



Moyvannan Electricity Substation

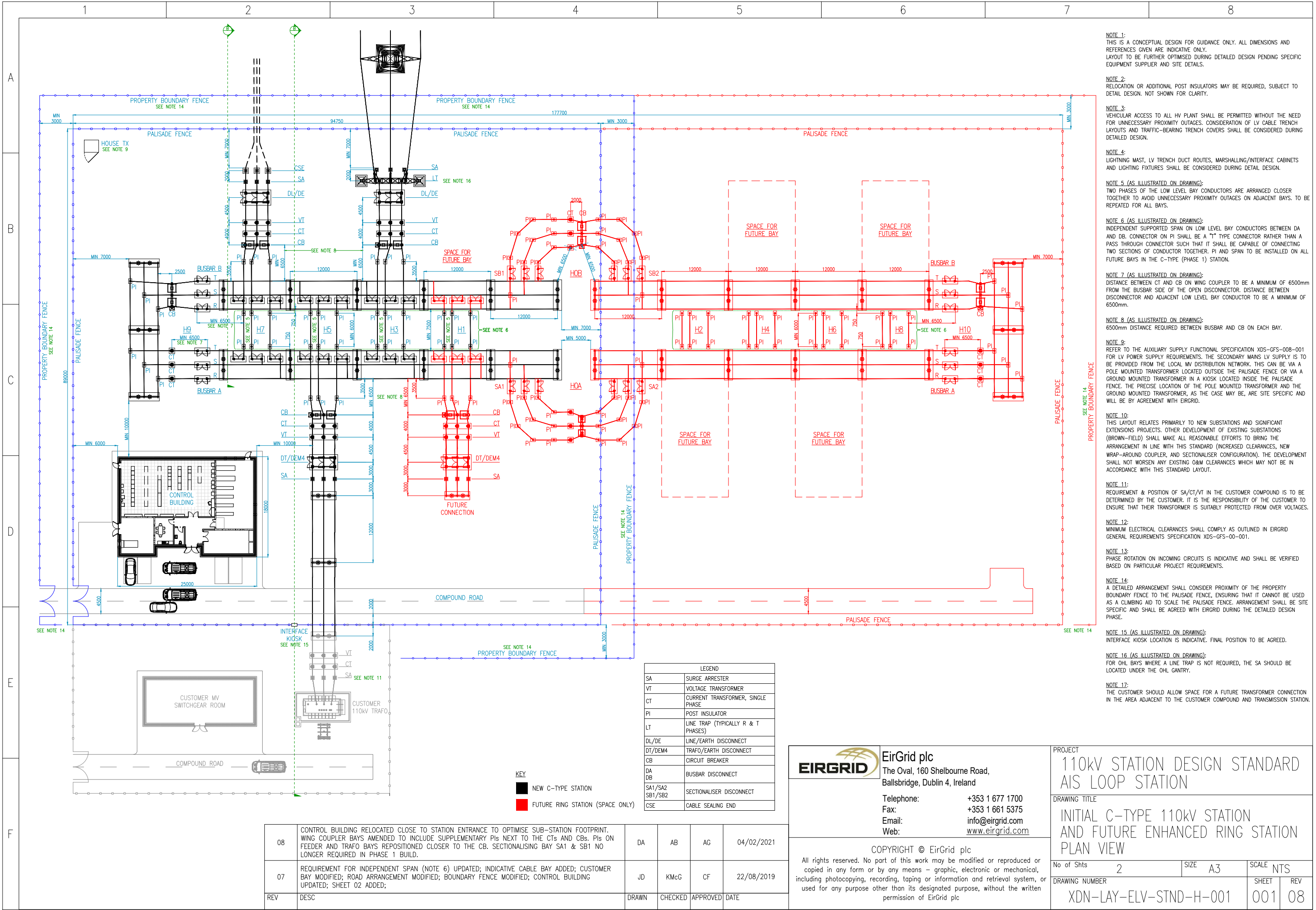
Environmental Impact Assessment Report

Annex 2.2: Alternative Electricity Substation Designs

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NOTE 1:
THIS IS A CONCEPTUAL DESIGN FOR GUIDANCE ONLY. ALL DIMENSIONS AND REFERENCES GIVEN ARE INDICATIVE ONLY. LAYOUT TO BE FURTHER OPTIMISED DURING DETAILED DESIGN PENDING SPECIFIC EQUIPMENT SUPPLIER AND SITE DETAILS.

NOTE 2:
RELOCATION OR ADDITIONAL POST INSULATORS MAY BE REQUIRED, SUBJECT TO DETAIL DESIGN. NOT SHOWN FOR CLARITY.

NOTE 3:
VEHICULAR ACCESS TO ALL HV PLANT SHALL BE PERMITTED WITHOUT THE NEED FOR UNNECESSARY PROXIMITY OUTAGES. CONSIDERATION OF LV CABLE TRENCH LAYOUTS AND TRAFFIC-BEARING TRENCH COVERS SHALL BE CONSIDERED DURING DETAILED DESIGN.

NOTE 4:
LIGHTNING MAST, LV TRENCH DUCT ROUTES, MARSHALLING/INTERFACE CABINETS AND LIGHTING FIXTURES SHALL BE CONSIDERED DURING DETAIL DESIGN.

NOTE 5 (AS ILLUSTRATED ON DRAWING):
TWO PHASES OF THE LOW LEVEL BAY CONDUCTORS ARE ARRANGED CLOSER TOGETHER TO AVOID UNNECESSARY PROXIMITY OUTAGES ON ADJACENT BAYS. TO BE REPEATED FOR ALL BAYS.

NOTE 6 (AS ILLUSTRATED ON DRAWING):
INDEPENDENT SUPPORTED SPAN ON LOW LEVEL BAY CONDUCTORS BETWEEN DA AND DB. CONNECTOR ON PI SHALL BE A "T" TYPE CONNECTOR RATHER THAN A PASS THROUGH CONNECTOR SUCH THAT IT SHALL BE CAPABLE OF CONNECTING TWO SECTIONS OF CONDUCTOR TOGETHER. PI AND SPAN TO BE INSTALLED ON ALL FUTURE BAYS IN THE C-TYPE (PHASE 1) STATION.

NOTE 7 (AS ILLUSTRATED ON DRAWING):
DISTANCE BETWEEN CT AND CB ON WING COUPLER TO BE A MINIMUM OF 6500mm FROM THE BUSBAR SIDE OF THE OPEN DISCONNECT. DISTANCE BETWEEN DISCONNECTOR AND ADJACENT LOW LEVEL BAY CONDUCTOR TO BE A MINIMUM OF 6500mm.

NOTE 8 (AS ILLUSTRATED ON DRAWING):
6500mm DISTANCE REQUIRED BETWEEN BUSBAR AND CB ON EACH BAY.

NOTE 9:
REFER TO THE AUXILIARY SUPPLY FUNCTIONAL SPECIFICATION XDS-GFS-008-001 FOR LV POWER SUPPLY REQUIREMENTS. THE SECONDARY MAINS LV SUPPLY IS TO BE PROVIDED FROM THE LOCAL MV DISTRIBUTION NETWORK. THIS CAN BE VIA A POLE MOUNTED TRANSFORMER LOCATED OUTSIDE THE PALISADE FENCE OR VIA A GROUND MOUNTED TRANSFORMER IN A KIOSK LOCATED INSIDE THE PALISADE FENCE. THE PRECISE LOCATION OF THE POLE MOUNTED TRANSFORMER AND THE GROUND MOUNTED TRANSFORMER, AS THE CASE MAY BE, ARE SITE SPECIFIC AND WILL BE BY AGREEMENT WITH EIRGRID.

NOTE 10:
THIS LAYOUT RELATES PRIMARILY TO NEW SUBSTATIONS AND SIGNIFICANT EXTENSIONS PROJECTS. OTHER DEVELOPMENT OF EXISTING SUBSTATIONS (BROWN-FIELD) SHALL MAKE ALL REASONABLE EFFORTS TO BRING THE ARRANGEMENT IN LINE WITH THIS STANDARD (INCREASED CLEARANCES, NEW WRAP-AROUND COUPLER, AND SECTIONALISER CONFIGURATION). THE DEVELOPMENT SHALL NOT WORSEN ANY EXISTING O&M CLEARANCES WHICH MAY NOT BE IN ACCORDANCE WITH THIS STANDARD LAYOUT.

NOTE 11:
REQUIREMENT & POSITION OF SA/CT/VT IN THE CUSTOMER COMPOUND IS TO BE DETERMINED BY THE CUSTOMER. IT IS THE RESPONSIBILITY OF THE CUSTOMER TO ENSURE THAT THEIR TRANSFORMER IS SUITABLY PROTECTED FROM OVER VOLTAGES.

NOTE 12:
MINIMUM ELECTRICAL CLEARANCES SHALL COMPLY AS OUTLINED IN EIRGRID GENERAL REQUIREMENTS SPECIFICATION XDS-GFS-00-001.

NOTE 13:
PHASE ROTATION ON INCOMING CIRCUITS IS INDICATIVE AND SHALL BE VERIFIED BASED ON PARTICULAR PROJECT REQUIREMENTS.

NOTE 14:
A DETAILED ARRANGEMENT SHALL CONSIDER PROXIMITY OF THE PROPERTY BOUNDARY FENCE TO THE PALISADE FENCE, ENSURING THAT IT CANNOT BE USED AS A CLIMBING AID TO SCALE THE PALISADE FENCE. ARRANGEMENT SHALL BE SITE SPECIFIC AND SHALL BE AGREED WITH EIRGRID DURING THE DETAILED DESIGN PHASE.

NOTE 15 (AS ILLUSTRATED ON DRAWING):
INTERFACE KIOSK LOCATION IS INDICATIVE. FINAL POSITION TO BE AGREED.

NOTE 16 (AS ILLUSTRATED ON DRAWING):
FOR OHL BAYS WHERE A LINE TRAP IS NOT REQUIRED, THE SA SHOULD BE LOCATED UNDER THE OHL GANTRY.

NOTE 17:
THE CUSTOMER SHOULD ALLOW SPACE FOR A FUTURE TRANSFORMER CONNECTION IN THE AREA ADJACENT TO THE CUSTOMER COMPOUND AND TRANSMISSION STATION.

LEGEND	
SA	SURGE ARRESTER
VT	VOLTAGE TRANSFORMER
CT	CURRENT TRANSFORMER, SINGLE PHASE
PI	POST INSULATOR
LT	LINE TRAP (TYPICALLY R & T PHASES)
DL/DE	LINE/EARTH DISCONNECT
DT/DEM4	TRAFO/EARTH DISCONNECT
CB	CIRCUIT BREAKER
DA DB	BUSBAR DISCONNECT
SA1/SA2 SB1/SB2	SECTIONALISER DISCONNECT
CSE	CABLE SEALING END

KEY	
	NEW C-TYPE STATION
	FUTURE RING STATION (SPACE ONLY)

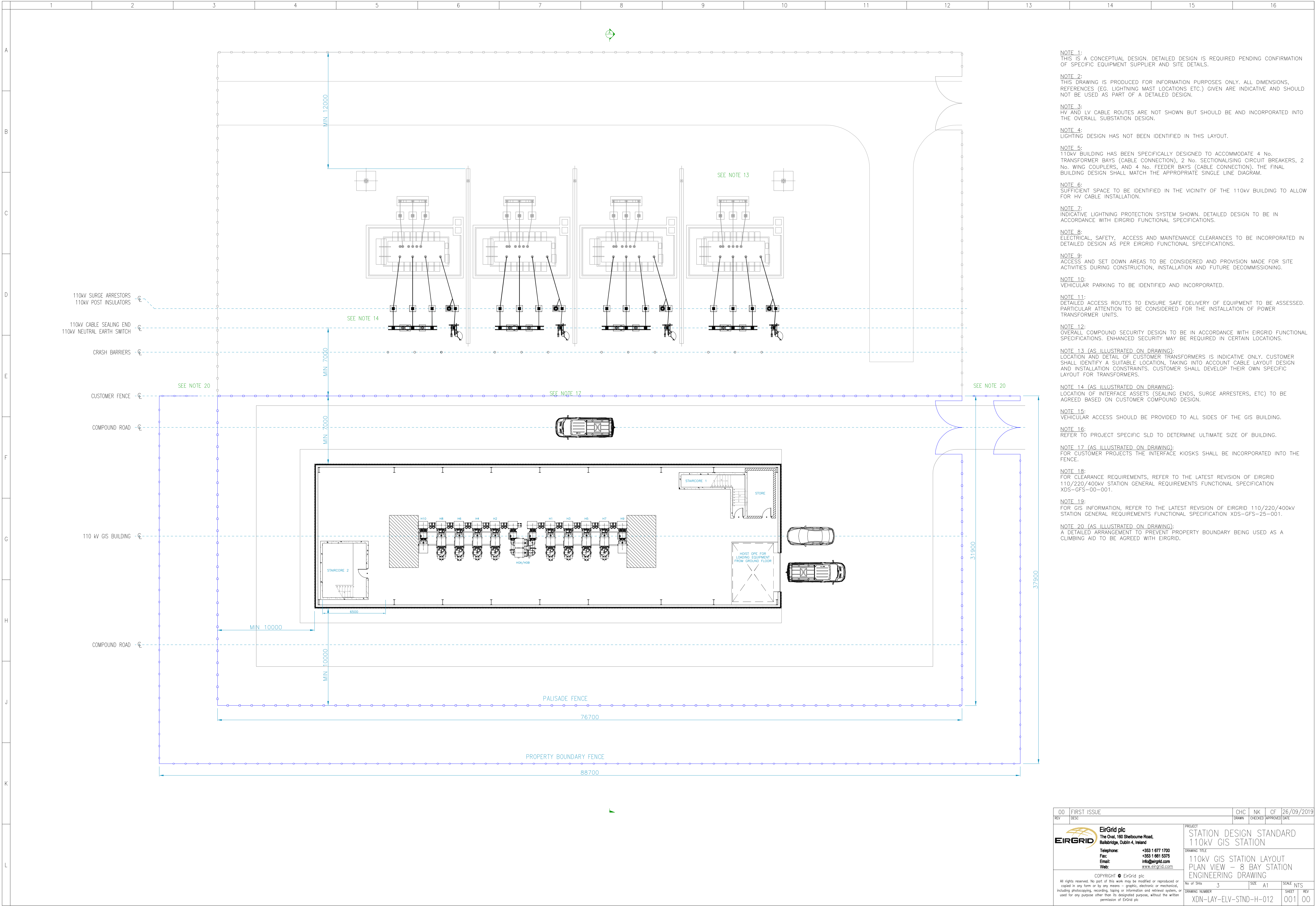
08	CONTROL BUILDING RELOCATED CLOSE TO STATION ENTRANCE TO OPTIMISE SUB-STATION FOOTPRINT. WING COUPLER BAYS AMENDED TO INCLUDE SUPPLEMENTARY PIs NEXT TO THE CTs AND CBs. PIs ON FEEDER AND TRAFO BAYS REPOSITIONED CLOSER TO THE CB. SECTIONALISING BAY SA1 & SB1 NO LONGER REQUIRED IN PHASE 1 BUILD.	DA	AB	AG	04/02/2021
07	REQUIREMENT FOR INDEPENDENT SPAN (NOTE 6) UPDATED; INDICATIVE CABLE BAY ADDED; CUSTOMER BAY MODIFIED; ROAD ARRANGEMENT MODIFIED; BOUNDARY FENCE MODIFIED; CONTROL BUILDING UPDATED; SHEET 02 ADDED;	JD	KMcG	CF	22/08/2019
REV	DESC	DRAWN	CHECKED	APPROVED	DATE

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PROJECT
110kV STATION DESIGN STANDARD
AIS LOOP STATION
DRAWING TITLE
INITIAL C-TYPE 110kV STATION
AND FUTURE ENHANCED RING STATION
PLAN VIEW

No of Shts	2	SIZE	A3	SCALE	NTS
DRAWING NUMBER	XDN-LAY-ELV-STND-H-001			SHEET	001
				REV	08

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- NOTE 1:**
THIS IS A CONCEPTUAL DESIGN. DETAILED DESIGN IS REQUIRED PENDING CONFIRMATION OF SPECIFIC EQUIPMENT SUPPLIER AND SITE DETAILS.
- NOTE 2:**
THIS DRAWING IS PRODUCED FOR INFORMATION PURPOSES ONLY. ALL DIMENSIONS, REFERENCES (EG. LIGHTNING MAST LOCATIONS ETC.) GIVEN ARE INDICATIVE AND SHOULD NOT BE USED AS PART OF A DETAILED DESIGN.
- NOTE 3:**
HV AND LV CABLE ROUTES ARE NOT SHOWN BUT SHOULD BE AND INCORPORATED INTO THE OVERALL SUBSTATION DESIGN.
- NOTE 4:**
LIGHTING DESIGN HAS NOT BEEN IDENTIFIED IN THIS LAYOUT.
- NOTE 5:**
110KV BUILDING HAS BEEN SPECIFICALLY DESIGNED TO ACCOMMODATE 4 No. TRANSFORMER BAYS (CABLE CONNECTION), 2 No. SECTIONALISING CIRCUIT BREAKERS, 2 No. WING COUPLERS, AND 4 No. FEEDER BAYS (CABLE CONNECTION). THE FINAL BUILDING DESIGN SHALL MATCH THE APPROPRIATE SINGLE LINE DIAGRAM.
- NOTE 6:**
SUFFICIENT SPACE TO BE IDENTIFIED IN THE VICINITY OF THE 110KV BUILDING TO ALLOW FOR HV CABLE INSTALLATION.
- NOTE 7:**
INDICATIVE LIGHTNING PROTECTION SYSTEM SHOWN. DETAILED DESIGN TO BE IN ACCORDANCE WITH EIRGRID FUNCTIONAL SPECIFICATIONS.
- NOTE 8:**
ELECTRICAL, SAFETY, ACCESS AND MAINTENANCE CLEARANCES TO BE INCORPORATED IN DETAILED DESIGN AS PER EIRGRID FUNCTIONAL SPECIFICATIONS.
- NOTE 9:**
ACCESS AND SET DOWN AREAS TO BE CONSIDERED AND PROVISION MADE FOR SITE ACTIVITIES DURING CONSTRUCTION, INSTALLATION AND FUTURE DECOMMISSIONING.
- NOTE 10:**
VEHICULAR PARKING TO BE IDENTIFIED AND INCORPORATED.
- NOTE 11:**
DETAILED ACCESS ROUTES TO ENSURE SAFE DELIVERY OF EQUIPMENT TO BE ASSESSED. PARTICULAR ATTENTION TO BE CONSIDERED FOR THE INSTALLATION OF POWER TRANSFORMER UNITS.
- NOTE 12:**
OVERALL COMPOUND SECURITY DESIGN TO BE IN ACCORDANCE WITH EIRGRID FUNCTIONAL SPECIFICATIONS. ENHANCED SECURITY MAY BE REQUIRED IN CERTAIN LOCATIONS.
- NOTE 13 (AS ILLUSTRATED ON DRAWING):**
LOCATION AND DETAIL OF CUSTOMER TRANSFORMERS IS INDICATIVE ONLY. CUSTOMER SHALL IDENTIFY A SUITABLE LOCATION, TAKING INTO ACCOUNT CABLE LAYOUT DESIGN AND INSTALLATION CONSTRAINTS. CUSTOMER SHALL DEVELOP THEIR OWN SPECIFIC LAYOUT FOR TRANSFORMERS.
- NOTE 14 (AS ILLUSTRATED ON DRAWING):**
LOCATION OF INTERFACE ASSETS (SEALING ENDS, SURGE ARRESTERS, ETC) TO BE AGREED BASED ON CUSTOMER COMPOUND DESIGN.
- NOTE 15:**
VEHICULAR ACCESS SHOULD BE PROVIDED TO ALL SIDES OF THE GIS BUILDING.
- NOTE 16:**
REFER TO PROJECT SPECIFIC SLD TO DETERMINE ULTIMATE SIZE OF BUILDING.
- NOTE 17 (AS ILLUSTRATED ON DRAWING):**
FOR CUSTOMER PROJECTS THE INTERFACE KIOSKS SHALL BE INCORPORATED INTO THE FENCE.
- NOTE 18:**
FOR CLEARANCE REQUIREMENTS, REFER TO THE LATEST REVISION OF EIRGRID 110/220/400KV STATION GENERAL REQUIREMENTS FUNCTIONAL SPECIFICATION XDS-GFS-00-001.
- NOTE 19:**
FOR GIS INFORMATION, REFER TO THE LATEST REVISION OF EIRGRID 110/220/400KV STATION GENERAL REQUIREMENTS FUNCTIONAL SPECIFICATION XDS-GFS-25-001.
- NOTE 20 (AS ILLUSTRATED ON DRAWING):**
A DETAILED ARRANGEMENT TO PREVENT PROPERTY BOUNDARY BEING USED AS A CLIMBING AID TO BE AGREED WITH EIRGRID.

00 FIRST ISSUE				CHC	NK	CF	26/09/2019		
REV	DESC			DRAWN	CHECKED	APPROVED	DATE		
 EirGrid plc The Oval, 160 Shelbourne Road, Bellebridge, Dublin 4, Ireland Telephone: +353 1 677 1700 Fax: +353 1 681 5375 Email: info@eirgrid.com Web: www.eirgrid.com				PROJECT STATION DESIGN STANDARD 110KV GIS STATION					
COPYRIGHT © EirGrid plc All rights reserved. No part of this work may be modified or reproduced or copied in any form or by any means – graphic, electronic or mechanical, including photocopying, recording, taping or information and retrieval system, or used for any purpose other than its designated purpose, without the written permission of EirGrid plc.				DRAWING TITLE 110KV GIS STATION LAYOUT PLAN VIEW – 8 BAY STATION ENGINEERING DRAWING					
				No of Sheets	3	SIZE	A1	SCALE	NTS
				DRAWING NUMBER	XDN-LAY-ELV-STND-H-012			SHEET	001
								REV	00

