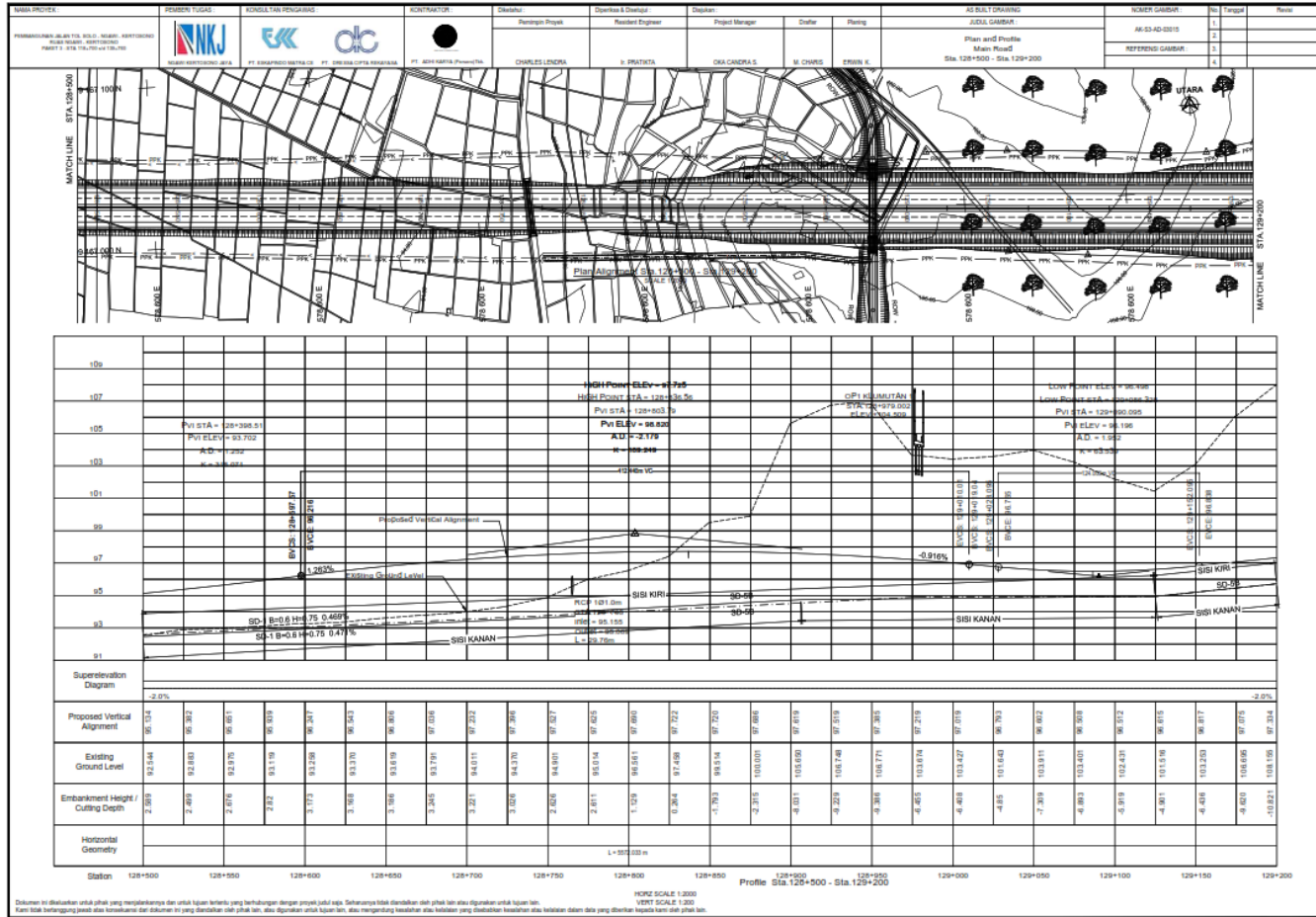
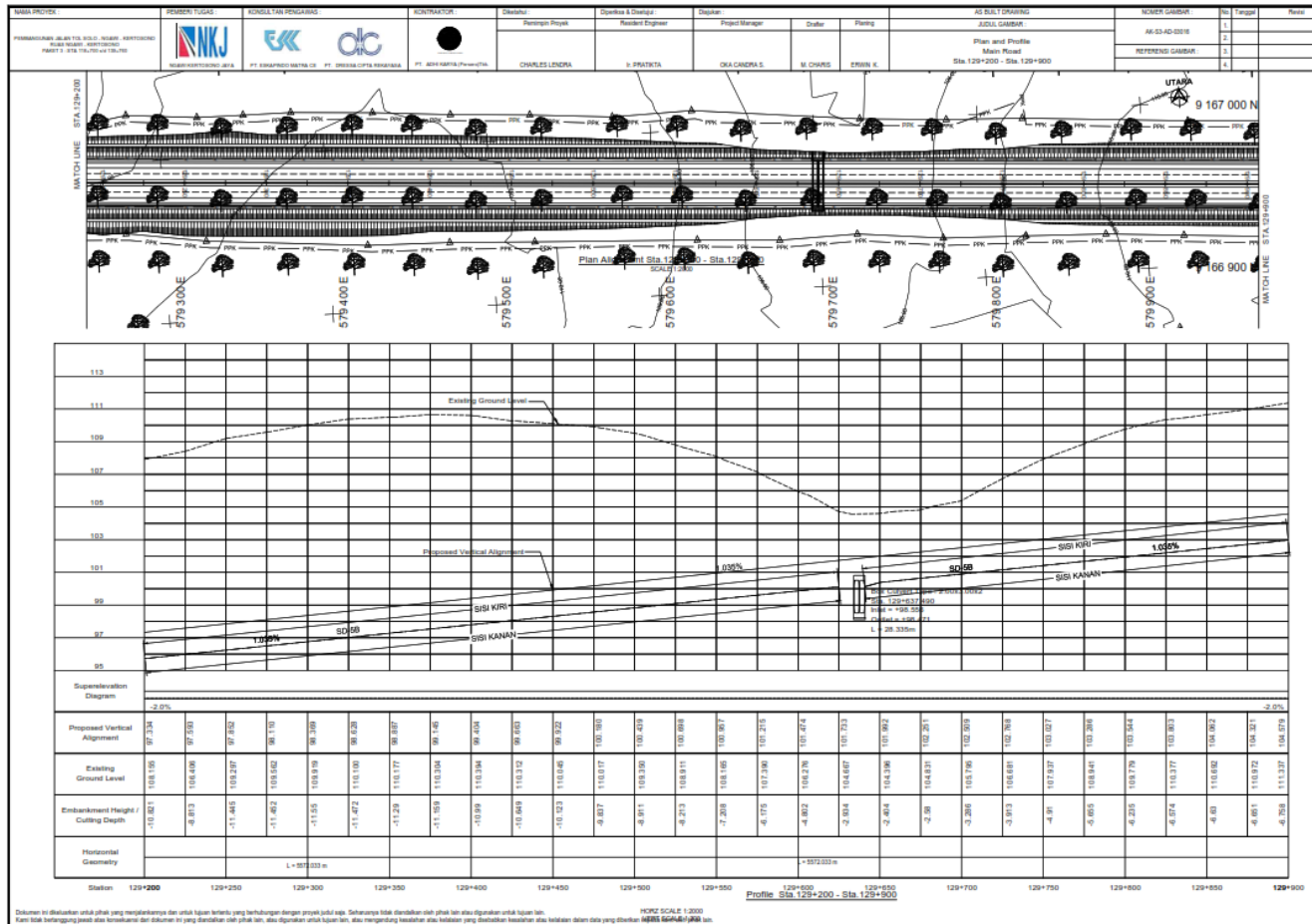


LAMPIRAN

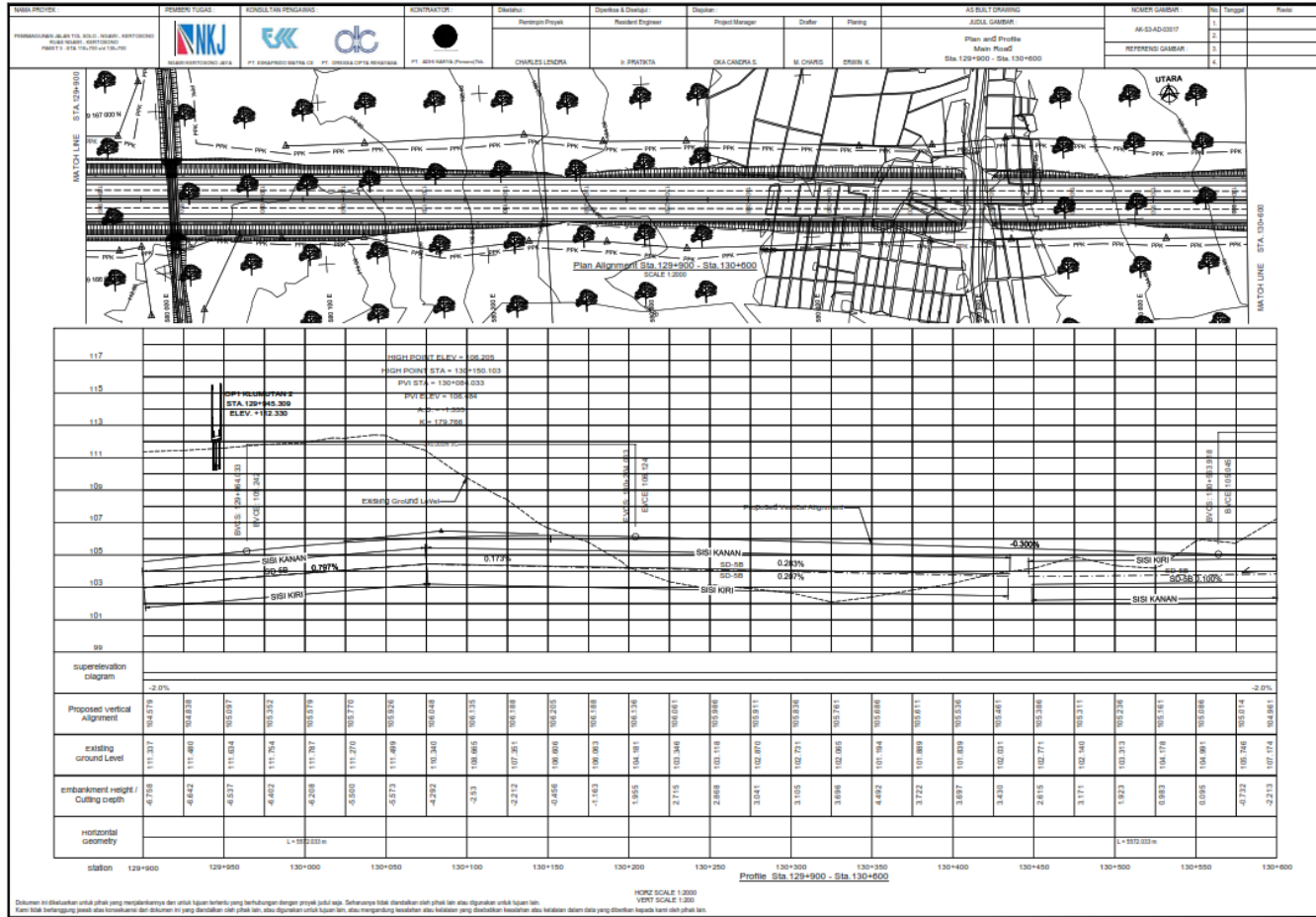
Lampiran 1. Gambar Potongan Memanjang Jalan



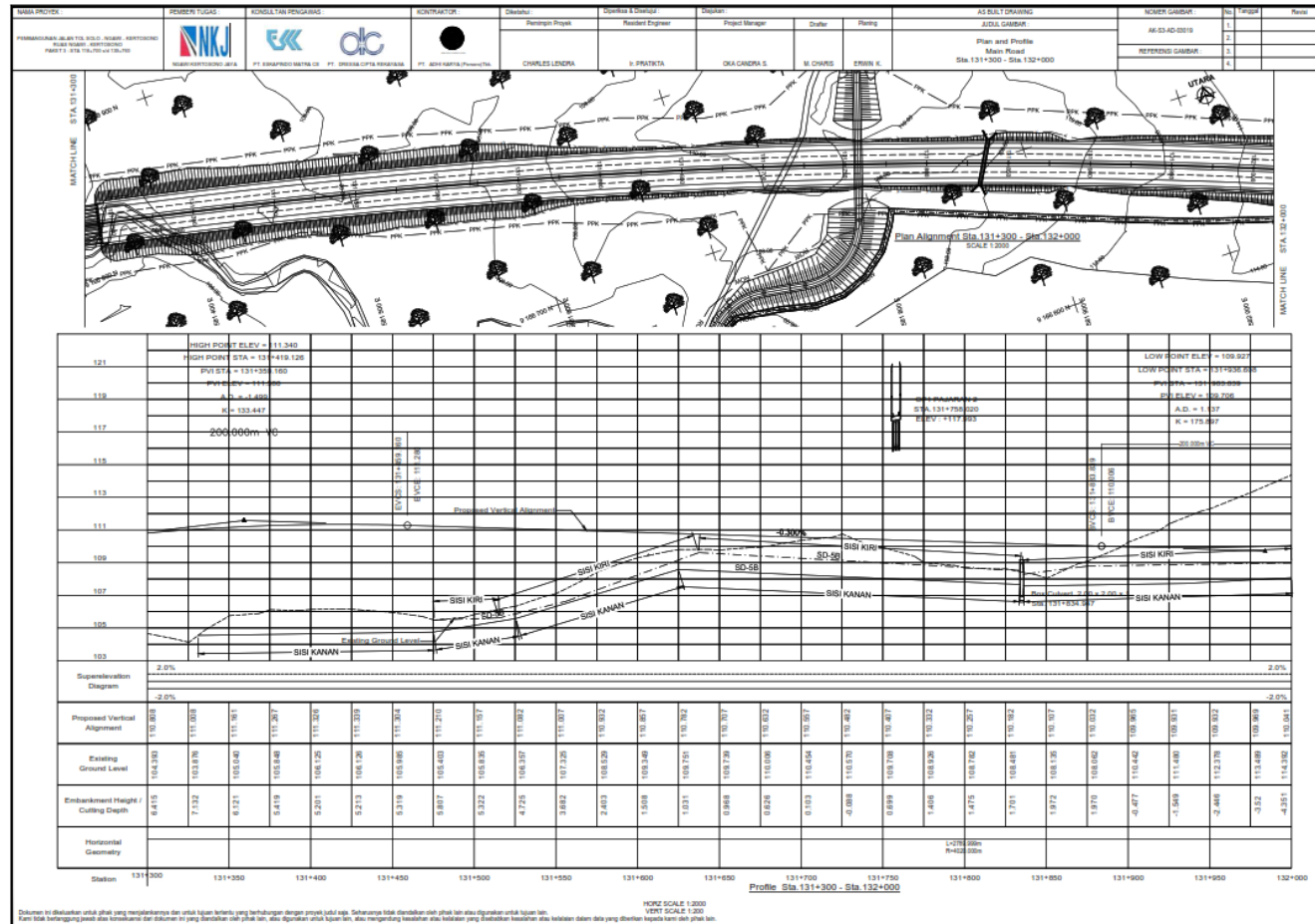
Lampiran 1. Gambar Potongan Memanjang Jalan



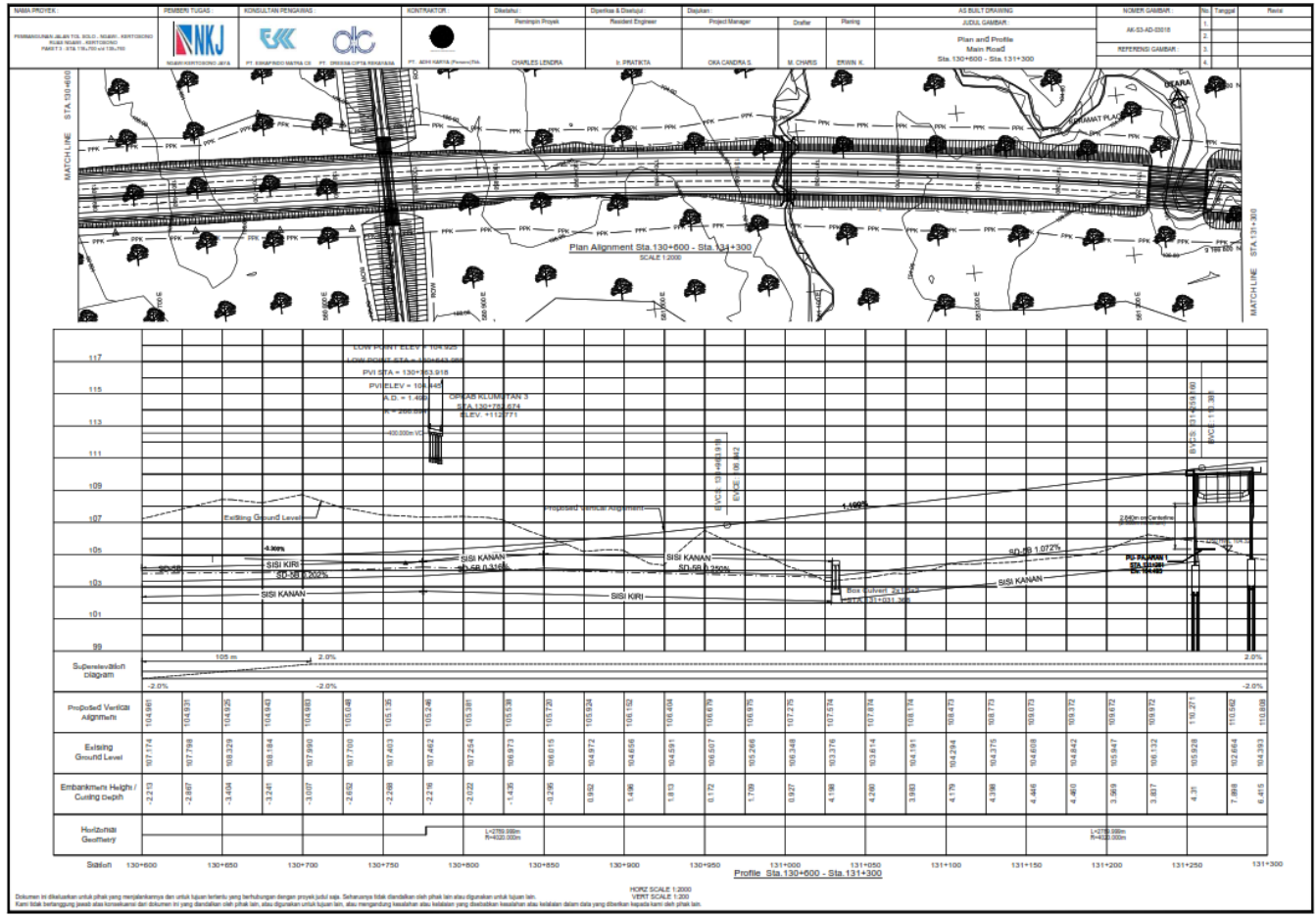
Lampiran 1. Gambar Potongan Memanjang Jalan



Lampiran 1. Gambar Potongan Memanjang Jalan



Lampiran 1. Gambar Potongan Memanjang Jalan



Lampiran 2. Spesifikasi Excavator Komatsu PC300-8

PC300-8 HYDRAULIC EXCAVATOR

SPECIFICATIONS



ENGINE

Model Komatsu SAA6D114E-3
 Type Water-cooled, 4-cycle, direct injection
 Aspiration Turbocharged, aftercooled
 Number of cylinders 6
 Bore **114 mm** 4.49"
 Stroke **135 mm** 5.31"
 Piston displacement **8.27 ltr** 505 in³
 Horsepower:
 SAE J1995 Gross **194 kW** 260 HP
 ISO 9249 / SAE J1349 Net **184 kW** 246 HP
 Rated rpm 1950 rpm
 Fan drive type Mechanical
 Governor All-speed control, electronic

EPA Tier 3 and EU Stage 3A emissions certified.



HYDRAULICS

Type HydrauMind (Hydraulic Mechanical Intelligence New Design) system, closed-center system with load sensing valves and pressure compensated valves
 Number of selectable working modes 4
 Main pump:
 Type Two-variable displacement piston type
 Pumps for Boom, arm, bucket, swing, and travel circuits
 Maximum flow **535 ltr/min** 141 U.S. gal/min
 Supply for control circuit Self-reducing valve
 Hydraulic motors:
 Travel 2 x axial piston motors with parking brake
 Swing 1 x axial piston motor with swing holding brake
 Relief valve setting:
 Implement circuits **37.3 MPa** 380 kgf/cm² 5,400 psi
 Travel circuit **37.3 MPa** 380 kgf/cm² 5,400 psi
 Swing circuit **27.9 MPa** 285 kgf/cm² 4,050 psi
 Pilot circuit **3.2 MPa** 33 kgf/cm² 470 psi
 Hydraulic cylinders:
 (Number of cylinders – bore x stroke x rod diameter)
 Boom **2–140 mm x 1480 mm x 100 mm** 5.5" x 58.3" x 3.9"
 Arm **1–160 mm x 1825 mm x 110 mm** 6.3" x 71.9" x 4.3"
 Bucket: for **3.19 m** 10'5" and **4.02 m** 13'2" Arm
 1–140 mm x 1285 mm x 100 mm 5.5" x 50.6" x 3.9"
 for **2.22 m** 7'3" and **2.55 m** 8'4" Arm
 1–150 mm x 1285 mm x 110 mm 5.9" x 50.6" x 4.3"



DRIVES AND BRAKES

Steering control Two levers with pedals
 Drive method Hydrostatic
 Maximum drawbar pull **264 kN** 26900 kgf 59,300 lb
 Gradeability 70%, 35°
 Maximum travel speed: High **5.5 km/h** 3.4 mph
 (Auto-Shift) Mid **4.5 km/h** 2.8 mph
 Low **3.2 km/h** 2.0 mph
 Service brake Hydraulic lock
 Parking brake Mechanical disc brake



SWING SYSTEM

Drive method Hydrostatic
 Swing reduction Planetary gear
 Swing circle lubrication Grease-bathed
 Service brake Hydraulic lock
 Holding brake/Swing lock Mechanical disc brake
 Swing speed 9.5 rpm



UNDERCARRIAGE

Center frame X-frame
 Track frame Box-section
 Seal of track Sealed track
 Track adjuster Hydraulic
 Number of shoes (each side):
 PC300-8 45
 PC300LC-8 48
 Number of carrier rollers 2 each side
 Number of track rollers (each side):
 PC300-8 7
 PC300LC-8 8



COOLANT AND LUBRICANT CAPACITY (REFILLING)

Fuel tank **605 ltr** 160 U.S. gal
 Coolant **32.0 ltr** 8.5 U.S. gal
 Engine **35.0 ltr** 9.2 U.S. gal
 Final drive, each side **9.0 ltr** 2.4 U.S. gal
 Swing drive **16.5 ltr** 4.4 U.S. gal
 Hydraulic tank **188 ltr** 49.7 U.S. gal



OPERATING WEIGHT (APPROXIMATE)

Operating weight including **6470 mm** 21'3" one-piece boom, **3185 mm** 10'5" arm, SAE heaped **1.4 m³** 1.83 yd³ bucket, rated capacity of lubricants, coolant, full fuel tank, operator, and standard equipment.

Shoes	PC300-8		PC300LC-8	
	Operating Weight	Ground Pressure	Operating Weight	Ground Pressure
600 mm 24"	31100 kg 68,560 lb	62.9 kPa 0.64 kgf/cm ² 9.12 psi	31600 kg 69,670 lb	59.0 kPa 0.60 kgf/cm ² 8.56 psi
700 mm 28"	31460 kg 69,360 lb	54.8 kPa 0.56 kgf/cm ² 7.95 psi	32200 kg 70,990 lb	51.6 kPa 0.53 kgf/cm ² 7.48 psi
800 mm 31.5"	32010 kg 70,570 lb	48.5 kPa 0.49 kgf/cm ² 7.03 psi	32580 kg 72,000 lb	45.7 kPa 0.47 kgf/cm ² 6.63 psi

Lampiran 2. Spesifikasi Excavator Komatsu PC300-8

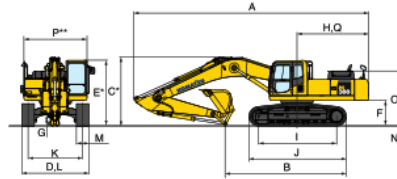
HYDRAULIC EXCAVATOR

PC300-8

DIMENSIONS

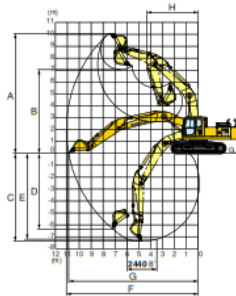
Arm Length	2220 mm 7'3"	2550 mm 8'4"	3185 mm 10'5"	4020 mm 13'2"
A Overall length	11300 mm 37'1"	11180 mm 36'8"	11140 mm 36'7"	11170 mm 36'8"
B Length on ground (transport): PC300-8 PC300LC-8	7320 mm 24'0" 7495 mm 24'7"	6685 mm 21'11" 6860 mm 22'6"	5755 mm 18'11" 5930 mm 19'5"	5300 mm 17'5" 5475 mm 18'0"
C Overall height (to top of boom)*	3480 mm 11'5"	3450 mm 11'4"	3285 mm 10'9"	3760 mm 12'4"

	PC300-8	PC300LC-8
D Overall width	3190 mm 10'6"	3290 mm 10'10"
E Overall height (to top of cab)**	3145 mm 10'4"	3145 mm 10'4"
F Ground clearance, counterweight	1185 mm 3'11"	1185 mm 3'11"
G Ground clearance (minimum)	500 mm 1'8"	500 mm 1'8"
H Tail swing radius	3450 mm 11'4"	3450 mm 11'4"
I Track length on ground	3700 mm 12'2"	4030 mm 13'3"
J Track length	4625 mm 15'2"	4955 mm 16'3"
K Track gauge	2590 mm 8'6"	2590 mm 8'6"
L Width of crawler	3190 mm 10'6"	3290 mm 10'10"
M Shoe width	600 mm 2'4"	700 mm 2'8"
N Grouser height	36 mm 1.4"	36 mm 1.4"
O Machine cab height	2585 mm 8'6"	2585 mm 8'6"
P Machine cab width**	3090 mm 10'2"	3090 mm 10'2"
Q Distance, swing center to rear end	3405 mm 11'2"	3405 mm 11'2"



*: Including grouser height
**: Including handrail

WORKING RANGE



Arm	2220 mm 7'3"	2550 mm 8'4"	3185 mm 10'5"	4020 mm 13'2"
A Max. digging height	9460 mm 31'0"	9965 mm 32'8"	10100 mm 33'2"	10550 mm 34'7"
B Max. dumping height	6520 mm 21'5"	6895 mm 22'7"	7050 mm 23'2"	7490 mm 24'7"
C Max. digging depth	6400 mm 21'0"	6750 mm 22'2"	7380 mm 24'3"	8200 mm 26'11"
D Max. vertical wall digging depth	4890 mm 16'1"	5880 mm 19'4"	6400 mm 21'0"	7280 mm 23'11"
E Max. digging depth of cut for 8' level	6130 mm 20'1"	6520 mm 21'5"	7180 mm 23'7"	8045 mm 26'5"
F Max. digging reach	10120 mm 33'2"	10550 mm 34'7"	11100 mm 36'5"	11900 mm 39'1"
G Max. digging reach at ground level	9910 mm 32'6"	10355 mm 34'0"	10920 mm 35'10"	11730 mm 38'6"
H Min. swing radius	4470 mm 14'8"	4450 mm 14'7"	4310 mm 14'2"	4370 mm 14'4"
SAE rating	Bucket digging force at power max.	228 kN 23300 kgf/51,370 lb	228 kN 23300 kgf/51,370 lb	200 kN 20400 kgf/44,970 lb
	Arm crowd force at power max.	225 kN 22900 kgf/50,490 lb	193 kN 19700 kgf/43,430 lb	165 kN 16800 kgf/37,040 lb
ISO rating	Bucket digging force at power max.	259 kN 26400 kgf/58,200 lb	259 kN 26400 kgf/58,200 lb	227 kN 23100 kgf/50,930 lb
	Arm crowd force at power max.	235 kN 24000 kgf/52,910 lb	201 kN 20500 kgf/45,190 lb	171 kN 17400 kgf/38,360 lb

BACKHOE BUCKET, ARM, AND BOOM COMBINATION

Bucket Capacity (heaped)		Width		Weight	Number of Teeth	Arm Length			
SAE, PCSA	CECE	Without Side Cutters	With Side Cutters	With Side Cutters		2.22 m 7'3"	2.55 m 8'4"	3.19 m 10'5"	4.02 m 13'2"
0.52 m ³ 0.68 yd ³	0.48 m ³ 0.63 yd ³	610 mm 24.0"	740 mm 29.1"	664 kg 1,460 lb	3	○	○	○	○
1.14 m ³ 1.49 yd ³	1.00 m ³ 1.31 yd ³	1145 mm 45.1"	1275 mm 50.2"	900 kg 1,980 lb	4	○	○	○	○
1.40 m ³ 1.83 yd ³	1.20 m ³ 1.57 yd ³	1340 mm 52.8"	1445 mm 56.9"	1015 kg 2,240 lb	5	○	○	○	●
1.60 m ³ 2.09 yd ³	1.40 m ³ 1.83 yd ³	1515 mm 59.6"	1645 mm 64.8"	1102 kg 2,430 lb	6	□	□	□	×
1.80 m ³ 2.35 yd ³	1.60 m ³ 2.09 yd ³	1700 mm 66.9"	—	1115 kg 2,460 lb	6	●	●	●	×
**1.40 m ³ 1.83 yd ³	1.20 m ³ 1.57 yd ³	1458 mm 57.4"	—	1508 kg 3,320 lb	5	○	○	○	×

○: General purpose use, density up to 1.8 ton/m³ 1.52 U.S. ton/yd³ ×: Not usable
□: General purpose use, density up to 1.5 ton/m³ 1.26 U.S. ton/yd³ *: Without side cutters
●: Light duty work, density up to 1.2 ton/m³ 1.01 U.S. ton/yd³ **: Rock bucket (with side shroud)

Lampiran 3. Spesifikasi Bulldozer Komatsu D68ESS-12



STANDARD EQUIPMENT FOR BASE MACHINE

- Air cleaner, double element with dust indicator
- Alternator, 35 ampere/24V
- Batteries, 112 Ah/2 x 12V
- Blower cooling fan
- Decelerator pedal
- Engine hood
- Engine side covers, gull-wing
- Fenders
- Lighting system, (includes 2 front, 1 rear)
- Locks, filler caps and covers
- Mono-lever steering
- Muffler with curved exhaust pipe
- Radiator guard door, flat
- Radiator reserve tank
- Rear cover
- ROPS mounting brackets
- Starting motor, 7.5 kW/24V
- Seat, adjustable
- Track roller guard, end sections
- Track shoe assembly
 - Heavy-Duty sealed and lubricated track
 - 560 mm 22" single grouser shoe
- Underguards, oil pan and transmission
- Wet, multiple-disc steering clutch/brake

STEEL CAB

- Additional weight **285 kg** 630 lb
- All-weather, enclosed pressurized cab
- Dimensions:
 - Length: **1765 mm** 5'9"
 - Width: **1720 mm** 5'8"
 - Height: **1625 mm** 5'4"
 - Height from floor to ceiling: **1515 mm** 5'0"

ROPS CANOPY FOR CAB

- Additional weight **250 kg** 550 lb
- Meets ISO 3471, SAE J/ISO 3471 ROPS standards, and ISO 3449 FOPS standard.
- Roof dimensions:
 - Length: **1270 mm** 4'2"
 - Width: **1490 mm** 4'11"
 - Height from operator compartment floor: **1705 mm** 5'7"



OPTIONAL EQUIPMENT

- AR track assembly (abrasion resistant bushings)
 - Backup alarm
 - Electronic instrument monitor panel
 - Front pull hook
 - Hitch type drawbar
 - High mount foot rests
 - Pressure check ports for power train
 - Radiator core protective grid
 - Rigid type drawbar
 - Underguard, heavy-duty
 - 7 track roller
- ROPS CANOPY (without cab)**
- Additional weight **340 kg** 750 lb
 - Meets ISO 3471 SAE J/ISO3471 ROPS standards, and ISO 3449 FOPS standard.
 - Roof dimensions:
 - Length: **1830 mm** 6'0"
 - Width: **1600 mm** 5'3"
 - Height from operator compartment floor: **1705 mm** 5'7"
- MULTI-SHANK RIPPER**
- Additional weight (including hydraulic control unit): **1645 kg** 3,630 lb
 - Beam length: **2170 mm** 7'1"
 - Maximum digging depth: **665 mm** 2'2"
 - Maximum lift above ground: **565 mm** 1'10"

SHOES

Shoe	Additional weight	Ground contact area
610 mm 24.0" single-grouser shoe	+110 kg +240 lb	32635 cm² 5,058 in ²

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KOMATSU

CEN00250-00

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Lampiran 3. Spesifikasi Bulldozer Komatsu D68ESS-12

Lampiran 4. Spesifikasi Dump Truck Isuzu Giga FVP 34P

SPEKIFIKASI TEKNIS ISUZU GIGA FVZ 34P

DIMENSI / DIMENSION		FVZ 34 P
PANJANG / OVERALL LENGTH (DAL)	mm	8.365
LEBAR / OVERALL WIDTH (DW)	mm	2.450
TINGGI / OVERALL HEIGHT (DH)	mm	2.860
JARAK SUMBU / WHEELBASE (WB)	mm	4.650 + 650
JULUR DEPAN / FRONT OVERHANG (FOH)	mm	1.440
JULUR BELAKANG / REAR OVERHANG (ROH)	mm	1.625
JARAK KABIN KE CHASSIS PALING BELAKANG / CABIN TO END (CE)	mm	6.295
JARAK TERENDAH KE TANAH / MINIMUM CLEARANCE (HH)	mm	235
JEJAK DEPAN / FRONT TREAD (AW)	mm	1.970
JEJAK BELAKANG / REAR TREAD (CW)	mm	1.845

MESIN / ENGINE		FVZ 34 P
MODEL / MODEL		6 HK1-TCS
TIPE / TYPE		IN-LINE 6 CYLINDERS, OHC DIRECT INJECTION DIESEL
DIAMETER x LANGKAH / BORE x STROKE	mm	115 x 125
ISI SILINDER / PISTON DISPLACEMENT	cc	7.790
TENAGA MAKSIMUM / MAXIMUM POWER	PS/rpm	285 / 2.400
TORSI MAKSIMUM / MAXIMUM TORQUE	Kgm/rpm	90 / 1.450 - 2.400
SISTEM SUPPLAI BAHAN BAKAR / FUEL SUPPLY SYSTEM		HEAVY DUTY COMMONRAIL

BERAT / WEIGHT		FVZ 34 P
BERAT KENDARAAN / VEHICLE MASS	kg	6.490
BERAT TOTAL KENDARAAN / GROSS VEHICLE WEIGHT (GVW)	kg	26.000

RODA / TYRE		FVZ 34 P
BAN DEPAN / FRONT TYRE		10.00-20-16PR (LUG/MILLER)
BAN BELAKANG / REAR TYRE		10.00-20-16PR (LUG/MILLER)

KAPASITAS GARDAN / AXLE CAPACITY		FVZ 34 P
DEPAN / FRONT	kg	6.000
BELAKANG / REAR	kg	20.000

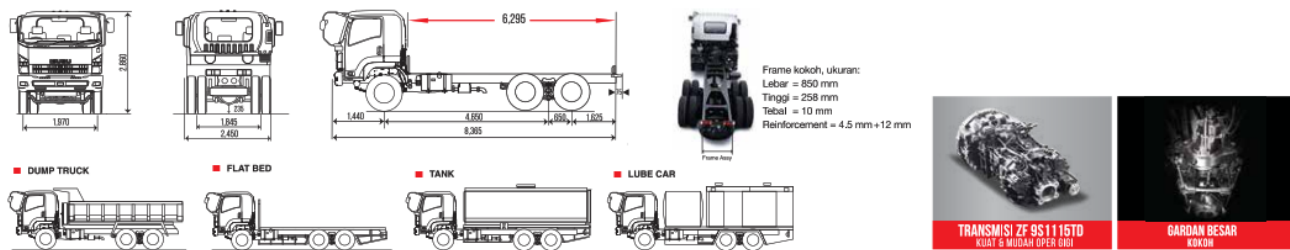
TRANSMISI / TRANSMISSION		FVZ 34 P
MODEL / MODEL		ZF 9S1115TD
PEBANDINGAN GIGI / GEAR RATIO	C	12.728
	1st	8.829
	2nd	6.281
	3rd	4.644
	4th	3.478
	5th	2.538
	6th	1.806
	7th	1.335
	8th	1.000
	Rev	12.040
PERBANDINGAN GIGI TERAKHIR / FINAL GEAR RATIO		6.143

REM / BRAKE		FVZ 34 P
KONTROL REM / BRAKE CONTROL		AIR OVER HYDRAULIC

SUSPENSI / SUSPENSION		FVZ 34 P
DEPAN / FRONT		MULTI LEAF
BELAKANG / REAR		MULTI LEAF (TRUNNION SUSPENSION)

LAIN-LAIN / OTHERS		FVZ 34 P
KAPASITAS TANGKI / FUEL TANK CAPACITY	litr	200
RADIUS PUTAR MINIMUM / MINIMUM TURNING RADIUS	m	7.7
DAYA TANJAK MAKSIMUM / MAXIMUM GRADE ABILITY	%	47
ALTERNATOR	V-A	24 - 50
KECEPATAN MAKSIMUM / MAXIMUM SPEED	km/h	83
KABIN / CABIN		WIDE-5 (WITH BED SPACE)
DIMENSI RANGKA / FRAME DIMENSION		850 X 258 X 10 + (4,5+12)
REGULASI EMISI / EMISSION REGULATION		EURO 2
RADIO / CD / MP3		ADA

* Untuk meningkatkan mutu dan penyesuaian dengan perkembangan teknologi, spesifikasi dapat berubah sewaktu-waktu tanpa pemberitahuan ** Ilustrasi merupakan contoh sebagian aplikasi di lapangan.



Agan Pemegang Merek & Distributor :

PT ISUZU ASTRA MOTOR INDONESIA



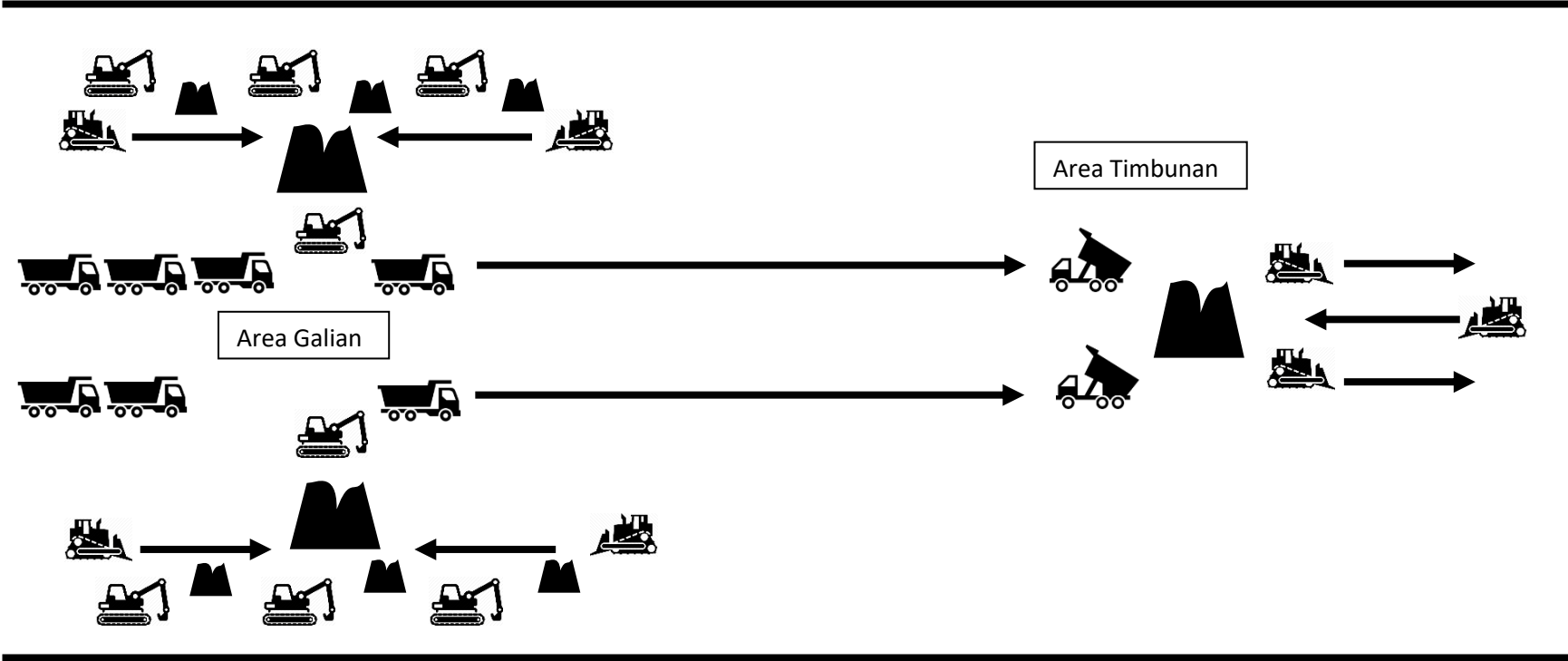
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Lampiran 5. Biaya Sewa Alat Berat dan Jumlah Alat Berat

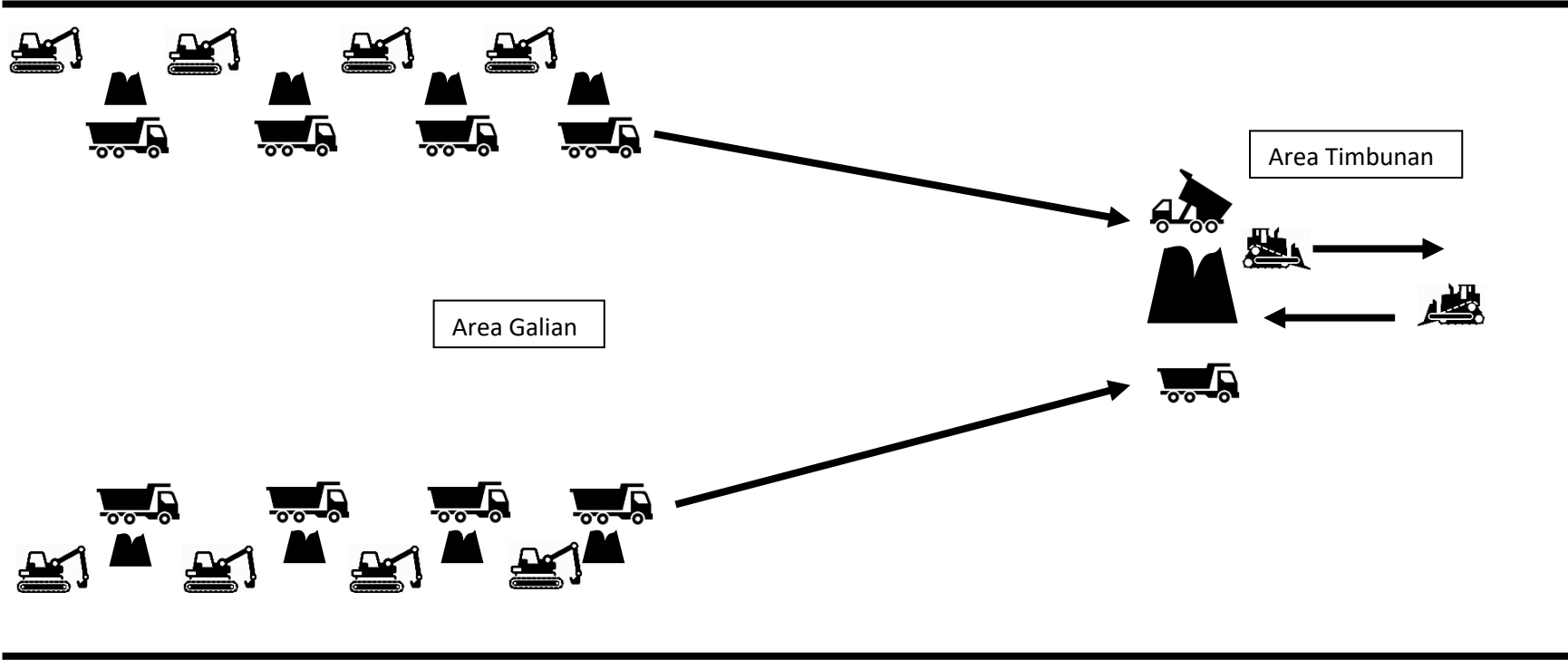
Biaya Sewa Alat

- Excavator = Rp 82 jt / bln
- Bulldozer = Rp 75 jt / bln
- Dump truck = Rp 55 jt / bln
- Komatsu PC300-8 = 6 gati 2 mat
- Komatsu DG8E55 = 3 gusur 4 tambur.
- Isuzu Giga 34P = 34 - 35

Lampiran 6 Skema Pengoperasian Alat Alternatif 1



Lampiran 7 Skema Pengoperasian Alat Alternatif 2



Lampiran 7 Skema Pengoperasian Alat Alternatif 2

