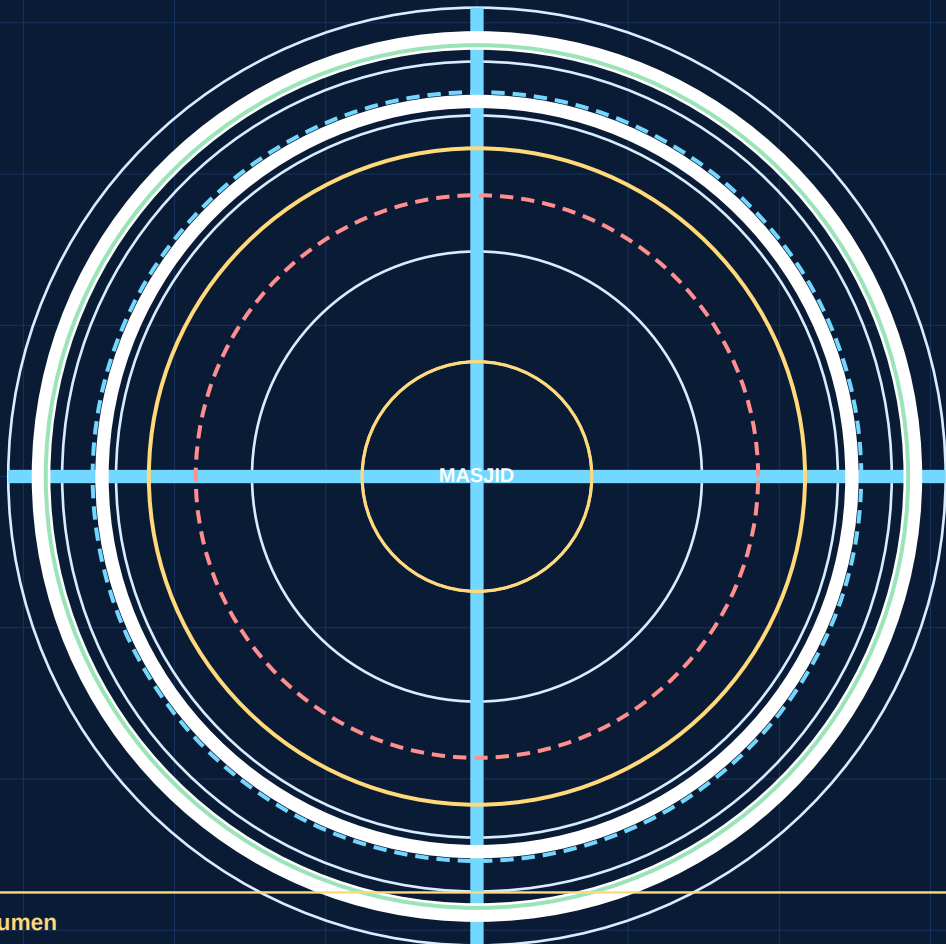


ADVANCED ENGINEERING BLUEPRINT SET

Ten-sheet infrastructure package for global kawasan coordination



Basis Dokumen

- Kawasan 100 ha, radius teoritis 564 m, empat boulevard radial dan lima zona konsentris.
- Seluruh posisi, elevasi, kapasitas, diameter, dan spesifikasi bersifat basis desain konseptual.
- DED final memerlukan polygon koordinat, topografi, geoteknik, hidrologi, data utilitas, dan persetujuan regulator.

Cakupan Paket

- E-01 Grading dan elevasi kawasan.
- E-02 Cut and fill.
- E-03 Drainase dan danau retensi.
- E-04 Air bersih.
- E-05 Air limbah dan IPAL.
- E-06 Hydrant dan fire water.
- E-07 Kelistrikan dan gardu.
- E-08 Solar panel dan battery storage.
- E-09 Fiber optic, CCTV, command centre.

Drawing Index

Sheet	Disiplin
E-00	Cover / Index
E-01	Grading & Elevation
E-02	Cut & Fill
E-03	Drainage & Retention
E-04	Potable Water
E-05	Wastewater & IPAL
E-06	Hydrant & Fire Water
E-07	Power & Substation
E-08	Solar & BESS
E-09	Fiber/CCTV/Command
E-10	Waste & Logistics

KAMPUNG SAKINAH

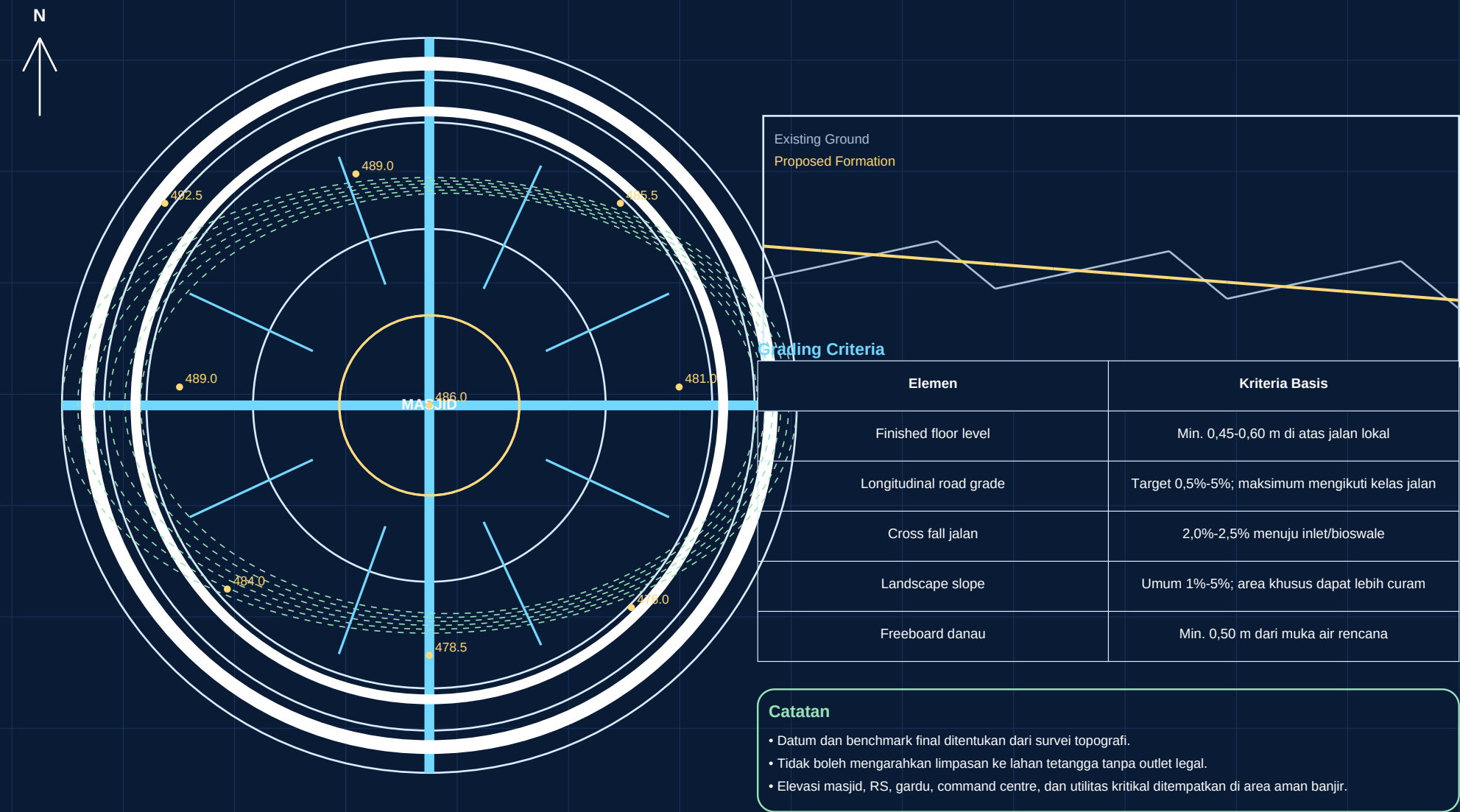
SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev
ADVANCED ENGINEERING BLUEPRINT SET	E-00	01
Ten-sheet infrastructure package for global kawasan coo	Date	2026-07-16

STATUS: DED KONSEPTUAL / BASIS DESAIN - WAJIB VERIFIKASI DATA TAPAK SEBELUM IFC

GRADING DAN ELEVASI KAWASAN

Conceptual finished grade, drainage direction, spot level, and longitudinal profile



STATUS: DED KONSEPTUAL / BASIS DESAIN - WAJIB VERIFIKASI DATA TAPAK SEBELUM IFC

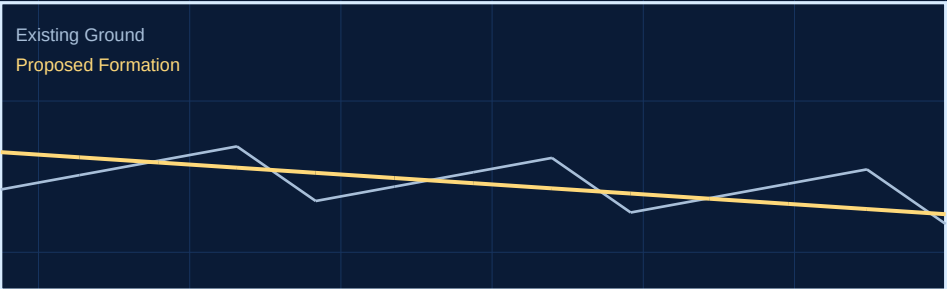
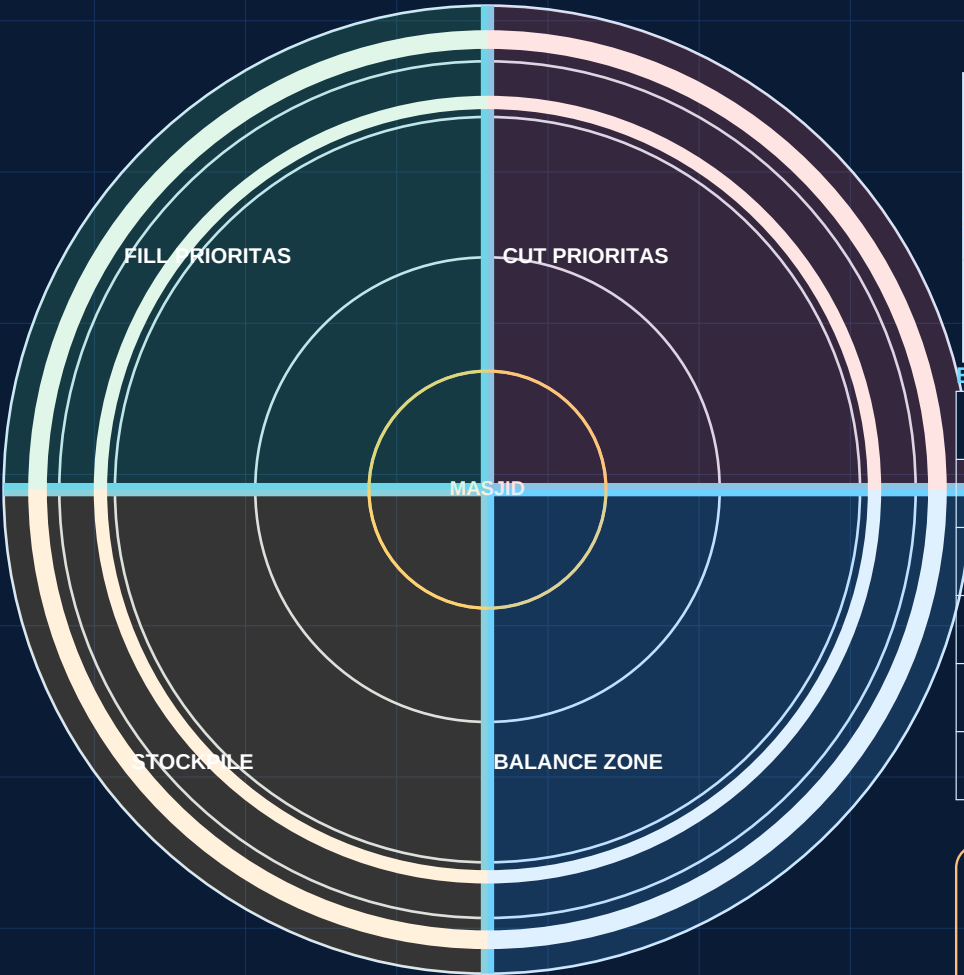
KAMPUNG SAKINAH

SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev
GRADING DAN ELEVASI KAWASAN	E-01	01
Conceptual finished grade, drainage direction, spot lev	Date	2026-07-16
Scale	Schematic / NTS	

CUT AND FILL

Conceptual earthwork zoning, balancing strategy, stockpile and haul route



Earthwork Criteria	
Parameter	Basis Awal
Target earthwork	Mendekati net balance per fase
Topsoil stripping	150-300 mm, disimpan untuk landscape
Structural fill	Material terpilih, compacted layer sesuai geoteknik
Temporary stockpile	Zona D/E, jauh dari drainase aktif
Haul road	Outer ring dan service corridor

Metode Tahap Final

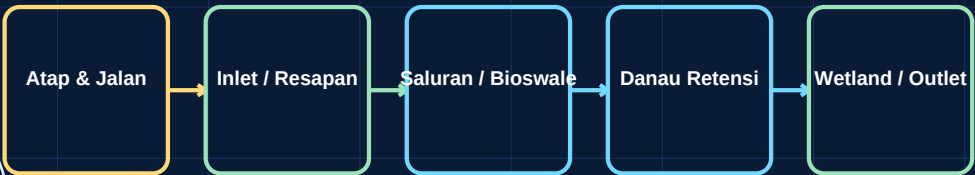
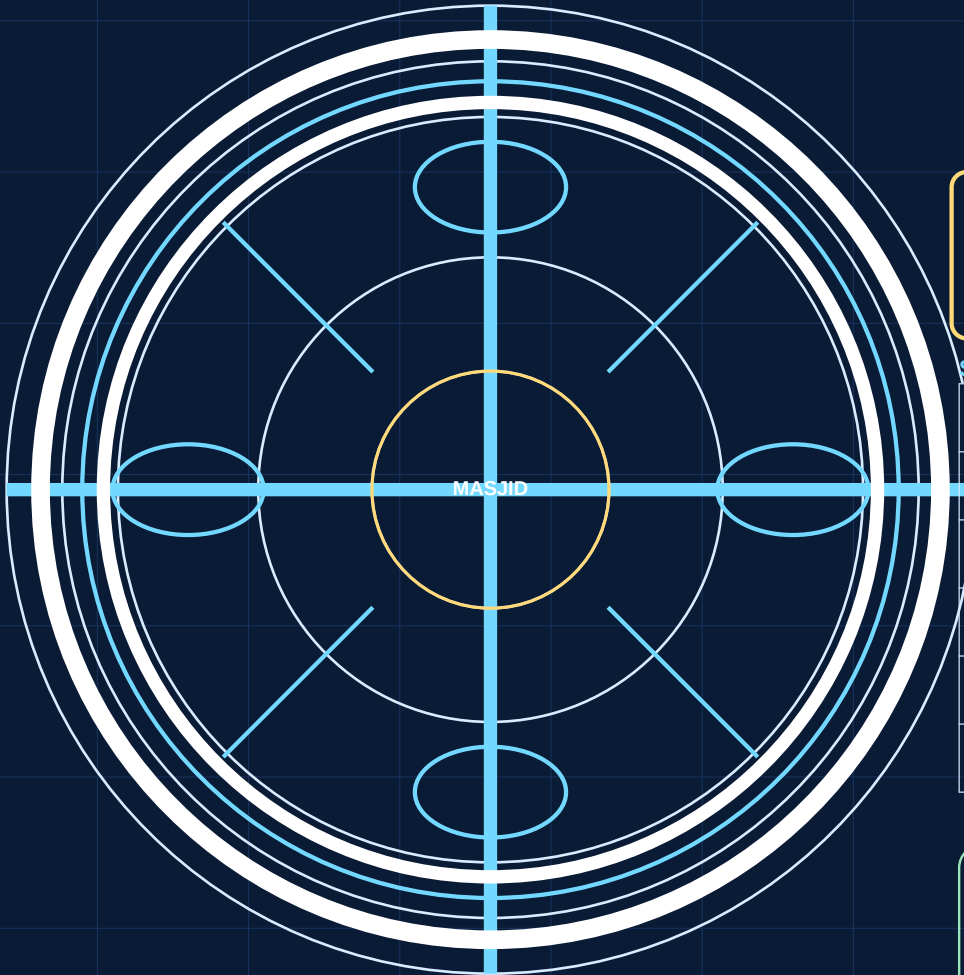
- Bangun digital terrain model existing dan proposed.
- Hitung volume cut-fill per grid dan per fase.
- Tetapkan shrinkage, bulking, unsuitable material, dan disposal route.
- Konfirmasi stabilitas lereng dan kebutuhan retaining structure.

STATUS: DED KONSEPTUAL / BASIS DESAIN - WAJIB VERIFIKASI DATA TAPAK SEBELUM IFC

KAMPUNG SAKINAH			
SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT			
Drawing Title	Sheet	Rev	
CUT AND FILL	E-02	01	
Conceptual earthwork zoning, balancing strategy, stockp	Date	2026-07-16	
Scale	Schematic / NTS		

DRAINASE DAN DANAU RETENSI

Catchment division, trunk drains, bioswale, retention lakes, wetland and emergency overflow



Stormwater Criteria

Komponen	Basis Desain
Danau retensi total	Target awal ± 60.000 m³
Bioswale	Sepanjang boulevard dan green commons
Minor drainage	Kala ulang sesuai fungsi & regulasi
Major overflow	Koridor aman menuju retention/outlet
Reuse stormwater	Irigasi, make-up water, landscape

Koordinasi Wajib

- Hydrology model per catchment dan skenario perubahan iklim.
- Cek muka air tanah, sediment forebay, freeboard, spillway, dan akses maintenance.
- Pastikan outlet legal dan tidak meningkatkan debit ke hilir.

STATUS: DED KONSEPTUAL / BASIS DESAIN - WAJIB VERIFIKASI DATA TAPAK SEBELUM IFC

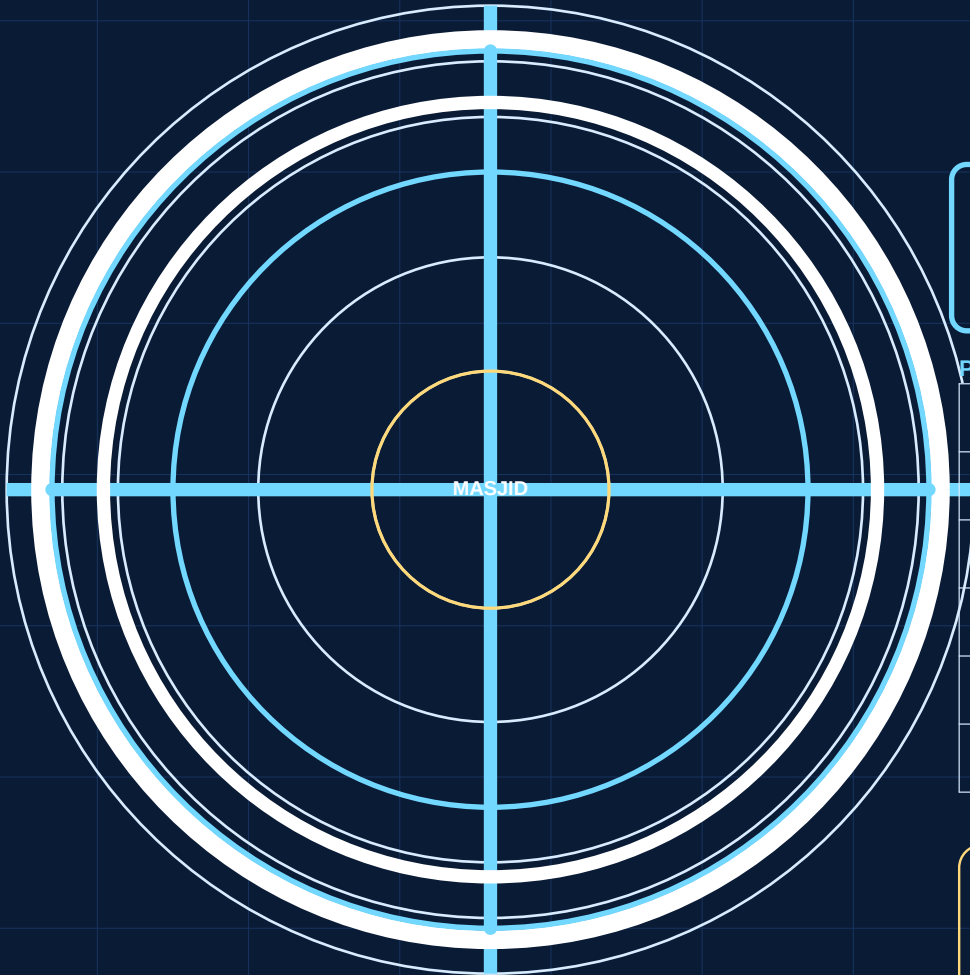
KAMPUNG SAKINAH

SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev
DRAINASE DAN DANAU RETENSI	E-03	01
Catchment division, trunk drains, bioswale, retention lakes, wetland and emergency overflow	Date	2026-07-16
Scale Schematic / NTS		

AIR BERSIH

Source, WTP, clear water reservoir, booster, ring main, district metering and consumer supply



Potable Water Criteria

Elemen	Basis Awal
Average demand	3,0-3,5 MLD termasuk losses
Reservoir efektif	± 4.000 m³
Distribution	Ring main + radial branch
Pressure zoning	Ditentukan dari terrain dan hydraulic model
Metering	DMA, smart meter, bulk meter tiap zona

Kriteria Detail

- Pisahkan storage domestik dan fire reserve sesuai perhitungan.
- Verifikasi kualitas sumber, NRW, peak factor, minimum pressure, dan fire flow.
- Material dan diameter pipa ditetapkan dari hydraulic model.

STATUS: DED KONSEPTUAL / BASIS DESAIN - WAJIB VERIFIKASI DATA TAPAK SEBELUM IFC

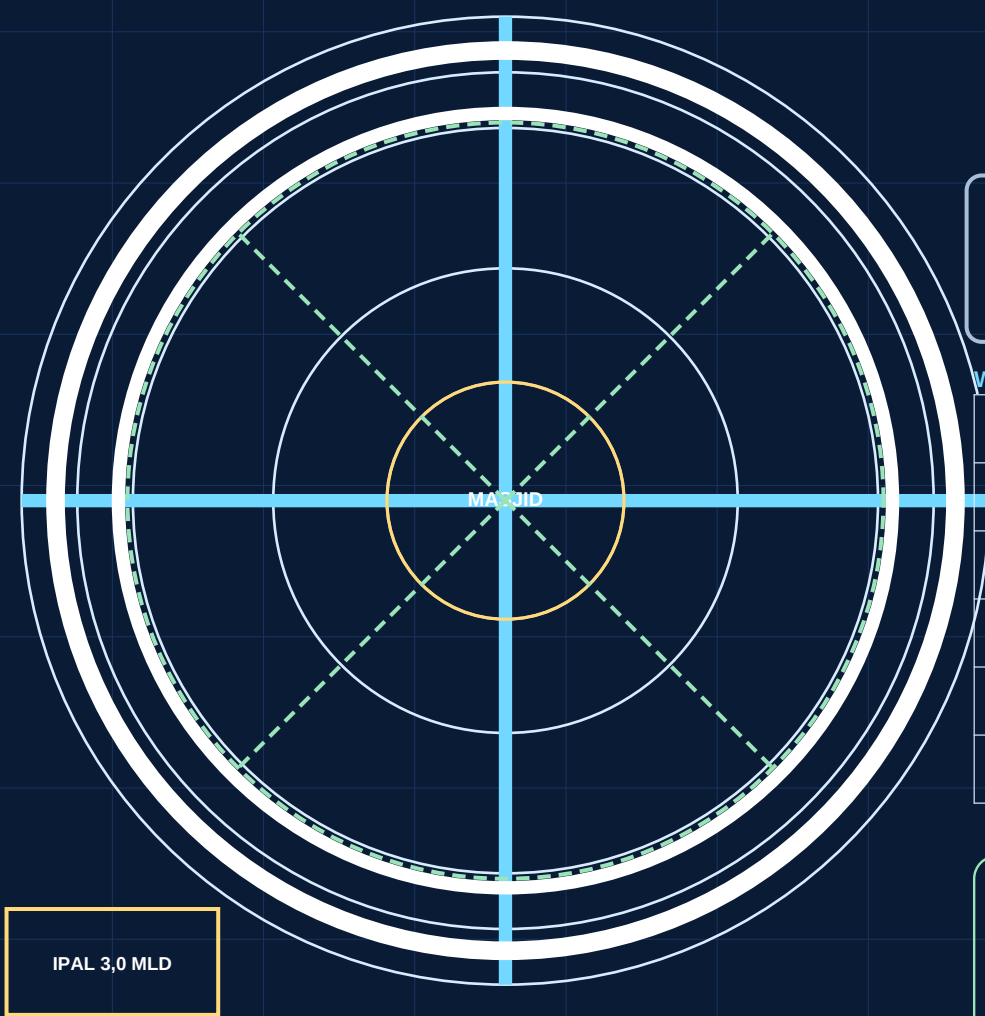
KAMPUNG SAKINAH

SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev	
AIR BERSIH	E-04	01	
Source, WTP, clear water reservoir, booster, ring main, Schematic / NTS	Date	2026-07-16	

AIR LIMBAH DAN IPAL

Gravity sewer, lift station, centralized IPAL, sludge handling, reuse and compliant outlet



Wastewater Criteria

Komponen	Basis Desain
Flow design	80-85% konsumsi air + infiltration allowance
Sewer system	Separate system, bukan combined drain
Lift station	N+1 pump, standby power, odor control
Treatment	Biological + tertiary/disinfection sesuai reuse
Sludge	Dewatering, transport, disposal berizin

Lokasi IPAL

- Diletakkan pada outer utility ring, downwind, akses servis langsung, dan buffer landscape.
- Elevasi final mengikuti gravity profile dan flood risk.
- Efluen reuse dipisahkan dari potable water dengan color coding dan backflow protection.

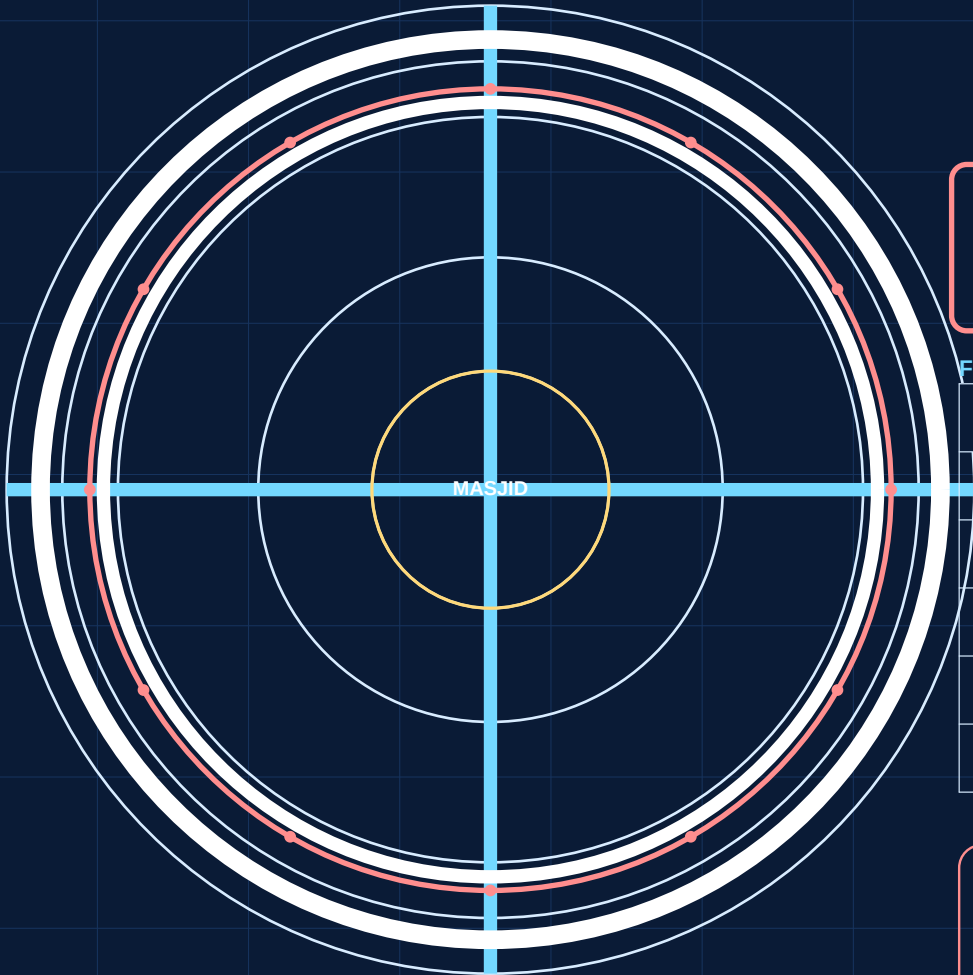
KAMPUNG SAKINAH

SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev
AIR LIMBAH DAN IPAL	E-05	01
Gravity sewer, lift station, centralized IPAL, sludge handling, reuse and compliant outlet	Date	2026-07-16
Scale	Schematic / NTS	

HYDRANT DAN FIRE WATER

Fire reserve, pump house, hydrant ring, fire access, response nodes and critical facility protection



Fire Water Criteria

Elemen	Basis Awal
Fire reserve	Dedicated volume sesuai fire scenario
Pump arrangement	Electric + diesel + jockey, duty/standby
Hydrant spacing	Indikatif 100-150 m; final sesuai kode
Fire access	Outer ring + radial + hardstanding
Critical assets	RS, sekolah, masjid, gardu, BESS

Analisis Lanjutan

- Tentukan simultaneous fire demand, pressure, residual head, dan duration.
- Lakukan swept path mobil pemadam dan verifikasi turning radius / clear height.
- Koordinasikan external hydrant dengan sprinkler, standpipe, dan fire alarm bangunan.

STATUS: DED KONSEPTUAL / BASIS DESAIN - WAJIB VERIFIKASI DATA TAPAK SEBELUM IFC

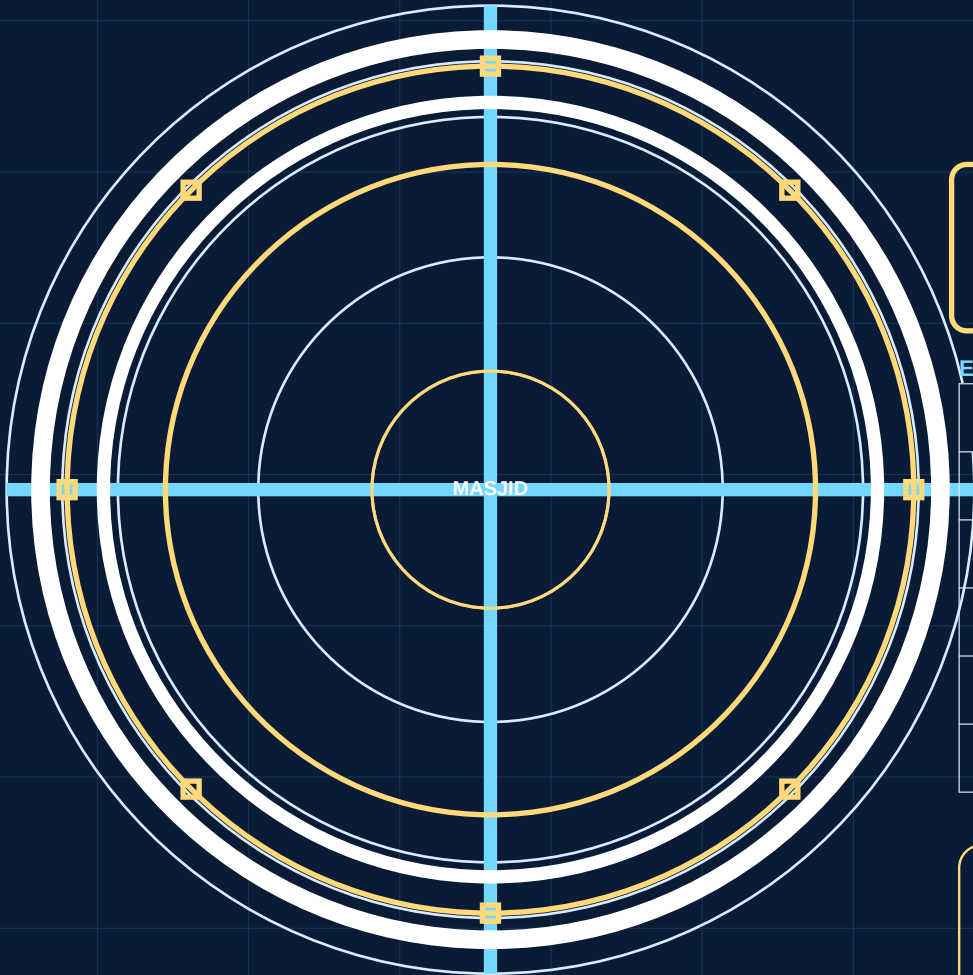
KAMPUNG SAKINAH

SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev
HYDRANT DAN FIRE WATER	E-06	01
Fire reserve, pump house, hydrant ring, fire access, re	Date	2026-07-16
Scale Schematic / NTS		

KELISTRIKAN DAN GARDU

Utility intake, primary substation, MV ring, distribution substations, LV network and critical backup



Electrical Criteria

Parameter	Basis Awal
Connected load	± 12,5 MW tahap penuh
System topology	MV closed ring / normally open points
Substation location	Outer ring + civic nodes
Critical backup	RS, masjid, command, water, IPAL
Protection	Selective coordination, grounding, lightning

Deliverable Detail

- Load schedule, diversity, SLD, fault level, relay coordination, voltage drop, grounding grid, cable sizing, dan earthing study.
- Ruang gardu harus memiliki akses servis, ventilasi, fire separation, dan flood protection.

STATUS: DED KONSEPTUAL / BASIS DESAIN - WAJIB VERIFIKASI DATA TAPAK SEBELUM IFC

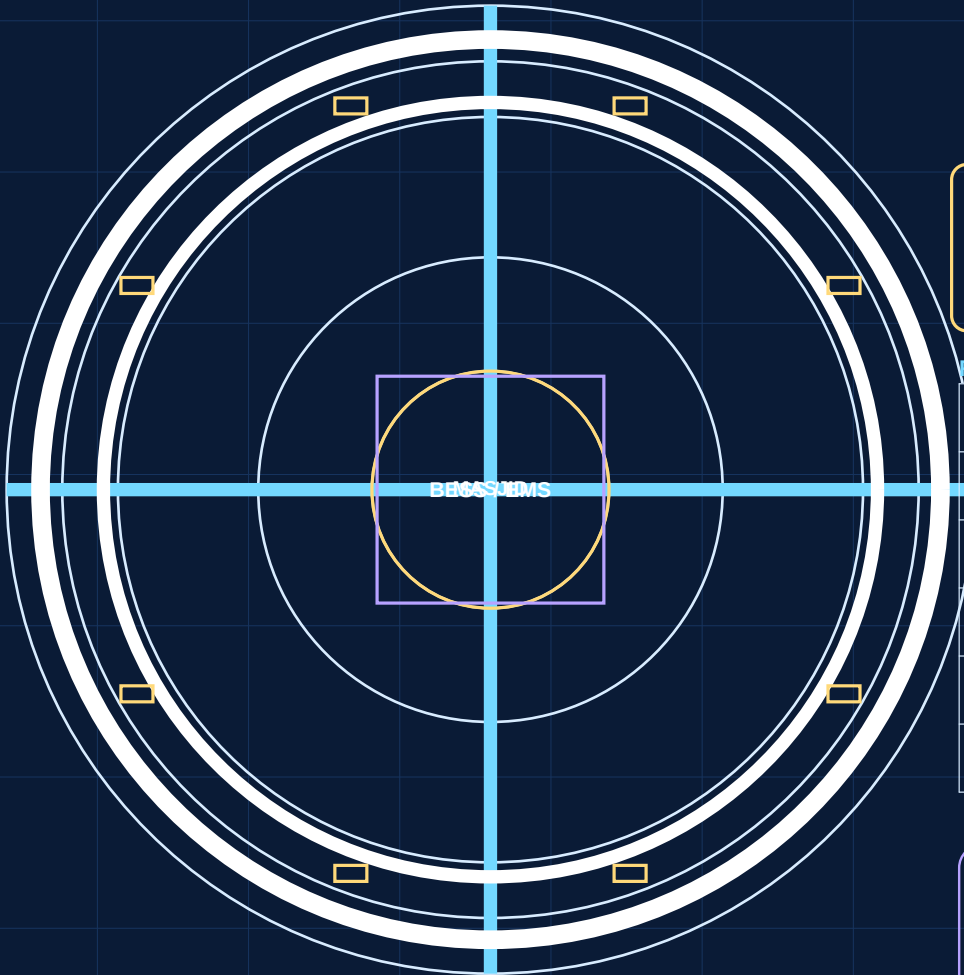
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SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev
KELISTRIKAN DAN GARDU	E-07	01
Utility intake, primary substation, MV ring, distribution substations, LV network and critical backup	Date	2026-07-16
Scale	Schematic / NTS	

SOLAR PANEL DAN BATTERY STORAGE

Distributed rooftop PV, solar canopy, BESS, EMS, islanding strategy and critical load support



Renewable Energy Criteria

Elemen	Basis Awal
PV capacity	Target awal ± 4 MWp
BESS capacity	Target awal ± 8 MWh
Priority roofs	Komersial, sekolah, RS, parkir canopy
Operating mode	Self-consumption, peak shaving, backup
Safety	Fire compartment, gas detection, isolation

Studi Wajib

- Solar yield, shading, roof load, inverter loading ratio, harmonic study, protection, grid interconnection, BESS thermal runaway, emergency response, dan lifecycle replacement.
- Final capacity harus mengikuti tariff study dan business case.

STATUS: DED KONSEPTUAL / BASIS DESAIN - WAJIB VERIFIKASI DATA TAPAK SEBELUM IFC

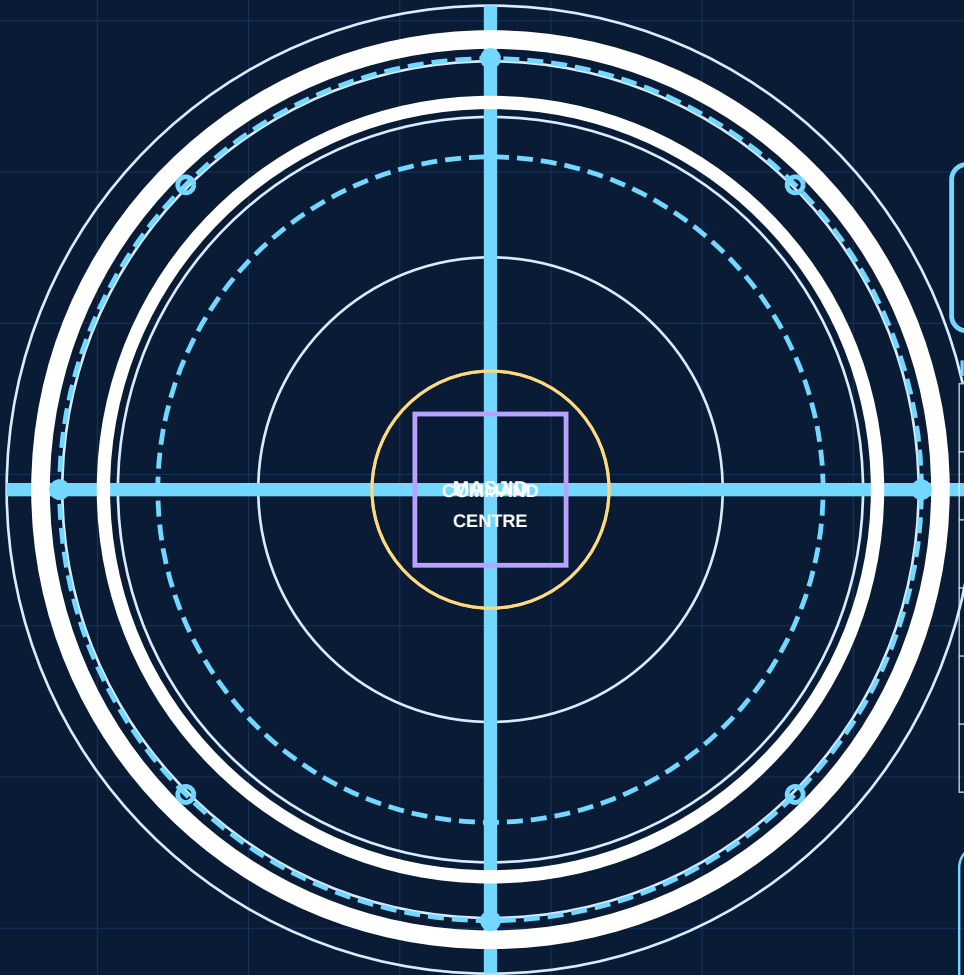
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SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev	
SOLAR PANEL DAN BATTERY STORAGE	E-08	01	
Distributed rooftop PV, solar canopy, BESS, EMS, islanding strategy and critical load support	Date	2026-07-16	
Scale Schematic / NTS			

FIBER OPTIC, CCTV DAN COMMAND CENTRE

Dual fiber ring, street cabinets, CCTV, access control, IoT, data platform and cyber resilience



ICT & Security Criteria

Sistem	Basis Desain
Backbone	Dual diverse-path fiber ring
CCTV	Gate, junction, public realm, critical asset
Access control	Building and restricted utility zones
IoT	Water, energy, flood, lighting, air quality
Cybersecurity	Segmentation, IAM, logging, backup

Command Centre Scope

- Mobility, security, emergency, environment, utility monitoring, incident management, dan public information.
- Privacy by design, retention policy, redundancy, disaster recovery, dan offline operating procedures wajib disiapkan.

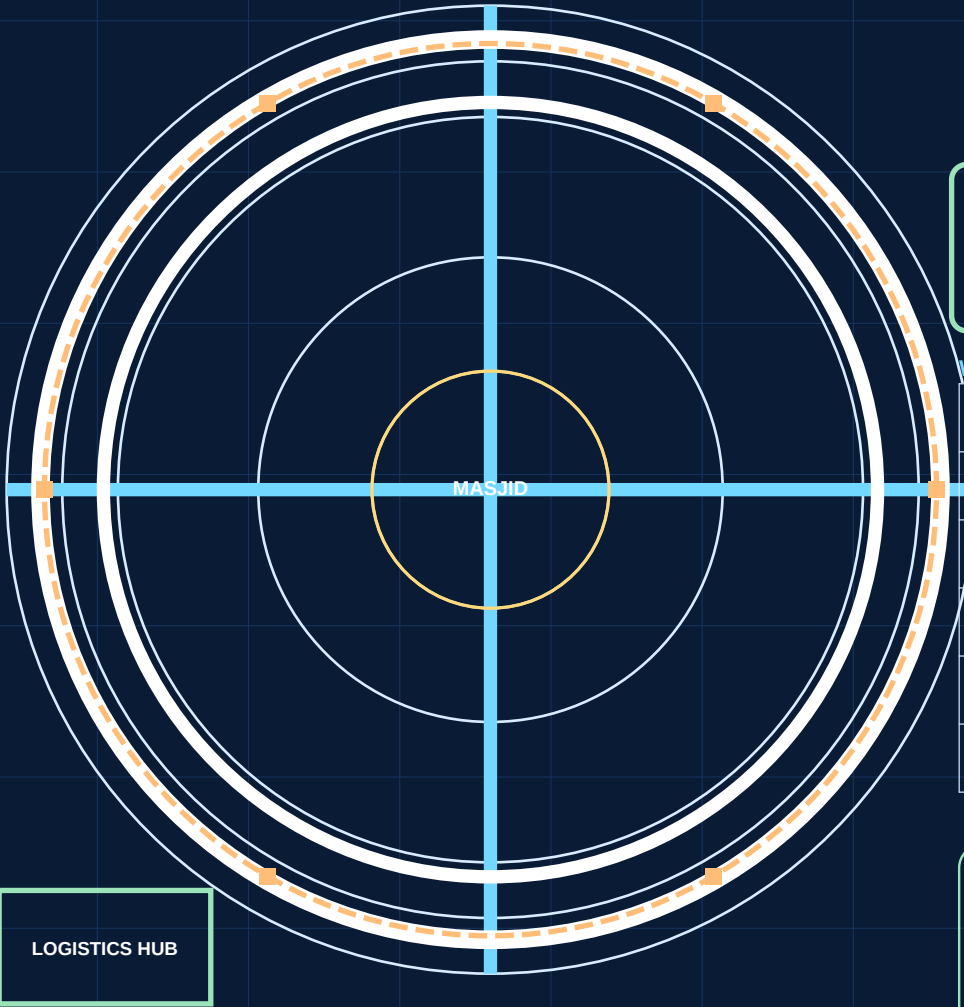
KAMPUNG SAKINAH

SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev
FIBER OPTIC, CCTV DAN COMMAND CENTRE	EE-09	01
Dual fiber ring, street cabinets, CCTV, access control, Schematic / NTS	Date	2026-07-16

PENGELOLAAN SAMPAH DAN LOGISTICS HUB

Source segregation, collection routes, MRF, composting, hazardous streams, loading and urban logistics



Waste & Logistics Criteria

Aliran	Penanganan
Organik	Composting / biodigester
Anorganik bernilai	MRF, baling, recycling partner
Residual	Compaction dan disposal berizin
B3 / medis	Storage terpisah dan vendor berizin
Urban logistics	Consolidation hub, loading window, EV fleet

Prinsip Operasi

- Rute kendaraan servis berada di outer ring dan service corridor, tidak masuk spiritual core.
- Jam layanan dikendalikan untuk meminimalkan konflik dengan penghuni.
- Sediakan wash bay, leachate collection, odor control, fire safety, dan weighbridge sesuai kebutuhan.

KAMPUNG SAKINAH

SMART ROUNDED CITY - ADVANCED ENGINEERING BLUEPRINT

Drawing Title	Sheet	Rev
PENGELOLAAN SAMPAH DAN LOGISTICS HUB	E-10	01
Source segregation, collection routes, MRF, composting, Scale Schematic / NTS	Date	2026-07-16