

List of ELV Design Deliverables

S. No.	Deliverables	Tool	Deliverables Contents	Deliverables Data					Comments
				Developed During	Procurement	Construction	Start-up & Commissioning	Project Controls	
1	3D Model	3D modelling and Software	The 3D model shall show realistic depictions and contain relevant design data for all physical disciplines in sufficient detail as per the project 3D CAD procedures	B		Y	Y		Refer to Project Design Criteria for the requirement of 3D modelling and software to be used
2	Material Assignment Schedule (MAS) and Contract Assignment Schedule (CAS)	MS EXCEL	Developed by Contracts group with Engineering input	B & D	Y			Y	
3	Construction Facilities / Site Coordinating Plan	2D	Shows the location and type of required facilities, including lay down areas, trailer locations, fabrication areas, and temporary warehouses.	B & D		Y			Project to determine if this is done by Engineering or Construction,
4	Permitting submittals	PDF	Includes documents and drawings required for applicable construction and environmental permitting activities for the project	B		Y			Refer to project permitting requirements,

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5	Design Basis / Design Criteria Document	MS Word	Refer Document Reference Number: EPM-KEE-TP-000022 for the contents of Design Criteria	B					
6	Scope of Work/ Specifications	MS Word	Refer to templates Document Number : EPM-KEO-PR-000006 and EPM-KEO-TP-000009 respectively for SOW and Specification	B&D	Y	Y	Y		
7	Data Sheet(s)	MS Word / MS Excel	Engineered component data sheets which are generated to include all functional requirements for the inclusion within subcontract packages.	D		Y	Y		
8	Bulk Quantity Takeoff / BOQ	MS Word / MS Excel	Bulk Quantity Takeoffs (QTOs) for tracking engineering-released quantities at 30%, 60%, & 90% Milestones to support construction installation: Communication Cables (LM), Cable trays/ conduits (LM), Devices(Nos.) by Facility and / or System	B & D	Y	Y	Y	Y	

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9	Tagged Material Tracking / BOQ	MS Word / MS Excel	Equipment, Devices and Specialty Items: Includes tags, sizes, description, quantity, physical dimensions, weight, capacity, datasheet (fit / function) type information.	B & D		Y	Y	Y	
10	ELV System Equipment and Devices List and schedules	MS Excel	This document is comprehensive and provide the details of ELV System Equipment and Devices schedule for the entire project.	B & D	Y	Y	Y	Y	
11	Engineering Progress Report	MS Excel	Engineering provides input of the progress and performance measurement tool used on the project	D		Y	Y		
12	Telecommunication Room/ Main Entry room/ Control Room layout design	2D / 3D	1. The layout provides the mounting detail (both the section and elevation) of the Communication, Instrumentation and control system, etc. equipment and devices.	D		Y			

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			2. The layout provided the detail of the raised floor 3. Provides the detail of HVAC and Pre-action system requirements.						
13	ELV System standard details, symbol, legend and abbreviation	2D	The layout provides generic detail of the notes, symbology and abbreviation that applies for the individual system.	D	Y	Y	Y		
14	ELV Riser Diagrams	2D	1. Riser Diagrams are a schematic representation and details the functional relationship between the components/Devices and the equipment's 2. The Riser Diagrams provides the sizes of the cables quantities of equipment and components, looping arrangements, etc.	D	Y	Y	Y		

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			3. Provides the detail of interface or integration with Building Automation System 4. Tagging details						
15	Structural Cabling System Layout	2D	This layout describes Structured Cabling Components standards such as work area, Horizontal Distribution Systems, Backbone Distribution Systems, campus cabling, Telecommunications Rooms (TR) and Enclosures (TE), Equipment Rooms, Telecommunications Entrance Facilities and Termination, etc.	D	Y	Y	Y		
16	Access Control System Layout	2D	The layout provides the detail of Access control system looping arrangement, location of the devices/components and the equipment The schematic layout provides the detail of interface with the fire alarm system	D	Y	Y	Y		

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17	Public address System Layout and schematic	2D	The layout provides the detail of Public Address system looping arrangement, location of the devices/components and the equipment The schematic layout provides the detail of interface with the fire alarm system	D	Y	Y	Y		
18	Intercom System Layout	2D	This layout provides the detail of the building audio or audio and video communication between designated locations using a two-way connection between a substation and master station within the varies facilities	D	Y	Y	Y		
19	Distributed Television System layout	2D	This layout provides the network (FTTH GPON for IPTV) & connection details which includes various Distributed Television System such as IPTV, Hybrid	D	Y	Y	Y		

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			Fiber Coaxial (HFC) and Satellite Master Antenna (SMATV)						
20	Master Clock System Layout	2D	This layout provides the details of synchronized time throughout the facility, network connection for the time source of varies type of the clocks.	D	Y	Y	Y		
21	Audio/Visual System layout	2D	This layout states the System Type Descriptions and System Components	D	Y	Y	Y		
22	CCTV/Intrusion detection System/Security Surveillance System	2D	The video surveillance systems layout shall consist of surveillance camera, wired or wireless connectivity; network based video transport and switching, network video recorders, and monitoring software and stations	D	Y	Y	Y		
23	Fire Alarm System Layout	2D	This layout provides or describes the system as per NFPA 70. In general, the system shall furnish installation and placing in operation of the latest	D	Y	Y	Y		

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			Intelligences application types (mainly Analogue), Voice evacuation and Analogue detection and modular Fire Alarm system and which provides the connection details to operator Graphic work station (computerized Mimic Panel)						
24	Fire Alarm System Riser Diagram	2D	Overall fire alarm & detection network of all interconnected facilities and riser schematics for individual facilities.	D	Y	Y	Y		
25	Nurse Call System Layout	2D	The layout provides the detail of Nurse Call System such as nurse station and patient hand set functions	D	Y	Y	Y		
26	Underground(UG) Utility Layout	2D	This layout provides the detail of LC System Duct Routing and Duct Bank Details.	D	Y	Y	Y		
27	IP TV /Master Antenna TV	2D	The layout provides the detail of IP TV /Master Antenna TV distribution system and devices	D	Y	Y	Y		

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28	CCTV and IP based Surveillance	2D	The layout provides the detail of CCTV and Surveillance System	D	Y	Y	Y		
29	Telecom Earthing Layout	2D	The layout provides the detail of Telecom Earthing and the requirements	D	Y	Y	Y		
30	Earthing and Bonding Strategy	MS Word	Describes how earthing and bonding is carried out across the disciplines	D		Y	Y		
31	Distributed Control System (DCS) Block Diagram	2D	Describes the Architecture of the Control System and interface among the system required for overall operation	D		Y	Y		
32	Cause and Effect Diagram	Excel	Describes input/output matrix for ESD System	D			Y		
33	Control Narrative	2D/MS Excel	Provide the required information to configure the control system	D		Y	Y		
34	Control System Architectural Drawing	2D	Describes the Architecture of the plant control system	D		Y	Y		

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35	Control System Sequence of Operation	2D	Describes the control sequence of operation	D		Y	Y		
36	Instrument Installation details	2D/3D	Describes the installation, mounting, and tubing of process instruments	D		Y			
37	Instrument Interconnection Wiring Diagram	2D	Describes the internal wiring arrangements and connection details	D		Y			
38	Instrument Loop Diagram	2D	Provide the details(connection) of Field instrument to control system	D		Y			
39	Instrument Specification Sheets	Excel	Describes the required quantity of instrument and devices		Y				
40	Logic Narrative	2D	Analysis of the Historian's	D		Y			
41	Piping and Instrument Diagram(P&ID)	2D/3D	Describes the details of the process industry which shows the piping and vessels in the process flow, together	D		Y			

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			with the instrumentation and control devices						
42	Process Flow Diagram	2D	Describes the general flow of plant processes and equipment	D		Y	Y		

Note:

B – Basic Design

D – Detailed Design