DIVISION 7.
Structures

TANGGULANGIN FLYOVER

FINAL
up to september 30' 2006

NO. PAY ITEM	DESCRIPTION	UNIT	ESTIMATE QUANTITY	REMARKS
	DIVISION 7 STRUCTURES			
7.1.2(1)	Structure Concrete , Class A (35 Mpa)	Cu M	676.37	
	(for Post Tension Double Girder)			
7.1.2(2)	Structure Concrete , Class A (35 Mpa) for Steel Girder	Cu M	453.43	
7.1.3(1)	Structure Concrete , Class B (30 Mpa) for Pier Head	Cu M	99.18	
7.1.3(2)	Structure Concrete , Class B (30 Mpa) for Column	Cu M	57.34	
7.1.3(3)	Structure Concrete , Class B (30 Mpa) for Composite Column	Cu M	105.31	
7.1.3(4)	Structure Concrete , Class B (30 Mpa) for Abutment	Cu M	194.12	
7.1.4(1)	Structure Concrete , Class B-1 (28 Mpa) for Barrier , Median	Cu M	-	in Division 8
7.1.4(2)	Structure Concrete , Class B-1 (28 Mpa) for Parapet Wall	Cu M	683.87	
7.1.5	Structure Concrete , Class C (24 Mpa) for Footing, Approach Slab			
	and Retaining Wall	Cu M	257.66	
7.1.6	Structure Concrete, Class D	Cu M		
7.1.8	Structure Concrete , Class E	Cu M	39.74	
SS.7.1.8a	Waterproofing on Deck	Sq M	2,300.00	
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	28,825.20	
7.1(10)	Structural Column Casing (Erected)	Kg	-	
7.1(10)a	Steel Casing for Bored Pile (Erected)	Kg	28,825.20	
7.2.1	PC Strand Size 12.7 mm and Accessories	Kg	14,131.69	
7.2.2	PC Strand Size 21.8 mm and Accessories	Kg	10,064.45	
7.2.3	PC Bar and Accessories	Kg	795.97	
7.3.(4)	Reinforcing Steel Bars Deform	Kg	365,684.73	
7.3.(6)	Reinforcing Steel Bars D 51	Kg	-	
7.4.(1)	Furnish and Delivery of Steel Girder	Ton	214.02	
7.4.(2)	Furnish and Delivery of Steel Portal	Ton	156.52	
7.5.(1)	Erection of Steel Girder	Ton	214.02	
7.5.(2)	Erection of Steel Portal	Ton	156.52	
7.6.(22)	Cast in Place Concrete Bored Pile Dia 1500 mm	Ln M	384.00	
7.6.(23)	Cast in Place Concrete Bored Pile Dia 1800 mm	Ln M	234.00	
7.6.(26)	Cast in Place Concrete Bored Pile Dia 2500 mm	Ln M	287.00	
7.6.(4)	Pile Integrity Test	Each	20.00	
SS7.6(28)	Pile Dynamic Analysis (PDA) 1500 mm	Each	1.00	
SS7.6(29)a	Pile Dynamic Analysis (PDA) 1800 mm	Each	1.00	
SS7.6(29)b	Pile Dynamic Analysis (PDA) 2500 mm	Each	1.00	
7.9	Stone Masonry	Cu M	78.64	from highway
7.9.(1)	Blinding Stone	Cu M		
7.11.(1)	Expantion Joint (Type A)	Ln M	46.00	
7.11.(2)	Expantion Joint (Type B)	Ln M		
7.11.(3)	Restrainer Type - A	Set	4.00	
7.11.(4)	Restrainer Type - B	Set	-	
7.11.(5)	Stopper for Steel Girder	Set	4.00	
7.11.(6)	Fixed Anchor	Set	-	
7.11.(7)	Moved Anchor	Set		
7.12.(1)	Elastomeric Bearing Pad Type - A1	Set	-	
7.12.(2)a	Elastomeric Bearing Pad Type - A2	Set	-	
7.12.(2)b	Elastomeric Bearing Pad Type - A3	Set	4.00	
7.12.(2)c	Elastomeric Bearing Pad Type - A4	Set	-	
7.12.(7)a	Mechanical Bearing for Steel Girder Type - B1	Set	4.00	
7.12.(7)b	Mechanical Bearing for Steel Girder Type - B2	Set	-	
7.12.(7)c	Mechanical Bearing for Steel Girder Type - C1	Set	1.00	
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	-	
7.13	Steel Bridge Reilings	Ln.M	1,061.00	
7.14	Bridge Name Plate	Each	2.00	
7.15.(1)	Demolition of Existing Structure Masonry	Cu M	203.95	
7.15.(2)	Demolition of Existing Structure Concrete	Cu M	161.81	
7.15.(10)	Demolition of Existing Rigid Pavement	Cu M	-	
7.15.(11)	Demolition of Existing Hedge or Fence	Sq M	317.87	from Highway
7.15.(12)	Demolition of Existing Concrete Side Walk	Sq M	-	
7.15.(13)	Demolition of Existing Concrete Curb	Ln M	-	
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 : 31 - 08 - 2006					Sheet : 1 of 4			
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : TCL - 002 - 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									
	(Fc' = 35 Mpa) for Post Tension									
	Double Girder	0.250	0.450	2.640	0.924					Span girder span to span
		0.450	0.450	1.062	0.478					
		(1.062 + 0.85) / 2		0.956						
		(0.777 + 0.724) / 2		0.751	0.717					
		0.450	0.300	0.600	0.225					
		0.300	0.300	4.088	1.226					
		0.300	0.450	0.600	0.225					
		(1.062 + 0.85) / 2		0.956						
		(0.777 + 0.724) / 2		0.751	0.717					
		0.450	0.450	1.062	0.478					
		0.450	0.250	2.648	0.927	5.918				
		0.250	0.450	2.640	0.924					Girder on diafragma
		(7.412 + 7.200) / 2		7.306						
		(0.777 + 0.724) / 2		0.751	5.483					
			0.450	7.412	3.335					
		0.450	0.250	2.648	0.927					
						10.669				

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006					Sheet : 2 of 4			
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : TCR - 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									
	(Fc' = 35 Mpa) for Post Tension									
	Double Girder	0.250	0.450	2.643	0.925					Span girder span to span
		0.450	0.450	1.062	0.478					
		(1.062 + 0.85) / 2		0.956						
		(0.761 + 0.739) / 2		0.750	0.717					
		0.450	0.300	0.600	0.225					
		0.300	0.300	4.089	1.227					
		0.300	0.450	0.600	0.225					
		(1.062 + 0.85) / 2		0.956						
		(0.761 + 0.739) / 2		0.750	0.717					
		0.450	0.450	1.062	0.478					
		0.450	0.250	2.646	0.926	5.918				
		0.250	0.450	2.643	0.925					Girder on diafragma
		(7.411 + 7.200) / 2		7.306						
		(0.761 + 0.739) / 2		0.750	5.479					
			0.450	7.411	3.335					
		0.450	0.250	2.646	0.926					
						10.665				

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006					Sheet : 2 of 4			
PROJECT : TANGGULANGIN 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	(0.4 + 0.25) / 2 x 0.25			0.08125	0.08125	8.500	0.691		Post of aproach slab at Abt
	(Fc' = 35 Mpa) for Post Tension									
	Double Girder									
		(1.002 + 0.779) / 2 x 12.70 x 1.7						19.226		Diafraghma A1
		(0.589 + 0.70) / 2 x (12.70 + 7.650) / 2 x 1.7						11.148		Diafraghma A1
						5.918	18.250	108.004		A1 - P1
						10.669	2.000	21.338		Diafraghma P1
						5.918	17.000	100.606		P1 - P2
						10.669	1.250	13.336		Diafraghma P2
							1.700		274.35	
							40.200			
						SUB TOTAL A1 to P2			274.35	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 29 - 08 - 2006					Sheet : 3 of 3			
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : GCR - 002 - 003 - 004		QUANTITY : Ahda					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	(0.4 + 0.25) / 2 x 0.25			0.08125	0.08125	8.500	0.691		Post of aproach slab at Abt
	(Fc' = 35 Mpa) for Post Tension									
	Double Girder									
						10.669	1.250	13.336		Diafraghma P6
						5.918	17.000	100.606		P6 - P7
						10.669	2.000	21.338		Diafraghma P7
						5.918	18.000	106.524		P7 - P8
						10.669	2.000	21.338		Diafraghma P8
						5.918	18.250	108.004		P8 - A2
		(0.75 + 0.925) / 2 x 12.70 x 1.7						18.082		Diafraghma A2
		(12.70 + 7.650) / 2 x 0.7 x 1.7						12.108		Diafraghma A2
							1.700			
							60.200			
									402.03	
						SUB TOTAL P8 to A2			402.03	
						SUMMARY			676.37	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006					Sheet : 1 of 1			
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : TST - 01		QUANTITY :					CHECKED BY :			
NO	DESCRIPTION	h1	h2	l	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)b	Structure Concrete, Class A									
	(Fc' = 35 Mpa) for Steel Girder									
		0.250	0.450	2.525	0.884					
		0.450	0.450	1.501	0.675					
		0.450	0.300	0.600	0.225					
		0.300	0.300	3.450	1.035					
		0.300	0.450	0.600	0.225					
		0.450	0.450	1.501	0.675					
		0.450	0.250	2.525	0.884					
						4.603				
	P2 - P3					4.603	24.250	111.632		
	P3 - P4					4.603	25.000	115.085		
	P4 - P5					4.603	25.000	115.085		
	P5 - P6					4.603	24.250	111.632		
									453.43	
							SUMMARY		453.43	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 15 - 09 - 2006	Sheet : 1 of 2
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO : TSB - 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							
		((1.30 x 7.75)+(3.30 x 7.91534))/2		18.098	0.600	10.86		
		(7.91534+8.08068) /2x 0.60	4.799	4.799	0.950	4.56		
		(7.91534+8.12312) /2 x0.754	6.046	6.046	0.950	5.74		
		1.40 X 8.53455	11.948					
		1.40 X 7.91534	11.081	11.515	2.250	25.91		
							47.07	PIER HEAD P2
					SUB TOTAL		47.07	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 15 - 09 - 2006			Sheet : 2 of 2			
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT								
KATAHIRA AND ENGINEERS INTERNATIONAL								
DRAWING NO : TSB - 07		QUANTITY : Ahda			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	3.14 x 0.70 x 0.70	1.539					
		3.30 x 7.75	25.575	13.5568	0.300	4.07		
		((1.60 x 7.75)+(3.30 x 7.92041))/2		19.269	0.600	11.56		
		(7.92041+8.14224) /2x 0.781	6.272	6.272	0.950	5.96		
		(7.92041+8.09083) /2 x 0.60	4.803	4.803	0.950	4.56		
		1.40 X 8.55968	11.984					
		1.40 X 7.92041	11.089	11.536	2.250	25.96		
							52.11	PIER HEAD P6
					SUB TOTAL		52.11	
				SUMMARY P2 AND P6			99.18	

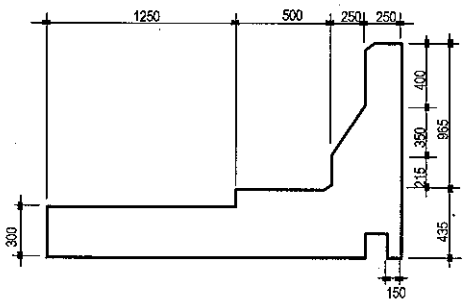
CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : TSB - 02, 03, 08		QUANTITY :		CHECKED BY :	
NO	DESCRIPTION	L / R	CALCULATION	QTY (Cu M)	REMARKS
7.1.(2)b	Structure Concrete, Class B				
	(Fc' = 30 Mpa) for Column				
		P1 - L	3.14 X 0.55² X 7.253	6.89	
		R	3.14 X 0.55² X 6.935	6.59	
		P2 - L	3.14 X 0.55² X 6.158	5.85	
		R	3.14 X 0.55² X 5.850	5.56	
		P7 - L	3.14 X 0.55² X 8.133	7.73	
		R	3.14 X 0.55² X 8.451	8.03	
		P8 - L	3.14 X 0.55² X 8.682	8.25	
		R	3.14 X 0.55² X 8.902	8.46	
			SUMMARY	57.34	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : TSB - 04, 05, 06, 07		QUANTITY :		CHECKED BY :	
NO	DESCRIPTION	L / R	CALCULATION	QTY (Cu M)	REMARKS
7.1.(2)c	Structure Concrete, Class B				
	(Fc' = 30 Mpa)				
	for Composite Column	P3	3.14 X 0.680² X 12.764	18.53	
		P4 - L	3.14 X 0.680² X 12.300	17.86	PORTAL
		R	3.14 X 0.680² X 12.300	17.86	
		P5 - L	3.14 X 0.680² X 12.300	17.86	PORTAL
		R	3.14 X 0.680² X 12.300	17.86	
		P6	3.14 X 0.680² X 10.569	15.35	
			SUMMARY	105.31	

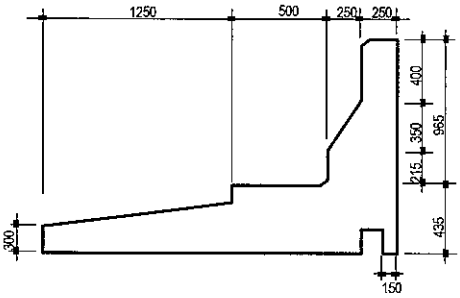
CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 28 - 08 - 2006		Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER 0						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : TSB - 01 , 09		QUANTITY :			CHECKED BY :	
NO	DESCRIPTION	A1/A2	CALCULATION		QTY (Cu M)	REMARKS
7.1.(2)d	Structure Concrete, Class B					
	(Fc' = 30 Mpa) for Abutment					
		A1	2.20 x13.00 x 2.40		68.64	Footing
			Area	1.624 Sq M		Coulumn
			Height	5.861 M' / Left		
				5.600 M' /Right		
			1.624 x 5.861	= 9.52		
			1.624 x 5.600	= 9.09	18.61	
			4.20 x 5.731 x 0.4		9.63	Wall
				Total A1	96.88	
		A2	2.20 x13.00 x 2.40		68.64	Footing
			Area	1.624 Sq M		Coulumn
			Height	5.760 M' / Left		
				5.849 M' /Right		
			1.624 x 5.760	= 9.35		
			1.624 x 5.849	= 9.50		
					18.85	
			4.20 x 5.805 x 0.4		9.75	Wall
				Total A2	97.25	
			SUMMARY		194.12	

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

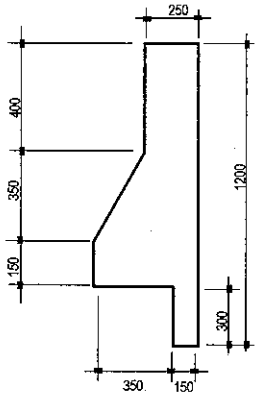
SKETCH DRAWING	CALCULATION Tanggulangin Flyover - Contract Package 3	REMARKS



Section of Parapet at Approach



Section of Parapet at M.S.E Wall



Section of Parapet at Viaduct

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
211.32	m	=	Length of Parapet at MSE Wall Approach A (2 side)
211.32	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	211.32	=	**224.00**	**cum.**

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

Volume	=	1.06	x	211.32	=	**224.00**	**cum.**

C. At Viaduct

Data:

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

C.1. Volume of Concrete Parapet at Viaduct

Volume	=	0.37	x	400.00	=	**148.00**	**cum.**

Total Concrete Volume of Parapet at Merak 1	=	**619.80**	**cum.**

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
7.1.(5)	Structure Concrete, Class C			
	(Fc' = 24 Mpa) for Footing,			
	Approach Slab, Retaining Wall	Sta 0 + 449.800 to 0 + 380.000		A1 to End of Ramp
		L1 = 34.900 Ln M		
		L2 = 34.900 Ln M		
		h1 = 1.745 M'		
		h2 = 0.357 M'		
		t = 0.400 M'		
		w1 = 1.300 M'		
		w2 = 0.800 M'		
		Quantity :		
		= (1.745+0.357) /2 x 69.80 x 0.40 x 2	58.69	
		= 0.4 x 1.30 x 34.90 x 2	36.30	
		= 0.4 x 0.80 x 34.90 x 2	22.34	
		Sub Total	*117.32*	
		Sta 0 + 842.200 - 0 + 910.000		A2 to End of Ramp
		L1 = 33.900 Ln M		
		L2 = 33.900 Ln M		
		h1 = 1.887 M'		
		h2 = 0.343 M'		
		t = 0.400 M'		
		w1 = 1.300 M'		
		w2 = 0.800 M'		
		Quantity :		
		= (1.887+0.343) /2 x 67.80 x 0.40 x 2	60.48	
		= 0.4 x 1.30 x 33.900 x 2	35.26	
		= 0.4 x 0.80 x 33.900 x 2	21.70	
		Sub Total	*117.43*	
		Total Stubwall	234.75	
		SUMMARY	257.66	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 2	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 01, 09		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
7.1.(8)	Lean Concrete Class E (Fc' = 17 Mpa)	A1 = A2		A1 & A2
		= (13.20 x 2.60) - (3.14 x 0.9² x 3)		
		= 26.690 Sq M		
		For two abutment A1 and A2		
		= 26.690 x 0.10 x 2		
		= 5.338 Cu M	5.34	
		Sub Total	5.34	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 2 of 2	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TEP - 010 , 011		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
7.1.(8)	Lean Concrete Class E (Fc' = 17 Mpa)			
		A1 Stubwall		
		= (34.900 x 1.50 x 0.10) x 2	10.47	
		= (34.900 x 1.00 x 0.10) x 2	6.98	
		Sub Total	17.45	
		A2 Stubwall		
		= (33.900 x 1.50 x 0.10) x 2	10.17	
		= (33.900 x 1.00 x 0.10) x 2	6.78	
		Sub Total	16.95	
		SUMMARY	39.74	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 01 to 09		QUANTITY : Ahda	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Sq M)	REMARKS
SS.7.1(9)	Water Proofing on Deck			
		A1 - A2 = 200 Ln M		
		Width = 11.50 M'		
		Quantity = 200 x 11.50		
		= 2,300 Sq M	2,300.00	
		SUMMARY	2,300.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 32, 33, 34 , 35, 36		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Kg)	REMARKS
SS7.1(10)	Structure Cassing for Bored Pile	Ø 2500		
	(Inner Ribed Surface t=13 mm)	= (1.25² x 3.14) - (1.237² x 3.14)		
		= 0.102 Sq M		
		P3 = 6 x 0.102 x 7850	4,804.20	
		P4 - L = 6 x 0.102 x 7850	4,804.20	PORTAL
		R = 6 x 0.102 x 7850	4,804.20	
		P5 - L = 6 x 0.102 x 7850	4,804.20	PORTAL
		R = 6 x 0.102 x 7850	4,804.20	
		P6 = 6 x 0.102 x 7850	4,804.20	
		SUMMARY	28,825.20	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 30 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN 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 Cassing for Bored Pile (Erected)	Ø 2500		
		= (1.25² x 3.14) - (1.237² x 3.14)		
		= 0.102 Sq M		
		P3 = 6 x 0.102 x 7850	4,804.20	
		P4 - L = 6 x 0.102 x 7850	4,804.20	PORTAL
		R = 6 x 0.102 x 7850	4,804.20	
		P5 - L = 6 x 0.102 x 7850	4,804.20	PORTAL
		R = 6 x 0.102 x 7850	4,804.20	
		P6 = 6 x 0.102 x 7850	4,804.20	
		SUMMARY	28,825.20	

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared : 31 - 08 - 2006			Sheet : 1 of 1			
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : TCL 004 and GCL 006 GCR 005 and GCR 006		QUANTITY : Ahda				CHECKED BY :			
NO	DESCRIPTION	LOCATION	Length (M)	No. Req'd	Nos	Unit Weight (Kg / M)	Weight (Kg)	Total Weigth (Kg)	Remarks
7.2.(9)	PC Strand Size 12.7 mm								
		A1 - P1	20.80	14	12	0.774	2,704.67		
		P1 - P2	19.25	14	12	0.774	2,503.12		
		P6 - P7	19.25	16	12	0.774	2,860.70		
		P7 - P8	20.00	16	12	0.774	2,972.16		
		P8 - A2	20.80	16	12	0.774	3,091.05		
								14,131.69	
						SUMMARY		14,131.69	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006				Sheet : 1 of 1			
PROJECT : TANGGULANGIN 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	Weight / 1 nos (Kg)	Weight (Kg)	Total Weigth (Kg)	Remarks
7.2.(9)a	PC Strand Size 21.8 mm								
		A1 to P2	12.71	1	64	31.55	2,019.20		A1 - P2
		P2 to P6	12.71	1	159	31.55	5,016.45		P2 - P3 - P4 - P5 - P6
									Deck Slab
		P6 to A2	12.71	1	96	31.55	3,028.80		P6 - P7 - P8 - A2
								10,064.45	
						SUMMARY		10,064.45	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006				Sheet : 1 of 1			
PROJECT : TANGGULANGIN 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 (Kg)	Total Weigth (Kg)	Remarks
7.3.(3)	PC Bar	P1	7.008	1	6.00	6.31	265.32		
		P7	7.008	1	6.00	6.31	265.32		
		P8	7.008	1	6.00	6.31	265.32		
								795.97	
						SUMMARY		795.97	

CONSTRUCTION COST ESTIMATE WORKSHEET Date Prepared : 21 - 09 - 2006 Sheet : of

PROJECT : TANGGULANGIN FLYOVER **10/9/2006 13:09**
NORTH JAVA CORRIDOR FLYOVER PROJECT

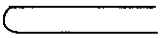
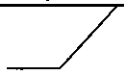
KATAHIRA AND ENGINEERS INTERNATIONAL

DRAWING NO : Quantity : CHECKED BY

NO	SKETCH DRAWING	DESCRIPTION	SUMMARY (Kg)	REMARKS
7.3.(4)	REINFORCING STEEL BARS DEFORM			
		SUB STRUCTURE		
		Bored pile	-	252,396.00
		Abutment	43,170.00	
		Pier Column	20,209.00	
		Pier Head	26,418.00	
		Aproach Slab	4,106.00	
		Stubwall	16,253.00	
		SUPER STRUCTURE		
		Deck Slab	62,805.09	
		Girder	85,518.00	A1 - P1 - P2 and P6 - P7 - P8 - A2
		Parapet Wall	57,995.01	
		OTHER		
		T O T A L	316,474.10	
7.3.(6)	REINFORCING STEEL BARS D 51	Bored pile	-	149,470.00

BAR BENDING SCHEDULLE
PARAPET

PARAPET APPROACH

Rebar Name	Dia (mm)	Length (mm)	NOS	Unit Weight (kg/m')	Weight (kg)	Diagram	Remarks
a	16.00	300.00	5.00	1.58	23.70		
b	12.00	120.00	5.00	0.88	5.26		
c	14.00	135.00	5.00	0.88	5.92		
d	20.00	125.00	6.60	2.47	20.34		
e	12.00	254.00	5.00	0.88	11.14		
f	12.00	135.00	5.00	0.88	5.92		
g	12.00	100.00	14.00	1.21	16.93		
h	14.00	100.00	12.00	1.58	18.96		
					108.162		

PARAPET BRIDGE

Rebar Name	Dia (mm)	Length (mm)	NOS	Unit Weight (kg/m')	Weight (kg)	Diagram	Remarks
a	10	228	5	0.62	7.07		
b	16	115	5	1.58	9.09		
c	10	55	5	0.62	1.71		
d	10	100	12	0.62	7.44		
					25.298		

LENGTH OF PARAPET EACH FLYOVER

No.	Fly Over	A1 (meter)	A2 (meter)	AB1 (meter)	Bridge (meter)	Total (meter)	Remarks
1	Merak	92.95	122.95	115.00	920.00	1,581.80	
2	Balaraja	96.00	73.50	-	221.00	781.00	
3	Nagrek	270.00	80.00	-	224.00	1,148.00	
4	Gebang	104.66	144.65	-	385.00	1,268.62	
5	Peterongan	120.00	120.00	-	262.00	1,004.00	
6	Tanggulangin	110.66	110.66	-	200.00	842.63	

QUANTITY CALCULATION REINFORCING BAR AT TANGGULANGIN FLY OVER (PARAPET)

status 10/9/2006 11:47

	LENGTH		LENGTH
FLY OVER	200.00	2	400.00
			400.00 Meter

RE-BAR AT BRIDGE TANGGULANGIN FLYOVER PER LN.M

						TOTAL WEIGTH (KG)	
1	a	2.28	5	0.62	7.068		
2	b	1.15	5	1.58	9.085		
3	c	0.55	5	0.62	1.705		
4	d	1	12	0.62	7.44		
					25.298	400.00	10,119.20

	LENGTH		LENGTH
ABUTMENT A1	110.66	2	221.32
ABUTMENT A2	110.66	2	221.32
ABUTMENT AB1	0.00	2	0.00
			442.63 Meter

RE-BAR PARAPET AT APPROACH TANGGULANGIN FLYOVER PER LN.M

1	a	3.00	5.00	1.58	23.70		
2	b	1.20	5.00	0.88	5.26		
3	c	1.35	5.00	0.88	5.92		
4	d	1.25	6.60	2.47	20.34		
5	e	2.54	5.00	0.88	11.14		
6	f	1.35	5.00	0.88	5.92		
7	g	1.00	14.00	1.21	16.93		
8	h	1.00	12.00	1.58	18.96		
					108.16165	442.63	47,875.81

TOTAL WEIGTH of REINFORCING STEEL PARAPET MERAK FO (kg) **57,995.01**

TANGGULANGIN 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	10,265.00		TSB - 15
		RC COLUMN	7,773.00	21,353.00	TSB - 11
		WALL	3,315.00		TSB - 11
P1	P1 - L	RC COLUMN	1,918.00	3,785.00	TSB - 16
	P1 - R	RC COLUMN	1,867.00		TSB - 16
P2	P2 - L	RC COLUMN	2,187.00	4,324.00	TSB - 17
	P2 - R	RC COLUMN	2,137.00		TSB - 17
P3	P3	COMPOSITE COLUMN	258.00	258.00	TSB - 32
P4	P4 - L	COMPOSITE COLUMN	258.00	516.00	TSB - 36
	P4 - R	COMPOSITE COLUMN	258.00		TSB - 36
P5	P5 - L	COMPOSITE COLUMN	258.00	516.00	TSB - 36
	P5 - R	COMPOSITE COLUMN	258.00		TSB - 36
P6	P6	COMPOSITE COLUMN	258.00	258.00	TSB - 34
P7	P7 - L	RC COLUMN	2,376.00	4,820.00	TSB - 18
	P7 - R	RC COLUMN	2,444.00		TSB - 18
P8	P8 - L	RC COLUMN	2,838.00	5,732.00	TSB - 19
	P8 - R	RC COLUMN	2,894.00		TSB - 19
A2		FOOTING	10,265.00	21,817.00	TSB - 15
		RC COLUMN	8,109.00		TSB - 13
		WALL	3,443.00		TSB - 13
		TOTAL ABUTMENT A1 DAN A2		43,170.00	
		TOTAL PIER P1 s/d P8		20,209.00	

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	2,053.00		TSB - 44
A2	APROACH SLAB	2,053.00	4,106.00	TSB - 44
P2	PIER HEAD	11,399.00		TSB - 24
P6	PIER HEAD	12,768.00		TSB - 28
		2,251.00		
			26,418.00	
	TOTAL APROACH SLAB		4,106.00	
	TOTAL PIER HEAD		26,418.00	

TANGGULANGIN 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	17,234.00	-	3.00	51,702.00	-
P1	14,625.00	-	2.00	29,250.00	-
P2	14,625.00	-	2.00	29,250.00	-
P3	10,064.00	35,400.00	1.00	10,064.00	35,400.00
P4 - L	5,729.00	23,471.00	1.00	5,729.00	23,471.00
- R	4,842.00	19,751.00	1.00	4,842.00	19,751.00
P5 - L	4,757.00	19,348.00	1.00	4,757.00	19,348.00
- R	7,086.00	29,269.00	1.00	7,086.00	29,269.00
P6	5,410.00	22,231.00	1.00	5,410.00	22,231.00
P7	13,634.00	-	2.00	27,268.00	-
P8	13,634.00	-	2.00	27,268.00	-
A2	16,590.00	-	3.00	49,770.00	-
			SUB TOTAL	252,396.00	149,470.00
			TOTAL	401,866.00	

BREAK DOWN REINFORCING STEEL

TANGGULANGIN		quantity	unit	weight (Kg)	total weight (Kg)			
GIRDER		149.406	Cum	101.00	40,783.80			
APPROACH SLAB		11.610	Cum	138.00	1,602.18			
		11.610	Cum	138.00	1,602.18			
MS WALL		181.800	Cum	109.00	19,816.20			
		198.720	Cum	109.00	21,660.48			
STUBWALL	A1			7,569.00	7,569.00		16,253.00	Stubwall
	A2			8,684.00	8,684.00		107,205.64	Parapet
PARAPET (stubwall)		66.310	Cum	79.00	11,028.40		123,458.64	
		64.410	Cum	79.00	10,712.40			
						123,458.64		

TANGGULANGIN

A1 - A2 = 200 + (2 x 0.95)
= 201.90 Ln M

Ramp A1 - EPS Wall = 91.00 Ln M
EPS Wall - End of Ramp = 69.80 Ln M

Ramp A2 - EPS Wall = 99.00 Ln M
EPS Wall - End of Ramp = 67.80 Ln M

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

= 201.90 x 0.370 x 2	149.41
= 5.00 x 1.161 x 2	11.61
= 86.00 x1.057 x 2	181.80
= 69.80 x 0.475 x 2	66.31
= 5.00 x 1.161 x 2	11.61
= 94.00 x1.057 x 2	198.72
= 67.80 x 0.475 x 2	64.41
	683.87

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 09 - 2006	Sheet : of	
PROJECT : TANGGULANGIN 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		214.02	
		SUMMARY	214.02	

		Date Prepared : 10 - 09 - 2006	Sheet : of	
PROJECT : TANGGULANGIN 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		156.52	
		SUMMARY	156.52	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 09 - 2006	Sheet : of	
PROJECT : TANGGULANGIN 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		214.02	
		SUMMARY	214.02	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 09 - 2006	Sheet : of	
PROJECT : TANGGULANGIN 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			
			156.52	
		SUMMARY	156.52	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 02, 03, 08		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.6.(22)	Cast in Place Concrete Bored Pile Dia 1500 mm	P1 2 X 50	100.00	
		P2 2 X 50	100.00	
		P7 2 X 46	92.00	
		P8 2 X 46	92.00	
		SUMMARY	384.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 28 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 01 , 09		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.6.(23)	Cast in Place Concrete Bored Pile	A1 3 X 40	120.00	
	Dia 1800 mm			
		A2 3 X 38	114.00	
		SUMMARY	234.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 04, 05, 06, 07		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.6.(26)	Cast in Place Concrete Bored Pile Dia 2500 mm	P3 1 X 55	55.00	
		P4 - L 1 X 48	48.00	PORTAL
		- R 1 X 39	39.00	
		P5 - L 1 X 38	38.00	PORTAL
		- R 1 X 62	62.00	
		P6 1 X 45	45.00	
		SUMMARY	287.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006		Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : TSB - 01 to 09		QUANTITY :		CHECKED BY :	
NO	DESCRIPTION	CALCULATION		QTY (Each)	REMARKS
7.6.(27)	Pile Integrity Test	A1	3 Each		
		P1	2 Each		
		P2	2 Each		
		P3	1 Each		
		P4	2 Each		PORTAL
		P5	2 Each		PORTAL
		P6	1 Each		
		P7	2 Each		
		P8	2 Each		
		A2	3 Each		
			20 Each	20.00	
			SUMMARY	20.00	

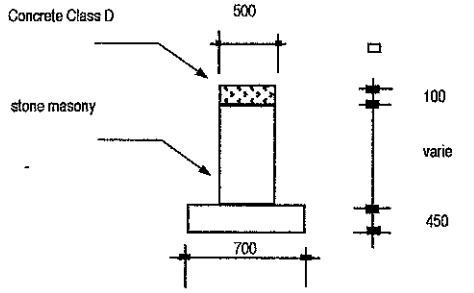
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 04, 05, 06, 07		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
SS7.6.(29)b	Pile Dynamic Analysis (PDA)		1.00	
	Dia 2500 mm			
		SUMMARY	1.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 01 , 09		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
S57.6.(29)a	Pile Dynamic Analysis (PDA) 1800 mm		1.00	
		SUMMARY	1.00	

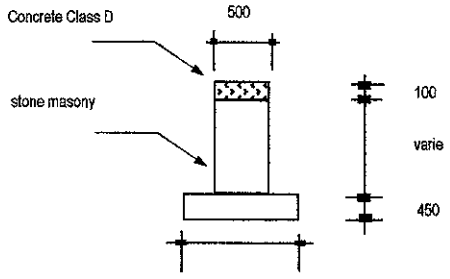
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB - 02, 03, 08		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
SS7.6.(28)	Pile Dynamic Analysis (PDA		1.00	
	Dia 1500 mm			
		SUMMARY	1.00	

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

SKETCH DRAWING



Sta 0+280 - 0+300



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CALCULATION

PROJECT : TANGGULANGIN FLYOVER

STA	AREA	AV. AREA	DISTANCE START	DISTANCE END	L (M)	VOL (Cu.M)	REMARKS
							LEFT SIDE
0 + 980.00	0.39	0.39	0 + 967.07	0 + 995.95	28.89	11.29	SURABAYA BOUND
TOTAL					**28.89**	**11.29**	
							LEFT SIDE
							KETAPANG BOUND
0 + 440.00	0.43	0.22	0 + 435.00	0 + 440.00	5.00	1.09	
0 + 460.00	0.58	0.51	0 + 440.00	0 + 465.15	25.15	12.75	
0 + 540.00	0.52	0.26	0 + 540.00	0 + 549.66	9.66	2.52	
0 + 560.00	0.57	0.54	0 + 549.66	0 + 560.00	10.34	5.63	
0 + 580.00	0.39	0.48	0 + 560.00	0 + 586.33	26.33	12.59	
TOTAL					**76.48**	**34.57**	
							RIGHT SIDE
							KALITENGAH BOUND
0 + 460.00	0.38	0.38	0 + 457.79	0 + 464.82	7.03	2.68	
0 + 720.00	0.46	0.46	0 + 717.55	0 + 720.00	2.45	1.12	
0 + 740.00	0.38	0.42	0 + 720.00	0 + 740.97	20.97	8.81	
0 + 840.00	0.42	0.42	0 + 839.04	0 + 840.00	0.96	0.40	
0 + 860.00	0.39	0.40	0 + 840.00	0 + 860.00	20.00	8.03	
0 + 880.00	0.37	0.38	0 + 860.00	0 + 891.28	31.28	11.74	
TOTAL					**82.68**	**32.78**	

QUANTITY OF STONE MASONRY = **78.64** Cu.M

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
7.11.(2)	Expantion Joint (Type A)			
		P2 = 5.75 Ln M x 2 X 2		
		= 23.00 Ln M		
		P6 = 5.75 Ln M x 2 X 2		
		= 23.00 Ln M		
		Total = 23.00 + 23.00		
		= 46.00 Ln M	46.00	
		SUMMARY	46.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
SS7.11.(2)	Restrainner Type A			
		P2 = 1.00 x 2 Set		
		= 2 set	2.00	
		P6 = 1.00 x 2 Set		
		= 2 Set	2.00	
		SUMMARY	4.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
SS7.11.(6	Stopper for Steel Girder			
		P2 = 1.00 x 2 Set	2.00	Steel Girder
		= 2.00 Set		
		P6 = 1.00 x 2 Set		
		= 2.00 Set	2.00	Steel Girder
		SUMMARY	4.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 21 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Set)	REMARKS
7.12.(2)b	Elastomeric Bearing Pad			
	Type - A3	P2 = 1.00 x 2 Set		PC Girder
		= 2.00 Set		
		P6 = 1.00 x 2 Set		PC Girder
		= 2.00 Set		
		Total = 2.00 + 2.00		
		= 4.00 Set	4.00	
		SUMMARY	4.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN 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	Bridge Bearing for Steel Girder			
	Type - B1	P2 = 1.00 x 2 Set		
		= 2.00 Set		
		P6 = 1.00 x 2 Set		
		= 2.00 Set		
			4.00	
		SUMMARY	4.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : GEBANG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
7.12.(7)c	Bridge Bearing for Steel Girder Type - C1	P5 = 1.00 x 1 Set	1.000	Portal
		SUMMARY	1.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : GEBANG 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	Bridge Bearing for Steel Girder			
	Type - C2	P4 = 1.00 x 1 Set	1.00	Portal
		SUMMARY	1.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : GEBANG 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	Bridge Bearing for Steel Girder Type - C3	P4 = 1.00 x 1 Set	1.000	Portal
		P5 = 1.00 x 1 Set	1.000	Portal
		SUMMARY	2.00	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 31 - 08 - 2006	Sheet : 1 of 1	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : TSB 01 - 09 TEP - 001 to 011		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ln M)	REMARKS
7.13	Steel Bridge Reillings	A1 - A2 = 200 Ln M		
		Ramp A1 - End EPS Wall		
		= 91.00 + 0.95		
		= 91.95 Ln M		
		End EPS Wall - Stubwall		
		= 69.80 + 0.50		
		= 70.30 Ln M		
		Ramp A2 - End EPS Wall		
		= 99.00 + 0.95		
		= 99.95 Ln M		
		End EPS Wall - Stubwall		
		= 67.80 + 0.50		
		= 68.30 Ln M		
		L Total		
		=(200 + 91.95 + 70.30 + 99.95 + 68.30) x 2		
		= 1,061.00 Ln M	1,061.00	
		SUMMARY	1,061.00	

CONSTRUCTION COST ESIMATE WORKSHEET		Date Prepared : 10 - 08 - 2006	Sheet : of	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Each)	REMARKS
7.14	Bridge Name Plate	2 Each	2.00	
		SUMMARY	2.00	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 10/4/2006 17:06		Sheet : 1 of 1
PROJECT : TANGGULANGIN FLYOVER	BACK UP QUANTITY DEMOLITION OF MASONRY		
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : TRD 021 - TRD 027	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING	QUANTITY CALCULATION PROJECT : TANGGULANGIN FLYOVER						REMARKS
	STA		L/R	Average	Length	Volume	
	Start	End		Area		(Cu.M)	
MAIN ROAD	00 + 336.19	00 + 337.64	L	0.360	1.447	0.521	
	00 + 342.66	00 + 344.06	L	0.360	1.397	0.503	
	00 + 346.89	00 + 350.96	L	0.360	4.074	1.467	
	00 + 356.20	00 + 359.44	L	0.360	3.242	1.167	
	00 + 984.05	00 + 986.37	R	0.360	2.317	0.834	
	01 + 039.02	01 + 048.94	R	0.360	9.914	3.569	
						8.061	
SERVICE ROAD	00 + 384.08	00 + 387.67	L	0.360	3.584	1.290	
	00 + 518.33	00 + 518.64	L	0.360	0.318	0.114	
	00 + 522.82	00 + 523.40	L	0.360	0.575	0.207	
	00 + 549.24	00 + 553.63	L	0.360	4.382	1.578	
	00 + 524.78	00 + 527.11	R	0.360	2.325	0.837	
	00 + 555.04	00 + 557.43	R	0.360	2.382	0.858	
	00 + 707.54	00 + 708.85	L	0.360	1.310	0.472	
	00 + 745.43	00 + 748.59	L	0.360	3.153	1.135	
	00 + 796.70	00 + 798.09	L	0.360	1.390	0.500	
	00 + 813.64	00 + 815.72	L	0.360	2.080	0.749	
	00 + 899.69	00 + 905.82	L	0.360	6.134	2.208	
						9.948	
	QUANTITY OF DEMOLITION MASONRY =					**18.009** Cu.M	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 10/3/2006 19:21		Sheet : 1 of 1
PROJECT : TANGGULANGIN FLYOVER	BACK UP QUANTITY OF DEMOLITION CONCRETE		
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : TRD 021 - TRD 027	ESTIMATOR :		CHECKED BY :

SKETCH DRAWING

QUANTITY CALCULATION

PROJECT : TANGGULANGIN FLYOVER

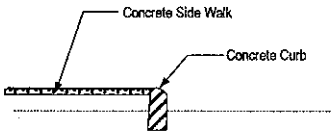
	STA Start	STA End	Length	Concrete Thickness	Volume (Cu.M)	L/R	REMARKS
MAIN ROAD	00 + 336.19	00 + 337.64	1.447	0.100	0.145	L	
	00 + 342.66	00 + 344.06	1.397	0.100	0.140	L	
	00 + 346.89	00 + 350.96	4.074	0.100	0.407	L	
	00 + 356.20	00 + 359.44	3.242	0.100	0.324	L	
	00 + 984.05	00 + 986.37	2.317	0.100	0.232	R	
	01 + 039.02	01 + 048.94	9.914	0.100	0.991	R	
					2.239		
SERVICE ROAD	00 + 384.08	00 + 387.67	3.584	0.100	0.358	L	
	00 + 518.33	00 + 518.64	0.318	0.100	0.032	L	
	00 + 522.82	00 + 523.40	0.575	0.100	0.058	L	
	00 + 549.24	00 + 553.63	4.382	0.100	0.438	L	
	00 + 524.78	00 + 527.11	2.325	0.100	0.233	R	
	00 + 555.04	00 + 557.43	2.382	0.100	0.238	R	
	00 + 707.54	00 + 708.85	1.310	0.100	0.131	R	
	00 + 745.43	00 + 748.59	3.153	0.100	0.315	R	
	00 + 796.70	00 + 798.09	1.390	0.100	0.139	R	
	00 + 813.64	00 + 815.72	2.080	0.100	0.208	R	
	00 + 899.69	00 + 905.82	6.134	0.100	0.613	R	
					2.763		
QUANTITY OF DEMOLITION OF EXISTING CONCRE'					**5.002**	Cu.M	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared : 10/3/2006 16:53		Sheet : 1 of 1
PROJECT : TANGGULANGIN FLYOVER	BACK UP QUANTITY DEMOLITION OF HEDGE OR FENCE		
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : TRD 021 - TRD 027	ESTIMATOR :		CHECKED BY :

SKETCH DRAWING	QUANTITY CALCULATION PROJECT : TANGGULANGIN FLYOVER				REMARKS
	STA		Length	L/R	
	Start	End			
MAIN ROAD	00 + 946.42	00 + 950.87	4.445	R	
	00 + 953.94	00 + 954.10	0.156	R	
	00 + 992.15	00 + 995.10	2.948	R	
			7.549		
SERVICE ROAD	00 + 404.42	00 + 407.61	3.183	L	
	00 + 733.94	00 + 742.96	9.016	L	
			12.199		
SERVICE ROAD	00 + 720.00	00 + 735.84	15.836	R	
	00 + 796.59	00 + 796.59	0.000	R	
	00 + 815.38	00 + 825.25	9.870	R	
			25.706		
	QUANTITY DEMOLITION OF HEDGE OF FENCE =		**45.454**	M	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 10/4/2006 17:56	Sheet : of	
PROJECT : TANGGULANGIN PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : TRS-019, TRD-020,TRD-021,TRD-022,TRD-023,TRD024	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING



CALCULATION

Tanggulangin Fly Over - Contract Package 3

REMARKS

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

MAIN ROAD / FLYOVER

STATION START	STATION END	LEFT SIDE WIDTH	AREA
0+267.746	0+335.401	1.790	121.069
0+335.401	0+344.315	1.764	15.720
0+344.315	0+380.000	1.745	62.252
0+910.000	0+960.000	1.568	78.400
0+960.000	1+020.000	1.567	94.020
1+020.000	1+097.450	1.810	140.146
1+097.450	1+102.605	1.791	9.233
1+102.605	1+130.029	1.481	40.601
SUB TOTAL LENGTH			561.441

STATION START	STATION END	RIGHT SIDE WIDTH	AREA
0+910.000	0+959.705	1.675	83.256
0+959.705	1+000.000	1.690	68.099
1+008.851	1+061.058	1.817	94.860
1+061.058	1+130.029	1.824	125.803
0+000.000	0+000.000	0.000	0.000
0+000.000	0+000.000	0.000	0.000
0+000.000	0+000.000	0.000	0.000
0+000.000	0+000.000	0.000	0.000
SUB TOTAL LENGTH			372.018

SERVICE ROAD

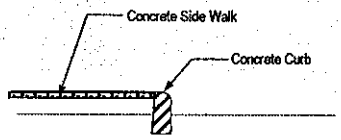
STATION START	STATION END	LEFT SIDE WIDTH	AREA
0+380.000	0+420.094	1.607	64.431
0+719.774	0+820.000	1.702	170.585
0+820.000	0+860.000	1.625	65.000
0+860.000	0+910.000	1.729	86.450
SUB TOTAL LENGTH			386.466

STATION START	STATION END	RIGHT SIDE WIDTH	AREA
0+740.776	0+820.000	1.699	134.562
0+820.000	0+899.658	1.846	147.009
0+899.658	0+910.000	1.788	18.486
0+000.000	0+000.000	0.000	0.000
SUB TOTAL LENGTH			300.057

TOTAL = **1,619.981 sqm.**

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 10/4/2006 17:51	Sheet : of	
PROJECT : TANGGULANGIN PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO : TRS-019, TRD-020,TRD-021,TRD-022,TRD-023,TRD024	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING



CALCULATION

Tanggulangin Fly Over - Contract Package 3

REMARKS

Item No. 7.15 (3) - Demolition of Concrete Curb

MAIN ROAD / FLYOVER

STATION START	STATION END	LEFT SIDE LENGTH
0+267.746	0+335.401	67.655
0+335.401	0+344.315	8.914
0+344.315	0+380.000	35.685
0+910.000	0+960.000	50.000
0+960.000	1+020.000	60.000
1+020.000	1+097.450	77.450
1+097.450	1+102.605	5.155
1+102.605	1+130.029	27.424
SUB TOTAL LENGTH		332.283

STATION START	STATION END	RIGHT SIDE LENGTH
0+910.000	0+959.705	49.705
0+959.705	1+000.000	40.295
1+008.851	1+061.058	52.207
1+061.058	1+130.029	68.971
0+000.000	0+000.000	0.000
SUB TOTAL LENGTH		211.178

SERVICE ROAD

STATION START	STATION END	LEFT SIDE LENGTH
380	420.094	40.094
719.774	820.000	100.226
820.000	860.000	40.000
0+860.000	0+910.000	50.000
SUB TOTAL LENGTH		230.320

STATION START	STATION END	RIGHT SIDE LENGTH
0+740.776	0+820.000	79.224
0+820.000	0+899.658	79.658
0+899.658	0+910.000	10.342
0+000.000	0+000.000	0.000
SUB TOTAL LENGTH		169.224

TOTAL	943.005 m.	

DIVISION 8.
Miscellaneous

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared :		Sheet : 1 of 1
PROJECT : TANGGULANGIN FLYOVER	BACK UP QUANTITY SOLID SODING		
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL	8-1(1)		
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

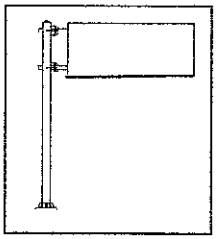
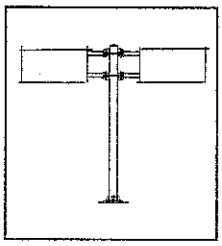
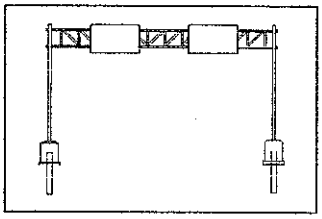
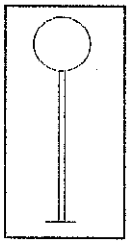
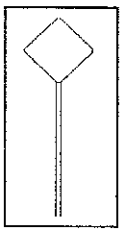
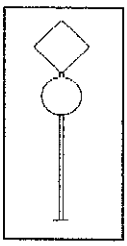
SKETCH DRAWING

QUANTITY CALCULATION

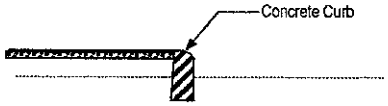
PROJECT : TANGGULANGIN FLYOVER

STA	Width	Average Width	Length	Area (Sq.M)	REMARKS
00 + 541.25	14.764	7.382	0.000	0.000	
00 + 560.08	17.802	16.283	18.826	306.544	
00 + 563.83	13.627	15.715	3.751	58.945	
00 + 567.71	10.139	11.883	3.885	46.165	
00 + 570.50	0.000	5.070	2.790	14.144	
00 + 580.51	11.459	5.730	0.000	0.000	
00 + 591.42	9.372	10.416	10.917	113.706	
00 + 601.85	6.631	8.002	10.422	83.392	
00 + 609.21	3.945	5.288	7.364	38.941	
00 + 609.74	3.610	3.778	0.531	2.006	
00 + 610.87	3.610	3.610	1.131	4.083	
00 + 652.92	0.000	1.805	0.000	0.000	
00 + 653.99	2.801	1.401	1.071	1.500	
00 + 670.29	5.974	4.388	16.297	71.503	
00 + 703.91	10.889	8.432	33.624	283.501	
00 + 704.36	11.121	11.005	0.450	4.952	
00 + 714.37	0.000	5.561	0.000	0.000	
00 + 717.87	10.927	5.464	3.502	19.133	
00 + 724.10	13.986	12.457	6.230	77.604	
00 + 742.75	14.000	13.993	18.651	260.983	
		TOTAL		**1387.102** ✓ **Sq.M**	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
PROJECT : TANGGULANGIN **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	- Overhead Sign Type B =	1	Each	TTR - 001
	- Overhead Sign Type B =	1	Each	TTR - 002
		2		
 Overhead Sign Type C				
 Regulatory and Warning Sign Type A	- Reg & Warning Sign Type A =	3	Each	TTR - 001
	- Reg & Warning Sign Type A =	3	Each	TTR - 002
	- Reg & Warning Sign Type A =	3	Each	TTR - 003
	- Reg & Warning Sign Type A =	3	Each	TTR - 004
		12		
 Regulatory and Warning Sign Type A	- Reg & Warning Sign Type A =	5	Each	TTR - 001
	- Reg & Warning Sign Type A =	3	Each	TTR - 002
	- Reg & Warning Sign Type A =	5	Each	TTR - 003
	- Reg & Warning Sign Type A =	5	Each	TTR - 004
		18		
 Regulatory and Warning Sign Type A	- Reg & Warning Sign Type B =	2	Each	TTR - 003
	SUMMARY QUANTITY ROAD SIGN			
	- Overhead Sign Type A	**0**	Each	
	- Overhead Sign Type B	**2**	Each	
	- Overhead Sign Type C	**0**	Each	
	- Regulatory & Warning Sign Type A	**30**	Each	
	- Regulatory & Warning Sign Type B	**2**	Each	

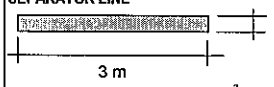
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of
PROJECT : TANGGULANGIN **FLYOVER** NORTH JAVA CORRIDOR FLYOVER PROJECT	BACK UP QUANTITY CON. CURB TYPE A 3.3.(1)	
KATAHIRA AND ENGINEERS INTERNATIONAL		
DRAWING NO :	ESTIMATOR :	CHECKED BY :

	SKETCH DRAWING	CALCULATION				REMARKS Drawing No.
						
		Concrete Curb Type A Left and Right side				
		L	= 373.630	M	median before app	MRD-000
		L	= 388.380	M	biside app A1	MRD-000
		L	= 398.430	M	biside app A2	MRD-000
		L	= 75.590	M	med under bridge	MRD-000
		L	= 117.620	M	med under bridge	MRD-000
		L	= 440.060	M	median before app	MRD-000
			1793.710	M		
		Quantity Concrete Curb Type A =		**1793.710**	M	

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR : Umar Dhani, ST	CHECKED BY : Mr. Sumarsono MT	

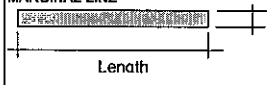
	SKETCH DRAWING	CALCULATION Tanggulangin Flyover - Contract Package 1	REMARKS

1 **SEPARATOR LINE**



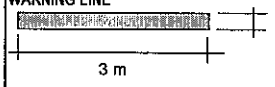
'Note : - Area of 1 Marking = 0.36 M^2

2 **MARGINAL LINE**



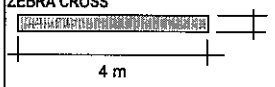
'Note : - Area of Marking = Length x 0.12 m

3 **WARNING LINE**



'Note : - Area of 1 Marking = 0.36 M^2

4 **ZEBRA CROSS**



'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

Item No: ... Road Marking — ROAD MARKING AT GRADE

Note: See Detailed Construction Layout Plan

Dwg. # TTR-003 - TTR-004 for reference.

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					
	1360.4	74	20	0	197.09
00 + 320.00					
00 + 340.00	120.6	0	4	0	15.91
00 + 360.00	130.0	0	0	0	15.60
00 + 380.00	720.0	0	0	0	86.40
	320.0	0	0	0	38.40
00 + 540.00					
	69.2	0	1	16	27.86
00 + 600.00					
	353.9	0	21	0	50.02
00 + 720.00					
	355.7	0	0	0	42.69
00 + 900.00					
	511.0	6	22	0	71.40
01 + 040.00					
	358.6	22	0	0	
01 + 130.03					
				SUM	545.38

ARROW

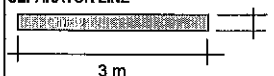
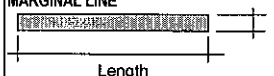
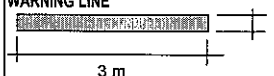
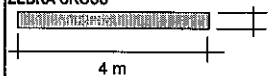
Station	TYPE 1 Qty	TYPE 2 Qty	TYPE 3 Qty	AREA (m^2)
00 + 000.00				
	31.0	2	2	39.42
01 + 130.03				
			SUM	39.42

CHEVRON AND STOP LINE

Station	CHEVRON Length	STOP LINE Length	AREA (m^2)
00 + 320.00			
	122.0	0	36.60
00 + 360.00			
00 + 600.00			
	46.8	13	17.95
00 + 740.00			
	122.0	0	36.60
01 + 130.03			
		SUM	91.15

TOTAL AREA ROAD MARKING AT GRADE = 675.95 (m^2)

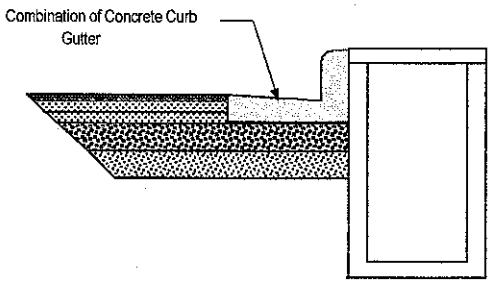
CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
PROJECT : TANGGULANGIN FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR : Umar Dhani, ST	CHECKED BY : Mr. Sumarsono MT	

	SKETCH DRAWING	CALCULATION Tanggulangin Flyover - Contract Package 1	REMARKS
1	**SEPARATOR LINE**  'Note : - Area of 1 Marking = 0.36 M^2	Item No. ... - Road Marking	ROAD MARKING FLYOVER
2	**MARGINAL LINE**  'Note : - Area of Marking = Length x 0.12 m	**Note:** See Detailed Construction Layout Plan Dwg. # TTR-003 - TTR-004 for reference.	
3	**WARNING LINE**  'Note : - Area of 1 Marking = 0.36 M^2		
4	**ZEBRA CROSS**  '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		

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					
	530.5	0	0	0	63.66
01 + 130.03					
				SUM	63.66

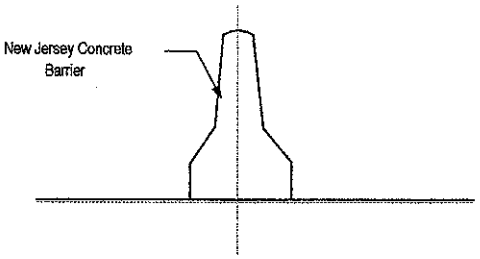
TOTAL AREA ROAD MARKING FLYOVER:=	63.66 (m^2)
TOTAL AREA	739.61 (m^2)

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of
PROJECT : TANGGULANGIN **FLYOVER** NORTH JAVA CORRIDOR FLYOVER PROJECT	BACK UP QUANTITY CON. CURB TYPE B	
KATAHIRA AND ENGINEERS INTERNATIONAL	8.8 (2)	
DRAWING NO :	ESTIMATOR :	CHECKED BY :

SKETCH DRAWING	CALCULATION	REMARKS Drawing No.
		
	Concrete Curb and Gutter Left Side	
	L = 73.696 M	TRD-022
	L = 105.931 M	TRD-023
	L = 24.833 M	TRD-023
	L = 52.514 M	TRD-023
	L = 158.930 M	TRD-024
	L = 415.690 M	TRD-025,26,27
	L = 33.165 M	TRD-027
	864.759 M	
	Concrete Curb and Gutter Right Side	
	R = 312.670 M	TRD-022,23
	R = 318.343 M	TRD-024,25,26
	R = 345.741 M	TRD-027
	976.754 M	
	Quantity Concrete Curb & Gutter = **1841.51 Ln.M**	

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

SKETCH DRAWING	CALCULATION	REMARKS
	S.S.S. Tanggulangin Flyover - Contract Package 3	



Section of Concrete Median Type B

Item No. 8.4.12(2) - Concrete Median Type-B (New Jersey Barrier)

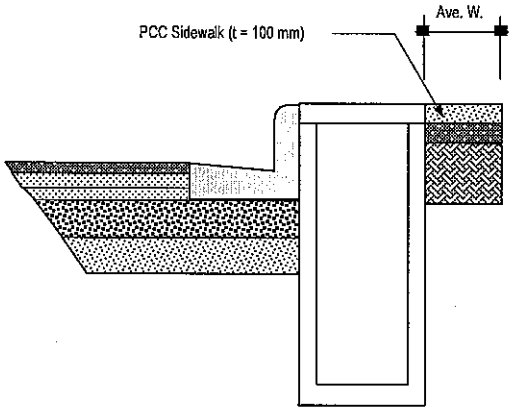
Note: See Detailed Construction Layout Plan

Dwg. # TRD-023 - TRD-027 for reference.

Station		Length
From	To	(m)
0 + 380.00	0 + 910.00	530.00

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/22/2006 11:27	Sheet : 1 of 3	
PROJECT : TANGGULANGIN FLYOVER			
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING



Section of PCC Sidewalk @ Left Service Road

CALCULATION

Tanggulangin Flyover - Contract Package 3

REMARKS

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

Note: See Detailed Construction Layout Plan

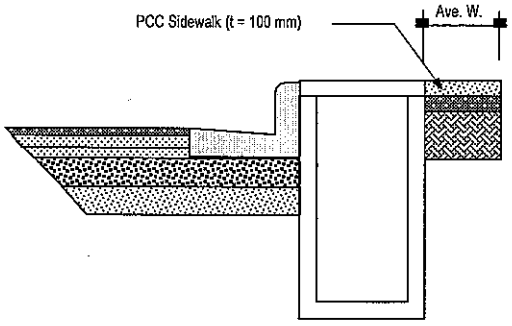
Dwg. # PRD-019 - PRD-024 for reference.

At Left Service Road

Length (m)	Ave. Width (m)	Area (m^2)	
61.980	0.401	24.854	
20.500	1.300	26.650	
48.170	0.401	19.316	
148.650	1.102	163.812	
222.100	0.404	89.728	
	Total Area =	**324.361**	**sqm.**

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/22/2006 11:27	Sheet : 2 of 3	
PROJECT : TANGGULANGIN FLYOVER			
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING	CALCULATION	REMARKS
	Tanggulangin Flyover - Contract Package 3	



Section of PCC Sidewalk @ Right Service Road

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

Note: See Detailed Construction Layout Plan

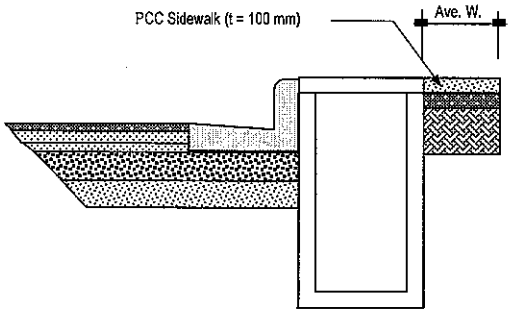
Dwg. # PRD-019 - PRD-024 for reference.

At Right Service Road

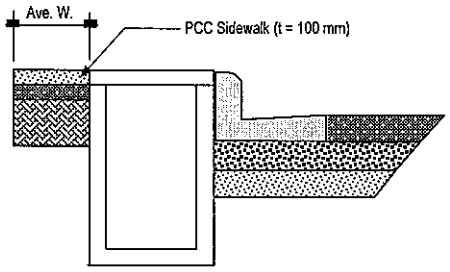
Length (m)	Ave. Width (m)	Area (m^2)	
196.000	0.401	78.596	
288.000	0.920	264.960	
	Total Area =	**343.556**	**sqm.**

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/22/2006 11:27	Sheet : 3 of 3	
PROJECT : TANGGULANGIN FLYOVER			
NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	

SKETCH DRAWING



Section of PCC Sidewalk @ Right Side



Section of PCC Sidewalk @ Right Side

CALCULATION

Tanggulangin Flyover - Contract Package 3

REMARKS

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

Note: See Detailed Construction Layout Plan

Dwg. # TRD-021 - TRD-027 for reference.

A. Approach A

At Right Side

Length (m)	Ave. Width (m)	Area (m^2)
112.750	0.401	45.213
	Sub-Total =	**45.213**

At Left Side

Length (m)	Ave. Width (m)	Area (m^2)
68.480	0.401	27.460
36.210	0.401	14.520
	Sub-Total =	**41.981**

A. Approach B

At Right Side

Length (m)	Ave. Width (m)	Area (m^2)
82.680	0.401	33.155
121.250	0.395	47.894
	Sub-Total =	**81.048**

At Left Side

Length (m)	Ave. Width (m)	Area (m^2)
188.000	0.418	78.584
27.720	0.401	11.116
	Sub-Total =	**89.700**

Total Area = 257.942 sqm.

DIVISION 9.
Facilities

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared	Sheet : of	
PROJECT : TANGGULANGIN **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 = 18 Each	
		3. Cable NYY 2 x 2.5 mm2= 25+7x20+9x5 = 210 m	
	FLY OVER	1. Panel LP-PJU.FO = 1 Each	
		2. Ligthing Pole (sont 250 watt) = 18 Each	
		3. Cable NYY 2x2.5mm2= 18x11.5 = 207 m	
		4. Cable NYFGBY 4 x 10mm2 = (830-380)+(890-410)+18X2	
		= 966 M	
	SERVICE ROAD	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. Panel LP-PJU.6 = 1 Each	
		7. Lighting Pole (sont 250 watt) = 58 Each	
		8. Cable NYY 2x2.5 mm2 = 58 x 11.5 = 667 M	
		9. Cable NYFGBY 4 x 10 mm2= 58X2+1120X2 = 2356 m	
		10 Cable NYFGBY 4 x 25 mm2 :	
		PLN to LP-PJU.1 = 140 m	
		PLN to LP-PJU.4 = 170 m	
		PLN to LP-PJU.2 = 160 m	
		PLN to LP-PJU.5 = 190 m	
		PLN to LP-PJU.3 = 480 m	
		PLN to LP-PJU.6 = 510 m	
		1650 M	
		Cable NYFGBY 4 x 50 mm2 = 200 M	
		SUMMARY QUANTITY TANGGULANGIN 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	
		Panel LP-PJU.6 = 1 Each	
		2. Ligthing Pole (sont 250 watt) = 76 Each	
		3. Ceilling Sont 150 watt = 18 Each	
		4. Cable NYY 2 x 2.5 mm2 = 1084 M	
		Cable NYFGBY 4 x 10 mm2 = 3322 M	
		Cable NYFGBY 4 x 25 mm2 = 1650 M	
		Cable NYFGBY 4 x 50 mm2 = 200 M	

Relocation & Protection of Existing Utilities

COST ESTIMATE FOR UTILITY PROTECTION AND RELOCATION

TANGGULANGIN 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	Relocation of Existing Electricity (PLN), Pole Low Voltage	Each				
3	Electric Cable Above Ground	Ln.M				
	UNDER GROUND					
4	Dig and Deepen Cable Optic	Ln.M				
5	Relocation Existing Water Pipe dia. 450 mm	Ln.M				
			TOTAL COST		**0.00**	