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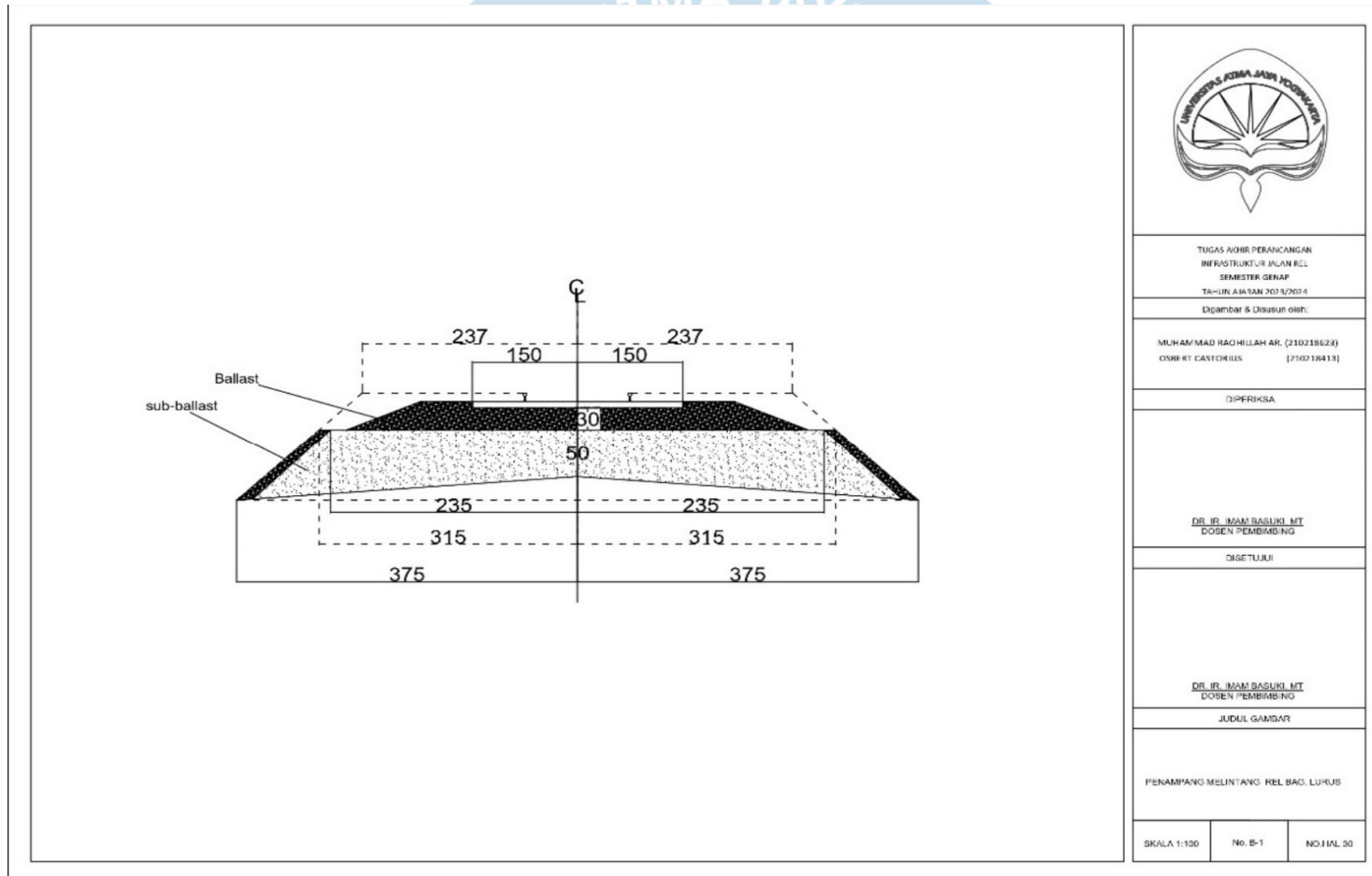
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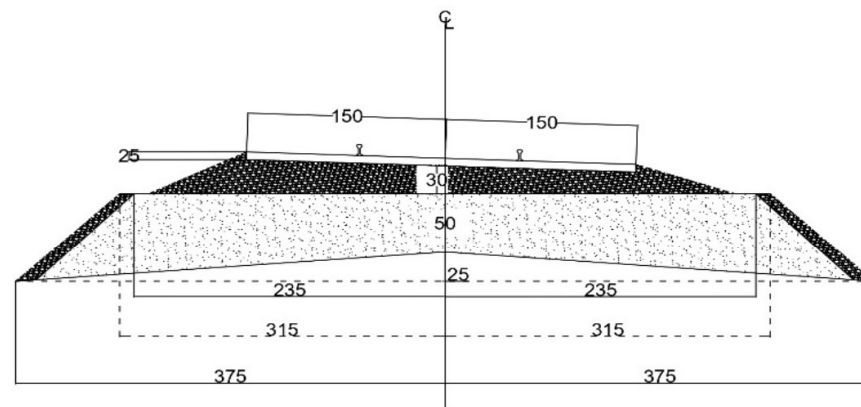
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Lampiran A



Lampiran B





TUGAS AKHIR PERANCANGAN
INFRASTRUKTUR JALAN REL
SEMESTER GRUP

Tahun Ajaran 2022/2023

Dikambar & Disusun oleh:

MUHAMMAD RAHILLAH AR. (210218628)
OSMR ET. CANTORUS. (210218413)

DIPERIKSA

DR. IR. IMAM BASUKI MT
DOSEN PEMBIMBING

DISETJUI

DR. IR. IMAM BASUKI MT
DOSEN PEMBIMBING

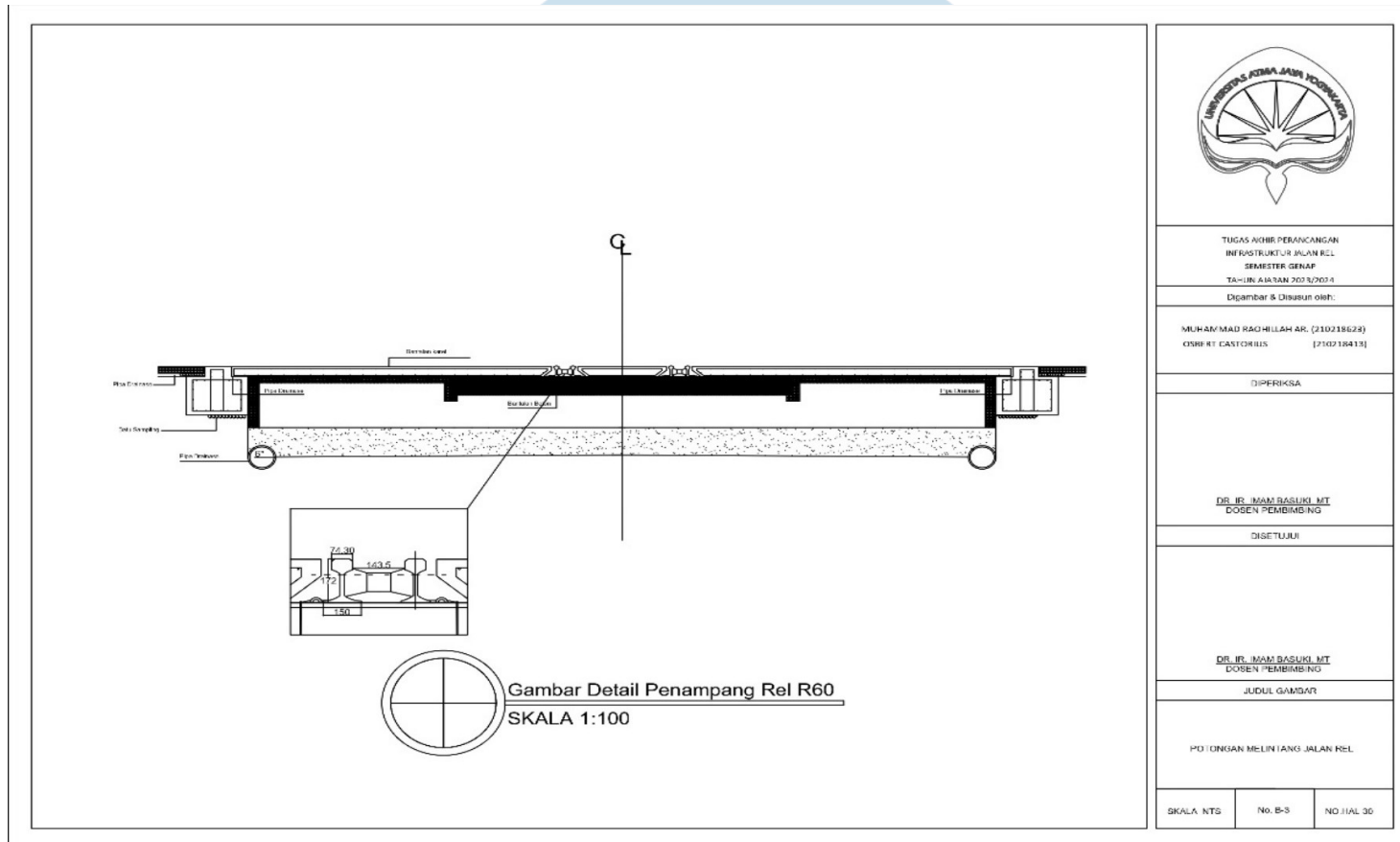
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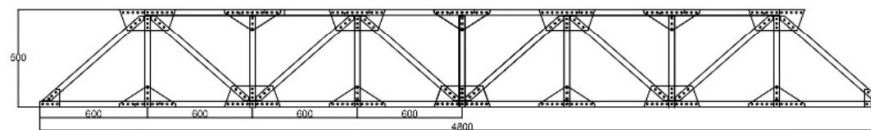
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NO. HAL 32





TUGAS AKHIR PERANCANGAN
INFRASTRUKTUR JALAN RCL
SEMESTER GENAP
TAHUN AJARAN 2023/2024

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DISETUIJ

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DOSEN PEMBIMBING

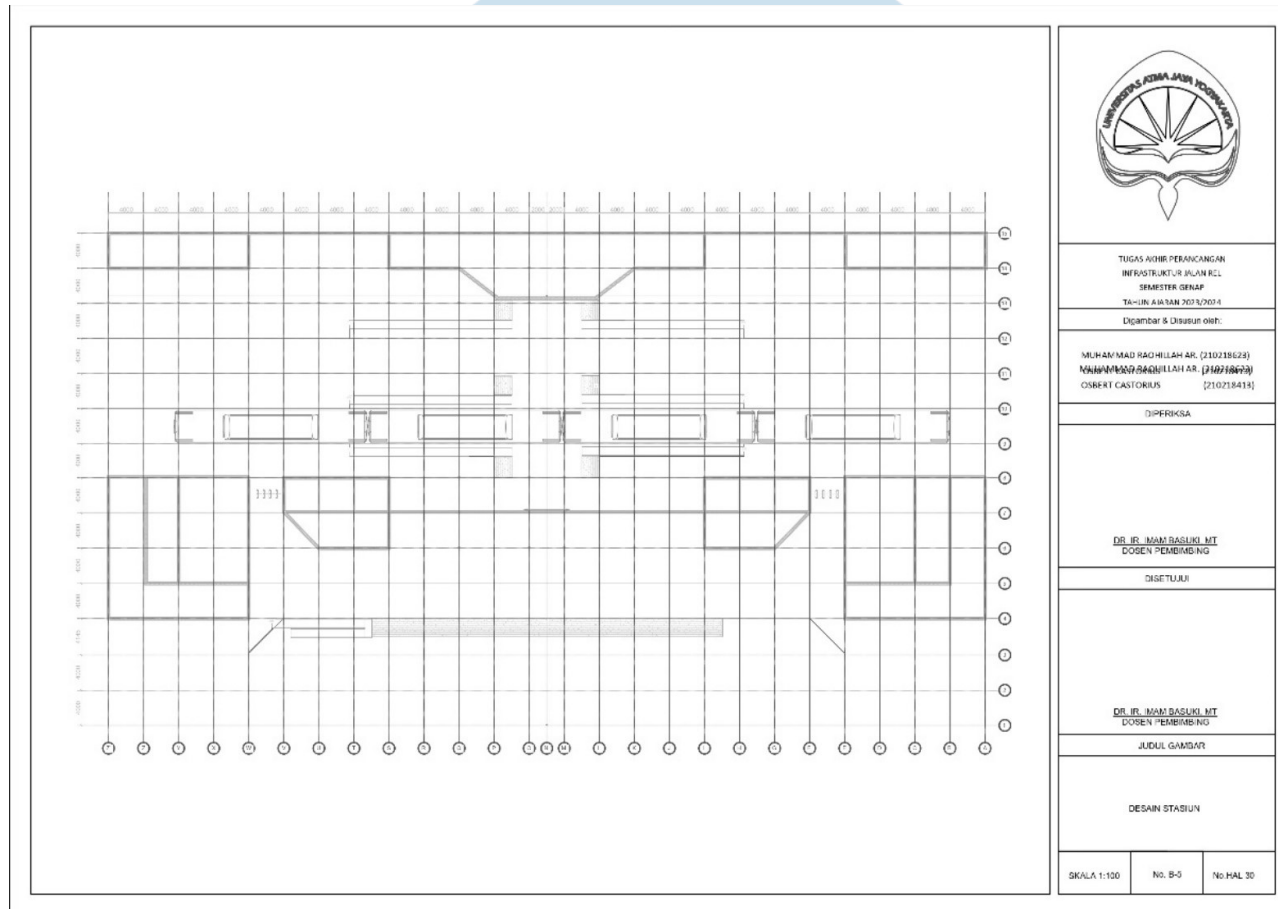
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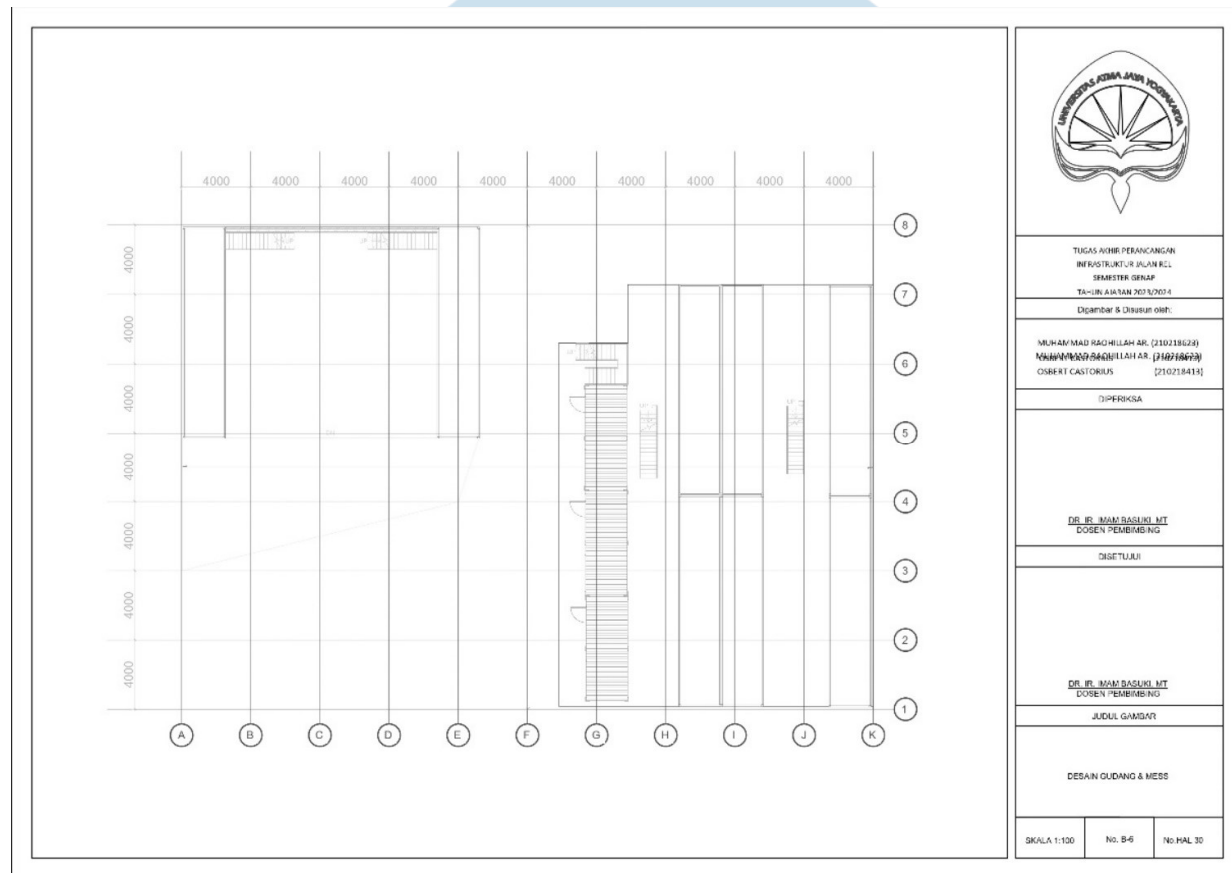
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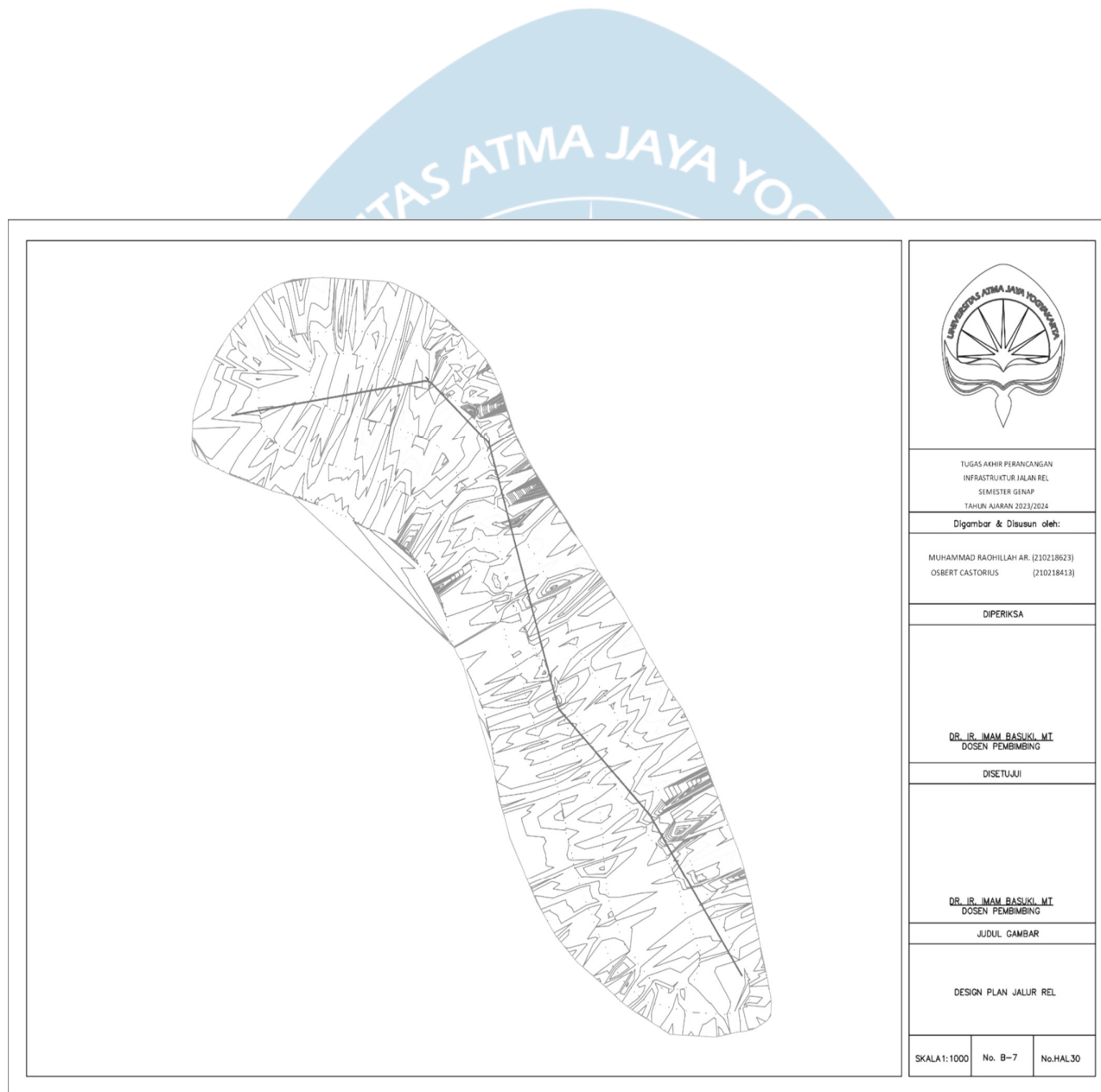
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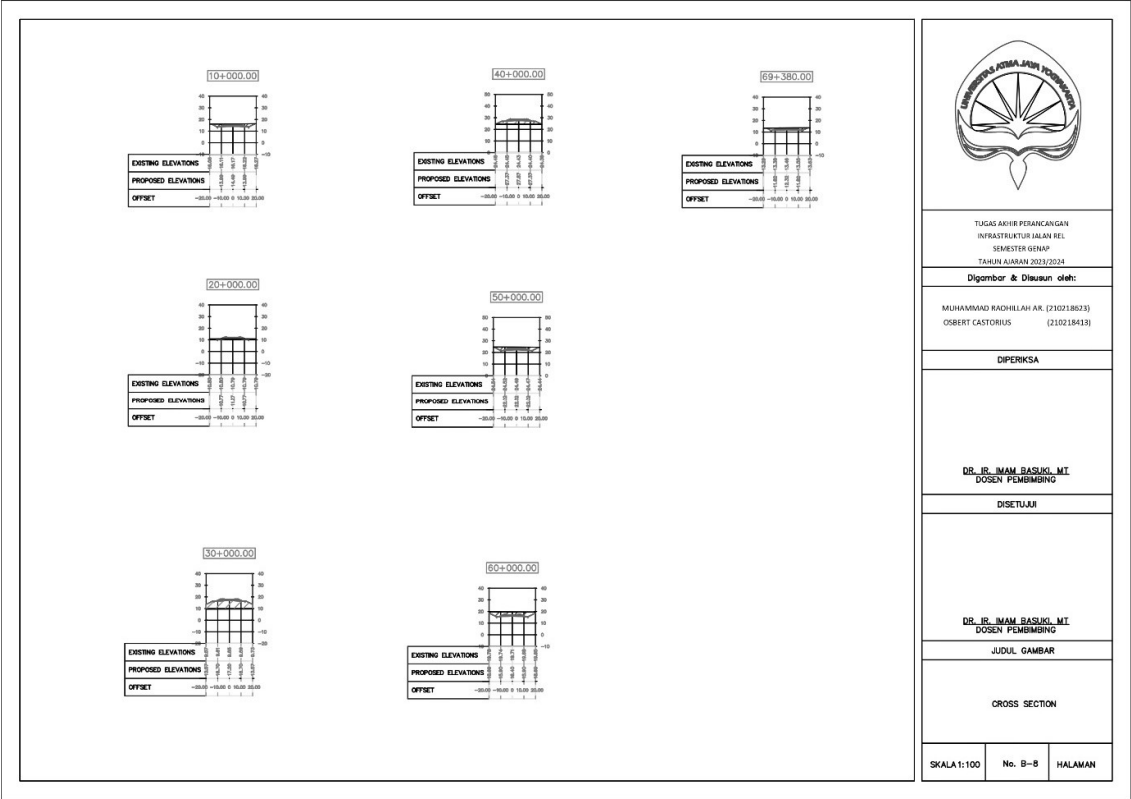
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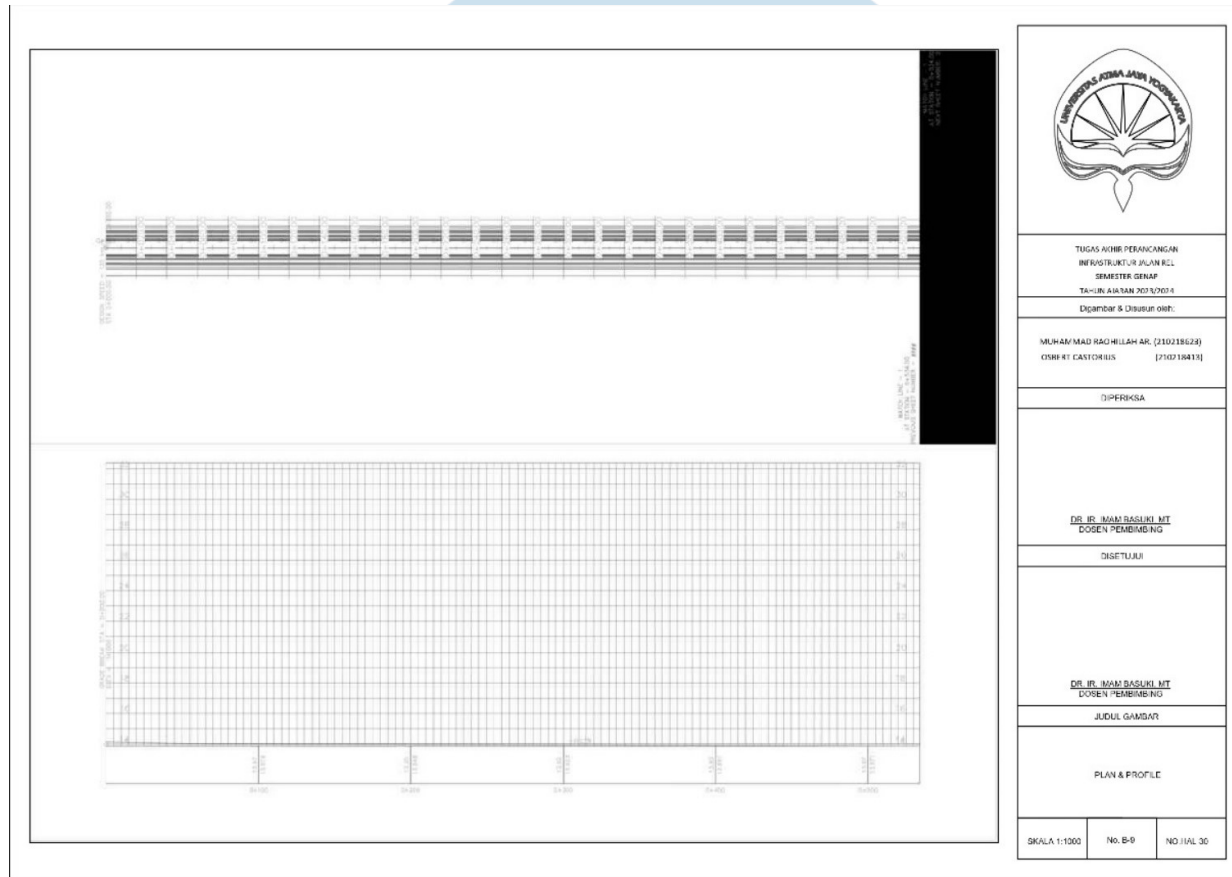
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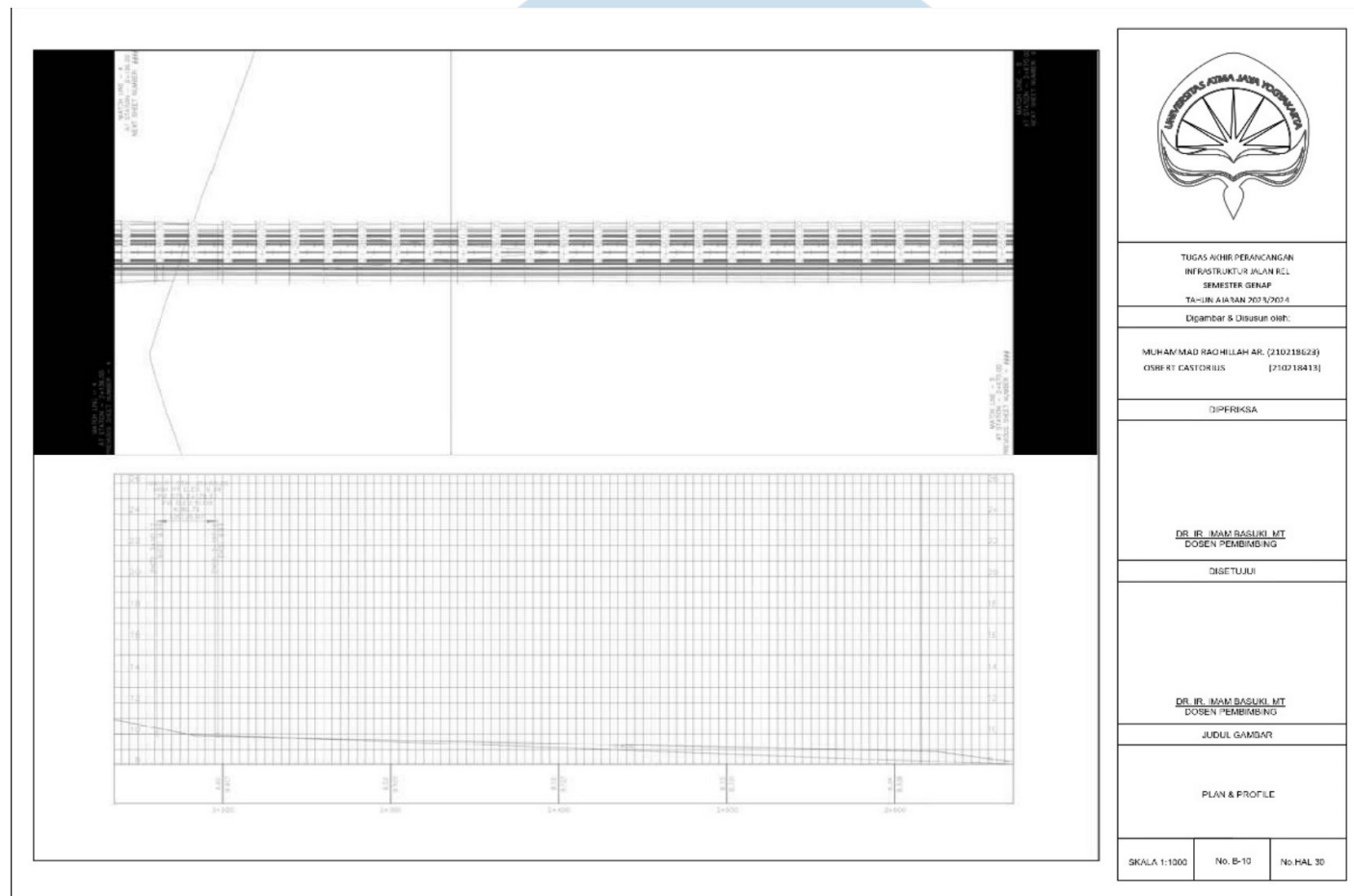


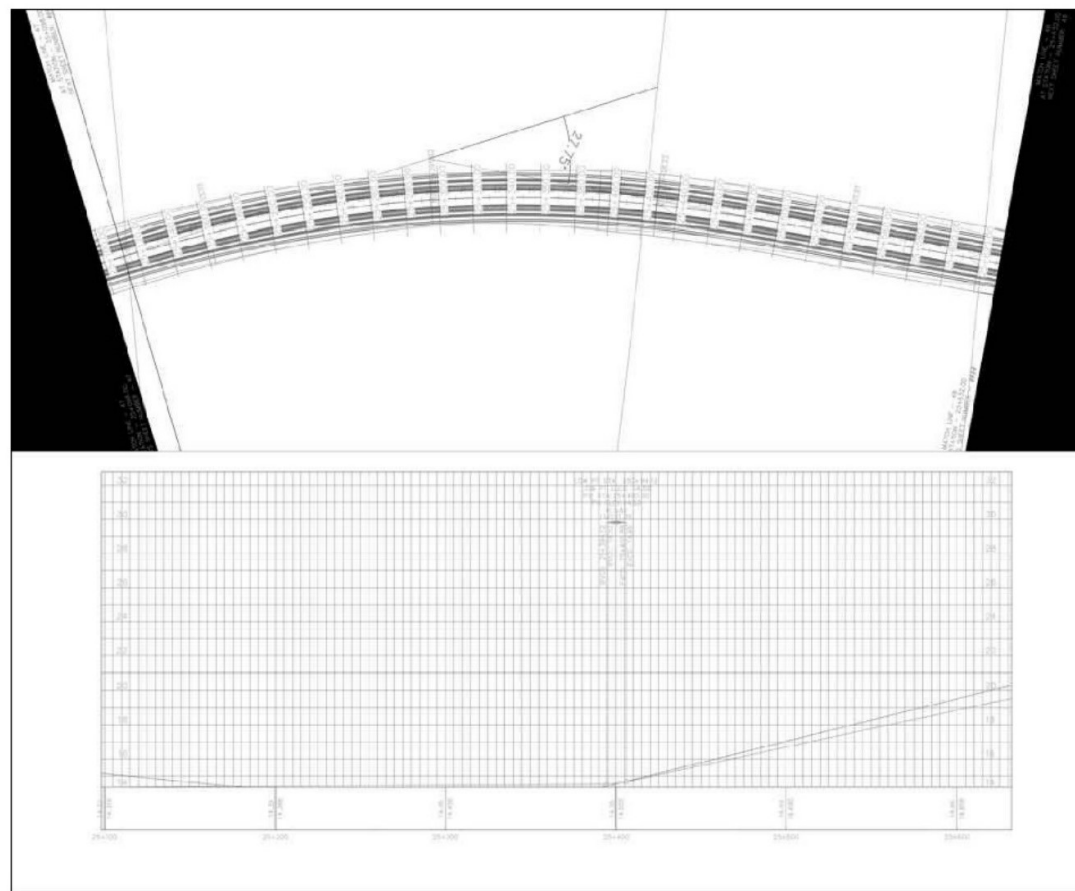












TUGAS AKHIR PERANCANGAN
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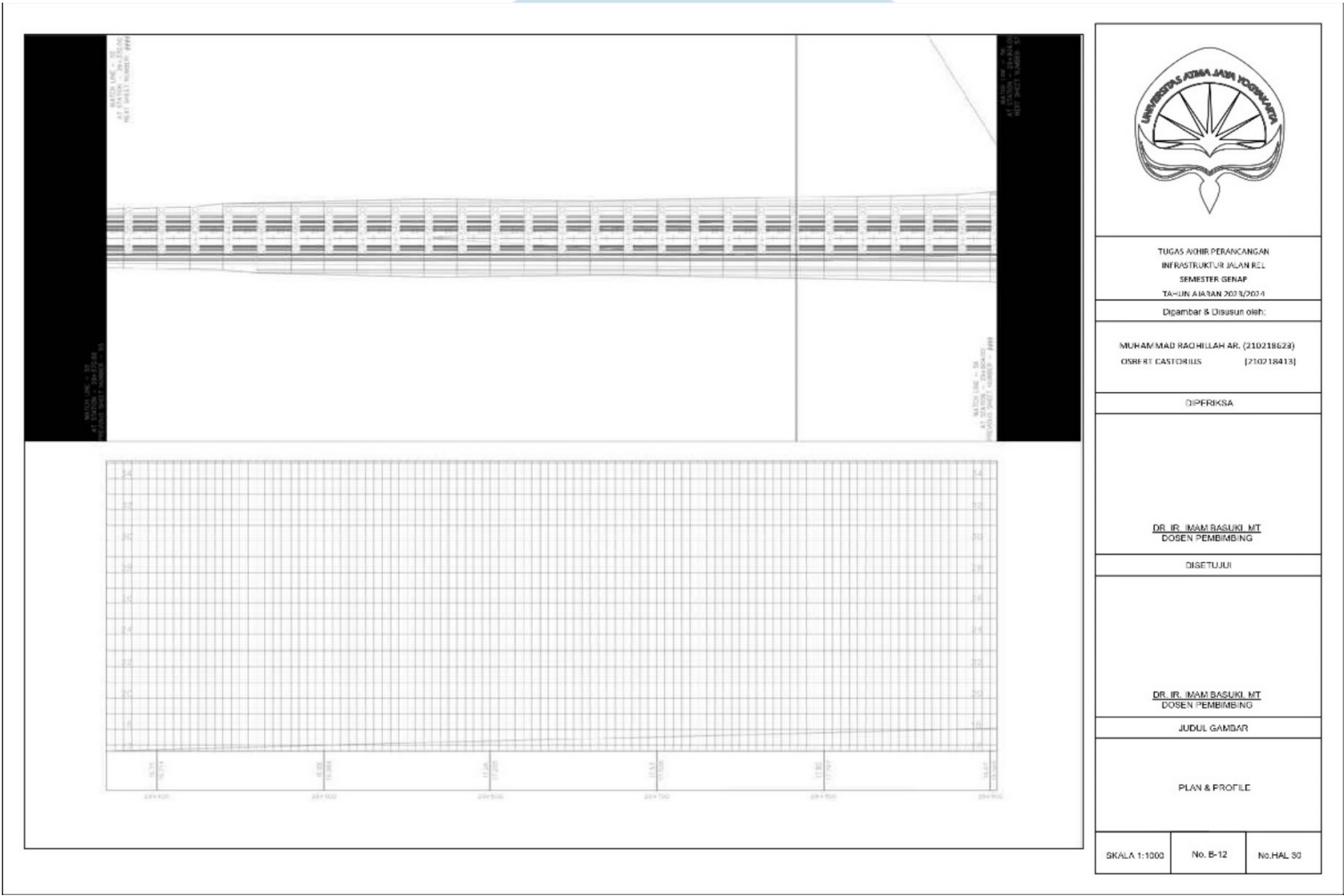
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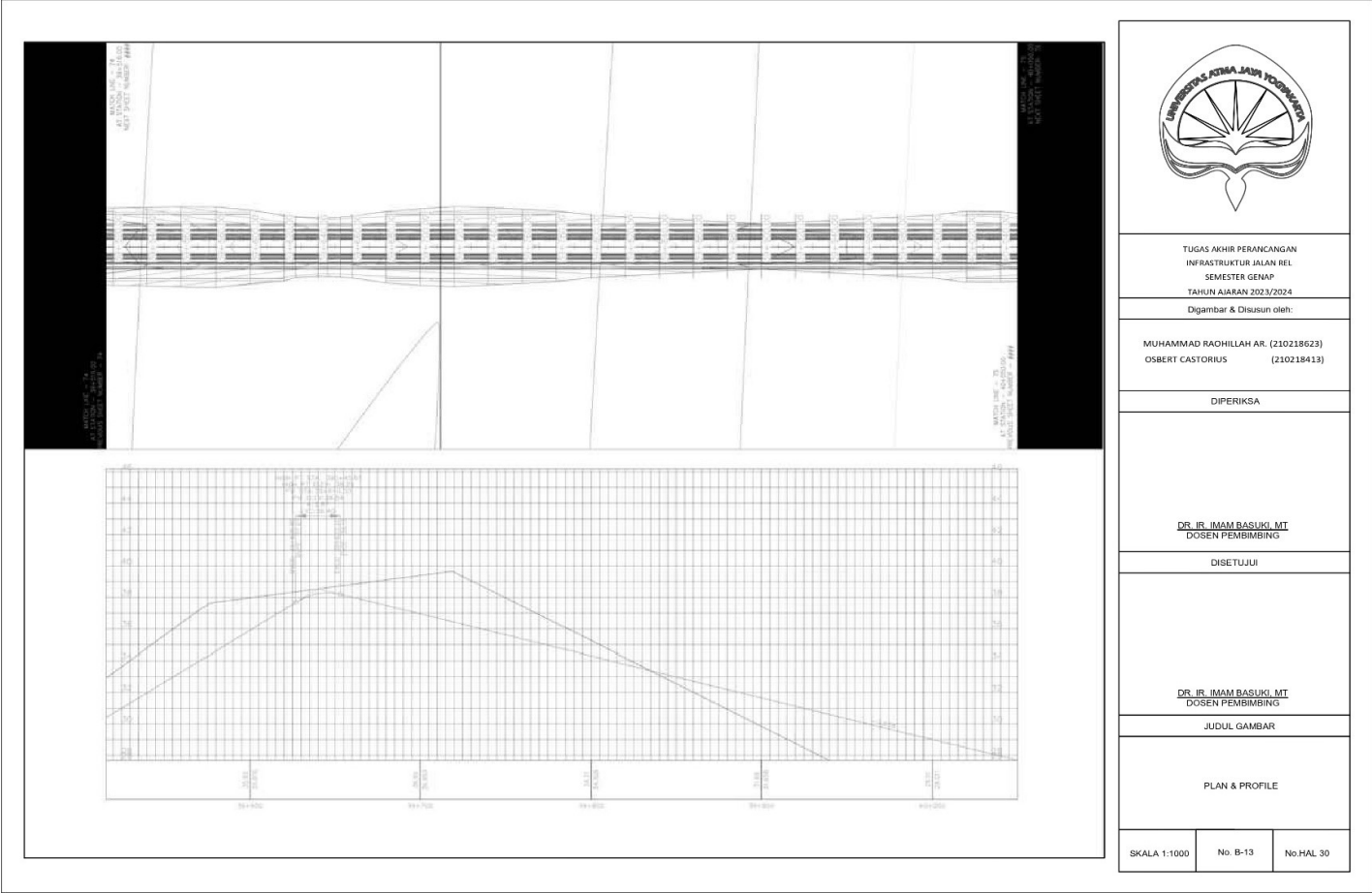
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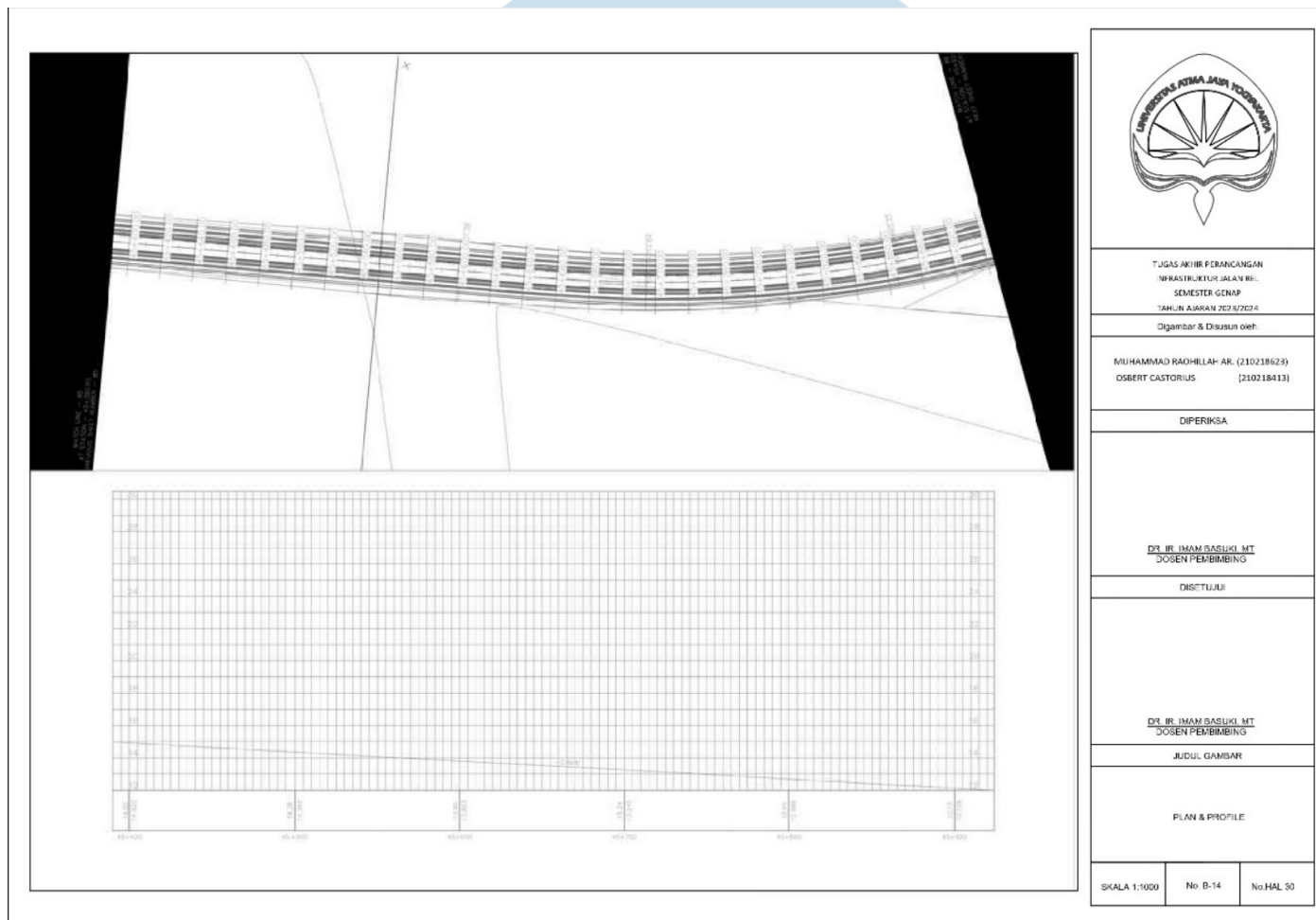
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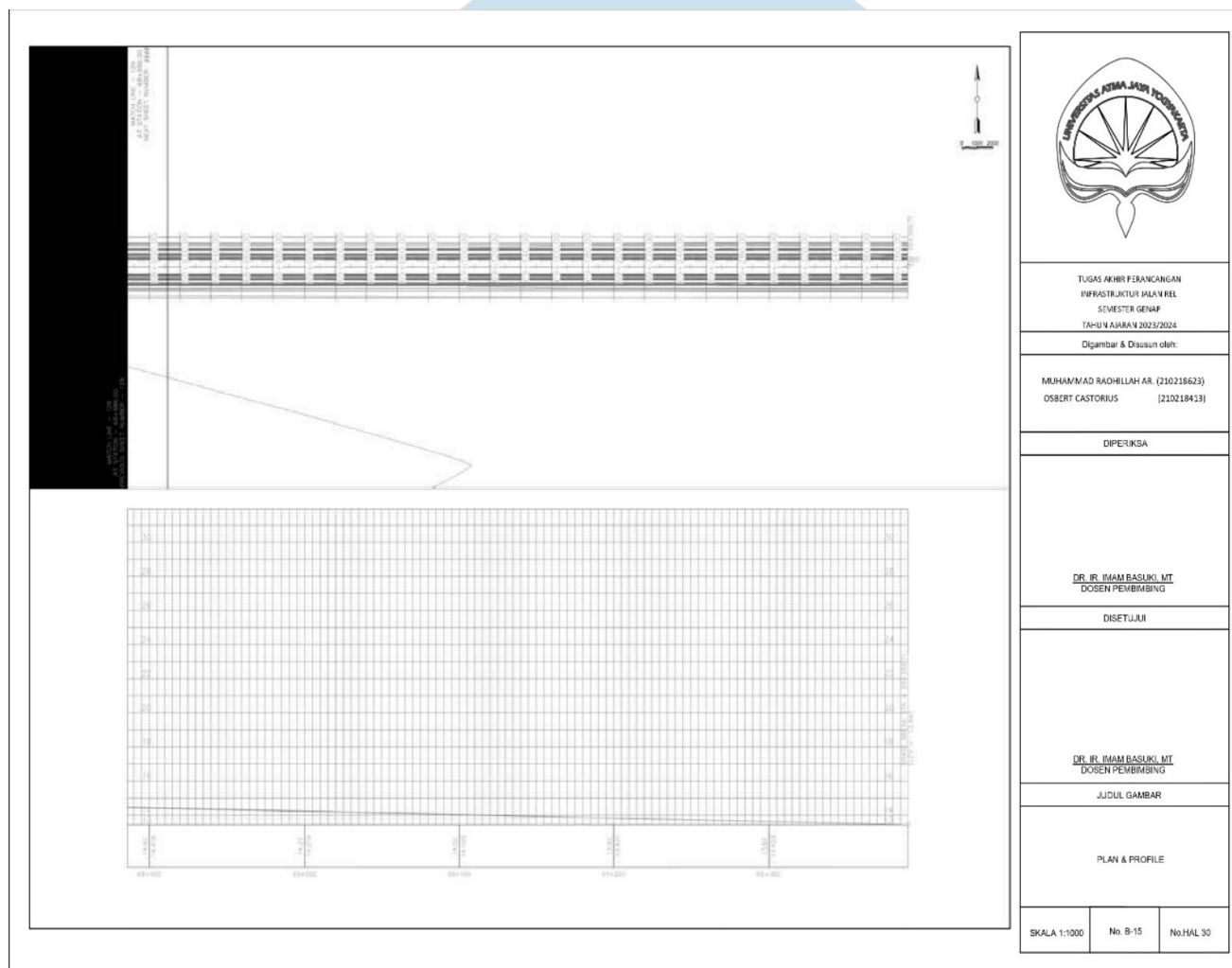
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Lampiran C

Tabel AHSP

A1 Pekerjaan Persiapan

A1.3 Survey Lokasi

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Pembantu Juru ukur	L.08	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Sopir	L.13	0,275	Oh	Rp 193.000,00	Rp 53.075,00
	Jumlah Harga Tenaga Kerja					Rp 141.900,00
B	Bahan					
	Jumlah Harga Bahan					
C	Alat					
	Survey Equipment		0,75	hari	Rp 456.000,00	Rp 342.000,00
	Jumlah Harga Alat					Rp 342.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 483.900,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					Rp 72.585,00
F	Harga Satuan Pekerjaan					Rp 556.485,00

A1.4 Persiapan pagar pembatas

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Pembantu Juru ukur	L.08	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Jumlah Harga Tenaga Kerja					Rp 127.325,00
B	Bahan					
	Seng gelombang persegi 0,30m		32000	m ²	Rp 85.000,00	Rp 2.720.000.000,00
	Jumlah Harga Bahan					Rp 2.720.000.000,00
C	Alat					
	Gerinda		4	hh	Rp 355.000,00	Rp 1.420.000,00
	Jumlah Harga Alat					Rp 1.420.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 2.721.547.325,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					Rp 408.232.098,75
F	Harga Satuan Pekerjaan					Rp 3.129.779.423,75

A1.5 Pembersihan Lokasi

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Pembantu Juru ukur	L.08	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Operator ekskafator	L.19	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Operator Bulldozer	L.24	0,275	Oh	Rp 220.000,00	Rp 60.500,00
	Sopir Dumptruck	L.23	0,275	Oh	Rp 220.000,00	Rp 60.500,00
	Operator Compactor	L.21	0,275	Oh	Rp 166.000,00	Rp 45.650,00
	Operator Grader	L.22	0,275	Oh	Rp 250.000,00	Rp 68.750,00
	Jumlah Harga Tenaga Kerja					Rp 365.475,00
B	Bahan					
	Jumlah Harga Bahan					
C	Alat					
	Bulldozer		0,75	Hari	Rp 5.107.000,00	Rp 3.830.250,00
	Eskafator 21.5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Dump Truck 5 ton		0,75	Hari	Rp 5.500.000,00	Rp 4.125.000,00
	Compactor Halus		0,75	Hari	Rp 4.400.000,00	Rp 3.300.000,00
	compactor tanah		0,75	Hari	Rp 4.400.000,00	Rp 3.300.000,00
	Grader		0,75	Hari	Rp 3.405.000,00	Rp 2.553.750,00
	Jumlah Harga Alat					Rp 21.609.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 21.974.475,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					Rp 3.296.171,25
F	Harga Satuan Pekerjaan					Rp 25.270.646,25

B1 Pekerjaan Struktur Bangunan Pendukung Proyek

B1.1 Pekerjaan Struktur Gedung

No	Uraian Pekerjaan	Kode	Koefisien	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
I	2	3	4	5	6	7
A Tenaga Kerja						
Kepala Tukang	L.02	0,028	Oh	Rp	215.000,00	Rp 6.020,00
Tukang Batu	L.14	0,275	Oh	Rp	161.000,00	Rp 44.275,00
Tukang Besi	L.15	1,05	Oh	Rp	172.000,00	Rp 180.600,00
Operator Compactor	L.21	0,275	Oh	Rp	166.000,00	Rp 45.650,00
Jumlah Harga Tenaga Kerja						Rp 276.545,00
B Bahan						
Beton Ready Mix 250		38	m3	Rp	1.089.000,00	Rp 41.382.000,00
Cat Dasar		68	kg	Rp	1.846.000,00	Rp 125.528.000,00
Besi Profil		254,4	kg	Rp	24.000,00	Rp 6.105.600,00
Jumlah Harga Bahan						Rp 173.015.600,00
C Alat						
Compactor Habis		0,75	Hari	Rp	4.400.000,00	Rp 3.300.000,00
compactor tanah		0,75	Hari	Rp	4.400.000,00	Rp 3.300.000,00
Jumlah Harga Alat						Rp 6.600.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 179.892.145,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					Rp 26.983.821,75
F	Harga Satuan Pekerjaan					Rp 206.875.966,75

B2.1 Pekerjaan Struktur Mess dan Kantor

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
I	2	3	4	5	6	7
A Tenaga Kerja						
Kepala Tukang	L.02	0,028	Oh	Rp	215.000,00	Rp 6.020,00
Tukang Batu	L.14	0,275	Oh	Rp	161.000,00	Rp 44.275,00
Tukang Besi	L.15	1,05	Oh	Rp	172.000,00	Rp 180.600,00
Operator Compactor	L.21	0,275	Oh	Rp	166.000,00	Rp 45.650,00
Jumlah Harga Tenaga Kerja						Rp 276.545,00
B Bahan						
Besi Profil		14	kg	Rp	24.000,00	Rp 336.000,00
Beton Ready Mix 250		15,83	m3	Rp	1.089.000,00	Rp 17.238.870,00
Cat Dasar		41,5	kg	Rp	1.846.000,00	Rp 76.609.000,00
Cat Akhir Eksterior Weather Shield		41,5	kg	Rp	2.706.000,00	Rp 112.299.000,00
Plafon PVC 0.8mm x 20cm		633,6	m2	Rp	13.000,00	Rp 8.236.800,00
Triplek Plywood 12mm		1647,36	m2	Rp	120.000,00	Rp 197.683.200,00
Platir Aluminium + Engsel Kupu-kupu		18	bh	Rp	926.000,00	Rp 16.668.000,00
Kontainer		18	bh	Rp	20.000.000,00	Rp 360.000.000,00
Pondasi Kontainer		44	titik	Rp	450.000,00	Rp 19.800.000,00
Cat Besi Aluminium		41,5	kg	Rp	96.000,00	Rp 3.984.000,00
Jumlah Harga Bahan						Rp 812.854.870,00
C Alat						
Compactor Habis		0,75	Hari	Rp	4.400.000,00	Rp 3.300.000,00
compactor tanah		0,75	Hari	Rp	4.400.000,00	Rp 3.300.000,00
Jumlah Harga Alat						Rp 6.600.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 819.731.415,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					15% Rp 122.959.712,25
F	Harga Satuan Pekerjaan					Rp 942.691.127,25

B3.1 Pekerjaan Struktur Bengkel

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
I	2	3	4	5	6	7
A Tenaga Kerja						
Tukang Batu	L.14	0,275	Oh	Rp	161.000,00	Rp 44.275,00
Tukang Besi	L.15	1,05	Oh	Rp	172.000,00	Rp 180.600,00
Operator Compactor	L.21	0,275	Oh	Rp	166.000,00	Rp 45.650,00
Jumlah Harga Tenaga Kerja						Rp 270.525,00
B Bahan						
Atap Spandek tebal 0.35 lebar efektif 0,75m panjang 6m		43	m3	Rp	310.000,00	Rp 13.330.000,00
Profil Siku 50x50		14	bh	Rp	303.068,00	Rp 4.242.952,00
Profil NB UNP 120X55X7 mm		140	bh	Rp	1.050.135,00	Rp 147.018.900,00
Kontainer		4	bh	Rp	20.000.000,00	Rp 80.000.000,00
Pondasi Kontainer		3	titik	Rp	450.000,00	Rp 1.350.000,00
Beton Ready Mix 250		208,642	m3	Rp	1.089.000,00	Rp 227.211.138,00
Cat Dasar		60	kg	Rp	1.846.000,00	Rp 110.760.000,00
Cat Akhir Eksterior Weather Shield		60	kg	Rp	2.706.000,00	Rp 162.360.000,00
Cat Besi Aluminium		60	kg	Rp	96.000,00	Rp 5.760.000,00
Triplek Plywood 12mm		63,4	m2	Rp	120.000,00	Rp 7.608.000,00
Jumlah Harga Bahan						Rp 761.890.990,00
C Alat						
Compactor Habis		0,75	Hari	Rp	4.400.000,00	Rp 3.300.000,00
compactor tanah		0,75	Hari	Rp	4.400.000,00	Rp 3.300.000,00
Jumlah Harga Alat						Rp 6.600.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 768.761.515,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					Rp 115.314.227,25
F	Harga Satuan Pekerjaan					Rp 884.075.742,25

C1.1 Pekerjaan Perbaikan Tanah Per 1m2

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Mandor	L03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Mekanik	L04	0,275	Oh	Rp 177.000,00	Rp 48.675,00
	Operator ekskavator	L19	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Pengawas	L11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Sopir Dumptruck	L23	0,275		Rp 220.000,00	Rp 60.500,00
	Pekerja Terlatih	L07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Jumlah Harga Tenaga Kerja					Rp 252.467,00
B	Bahan					
	Besi Wire Mesh		575612	kg	Rp 16.000,00	Rp 9.209.792.000,00
	Kawat Gabion box 3.0 m x 1.5 m x 0.5 m diameter 2.7mm		60,35	m3	Rp 861.000,00	Rp 51.961.350,00
	Batu Pecah 3-5		95040	m3	Rp 544.000,00	Rp 51.701.760.000,00
	Jumlah Harga Bahan					Rp 60.963.513.350,00
C	Alat					
	GENSET 40 KVA			1 bh	Rp 150.000.000,00	Rp 150.000.000,00
	Dump Truck 5 ton		0,75	Hari	Rp 5.500.000,00	Rp 4.125.000,00
	Ekskavator 21,5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Jumlah Harga Alat					Rp 158.625.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 61.122.390.817,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 9.168.358.622,55
F	Harga Satuan Pekerjaan					Rp 70.290.749.439,55

C1.2 Pekerjaan Jembatan

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Mandor	L03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Mekanik	L04	0,275	Oh	Rp 177.000,00	Rp 48.675,00
	Operator ekskavator	L19	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Operator Compactor	L21	0,275	Oh	Rp 166.000,00	Rp 45.650,00
	Operator Bulldozer	L24	0,275	Oh	Rp 220.000,00	Rp 60.500,00
	Pekerja Terlatih	L07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Pengawas	L11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Sopir	L13	0,275	Oh	Rp 193.000,00	Rp 53.075,00
	Jumlah Harga Tenaga Kerja					Rp 351.192,00
B	Bahan					
	Batu Pecah 3-5		2000	m3	Rp 544.000,00	Rp 1.088.000,00
	Besi Wire Mesh		11533	kg	Rp 16.000,00	Rp 184.560,00
	H-Beam 800x800 6m		7000	m2	Rp 2.300.000,00	Rp 16.100.000,00
	Jumlah Harga Bahan					Rp 17.372.560,00
C	Alat					
	Compactor Halus		0,75	Hari	Rp 4.400.000,00	Rp 3.300.000,00
	compactor tanah		0,75	Hari	Rp 3.300.000,00	Rp 3.300.000,00
	Ekskavator 21,5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Buldozer		0,75	Hari	Rp 5.107.000,00	Rp 3.830.250,00
	Jumlah Harga Alat					Rp 14.930.250,00
D	Jumlah Harga Tenaga Kerja, bahan, dan Peralatan (A+B+C)					Rp 17.387.841.442,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					Rp 2.608.176.216,30
F	F Harga Satuan Pekerjaan					Rp 19.996.017.658,30

C1.3 Pekerjaan Struktur Batu Ballast dan Bantalan Per 1m2

No	Uraian Pekerjaan	Kode	Koefisien	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Mandor	L03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Mekanik	L04	0,275	Oh	Rp 177.000,00	Rp 48.675,00
	Operator	L05	0,275	Oh	Rp 177.000,00	Rp 48.675,00
	Pekerja Terlatih	L07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Pengawas	L11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Sopir	L13	0,275	Oh	Rp 193.000,00	Rp 53.075,00
	Jumlah Harga Tenaga Kerja					Rp 252.467,00
B	Bahan					
	Batu Pecah 3-5		826248	m3	Rp 544.000,00	Rp 449.478.912.000,00
	Bantalan		120000	batang	Rp 1.248.000,00	Rp 149.760.000.000,00
	Besi Wire Mesh		486065	kg	Rp 16.000,00	Rp 7.777.040.000,00
	Kawat Gabion box 3.0 m x 1.5 m x 0.5 m diameter 2.7mm		647,15	m3	Rp 861.000,00	Rp 557.196.150,00
	Jumlah Harga Bahan					Rp 607.573.148.150,00
C	Alat					
	Compactor Halus		0,75	Hari	Rp 4.400.000,00	Rp 3.300.000,00
	compactor basah		0,75	Hari	Rp 4.400.000,00	Rp 3.300.000,00
	Trakaktor 21.5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Dump Truck 5 ton		0,75	Hari	Rp 5.500.000,00	Rp 4.125.000,00
	GENSET 40 KVA		0,75	bh	Rp 150.000.000,00	Rp 112.500.000,00
	Jumlah Harga Alat					Rp 127.725.000,00
D	Jumlah Harga Tenaga Kerja, bahan, dan Peralatan (A+B+C)					Rp 607.701.125.617,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					Rp 91.155.168.842,50
F	Harga Satuan Pekerjaan (D+E)					Rp 698.856.294.459,50

C1.4 Pekerjaan Pemasangan Rel dan Wessel Per 1m2

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
I	2	3	4	5	6	7
A	Tenaga Kerja					
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Kepala Tukang	L.02	0,028	Oh	Rp 215.000,00	Rp 6.020,00
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Operator	L.05	0,275	Oh	Rp 177.000,00	Rp 48.675,00
	Sopir	L.13	0,275	Oh	Rp 193.000,00	Rp 53.075,00
	Pengawas	L.11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Jumlah Harga Tenaga Kerja					Rp 298.637,00
B	Bahan					
	Rel R60		73000	m2	Rp 720.000,00	Rp 52.560.000,00
	Wessel		7199	Unit	Rp 3.000.000,00	Rp 21.597.000,00
	Jumlah Harga Bahan					Rp 74.157.000,00
C	Alat					
	Dump Truck 5 ton		0,75	Hari	Rp 5.500.000,00	Rp 4.125.000,00
	Eksploster 21,5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Jumlah Harga Alat					Rp 8.625.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 74.165.923.637,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 11.124.888.545,55
F	Harga Satuan Pekerjaan (D+E)					Rp 85.290.812.182,55

C1.4 Pekerjaan Struktur Stasiun

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
I	2	3	4	5	6	7
A	Tenaga Kerja					
	Kepala Tukang	L.02	0,028	Oh	Rp 215.000,00	Rp 6.020,00
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Tukang Batu	L.14	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Tukang Besi	L.15	1,05	Oh	Rp 172.000,00	Rp 180.600,00
	Tukang Kayu	L.16	1,3	Oh	Rp 183.000,00	Rp 237.900,00
	Operator ekskavator	L.19	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Operator Crane	L.20	0,275	Oh	Rp 220.000,00	Rp 60.500,00
	Jumlah Harga Tenaga Kerja					Rp 669.837,00
B	Bahan					
	Beton Ready Mix 250		2932	m3	Rp 1.089.000,00	Rp 3.192.948.000,00
	Paving block persegi panjang		680	m2	Rp 7.000,00	Rp 4.760.000,00
	Pasir Halus		9	m3	Rp 199.000,00	Rp 1.791.000,00
	Pasir Kasar		18	m3	Rp 199.000,00	Rp 3.582.000,00
	Besi Profil		425180	kg	Rp 24.000,00	Rp 10.204.320.000,00
	railing 50x50 mm rectangular tinggi 1,1		343	m3	Rp 19.000,00	Rp 6.517.000,00
	Jumlah Harga Bahan					Rp 13.413.918.000,00
C	Alat					
	Eksploster 21,5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Mobile Crane 50 Ton		0,75	Hari	Rp 1.300.000,00	Rp 975.000,00
	Jumlah Harga Alat					Rp 5.475.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 13.420.062.837,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 2.013.009.425,55
F	Harga Satuan Pekerjaan (D+E)					Rp 15.433.072.262,55

B1 Pekerjaan MEP Bangunan Pendukung Proyek

B1.2 Pekerjaan MEP Gudang

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Tukang pipa	L17	1,3	Oh	Rp 183.000,00	Rp 237.900,00
	Tukang Batu	L14	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Pekerja Tak Terlatih	L06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Jumlah Harga Tenaga Kerja					Rp 320.675,00
B	Bahan					
	Pipa PVC D 3"		173	Batang	Rp 133.000,00	Rp 23.009.000,00
	Pipa PVC AW 3"		73	Batang	Rp 264.000,00	Rp 19.272.000,00
	Kran air 1/2"		4	bh	Rp 54.000,00	Rp 216.000,00
	Trak lampu dan stop kontak		5	bh	Rp 80.000,00	Rp 400.000,00
	Box Panel +MCB		1	1 set	Rp 350.000,00	Rp 350.000,00
	Toren Air 500L		2	bh	Rp 2.500.000,00	Rp 5.000.000,00
	Jumlah Harga Bahan					Rp 48.247.000,00
C	Alat					
	Jumlah Harga Alat					
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 48.567.675,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					15% Rp 7.285.151,25
F	Harga Satuan Pekerjaan					Rp 55.852.826,25

B1.2 Pekerjaan MEP Mess dan Kantor

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Tukang Batu	L14	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Tukang pipa	L17	1,3	Oh	Rp 183.000,00	Rp 237.900,00
	Pekerja Tak Terlatih	L06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Jumlah Harga Tenaga Kerja					Rp 320.675,00
B	Bahan					
	Pipa PVC D 3"		24	Batang	Rp 133.000,00	Rp 3.192.000,00
	Pipa PVC AW 3"		24	Batang	Rp 264.000,00	Rp 6.336.000,00
	Kran air 1/2"		20	bh	Rp 54.000,00	Rp 1.080.000,00
	Floor Drain Stainless		20	bh	Rp 593.000,00	Rp 11.860.000,00
	Kloset Duduk Putih		20	bh	Rp 2.928.000,00	Rp 58.560.000,00
	Trak lampu dan stop kontak		40	bh	Rp 80.000,00	Rp 3.200.000,00
	AC 1 PK (Inverter)		30	bh	Rp 3.500.000,00	Rp 105.000.000,00
	Box Panel +MCB		3	1 set	Rp 350.000,00	Rp 1.050.000,00
	Septictank		1	bh	Rp 2.200.000,00	Rp 2.200.000,00
	Toren Air 500L		5	bh	Rp 2.500.000,00	Rp 12.500.000,00
	Jumlah Harga Bahan					Rp 204.978.000,00
C	Alat					
	Jumlah Harga Alat					
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 205.298.675,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					15% Rp 30.794.801,25
F	Harga Satuan Pekerjaan					Rp 236.093.476,25

B1.3 Pekerjaan MEP Bengkel

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Tukang Batu	L14	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Tukang pipa	L17	1,3	Oh	Rp 183.000,00	Rp 237.900,00
	Pekerja Tak Terlatih	L06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Jumlah Harga Tenaga Kerja					Rp 320.675,00
B	Bahan					
	Trak lampu dan stop kontak		20	bh	Rp 80.000,00	Rp 1.600.000,00
	Box Panel +MCB		3	1 set	Rp 350.000,00	Rp 1.050.000,00
	Septictank		1	bh	Rp 2.200.000,00	Rp 2.200.000,00
	Toren Air 500L		1	bh	Rp 2.500.000,00	Rp 2.500.000,00
	Pipa PVC D 3"		20	Batang	Rp 133.000,00	Rp 2.660.000,00
	Pipa PVC AW 3"		20	Batang	Rp 264.000,00	Rp 5.280.000,00
	Kran air 1/2"		5	bh	Rp 54.000,00	Rp 270.000,00
	Floor Drain Stainless		5	bh	Rp 593.000,00	Rp 2.965.000,00
	Kloset Duduk Putih		2	bh	Rp 2.928.000,00	Rp 5.856.000,00
	Jumlah Harga Bahan					Rp 24.381.000,00
C	Alat					
	Jumlah Harga Alat					
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 24.701.675,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					15% Rp 3.705.251,25
F	Harga Satuan Pekerjaan					Rp 28.406.926,25

C2.1 Pekerjaan Drainase Sumur Resapan

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Operator ekskavator	L.19	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Pengawas	L.11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Jumlah Harga Tenaga Kerja					Rp 232.117,00
B	Bahan					
	Busi Beton Sumur Resapan 150x50 cm			2 bh	Rp 1.495.000,00	Rp 2.990.000,00
	Pipa PVC D 3"			34 batang	Rp 133.000,00	Rp 4.522.000,00
	Jumlah Harga Bahan					
C	Alat					
	GENSET 40 KVA			1 hh	Rp 150.000.000,00	Rp 150.000.000,00
	Ekskavator 21.5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Jumlah Harga Alat					Rp 154.500.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 159.254.117,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 23.888.117,55
F	Harga Satuan Pekerjaan					Rp 183.142.234,55

C2.2 Pekerjaan Drainase Gorong Gorong

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Operator ekskavator	L.19	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Pengawas	L.11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Jumlah Harga Tenaga Kerja					Rp 232.117,00
B	Bahan					
	Busi Beton Gorong gorong 50x100 cm			16000 bh	Rp 175.000,00	Rp 2.800.000.000,00
	Jumlah Harga Bahan					Rp 2.800.000.000,00
C	Alat					
	GENSET 40 KVA			1 hh	Rp 150.000.000,00	Rp 150.000.000,00
	Ekskavator 21.5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Jumlah Harga Alat					Rp 154.500.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 2.954.732.117,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 443.209.817,55
F	Harga Satuan Pekerjaan					Rp 3.397.941.934,55

C2.3 Pekerjaan Drainase Perpipaan

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Operator ekskavator	L.19	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Pengawas	L.11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Tukang pipa	L.17	1,3	Oh	Rp 183.000,00	Rp 237.900,00
	Jumlah Harga Tenaga Kerja					Rp 470.017,00
B	Bahan					
	Pipa PVC D 6" 4m			4000 batang	Rp 266.145,00	Rp 1.064.580.000,00
	Jumlah Harga Bahan					Rp 1.064.580.000,00
C	Alat					
	Ekskavator 21.5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Jumlah Harga Alat					Rp 4.500.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 1.069.550.017,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 160.432.502,55
F	Harga Satuan Pekerjaan					Rp 1.229.982.519,55

D1.2 Pekerjaan MEP Stasiun

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Kepala Tukang	L.02	0,028	Oh	Rp 215.000,00	Rp 6.020,00
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Tukang pipa	L.17	1,3	Oh	Rp 183.000,00	Rp 237.900,00
	Jumlah Harga Tenaga Kerja					Rp 355.037,00
B	Bahan					
	Pipa PVC D 3"		70	Batang	Rp 133.000,00	Rp 9.310.000,00
	Pipa PVC AW 3"		70	Batang	Rp 264.000,00	Rp 18.480.000,00
	Kran air 1/2"		15	hh	Rp 54.000,00	Rp 810.000,00
	Floor Drain Stainless		25	hh	Rp 593.000,00	Rp 14.825.000,00
	Kloset Daduk Putih		25	hh	Rp 2.928.000,00	Rp 73.200.000,00
	Trak lampu dan stop kontak		40	hh	Rp 80.000,00	Rp 3.200.000,00
	Box Panel +MCB		4	1 set	Rp 350.000,00	Rp 1.400.000,00
	Septictank		1	hh	Rp 2.200.000,00	Rp 2.200.000,00
	Jumlah Harga Bahan					Rp 123.425.000,00
C	Alat					
	Jumlah Harga Alat					
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 123.780.037,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 18.567.005,55
F	Harga Satuan Pekerjaan					Rp 142.347.042,55

E1.1 Pemasangan lampu penerangan

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Pengawas	L.11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Juru ukur	L.01	0,275	Oh	Rp 183.000,00	Rp 50.325,00
	Operator ekskavator	L.19	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Sopir	L.13	0,275	Oh	Rp 193.000,00	Rp 53.075,00
	Jumlah Harga Tenaga Kerja					Rp 285.192,00
B	Bahan					
	lampu pjs solar cell 60watt tinggi 7m		320	hh	Rp 9.730.000,00	Rp 3.113.600.000,00
	Belton Ready Mix K250		80	m ³	Rp 1.089.000,00	Rp 87.120.000,00
	Jumlah Harga Bahan					Rp 3.200.720.000,00
C	Alat					
	Grusad		5	hh	Rp 355.000,00	Rp 1.775.000,00
	GENSET 40 KVA.		1	hh	Rp 150.000.000,00	Rp 150.000.000,00
	Hoisting Torch		5	hh	Rp 225.000,00	Rp 1.125.000,00
	Ekskavator 21,5 Ton		0,75	Hari	Rp 6.000.000,00	Rp 4.500.000,00
	Jumlah Harga Alat					Rp 157.400.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 3.358.405.192,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 503.760.778,80
F	Harga Satuan Pekerjaan					Rp 3.862.165.970,80

E1.2 Pemasangan lampu sinyal

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Pengawas	L.11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Sopir Dumptruck	L.23	0,275	Oh	Rp 220.000,00	Rp 60.500,00
	Jumlah Harga Tenaga Kerja					Rp 201.042,00
B	Bahan					
	Lampu Sinyal	0	48	hh	Rp 5.000.000,00	Rp 240.000.000,00
	Belton Ready Mix 250	0	48	m ³	Rp 1.089.000,00	Rp 52.272.000,00
	Jumlah Harga Bahan					Rp 292.272.000,00
C	Alat					
	Jumlah Harga Alat					
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 292.473.042,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 43.870.956,30
F	Harga Satuan Pekerjaan					Rp 336.343.998,30

E1.3 Pemasangan Speaker

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Sopir	L.13	0,275	Oh	Rp 193.000,00	Rp 53.075,00
	Jumlah Harga Tenaga Kerja					Rp 91.575,00
B	Bahan					
	Speaker Corong	0	32	hh	Rp 690.000,00	Rp 22.080.000,00
	Jumlah Harga Bahan					Rp 22.080.000,00
C	Alat					
	0					
	Jumlah Harga Alat					
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 22.171.575,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 3.325.736,25
F	Harga Satuan Pekerjaan					Rp 25.497.311,25

E1.4 Pemasangan Palang

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Mandor	L.03	0,083	Oh	Rp 199.000,00	Rp 16.517,00
	Pekerja Tak Terlatih	L.06	0,275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0,275	Oh	Rp 161.000,00	Rp 44.275,00
	Sopir	L.13	0,275	Oh	Rp 193.000,00	Rp 53.075,00
	Pengawas	L.11	0,275	Oh	Rp 150.000,00	Rp 41.250,00
	Jumlah Harga Tenaga Kerja					Rp 195.617,00
B	Bahan					
	Palang otomatis	0	20	hh	Rp 1.200.000,00	Rp 24.000.000,00
	Beton Ready Mix 250	0	30	m ³	Rp 1.089.000,00	Rp 32.670.000,00
	Jumlah Harga Bahan					Rp 56.670.000,00
C	Alat					
	GUNSET 40 KVA.	0	1	hh	Rp 150.000.000,00	Rp 150.000.000,00
	Hoisting Foreb	0	6	hh	Rp 225.000,00	Rp 1.350.000,00
	Gerinda	0	6	hh	Rp 355.000,00	Rp 2.130.000,00
	Jumlah Harga Alat					Rp 153.480.000,00
D	Jumlah Harga Tenaga Kerja,bahan,dan Peralatan (A+B+C)					Rp 210.343.617,00
E	Biaya Umum dan Keuntungan (10%-15%)*D				15%	Rp 31.551.542,55
F	Harga Satuan Pekerjaan					Rp 241.895.159,55

No	Uraian Pekerjaan	Kode	Volume	Satuan	Harga Satuan (Rp)	Jumlah Harga (Rp)
1	2	3	4	5	6	7
A	Tenaga Kerja					
	Mandor	L.03	0.083	Oh	Rp 199.000,00	Rp 16.517,00
	Pekerja Tak Terlatih	L.06	0.275	Oh	Rp 140.000,00	Rp 38.500,00
	Pekerja Terlatih	L.07	0.275	Oh	Rp 161.000,00	Rp 44.275,00
	Pengawas	L.11	0.275	Oh	Rp 150.000,00	Rp 41.250,00
	Penjaga Malam	L.12	0.04	Oh	Rp 161.000,00	Rp 6.440,00
	Jumlah Harga Tenaga Kerja					Rp 146.982,00
B	Bahan					
	Cat Dasar	0	370,5	kg	Rp 1.846.000,00	Rp 683.943.000,00
	Cat Akhir Exterior Weather Shield	0	370,5	kg	Rp 2.706.000,00	Rp 1.002.573.000,00
	Cat Besi Aluminium	0	370,5	kg	Rp 96.000,00	Rp 35.568.000,00
	railing 50x50 mm rectangular tinggi 1,1	0	343	m3	Rp 19.000,00	Rp 6.517.000,00
	Plafon PVC 0,8mm x 20cm	0	1000	m2	Rp 13.000,00	Rp 13.000.000,00
	Triplek Plywood 12mm	0	231	m2	Rp 120.000,00	Rp 27.720.000,00
	Lantai Keramik 40x40 cm	0	100	m2	Rp 95.000,00	Rp 9.500.000,00
	Jumlah Harga Bahan					Rp 1.778.821.000,00
C	Alat					
	Jumlah Harga Alat					
D	Jumlah Harga Tenaga Kerja, bahan, dan Peralatan (A+B+C)					Rp 1.778.967.982,00
E	Biaya Umum dan Keuntungan (10%-15%)*D					15% Rp 266.845.197,30
F	Harga Satuan Pekerjaan					Rp 2.045.813.179,30

Tabel Perhitungan EIRR & FIRR

EIRR															
Tahun Ke	Tahun	Prasarana	Investasi	Sarana	Prasarana	Pemeliharaan	Sarana	Operasional	Total Biaya	Benefit	DF	Discount Rate : Discounted Biaya	Discounted Manfaat	manfaat ekonomi bersih	manfaat ekonomi bersih (milyar)
0	2025														
1	2026														
2	2027														
3	2028														
4	2029	Rp1.157.385.313.703,37			Rp57.869.265.685,17		Rp89.000.000.000,00	Rp1.122.255.534,91	Rp2.125.254.579.388,54	Rp110.645.670.643,87	1,000	Rp1.215.254.579.388,54	Rp105.376.829.184,64	-Rp1.215.254.579.389	-Rp1.215,25
5	2030				Rp57.869.265.685,17		Rp89.000.000.000,00	Rp1.222.255.534,91	Rp2.016.991.521.220,07	Rp110.645.670.643,87	0,952	Rp1.920.944.305.923,88	Rp105.376.829.184,64	-Rp1.815.567.476.739	-Rp1.815,57
6	2031				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp1.397.132.146,78	Rp148.266.397.831,95	Rp161.372.726.978,79	0,907	Rp1.341.993.498.371,97	Rp146.369.820.388,93	-Rp11.887.826.891	-Rp11.887,83
7	2032				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp1.945.311.568,81	Rp148.814.577.253,98	Rp223.715.746.631,1	0,864	Rp1.28.551.627.041,56	Rp193.253.579.236,20	Rp64.701.952.195	Rp64,70
8	2033				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp2.467.857.675,29	Rp149.337.123.360,46	Rp299.896.887.211,34	0,823	Rp1.22.860.020.966,95	Rp246.725.941.291,15	Rp123.865.890.324	Rp123,87
9	2034				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp3.079.403.389,90	Rp149.948.669.075,07	Rp392.534.414.989,48	0,784	Rp117.488.705.847,44	Rp247.540.884.678,48	Rp190.072.278.831	Rp190,07
10	2035				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp3.793.170.836,66	Rp150.662.436.521,82	Rp504.703.308.241,25	0,746	Rp112.426.629.827,37	Rp276.617.379.943,07	Rp264.190.749.516	Rp264,19
11	2036				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp4.624.224.653,88	Rp151.493.490.339,05	Rp650.053.363.718,85	0,711	Rp107.663.595.220,21	Rp254.846.966.991,42	Rp347.183.374.771	Rp347,18
12	2037				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp5.589.719.395,92	Rp152.458.985.081,09	Rp708.528.718.98,67	0,677	Rp103.190.242.197,82	Rp243.304.728.474,14	Rp440.114.486.275	Rp440,11
13	2038				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp6.709.179.345,12	Rp153.578.445.030,29	Rp897.751.542.051,37	0,645	Rp98.998.035.005,39	Rp243.159.540.176,37	Rp544.161.505.171	Rp544,16
14	2039				Rp0,00	Rp57.869.265.685,17	Rp89.000.000.000,00	Rp8.004.814.904,45	Rp154.874.080.589,62	Rp1.136.342.059.277,92	0,614	Rp95.079.250.703,90	Rp267.615.450.746,52	Rp602.536.200.043	Rp602,54
15	2040				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp9.501.880.270,69	Rp163.412.503.387,69	Rp1.294.298.751.808,11	0,585	Rp95.543.906.308,55	Rp276.749.672.072,63	Rp661.205.767.764	Rp661,21
16	2041				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp10.520.542.991,14	Rp157.589.808.676,31	Rp1.471.310.074.418,07	0,557	Rp87.751.902.194,41	Rp283.803.503.177,58	Rp731.528.600.983	Rp731,53
17	2042				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp11.650.259.527,10	Rp158.719.525.212,27	Rp1.672.525.452.129,32	0,530	Rp84.172.352.984,35	Rp286.975.956.761,99	Rp802.803.603.777	Rp802,80
18	2043				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp12.903.280.138,34	Rp159.972.545.823,51	Rp1.801.266.036.743,88	0,505	Rp80.797.006.254,56	Rp290.706.254,56	Rp879.471.539.024	Rp879,47
19	2044				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp14.293.217.335,76	Rp161.362.483.020,93	Rp2.161.310.921.782,03	0,481	Rp77.618.113.323,48	Rp299.027.607.627,91	Rp962.009.394.344	Rp962,01
20	2045				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp15.835.198.190,38	Rp162.904.463.875,55	Rp2.458.960.628.555,97	0,458	Rp74.628.411.885,22	Rp312.561.973.020,91	Rp1.050.933.561.936	Rp1.050,93
21	2046				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp17.546.033.734,18	Rp164.615.299.419,34	Rp2.793.190.442.623,87	0,436	Rp71.821.109.866,73	Rp312.218.624.971,50	Rp1.146.803.288.085	Rp1.146,80
22	2047				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp19.444.407.374,50	Rp166.513.673.059,67	Rp3.173.327.841.275,10	0,416	Rp69.189.870.474,14	Rp312.319.414.304.025,51	Rp1.250.224.433.551	Rp1.250,22
23	2048				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp21.551.084.061,05	Rp168.620.350.146,72	Rp3.609.956.427.578,37	0,396	Rp66.728.998.396,90	Rp312.428.582.341.743,28	Rp1.361.853.543.346	Rp1.361,85
24	2049				Rp0,00	Rp57.869.265.685,17	Rp89.200.000.000,00	Rp23.889.145.385,58	Rp170.958.411.070,75	Rp4.104.212.986.162,98	0,377	Rp64.432.427.141,24	Rp312.546.834.709.955,63	Rp1.482.402.282.814	Rp1.482,40
25	2050			Rp11.143.850.361,61	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp26.484.244.862,43	Rp184.897.360.309,20	Rp266.314.503.852,37	Rp3.359	Rp66.367.495.940,62	Rp312.674.937.962.171,15	Rp1.608.570.466.231	Rp1.608,57	
26	2051				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp29.364.900.336,68	Rp176.634.166.021,95	Rp3.666.316.258.555,92	0,342	Rp59.382.366.884,06	Rp312.813.724.132.025,43	Rp1.753.341.867.138	Rp1.753,34
27	2052				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp32.562.812.798,66	Rp173.832.078.483,83	Rp4.062.770.377.020,97	0,328	Rp58.548.164.616,13	Rp312.954.066.239.731,66	Rp1.905.548.764.616	Rp1.905,55
28	2053				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp36.113.223.653,12	Rp183.112.023.653,12	Rp4.659.956.604.817,67	0,314	Rp56.861.025.251,55	Rp312.744.049.937,68	Rp2.070.188.571.598	Rp2.070,19
29	2054				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp40.055.311.702,76	Rp187.324.577.387,93	Rp5.200.838.394.531,49	0,295	Rp55.317.466.909,77	Rp312.803.609.199.745,07	Rp2.245.291.732.562	Rp2.245,29
30	2055				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp44.432.634.763,37	Rp191.701.900.448,54	Rp5.871.297.947.180,15	0,281	Rp53.914.383.373,51	Rp312.494.970.354.627,59	Rp2.441.055.971.254	Rp2.441,06
31	2056				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp49.293.620.937,06	Rp196.562.886.622,22	Rp6.649.038.759,60	0,268	Rp52.649.038.759,60	Rp312.740.376.378.853,62	Rp2.649.734.204.094	Rp2.649,73
32	2057				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp54.692.115.137,07	Rp201.961.380.822,24	Rp7.414.968.359.658,40	0,255	Rp51.519.063.196,39	Rp312.927.191.414.967.06	Rp2.875.672.351.771	Rp2.875,67
33	2058				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp60.687.987.088,13	Rp207.257.252.773,30	Rp8.131.051.842.715.693,03	0,243	Rp50.522.449.504,98	Rp312.170.897.171.205,32	Rp3.120.374.721.700	Rp3.120,37
34	2059				Rp0,00	Rp57.869.265.685,17	Rp89.400.000.000,00	Rp67.347.807.728,19	Rp214.617.073.413,07	Rp9.146.818.018.383,03	0,231	Rp49.657.550.884,37	Rp312.435.103.185.026,95	Rp3.385.445.634.143	Rp3.385,45
35	2060		Rp385.733.356.982,20		Rp57.869.265.685,17	Rp89.650.000.000,00	Rp74.745.601.718,77	Rp117.546.615.299,41	Rp117.546.615.299,41	Rp10.898.676.967.975,60	0,220	Rp48.859.807.371,79	Rp312.721.557.886.538,14	Rp3.586.729.279.166	Rp3.586,73
36	2061				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp82.963.684.640,08	Rp124.482.950.325,25	Rp12.019.212.018.282,30	0,210	Rp48.021.651.180.756,91	Rp312.932.165.180.756,91	Rp3.982.951.143.843	Rp3.982,95
37	2062				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp92.093.594.414,43	Rp124.612.880.099,43	Rp13.858.815.940.342,30	0,200	Rp47.188.815.940.342,30	Rp312.938.977.054.071,67	Rp4.320.285.533.644	Rp4.320,29
38	2063				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp102.237.127.578,31	Rp137.956.383.363,47	Rp15.247.870.267.166,08	0,190	Rp46.303.747.392,01	Rp312.744.398.028.07	Rp4.685.944.606.637	Rp4.685,94
39	2064				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp113.507.492.721,07	Rp145.026.757.906,24	Rp17.299.494.666.400,40	0,181	Rp45.406.776.566,89	Rp312.510.412.585.984,07	Rp5.082.365.809.421	Rp5.082,37
40	2065				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp126.030.590.741,86	Rp157.499.856.427,03	Rp19.323.184.370.080,20	0,173	Rp44.521.040.639,26	Rp312.560.118.555.917,71	Rp5.512.197.515.278	Rp5.512,20
41	2066				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp139.946.447.059,78	Rp169.291.465.712.744,95	Rp21.606.650.620.487,10	0,164	Rp43.627.348.965,10	Rp312.626.245.401.809,17	Rp5.978.318.052.036	Rp5.978,32
42	2067				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp155.410.794.563,88	Rp190.306.930.060.249,04	Rp24.709.443.529.080,10	0,157	Rp42.706.894.033,76	Rp312.651.922.616.001,54	Rp6.483.865.722.776	Rp6.483,87
43	2068				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp172.596.842.927,01	Rp216.110.308.612,18	Rp27.344.304.196.827,00	0,149	Rp41.743.340.196.827,00	Rp312.708.052.149.268,08	Rp7.032.210.890.816	Rp7.032,21
44	2069				Rp0,00	Rp57.869.265.685,17	Rp89.650.000.000,00	Rp191.697.243.952,69	Rp243.216.509.637,88	Rp29.673.773.495.546,50	0,142	Rp40.773.773.495.546,50	Rp312.675.832.406.162,77	Rp7.627.079.982.875	Rp7.627,08
45	2070			Rp1.914.524.930.262,30	Rp57.869.265.685,17	Rp106.600.000.000,00	Rp212.936.278.900,16	Rp212.936.278.900,16	Rp212.936.278.900,16	Rp26.514.530.421.678,60	0,135	Rp39.820.474.678,60	Rp312.831.784.233.455,74	Rp8.011.729.559.525	Rp8.011,73
46	2071				Rp0,00	Rp57.869.265.685,17	Rp106.600.000.000,00	Rp236.222.292.265,83	Rp240.991.557.950,98	Rp27.031.097.656.544,70	0,129	Rp38.901.097.656.544,70	Rp312.022.780.089.670,09	Rp8.971.116.489.266	Rp8.971,12
47	2072				Rp0,00	Rp57.869.265.685,17	Rp106.600.000.000,00	Rp262.750.399.817,84	Rp273.750.399.817,84	Rp29.869.921.096.161,61	0,123	Rp38.022.780.089.670,09	Rp312.074.049.937,68	Rp9.731.152.316.753	Rp9.731,15
48	2073				Rp0,00	Rp57.869.265.685,17	Rp106.600.000.000,00	Rp291.905.501.818,52	Rp305.743.767.903,68	Rp32.785.684.891.162,00	0,117	Rp37.173.815.940.342,30	Rp312.106.639.278.831,07	Rp10.556.033.719.979	Rp10.556,03
49	2074				Rp0,00	Rp57.869.265.685,17	Rp106.600.000.000,00	Rp324.315.635.859,53	Rp348.784.901.544,70	Rp33.771.462.728.000,10	0,111	Rp35.440.005.152,84	Rp312.115.609.688.020.940	Rp11.451.289.628.977	Rp11.451,29
50	2075			</											

FIRR													
Tahun Ke	Tahun	Investasi		Pemeliharaan		Operasional	Total Pengeluaran	Total Pemasukan	DF	Discount Rate :			Net Financial Cashflow
		Prasarana	Sarana	Prasarana	Sarana					Discounted Pengeluaran	Discounted Pemasukan		
0	2025								1				
1	2026								0.952380952				
2	2027								0.907029478				
3	2028								0.863837599				
4	2029	Rp1.157.385.313.703,37		Rp57.869.265.685,17			Rp1.215.254.579.388,54		0.822702475	Rp999.792.949.965,12		-Rp999.792.949.965,12	
5	2030		Rp1.869.000.000.000,00	Rp670.728.969,43		Rp1.122.255.534,91	Rp2.019.884.984.504,33	Rp137.870.419,19	0.783526166	Rp1.582.632.738.615,88	Rp108.025.081,02	-Rp1.582.524.713.534,86	
6	2031		Rp0,00	Rp63.800.865.417,90	Rp89.000.000.000,00	Rp1.397.132.146,78	Rp154.197.997.564,68	Rp171.639.335,92	0.746215397	Rp115.064.919.913,30	Rp128.079.915,13	-Rp114.936.839.998,17	
7	2032		Rp0,00	Rp66.990.908.688,79	Rp89.000.000.000,00	Rp1.945.311.568,81	Rp157.936.220.257,61	Rp238.983.825,97	0.710681333	Rp112.242.323.088,40	Rp169.841.343,32	-Rp112.072.481.745,08	
8	2033		Rp0,00	Rp70.340.454.123,23	Rp89.000.000.000,00	Rp2.467.857.675,29	Rp161.808.311.798,53	Rp303.179.232,90	0.676839362	Rp109.518.234.528,65	Rp205.203.638,58	-Rp109.313.030.890,07	
9	2034		Rp0,00	Rp73.857.476.829,39	Rp89.000.000.000,00	Rp3.079.403.389,90	Rp165.936.880.219,30	Rp378.308.346,91	0.644608916	Rp106.964.392.518,73	Rp243.860.933,50	-Rp106.720.531.585,23	
10	2035		Rp0,00	Rp77.550.350.670,86	Rp89.000.000.000,00	Rp3.793.170.836,66	Rp170.343.521.507,52	Rp465.995.521,56	0.613913254	Rp104.576.145.508,27	Rp286.080.826,78	-Rp104.290.064.681,50	
11	2036		Rp0,00	Rp81.427.868.204,41	Rp89.000.000.000,00	Rp4.624.224.653,88	Rp175.052.092.858,29	Rp568.091.465,48	0.584679289	Rp102.349.333.205,48	Rp332.151.314,17	-Rp102.017.181.891,31	
12	2037		Rp0,00	Rp85.499.261.614,63	Rp89.000.000.000,00	Rp5.589.719.395,92	Rp180.088.981.010,54	Rp686.703.635,94	0.556837418	Rp100.280.283.228,14	Rp382.382.279,69	-Rp99.897.900.948,45	
13	2038		Rp0,00	Rp89.774.224.695,36	Rp89.000.000.000,00	Rp6.709.179.345,12	Rp185.483.404.040,48	Rp824.230.614,12	0.530321351	Rp98.365.809.353,03	Rp437.107.092,52	-Rp97.928.702.260,51	
14	2039		Rp0,00	Rp94.262.935.930,13	Rp89.000.000.000,00	Rp8.004.814.904,45	Rp191.267.750.834,57	Rp983.400.974,28	0.505067953	Rp96.603.211.388,08	Rp496.684.317,06	-Rp96.106.527.071,02	
15	2040	Rp6.841.357.432,47		Rp98.976.082.726,63	Rp89.200.000.000,00	Rp9.501.880.270,05	Rp204.519.320.429,15	Rp1.167.317.224,27	0.481017098	Rp98.377.290.016,37	Rp561.499.543,77	-Rp97.815.790.472,60	
16	2041		Rp0,00	Rp103.924.886.862,97	Rp89.200.000.000,00	Rp10.520.542.991,14	Rp203.645.429.854,10	Rp1.292.461.143,82	0.458111522	Rp93.292.317.817,06	Rp592.091.341,71	-Rp92.700.226.475,35	
17	2042		Rp0,00	Rp109.121.131.206,11	Rp89.200.000.000,00	Rp11.650.259.527,10	Rp209.971.390.733,21	Rp1.431.248.155,81	0.436296688	Rp91.609.822.269,94	Rp624.448.829,53	-Rp90.985.373.440,41	
18	2043		Rp0,00	Rp114.577.187.766,42	Rp89.200.000.000,00	Rp12.903.280.138,34	Rp216.680.467.904,76	Rp1.585.183.219,22	0.415520655	Rp90.035.209.920,78	Rp658.676.369,34	-Rp89.376.533.551,44	
19	2044		Rp0,00	Rp120.306.047.154,74	Rp89.200.000.000,00	Rp14.293.217.335,76	Rp223.799.264.490,50	Rp1.755.938.647,10	0.395733957	Rp88.564.968.514,24	Rp694.884.549,10	-Rp87.870.083.965,15	
20	2045		Rp0,00	Rp126.321.349.512,48	Rp89.200.000.000,00	Rp15.835.198.190,38	Rp231.356.547.702,85	Rp1.945.372.818,02	0.376889483	Rp87.195.849.623,01	Rp733.190.555,38	-Rp86.462.659.067,74	
21	2046		Rp0,00	Rp132.637.416.988,10	Rp89.200.000.000,00	Rp17.546.033.734,18	Rp239.383.450.722,28	Rp2.155.550.987,12	0.358942365	Rp85.924.861.858,17	Rp773.718.568,42	-Rp85.151.143.289,74	
22	2047		Rp0,00	Rp139.269.287.837,51	Rp89.200.000.000,00	Rp19.444.407.374,50	Rp247.913.695.212,01	Rp2.388.768.433,09	0.341849871	Rp84.749.264.748,83	Rp816.600.180,91	-Rp83.932.664.567,93	
23	2048		Rp0,00	Rp146.232.752.229,38	Rp89.200.000.000,00	Rp21.551.084.461,05	Rp256.983.836.690,43	Rp2.647.576.203,68	0.325571306	Rp83.666.563.279,97	Rp861.974.841,83	-Rp82.804.588.438,14	
24	2049		Rp0,00	Rp153.544.389.840,85	Rp89.200.000.000,00	Rp23.889.145.385,58	Rp266.633.535.226,43	Rp2.934.809.752,31	0.310067911	Rp82.674.503.078,93	Rp909.990.326,97	-Rp81.764.512.751,96	
25	2050	Rp11.143.850.361,61		Rp161.221.609.332,89	Rp89.400.000.000,00	Rp26.484.244.862,43	Rp288.249.704.556,93	Rp3.253.620.790,96	0.295302772	Rp85.120.936.696,72	Rp960.803.237,62	-Rp84.160.133.459,10	
26	2051		Rp0,00	Rp169.282.689.799,54	Rp89.400.000.000,00	Rp29.364.900.336,68	Rp288.047.590.136,22	Rp3.607.512.721,47	0.281240735	Rp81.010.715.950,56	Rp1.014.579.529,13	-Rp79.996.136.421,43	
27	2052		Rp0,00	Rp177.746.824.289,52	Rp89.400.000.000,00	Rp32.562.812.798,66	Rp299.709.637.088,17	Rp4.000.380.047,99	0.267848319	Rp80.276.722.482,24	Rp1.071.495.071,22	-Rp79.205.227.411,02	
28	2053		Rp0,00	Rp186.634.165.503,99	Rp89.400.000.000,00	Rp36.113.223.653,12	Rp312.147.389.157,11	Rp4.436.552.218,75	0.255093637	Rp79.626.812.824,80	Rp1.131.736.241,86	-Rp78.495.076.582,95	
29	2054		Rp0,00	Rp195.965.873.779,19	Rp89.400.000.000,00	Rp40.055.311.702,76	Rp325.421.185.481,95	Rp4.920.842.395,97	0.242946321	Rp79.059.879.817,15	Rp1.195.500.556,76	-Rp77.864.379.260,39	
30	2055		Rp0,00	Rp205.764.167.468,15	Rp89.400.000.000,00	Rp44.432.634.763,37	Rp339.596.802.231,52	Rp5.458.601.708,83	0.231377449	Rp78.575.041.672,02	Rp1.262.997.336,62	-Rp77.312.044.335,40	
31	2056		Rp0,00	Rp216.052.375.841,56	Rp89.400.000.000,00	Rp49.293.620.937,06	Rp354.745.996.778,61	Rp6.055.779.606,91	0.220359475	Rp78.171.641.576,68	Rp1.334.448.414,35	-Rp76.837.193.162,33	
32	2057		Rp0,00	Rp226.854.994.633,64	Rp89.400.000.000,00	Rp54.692.115.137,07	Rp370.947.109.770,71	Rp6.718.991.001,47	0.209866167	Rp77.849.247.931,98	Rp1.410.088.884,77	-Rp76.439.159.047,21	
33	2058		Rp0,00	Rp238.197.744.365,32	Rp89.400.000.000,00	Rp60.687.987.088,13	Rp388.285.731.453,45	Rp7.455.990.958,96	0.19987254	Rp77.607.655.236,52	Rp1.490.167.899,20	-Rp76.117.487.337,32	
34	2059		Rp0,00	Rp250.107.631.583,58	Rp89.400.000.000,00	Rp67.347.807.728,19	Rp406.855.439.311,77	Rp8.273.757.797,82	0.1903548	Rp77.446.885.624,58	Rp1.574.949.507,71	-Rp75.871.936.116,87	
35	2060	Rp385.733.356.982,20		Rp262.613.013.162,76	Rp93.650.000.000,00	Rp74.745.601.718,77	Rp816.741.971.863,73	Rp9.182.585.535,21	0.181290285	Rp148.067.385.138,60	Rp1.664.713.551,95	-Rp146.402.671.586,65	
36	2061		Rp0,00	Rp275.743.663.820,90	Rp93.650.000.000,00	Rp82.963.684.640,08	Rp452.357.348.460,98	Rp10.192.186.737,49	0.172657415	Rp78.102.850.270,31	Rp1.759.756.611,44	-Rp76.343.093.658,88	
37	2062		Rp0,00	Rp289.530.847.011,95	Rp93.650.000.000,00	Rp92.093.594.414,43	Rp475.274.441.426,38	Rp11.313.806.946,63	0.164435633	Rp78.152.053.611,77	Rp1.860.393.006,60	-Rp76.291.660.605,17	
38	2063		Rp0,00	Rp304.007.389.362,54	Rp93.650.000.000,00	Rp102.237.127.578,31	Rp499.894.516.940,85	Rp12.559.951.987,47	0.156605365	Rp78.286.163.155,08	Rp1.966.955.862,07	-Rp76.319.207.293,01	
39	2064		Rp0,00	Rp319.207.758.830,67	Rp93.650.000.000,00	Rp113.507.492.221,07	Rp526.365.251.051,74	Rp13.944.529.607,63	0.149147966	Rp78.506.306.786,04	Rp2.079.798.233,60	-Rp76.426.508.552,45	
40	2065		Rp0,00	Rp335.168.146.772,20	Rp93.650.000.000,00	Rp126.030.590.741,86	Rp554.848.737.514,07	Rp15.483.007.065,69	0.142045682	Rp78.813.867.493,63	Rp2.199.294.302,71	-Rp76.614.573.190,93	
41	2066		Rp0,00	Rp351.926.554.110,81	Rp93.650.000.000,00	Rp139.946.447.059,78	Rp585.523.001.170,59	Rp17.192.586.465,63	0.135281602	Rp79.210.489.717,89	Rp2.325.840.642,87	-Rp76.884.649.075,01	
42	2067		Rp0,00	Rp369.522.881.816,35	Rp93.650.000.000,00	Rp155.410.794.563,88	Rp618.583.676.380,23	Rp19.092.399.838,42	0.128839621	Rp79.698.086.504,53	Rp2.459.857.561,72	-Rp77.238.282.942,81	
43	2068		Rp0,00	Rp387.999.025.907,17	Rp93.650.000.000,00	Rp172.596.842.927,01	Rp654.245.868.834,18	Rp21.203.726.197,14	0.122704401	Rp80.728.847.494,39	Rp2.601.790.523,68	-Rp77.677.056.970,70	
44	2069		Rp0,00	Rp407.398.977.202,53	Rp93.650.000.000,00	Rp191.697.243.952,69	Rp692.746.221.155,22	Rp23.550.233.043,59	0.116861334	Rp80.955.247.778,39	Rp2.752.111.658,01	-Rp78.203.136.120,38	
45	2070	Rp1.914.524.930.262,30		Rp427.768.926.062,66	Rp106.600.000.000,00	Rp212.926.278.900,16	Rp2.661.820.135.225,12	Rp26.158.245.083,80	0.111296509	Rp296.251.288.413,23	Rp2.911.321.357,20	-Rp293.339.967.056,03	
46	2071		Rp0,00	Rp449.157.372.365,79	Rp106.600.000.000,00	Rp236.522.292.265,81	Rp792.279.664.631,60	Rp29.057.043.220,92	0.105996675	Rp83.979.010.246,42	Rp3.079.949.971,35	-Rp80.899.060.275,08	
47	2												

Perbandingan Emisi per Km perjenis Kendaraan																								
motor					mobil					bus					truk sawit					truk kontainer				
co(kilogram)	co2	hc	no	so2	co(kilogram)	co2	hc	no	so2	co(kilogram)	co2	hc	no	so2	co(kilogram)	co2	hc	no	so2	co(kilogram)	co2	hc	no	so2
1043	10428	209	156	104	292	7091	83	8	2	4	939	1	8	2	133	40014	33	333	68	27	8003	7	67	13
1408	14079	282	211	141	394	9574	113	11	3	6	1267	1	11	3	168	50417	42	420	86	34	10083	8	84	17
1825	18250	365	274	182	511	12410	146	15	4	7	1642	2	15	4	206	61761	51	515	105	41	12352	10	103	21
2300	23000	460	345	230	644	15640	184	18	5	9	2070	2	18	5	247	74114	62	618	127	49	14823	12	124	25
2840	28397	568	426	284	795	19310	227	23	6	11	2556	3	23	6	292	87547	73	730	149	58	17509	15	146	29
3452	34515	690	518	345	966	23470	276	28	7	14	3106	3	28	7	340	102138	85	851	174	68	20428	17	170	34
4144	41437	829	622	414	1160	28177	331	33	8	17	3729	4	33	8	393	117969	98	983	201	79	23594	20	197	39
4925	49252	985	739	493	1379	33492	394	39	10	20	4433	4	39	10	450	135128	113	1126	231	90	27026	23	225	45
5806	58062	1161	871	581	1626	39482	464	46	12	23	5226	5	46	12	512	153709	128	1281	262	102	30742	26	256	51
6275	62748	1255	941	627	1757	42669	502	50	13	25	5647	6	50	13	579	173809	145	1448	297	116	34762	29	290	58
6782	67817	1356	1017	678	1899	46116	543	54	14	27	6104	6	54	14	652	195535	163	1629	334	130	39107	33	326	65
7330	73301	1466	1100	733	2052	49845	586	59	15	29	6597	7	59	15	684	205312	171	1711	351	137	41062	34	342	68
7923	79234	1585	1189	792	2219	53879	634	63	16	32	7131	7	63	16	719	215577	180	1796	368	144	43115	36	359	72
8565	85653	1713	1285	857	2398	58244	685	69	17	34	7709	8	69	17	755	226356	189	1886	387	151	45271	38	377	75
9260	92599	1852	1389	926	2593	62968	741	74	19	37	8334	8	74	19	792	237674	198	1981	406	158	47535	40	396	79
10012	100116	2002	1502	1001	2803	68079	801	80	20	40	9010	9	80	20	832	249558	208	2080	426	166	49912	42	416	83
10825	108251	2165	1624	1083	3031	73611	866	87	22	43	9743	10	87	22	873	262036	218	2184	447	175	52407	44	437	87
11706	117055	2341	1756	1171	3278	79598	936	94	23	47	10535	11	94	23	917	275137	229	2293	470	183	55027	46	459	92
12659	126585	2532	1899	1266	3544	86078	1013	101	25	51	11393	11	101	25	963	288894	241	2407	493	193	57779	48	481	96
13690	136901	2738	2054	1369	3833	93093	1095	110	27	55	12321	12	110	27	1011	303339	253	2528	518	202	60668	51	506	101
14807	148068	2961	2221	1481	4146	100687	1185	118	30	59	13326	13	118	30	1062	318506	265	2654	544	212	63701	53	531	106
16016	160159	3203	2402	1602	4484	108908	1281	128	32	64	14414	14	128	32	1115	334431	279	2787	571	223	66886	56	557	111
17325	173250	3465	2599	1732	4851	117810	1386	139	35	69	15592	16	139	35	1171	351153	293	2926	600	234	70231	59	585	117
18742	187425	3748	2811	1874	5248	127449	1499	150	37	75	16868	17	150	37	1229	368711	307	3073	630	246	73742	61	615	123
20277	202775	4055	3042	2028	5678	137887	1622	162	41	81	18250	18	162	41	1290	387146	323	3226	661	258	77429	65	645	129
21940	219399	4388	3291	2194	6143	149191	1755	176	44	88	19746	20	176	44	1355	406503	339	3388	694	271	81301	68	678	136
23740	237404	4748	3561	2374	6647	161434	1899	190	47	95	21366	21	190	47	1423	426829	356	3557	729	285	85366	71	711	142
25691	256906	5138	3854	2569	7193	174696	2055	206	51	103	23121	23	206	51	1494	448170	373	3735	765	299	89634	75	747	149
27803	278031	5561	4170	2780	7785	189061	2224	222	56	111	25023	25	222	56	1569	470578	392	3921	804	314	94116	78	784	157
30092	300917	6018	4514	3009	8426	204623	2407	241	60	120	27082	27	241	60	1647	494107	412	4118	844	329	98821	82	824	165
32571	325711	6514	4886	3257	9120	221484	2606	261	65	130	29314	29	261	65	1729	518813	432	4323	886	346	103763	86	865	173
35258	352576	7052	5289	3526	9872	239752	2821	282	71	141	31732	32	282	71	1816	544753	454	4540	930	363	108951	91	908	182
38169	381686	7634	5725	3817	10687	259547	3053	305	76	153	34352	34	305	76	1907	571991	477	4767	977	381	114398	95	953	191
41323	413232	8265	6198	4132	11571	280998	3306	331	83	165	37191	37	331	83	2002	600591	500	5005	1026	400	120118	100	1001	200
44742	447420	8948	6711	4474	12528	304246	3579	358	89	179	40268	40	358	89	2102	630620	526	5255	1077	420	126124	105	1051	210
48447	484475	9689	7267	4845	13565	329443	3876	388	97	194	43603	44	388	97	2207	662151	552	5518	1131	441	132430	110	1104	221
52464	524638	10493	7870	5246	14690	356754	4197	420	105	210	47217	47	420	105	2318	695259	579	5794	1187	464	139052	116	1159	232
56818	568177	11364	8523	5682	15909	386360	4545	455	114	227	51136	51	455	114	2433	730022	608	6084	1247	487	146004	122	1217	243
61538	615376	12308	9231	6154	17231	418456	4923	492	123	246	55384	55	492	123	2555	766523	639	6388	1309	511	153305	128	1278	256
66655	666549	13331	9998	6665	18663	453253	5332	533	133	267	59989	60	533	133	2683	804849	671	6707	1374	537	160970	134	1341	268
72203	722033	14441	10830	7220	20217	490983	5776	578	144	289	64983	65	578	144	2817	845091	704	7042	1443	563	169018	141	1408	282
78220	782198	15644	11733	7822	21902	531895	6258	626	156	313	70398	70	626	156	2958	887346	739	7395	1515	592	177469	148	1479	296
84744	847443	16949	12712	8474	23728	576261	6780	678	169	339	76270	76	678	169	3106	931713	776	7764	1591	621	186343	155	1553	311
91820	918203	18364	13773	9182	25710	624378	7346	735	184	367	82638	83	735	184	3261	978299	815	8152	1671	652	195660	163	1630	326
99495	994949	19899	14924	9949	27859	676565	7960	796	199	398	89545	90	796	199	3424	1027214	856	8560	1754	685	205443	171	1712	342
107819	1078195	21564	16173	10782	30189	733172	8626	863	216	431	97038	97	863	216	3595	1078574	899	8988	1842	719	215715	180	1798	360
116850	1168498	23370	17527	11685	32718	794578	9348	935	234	467	105165	105	935	234	3775	1132503	944	9438	1934	755	226501	189	1888	378
126646	1266464	25329	18997	12665	35461	861195	10132	1013	253	507	113982	114	1013	253	3964	1189128	991	9909	2031	793	237826	198	1982	396
137275	1372752	27455	20591	13728	38437	933471	10982	1098	275	549	123548	124	1098	275	4162	1248585	1040	10405	2132	832	249717	208	2081	416
148808	1488077	29762	22321	14881	41666	1011892	11905	1190	298	595	133927	134	1190	298	4370	1311014	1093	10925	2239	874	262203	219	2185	437
161322	1613218	32264	24198	16132	45170	1096988	12906	1291	323	645	145190	145	1291	323	4589	1376565								

Total Biaya									
motor		mobil		bus		truk kelapa sawit		truk kontainer	
Rp	101.244.058	Rp	21.217.233	Rp	3.671.198	Rp	145.609.202	Rp	29.052.615
Rp	143.528.068	Rp	30.078.491	Rp	5.204.453	Rp	192.640.974	Rp	38.436.609
Rp	195.346.092	Rp	40.937.746	Rp	7.083.419	Rp	247.784.453	Rp	49.439.089
Rp	258.504.265	Rp	54.173.503	Rp	9.373.589	Rp	312.208.410	Rp	62.293.252
Rp	335.124.055	Rp	70.230.346	Rp	12.151.890	Rp	387.235.994	Rp	77.263.099
Rp	427.694.835	Rp	89.629.961	Rp	15.508.587	Rp	474.364.092	Rp	94.647.296
Rp	539.134.967	Rp	112.983.937	Rp	19.549.503	Rp	575.285.053	Rp	114.783.508
Rp	672.862.768	Rp	141.008.632	Rp	24.398.589	Rp	691.911.023	Rp	138.053.256
Rp	832.878.902	Rp	174.542.448	Rp	30.200.913	Rp	826.401.228	Rp	164.887.357
Rp	945.103.409	Rp	198.060.801	Rp	34.270.271	Rp	981.192.535	Rp	195.772.028
Rp	1.072.525.533	Rp	224.764.047	Rp	38.890.708	Rp	1.159.033.682	Rp	231.255.708
Rp	1.217.214.067	Rp	255.085.731	Rp	44.137.241	Rp	1.277.834.634	Rp	254.959.418
Rp	1.381.520.919	Rp	289.518.732	Rp	50.095.150	Rp	1.408.812.684	Rp	281.092.758
Rp	1.568.120.064	Rp	328.623.422	Rp	56.861.397	Rp	1.553.215.984	Rp	309.904.766
Rp	1.780.051.888	Rp	373.036.961	Rp	64.546.229	Rp	1.712.420.623	Rp	341.670.004
Rp	2.020.773.662	Rp	423.483.872	Rp	73.275.010	Rp	1.887.943.736	Rp	376.691.180
Rp	2.294.217.016	Rp	480.788.088	Rp	83.190.304	Rp	2.081.457.969	Rp	415.302.026
Rp	2.604.853.373	Rp	545.886.663	Rp	94.454.248	Rp	2.294.807.411	Rp	457.870.483
Rp	2.957.768.460	Rp	619.845.390	Rp	107.251.256	Rp	2.530.025.171	Rp	504.802.208
Rp	3.358.747.157	Rp	703.876.578	Rp	121.791.093	Rp	2.789.352.751	Rp	556.544.434
Rp	3.814.370.132	Rp	799.359.306	Rp	138.312.378	Rp	3.075.261.408	Rp	613.590.238
Rp	4.332.123.902	Rp	907.862.487	Rp	157.086.580	Rp	3.390.475.702	Rp	676.483.238
Rp	4.920.526.195	Rp	1.031.171.142	Rp	178.422.559	Rp	3.737.999.462	Rp	745.822.770
Rp	5.589.268.757	Rp	1.171.316.322	Rp	202.671.745	Rp	4.121.144.406	Rp	822.269.604
Rp	6.349.380.038	Rp	1.330.609.208	Rp	230.234.041	Rp	4.543.561.708	Rp	906.552.238
Rp	7.213.410.546	Rp	1.511.679.949	Rp	261.564.539	Rp	5.009.276.783	Rp	999.473.843
Rp	8.195.644.029	Rp	1.717.521.923	Rp	297.181.179	Rp	5.522.727.653	Rp	1.101.919.911
Rp	9.312.338.125	Rp	1.951.542.164	Rp	337.673.478	Rp	6.088.807.238	Rp	1.214.866.702
Rp	10.581.998.592	Rp	2.217.618.835	Rp	383.712.471	Rp	6.712.909.980	Rp	1.339.390.539
Rp	12.025.691.839	Rp	2.520.166.725	Rp	436.062.043	Rp	7.400.983.253	Rp	1.476.678.070
Rp	13.667.401.132	Rp	2.864.211.889	Rp	495.591.850	Rp	8.159.584.036	Rp	1.628.037.572
Rp	15.534.432.610	Rp	3.255.476.747	Rp	563.292.035	Rp	8.995.941.400	Rp	1.794.911.423
Rp	17.657.878.110	Rp	3.700.477.065	Rp	640.290.015	Rp	9.918.025.393	Rp	1.978.889.844
Rp	20.073.142.789	Rp	4.206.632.532	Rp	727.869.612	Rp	10.934.622.996	Rp	2.181.726.053
Rp	22.820.546.663	Rp	4.782.392.823	Rp	827.492.866	Rp	12.055.421.853	Rp	2.405.352.973
Rp	25.946.010.473	Rp	5.437.381.325	Rp	940.824.902	Rp	13.291.102.593	Rp	2.651.901.653
Rp	29.501.837.742	Rp	6.182.559.040	Rp	1.069.762.290	Rp	14.653.440.609	Rp	2.923.721.572
Rp	33.547.606.601	Rp	7.030.411.470	Rp	1.216.465.387	Rp	16.155.418.271	Rp	3.223.403.033
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Rp	56.137.393.543	Rp	11.764.445.082	Rp	2.035.590.705	Rp	23.868.910.671	Rp	4.762.434.359
Rp	63.860.939.894	Rp	13.383.031.752	Rp	2.315.653.212	Rp	26.315.474.015	Rp	5.250.583.881
Rp	72.652.836.748	Rp	15.225.507.527	Rp	2.634.455.037	Rp	29.012.810.102	Rp	5.788.768.729
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Rp	94.056.714.890	Rp	19.711.015.903	Rp	3.410.578.270	Rp	35.265.252.009	Rp	7.036.284.569
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Rp	138.628.485.446	Rp	29.051.708.689	Rp	5.026.789.429	Rp	47.258.810.483	Rp	9.429.294.278
Rp	157.788.438.871	Rp	33.066.968.494	Rp	5.721.546.001	Rp	52.102.838.557	Rp	10.395.796.941
Rp	179.610.655.768	Rp	37.640.146.122	Rp	6.512.838.561	Rp	57.443.379.509	Rp	11.461.366.127

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kereta penumpang											kereta barang sawit dan gerbong tertutup													
co	co2	hc	no	so2	jumlah keret	co	co2	hc	no	so2	total biaya	co	co2	hc	no	so2	jumlah kereta	co	co2	hc	no	so2	total biaya	
17	2157	1	13	1	12	35147	2276337	87411	3387189	218528	Rp 6.004.612	3	2157	1	13	1	2	5858	2276337	87411	3387189	218528	Rp 5.975.323	
17	2157	1	13	1	12	36904	2390154	91782	3556548	229455	Rp 6.304.843	3	2157	1	13	1	2	6151	2390154	91782	3556548	229455	Rp 6.274.089	
17	2157	1	13	1	12	38749	2509661	96371	3734376	240927	Rp 6.620.085	3	2157	1	13	1	2	6458	2509661	96371	3734376	240927	Rp 6.587.794	
17	2157	1	13	1	12	40687	2635144	101190	3921095	252974	Rp 6.951.089	3	2157	1	13	1	2	6781	2635144	101190	3921095	252974	Rp 6.917.183	
17	2157	1	13	1	12	42721	2766901	106249	4117149	265623	Rp 7.298.643	3	2157	1	13	1	2	7120	2766901	106249	4117149	265623	Rp 7.263.043	
17	2157	1	13	1	12	44857	2905247	111561	4323007	278904	Rp 7.663.576	3	2157	1	13	1	2	7476	2905247	111561	4323007	278904	Rp 7.626.195	
17	2157	1	13	1	12	47100	3050509	117140	4539157	292849	Rp 8.046.754	3	2157	1	13	1	2	7850	3050509	117140	4539157	292849	Rp 8.007.505	
17	2157	1	13	1	12	49455	3203034	122997	4766115	307491	Rp 8.449.092	3	2157	1	13	1	2	8242	3203034	122997	4766115	307491	Rp 8.407.880	
17	2157	1	13	1	12	51928	3363186	129146	5004421	322866	Rp 8.871.547	3	2157	1	13	1	2	8655	3363186	129146	5004421	322866	Rp 8.828.274	
17	2157	1	13	1	12	54524	3531345	135604	5254642	339009	Rp 9.315.124	3	2157	1	13	1	2	9087	3531345	135604	5254642	339009	Rp 9.269.687	
17	2157	1	13	1	12	57250	3707913	142384	5517374	355960	Rp 9.780.880	3	2157	1	13	1	2	9542	3707913	142384	5517374	355960	Rp 9.733.172	
17	2157	1	13	1	12	60113	3893308	149503	5793243	373758	Rp 10.269.924	3	2157	1	13	1	2	10019	3893308	149503	5793243	373758	Rp 10.219.830	
17	2157	1	13	1	12	63118	4087974	156978	6082905	392445	Rp 10.783.420	3	2157	1	13	1	2	10520	4087974	156978	6082905	392445	Rp 10.730.822	
17	2157	1	13	1	12	66274	4292372	164827	6387050	412068	Rp 11.232.592	3	2157	1	13	1	2	11046	4292372	164827	6387050	412068	Rp 11.267.363	
17	2157	1	13	1	12	69588	4506991	173068	6706403	432671	Rp 11.888.721	3	2157	1	13	1	2	11598	4506991	173068	6706403	432671	Rp 11.830.731	
17	2157	1	13	1	12	73067	4732341	181722	7041723	454305	Rp 12.483.157	3	2157	1	13	1	2	12178	4732341	181722	7041723	454305	Rp 12.422.268	
17	2157	1	13	1	12	76721	4968958	190808	7393809	477020	Rp 13.107.315	3	2157	1	13	1	2	12787	4968958	190808	7393809	477020	Rp 13.043.381	
17	2157	1	13	1	12	80557	5217405	200348	7763499	500871	Rp 13.762.681	3	2157	1	13	1	2	13426	5217405	200348	7763499	500871	Rp 13.695.500	
17	2157	1	13	1	12	84585	5478276	210366	8151674	525914	Rp 14.450.815	3	2157	1	13	1	2	14097	5478276	210366	8151674	525914	Rp 14.380.328	
17	2157	1	13	1	12	88814	5752189	220884	8559258	552210	Rp 15.173.356	3	2157	1	13	1	2	14802	5752189	220884	8559258	552210	Rp 15.099.344	
17	2157	1	13	1	12	93254	6039799	231928	8987221	579821	Rp 15.932.023	3	2157	1	13	1	2	15542	6039799	231928	8987221	579821	Rp 15.854.311	
17	2157	1	13	1	12	97917	6341789	243525	9436582	608812	Rp 16.728.624	3	2157	1	13	1	2	16320	6341789	243525	9436582	608812	Rp 16.647.027	
17	2157	1	13	1	12	102813	6658878	255701	9908411	639252	Rp 17.565.056	3	2157	1	13	1	2	17136	6658878	255701	9908411	639252	Rp 17.479.378	
17	2157	1	13	1	12	107954	6991822	268486	10403832	671215	Rp 18.443.308	3	2157	1	13	1	2	17992	6991822	268486	10403832	671215	Rp 18.353.347	
17	2157	1	13	1	12	113351	7341413	281910	10924023	704776	Rp 19.365.474	3	2157	1	13	1	2	18892	7341413	281910	10924023	704776	Rp 19.271.014	
17	2157	1	13	1	12	119019	7708484	296006	11470224	740014	Rp 20.333.748	3	2157	1	13	1	2	19836	7708484	296006	11470224	740014	Rp 20.234.565	
17	2157	1	13	1	12	124970	8093908	310806	12043735	777015	Rp 21.350.435	3	2157	1	13	1	2	20828	8093908	310806	12043735	777015	Rp 21.246.293	
17	2157	1	13	1	12	131218	8498604	326346	12645922	815866	Rp 22.417.957	3	2157	1	13	1	2	21870	8498604	326346	12645922	815866	Rp 22.308.608	
17	2157	1	13	1	12	137779	8923534	342664	13278218	856659	Rp 23.538.855	3	2157	1	13	1	2	22963	8923534	342664	13278218	856659	Rp 23.424.038	
17	2157	1	13	1	12	144668	9369711	359797	13942129	899492	Rp 24.715.797	3	2157	1	13	1	2	24111	9369711	359797	13942129	899492	Rp 24.595.240	
17	2157	1	13	1	12	151902	9838196	377787	14639236	944467	Rp 25.951.587	4	2157	1	13	1	3	37975	9838196	377787	14639236	944467	Rp 25.837.661	
17	2157	1	13	1	12	159497	10330106	396676	15371198	991690	Rp 27.249.167	4	2157	1	13	1	3	39874	10330106	396676	15371198	991690	Rp 27.129.544	
17	2157	1	13	1	12	167472	10846611	416510	16139757	1041275	Rp 28.611.625	4	2157	1	13	1	3	41868	10846611	416510	16139757	1041275	Rp 28.486.021	
17	2157	1	13	1	12	175845	11388942	437335	16946745	1093338	Rp 30.042.206	4	2157	1	13	1	3	43961	11388942	437335	16946745	1093338	Rp 29.910.322	
17	2157	1	13	1	12	184638	11958389	459202	17794083	1148005	Rp 31.544.316	4	2157	1	13	1	3	46159	11958389	459202	17794083	1148005	Rp 31.405.838	
17	2157	1	13	1	12	193869	12556308	482162	18683787	1205406	Rp 33.121.532	4	2157	1	13	1	3	48467	12556308	482162	18683787	1205406	Rp 32.976.130	
17	2157	1	13	1	12	203563	13184124	506270	19617976	1265676	Rp 34.777.609	4	2157	1	13	1	3	50891	13184124	506270	19617976	1265676	Rp 34.624.937	
17	2157	1	13	1	12	213741	13843330	531584	20598875	1328960	Rp 36.516.489	4	2157	1	13	1	3	53435	13843330	531584	20598875	1328960	Rp 36.356.183	
17	2157	1	13	1	12	224428	14535496	558163	21628819	1395408	Rp 38.342.314	4	2157	1	13	1	3	56107	14535496	558163	21628819	1395408	Rp 38.173.993	
17	2157	1	13	1	12	235649	15262271	586071	22710260	1465178	Rp 40.259.429	4	2157	1	13	1	3	58912	15262271	586071	22710260	1465178	Rp 40.082.692	
17	2157	1	13	1	12	247432	16025385	615375	23845772	1538437	Rp 42.272.401	6	2157	1	13	1	4	82477	16025385	615375	23845772	1538437	Rp 42.107.446	
17	2157	1	13	1	12	259804	16826654	646144	25038061	1615359	Rp 44.386.021	6	2157	1	13	1	4	86601	16826654	646144	25038061	1615359	Rp 44.212.819	
17	2157	1	13	1	12	272794	17667987	678451	26289964	1696127	Rp 46.605.322	6	2157	1	13	1	4	90931	17667987	678451	26289964	1696127	Rp 46.423.459	
17	2157	1	13	1	12	286433	18551386	712373	27604462	1780933	Rp 48.935.588	6	2157	1	13	1	4	95478	18551386	712373	27604462	1780933	Rp 48.744.632	
17	2157	1	13	1	12	300755	19478955	747992	28984685	1869980	Rp 51.382.367	6	2157	1	13	1	4	100252	19478955	747992	28984685	1869980	Rp 51.181.864	
33	4314	1	27	2	24	631586	40905806	1570783	60867840	3926957	Rp 107.902.972	6	4314	1	27	2	4	105264	40905806	1570783	60867840	3926957	Rp 107.376.650	

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