		
7.1.8	Structure Concrete , Class E	Cu M	30.22	
SS.7.1.8a	Waterproofing on Deck	Sq M	3,216.49	
7.1(9)	Structural Column Casing (Ribbed Inner Surface t = 20 mm)	Kg	-	
7.1(9)a	Steel Casing for Bored Pile t = 13 mm	Kg	33,629.40	
7.1(10)	Structural Column Casing (Erected)	Kg	-	
7.1(10)a	Steel Casing for Bored Pile (Erected)	Kg	33,629.40	
7.2.1	PC Strand Size 12.7 mm and Accessories	Kg	22,844.76	
7.2.2	PC Strand Size 21.8 mm and Accessories	Kg	4,072.03	
7.2.3	PC Bar and Accessories	Kg	26,813.22	
7.3.(4)	Reinforcing Steel Bars Deform	Kg	588,551.77	
7.3.(6)	Reinforcing Steel Bars D 51	Kg	-	
7.4.(1)	Furnish and Delivery of Steel Girder	Ton	448.10	
7.4.(2)	Furnish and Delivery of Steel Coping and Portal	Ton	145.57	
7.5.(3)	Erection of Steel Girder	Ton	448.10	
7.5.(4)	Erection of Steel Coping and Portal	Ton	145.57	
7.6.(22)	Cast in Place Concrete Bored Pile Dia 1500 mm	Ln M	128.00	
7.6.(23)	Cast in Place Concrete Bored Pile Dia 1800 mm	Ln M	248.00	
7.6.(26)	Cast in Place Concrete Bored Pile Dia 2500 mm	Ln M	461.00	
7.6.(27)	Pile Integrity Test	Each	33.00	
SS7.6.(28)	Pile Dynamic Analysis (PDA) Dia 1500 mm	Each	1.00	
SS7.6.(28)a	Pile Dynamic Analysis (PDA) Dia 1800 mm	Each	1.00	
SS7.6.(28)b	Pile Dynamic Analysis (PDA) Dia 2500 mm	Each	1.00	
7.9.(1)	Stone Masonry	Cu M	103.69	
7.9.(2)	Blinding Stone	Cu M		
7.11.(1)	Expantion Joint (Type A)	Ln M	55.34	
7.11.(2)	Expantion Joint (Type B)	Ln M	-	
SS7.11.(4)	Restrainer Type - A	Set	8.00	
SS7.11.(5)	Restrainer Type - B	Set	-	
7.11.(5)	Stopper for Steel Girder	Set	3.00	
7.11.(6)	Fixed Anchor	Set	-	
7.11.(7)	Moved Anchor	Set	-	
7.12.(2)	Elastomeric Bearing Pad Type - A1	Set	8.00	
7.12.(2)a	Elastomeric Bearing Pad Type - A2	Set	2.00	
7.12.(2)b	Elastomeric Bearing Pad Type - A3	Set	-	
7.12.(4)c	Elastomeric Bearing Pad Type - A4	Set	-	
7.12.(7)a	Mechanical Bearing for Steel Girder Type - B1	Set	2.00	
7.12.(7)b	Mechanical Bearing for Steel Girder Type - B2	Set	4.00	
7.12.(7)c	Mechanical Bearing for Steel Girder Type - C1	Set	2.00	
7.12.(7)d	Mechanical Bearing for Steel Girder Type - C2	Set	1.00	
7.12.(7)e	Mechanical Bearing for Steel Girder Type - C3	Set	2.00	
7.12.(7)f	Mechanical Bearing for Steel Girder Type - C4	Set	1.00	
7.13	Steel Bridge Reilings	Ln.M	2,063.52	
7.14	Bridge Name Plate	Each	2.00	
7.15.(1)	Demolition of Existing Structure Masonry	Cu M	111.84	
7.15.(2)	Demolition of Existing Structure Concrete	Cu M	60.02	
7.15.(10)	Demolition of Existing Rigid Pavement	Sq M	-	
7.15.(11)	Demolition of Existing Hedge of Fence	Ln M	264.13	from highway
7.15.(12)	Demolition of Existing Concrete Side Walk	Sq M	697.15	
7.15.(13)	Demolition of Existing Concrete Curb	Ln M	354.54	
7.16.(1)	Concrete Pavement (t = 27 cm)	Sq M	-	
7.16.(2)	Lean Concrete (t = 10 cm)	Sq M	-	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 04 - 09 - 2006					Sheet : 1 of 4			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MCL 003 - 004		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder									
		0.250	0.390	2.125	0.680					Span girder span to span
		0.390	0.390	2.200	0.858					A1 - P1 - P2 - P3 - P4
		0.390	0.250	2.125	0.680					
		(0.815 + 0.805) / 2		0.814						
		(1.972 + 2.200)/2		2.086						
		(3.14 X 0.45²)		0.636						
		= (0.814 X 2.086) - 0.636			1.062	3.280				
		0.250	0.390	2.125	0.680					Diafraghma
		0.390	0.390	2.200	0.858					
		0.390	0.250	2.125	0.680					
		(0.815 + 0.805) / 2		0.814						
		(1.972 + 2.200) / 2		2.086	1.697	3.915				

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 04 - 09 - 2006					Sheet : 2 of 4			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MCL 003 - 004		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa) for Post Tension Double Girder	(0.4 + 0.25) / 2 x 0.25			0.08125	0.08125	5.750	0.467		Post of aproach slab at Abt
		(0.956 + 0.846) / 2 x 5.75 x 1.5						7.771		Diafraghma A1
		(5.750 + 3.974) / 2 x 0.7 x 1.5						5.105		Diafraghma A1
						3.915	0.300	1.175		Diafraghma
						3.915	0.300	1.175		
						3.915	1.000	3.915		
						3.280	5.825	19.106		Girder A1 - P1
						3.280	6.000	19.680		
						3.280	5.825	19.106		
							1.300		77.499	
							20.550			
						SUB TOTAL A1 to P1			77.499	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 3 of 4
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCL 003 - 004	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder					3.915	1.000	3.915		Diafraghma P1 - P2
						3.915	0.500	1.958		
						3.915	0.300	1.175		
						3.915	1.000	3.915		
						3.280	1.500	4.920		Girder A1 - P1
						3.280	7.850	25.748		
						3.280	7.850	25.748		
							20.000		67.378	
						3.915	1.000	3.915		Diafraghma P2 - P3
						3.915	0.500	1.958		
						3.915	0.300	1.175		
						3.915	1.000	3.915		
						3.280	1.500	4.920		Girder P2 - P3
						3.280	7.850	25.748		
						3.280	7.850	25.748		
							20.000		67.378	
						SUB TOTAL P1 - P2 - P3			134.756	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 04 - 09 - 2006				Sheet : 4 of 4				
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT											
KATAHIRA AND ENGINEERS INTERNATIONAL											
DRAWING NO : MCL 003 - 004			QUANTITY :				CHECKED BY :				
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS	
7.1.(1)a	Structure Concrete, Class A (35 Mpa)										
	for Post Tension Double Girder					3.915	1.000	3.915		Diafraghma P3 - P4	
						3.915	0.500	1.958			
						3.915	0.300	1.175			
						3.915	1.000	3.915			
						3.280	1.500	4.920		Girder P3 - P4	
						3.280	7.475	24.518			
						3.280	7.475	24.518			
							19.250		64.918		
						SUB TOTAL P3 - P4			64.918		

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 1 of 4
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCL 003 - 004	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder									
		0.250	0.390	2.125	0.680					Span girder span to span
		0.390	0.390	2.200	0.858					P4 - P5 - P6 - P7 - P8
		0.390	0.250	2.125	0.680					
		(0.817 + 0.803) / 2		0.810						
		(1.972 + 2.200)/2		2.086						
		(3.14 X 0.45²)		0.636						
		= (0.810 X 2.086) - 0.636			1.054	3.272				
		0.250	0.390	2.125	0.680					Diafraghma
		0.390	0.390	2.200	0.858					
		0.390	0.250	2.125	0.680					
		(0.817 + 0.803) / 2		0.810						
		(1.972 + 2.200) / 2		2.086	1.690	3.908				

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 04 - 09 - 2006					Sheet : 2 of 4			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT											
KATAHIRA AND ENGINEERS INTERNATIONAL											
DRAWING NO : MCL 003 - 004			QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS	
7.1.(1)a	Structure Concrete, Class A (35 Mpa)										
	for Post Tension Double Girder					3.908	1.000	3.908		Diafraghma P4 - P5	
						3.908	0.300	1.172			
						3.908	0.300	1.172			
						3.908	1.000	3.908			
						3.272	5.325	17.423		Girder P4 - P5	
						3.272	6.000	19.632			
						3.272	5.325	17.423			
									64.640		
							19.250				
						3.908	1.000	3.908		Diafraghma P5 - P6	
						3.908	0.500	1.954			
						3.908	0.300	1.172			
						3.908	1.000	3.908			
						3.272	1.500	4.908		Girder P5 - P6	
						3.272	7.850	25.685			
						3.272	7.850	25.685			
									67.221		
							20.000				
						SUB TOTAL P4 - P5 - P6			131.860		

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PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCL 003 - 004	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder					3.908	1.000	3.908		Diafraghma P6 - P7
						3.908	0.500	1.954		
						3.908	0.300	1.172		
						3.908	1.000	3.908		
						3.272	1.500	4.908		Girder P6 - P7
						3.272	7.850	25.685		
						3.272	7.850	25.685		
							20.000		67.221	
						3.908	1.000	3.908		Diafraghma P7 - P8
						3.908	0.500	1.954		
						3.908	0.300	1.172		
						3.908	1.000	3.908		
						3.272	1.500	4.908		Girder P7 - P8
						3.272	7.475	24.458		
						3.272	7.475	24.458		
							19.250		64.767	
						SUB TOTAL P6 - P7 - P8			131.988	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 04 - 09 - 2006					Sheet : 1 of 10			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MCR 002 - 003		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder									
		0.250	0.390	1.840	0.589					Diafraghma PB7 - P13
		0.390	0.390	6.970	2.718					
		(0.781 + 0.827) / 2		0.804						
		(6.970 + 6.743) / 2		6.857	5.513					
		0.390	0.250	1.968	0.630	9.449				
		0.250	0.390	1.840	0.589					Diafraghma PB7 - P13
		0.390	0.390	6.864	2.677					
		(0.781 + 0.827) / 2		0.804						
		(6.864 + 6.743) / 2		6.857	5.513					
		0.390	0.250	1.968	0.630	9.408				
		0.250	0.390	1.840	0.589					Girder 1
		0.390	0.390	1.078	0.420					
		(1.078 + 0.850) /2		0.964						
		(0.781 + 0.827) /2		0.804	0.775					
		0.390	0.240	0.600	0.189					
		0.240	0.240	3.508	0.842					
		0.240	0.390	0.600	0.189					
		(0.781 + 0.827) / 2		0.804						
		(0.850 + 1.078) /2		0.964	0.775					
		0.390	0.390	1.078	0.420					
		0.390	0.250	1.968	0.630	4.829				

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 04 - 09 - 2006					Sheet : 2 of 10			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MCR 002 - 003		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)	0.250	0.390	1.840	0.589					
	for Post Tension Double Girder	0.390	0.390	1.078	0.420					
		(1.078 + 0.850) /2		0.964						Girder 2
		(0.781 + 0.827) /2		0.804	0.775					
		0.390	0.240	0.600	0.189					
		0.240	0.240	2.666	0.640					
		0.240	0.390	0.600	0.189					
		(0.781 + 0.827) / 2		0.804						
		(0.850 + 1.078) /2		0.964	0.775					
		0.390	0.390	1.078	0.420					
		0.390	0.250	1.968	0.630	4.627				
		0.250	0.390	1.573	0.503					Girder 3
		0.390	0.390	1.080	0.421					
		(1.080 + 0.850) /2		0.965						
		(0.784 + 0.827) /2		0.806	0.777					
		0.390	0.240	0.600	0.189					
		0.240	0.240	2.637	0.633					
		0.240	0.390	0.600	0.189					
		(0.784 + 0.827) / 2		0.806						
		(0.850 + 1.077) /2		0.964	0.776					
		0.390	0.390	1.077	0.420					
		0.390	0.250	1.562	0.500	4.409				

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 04 - 09 - 2006				Sheet : 3 of 10			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MCR 002 - 003			QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder	0.250	0.390	1.573	0.503					
		0.390	0.390	6.104	2.381					Daifraghma PB8 - P14
		(0.784 + 0.827) / 2		0.806						
		(6.104 + 5.877) / 2		5.991	4.825					
		0.390	0.250	1.562	0.500	8.209				
		0.250	0.390	1.573	0.503					Daifraghma PB8 - P14
		0.390	0.390	6.020	2.348					
		(0.784 + 0.827) / 2		0.806						
		(6.020 + 5.793) / 2		5.907	4.758					
		0.390	0.250	1.562	0.500	8.109				

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 4 of 10
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCR 002 - 003	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder	0.250	0.390	1.573	0.503					Daifraghma PB8 - P14 to PB9P15
		0.390	0.390	6.020	2.348					
		(0.784 + 0.827) / 2		0.806						
		(6.020 + 5.793) / 2		5.907	4.758					
		0.390	0.250	1.562	0.500	8.109				
		0.250	0.390	1.573	0.503					Daifraghma PB8 - P14 to PB9P15
		0.390	0.390	5.997	2.339					
		(0.784 + 0.827) / 2		0.806						
		(5.997 + 5.770) / 2		5.884	4.739					
		0.390	0.250	1.562	0.500	8.081				

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 5 of 10
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCR 002 - 003	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder	0.250	0.390	1.573	0.503					Girder PB8 - P14 to PB9P15
		0.390	0.390	1.080	0.421					
		(1.080 + 0.850) /2		0.965						
		(0.784 + 0.827) /2		0.806	0.777					
		0.390	0.240	0.600	0.189					
		0.240	0.240	2.637	0.633					
		0.240	0.390	0.600	0.189					
		(0.784 + 0.827) / 2		0.806						
		(0.850 + 1.077) /2		0.964	0.776					
		0.390	0.390	1.077	0.420					
		0.390	0.250	1.562	0.500	4.409				
		0.250	0.390	1.562	0.500					Girder PB8 - P14 to PB9P15
		0.390	0.390	1.079	0.421					
		(1.080 + 0.850) /2		0.965						
		(0.796 + 0.822) /2		0.809	0.781					
		0.390	0.240	0.600	0.189					
		0.240	0.240	2.223	0.534					
		0.240	0.390	0.600	0.189					
		(0.796 + 0.822) / 2		0.809						
		(1.077 + 0.850) /2		0.964	0.779					
		0.390	0.390	1.077	0.420					
		0.390	0.250	1.559	0.499	4.311				

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 6 of 10
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCR 002 - 003	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder	0.250	0.390	1.562	0.500					Diafraghma PB9P15
		0.390	0.390	5.579	2.176					
		(0.796 + 0.822) / 2		0.809						
		(5.579 + 5.351) / 2		5.465	4.421					
		0.390	0.250	1.559	0.499	7.596				
		0.250	0.390	1.562	0.500					Girder P15PB9
		0.390	0.390	1.079	0.421					
		(1.079 + 0.850) /2		0.965						
		(0.796 + 0.822) /2		0.809	0.780					
		0.390	0.240	0.600	0.189					
		0.240	0.240	2.223	0.534					
		0.240	0.390	0.600	0.189					
		(0.796 + 0.822) / 2		0.809						
		(1.077 + 0.850) /2		0.964	0.779					
		0.390	0.390	1.077	0.420					
		0.390	0.250	1.559	0.499	4.311				

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 7 of 10
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCR 002 - 003	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)	0.250	0.390	1.562	0.500					Girder P15PB9
	for Post Tension Double Girder	0.390	0.390	1.078	0.420					
		(1.078 + 0.850) /2		0.964						
		(0.799 + 0.821) /2		0.810	0.781					
		0.390	0.240	0.600	0.189					
		0.240	0.240	2.222	0.533					
		0.240	0.390	0.600	0.189					
		(1.078 + 0.850) /2		0.964						
		(0.799 + 0.821) /2		0.810	0.781					
		0.390	0.390	1.078	0.420					
		0.390	0.250	1.559	0.499	4.313				
		0.250	0.390	1.562	0.500					Diafraghma A2AB2
		0.390	0.390	5.579	2.176					
		(0.796 + 0.822) / 2		0.809						
		(5.579 + 5.351) / 2		5.465	4.421					
		0.390	0.250	1.559	0.499	7.596				

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 8 of 10
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCR 002 - 003	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder									
		(9.449 + 9.408) /2				9.429	1.250	11.786		Girder P13 PB7 to P14 PB8
		(4.829 +4.627 + 4.409) / 3				4.622	17.000	78.568		
		(8.209 + 8.109) / 2				8.159	1.000	8.159		Diafraghma PB14 - PB8
									98.513	
							19.250			
						SUB TOTAL P13PB7 to P14PB8			98.513	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 04 - 09 - 2006					Sheet : 9 of 10			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MCR 002 - 003		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa) for Post Tension Double Girder									
		(8.109 + 8.081) / 2				8.095	1.000	8.095		Diafraghma P14 PB 8
		(4.409 + 4.311) / 2				4.360	18.000	78.480		Girder P14 PB8 - P15PB9
						7.596	1.000	7.596		Diafraghma P15 PB 9
									94.171	
							20.000			
						SUB TOTAL P14PB8 to P15PB9			94.171	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 10 of 10
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCR 002 - 003	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder									
						7.596	1.000	7.596		Diafraghma P15 PB 9
		(4.311 + 4.313) / 2				4.312	18.250	78.694		Girder P15 PB9 - A2AB2
		(0.4 + 0.25) / 2 x 0.25			0.08125	0.08125	8.000	0.650		
		(0.942 + 0.858) / 2 x 8.00 x 1.70						12.240		
		(8.000 + 6.350) / 2 x 0.70 x 1.70						8.538		
										Diafraghma A2AB2
									107.718	
						SUB TOTAL P15PB9 to A2AB2			107.718	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 04 - 09 - 2006					Sheet : 1 of 4			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MCL - 042		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder									
		0.250	0.390	2.400	0.768					Span girder span to span
		0.390	0.390	2.200	0.858					
		0.390	0.250	2.250	0.720					
		(0.808 + 0.812)/2		0.810						
		(1.972 + 2.200)/2		2.086						
		(3.14 X 0.45²)		0.636						
		= (0.810 X 2.086) - 0.636			1.054	3.400				
		0.250	0.390	2.400	0.768					Diafraghma
		0.390	0.390	2.200	0.858					
		0.390	0.250	2.250	0.720					
		(0.808 + 0.812)/2		0.810						
		(1.972 + 2.200)/2		2.086	1.690	4.036				

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 04 - 09 - 2006					Sheet : 2 of 4			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : TCL - 002 - 003 - 004 - 005		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)	(0.4 + 0.25) / 2 x 0.25			0.08125	0.08125	5.750	0.467		Post of aproach slab at Ab
	for Post Tension Double Girder									
		(0.928 + 0.814) / 2 x 5.75 x 1.5						7.512		Diafraghma AB1
		(5.750 + 3.974) / 2 x 0.7 x 1.5						5.105		Diafraghma AB1
						3.400	5.825	19.805		A1 - P1
						3.400	6.000	20.400		
						3.400	5.825	19.805		
						4.036	0.300	1.211		Diafraghma AB1 - PB1
						4.036	0.300	1.211		
						4.036	1.000	4.036	79.552	
						SUB TOTAL AB1 to PB1			79.552	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 3 of 4
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : TCL - 002 - 003 - 004 - 005	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder									
						3.400	1.500	5.100		PB1 - PB2
						3.400	7.850	26.690		
						3.400	7.850	26.690		
						4.036	1.000	4.036		Diafraghma PB1 - PB2
						4.036	0.500	2.018		
						4.036	0.300	1.211		
						4.036	1.000	4.036	69.781	
						SUB TOTAL PB1 to PB2			69.781	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 04 - 09 - 2006				Sheet : 4 of 4			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : TCL - 002 - 003 - 004 - 005		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa) for Post Tension Double Girder									
						3.400	1.500	5.100		PB2 - PB3
						3.400	7.475	25.415		
						3.400	7.475	25.415		
						4.036	1.000	4.036		Diafraghma PB2 - PB3
						4.036	0.500	2.018		
						4.036	0.300	1.211		
						4.036	1.000	4.036	67.231	
						SUB TOTAL PB2 to PB3			67.231	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 04 - 09 - 2006	Sheet : 1 of 1
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MCL - 002 - 003 - 004 - 005 : MCR - 002 - 003 - 004 - 005	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (35 Mpa)									
	for Post Tension Double Girder									
								77.499		A1 - P1
								134.756		P1 - P2 - P3
								64.918		P3 - P4
								131.860		P4 - P5 - P6
								131.988		P6 - P7 - P8
									541.021	
								98.513		P13PB7 - P14PB8
								94.171		P14PB8 - P15PB9
								107.718		P15PB9 - A2AB2
									300.402	
								79.552		AB1 - PB1
								69.781		PB1 - PB2
								67.231		PB2 - PB3
									216.564	
						SUMMARY			1,057.99	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 16 - 08 - 2006					Sheet : 1 of 3			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MST 01 to 05		QUANTITY :					CHEKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.2(2)	Structure Concrete, Class A (35 Mpa)									
	for Steel Girder									
		0.250	0.400	2.250	0.731					PB3, PB4, PB5, PB6
		0.400	0.441	2.200	0.925					
		0.441	0.250	2.250	0.777					
						2.434				
	PB3 - PB4					2.434	25.000	60.843		
	PB4 - PB5					2.434	30.000	73.012		
	PB5 - PB6					2.434	30.000	73.012		
									206.867	
							SUB TOTAL		206.867	

CONSTRUCTION COST ETIMATE WORKSHEET	Date Prepared : 16 - 08 - 2006	Sheet : 2 of 3
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MST 01 to 05	QUANTITY :	CHEKED BY :

NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.2(2)	Structure Concrete, Class A (35 Mpa)									
	for Steel Girder									
		0.250	0.400	2.126	0.691					P8 - P9
		0.400	0.400	2.200	0.880					
		0.400	0.250	2.126	0.691					
						2.262				
	P8 - P9					2.262	25.000	56.548		
									56.548	
						-				
		0.250	0.400	2.126	0.691					P9 - P10 - P11
		0.400	0.456	2.200	0.942					
		0.456	0.250	2.126	0.750					
						2.383				
	P9 - P10					2.383	25.000	58.062		P9 - P10
	P10 - P 11					2.383	25.000	59.576		Transition of PC Steel Girder
	P10 - P 12					2.383	25.000	59.576		
									177.213	
							SUB TOTAL		233.761	

CONSTRUCTION COST ETIMATE WORKSHEET		Date Prepared : 16 - 08 - 2006					Sheet : 3 of 3			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : MST 01 to 05		QUANTITY :					CHEKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.2(2)	Structure Concrete, Class A (35 Mpa)									
	for Steel Girder									
		0.250	0.400	2.157	0.701					Pier P 12 - PB 6
		0.400	0.521	2.200	1.013					
		0.521	0.250	0.600	0.231					
		0.300	0.300	5.013	1.504					
		0.250	0.400	0.600	0.195					
		0.400	0.474	2.200	0.961					
		0.474	0.250	2.250	0.815					
						5.420				
		0.250	0.400	2.157	0.701					Pier P 13 - PB 7
		0.400	0.521	2.200	1.013					
		0.521	0.250	0.600	0.231					
		0.300	0.300	0.743	0.223					
		0.250	0.400	0.600	0.195					
		0.400	0.474	2.200	0.961					
		0.474	0.250	2.250	0.815					
						4.139				
	P12, PB6 - P13 , PB7					4.780	25.000	119.493	119.493	P12, PB6 - P13 , PB7
										Transition of PC Steel Girder
							SUB TOTAL		119.493	
							SUMMARY		560.12	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 11 - 09 - 2006	Sheet : 1 of 4
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MSB - 03	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	CALCULATION	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(2)a	Structure Concrete, Class B							
	(Fc' = 30 Mpa) for Pier Head	= 3.30 x 3.90	12.87					
		= 2.80 x 3.40	9.52	11.195	0.250	2.799		
		= (3.90 + 4.12632) /2	4.013					
		= (0.856 + 0.750) / 2	0.803	3.223	0.950	3.06		
		= (3.90 + 4.12632) /2	4.013					
		= (0.856 + 0.750) / 2	0.803	3.223	0.950	3.06		
		= 1.400 x 4.5359	6.350					
		= 1.400 x 3.90	5.460	5.905	2.200	12.99		
							21.91	
			SUB TOTAL PIER HEAD P4				21.91	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 29 - 08 - 2006	Sheet : 2 of 4
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MSB - 05	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	CALCULATION	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(2)a	Structure Concrete, Class B	= (3.30 +1.90) / 2 X 4.425	11.505					PIER HEAD P8
	(Fc' = 30 Mpa) for Pier Head	= 3.14 x 0.95² x 0.50	1.417					
		= 5.75 x 3.30	18.975					
		= 3.14 x 0.95² x 0.50	1.417					
		= (3.30 +1.90) / 2 X 2.575	6.695	40.009				
		= (3.30 +1.65) / 2 X 4.175	10.333					
		= 3.14 x 0.70² x 0.50	0.769					
		= 5.75 x 2.80	16.100					
		= 3.14 x 0.70² x 0.50	0.769					
		= (3.30 +1.65) / 2 X 2.325	5.754	33.726				
		= (40.009 + 33.726) / 2 x 0.25					9.22	
		= 3.14 x 0.95² x 0.50 =	1.417					
		= (1.362 + 1.300) / 2 x 1.417 x 2					3.77	
		= (3.30 +1.90) / 2 X 4.425 =	11.505					
		= ((1.650 + 1.362) / 2 x 11.505) - (0.35 x 1.4 x 0.893)					16.89	
		= (3.30 +1.90) / 2 X 2.575 =	6.695					
		= ((1.650 + 1.362) / 2 x 6.695) - (0.35 x 1.4 x 0.893)					9.65	
		= (3.30 x 5.75) x (0.763 + 0.750) / 2					14.35	
		= 1.4625 x 1.4 x 6.45					13.21	
					TOTAL P8		67.08	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 11 - 09 - 2006	Sheet : 3 of 4
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MSB - 10	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	CALCULATION	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(2)a	Structure Concrete, Class B							
	(Fc' = 30 Mpa) for Pier Head							
		= 7.150 x 3.30	23.595					
		= 6.650 x 2.80	18.620	21.108	0.250	5.277		
		= (7.150 + 7.39362) /2	7.272					
		= (0.977 + 0.750) / 2	0.864	6.279	0.950	5.97		
		= (7.150 + 7.39362) /2	7.272					
		= (0.977 + 0.750) / 2	0.864	6.279	0.950	5.97		
		= 1.400 x 7.80594	10.928					
		= 1.400 x 7.150	10.010	10.469	2.264	23.70		
							40.91	
			SUB TOTAL PIER HEAD P13				40.91	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 11 - 09 - 2006	Sheet : 4 of 4
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MSB - 17	QUANTITY :	CHECKED BY :

NO	DESCRIPTION	CALCULATION	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(2)a	Structure Concrete, Class B	= 3.30 x 3.90	12.87					
	(Fc' = 30 Mpa) for Pier Head	= 2.80 x 3.40	9.52	11.195	0.250	2.799		
		= (3.90 + 4.1115) / 2 x 0.75	3.004	3.004	0.950	2.854		
		= (3.90 + 4.12588)/2x 0.801	3.214	3.214	0.950	3.054		
		= 1.400 x 4.52037	6.329					
		= 1.400 x 3.90	5.460	5.894	2.200	12.967		
							21.67	
			SUB TOTAL PIER HEAD PB3				21.67	
			SUMMARY				151.58	

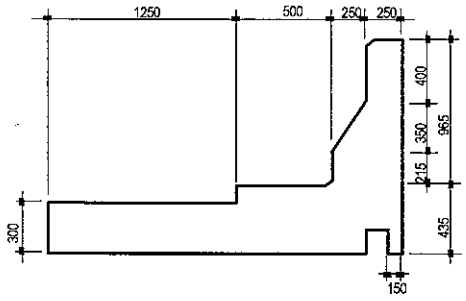
CONSTRUCTION COST ETIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : MSB - 02, 03, 04, 05, 06,09 MSB 10, 12, 13, 16, 17,		QUANTITY :		CHECKED BY :	
NO	DESCRIPTION	L / R	CALCULATION	QTY (Cu M)	REMARKS
7.1.(2)b	Structure Concrete, Class B (Fc' = 30 Mpa)				
	for Column				
		P1	3.14 X 0.70² X 6.411	9.86	
		P2	3.14 X 0.70² X 6.408	9.86	
		P3	3.14 X 0.70² X 6.967	10.72	
		P4	3.14 X 0.85² X 6.855	15.55	
		P5	3.14 X 0.75² X 7.803	13.78	
		P6	3.14 X 0.75² X 7.803	13.78	
		P7	3.14 X 0.75² X 7.803	13.78	
		P8 - L	3.14 X 0.60² X 9.154	10.35	
		R	3.14 X 0.60² X 9.154	10.35	
		P9 - L	3.14 X 0.85² X 8.666	19.66	
		R	3.14 X 0.85² X 8.686	19.71	
		P12 - L	3.14 X 0.85² X 6.818	15.47	
		R	3.14 X 0.85² X 7.237	16.42	
		P13 - L	3.14 X 0.50² X 6.726	5.28	
		R	3.14 X 0.50² X 6.726	5.28	
		P14 - L	3.14 X 0.50² X 6.788	5.33	
		R	3.14 X 0.50² X 6.991	5.49	
		P15 - L	3.14 X 0.50² X 6.861	5.39	
		R	3.14 X 0.50² X 6.968	5.47	
		PB1	3.14 X 0.70² X 7.682	11.82	
		PB2	3.14 X 0.70² X 8.582	13.20	
		PB3	3.14 X 0.85² X 7.739	17.56	
			SUMMARY	254.10	

CONSTRUCTION COST ETIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : MSB - 08, 18, 19		QUANTITY :		CHECKED BY :	
NO	DESCRIPTION	L / R	CALCULATION	QTY (Cu M)	REMARKS
7.1.(2)c	Structure Concrete, Class B (30 Mpa)				
	for Composite Coulumn				
		P10	3.14 X 0.63² X 12.060	15.03	
		P11	3.14 X 0.63² X 11.897	14.83	
		PB4 - L	3.14 X 0.63² X 11.193	13.95	
		R	3.14 X 0.63² X 11.061	13.78	
		PB5	3.14 X 0.63² X 11.937	14.88	
			SUMMARY	72.47	

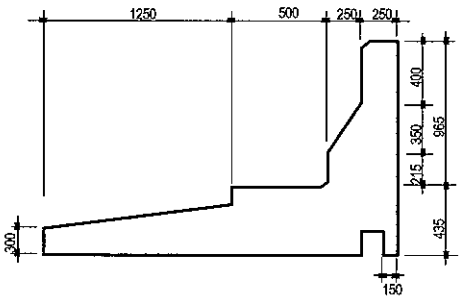
CONSTRUCTION COST ETIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : MSB - 01, 14, 15		QUANTITY : Ahda		CHECKED BY :	
NO	DESCRIPTION	A1/A2	CALCULATION	QTY (Cu M)	REMARKS
7.1.(2)d	Structure Concrete, Class B (30 Mpa)				
	for Abutment				
		A1	6.75 x 2.10 x 2.20	31.19	Footing
			4.985 x 2.20 x 0.85	9.32	Wall
			Total A1	40.51	
		A2	2.40 x 9.00 x 2.20	47.52	Footing
			Area 1.192 Sq M		Coulumn
			Height 5.710 M		
			1.192 x 5.710 x 2	13.61	
			3.30 x 5.710 x 0.4	7.54	Wall
			Total A2	68.67	
		AB1	6.75 x 2.10 x 2.20	31.19	Footing
			5.882 x 2.20 x 0.85	11.00	Wall
			Total AB1	42.18	
			SUMMARY	151.36	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
PROJECT : ..... FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

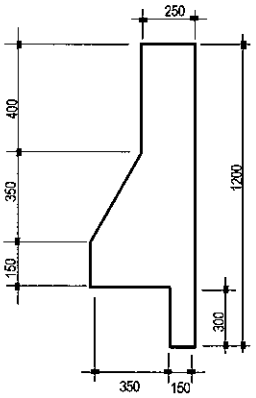
SKETCH DRAWING



Section of Parapet at Approach



Section of Parapet at M.S.E Wall



Section of Parapet at Viaduct

CALCULATION

Merak 1 Flyover - Contract Package 1

REMARKS

- Structure Concrete

A. At Approach Slab

Data:

1.19	sqm.	=	Area of Parapet from AutoCad Drawing
10.00	m	=	Length of Parapet at Approach Slab (2 side)

A.1. Volume of Concrete Parapet at Approach A

Volume	=	1.19	x	10.00	=	**11.90**	**cum.**

A.2. Volume of Concrete Parapet at Approach B

Volume	=	1.19	x	10.00	=	**11.90**	**cum.**

B. At MSE Wall

Data:

1.06	sqm.	=	Area of Parapet from AutoCad Drawing
175.90	m	=	Length of Parapet at MSE Wall Approach A (2 side)
235.90	m	=	Length of Parapet at MSE Wall Approach B (2 side)

B.1. Volume of Concrete Parapet at MSE Wall (Approach A)

Volume	=	1.06	x	175.90	=	**186.45**	**cum.**

B.2. Volume of Concrete Parapet at MSE Wall (Approach B)

Volume	=	1.06	x	235.90	=	**250.05**	**cum.**

C. At Viaduct

Data:

0.37	sqm.	=	Area of Parapet from AutoCad Drawing
690.00	m	=	Length of Parapet at Viaduct (2 side)

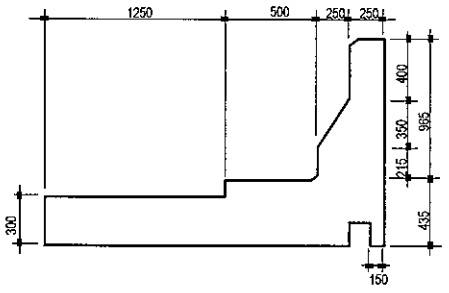
C.1. Volume of Concrete Parapet at Viaduct

Volume	=	0.37	x	690.00	=	**255.30**	**cum.**

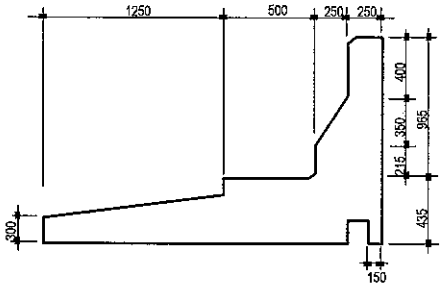
Total Concrete Volume of Parapet at Merak 1	=	**715.60**	**cum.**
Total Concrete Volume of Parapet at Merak 1&2	=	**1067.36**	**cum.**

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 10/12/2006 10:40	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

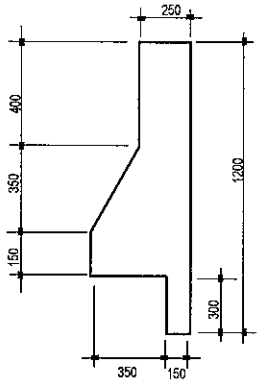
SKETCH DRAWING



Section of Parapet at Approach



Section of Parapet at M.S.E Wall



Section of Parapet at Viaduct

CALCULATION

Merak 2 Flyover - Contract Package 1

REMARKS

Structure Concrete

A. At Approach Slab

Data:

1.19	sqm.	=	Area of Parapet from AutoCad Drawing	
10.00	m	=	Length of Parapet at Approach Slab	
			(2 side)	

A.1. Volume of Concrete Parapet at Approach AB1

Volume	=	1.19	x	10.00	=	**11.90**	cum.	

B. At MSE Wall

Data:

1.06	sqm.	=	Area of Parapet from AutoCad Drawing	
220.00	m	=	Length of Parapet at MSE Wall App. AB1	
			(2 side)	

B.1. Volume of Concrete Parapet at MSE Wall (Approach AB1)

Volume	=	1.06	x	220.00	=	**233.20**	cum.	

C. At Viaduct

Data:

0.37	sqm.	=	Area of Parapet from AutoCad Drawing	
288.28	m	=	Length of Parapet at Viaduct	
			(2 side)	

C.1. Volume of Concrete Parapet at Viaduct

Volume	=	0.37	x	288.28	=	**106.66**	cum.	

Total Concrete Volume of Parapet at Merak 2	=	**351.76**	cum.

backup concrete parapet_Concrete Parapet merak2

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 08 - 08 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MSB - 90 , 91, 92		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
7.1.(5)	Structure Concrete, Class C (12 Mpa) for Footing, Approach Slab and Retaining Wall			
		Quantity		
		= 0.25 x 4.50 x 5	5.63	A2
		= 0.15 x 4.50 x 2 x (0.25 + 0.4) / 2	0.44	
		Sub total	6.06	
		= 0.25 x 2.25 x 5	2.81	A1
		= 0.15 x 2.25 x 2 x (0.25 + 0.4) / 2	0.22	
		Sub total	3.03	
		= 0.25 x 2.50 x 5	3.13	AB1
		= 0.15 x 2.5.00 x 2 x (0.25 + 0.4) / 2	0.24	
		Sub total	3.37	
		TOTAL	12.46	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 08 - 09 - 2006	Sheet : 2 of 2	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MEP - 013, 014, 015		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
7.1.(5)	Structure Concrete, Class C (12 Mpa)	Sta 0 + 768.50 - 0 + 702.000		Stubwall A1 - End of Ramp
	for Footing, Approach Slab and			sta 0 + 768.50 - 0 +702.00
	Retaining Wall	L1 = 33.500 Ln M		
		L2 = 33.000 Ln M		
		h1 = 1.796 M'		
		h2 = 0.668 M'		
		t = 0.400 M'		
		w1 = 1.300 M'		
		w2 = 0.800 M'		
		Quantity :		
		= (1.796+0.668) /2 x 66.50 x 0.40 x 2	65.54	
		= 0.4 x 1.30 x 33.50 x 2	34.84	
		= 0.4 x 0.80 x 33.00 x 2	21.12	
		Sub Total A1	*121.50*	
		Sta 1 + 331.700 - 1 + 410.000		Stubwall A2 - End of Ramp
				sta 1 + 331.70 - 1 + 410.00
		L1 = 39.15 Ln M		
		L2 = 39.15 Ln M		
		h1 = 2.185 M'		
		h2 = 0.597 M'		
		t = 0.400 M'		
		w1 = 1.300 M'		
		w2 = 0.800 M'		
		Quantity :		
		= (2.185+0.597) /2 x 78.30 x 0.40 x 2	87.13	
		= 0.4 x 1.30 x 39.15 x 2	40.72	
		= 0.4 x 0.80 x 39.15 x 2	25.06	
		Sub Total A2	*152.90*	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 08 - 09 - 2006	Sheet : 2 of 2	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MEP - 013, 014, 015		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
7.1.5	Structure Concrete, Class C (12 Mpa)	Sta 0 + 172.861 - 0 + 112.000		Stubwall AB1 - End of Ramp
	for Footing, Approach Slab and			sta 0 + 172.861 - 0 +112.00
	Retaining Wall	L1 = 30.861 Ln M		
		L2 = 30.000 Ln M		
		h1 = 1.906 M'		
		h2 = 0.425 M'		
		t = 0.400 M'		
		w1 = 1.300 M'		
		w2 = 0.800 M'		
		Quantity :		
		= (1.906+0.425) /2 x 60.861 x 0.40 x 2	56.75	
		= 0.4 x 1.30 x 30.861 x 2	32.10	
		= 0.4 x 0.80 x 30.00 x 2	19.20	
		Sub Total AB1	*108.04*	
		SUMMARY	394.91	

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PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MSB - 01, 14, 15		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Sq M)	REMARKS
7.1.(8)	Lean Concrete, Class E (Fc' = 17 Mpa)	A1		
		= (6.95 x 2.30) - (3.14 x 0.75² x 2)		
		= (15.985 - 3.5325) X 0.10	1.25	
		A2		
		= (9.20 x 2.60) - (3.14 x 0.75² x 2)		
		= (23.92 - 3.5325) X 0.10	2.04	
		AB1		
		= (6.75 x 2.30) - (3.14 x 0.75² x 2)		
		= (15.525 - 3.5325) X 0.10	1.20	
		SUMMARY	4.48	

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PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MEP - 013, 014, 015		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Sq M)	REMARKS
7.1.(8)	Lean Concrete, Class E (Fc' = 17 Mpa)	Sta 0 + 768.50 - 0 + 702.000		Stubwall A1 - End of Ramp sta 0 + 768.50 - 0 +702.00
		L1 = 33.500 Ln M L2 = 33.000 Ln M		
		w1 = 1.500 M' w2 = 1.000 M' t = 0.100 M'		
		Quantity : = ((33.50 x 1.50)+(33.00 x 1.00))x 0.1 = 8.325 Cu M		
		Sub Total	*8.33*	
		Sta 1 + 331.700 - 1 + 410.000		Stubwall A2 - End of Ramp sta 1 + 331.70 - 1 + 410.00
		L1 = 39.15 Ln M L2 = 39.15 Ln M		
		Quantity : = ((39.15 x 1.50)+(39.15 x 1.00))x 0.1 = 9.788 Cu M		
		Sub Total	*9.79*	
		Sta 0 + 172.861 - 0 + 112.000		Stubwall AB1 - End of Ramp sta 0 + 172.861 - 0 +112.00
		L1 = 30.861 Ln M L2 = 30.000 Ln M		
		Quantity : = ((30.861 x 1.50)+(30.00 x 1.00))x 0.1 = 7.629 Cu M		
		Sub Total	*7.63*	
		SUMMARY	30.22	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MSB 01 to MSB - 19		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Sq M)	REMARKS
SS7.1.(9)a	Water Proofing on Deck			
		A1 - P12 = 260.00 Ln M		
		Width = 5.75 M		
		= 260 X 5.75	1,495.00	
		AB1 - P6 = 145.00 Ln M		
		Width = 6.00 M		
		= 145 X 6.00	870.00	
		P12PB6 - P13PB7 = 25.00 Ln M		
		Width = (14.655 + 10.078) / 2 = 12.366 M		
		= 25 X 12.366	309.15	
		P13PB7 - A2AB2 = 60.00 Ln M		
		Width = (10.078 + 8.00) / 2 = 9.039 M		
		= 60 X 9.039	542.34	
		SUMMARY	3,216.49	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MSB - 68, 69, 70, 71, 72		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Kg)	REMARKS
SS7.1(10)	Structure Casing for Bored Pile	Area Ø 2500		
	(Inner Ribbed Surface t = 13 mm)	= $(1.25^2 \times 3.14) - (1.237^2 \times 3.14)$		
		= 0.102 Sq M	0.102	
		P10 H = 12 M'		
		= 12.00 X 0.102 X 7850	9,608.40	
		P11 H = 12 M'		
		= 12.00 X 0.102 X 7850	9,608.40	
		PB4 - L H = 6 M'		
		= 6.00 X 0.102 X 7850	4,804.20	
		R H = 4 M'		
		= 6.00 X 0.102 X 7850	4,804.20	
		PB5 H = 6 M'		
		= 6.00 X 0.102 X 7850	4,804.20	
		SUMMARY	33,629.40	

CONSTRUCTION COST ETIMATE WORKSHEET		Date Prepared : 10 - 08 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Kg)	REMARKS
SS7.1(11)	Structure Casing for Bored Pile	Area Ø 2500		
	(Eracted)	= (1.25² x 3.14) - (1.237² x 3.14)		
		= 0.102 Sq M	0.102	
		P10 H = 12 M'		
		= 12.00 X 0.102 X 7850	9,608.40	
		P11 H = 12 M'		
		= 12.00 X 0.102 X 7850	9,608.40	
		PB4 - L H = 6 M'		
		= 6.00 X 0.102 X 7850	4,804.20	
		R H = 4 M'		
		= 6.00 X 0.102 X 7850	4,804.20	
		PB5 H = 6 M'		
		= 6.00 X 0.102 X 7850	4,804.20	
		SUMMARY	33,629.400	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006			Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : MCL 042 to MCL 045		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight (Kg)	Total Weigth (Kg)	Remarks
7.2.1	PC Strand Size 12.7 mm								
	and Accessories	AB1 - PB1	20.60	8	12	0.774	1,530.66		
		PB1 - PB2	20.00	8	12	0.774	1,486.08		
		PB2 - PB3	19.10	8	12	0.774	1,419.21		
								4,435.95	
						TOTAL		4,435.95	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006			Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : MCR 002 to MCR 007		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight (Kg)	Total Weigth (Kg)	Remarks
7.2.1	PC Strand Size 12.7 mm								
	and Accessories	PB7P13 -	19.10	12	12	0.774	2,128.81		
		PB8P14							
		PB8P14 -	20.00	12	12	0.774	2,229.12		
		PB9P15							
		PB9P15 -	20.80	12	12	0.774	2,318.28		
		AB2A2							
								6,676.21	
						TOTAL		6,676.21	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006			Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : MCR 002 to MCR 007		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight (Kg)	Total Weigth (Kg)	Remarks
7.2.1	PC Strand Size 12.7 mm and Accessories	A1 - P1	20.60	8	12	0.774	1,530.66		A1 - P1 - P2 - P3 - P4
		P1 - P2	20.00	8	12	0.774	1,486.08		
		P2 - P3	20.00	8	12	0.774	1,486.08		
		P3 - P4	19.10	8	12	0.774	1,419.21		
								5,922.03	
						TOTAL		5,922.03	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 09 - 2006				Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : MCR 002 to MCR 007		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight (Kg)	Total Weigth (Kg)	Remarks
7.2.1	PC Strand Size 12.7 mm and Accessories	P4 - P5	19.10	8	12	0.774	1,419.21		P4 - P5 - P6 - P7 - P8
		P5 - P6	20.00	8	12	0.774	1,486.08		
		P6 - P7	20.00	8	12	0.774	1,486.08		
		P7 - P8	19.10	8	12	0.774	1,419.21		
								5,810.57	
							TOTAL	5,810.573	
							SUMMARY	22,844.76	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 09 - 08 - 2006			Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : TCL 005 and TCR 007		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight / 1 Nos (Kg)	Total Weigth (Kg)	Remarks
7.2.2	PC Strand Size 21.8 mm								
	and Accessories		13.292	1	52	2.482	32.99	1,715.52	PB6 P12 - P13 PB7
									Deck Slab - Type 4
						TOTAL		1,715.52	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 09 - 08 - 2006			Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : TCL 005 and TCR 007		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weigth / 1 Nos (Kg)	Total Weigth (Kg)	Remarks
7.2.2	PC Strand Size 21.8 mm								
	and Accessories		9.890	1	96	2.482	24.55	2,356.51	P13 PB7 - A2 AB2
									Girder
						TOTAL		2,356.510	
						SUMMARY		4,072.03	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006			Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : TCL - 004 TCR - 006		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight /1 Nos (Kg)	Total Weigth (Kg)	Remarks
									Ø 32 mm
7.2.3	PC Bar and Accessories		6.310	1	81.00	6.31	39.82	3,225.10	P8 - P9 - P10
									Deck Slab - Type 1
			6.460	1	70.00	6.31	40.76	2,853.38	A1 - P1 - P2 - P3 - P4
									Deck Slab - Type 2
			6.535	1	5.00	6.31	41.24	206.18	PB6 P12
									Deck Slab - Type 3
			6.703	1	52.00	6.31	42.30	2,199.39	PB3 - PB4
									Deck Slab - Type 5
			6.704	1	83.00	6.31	42.30	3,511.09	PB3 - PB4
									Deck Slab - Type 6
						TOTAL		11,995.14	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006			Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : TCL - 004 TCR - 006		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight /1 Nos (Kg)	Total Weigth (Kg)	Remarks
									Ø 32 mm
7.2.3	PC Bar and Accessories		6.457	1	128.00	6.31	40.74	5,215.19	A1 - P1 - P2 - P3 - P4
									Girder
			6.457	1	126.00	6.31	40.74	5,133.70	P4 - P5 - P6 - P7 - P8
									Girder
			6.702	1	96.00	6.31	42.29	4,059.80	AB1 - PB1 - PB2 - PB3
						TOTAL		14,408.70	

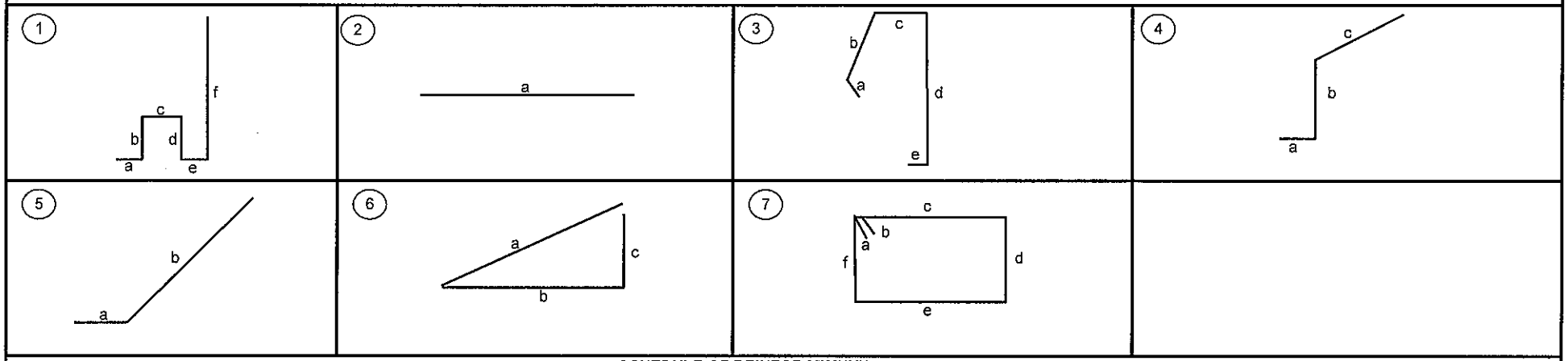
CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 09 - 09 - 2006			Sheet : 1 of 1			
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : TCL - 004 TCR - 006		QUANTITY :				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight /1 Nos (Kg)	Total Weigth (Kg)	Remarks
			5.634	1	6.00	6.31	35.55	213.30	PB8P14 Pier Head
			5.179	1	6.00	6.31	32.68	196.08	PB9P15 Pier Head
						TOTAL		409.380	
						SUMMARY		26,813.22	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 13 - 10 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		Quantity :	CHECKED BY	
NO	SKETCH DRAWING	DESCRIPTION	SUMMARY (Kg)	REMARKS
7.3.(4)	REINFORCING STEEL BARS GRADE 40			
		SUB STRUCTURE		
		Bored pile		265,204.00
		Abutment	37,403.00	
		Pier Column	103,027.00	
		Pier Head	42,861.00	
		Approach Slab	2,245.00	
		Stubwall	27,401.00	
		SUPER STRUCTURE		
		Deck Slab	90,945.32	
		Girder	137,700.00	
		Parapet Wall	109,248.00	
		OTHER		
		T O T A L	550,830.32	
	REINFORCING STEEL BARS D 51	Bored pile		678,607.00

PROJECT : ..... FLYOVER
NORTH JAVA CORRIDOR FLYOVER PROJECT

MERAK 1 FLYOVER (PARAPET RAILING @ MSE WALL APP. B)

BAR BENDING DIAGRAM



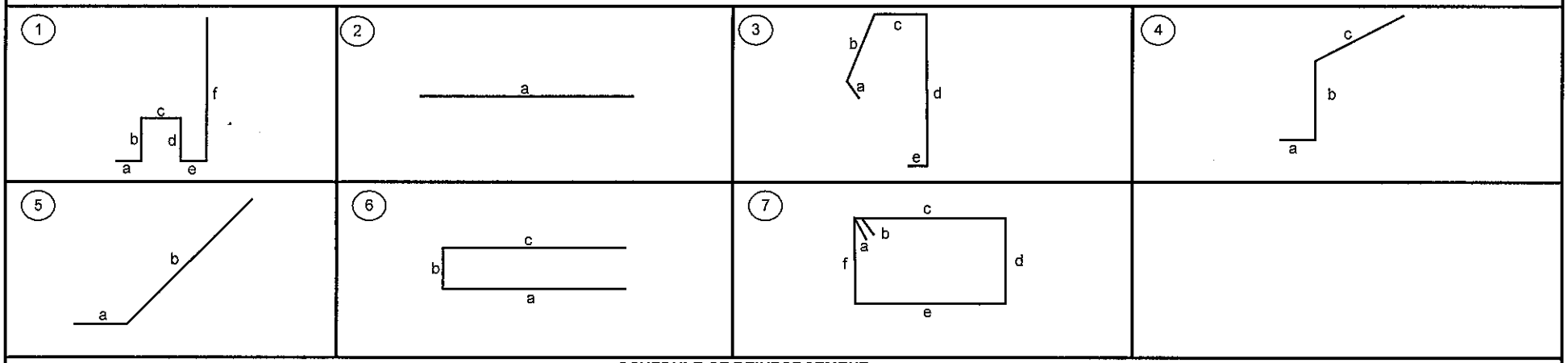
SCHEDULE OF REINFORCEMENT

STRUCTURE COMPONENT	BAR MARK	SIZE	QUANTITY	SPACING	SHAPE	REINFORCEMENT BAR DIMENSIONS (mm)						LENGTH PER BAR	TOTAL LENGTH	UNIT WEIGHT	TOTAL WEIGHT	CONCRETE VOLUME	REBAR RATIO	REMARKS
						a	b	c	d	e	f	(mm)	(m)	(Kg/m)	(Kg)	(m^3)	(Kg/m3)	
PARAPET RAILING (STA. 1+212.50 - STA. 1+330.45) ONE SIDE ONLY	R1	12	590	200	1	250	150	300	150	50	1000	1900	1121.00	0.888	995.00	125.03	120.29	
	R2	12	120	as shown	2	12000						12000	1440.00	0.888	1279.00			
	R2a	12	12	as shown	2	900						900	10.80	0.888	10.00			
	R3	12	590	200	3	50	500	150	1000			1700	1003.00	0.888	891.00			
	R4	12	590	200	4	200	600	750				1550	914.50	0.888	812.00			
	R5	20	787	150	5	300	1200					1500	1180.50	2.466	2911.00			
	R6	16	590	200	6	1800	1780	300				3880	2289.20	1.579	3615.00			
	R7	16	590	200	7	160	160	500	335	500	335	1990	1174.10	1.579	1854.00			
	R8	16	140	as shown	2	12000						12000	1680.00	1.579	2653.00			
	R8a	16	14	as shown	2	900						900	12.60	1.579	20.00			
													GRADE 40 TOTAL		**12,129.00**			
													GRADE 60 TOTAL		**2,911.00**			

PROJECT : ..... FLYOVER
NORTH JAVA CORRIDOR FLYOVER PROJECT

MERAK 1 FLYOVER (PARAPET RAILING @ APPROACH SLAB A)

BAR BENDING DIAGRAM



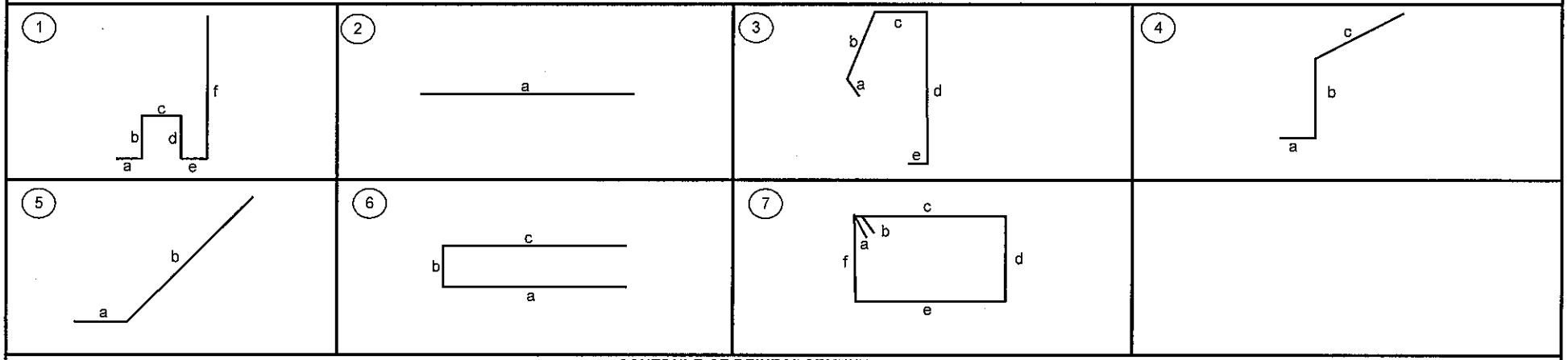
SCHEDULE OF REINFORCEMENT

STRUCTURE COMPONENT	BAR MARK	SIZE	QUANTITY	SPACING	SHAPE	REINFORCEMENT BAR DIMENSIONS (mm) a	b	c	d	e	f	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)	CONCRETE VOLUME (m^3)	REBAR RATIO (Kg/m3)	REMARKS
PARAPET RAILING (STA. 0+857.50 - STA. 0+862.50) ONE SIDE ONLY	R1	12	26	200	1	250	150	300	150	50	1000	1900	49.40	0.888	44.00	5.95	111.60	
	R2	12	13	as shown	2	4900						4900	63.70	0.888	57.00			
	R3	12	26	200	3	50	500	150	1000			1700	44.20	0.888	39.00			
	R4	12	26	200	4	200	600	750				1550	40.30	0.888	36.00			
	R5	20	34	150	5	300	1200					1500	51.00	2.466	126.00			
	R6	16	26	200	6	1700	200	1700				3600	93.60	1.579	148.00			
	R7	16	26	200	7	160	160	500	335	500	335	1990	51.74	1.579	82.00			
	R8	16	17	as shown	2	4900						4900	83.30	1.579	132.00			
													GRADE 40 TOTAL		538.00			
													GRADE 60 TOTAL		126.00			

PROJECT : ..... FLYOVER
NORTH JAVA CORRIDOR FLYOVER PROJECT

MERAK 1 FLYOVER (PARAPET RAILING @ APPROACH SLAB A)

BAR BENDING DIAGRAM



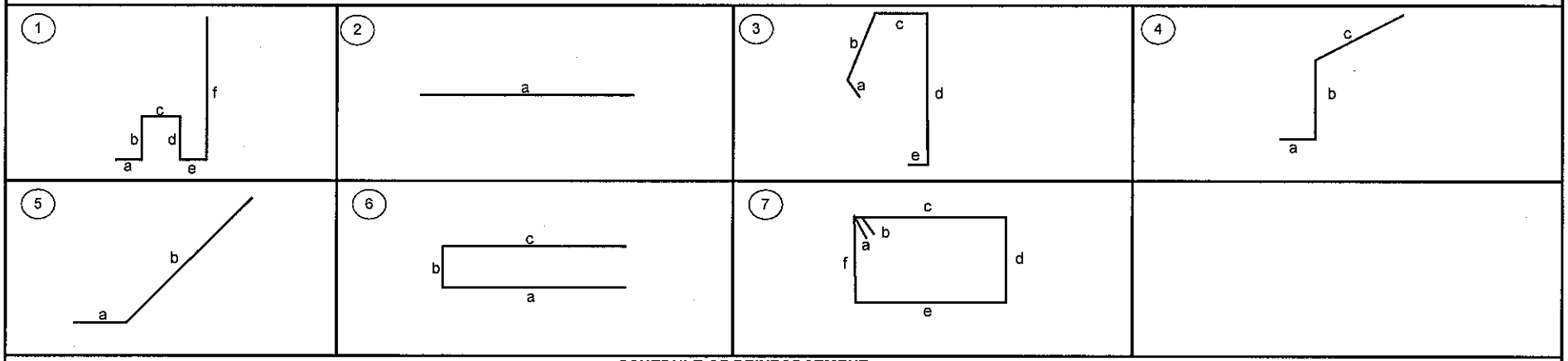
SCHEDULE OF REINFORCEMENT

STRUCTURE COMPONENT	BAR MARK	SIZE	QUANTITY	SPACING	SHAPE	REINFORCEMENT BAR DIMENSIONS (mm)						LENGTH PER BAR	TOTAL LENGTH	UNIT WEIGHT	TOTAL WEIGHT	CONCRETE VOLUME	REBAR RATIO	REMARKS
						a	b	c	d	e	f	(mm)	(m)	(Kg/m)	(Kg)	(m^3)	(Kg/m3)	
PARAPET RAILING (STA. 0+857.50 - STA. 0+862.50) ONE SIDE ONLY	R1	12	26	200	1	250	150	300	150	50	1000	1900	49.40	0.888	44.00	5.95	111.60	
	R2	12	13	as shown	2	4900						4900	63.70	0.888	57.00			
	R3	12	26	200	3	50	500	150	1000			1700	44.20	0.888	39.00			
	R4	12	26	200	4	200	600	750				1550	40.30	0.888	36.00			
	R5	20	3¾	150	5	300	1200					1500	51.00	2.466	126.00			
	R6	16	26	200	6	1700	200	1700				3600	93.60	1.579	148.00			
	R7	16	26	200	7	160	160	500	335	500	335	1990	51.74	1.579	82.00			
	R8	16	17	as shown	2	4900						4900	83.30	1.579	132.00			
													GRADE 40 TOTAL		**538.00**			
													GRADE 60 TOTAL		**126.00**			

PROJECT : ..... FLYOVER
NORTH JAVA CORRIDOR FLYOVER PROJECT

MERAK 1 FLYOVER (PARAPET RAILING @ APPROACH SLAB B)

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT

STRUCTURE COMPONENT	BAR MARK	SIZE	QUANTITY	SPACING	SHAPE	REINFORCEMENT BAR DIMENSIONS (mm) a	b	c	d	e	f	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)	CONCRETE VOLUME (m^3)	REBAR RATIO (Kg/m3)	REMARKS
PARAPET RAILING (STA. 1+207.50 - STA. 1+212.50) ONE SIDE ONLY	R1	12	26	200	1	250	150	300	150	50	1000	1900	49.40	0.888	44.00	5.95	111.60	
	R2	12	13	as shown	2	4900						4900	63.70	0.888	57.00			
	R3	12	26	200	3	50	500	150	1000			1700	44.20	0.888	39.00			
	R4	12	26	200	4	200	600	750				1550	40.30	0.888	36.00			
	R5	20	34	150	5	300	1200					1500	51.00	2.466	126.00			
	R6	16	26	200	6	1700	200	1700				3600	93.60	1.579	148.00			
	R7	16	26	200	7	160	160	500	335	500	335	1990	51.74	1.579	82.00			
	R8	16	17	as shown	2	4900						4900	83.30	1.579	132.00			
													GRADE 40 TOTAL		**538.00**			
													GRADE 60 TOTAL		**126.00**			

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
PROJECT : ..... FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

	SKETCH DRAWING	CALCULATION Merak 1 Flyover - Contract Package 1	REMARKS

7.3 - Reinforcing Bars

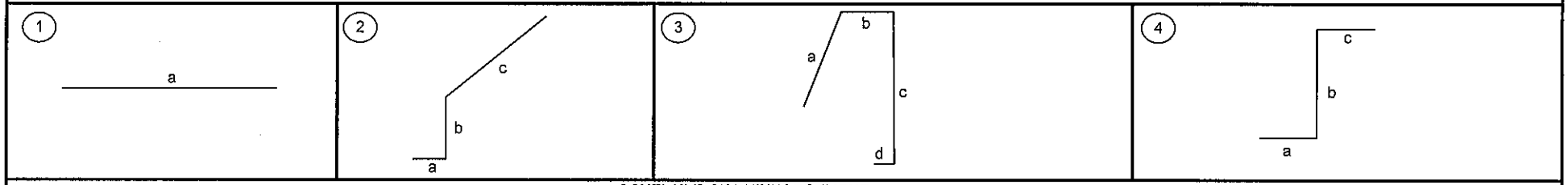
Summary :

A. At Approach A								
	A.1 At Approach Slab							
	For Grade 40	=	538.00	x	2.00	=	1,076.00	
	For Grade 60	=	126.00	x	2.00	=	252.00	
	A.2 At MSE Wall							
	For Grade 40	=	9,040.00	x	2.00	=	18,080.00	
	For Grade 60	=	2,171.00	x	2.00	=	4,342.00	
	Total:							
	For Grade 40	=	19,156.00					
	For Grade 60	=	4,594.00					
	Total	**=**	**23,750.00**	**kg.**				
B. At Approach B								
	B.1 At Approach Slab							
	For Grade 40	=	538.00	x	2.00	=	1,076.00	
	For Grade 60	=	126.00	x	2.00	=	252.00	
	B.2 At MSE Wall							
	For Grade 40	=	12,129.00	x	2.00	=	24,258.00	
	For Grade 60	=	2,911.00	x	2.00	=	5,822.00	
	Total:							
	For Grade 40	=	25,334.00					
	For Grade 60	=	6,074.00					
	Total	**=**	**31,408.00**	**kg.**				

PROJECT : ..... FLYOVER
NORTH JAVA CORRIDOR FLYOVER PROJECT

MERAK 1 FLYOVER (PARAPET RAILING @ MAIN VIADUCT)

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT

STRUCTURE COMPONENT	BAR MARK	SIZE	QUANTITY	SPACING	SHAPE	REINFORCEMENT BAR DIMENSIONS (mm) a	b	c	d	e	f	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)	CONCRETE VOLUME (m^3)	REBAR RATIO (Kg/m3)	REMARKS
PARAPET RAILING (STA. 0+862.50 - STA. 1+207.50) ONE SIDE ONLY	P1	10	348	as shown	1	12000						12000	4176.00	0.616	2572.00	127.65	68.24	
	P1a	10	12	as shown	1	5600						5600	67.20	0.616	41.00			
	P2	10	1726	200	3	860	150	1100	50			2160	3728.16	0.616	2297.00			
	P3	16	1726	200	2	100	350	730				1180	2036.68	1.579	3216.00			
	P4	10	1726	200	4	100	350	100				550	949.30	0.616	585.00			
														GRADE 40 TOTAL	8,711.00			

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
PROJECT : ..... FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING	CALCULATION	REMARKS
	Merak 1 Flyover - Contract Package 1	

7.3 - Reinforcing Bars

Summary :

At Main Viaduct	=	8,711.00	x	2.00	side	=	**17,422.00**	
					Total	=	**17,422.00**	**kg.**

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared		
PROJECT : ..... FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :		

SKETCH DRAWING	CALCULATION Merak 1 & 2 Flyover - Contract Package 1	REMARKS

7.3 - Reinforcing Bars

Summary :

		Total Weigth (Kg.)	
A. Reinforcing of Parapet at Viaduct			
1. At Merak 1 Flyover (Viaduct)	=	17,422.00	
2. At Merak 2 Flyover (Viaduct)	=	7,274.00	
		24,696.00	
B. Reinforcing of Parapet at Approach along MSE Wall			
1. At Merak 1 Approach A	=	23,750.00	
2. At Merak 1 Approach B	=	31,408.00	
3. At Merak 2 Approach AB1	=	29,394.00	
		84,552.00	
Total Weigth of Reinforcing Steel Parapet Merak Flyover	=	109,248.00	kg.

MERAK FLYOVER
QUANTITY OF ABUTMENT AND PIER COLUMN REINFORCEMENT

7.3.(4) REINFORCING STEEL BARS GRADE 40

LOCATION		TYPE	WEIGHT (Kg)	TOTAL WEIGHT (Kg)	REMARKS / DRAWING NO
A1		FOOTING	5,686.00		MSB - 25
		RC COLUMN	-	10,734.00	-
		WALL	5,048.00		MSB - 20
P1	P1	RC COLUMN	4,846.00	4,846.00	MSB - 28
P2	P2	RC COLUMN	4,846.00	4,846.00	MSB - 28
P3	P3	RC COLUMN	5,970.00	5,970.00	MSB - 29
P4	P4	RC COLUMN	6,399.00	6,399.00	MSB - 30
P5	P5	RC COLUMN	6,865.00	6,865.00	MSB - 31
P6	P6	RC COLUMN	6,046.00	6,046.00	MSB - 32
P7	P7	RC COLUMN	6,865.00	6,865.00	MSB - 31
P8	P8 - L	RC COLUMN	3,035.00	6,070.00	MSB - 33
	P8 - R	RC COLUMN	3,035.00		MSB - 33
P9	P9 - L	RC COLUMN	5,627.00	11,260.00	MSB - 34
	P9 - R	RC COLUMN	5,633.00		MSB - 34
P10	P10	COMPOSITE COLUMN	238.00	238.00	MSB - 67
P11	P11	COMPOSITE COLUMN	238.00	238.00	MSB - 67
P12 - PB6	P12 - L	RC COLUMN	4,884.00	10,114.00	MSB - 34
	PB6 - R	RC COLUMN	5,230.00		MSB - 34
P13	P13 - L	RC COLUMN	2,136.00	4,272.00	MSB - 35
	P13 - R	RC COLUMN	2,136.00		MSB - 35
P14	P14 - L	RC COLUMN	2,409.00	4,804.00	MSB - 36
	P14 - R	RC COLUMN	2,395.00		MSB - 36
P15	P15 - L	RC COLUMN	2,371.00	4,763.00	MSB - 36
	P15 - R	RC COLUMN	2,392.00		MSB - 36
A2 - AB2		FOOTING	5,796.00		MSB - 26
		RC COLUMN	6,985.00	15,353.00	MSB - 22
		WALL	2,572.00		MSB - 22

MERAK FLYOVER
QUANTITY OF ABUTMENT AND PIER COLUMN REINFORCEMENT

7.3.(4) REINFORCING STEEL BARS GRADE 40

LOCATION		TYPE	WEIGHT (Kg)	TOTAL WEIGHT (Kg)	REMARKS / DRAWING NO
AB1		FOOTING	5,686.00		MSB - 25
		COLUMN	-	11,316.00	-
		WALL	5,630.00		MSB - 23
PB1	PB1	RC COLUMN	5,272.00	5,272.00	MSB - 37
PB2	PB2	RC COLUMN	5,272.00	5,272.00	MSB - 37
PB3	PB3	RC COLUMN	6,696.00	6,696.00	MSB - 38
PB4	PB4 - L	COMPOSITE COLUMN	238.00	1,953.00	MSB - 68
	PB4 - R	COMPOSITE COLUMN	1,715.00		MSB - 69
PB5	PB5	COMPOSITE COLUMN	238.00	238.00	MSB - 70
		TOTAL PIER P1 to -P15 and PB1 to PB9		103,027.00	
		TOTAL ABUTMENT A1 , A2-AB2 DAN AB1		37,403.00	

TANGGULANGIN FLYOVER
QUANTITY OF APROACH SLAB REINFORCEMENT

7.3.(4) REINFORCING STEEL BARS GRADE 40

LOCATION		TYPE	WEIGHT (Kg)	TOTAL WEIGHT (Kg)	REMARKS
A1		APROACH SLAB	544.00		MSB - 90
A2 - AB2		APROACH SLAB	1,084.00	2,245.00	MSB - 91
AB1		APROACH SLAB	617.00		MSB - 92
			TOTAL	2,245.00	
P4		PIER HEAD	6,995.00	6,995.00	MSB - 44
P8		PIER HEAD	17,071.00	17,071.00	MSB - 49
P13 - PB7		PIER HEAD	12,790.00	12,790.00	MSB - 53
PB3		PIER HEAD	6,005.00	6,005.00	MSB - 57
			TOTAL	42,861.00	

MERAK FLYOVER
QUANTITY OF BORED PILE REINFORCEMENT

LOCATION	WEIGHT PER 1 PC (Kg)		NO. REQ'D (PCS)	TOTAL WEIGHT (Kg)	
	Reinforcing Steel Bars D 40	Reinforcing Steel Bars D 51		Reinforcing Steel Bars D 40	Reinforcing Steel Bars D 51
A1	3,032.00	9,760.00	1	3,032.00	9,760.00
	3,032.00	9,760.00	1	3,032.00	9,760.00
P1	7,926.00	19,633.00	1	7,926.00	19,633.00
P2	8,103.00	20,377.00	1	8,103.00	20,377.00
P3	7,926.00	19,633.00	1	7,926.00	19,633.00
P4	7,926.00	19,633.00	1	7,926.00	19,633.00
P5	17,658.00	22,611.00	1	17,658.00	22,611.00
P6	10,331.00	26,037.00	1	10,331.00	26,037.00
P7	10,330.00	25,465.00	1	10,330.00	25,465.00
P8 - L	7,448.00	-	1	7,448.00	-
P8 - R	7,448.00	-	1	7,448.00	-
P9 - L	5,780.00	13,904.00	1	5,780.00	13,904.00
P9 - R	5,780.00	13,904.00	1	5,780.00	13,904.00
P10	7,363.00	34,023.00	1	7,363.00	34,023.00
P11	7,363.00	34,023.00	1	7,363.00	34,023.00
P12 - PB6 / L	9,906.00	34,023.00	1	9,906.00	34,023.00
P12 - PB6 / R	13,839.00	56,883.00	1	13,839.00	56,883.00
P13 - PB7/L	4,371.00	16,794.00	1	4,371.00	16,794.00
P13 - PB7/L	4,371.00	16,794.00	1	4,371.00	16,794.00
P14 - PB8/L	4,353.00	14,061.00	1	4,353.00	14,061.00
P14 - PB8/R	4,353.00	14,061.00	1	4,353.00	14,061.00
P15 - PB9/L	4,353.00	14,061.00	1	4,353.00	14,061.00
P15 - PB9/R	4,353.00	14,061.00	1	4,353.00	14,061.00
A2 AB2/L	19,952.00	-	1	19,952.00	-
A2 AB2/R	19,952.00	-	1	19,952.00	-
AB1	4,312.00	10,607.00	1	4,312.00	10,607.00
	4,312.00	10,607.00	1	4,312.00	10,607.00
PB1	8,842.00	34,023.00	1	8,842.00	34,023.00
PB2	8,842.00	34,023.00	1	8,842.00	34,023.00
PB3	8,842.00	34,023.00	1	8,842.00	34,023.00
PB4 - L	6,663.00	35,895.00	1	6,663.00	35,895.00
PB4 - R	6,247.00	34,023.00	1	6,247.00	34,023.00
PB5	9,895.00	35,905.00	1	9,895.00	35,905.00
		TOTAL OF BORED PILE	33		
			SUB TOTAL	265,204.00	678,607.00
			TOTAL	943,811.00	

BREAK DOWN REINFORCING STEEL

		quantity	unit	weight (Kg)	total weight (Kg)			
MERAK								
	GIRDER	128.446	Cum	101.00	12,973.00			
		96.552	Cum	101.00	9,751.70			
		54.002	Cum	101.00	5,454.15			
		85.896	Cum	101.00	8,675.45			
	APPROACH SLAB	11.610	Cum	138.00	1,602.18			
		11.610	Cum	138.00	1,602.18			
		11.610	Cum	138.00	1,602.18			
	MS WALL	186.030	Cum	109.00	20,277.27			
		232.540	Cum	109.00	25,346.86			
		249.450	Cum	109.00	27,190.05			
	STUBWALL	A1		8,757.00	8,757.00		27,401.00	Stubwall
		A2		10,895.00	10,895.00		146,969.45	Parapet
		AB1		7,749.00	7,749.00		174,370.45	
	PARAPET (stubwall)	63.175	Cum	79.00	10,507.00			
		57.818	Cum	79.00	9,616.04			
		74.385	Cum	79.00	12,371.40			
						174,370.45		

MERAK

A1 - A2	= 345 + 0.95 + 1.20 = 347.15	Left
	= 260 + 0.95 = 260.95	Right
AB1-AB2	= 145 + 0.95 = 145.95	Left
	= 230 + 0.95 + 1.20 = 232.15	Right

Ramp A1 - EPS Wall	= 93.00	sta 0+861.50 to 0+768.50
EPS Wall - End of Ramp	= 66.50	sta 0+768.50 to 0 +702.00
Ramp AB1 - EPS Wall	= 115	sta 0+287.861 to 0+172.861
EPS Wall - End of Ramp	= 60.861	sta 0+172.861 to 0+112.00
Ramp A2 - EPS Wall	= 123.00	sta 1+208.70 to 1+331.700
EPS Wall - End of Ramp	= 78.300	sta 1+331.70 to 1+410.000

Area 1 = 0.370 Sq M
Area 2 = 1.161 Sq M
Area 3 = 1.057 Sq M
Area 4 = 0.475 Sq M

Quantity

= 347.15 x 0.370	128.45	Girder
= 260.95 x 0.370	96.55	Girder
= 145.95 x 0.370	54.00	Girder
= 232.15 x 0.370	85.90	Girder
= 5.00 x 1.161 x 2	11.61	Approach slab
= 88.00 x 1.057 x 2	186.03	EPS Wall
= 66.50 x 0.475 x 2	63.18	Stubwall
= 5.00 x 1.161 x 2	11.61	Approach slab
= 110.00 x 1.057 x 2	232.54	EPS Wall
= 60.861 x 0.475 x 2	57.82	Stubwall
= 5.00 x 1.161 x 2	11.61	Approach slab
= 118.00 x 1.057 x 2	249.45	EPS Wall
= 78.30 x 0.475 x 2	74.39	Stubwall
	1,263.13	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ton)	REMARKS
7.5.(1)	Furnish and Delivery of Steel Girder		448.10	
		SUMMARY	448.10	

		Date Prepared : 10 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ton)	REMARKS
7.5.(1)a	Furnish and Delivery of Steel			
	Coping and Portal		145.57	
		SUMMARY	145.57	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ton)	REMARKS
7.5.(3)	Erection of Steel Girder		448.10	
		SUMMARY	448.10	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 09 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ton)	REMARKS
7.5.(4)	Erection of Steel Coping and Portal			
			145.57	
		SUMMARY	145.57	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 10 - 08 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : MSB - 01, 15, 20	QUANTITY : Ahda	CHECKED BY :	

NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.6.(22)	Cast in Place Concrete Bored Pile			
	Dia 1500 mm			
		A1 2 X 30	60.00	
		AB1 2 X 34	68.00	
		SUMMARY	128.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 08 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MSB - 05, 10, 12, 13, 14		QUANTITY :	CHECKED BY :	

NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.6.(23)	Cast in Place Concrete Bored Pile	P8 - L 1 X 18	18.00	
	Dia 1800 mm	R 1 X 18	18.00	
		P13 -L 1 X 28	28.00	
		R 1 X 28	28.00	
		P14 -L 1 X 24	24.00	
		R 1 X 24	24.00	
		P15 -L 1 X 24	24.00	
		R 1 X 24	24.00	
		A2 2 x 30	60.00	
		SUMMARY	248.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 05 - 09 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MSB - 02, 03, 04, 07, 08, 09 - 16, 17, 18, 19		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.6.(26)	Cast in Place Concrete Pile Dia 2500 mm	P1 1 X 20	20.00	
		P2 1 X 22	22.00	
		P3 1 X 20	20.00	
		P4 1 X 20	20.00	
		P5 1 X 27	27.00	
		P6 1 X 22	22.00	
		P7 1 X 22	22.00	
		P9-L 1 X 22	22.00	
		R 1 X 22	22.00	
		P10 1 X 24	24.00	
		P11 1 X 24	24.00	
		P12-L 1 X 24	24.00	
		R 1 X 40	40.00	
		PB1 1 X 24	24.00	
		PB2 1 X 24	24.00	
		PB3 1 X 24	24.00	
		PB4-L 1 X 28	28.00	
		R 1 X 24	24.00	
		PB5 1 X 28	28.00	
		SUMMARY	461.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 08 - 2006		Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : MSB - 01 to MSB - 19		QUANTITY :		CHECKED BY :	
NO	DESCRIPTION	CALCULATION		QTY (Each)	REMARKS
7.6.(27)	Pile Integrity Test	A1	2 Each		
		P1	1 Each		
		P2	1 Each		
		P3	1 Each		
		P4	1 Each		
		P5	1 Each		
		P6	1 Each		
		P7	1 Each		
		P8	2 Each		PORTAL
		P9	2 Each		
		P10	1 Each		
		P11	1 Each		
		P12-PB6	2 Each		PORTAL
		P13-PB7	2 Each		
		P14-PB8	2 Each		
		P15-PB9	2 Each		
		A2 - AB2	2 Each		
		AB1	2 Each		
		PB1	1 Each		
		PB2	1 Each		
		PB3	1 Each		
		PB4	2 Each		PORTAL
		PB5	1 Each		
			33 Each	33.00	
			SUMMARY	33.00	

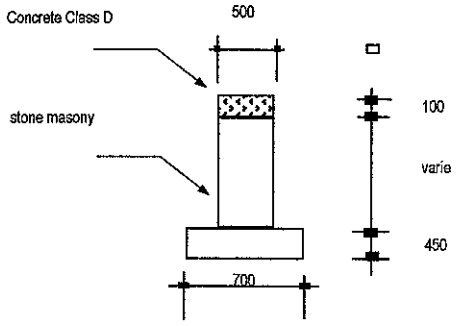
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 09 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
SS7.6.(28)	Pile Dynamic Analysis (PDA)		1.00	
	Dia 1500 mm			
		SUMMARY	1.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 09 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
SS7.6.(29)a	Pile Dynamic Analysis (PDA)		1.00	
	Dia 1800 mm			
		SUMMARY	1.00	

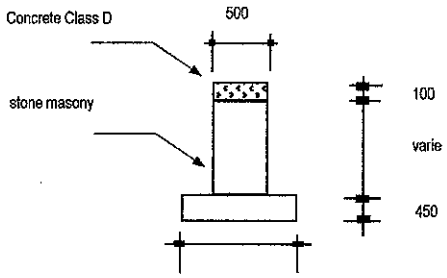
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 09 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
7.6.(26)	Pile Dynamic Analysis (PDA)		1.00	
	Dia 2500 mm			
		SUMMARY	1.00	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	BACK UP QUANTITY STONE MASONRY	Sheet : of
PROJECT : MERAK FLYOVER			
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :		CHECKED BY :

SKETCH DRAWING



Sta 0+280 - 0+300



Sta 0+820 - 0+880

CALCULATION

PROJECT : MERAK FLYOVER

STA	AREA	AV. AREA	DISTANCE START	DISTANCE END	L (M)	VOL (Cu.M)		REMARKS
1 + 108.00	0.37	0.19	1 + 108.61	1 + 108.61	0.00	0.00		RIGHT SIDE
1 + 120.00	0.48	0.43	1 + 108.61	1 + 120.00	11.39	4.88		SERANG BOUND
1 + 124.55	0.00	0.24	1 + 120.00	1 + 124.52	4.52	1.09		
1 + 153.04	0.00	0.00	1 + 153.04	1 + 153.04	0.00	0.00		
1 + 160.00	0.44	0.22	1 + 153.04	1 + 160.00	6.96	1.53		
1 + 180.00	0.37	0.41	1 + 160.00	1 + 180.00	20.00	8.10		
1 + 200.00	0.46	0.42	1 + 180.00	1 + 200.00	20.00	8.31		
1 + 220.00	0.37	0.42	1 + 200.00	1 + 220.00	20.00	8.33		
1 + 240.00	0.35	0.36	1 + 220.00	1 + 240.00	20.00	7.26		
1 + 260.00	0.43	0.39	1 + 240.00	1 + 260.00	20.00	7.78		
1 + 280.00	0.37	0.40	1 + 260.00	1 + 283.81	23.81	9.41		
1 + 378.51	0.00	0.18	1 + 378.52	1 + 378.52	0.00	0.00		
1 + 380.00	0.41	0.21	1 + 378.52	1 + 380.00	1.48	0.30		
1 + 400.00	0.40	0.41	1 + 380.00	1 + 400.00	20.00	8.12		
1 + 420.00	0.45	0.43	1 + 400.00	1 + 420.00	20.00	8.52		
1 + 440.00	0.38	0.42	1 + 420.00	1 + 440.00	20.00	8.31		
1 + 460.00	0.48	0.43	1 + 440.00	1 + 460.00	20.00	8.58		
1 + 480.00	0.53	0.51	1 + 460.00	1 + 486.07	26.07	13.17		
TOTAL					**254.24**	**103.69**		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 09 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.11.(2)	Expantion Joint (Type A)			
		P4 = 5.75 Ln M x 2	11.50	
		P8 = 5.75 Ln M x 2	11.50	
		P13 = 10.17 Ln M x 2	20.34	
		PB3 = 6.00 Ln M x 2	12.00	
		SUMMARY	55.34	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
SS7.11.(1)	Restrainner			
		P4 = 1.00 x 2		
		= 2.00 Set	2.00	
		P8 = 1.00 x 2		
		= 2.00 Set	2.00	
		P13 PB7 = 1.00 x 2		
		= 2.00 Set	2.00	
		PB3 = 1.00 x 2		
		= 2.00 Set	2.00	
		SUMMARY	8.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 09 - 09 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.11.(5)	Stopper for Steel Girder			
		P8 = 1.00 x 1		
		= 1.00 Set	1.00	
		P13 PB7 = 1.00 x 1		
		= 1.00 Set	1.00	
		PB3 = 1.00 x 1		
		= 1.00 Set	1.00	
		SUMMARY	3.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 21 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(2)	Elastomeric Bearing Pad			
	Type - A1	P4 = 2.00 x 2		
		= 4.00 Set	4.00	
		P8 = 1.00 x 2		
		= 2.00 Set	2.00	
		PB3 = 1.00 x 2		
		= 2.00 Set	2.00	
		SUMMARY	8.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 21 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(2)a	Elastomeric Bearing Pad			
	Type - A2	P13 = 1.00 x 2		
		= 2.00 Set	2.00	
		SUMMARY	2.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(7)a	Mechanical Bearing for Steel Girder			
	Type - B1	P13 = 1.00 x 2		
		= 2.00 Set	2.00	
		SUMMARY	2.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(7)b	Mechanical Bearing for Steel Girder			
	Type - B2	P8 = 1.00 x 2		
		= 2.00 Set	2.00	
		PB3 = 1.00 x 2		
		= 2.00 Set	2.00	
		SUMMARY	4.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(7)c	Mechanical Bearing for Steel Girder			
	Type - C1	P9 = 1.00 x 1		
		= 1.00 Set	1.00	
		P12 = 1.00 x 1		
		= 1.00 Set	1.00	
		SUMMARY	2.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(7)d	Mechanical Bearing for Steel Girder			
	Type - C2	P9 = 1.00 x 1		
		= 1.00 Set	1.00	
		SUMMARY	1.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(7)e	Mechanical Bearing for Steel Girder			
	Type - C3	P12 = 1.00 x 1		
		= 1.00 Set	1.00	
		PB4 = 1.00 x 1		
		= 1.00 Set	1.00	
		SUMMARY	2.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(7)f	Mechanical Bearing for Steel Girder			
	Type - C4	PB4 = 1.00 x 1		
		= 1.00 Set	1.00	
		SUMMARY	1.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 08 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MSB - 01 to MSB - 19 MSB - 003 to MSB - 015		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.13	Steel Bridge Reiilings			
		A1 - A2 = 345 + 0.95 + 1.20	347.15	Left
		= 260 + 0.95 + 0.5	261.45	Right
		AB1-AB2 = 145 + 0.95 + 0.5	146.450	Left
		= 230 + 0.95 + 1.20	232.150	Right
		Ramp A1 - EPS Wall = 93.00 X 2	186.000	sta 0+861.50 to 0+768.50
		EPS Wall - End of Ramp = (66.50 + 0.50) X 2	134.000	sta 0+768.50 to 0 +702.00
		Ramp AB1 - EPS Wall = 115 X 2	230.000	sta 0+287.861 to 0+172.861
		EPS Wall - End of Ramp = (60.861 + 0.50) X 2	122.722	sta 0+172.861 to 0+112.00
		Ramp A2 - EPS Wall = 123.00 X 2	246.000	sta 1+208.70 to 1+331.700
		EPS Wall - End of Ramp = (78.300 + 0.50) X 2	157.600	sta 1+331.70 to 1+410.000
		SUMMARY	2,063.522	

CONSTRUCTION COST ETIMATE WORKSHEET		Date Prepared : 10 - 08 - 2006	Sheet : of	
PROJECT : MERAK FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : MSB - 01 to MSB - 19 MSB - 003 to MSB - 015		QUANTITY : Ahda	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
7.14	Bridge Name Plate	2 Each	2.000	
		SUMMARY	2.000	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared :		Sheet : 1 of 1
PROJECT : MERAK FLYOVER	BACK UP QUANTITY DEMOLITION OF MASONRY		
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING	QUANTITY CALCULATION PROJECT : MERAK FLYOVER						REMARKS
	STA		L/R	Average	Length	Volume	
	Start	End		Area		(Cu.M)	
SERVICE ROAD	00 + 523.91	00 + 548.43	L	0.360	24.513	8.825	
	00 + 549.23	00 + 555.18	L	0.360	5.951	2.142	
	00 + 556.69	00 + 563.90	L	0.360	7.204	2.593	
	00 + 564.19	00 + 569.41	L	0.360	5.212	1.876	
	00 + 570.04	00 + 591.07	L	0.360	21.032	7.572	
	00 + 591.83	00 + 600.76	L	0.360	8.934	3.216	
	00 + 601.58	00 + 608.61	L	0.360	7.030	2.531	
	00 + 609.90	00 + 618.97	L	0.360	9.066	3.264	
	00 + 619.76	00 + 638.93	L	0.360	19.172	6.902	
	00 + 640.69	00 + 647.01	L	0.360	6.320	2.275	
	00 + 652.40	00 + 658.32	L	0.360	5.921	2.132	
	00 + 659.74	00 + 682.09	L	0.360	22.355	8.048	
	00 + 683.02	00 + 690.91	L	0.360	7.888	2.840	
	00 + 690.09	00 + 710.87	L	0.360	20.781	7.481	
	00 + 711.46	00 + 749.24	R	0.360	37.785	13.603	
	00 + 852.42	00 + 876.64	R	0.360	24.216	8.718	
	00 + 930.97	00 + 943.88	R	0.360	12.907	4.647	
	00 + 945.25	00 + 966.54	R	0.360	21.287	7.663	
	00 + 981.72	00 + 992.84	R	0.360	11.127	4.006	
	01 + 007.58	01 + 014.87	R	0.360	7.290	2.624	
	01 + 017.76	01 + 019.73	R	0.360	1.964	0.707	
	01 + 020.18	01 + 021.84	R	0.360	1.666	0.600	
	01 + 182.04	01 + 187.87	R	0.360	5.824	2.097	
						106.360	
	01 + 078.03	01 + 079.18	R	0.360	1.146	0.413	
	01 + 104.08	01 + 105.80	R	0.360	1.719	0.619	
	01 + 106.80	01 + 108.49	R	0.360	1.697	0.611	
	01 + 217.28	01 + 221.25	R	0.360	3.971	1.430	
	01 + 242.30	01 + 244.11	R	0.360	1.804	0.649	
	01 + 485.93	01 + 490.81	R	0.360	4.887	1.759	
						5.481	
	QUANTITY OF DEMOLITION MASONRY =					**111.841** Cu.M	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 10/3/2006 19:21		Sheet : 1 of 1
PROJECT : MERAK FLYOVER	BACK UP QUANTITY OF DEMOLITION CONCRETE		
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : MRD 025 - MRD 033	ESTIMATOR :	CHECKED BY :	

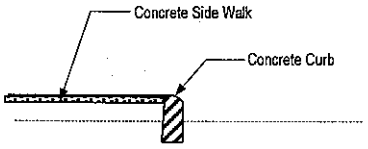
SKETCH DRAWING	QUANTITY CALCULATION PROJECT : MERAK FLYOVER						REMARKS
	STA		Length	Concrete	Volume	L / R	
	Start	End		Thickness	(Cu.M)		
MAIN ROAD	00 + 000.00	00 + 550.00	550.000	0.100	55.000		
	00 + 620.00	00 + 834.31	214.305	0.100	21.431		
					76.431		
SERVICE ROAD	00 + 263.11	00 + 274.94	11.836	0.100	1.184	L	
	00 + 275.72	00 + 279.91	4.184	0.100	0.418	L	
	00 + 283.45	00 + 294.27	10.819	0.100	1.082	L	
	00 + 296.78	00 + 307.05	10.273	0.100	1.027	L	
	00 + 310.03	00 + 315.41	5.375	0.100	0.538	L	
	00 + 327.66	00 + 340.30	12.635	0.100	1.264	L	
	00 + 360.82	00 + 370.00	9.183	0.100	0.918	L	
	00 + 383.45	00 + 386.23	2.774	0.100	0.277	L	
	00 + 448.51	00 + 451.20	2.691	0.100	0.269	L	
	00 + 616.94	00 + 618.68	1.745	0.100	0.175	L	
	00 + 620.68	00 + 675.30	54.624	0.100	5.462	L	
	00 + 637.68	00 + 655.45	17.765	0.100	1.777	L	
	00 + 761.05	00 + 770.50	9.458	0.100	0.946	L	
	00 + 784.34	00 + 786.88	2.534	0.100	0.253	L	
					15.590		
SERVICE ROAD	00 + 133.47	00 + 137.07	3.604	0.100	0.360	R	
	00 + 138.83	00 + 169.95	31.118	0.100	3.112	R	
	00 + 179.86	00 + 188.06	8.200	0.100	0.820	R	
	00 + 190.73	00 + 208.28	17.554	0.100	1.755	R	
	00 + 246.03	00 + 257.16	11.126	0.100	1.113	R	
	00 + 262.27	00 + 268.68	6.410	0.100	0.641	R	
	00 + 271.66	00 + 286.78	15.122	0.100	1.512	R	
	00 + 360.58	00 + 365.94	5.369	0.100	0.537	R	
	00 + 435.59	00 + 445.82	10.223	0.100	1.022	R	
	00 + 448.95	00 + 456.44	7.492	0.100	0.749	R	
	00 + 479.07	00 + 491.41	12.332	0.100	1.233	R	
	00 + 517.44	00 + 537.55	20.105	0.100	2.010	R	
	00 + 541.85	00 + 546.78	4.935	0.100	0.493	R	
	00 + 547.80	00 + 563.37	15.571	0.100	1.557	R	
	00 + 572.72	00 + 598.26	25.539	0.100	2.554	R	
	00 + 603.14	00 + 618.94	15.799	0.100	1.580	R	
	00 + 619.19	00 + 640.52	21.327	0.100	2.133	R	
	00 + 736.37	00 + 739.17	2.797	0.100	0.280	R	
					23.462		
QUANTITY OF DEMOLITION OF EXISTING CONCRE					115.482	Cu.M	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 10/3/2006 16:53		Sheet : 1 of 1
PROJECT : MERAK FLYOVER	BACK UP QUANTITY DEMOLITION OF HEDGE OR FENCE		
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : MRD 025 - MRD 033	ESTIMATOR :		CHECKED BY :

SKETCH DRAWING	QUANTITY CALCULATION PROJECT : MERAK FLYOVER				REMARKS
	STA		Length	L/R	
	Start	End			
MAIN ROAD / FLY OVER	00 + 000.00	00 + 000.00	0.000	L	
	00 + 000.00	00 + 000.00	0.000	L	
			0.000		
SERVICE ROAD MERAK - 1	00 + 640.69	00 + 658.61	17.922	L	
	00 + 684.40	00 + 690.99	6.597	L	
	00 + 852.33	00 + 875.85	23.514	L	
	00 + 879.30	00 + 886.67	7.374	L	
	01 + 072.58	01 + 077.24	4.665	L	
	01 + 083.53	01 + 088.71	5.181	L	
	01 + 086.48	01 + 093.69	7.217	L	
	01 + 092.37	01 + 112.73	20.365	L	
	01 + 181.91	01 + 197.79	15.881	R	
	01 + 203.62	01 + 244.26	40.641	R	
	01 + 248.15	01 + 261.15	13.003	R	
	01 + 264.68	01 + 279.96	15.281	R	
			177.641		
SERVICE ROAD MERAK - 2	00 + 107.62	00 + 146.03	38.407	R	
	00 + 151.75	00 + 176.32	24.577	R	
	00 + 228.50	00 + 261.16	32.660	R	
			95.644		
	QUANTITY DEMOLITION OF HEDGE OF FENCE = **273.285** M				

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/20/2006 11:07	Sheet : of	
PROJECT : MERAK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING



CALCULATION

Merak Fly Over - Contract Package 1

REMARKS

Item No. 7.15 (5) - Demolition of Concrete Curb

MAIN ROAD / FLYOVER

STATION		LENGTH
START	END	
0+000.000	0+000.000	0.000
0+000.000	0+000.000	0.000
SUB TOTAL LENGTH		0.000

STATION		LENGTH
START	END	
0+000.000	0+000.000	0.000
0+000.000	0+000.000	0.000
SUB TOTAL LENGTH		0.000

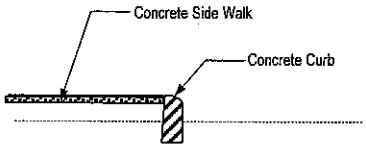
SERVICE ROAD

STATION		LEFT SIDE LENGTH
START	END	
MERAK-1		
1+073.344	1+074.738	1.394
1+074.738	1+080.000	5.262
1+080.000	1+080.534	0.534
1+080.534	1+090.999	10.465
1+090.999	1+099.429	8.430
1+099.429	1+100.000	0.571
1+100.000	1+105.981	5.981
1+105.981	1+120.000	14.019
1+120.000	1+140.000	20.000
1+140.000	1+160.000	20.000
1+160.000	1+180.000	20.000
1+180.000	1+200.000	20.000
1+200.000	1+220.000	20.000
1+220.000	1+235.322	15.322
1+235.322	1+236.617	1.295
0+000.000	0+000.000	0.000
SUB TOTAL LENGTH		163.273

STATION		RIGHT SIDE LENGTH
START	END	
1,181.811	1,196.571	14.760
1,204.381	1,211.774	7.393
1,211.774	1,220.000	8.226
1+220.000	1+240.000	20.000
1+240.000	1+243.184	3.184
1+243.184	1+244.015	0.831
1+248.461	1+260.000	11.539
1+260.000	1+261.418	1.418
1+264.926	1+279.554	14.628
		0.000
MERAK-2		0.000
0+107.790	0+109.256	1.466
0+109.256	0+112.220	2.964
0+112.220	0+120.000	7.780
0+120.000	0+140.000	20.000
0+140.000	0+140.502	0.502
0+140.502	0+143.769	3.267

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/20/2006 11:07	Sheet : of	
PROJECT : MERAK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING



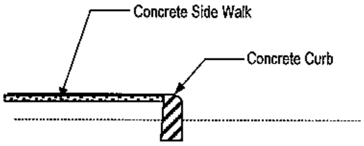
CALCULATION

Merak Fly Over - Contract Package 1

Item No. 7.15 (5) - Demolition of Concrete Curb						REMARKS
0+143.769	0+144.239	0.470				
0+144.239	0+145.941	1.702				
0+151.768	0+153.181	1.413				
0+153.181	0+154.214	1.033				
0+154.214	0+156.453	2.239				
0+156.453	0+160.000	3.547				
0+160.000	0+163.596	3.596				
0+163.596	0+165.256	1.660				
0+165.256	0+171.297	6.041				
0+229.018	0+230.242	1.224				
0+230.242	0+232.084	1.842				
0+232.084	0+233.999	1.915				
0+233.999	0+240.000	6.001				
0+240.000	0+260.000	20.000				
0+260.000	0+280.000	20.000				
0+280.000	0+280.629	0.629				
SUB TOTAL LENGTH		191.270				
TOTAL	**354.543 m.**					

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/20/2006 14:21	Sheet : of
PROJECT : MERAK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024	ESTIMATOR :	CHECKED BY :

SKETCH DRAWING



CALCULATION

Merak Fly Over - Contract Package 1

REMARKS

Item No. 7.15 (4) - Demolition of Concrete Side Walk

MAIN ROAD / FLYOVER

STATION		WIDTH	AREA
START	END		
0+000.000	0+000.000	0.000	0.000
0+000.000	0+000.000	0.000	0.000
SUB TOTAL LENGTH			0.000

STATION		WIDTH	AREA
START	END		
0+000.000	0+000.000	0.000	0.000
0+000.000	0+000.000	0.000	0.000
SUB TOTAL LENGTH			0.000

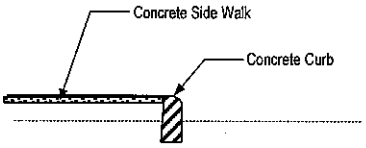
SERVICE ROAD

STATION		LEFT SIDE WIDTH	AREA
START	END		
MERAK-1			
1+073.344	1+074.738	0.829	1.156
1+074.738	1+080.000	2.305	12.126
1+080.000	1+080.534	3.018	1.612
1+080.534	1+090.999	2.953	30.903
1+090.999	1+099.429	2.280	19.220
1+099.429	1+100.000	1.762	1.006
1+100.000	1+105.981	1.619	9.680
1+105.981	1+120.000	1.416	19.851
1+120.000	1+140.000	1.553	31.060
1+140.000	1+160.000	1.739	34.780
1+160.000	1+180.000	2.053	41.060
1+180.000	1+200.000	2.413	48.260
1+200.000	1+220.000	2.069	41.380
1+220.000	1+235.322	1.208	18.509
1+235.322	1+236.617	0.375	0.485
SUB TOTAL LENGTH			311.088

STATION		RIGHT SIDE WIDTH	AREA
START	END		
1+181.811	1+196.571	2.841	41.926
1+204.381	1+211.774	3.964	29.302
1+211.774	1+220.000	4.220	34.714
1+220.000	1+240.000	4.169	83.370
1+240.000	1+243.184	4.087	13.011
1+243.184	1+244.015	3.445	2.862
1+248.461	1+260.000	2.797	32.275
1+260.000	1+261.418	2.030	2.878
1+264.926	1+279.554	2.149	31.436
			0.000
MERAK-2			0.000
0+107.790	0+109.256	0.914	1.339
0+109.256	0+112.220	1.250	3.704
0+112.220	0+120.000	0.712	5.539
0+120.000	0+140.000	0.858	17.160
0+140.000	0+140.502	0.976	0.490
0+140.502	0+143.769	1.606	5.247
0+143.769	0+144.239	2.221	1.044

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/20/2006 14:21	Sheet : of	
PROJECT : MERAK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : MRS-019, MRD-020,MRD-021,MRD-022,MRD-023,MRD024	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING



CALCULATION

Merak Fly Over - Contract Package 1

REMARKS

Item No. 7.15 (4) - Demolition of Concrete Side Walk						
0+144.239	0+145.941	1.108	1.886			
0+151.768	0+153.181	1.125	1.590			
0+153.181	0+154.214	2.259	2.333			
0+154.214	0+156.453	1.865	4.176			
0+156.453	0+160.000	1.485	5.266			
0+160.000	0+163.596	1.587	5.705			
0+163.596	0+165.256	1.735	2.879			
0+165.256	0+171.297	0.901	5.443			
0+229.018	0+230.242	1.236	1.513			
0+230.242	0+232.084	0.987	1.818			
0+232.084	0+233.999	1.623	3.108			
0+233.999	0+240.000	1.883	11.300			
0+240.000	0+260.000	1.238	24.750			
0+260.000	0+280.000	0.400	7.990			
0+280.000	0+280.629	0.012	0.008			
SUB TOTAL LENGTH			386.059			
TOTAL	**= 697.147 cum.**					