

BIM Uses		Project Stage & Milestones					
		Inception & Feasibility	Scheme Design	Detailed Design	Tender	Construction	Post-Completion
①	DESIGN						
Design	1.1 ARCHITECTURAL	<div><input type="checkbox"/> 1 Development Parameters<div>- Conceptual Mass - P.R. calculation - Building Height Study - Flat mix & efficiency - Green ratio</div></div>	<div><input type="checkbox"/> 1 Development Parameters<div>- P.R. calculation - Building Height Study - Flat mix & efficiency - Green ratio</div></div>	<div><input type="checkbox"/> 1 Development Parameters<div>- P.R. calculation - Building Height Study - Flat mix & efficiency - Green ratio</div></div>	<div><div><div>✓</div>Must do item</div><div><div>*</div>Not implement</div><div><div>#</div>Optional item</div><div><div></div>To be confirmed</div></div>		
		<div><input type="checkbox"/> 2 Architectural Design<div>- Conceptual Design - typical floor - make use of standard modular flat from D&S to assemble block layout - project team to make adjustment to MFD if required - design of non-standard layout (corridor, lobby, plant room,etc.)</div></div>	<div><input type="checkbox"/> 2 Architectural Design<div>- Scheme Design Proposal - typical floor - make use of standard modular flat from D&S to assemble block layout - project team to make adjustment to MFD if required - plans, sections & elevations & 3D (non-standard items) - color scheme</div></div>	<div><input type="checkbox"/> 2 Architectural Design<div>- Detail Design Proposal - typical floor - make use of standard modular flat from D&S to assemble block layout - project team to make adjustment to MFD if required - plans, sections & elevations (non-standard items) - color scheme - architectural schedules</div></div>	<div><input type="checkbox"/> 2 Architectural Design<div>- Tender - typical floor - plans, sections & elevations (modular flat items) - plans, sections & elevations (non-standard items) - color scheme / external tile / cladding layout - architectural schedules</div></div>	<div><input type="checkbox"/> 2 Architectural Shop Drawings<div>- typical floor - plans, sections & elevations (modular flat items) - continuous drawings update and information data drop - external tile / cladding layout - architectural schedules</div></div>	<div><input type="checkbox"/> 2 Architectural as-built<div>-drawings- typical floor - plans, sections & elevations (modular flat items) - plans, sections & elevations (non-standard items) - external tile / cladding layout - architectural schedules & O&M manual</div></div>
		<div><input type="checkbox"/> 2 Architectural Design<div>- Conceptual Design - remaining area - podium, external areas, roof,footbridges & covered walkway etc. - design of non-standard layout (corridor, lobby, plant room,etc.) - color scheme</div></div>	<div><input type="checkbox"/> 2 Architectural Design<div>- Scheme Design Proposal - remaining - podium, external areas, roof, footbridges & covered walkway etc. - plans, sections & elevations & 3D - color scheme - street furnitures layout & schedules</div></div>	<div><input type="checkbox"/> 2 Architectural Design<div>- Detail Design Proposal - - podium, external areas, roof, footbridges & covered walkway etc. - plans, sections & elevations - color scheme - architectural schedules - street furnitures layout & schedules</div></div>	<div><input type="checkbox"/> 2 Architectural Design<div>- Tender - remaining area - podium, external areas, roof, footbridges & covered walkway - plans, sections & elevations - color scheme / external tile / cladding layout - architectural schedules - street furnitures layout & schedules</div></div>	<div><input type="checkbox"/> 2 Architectural Shop Drawings<div>- remaining area - podium, external areas, roof,footbridges & covered walkway etc. - continuous drawings update and information data drop - external tile / cladding layout - architectural schedules</div></div>	<div><input type="checkbox"/> 2 Architectural as-built<div>- drawings - remaining area - podium, external areas, roof,footbridges & covered walkway etc. - plans, sections & elevations (non-standard items) - external tile / cladding layout - architectural schedules & O&M manual - street furnitures layout & schedules</div></div>
		<div><input type="checkbox"/> 3 Modular Unit Assembly Conceptual Design<div>- flat size and provision options - plans, sections & elevations - Toilets and Kitchen layout</div></div>	<div><input type="checkbox"/> 3 Modular Unit Assembly Scheme Design<div>- flat size and provision - plans, sections & elevations - Toilets and Kitchen layout - precast façade scheme design</div></div>	<div><input type="checkbox"/> 3 Modular Unit Assembly Detail Design<div>- flat size and provision - plans, sections & elevations - Toilets and Kitchen layout - precast façade detail design</div></div>	<div><input type="checkbox"/> 3 Modular Unit Assembly Tender<div>- architectural schedules - plans, sections & elevations - Toilets and Kitchen layout - precast façade tender drawings</div></div>	<div><input type="checkbox"/> 3 Modular Unit Assembly Shop Drawings<div>- architectural schedules - continuous drawings update and - Toilet & Kitchen shop drawings - precast façade shop drawings &</div></div>	<div><input type="checkbox"/> 3 Modular Unit Assembly as-built<div>- drawings - architectural schedules - plans, sections & elevations - Toilets and Kitchen layout - precast façade</div></div>
			<div><input type="checkbox"/> 4 Interior Scheme Design<div>- plans and internal elevations - domestic lobbies,lift interiors, etc</div></div>	<div><input type="checkbox"/> 4 Interior Detail Design<div>- plans and internal elevations - domestic lobbies,lift interiors, etc</div></div>	<div><input type="checkbox"/> 4 Interior Design Tender<div>- plans and internal elevations - domestic lobbies,lift interiors, etc - interior filment schedules</div></div>	<div><input type="checkbox"/> 4 Interior Design Shop Drawings<div>- interior tile / cladding setting out - domestic lobbies,lift interiors, etc - interior filment schedules</div></div>	<div><input type="checkbox"/> 4 Interior Design as-built<div>- drawings - plans and internal elevations - domestic lobbies,lift interiors, - interior filment schedules</div></div>
	1.2 CIVIL ENGINEERING	<div><input type="checkbox"/> 1 Infrastructure Scheme Design<div>- roads & bridges layout plan and 3D</div></div>					
			<div><input type="checkbox"/> 1 Infrastructure Scheme Design<div>- roads & bridges layout plan and 3D</div></div>	<div><input type="checkbox"/> 1 Infrastructure Scheme Design<div>- roads & bridges layout plan and 3D</div></div>	<div><input type="checkbox"/> 1 Infrastructure Scheme Design<div>- roads & bridges layout plan and 3D</div></div>	<div><input type="checkbox"/> 1 Infrastructure Design Verification<div>- continuous drawings update and information data drop</div></div>	<div><input type="checkbox"/> 1 Infrastructure as-built<div>- drawings - roads & bridges layout plan and 3D</div></div>
	1.3 GEOTECHNICAL ENGINEERING	<div><input type="checkbox"/> 1 Site Formation Concept<div>- estimation of volume of soil cut/fill, rock excavation - cut & fill balancing, natural terrain hazards - GI</div></div>					
			<div><input type="checkbox"/> 1 Site Formation scheme design<div>- estimation of volume of soil cut/fill, rock excavation - cut & fill balancing, natural terrain - Formation levels plans - Slope and retaining wall scheme</div></div>	<div><input type="checkbox"/> 1 Site Formation detail design<div>- calculations of volume of soil cut/fill, rock excavation - Formation levels plans - Slope and retaining wall detail</div></div>	<div><input type="checkbox"/> 1 Site Formation tender<div>- Formation levels plans - Slope and retaining wall tender</div></div>	<div><input type="checkbox"/> 1 Site Formation design verification<div>- continuous drawings update and information data drop</div></div>	<div><input type="checkbox"/> 1 Site Formation as-built<div>- drawings - Formation levels as-built record - Slope and retaining wall as-built</div></div>
	1.4 STRUCTURAL ENGINEERING	<div><input type="checkbox"/> 1 Foundation concept<div>- foundation model (base on GE's information on complex ground condition & geological model)</div></div>					
			<div><input type="checkbox"/> 1 Foundation scheme design<div>- Loading estimation for foundation design - Foundation plan & sections - Cap design only</div></div>	<div><input type="checkbox"/> 1 Foundation detail design<div>- Foundation plan, sections & schedules - Cap design only</div></div>	<div><input type="checkbox"/> 1 Foundation tender<div>- Foundation plan, sections & schedules</div></div>	<div><input type="checkbox"/> 1 Foundation Design Verification<div>- continuous drawings update and information data drop - foundation working sequence</div></div>	<div><input type="checkbox"/> 1 Foundation as-built<div>- record - Foundation plan, sections, rock profile as-built drawings and schedules</div></div>
			<div><input type="checkbox"/> 2 ELS scheme design<div>- ELS schematic plans and sections - Phasing - left-in lateral support options</div></div>	<div><input type="checkbox"/> 2 ELS detail design<div>- ELS detail plans, sections & - phasing - left-in lateral support detail design</div></div>	<div><input type="checkbox"/> 2 ELS tender<div>- ELS plans, sections & - phasing - left-in lateral support tender</div></div>	<div><input type="checkbox"/> 2 ELS design verification<div>- continuous drawings update and - ELS phasing and working</div></div>	<div><input type="checkbox"/> 2 ELS as-built record<div>- left-in lateral support as-built</div></div>
		<div><input type="checkbox"/> 3 Superstructure concept<div>- conceptual structural system - structural concept at critical area only</div></div>	<div><input type="checkbox"/> 3 Superstructure scheme<div>- structural scheme - structural scheme design at critical area</div></div>	<div><input type="checkbox"/> 3 Superstructure detail design<div>- Super-structure framing plan, - RC details (at selected locations) - bi-directional linkage to Structural analysis</div></div>	<div><input type="checkbox"/> 3 Superstructure tender<div>- Super-structure framing plan, - RC details (at selected - bi-directional linkage to Structural analysis</div></div>	<div><input type="checkbox"/> 3 Superstructure design verification<div>- continuous drawings update and - RC details (at selected locations)</div></div>	<div><input type="checkbox"/> 3 Superstructure as-built<div>- drawings - Super-structure framing plan & - RC details (at selected</div></div>
			<div><input type="checkbox"/> 4 Demolition scheme<div>- phasing - working sequence - hoarding design - safety planning</div></div>	<div><input type="checkbox"/> 4 Demolition detail design<div>- phasing - working sequence - hoarding design - safety planning</div></div>	<div><input type="checkbox"/> 4 Demolition tender<div>- phasing - working sequence - hoarding design - safety planning</div></div>	<div><input type="checkbox"/> 4 Demolition site works<div>- phasing - working sequence - hoarding design - safety planning</div></div>	<div><input type="checkbox"/> 4 Demolition record drawings<div>- completion handover record</div></div>
	1.5 BUILDING SERVICES ENGINEERING	<div><input type="checkbox"/> 1 Drainage within building (arch) design brief<div>- services preliminary provision</div></div>					
			<div><input type="checkbox"/> 1 Drainage within building (arch)<div>- interface location with drainage at - drainage layout schemes - vertical diagram - manhole & pit locations</div></div>	<div><input type="checkbox"/> 1 Drainage within building (arch)<div>- interface location with drainage at - drainage routing in 3D - drainage layout plan - vertical diagram - drainage equipment schedules - manhole & pit locations - pit schedules - sanitary filment schedules</div></div>	<div><input type="checkbox"/> 1 building drainage layout tender<div>- interface location with drainage - drainage routing in 3D - drainage layout plan - vertical diagram - drainage equipment schedules - manhole & pit locations - pit schedules - sanitary filment schedules</div></div>	<div><input type="checkbox"/> 1 building drainage shop drawings<div>- drainage routing in 3D - drainage layout plan - vertical diagram - drainage equipment schedules - manhole & pit locations - pit schedules - sanitary filment schedules</div></div>	<div><input type="checkbox"/> 1 building drainage as-built<div>- drawings - drainage routing in 3D - drainage layout plan - vertical diagram - drainage equipment schedules - manhole & pit locations - sanitary filment schedules</div></div>
		<div><input type="checkbox"/> 2 Aboveground & building services design brief<div>- services preliminary provision - plant rooms spatial requirement</div></div>	<div><input type="checkbox"/> 2 Drainage at External Area (CE)<div>- interface location with drainage within building - drainage layout plan and routing - developed level diagram</div></div>	<div><input type="checkbox"/> 2 Drainage at External Area (CE)<div>- interface location with drainage within building - drainage layout plan and routing - developed level diagram - manhole and other pit schedules</div></div>	<div><input type="checkbox"/> 2 Drainage at External Area (CE)<div>- interface location with drainage within building - drainage layout plan and routing in 3D - developed level diagram - manhole and other pit schedules</div></div>	<div><input type="checkbox"/> 2 Underground drainage Verification<div>- drainage layout plan and routing in 3D - developed level diagram - manhole and other pit schedules</div></div>	<div><input type="checkbox"/> 2 Underground drainage as-built<div>- drawings - drainage layout plan and routing in 3D - developed level diagram - manhole and other pit schedules</div></div>

Design		<div> <input type="checkbox"/> 3 MVAC design brief <div> - services preliminary provision </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 MVAC Scheme design <div> - major routing scheme design - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 MVAC detail design <div> - routing detail design - schematic digram - equipment & accessory schedules </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 MVAC tender <div> - routing layout in 3D - schematic digram - equipment & accessory </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 MVAC shop drawing <div> - CSD & CBWD coordination - schematic diagram verification and update - equipment & accessory </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 MVAC As-built drawings <div> - CSD & CBWD record - schematic diagram record - O&M maual </div> </div>	<div> <input type="checkbox"/> </div>
		<div> <input type="checkbox"/> 4 MVAC plant room design brief <div> - plant rooms spatial requirement </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 4 MVAC plant room scheme design <div> - plant room size & location - layout schematics </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 4 MVAC plant room layout detail design <div> - Plant Room Design (space - Elevation layout for wall mounted - equipment schedules - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 4 MVAC plant room layout tender <div> - plant room layout - Elevation layout for wall - equipment schedules - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 4 MVAC plant room layout shop drawings <div> - plant room shop drawings - Elevation layout for wall mounted - equipment schedules - schematic diagram verification </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 4 MVAC plant room layout as-built record <div> - plant room as-built layout - plant room as-built elevations - O&M maual - schematic diagram record </div> </div>	<div> <input type="checkbox"/> </div>
		<div> <input type="checkbox"/> 5 Electrical design brief <div> - services preliminary provision </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 5 Electrical Scheme design <div> - interfacing with electric company - major routing scheme design - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 5 Electrical detail design <div> - interfacing with electric company - routing detail design - schematic digram - equipment & accessory schedules </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 5 Electrical tender <div> - interfacing with electric company - routing layout in 3D - schematic digram - equipment & accessory </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 5 Electrical shop drawing <div> - interfacing with electric company - CSD & CBWD coordination - schematic diagram verification - equipment & accessory </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 5 Electrical <div> - interfacing with electric - CSD & CBWD record - schematic diagram record - O&M maual </div> </div>	<div> <input type="checkbox"/> </div>
		<div> <input type="checkbox"/> 6 Electrical plant room design brief <div> - plant rooms spatial requirement </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 6 Electrical plant room scheme design <div> - plant room size & location - layout schematics </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 6 Electrical plant room layout detail design <div> - Plant Room Design (space - Elevation layout for wall mounted installations - equipment schedules - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 6 Electrical plant room layout tender <div> - plant room layout - Elevation layout for wall mounted installations - equipment schedules - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 6 Electrical plant room layout shop drawings <div> - plant room shop drawings - Elevation layout for wall mounted installations - equipment schedules - schematic diagram verification </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 6 Electrical plant room layout as-built record <div> - plant room as-built layout - plant room as-built elevations - O&M maual - schematic diagram record </div> </div>	<div> <input type="checkbox"/> </div>
		<div> <input type="checkbox"/> 7 Plumbing design brief <div> - services preliminary provision </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 7 Plumbing scheme design <div> - interfacing with public mains - major routing scheme design - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 7 Plumbing detail design <div> - interfacing with public mains - routing detail design - schematic digram - equipment & accessory schedules </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 7 Plumbing tender <div> - interfacing with public mains - routing layout in 3D - schematic digram - equipment & accessory schedules </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 7 Plumbing <div> - on-site coordination and design - CSD & CBWD coordination - schematic diagram verification - equipment & accessory </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 7 Plumbing <div> - as-built record for new services, - CSD & CBWD record - schematic diagram record - O&M maual </div> </div>	<div> <input type="checkbox"/> </div>
		<div> <input type="checkbox"/> 8 Plumbing plant room design brief <div> - plant rooms spatial requirement </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 8 Plumbing plant room scheme design <div> - plant room size & location - layout schematics </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 8 Plumbing plant room layout detail design <div> - Plant Room Design (space planning) - Elevation layout for wall mounted - equipment schedules - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 8 Plumbing plant room layout tender <div> - plant room layout - Elevation layout for wall - equipment schedules - schematic digram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 8 Plumbing plant room layout shop drawings <div> - plant room shop drawings - Elevation layout for wall mounted - equipment schedules - schematic diagram verification </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 8 Plumbing plant room layout as-built record <div> - plant room as-built layout - plant room as-built elevations - O&M maual - schematic diagram record </div> </div>	<div> <input type="checkbox"/> </div>
		<div> <input type="checkbox"/> 9 Town Gas design brief <div> - services preliminary provision </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 9 Town Gas <div> - interfacing with public mains - schematic layout - vertical diagram </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 9 Town Gas <div> - interfacing with public mains - schematic diagram and detail - riser size - equipment schedule </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 9 Town Gas <div> - interfacing with public mains - schematic diagram and detail - riser arrangement - equipment schedule </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 9 Town Gas <div> - on-site coordination and design verification, and continuous - on-site coordination and design - riser arrangement - equipment schedule </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 9 Town Gas <div> - as-built record for new services, builder's work and related - as-built record for new services, - riser arrangement - schematic diagram record </div> </div>	<div> <input type="checkbox"/> </div>
		<div> <input type="checkbox"/> 10 Micellaneous design brief <div> - security, CCTV - parking provision, e.g. drop bars, EV charging </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 10 Micellaneous <div> - security, CCTV - parking provision, e.g. drop bars, EV charging </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 10 Micellaneous (CCTV, parking provision, etc.) <div> - security, CCTV - parking provision, e.g. drop bars, EV charging </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 10 Micellaneous (CCTV, parking provision, etc.) <div> - security, CCTV - parking provision, e.g. drop bars, EV charging </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 10 Micellaneous (CCTV, parking provision, etc.) <div> - security, CCTV - parking provision, e.g. drop bars, EV charging </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 10 Micellaneous (CCTV, parking provision, etc.) <div> - security, CCTV - parking provision, e.g. drop bars, EV charging </div> </div>	<div> <input type="checkbox"/> </div>
Design	1.6 LANDSCAPE												
		<div> <input type="checkbox"/> 1 Preliminary Master Layout <div> - green ratio - magnitude of influence on existing tree according to development schemes </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 1 Preliminary Master Layout <div> - green ratio - Tree felling / transplant proposals </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 1 Detailed Master Layout <div> - green ratio - Tree felling / transplant proposals </div> </div>	<div> <input type="checkbox"/> </div>						
				<div> <input type="checkbox"/> 2 Hard Landscaping scheme design <div> - planters </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 2 Hard Landscaping detail design <div> - planters </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 2 Hard Landscaping tender <div> - planters </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 2 Hard Landscaping construction <div> - planters </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 2 Hard Landscaping as-built record <div> - planters </div> </div>	<div> <input type="checkbox"/> </div>
				<div> <input type="checkbox"/> 3 Soft Landscaping <div> - magnitude of influence on existing tree according to development schemes - existing tree survey </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 Soft landscape design <div> - plant layout & schedules - customization of soft landscape </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 Soft landscape tender <div> - plant layout & schedules </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 Soft landscape construction <div> - continuous drawings update and information data drop </div> </div>	<div> <input type="checkbox"/> </div>	<div> <input type="checkbox"/> 3 Soft landscape as-built <div> - plant layout & schedules </div> </div>	<div> <input type="checkbox"/> </div>
	1.7 VALUE ENGINEERING												
		<div> <input type="checkbox"/> 1 Value management & design optimization <div></div> </div>	<div> <input type="checkbox"/> </div>										

②	ANALYSIS & SIMULATION				
ANALYSIS & SIMULATION	2.1 ENVIRONMENTAL: PASSIVE				
	<div><div><input type="checkbox"/> 1 Air Ventilation Assessment (AVA)<div>- integrated use with CFD software</div></div><div><input type="checkbox"/> 2 Microclimate Studies<div>- airflow simulation & ventilation</div><div>- wind enviroment at low level / mid level</div></div><div><input type="checkbox"/> 3 Solar Study<div>- Shadow & daylight analysis</div><div>- Daylight Provision, open space solar access</div></div><div><input type="checkbox"/> 4 Pollutants dispersion<div>- under summer / annual prevailing wind</div></div><div><input type="checkbox"/> 5 TRAFFIC IMPACT ASSESSMENT</div></div>	<div><div><input type="checkbox"/> 1 Air Ventilation Assessment (AVA)</div><div><input type="checkbox"/> 2 Microclimate Studies (MCS)<div>- airflow simulation & ventilation</div><div>- wind enviroment at low level / mid level</div></div><div><input type="checkbox"/> 3 Solar Study<div>- Shadow & daylight analysis</div><div>- Daylight Provision, open space solar</div></div><div><input type="checkbox"/> 5 TRAFFIC IMPACT ASSESSMENT</div></div>	<div><div><input type="checkbox"/> 1 Air Ventilation Assessment (AVA)</div><div><input type="checkbox"/> 2 BEAM PLUS study<div>- Micro-climate study</div></div><div><input type="checkbox"/> 3 Solar Study<div>- Shadow & daylight analysis</div><div>- Daylight Provision, open space</div></div><div><input type="checkbox"/> 5 TRAFFIC IMPACT ASSESSMENT</div></div>		
2.2 ENERGY: ACTIVE					
<div><div><input type="checkbox"/> 2 Energy Simulation<div>- Simulated pattern of daily cooling required</div><div>- Solar heat gain simulation</div></div><div><input type="checkbox"/> 2 Energy Simulation<div>- Simulated pattern of daily cooling required</div><div>- Solar heat gain simulation</div></div><div><input type="checkbox"/> 1 Lighting analysis<div>- Lighting simulation by DIALux</div><div>- optimization of lighting design for</div></div><div><input type="checkbox"/> 2 Energy estimation</div><div><input type="checkbox"/> 3 PV panel study<div>- Shadow analysis</div><div>- Glare Analysis / Shading Analysis</div></div></div>					
③	COST ESTIMATION (QTO)				
COST ESTIMATION (QTO)	Cost Budget	Project Budget	Detailed Cost Estimate	Revised Project Budget	Cost Control, Budget Forecast & Monitoring
	<div><div><input type="checkbox"/> 1 Cost budgeting<div>- Construction floor area (CFA)</div></div></div>	<div><div><input type="checkbox"/> 1 Cost budgeting</div></div>	<div><div><input type="checkbox"/> 1 BIM-enabled QTO for estimate<div>- wall</div><div>- floor</div><div>- door</div><div>- Windows</div><div>- concrete</div></div></div>	<div><div><input type="checkbox"/> 1 BIM-enabled QTO for tender<div>- wall</div><div>- floor</div><div>- door</div><div>- Windows</div><div>- concrete</div></div></div>	<div><div><input type="checkbox"/> 1 5D BIM for construction cash flow simulation</div></div>
④	DOCUMENTATION & PRESENTATION				
DOCUMENTATION & PRESENTATION	4.1 BD SUBMISSIONS				
	<div><div><div><input type="checkbox"/> 1 Statutory (BD) submissions<div>- GBP, Drainage Plan, etc.</div><div>- Site Formation, Foundation, Super-structural submissions</div></div><div><input type="checkbox"/> 1 Statutory (BD) submissions<div>- GBP, Drainage Plan, etc.</div><div>- Site Formation, Foundation, Super-structural submissions</div></div><div><input type="checkbox"/> 1 Statutory (BD) submissions<div>- GBP, Drainage Plan, etc.</div><div>- Site Formation, Foundation, Super-structural submissions</div></div><div><input type="checkbox"/> 1 Statutory (BD) amendment & record submissions<div>- GBP, Drainage Plan, etc.</div><div>- Site Formation, Foundation, Super-structural submissions</div></div></div></div>				
4.2 NON-BD SUBMISSIONS					
<div><div><div><input type="checkbox"/> 1 WSD plumbing submission</div><div><input type="checkbox"/> 2 Acabus submission</div></div></div>					
4.3 RENDERING / ANIMATIONS / 3D printing					
<div><div><div><input type="checkbox"/> 1 Architectural presentation<div>- Architectural concept</div><div>- Design Visualization & Presentation</div></div><div><input type="checkbox"/> 1 Architectural presentation<div>- Schematic design</div><div>- Public Consultations & Community</div><div>- circulation pattern at public transport</div></div><div><input type="checkbox"/> 1 Animation (by Tenderers)<div>- Construction Planning</div><div>- Construction Safety</div></div><div><input type="checkbox"/> 1 Animation<div>- Virtual Show Flat for Sales of Subsidized Sales Flats (SSF)</div></div><div><input type="checkbox"/> 2 Geological<div>- site geolocial model</div></div><div><input type="checkbox"/> 3 MEP coordination<div>- 3D printing for BS coordination</div></div></div></div>					

⑤ CONSTRUCTION PLANNING (with Contractor)	
CONSTRUCTION PLANNING	<div>5.1 SITE LOGISTICS PLANNING</div> <div> <div> <div> <input type="checkbox"/> 1 Site layout & logistic planning - 2D / 3D / 4D presntations </div> <div> <input type="checkbox"/> 1 Site layout & logistic planning and coordination - produce various views from desired viewpoints - site area or space reservations - site walkways - 3D site scan </div> </div> <div> <input type="checkbox"/> 2 Minimize cut & fill for site formation works </div> <div> <input type="checkbox"/> 3 Construction Lift, material hoist & tower crane planning </div> </div> <div>5.2 SAFETY PLANNING</div> <div> <div> <input type="checkbox"/> 1 Site Safety planning </div> <div> <input type="checkbox"/> 1 Site Safety planning & training - risk zones related to cranes - other safety hazards e.g. cable, </div> <div> <input type="checkbox"/> 2 Temporary works design </div> </div> <div>5.3 CONSTRUCTION SEQUENCE</div> <div> <div> <div> <input type="checkbox"/> 1 Sequencing of works (Engineering Design) - master layout model + 3D printing model </div> <div> <input type="checkbox"/> 1 Sequencing of works (Engineering Design) - e.g. simulation of hoisting of footbridge </div> </div> <div> <input type="checkbox"/> 2 Animation for Client & public engagement - existing site contour, location, gradients and </div> <div> <input type="checkbox"/> 2 Design visualization and presentation - animated models, fly-throughs, static </div> <div> <input type="checkbox"/> 2 Design visualization and presentation - animated models, fly-throughs, </div> <div> <input type="checkbox"/> 1 Method Statement (Contractor Design) - ELS sequence - demolition sequence - Temporary works </div> <div> <input type="checkbox"/> 1 Method Statement (Contractor Design) - Construction planning and 4D - Demolition planning and - Construction system design - Reporting project progress </div> </div> <div>5.4 CONSTRUCTION COORDINATION</div> <div> <div> <input type="checkbox"/> 1 site coordination - sub-structure up to typical floor of domestic blocks with underground services around the building </div> <div> <input type="checkbox"/> 2 site coordination - underground cable duct / pit for utilities service, water pipe and electric cable entrance, etc around building - concealed conduit and builder's supporting work inside service / plant rooms, such as meter rooms, pump rooms, main TBE room, etc - concealed conduit and builder's supporting work for BS installations layout. </div> <div> <input type="checkbox"/> 3 site coordination </div> </div>
⑥ MULTI-DISCIPLINARY DESIGN COLLABORATION	
MULTI-DISCIPLINARY DESIGN COLLABORATION	<div>6.1 DESIGN VALIDATION</div> <div> <div> <div> <input type="checkbox"/> 1 CSD - at congested area & critical headroom area - discover exposed services - prevent water pipes through water sensillive rooms - maintenance space / platforms requirements - validation by partial clash detection </div> <div> <input type="checkbox"/> 2 CBWD - services require structural - services through compartment or </div> <div> <input type="checkbox"/> 2 Riser Design - location and size - internal arrangement - maintenance and access panel </div> <div> <input type="checkbox"/> 3 Structural columns and walls - coordination between architectural and structural layout </div> <div> <input type="checkbox"/> 3 Headroom checking - working area - corridor width - staircase height </div> <div> <input type="checkbox"/> 4 Ceiling Design - false ceiling mounted light fittings, </div> </div> <div> <div> <input type="checkbox"/> 2 CSD - CSD shop drawings in 3D - discover exposed services - validation by full clash detection before construction </div> <div> <input type="checkbox"/> 2 CBWD - full CBWD plans and elevations - CBWD for structural opening </div> <div> <input type="checkbox"/> 2 Riser Design - location and size - internal arrangement - maintenance and access panel </div> <div> <input type="checkbox"/> 3 Headroom checking - working area - corridor width - staircase height </div> <div> <input type="checkbox"/> 4 Ceiling Design shop - false ceiling mounted light </div> </div> </div>

EXISTING CONDITION SURVEY & 3D SCANNING	EXISTING CONDITION SURVEY & 3D SCANNING		
	7.1 EXISTING SURVEY AND AS-BUILT 3D SCANNING VERIFICATION		
	<div><div><input type="checkbox"/> 1 Civil</div><div>- existing road and infrastructure</div><div>- existing underground drain</div><div>- GIS</div></div>		<div><div><input type="checkbox"/> 1 Civil</div><div>- as-built road and infrastructure</div><div>- as-built underground drain</div><div>- as-built GIS information record</div></div>
	<div><div><input type="checkbox"/> 2 Ground Investigation</div><div>- existing underground condition</div><div>- existing borelog information</div></div>		
	<div><div><input type="checkbox"/> 3 Building Structures</div><div>- existing building structures</div></div>	<div><div><input type="checkbox"/> 3 Building Structures</div><div>- complex structural geometry alignment verification by laser scanning</div></div>	<div><div><input type="checkbox"/> 3 Structural</div><div>- complex geometry alignment by laser scanning</div></div>
	<div><div><input type="checkbox"/> 4 Underground Structures</div><div>- existing underground structures</div></div>		
	<div><div><input type="checkbox"/> 5 Architectural</div><div>- existing building layout by laser scanning / manual modelling</div></div>		<div><div><input type="checkbox"/> 5 Architectural</div><div>- complex architectural geometry alignment verification by laser scanning</div></div>
	<div><div><input type="checkbox"/> 6 Drainage</div><div>- existing building drainage</div><div>- existing external aboveground drainage</div></div>	<div><div><input type="checkbox"/> 6 Drainage</div><div>- as-built concealed drainage laser</div></div>	<div><div><input type="checkbox"/> 6 Drainage</div><div>- as-built laser scanning</div></div>
	<div><div><input type="checkbox"/> 7 Building Services</div><div>- existing internal building services</div><div>- existing external services</div></div>	<div><div><input type="checkbox"/> 7 Building Services</div><div>- concealed services alignment laser scanning</div></div>	<div><div><input type="checkbox"/> 7 Building Services</div><div>- as-built laser scanning</div></div>
	<div><div><input type="checkbox"/> 8 Tree Survey</div><div>- Old & Valuable Trees (OVTs)</div></div>		
	<div><div><input type="checkbox"/> 9 Topographic</div><div>- Topographic survey</div><div>- 3D terrain by 3D site scanning (LiDAR /</div></div>		<div><div><input type="checkbox"/> 9 Site Formation</div><div>- as-built record by 3D scanning</div></div>
	<div><div><input type="checkbox"/> 10 Surrounding context</div><div>- 3D model from LandsD</div><div>- 3D site scanning (LiDAR / photogrammetry</div></div>		
		<div><div><input type="checkbox"/> 11 Underground Utilities</div><div>- records from utility companies</div></div>	<div><div><input type="checkbox"/> 11 Underground Utilities</div><div>- as-built concealed services laser scanning</div></div>
7.2 O&M MANUALS			
		<div><div><input type="checkbox"/> 1 Linking information & As-fitted drawings to BIM model</div><div>- e.g. detailed shop drawings linked to balustrades</div><div>- e.g. easy retrieval of glass wall information from BIM</div></div>	