Ballycummin 110 kV Substation

Flood Risk Assessment

Document No.: PE595-F0545-R545-001-000

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1 Introduction

1.1 Project Background

This Flood Risk Assessment (FRA) has been prepared to accompany the Strategic Infrastructure Development (SID) planning application to be submitted by the Electricity Supply Board (ESB) to An Coimisiún Pleanála.

ESB Networks (ESBN) are progressing a high – priority project to alleviate load and supply issues in the greater Limerick area as a result of the existing Limerick 110 / 38 kV MV substation reaching load capacity. The new substation is required to off load the existing limerick 110 kV substation and provide additional capacity for the Greater Limerick Area and the Raheen Business Park and is proposed to be located at Ballycummin on lands currently owned and adjacent to the existing Eli Lilly site in Raheen Business Park.

The proposed development will involve the installation of a new 110/38kV/MV station at a site in Raheen Business Park beside the Eli Lilly plant in Ballycummin, County Limerick.

The site is located on Roches Avenue, fully within the Raheen Business Park immediately adjacent to the Eli Lilly plant. The primary land uses in the business park comprise industrial and business related uses.

The site will consist of an indoor GIS double busbar C-type 110 kV station (it will be a transmission station), 2 x 63 MVA 110/38 kV transformers and 2 x 15 MVA 38kV/ MV transformers. All 110 kV designs to EirGrid standards.

The development will also involve works to the existing overhead 110kv line in order to loop the new station into the line. These works will result in replacement of some existing structures and underground cabling of some of the existing overhead line.

It is planned that the station will loop into the existing Limerick – Moneteen 110 kV transmission circuit.

The proposed development constitutes the provision of a new 110 /38 / 20 kV Gas Insulated Switchgear (GIS) electrical substation and will include the following elements:

1. Removal of four existing 110 kV Overhead Line timber polesets (c. 15 m in height) and c.800 m of Overhead Line conductor
2. Construction of:
    i. A new substation compound (c. 5,950 sq.m.) with a 2.6 m high palisade fencing;
    ii. A new 110 kV GIS building with eight 110 kV bays (c. 700 sq.m.; 12 m in height);
    iii. A new 38 / 20 kV GIS building with fourteen 38 kV bays and eighteen MV (20 kV) bays (c. 235 sq.m.; 7 m in height);
    iv. Two 110 / 38 kV power transformers in transformer bays (c. 5 m high) with associated electrical equipment;
    v. Two 38 / 20 kV power transformers in transformer bays (c. 5 m high) with associated electrical equipment;

vi. Three Arc Suppression Coil transformers in transformer bays (c. 4 m high) with associated electrical equipment;

vii. Two new 110 kV double circuit overhead (OHL) line / cable interface end masts (c. 17m in height(

viii. One new 110 kV double circuit overhead (OHL) line angle mast (c. 17 m in height)

ix. One temporary 110 kV Overhead Line timber poleset (c. 16 m in height)

x. Temporary diversion of the existing 110 kV overhead line to the temporary timber poleset (c. 320 m of OHL conductor)

xi. Diversion of the existing 110 kV overhead line to the new end masts (c. 510 m of OHL conductor);

xii. 110 kV underground cabling between the 110 kV GIS building and the new line / cable interface end masts;

xiii. Associated and ancillary outdoor electrical equipment and other apparatus, including installation of underground cables;

3. Site development works including provision of access roads, car parking area, lighting, telecommunications, fencing, landscaping, site services including drainage and all other ancillary works

The proposed development is illustrated on drawing No. PE492-D184-067-002-000 in Appendix A.

This Engineering Services Report (ESR) provides details on the potable, foul and surface water drainage proposals for the development. All levels mentioned are to Malin Head and all co-ordinates are to ITM.

1.2 Purpose of the Proposed Development

The proposed development will contribute to additional capacity and improvements in the security of supply for the area.

1. Limerick station is a 2x63 MVA 110/30 kV station. Due to multiple applications for new connections, there will be significant additional loads of 27.2 MVA on Limerick Station. Therefore, a new station is required to cater for the load stress in Limerick Station.

2. The new Ballycummin station will facilitate a reconfiguration of connections to various customers and to other substation in the area, in order to reduce existing loadings.

3. There is very limited capacity available in the region for the future electrification of Heat and Transport as per Government CAP targets.

4. Considering the development initiatives in the region of Raheen Business Park it is predicted that the development of this region will happen at a very fast pace. In order to facilitate future developments, the strengthening of the electricity network is imperative.

1.3 Scope of Assessment

The scope of this assessment includes the following:

- Review of Office of Public Works (OPW) Preliminary Flood Risk Assessment Mapping.
- Review of OPW National Hazard Flood Mapping.
- Review of any historic flood information for the site.
- Review any relevant Catchment Flood Risk Assessment and Management Studies (CFRAM).
- Review of Irish Coastal Wave and Water Level Monitoring Study.
- Limerick Development Plan 2022-2028, and
- Identify risk of:
    - Fluvial
    - Tidal
    - Pluvial, and
    - Groundwater flooding.

2 Proposed Development Site

The proposed Ballycummin 110 kV Substation will be located in the Raheen Business Park, in the southeast of Limerick City. It is proposed for the substation to be accessed via an existing entrance off Roche's Lane, located within Raheen Business Park.

The substation is bound to the East by a large car park, to the West by the Eli Lilly Manufacturing Facility and to the North by a landscaped area. The redline boundary can be seen in Figure 2.1 below.

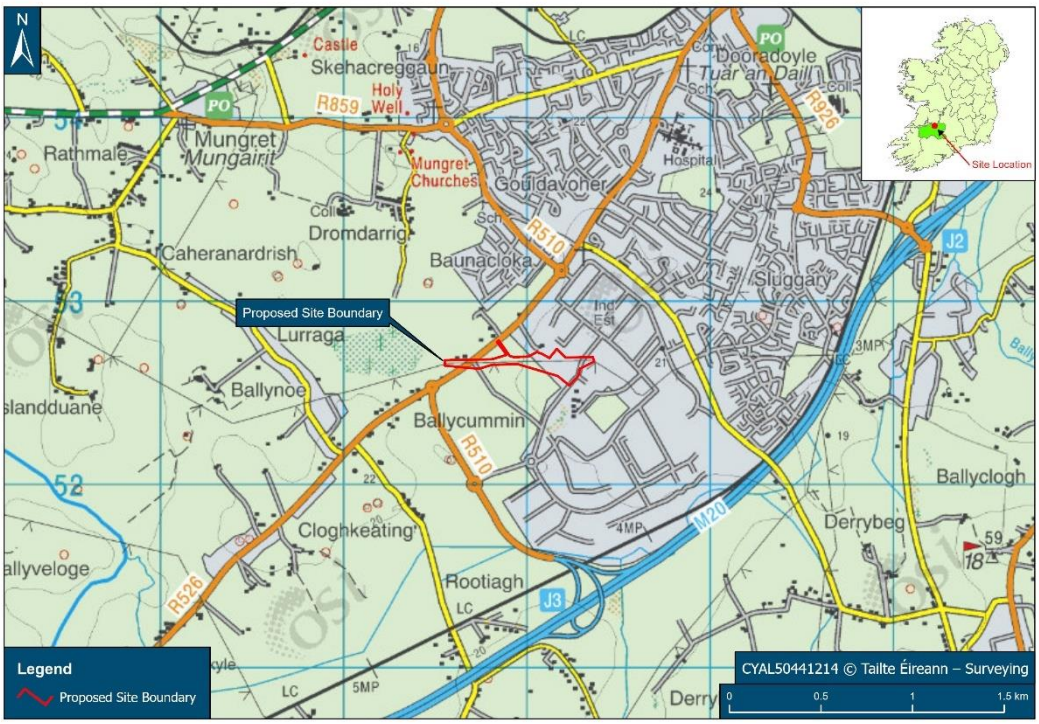


Figure 2.1 - Ballycummin 110 kV Substation Site location.

2.1 Site Topography

A topographical survey was undertaken in June 2025 and is included in Appendix B.

The site is relatively flat with a gentle slope Northwest to Southeast. The level at the centre of the site is approx. 23.80 mAOD. Site levels range from approx. 24.40 mAOD at the Northwestern boundary to 23.30 mAOD at the Southeastern side.

3 The Planning System & Flood Risk Management

In November 2009, the Department of Environment, Heritage, and Local Government issued a guideline document to Planning Authorities in relation to Flood Risk Management titled *"The Planning System and Flood Risk Management Guidelines"*.

These guidelines are issued under Section 28 of the Planning and Development Act 2000 which requires Local Planning Authorities and An Coimisiún Pleanála to implement these guidelines when assessing planning applications under the Planning Acts.

The guidelines also set out the policy on development and flood risk in Ireland and provide a framework for the integration of flood risk assessment into the planning process. The objective is to ensure that flood risk is considered at all stages in the planning process.

The core objectives of the Flood Risk Management Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding.
- Avoid new developments increasing flood risk elsewhere.
- Ensure effective management of residual risks for development permitted in floodplains.
- Avoid unnecessary restriction of national, regional or local economic and social growth.
- Improve the understanding of flood risk among relevant stakeholders.
- Ensure the requirements of European Union and national law, in relation to the natural environment and nature conservation, are complied with at all stages of flood risk management.
- These documents shall be referred to as the Guidelines throughout this report.

3.1 Definition of Flood Zones

Flood zones are defined in the Flood Risk Management Guidelines as *"geographical areas within which the likelihood of flooding is within a particular range".* There are three types of flood zones as noted below in Table 3-1.

Table 3-1 - Definition of Flood Zones

Flood Zone	Description
A	Probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding).
B	Probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 and 0.5% or 1 in 200 for coastal flooding)
C	Probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

3.2 Definition of Vulnerability Classes

The Flood Risk Management Guidelines grade types of development in accordance with how vulnerable they would be to flooding. Table 3-2 below outlines the typical developments under the three vulnerability classes.

Table 3-2 - Definition of Vulnerability Class

Class	Description
Highly Vulnerable (including essential infrastructure)	Includes: Garda, ambulance, fire stations, hospitals, schools, residential dwellings and institutions, essential infrastructure such as primary transport and utilities distribution including **electricity generating power stations and sub-stations**, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding.
Less Vulnerable	Includes: buildings for retail, leisure, warehousing, commercial, industrial and non-residential institutions, land and buildings for holiday, agriculture or forestry, waste treatment, mineral working and processing, local transport infrastructure.
Water Compatible Development	Includes: flood control infrastructure, docks, marinas, wharves, navigation facilities, ship building, fish processing, water-based recreation and tourism (excluding accommodation), lifeguard and coastguard stations, amenity open space and outdoor sports and recreational facilities.

As the proposed development is an electrical utility distribution substation, it is considered Highly Vulnerable (Essential Infrastructure) as identified in Table 3-2.

3.3 Appropriate Development and the Justification Test

The Planning System and Flood Risk Management Guidelines outline the types of development that would be considered appropriate to each flood zone as per Table 3-3. A justification test is required in instances where development is proposed in areas of moderate or high flood risk. The test is designed to rigorously assess the appropriateness or otherwise of these developments which would be at risk of flooding.

The development types and land uses which are classed as “Highly Vulnerable” must be subjected to a justification test for Flood Zones A and B. Similarly, the development types and land uses which are classed as “Less Vulnerable” must be subjected to a justification test for Flood Zone A.

It can be seen from Table 3-3 overleaf that highly vulnerable development is appropriate in Flood Zone C.

Table 3-3 Matrix of Vulnerability versus Flood Zones.

	Flood Zone A	Flood Zone B	Flood Zone C
Highly Vulnerable Development (including essential infrastructure)	Justification Test	Justification Test	**Appropriate**
Less Vulnerable	Justification Test	Appropriate	Appropriate
Water Compatible Development	Appropriate	Appropriate	Appropriate

3.4 Staged Approach

The Guidelines set out a staged approach for the consideration of flood risk in relation to developments. This staged approach is as follows;

Stage 1: Flood risk identification – to identify whether there may be any flooding or surface water management issues related to either the area of regional planning guidelines, development plans and LAP's or a proposed development site that may warrant further investigation at the appropriate lower-level plan or planning application levels.

Stage 2: Initial flood risk assessment – to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps. Where hydraulic models exist the potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures can be assessed. In addition, the requirements of the detailed assessment should be scoped; and

Stage 3: Detailed flood risk assessment – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

The level of FRA required is determined on a project specific basis with each stage building upon the previous stage.

4 Stage 1 – Flood Risk Identification

4.1 Available Information

The following sources of information were consulted in order to conduct this assessment as outlined in Table 4-1.

Table 4-1 Summary review of available information.

	Information Source	Coverage	Quality	Confidence	Identified Flood Risk(s)	Flood Risk Identified
Primary Data Sources & Modelled Data	OPW National Flood Hazard Mapping (www,floodinfo .ie)	National	High	High	Site is remote from any predicted flooding.	No
	CFRAM Study	National	High	High	Site is remote from any predicted flooding.	No
Secondary Data Sources	OPW Historic Flood Records	National	Varies	Varies	No historic flooding in the vicinity of the site.	No
	Site Walkover	Local	Moderate	Moderate	Substation is proposed in a greenfield site. No indication of any current flood issues	No

It can be seen from Table 4-1 that there are no immediate flood risks identified for the proposed site.

4.2 Historic Information

A review of historic flooding was undertaken using the OPW website www.floodinfo.ie. The 'Past Flood Events' layer forms a record of all available flood records held by the OPW, all local authorities and other relevant state organisations such as the EPA and the Department of Communications, Climate Action and Environment. This website represents the current definitive database of historic flood information in Ireland.

There are no previous flood events recorded for the proposed subject site or the immediate surrounding areas. There are six reported location of past flooding within 2.5km of the Ballycummin site, Co. Limerick (see Figure 4-1). 4 No. past flood events are recurring and 2 No. were a single flood event. The nearest flood event is located at Loughmore Common Canal, approx. 0.50km to the Northwest of the Subject Site. These flood events are identified as codes 14341 and 756 on the Past Flood Report in Appendix D. The area is liable to flooding during heavy rainfall which creates a high groundwater level and floods the surrounding low-lying areas. As this area is a considerable distance away from the subject site it is not considered to represent a risk to the Subject site.

Figure 4.1 - Nearest Past flood event shown 0.50 km from Ballycummin 110 kV substation Site.

5 Flood Risk

5.1 Limerick Development Plan 2022-2028

A review of the Limerick Development Plan, Strategic Flood Risk Assessment for 2022-2028 which came into effect in May 2023 shows the Ballycummin ESB 110 kV substation outside Flood Zones A and B, and is therefore considered to be in Flood Zone C.

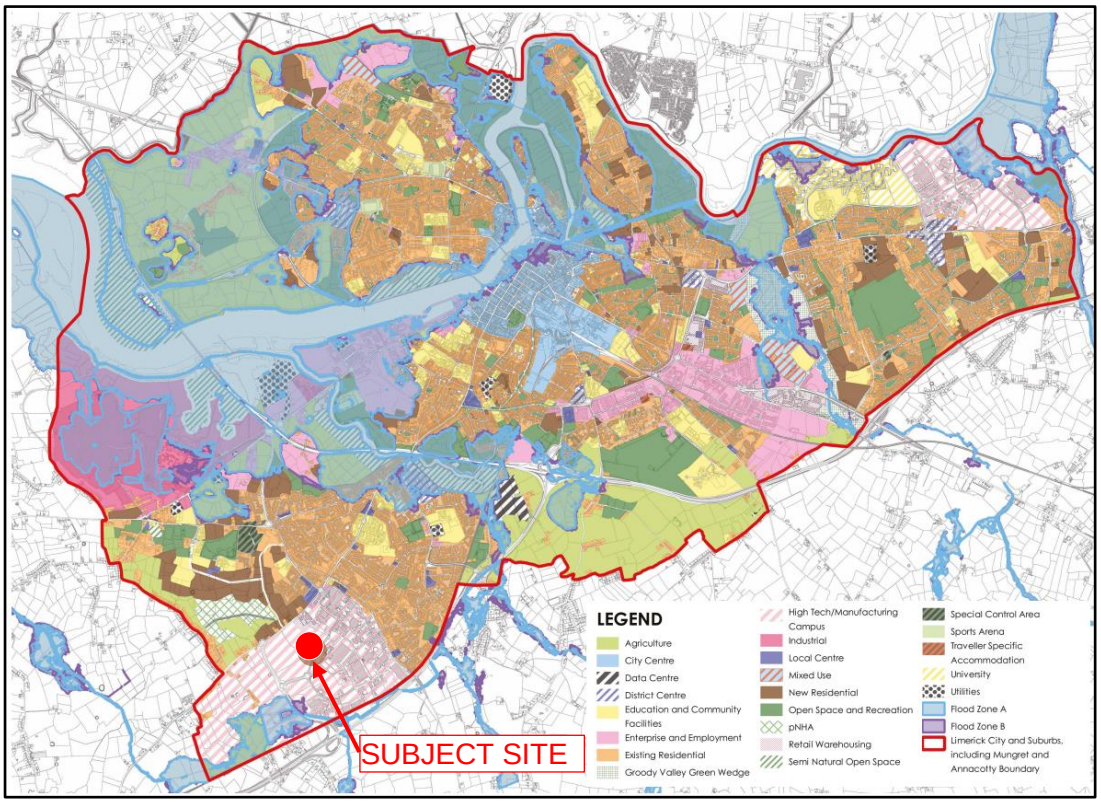


Figure 5.1 - Excerpt from Limerick Development plan 2022-2028 Strategic Flood Risk Assessment Online. Accessed June 2025. Ballycummin 110 kV station location shown as red circle. Flood zones A & B shown in dark and light blue respectively.

5.2 Fluvial Flood Risk

A small tributary of the Barnakyle River flows in an east to west direction as it passes 1.0km south of the proposed Ballycummin ESB 110 kV subject site.

The Barnakyle river is then located approximately 2.4km west of the Subject Site, as seen in Figure 5.2.

Figure 5.2 - Watercourses Close to the Ballycummin 110 kV Substation Subject Site

5.2.1 Catchment Flood Risk Assessment Management Studies

As part of Ireland's obligations under the EU "Floods" Directive, the OPW has generated mapping which provides estimates of the extent of floodplains as part of its Catchment Flood Risk Assessment and Management Study (CFRAM). This programme was undertaken on a River Basin District basis and is continuously updated.

Finalised flood maps are available through www.floodinfo.ie.

5.2.1.1 CFRAM Mapping

The CFRAM maps present indicative extents of lands at risk of flooding, predicted flood depths and predicted water levels in watercourses. The mapping indicates the following in terms of Annual Exceedance Probability (AEP):

- Indicative extent of lands with 1 in 10 probability of flooding in any given year.
- Indicative extent of lands with 1 in 100 probability of flooding in any given year (generally corresponds with Flood Zone A as defined in Section 3 above).
- Indicative extent of lands with 1 in 1000 probability of flooding in any given year (generally corresponds with Flood Zone B as defined in Section 3 above).

The Ballycummin 110 kV Substation Subject Site is located approximately 1.0 km from the CFRAM flood event mapping extents (see Figure 5.3). This also places the site outside any current available CFRAM flood risk mapping as shown in Figure 5.3. With relation to the CFRAM mapping, this site is considered as being located outside the 0.1% AEP flood.

Figure 5.3 - CFRAM Present day fluvial flood risk with reference to the Ballycummin 110 kV Substation Subject Site.

The www.floodinfo.ie maps 'National Indicative Fluvial Mapping' (NIFM) layer presents the modelled extents of fluvial flooding during a theoretical flood event with estimated probability occurrences of both 1.0% and 0.1% in contrast to information based on actual floods which have occurred historically.

This data has been produced for catchments greater than 5 km^2 in areas where CFRAM flood maps were not produced.

The Floodinfo.ie provides guidance notesfloodinfo.ie guidance notes (accessed June 2025) on the use of NIFM to assess flood risk and states that,

"The maps only provide an indication of areas that may be prone to flooding. They are not necessarily locally accurate and should not be used as the sole basis for defining the Flood Zones nor for making decisions on planning applications."

When providing guidance on the accuracy of the NIFM, the floodinfo.ie guidance notes state that the NIFM is not as accurate as the CFRAM mapping and should not be the only source of information for making planning decisions. However, this report does not solely refer to the NIFM and uses multiple sources of information.

The site is located approximately 0.960 km from NIFM present day 'low' flood risk associated the Barnakyle River tributary. Due to the distance from the site this is not deemed a relevant flood risk for the site.

From considering the above guidance from Floodinfo.ie, reviewing the CFRAM mapping, assessing the NIFM mapping as referred to in Figure 5.4, reviewing climate change in section 5.6, we may assess the flood risk of the site.

Figure 5.4: NIFM Present day fluvial flood risk with reference to the Ballycummin 110 kV Substation Subject Site

5.2.2 Arterial Drainage Scheme Benefited Lands

Arterial Drainage Schemes (ADS) were carried out under the Arterial Drainage Act, 1945 to improve land for agriculture and to mitigate flooding. Rivers, lakes weirs and bridges were modified to enhance conveyance, embankments were built to control the movement of flood water and various other work was carried out under Part II of the Arterial Drainage Act, 1945.

The purpose of the schemes was to improve land for agriculture. To ensure that the 3 – year flood was retained in bank this was achieved by lowering water levels during the growing season to reduce waterlogging on the land beside watercourses known as callows. Flood protection in the benefiting lands was increased as a result of the Arterial Drainage Schemes. Under the Arterial Drainage Act, 1945, the OPW are required to maintain drainage works in proper repair and effective condition.

While drainage schemes were originally developed to provide drainage of agricultural land, they have significantly reduced the risk of flooding to the extent that many areas which historically had high risk of river flooding now have a low level of risk.

The Ballycummin 110 kV Substation Subject Site is located within the Maigue ADS (C1) under the Southwest Region to which the works were completed between 1973 to 1986. The nearest OPW maintained arterial drainage network is located 950m to the South of the Subject Site, just to the north of the M20. Its branch reference number is: C1/10/5/3, see Figure 5.5. There is no previous flood history associated with this drain as discussed in Section 4.2 previously.

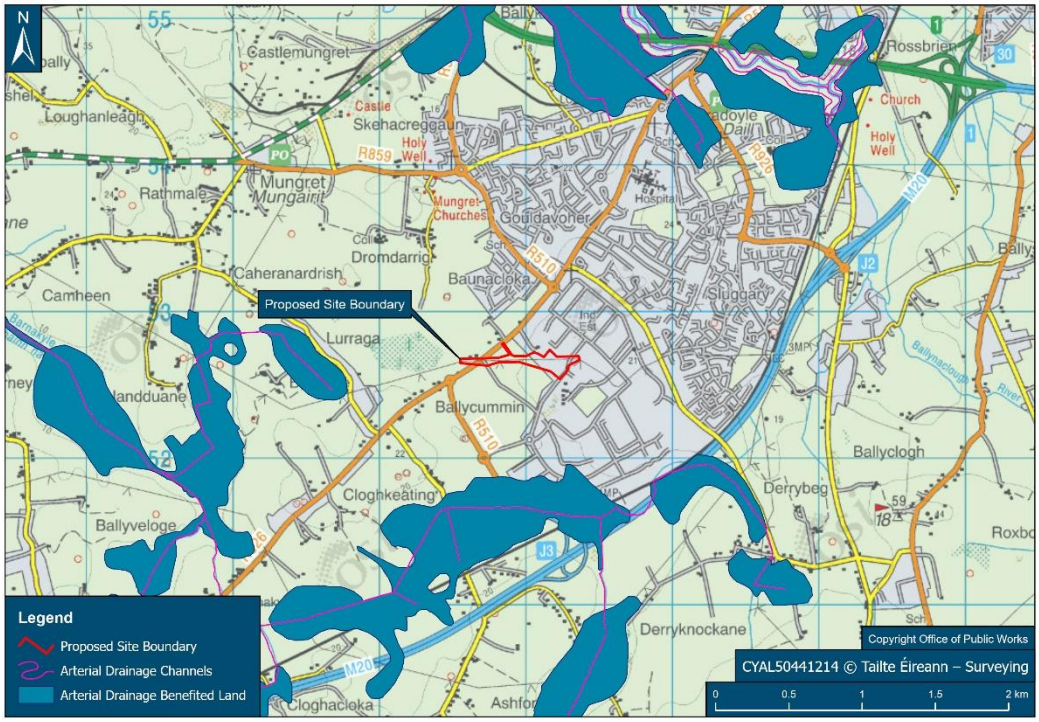


Figure 5.5 - Arterial Drainage Scheme with reference to the Ballycummin 110 kV Substation Subject Site.

5.3 Coastal Flood Risk

The Ballycummin 110 kV Substation Subject Site is located approximately 8.5 km from the Shannon Estuary.

The nearest predicted coastal flood extents for the 0.1% AEP occurs along the Barnakyle Tributary, with the nearest flood extent being 600m to the Southwest of the site. Due to the separation distance of the subject site from the coastal flood extents the site is deemed not at risk to coastal flooding. The site levels also range between 23.80mAOD and 23.30mAOD which would be considerably higher than the costal flood levels.

Figure 5.6 - Ballycummin 110 kV Substation Subject Site location in relation to Coastal Flooding

5.4 Pluvial Flood Risk

The site of the proposed development is currently a a greenfield site. The surface water proposals for the proposed works will be developed to mimic the natural drainage patterns of the site in accordance with the Best Management Practices (BMPs) of Sustainable Drainage Systems (SuDS). The surface water proposals will replicate the greenfield drainage conditions of the site where possible.

Surface water drainage systems, consistent with the criteria set out in the Greater Dublin Strategic Drainage Study (GDSDS) Code of Practice for Developers, and Limerick City and County Council Surface Water/ SuDs Specification 2022 will generally minimise the risk of flooding from pluvial sources and these measures are appropriately catered for by Limerick City and County Council's design requirements under the planning application process. In view of this and given there are no known previous flood events at the subject

site to suggest that the subject site is at risk to pluvial flooding, therefore the site is considered to not be at risk of pluvial flooding.

5.5 Groundwater Flood Risk

An analysis of datasets available online through the Geological Survey of Ireland (GSI) Mapping was undertaken to determine the potential for groundwater flooding.

The GSI Mapping shows no evidence of springs or karstification within the subject site. The GSI Mapping indicates that the site is underlain by Volcaniclastic Rocks. There are a number of karst features located to the North of the Site according to the GSI Karst and well database. One of the main features is Loughmore Common Turlough which is located approximately 600m north of the subject site.

It is therefore deemed that the proposed development is not at risk to groundwater flooding.

5.6 Climate Change

The OPW released a report on *"Implementing the National Flood Risk Policy*" in May 2018. The report summarises the measures put in place to manage Ireland's flood risk, provides a summary of the outputs of the national CFRAM Programme and outlines the arrangements for implementation of the proposed measures set out in the 29 No. Flood Risk Management Plans. The report states that climate change will impact the flood risk in Ireland, resulting in the rise of sea level, a projected increase in the number of heavy rainfall days per year and projected wetter winters.

The OPW recommends that a climate change factor of up to 20% be considered for river flows. The report states that *"While there is considerable uncertainty associated with most aspects of the potential impacts of climate change on flood risk (e.g., how fast sea levels will continue to rise into the future), the OPW considered that it was prudent to take the potential changes into account in the development of proposed measures in the Flood Risk Management Plans. Therefore, the OPW's appraisal of flood risk and the choice of the measures proposed for Flood Risk Management Plans considered the assessment of risk for two potential future scenarios, the:*

- *Mid-Range Future Scenario – increase in rainfall of 20% and sea level rise of 500mm (20 inches), and*
- *High-End Future Scenario – increase in rainfall of 30% and sea level rise of 1000mm (40 inches)"*

5.6.1 Limerick City and County Council SFRA

Each county council compiles their own strategic flood risk assessment based on the OPW's guidelines. Below are the provisions for future scenarios set out in the Limerick City's and County Council's strategic flood risk assessment 2022-2028.

Table 5-1 - Allowances for Future Scenarios (100 Year Horizon).

Criteria	MRFS	HEFS
Extreme Rainfall Events	+20%	+30%
Flood Flows	+20%	+30%
Mean Sea Level Rise	+500 mm	+1000 mm

Figure 5.7 and Figure 5.8 illustrate the potential impact of Climate Change on the predicated fluvial flood extents under the Mid-Range Future Scenario (MRFS) and High-End Future Scenario (HEFS) respectively and illustrates that the site lies outside the predicted flood zone of flood extents of the River Shannon and Barnakyle River Tributary which is within the boundary of the nearest CFRAM mapping flood extents.

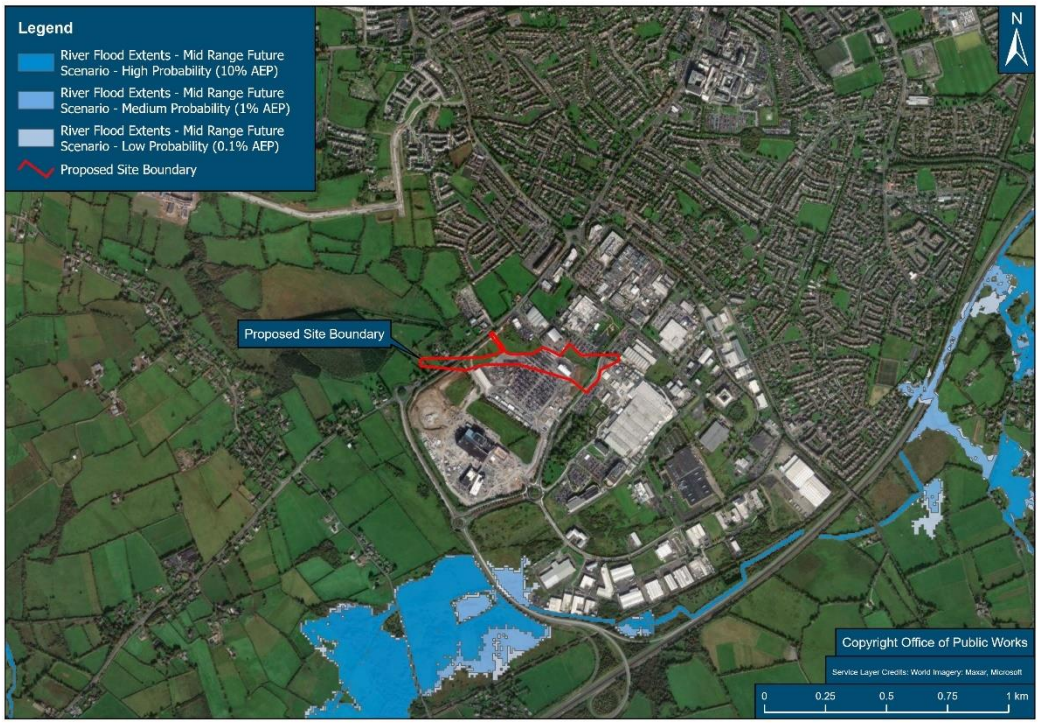


Figure 5.7 - Mid-Range Future Scenario Fluvial Flood Extents in relation to the Ballycummin 110 kV Substation Subject Site.

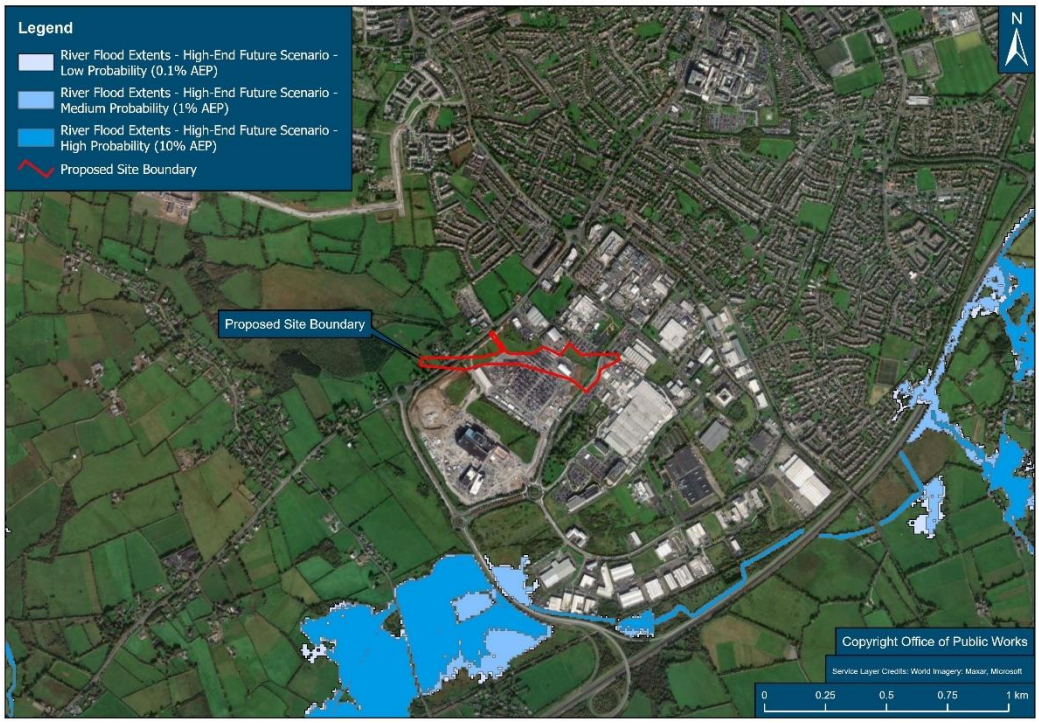


Figure 5.8 - High-Range Future Scenario due to a 30% increase in annual rainfall in relation to the Ballycummin 110 kV Substation Subject Site.

6 Impact of Development on Current Flood Regime in the Area

6.1 Impact of Site Surface Water Runoff

Surface water proposals for the proposed subject site will be developed to mimic the natural drainage patterns of the site in accordance with the BMPs of SuDS. The surface water proposals will replicate the greenfield drainage conditions of the site where possible.

Surface water storage up to the 1 in 100-year rainfall event will be provided on site for the proposed development as discussed in the Engineering Services Report included with the planning pack. Surface water will discharge to a soakaway located to the southeast of the site. Surface water runoff from the proposed development will be discharged at a controlled rate to replicate greenfield conditions.

It is therefore considered that the proposed development will not impact on the current flood regime in the area.

6.2 Loss of Floodplain

The proposed development will not result in loss of floodplain as the site is not within a floodplain. Therefore, no compensatory floodplain storage is required to be provided as a result of the proposed development.

7 Application of Flood Risk Management Guidelines

7.1 Flood Zone & Vulnerability Class of the Site

As demonstrated in Sections 4 and 5 previously;

1. The development is classified as highly vulnerable development and is located within Flood Zone C.
2. The development is appropriate development in Flood Zone C and does not require a Justification Test to be carried out.
3. The site is not at risk from fluvial flooding.
4. The site is not at risk from coastal flooding.
5. The site is not considered at risk from pluvial flooding in its current state, or in the proposed scenario, and
6. The site is not considered to be at risk of groundwater flooding.

8 Conclusion

A flood risk assessment was carried out to establish if the proposed 110 kV Substation at the Subject Site in Baallycummin, Co. Limerick would be at risk to flooding.

Following the findings of this assessment, the construction of the Ballycummin 110 kV Substation and associated works is not considered at risk to flooding within the subject site.

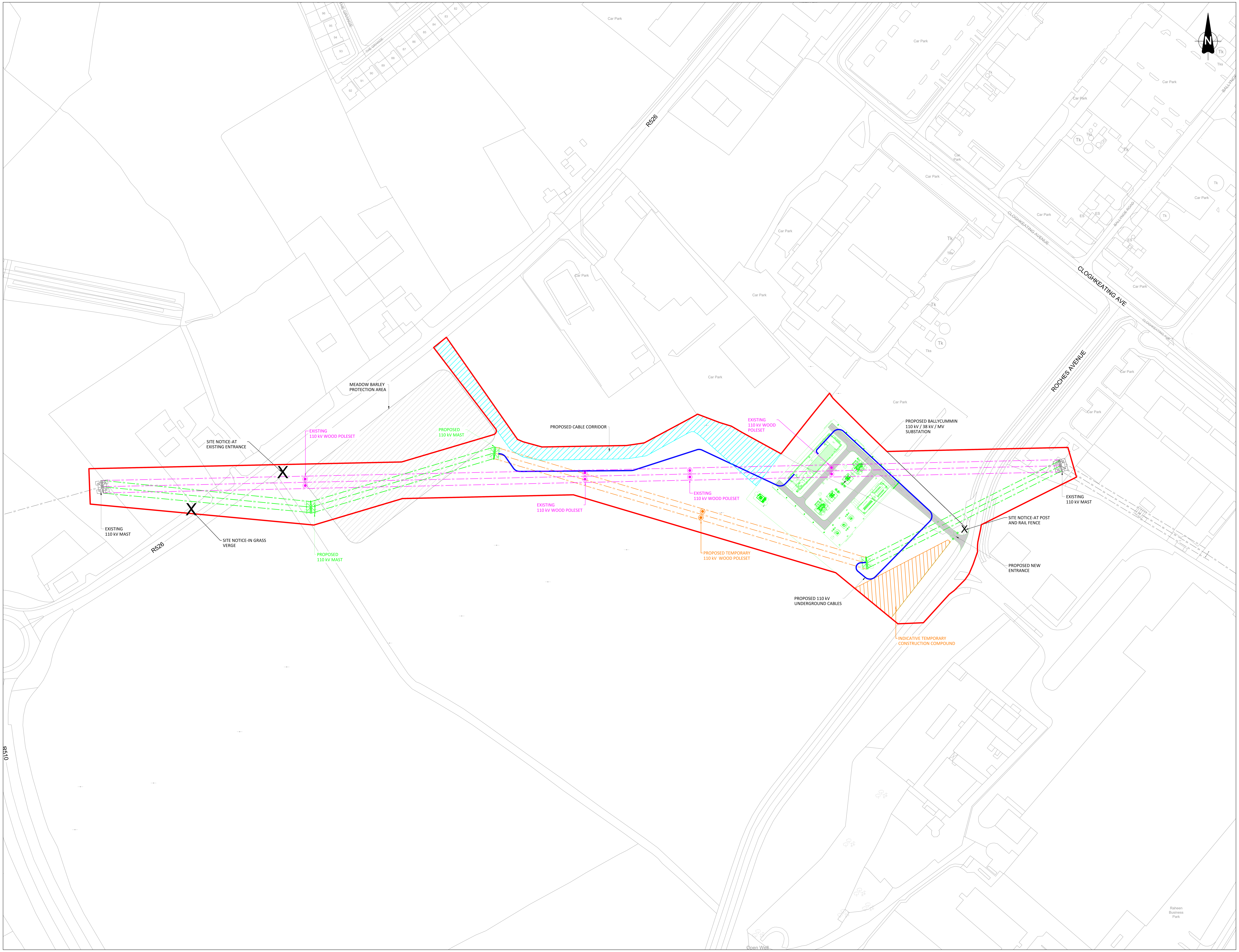
The subject site is located in Flood Zone C as defined by the '*The Planning System and Flood Risk Management Guidelines*' summarised in Table 3-1. and found in Section 3.1. The proposed substation is classified as a highly vulnerable development which is permissible in Flood Zone C.

Surface water proposals for the proposed works will be developed to mimic the natural drainage patterns of the site in accordance with the Best Management Practices of SuDS. The surface water proposals will replicate the greenfield drainage conditions of the site where possible.

The proposed development will not increase the current flood risk in the catchment.

Appendix A – Proposed Layout

- Drawing No. PE492-D184-067-002-000– Proposed Substation Layout
- Drawing No. PE492-D184-067-017-000 Proposed Drainage Layout



OVERALL PROJECT LAYOUT
SCALE 1:1000

LEGEND

- PROPOSED PLANNING BOUNDARY
- EXISTING 110 kV OVERHEAD LINE
- EXISTING MAST
- EXISTING 110 kV OVERHEAD LINE TO BE DEMOLISHED
- EXISTING INFRASTRUCTURE TO BE DEMOLISHED / REMOVED
- EXISTING DOUBLE POLESET TO BE DEMOLISHED
- PROPOSED TEMPORARY 110 kV OVERHEAD LINE
- PROPOSED TEMPORARY DOUBLE POLESET
- PROPOSED 110 kV OVERHEAD LINE
- PROPOSED 110 kV MAST
- PROPOSED DEVELOPMENT
- PROPOSED 110 kV UNDERGROUND CABLES
- PROPOSED CABLE CORRIDOR
- INDICATIVE TEMPORARY CONSTRUCTION COMPOUND
- MEADOW BARLEY PROTECTION AREA
- EXISTING ROAD
- EXISTING FOOTPATH
- EXISTING GRASS VERGE
- EXISTING HEDGE
- EXISTING HEDGE TO BE REMOVED
- X SITE NOTICE LOCATION

NOTES:

1. DRAWING TO BE PRINTED IN COLOUR.
2. ALL DIMENSION IN m UNLESS OTHERWISE STATED. ALL LEVELS ARE IN m RELATIVE TO ORDANCE DATUM AT MALIN HEAD.
3. DO NOT SCALE FROM THIS DRAWING.
4. PLEASE REFER TO DRAWING PG567-D004-483-001-002 FOR DETAILS OF TEMPORARY 110 kV WOOD POLESET
5. THE PROPOSED UNDERGROUND CABLE CIRCUITS WILL BE CONSTRUCTED WITHIN THE "PROPOSED CABLE CORRIDOR" SHOWN ON THIS DRAWING , WHICH HAS BEEN ENVIRONMENTALLY ASSESSED. THE SPECIFIC LOCATIONS OF THE CABLES WITHIN THAT CORRIDOR WILL BE DETERMINED DURING DETAILED DESIGN.
6. DRAWING FOR PLANNING PURPOSES ONLY. NOT FOR CONSTRUCTION USE.
7. PROPOSED PLANNING BOUNDARY AREA: 5.45 ha
8. TAILTE ÉIREANN MAP REF: 4802-10, 4802-15, 4802-B.

REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
0	SEP '25	ISSUED FOR PLANNING				

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB NETWORKS

PROJECT: Ballycummin 110 kV Substation

CONTRACT: I_EL0419

DRAWING TITLE: BALLYCUMMIN 110 kV SUBSTATION
PLANNING
OVERALL SITE LAYOUT

PRODUCTION UNIT: Transmission and Distribution Delivery

Energy for generations
Engineering and Major Projects,
One Dublin Airport Central, Dublin Airport,
Cloghran, Co. Dublin, K67 XF72, Ireland.
Tel: +353 (0)1 703 8000 Web: www.esb.ie
Engineering and Major Projects is a division of ESB.

DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
J.Byrne	J.Byrne	L.McManus	R.OToole	25/09/2025

CLIENT REF	NO. OF SHTS	SIZE	SCALE
TC234417	1	A0	1:1000

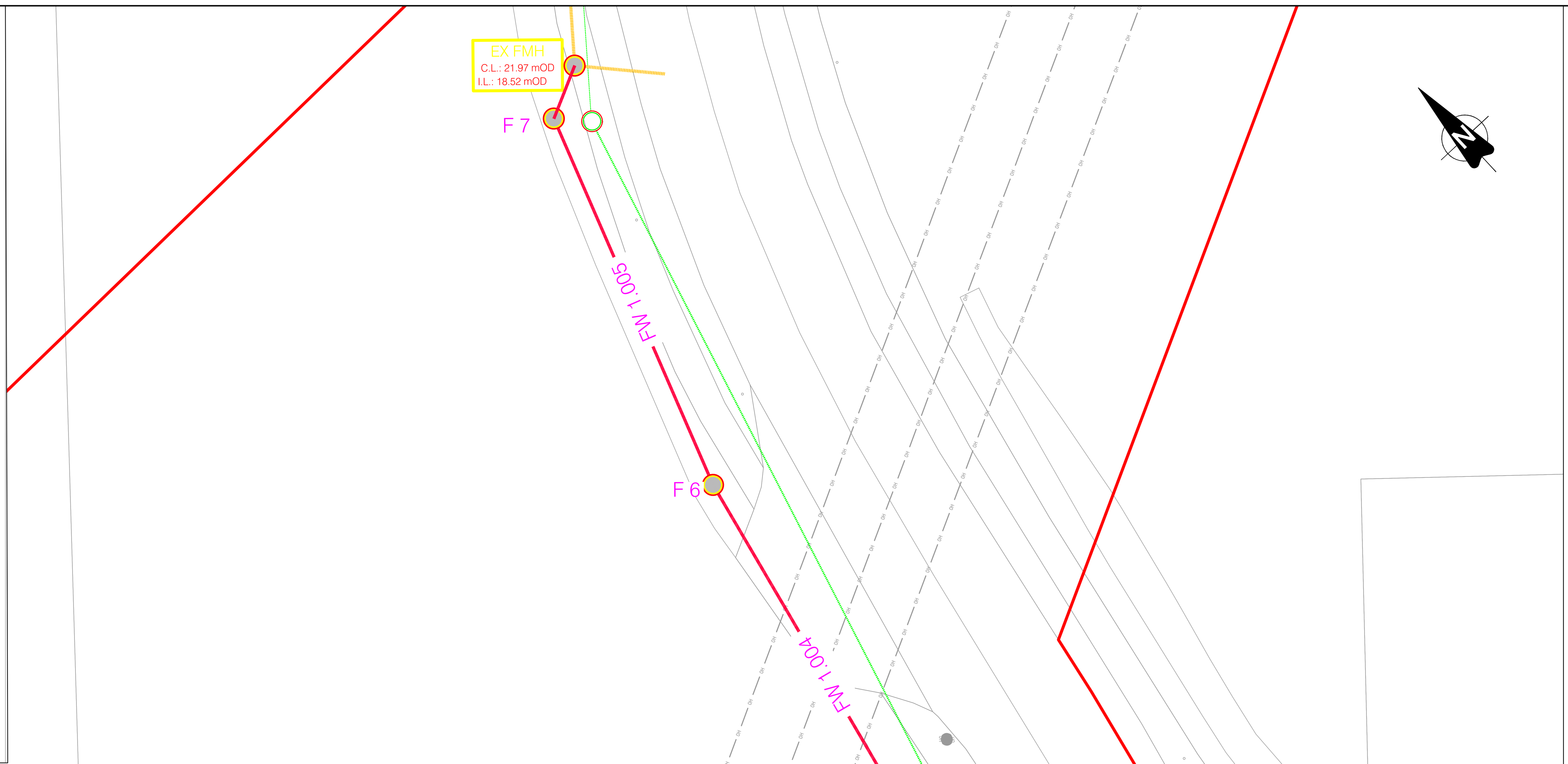
DRAWING NUMBER: PE492-D184-067-002-001 SHEET REV

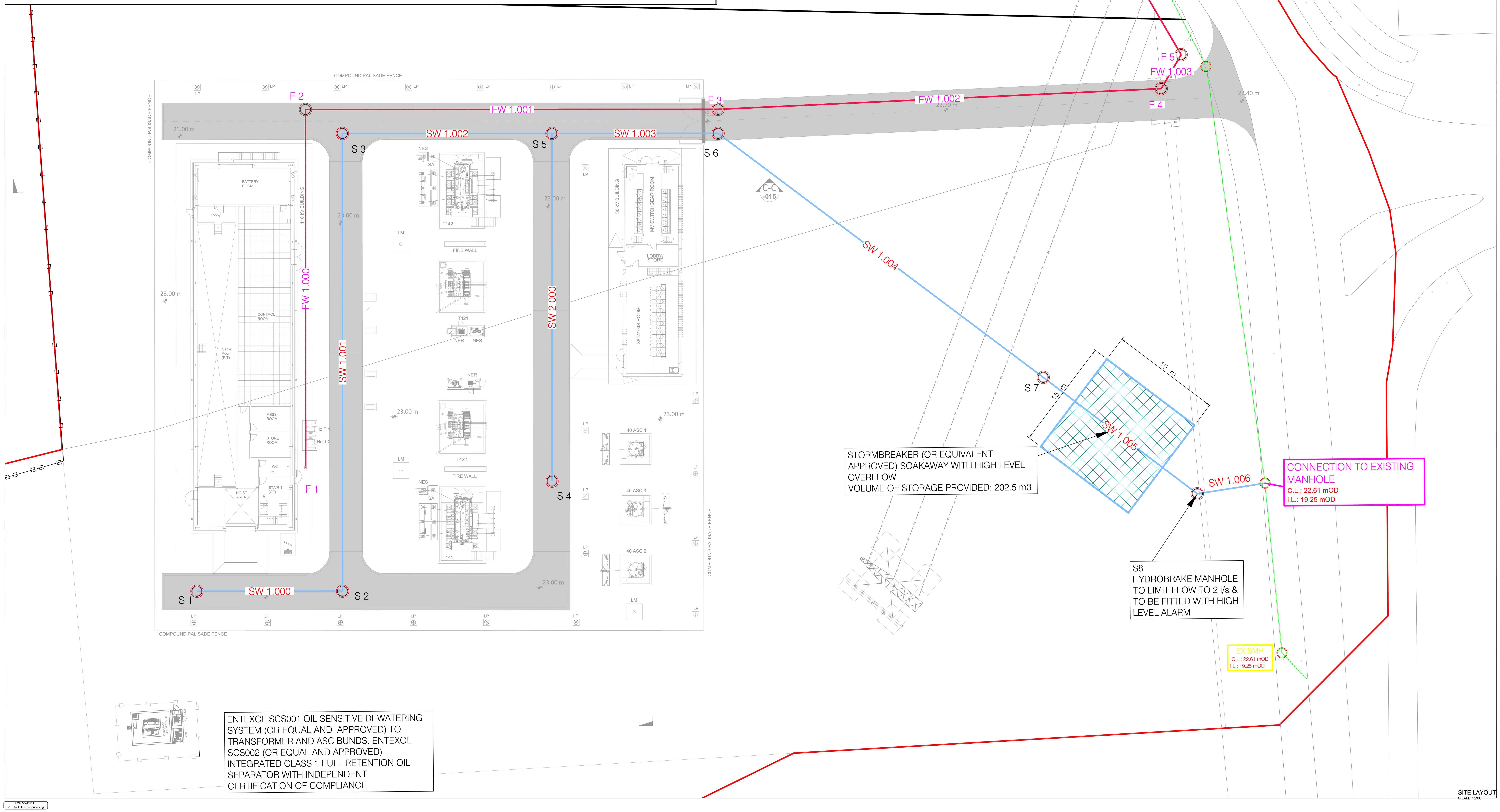
FOUL WATER DRAINAGE TABLE

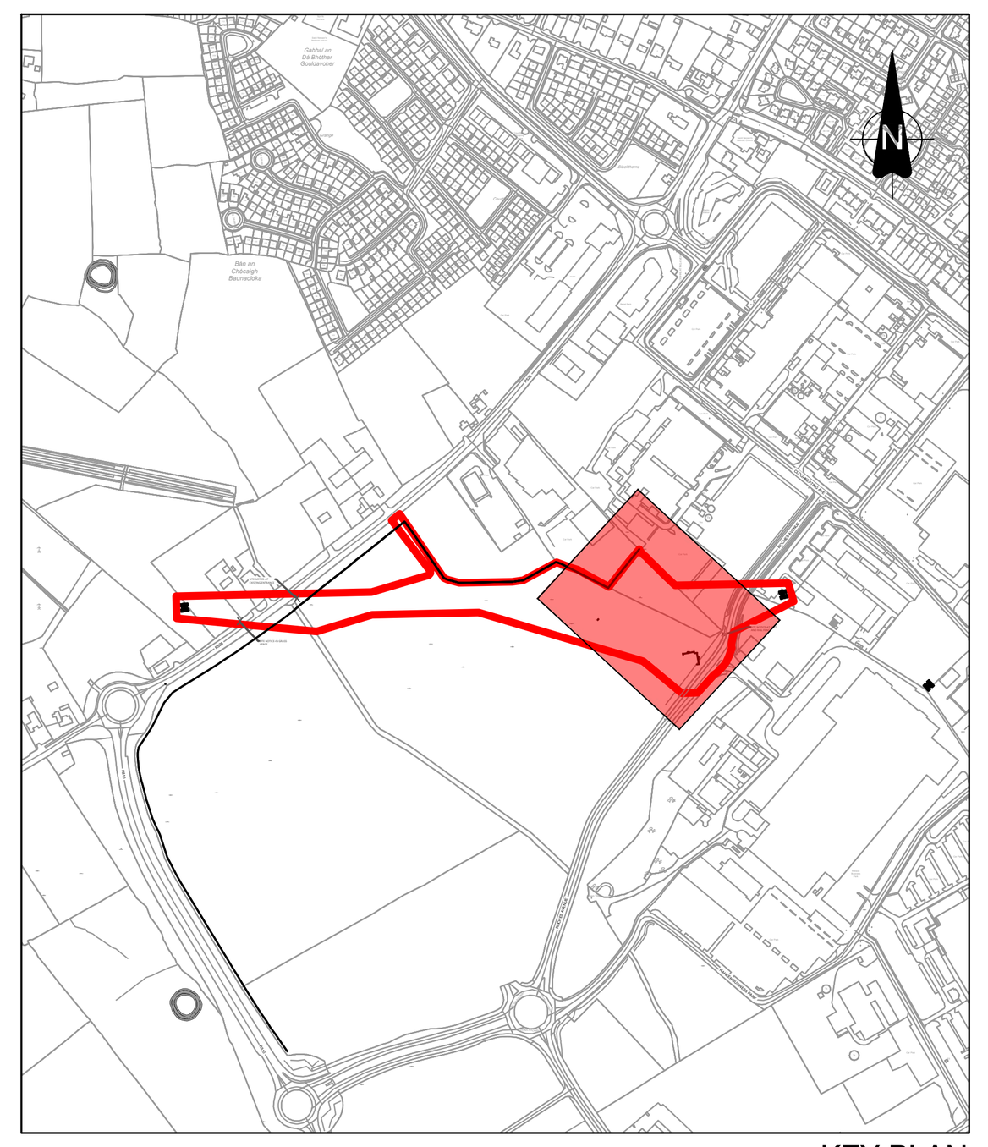
Link ID	Length (m)	Fall (m)	Slope (1:X)	US CL (m)	US IL (m)	DS CL (m)	DS IL (m)	Dia (mm)
FW 1.000	48.968	0.612	80.0	23.000	21.700	23.000	21.088	100
FW 1.001	56.361	0.705	80.0	23.000	21.088	23.000	20.383	100
FW 1.002	60.605	0.758	80.0	23.000	20.383	23.000	19.625	100
FW 1.003	5.379	0.054	100.0	23.000	19.625	22.470	19.571	100
FW 1.004	29.985	0.300	100.0	22.470	19.521	22.060	19.221	150
FW 1.005	27.332	0.273	100.0	22.060	19.221	22.023	18.948	150
FW 1.006	3.899	0.039	100.0	22.023	18.948	22.023	18.909	150

SURFACE WATER DRAINAGE TABLE

Link ID	Length (m)	Fall (m)	Slope (1:X)	US CL (m)	US IL (m)	DS CL (m)	DS IL (m)	Dia (mm)
SW 1.000	19.905	0.100	200.0	23.000	21.500	23.000	21.400	300
SW 1.001	62.555	0.313	200.0	23.000	21.400	23.000	21.087	300
SW 1.002	28.620	0.143	200.0	23.000	21.087	23.000	20.944	300
SW 2.000	47.532	0.475	100.0	23.000	21.500	23.000	21.025	300
SW 1.003	22.704	0.114	200.0	23.000	20.944	23.000	20.830	300
SW 1.004	55.542	0.278	200.0	23.000	20.830	23.000	20.552	300
SW 1.005	26.380	0.108	244.3	23.000	20.552	23.000	20.444	300
SW 1.006	9.368	0.039	240.2	23.000	20.444	22.787	20.405	300







KEY PLAN
SCALE 1:10000

LEGEND

- PROPOSED PLANNING BOUNDARY
- EXISTING SURFACE WATER SEWER (FROM RECORDS)
- EXISTING SURFACE WATER MANHOLE — SMH1
- PROPOSED SURFACE WATER SEWER — S1.001
- PROPOSED SURFACE WATER MANHOLE — S1-0
- PROPOSED SOAKAWAY TANK
- EXISTING FOUL SEWER (FROM RECORDS)
- EXISTING FOUL MANHOLE — FMH1
- PROPOSED FOUL SEWER — FW 1.001
- PROPOSED FOUL MANHOLE — F X
- PROPOSED FOUL AJ — F X

REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
0	AUG 25	ISSUED FOR PLANNING				

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED
CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB NETWORKS

PROJECT: Ballycummin 110 kV Substation

CONTRACT: I_EL0419

DRAWING TITLE: BALLYCUMMIN 110 kV SUBSTATION PLANNING PROPOSED DRAINAGE LAYOUT

PRODUCTION UNIT: Transmission and Distribution Delivery

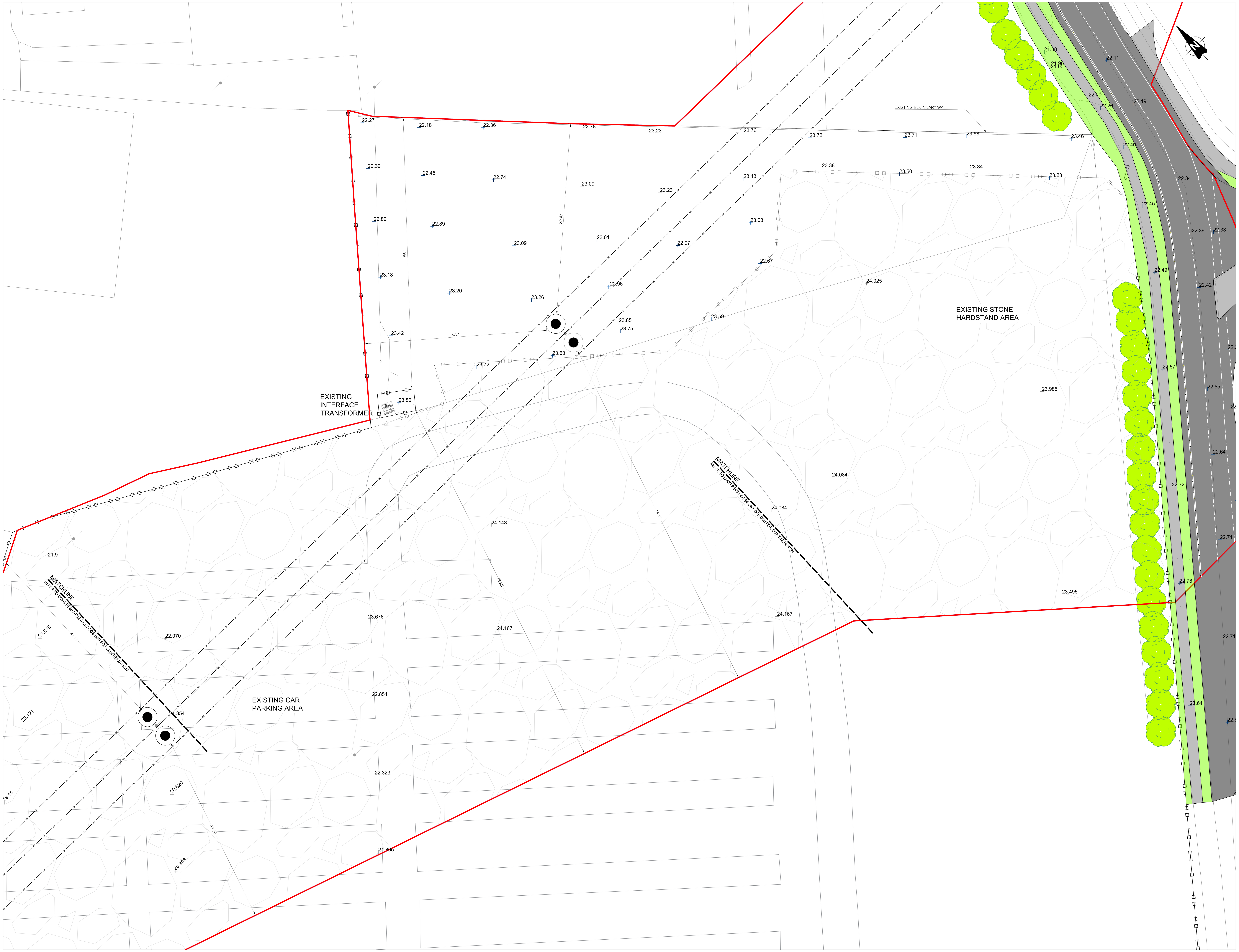
ESB Energy for generations
Engineering and Major Projects, One Dublin Airport Central, Dublin Airport, Cloghran, Co. Dublin, K67 XF72, Ireland.
Tel: +353 (0)1 703 8000 Web: www.esb.ie
Engineering and Major Projects is a division of ESB.

DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
L.McManus	Fanning_Pa	d.ryan	H.Griffin	30/09/2025

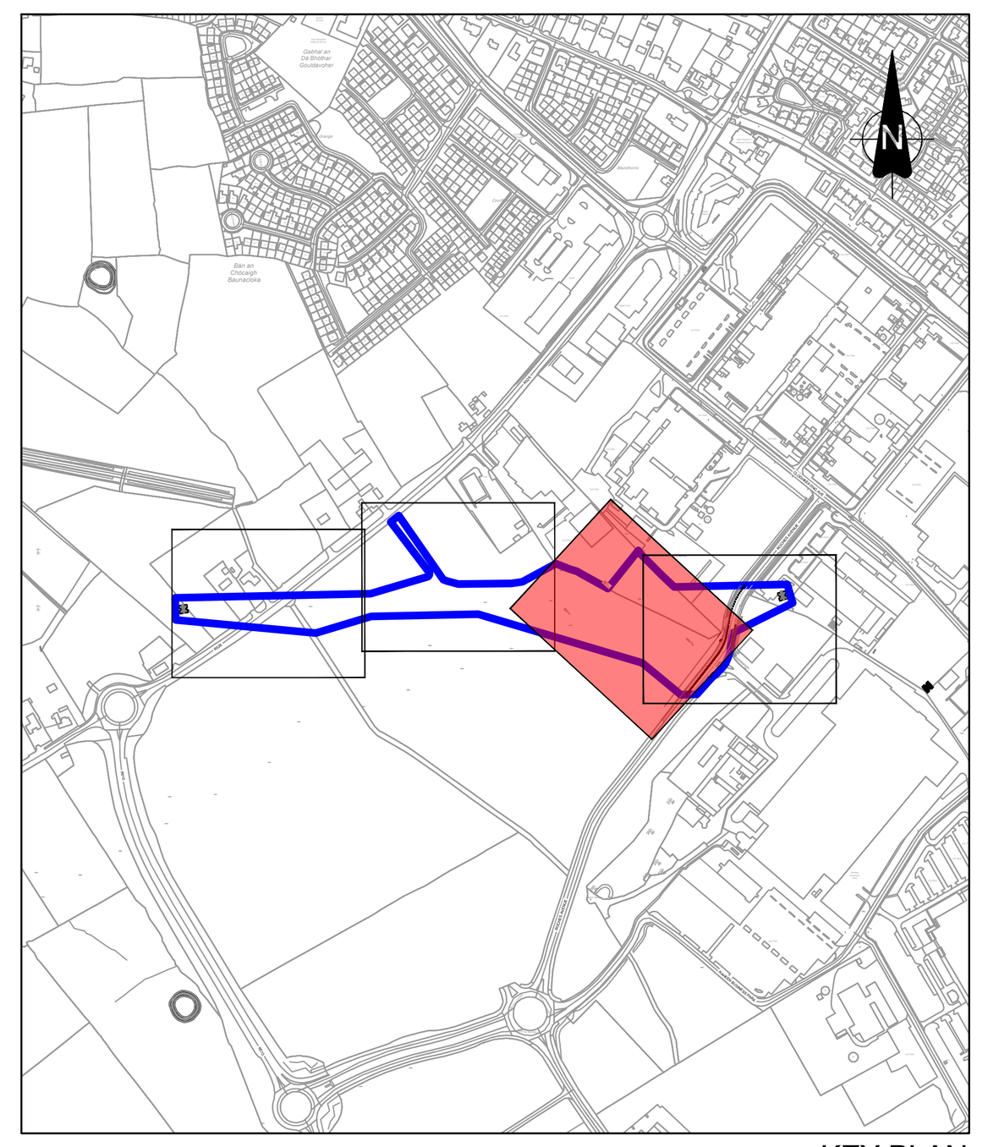
CLIENT REF	NO. OF SHTS	SIZE	SCALE
TC294417	1	A0	1:200

DRAWING NUMBER: PE492-D184-067-017-001

Appendix B: Topographic Survey



EXISTING SITE LAYOUT (STATION)
SCALE 1:250



KEY PLAN
SCALE 1:10000

LEGEND

- PROPOSED PLANNING BOUNDARY
- EXISTING 110 kV OVERHEAD LINE
- EXISTING MAST
- EXISTING DOUBLE POLESET
- SITE NOTICE LOCATION
- EXISTING FENCE
- EXISTING WALL
- EXISTING HEDGE
- MEADOW BARLEY PROTECTION AREA
- EXISTING ROAD
- EXISTING FOOTPATH
- EXISTING GRASS VERGE
- EXISTING STONED AREA
- 26.06 m EXISTING GROUND LEVEL

NOTES:

1. DRAWING TO BE PRINTED IN COLOUR.
2. ALL DIMENSION IN m UNLESS OTHERWISE STATED. ALL LEVELS ARE IN m RELATIVE TO ORDANCE DATUM AT MALIN HEAD.
3. DO NOT SCALE FROM THIS DRAWING.
4. DRAWING FOR PLANNING PURPOSES ONLY. NOT FOR CONSTRUCTION USE.
5. PROPOSED PLANNING BOUNDARY AREA: 5.45 ha
6. TAILTE ÉIREANN MAP REF: 4802-10, 4802-15, 4802-B.

REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
0	SEP 25	ISSUED FOR PLANNING				

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB NETWORKS

PROJECT: Ballycummin 110 kV Substation

CONTRACT: I_EL0419

DRAWING TITLE: BALLYCUMMIN 110 kV SUBSTATION
PLANNING
EXISTING SITE LAYOUT
SHEET 3 OF 4

PRODUCTION UNIT: Transmission and Distribution Delivery

Energy for generations
Engineering and Major Projects,
One Dublin Airport Central, Dublin Airport,
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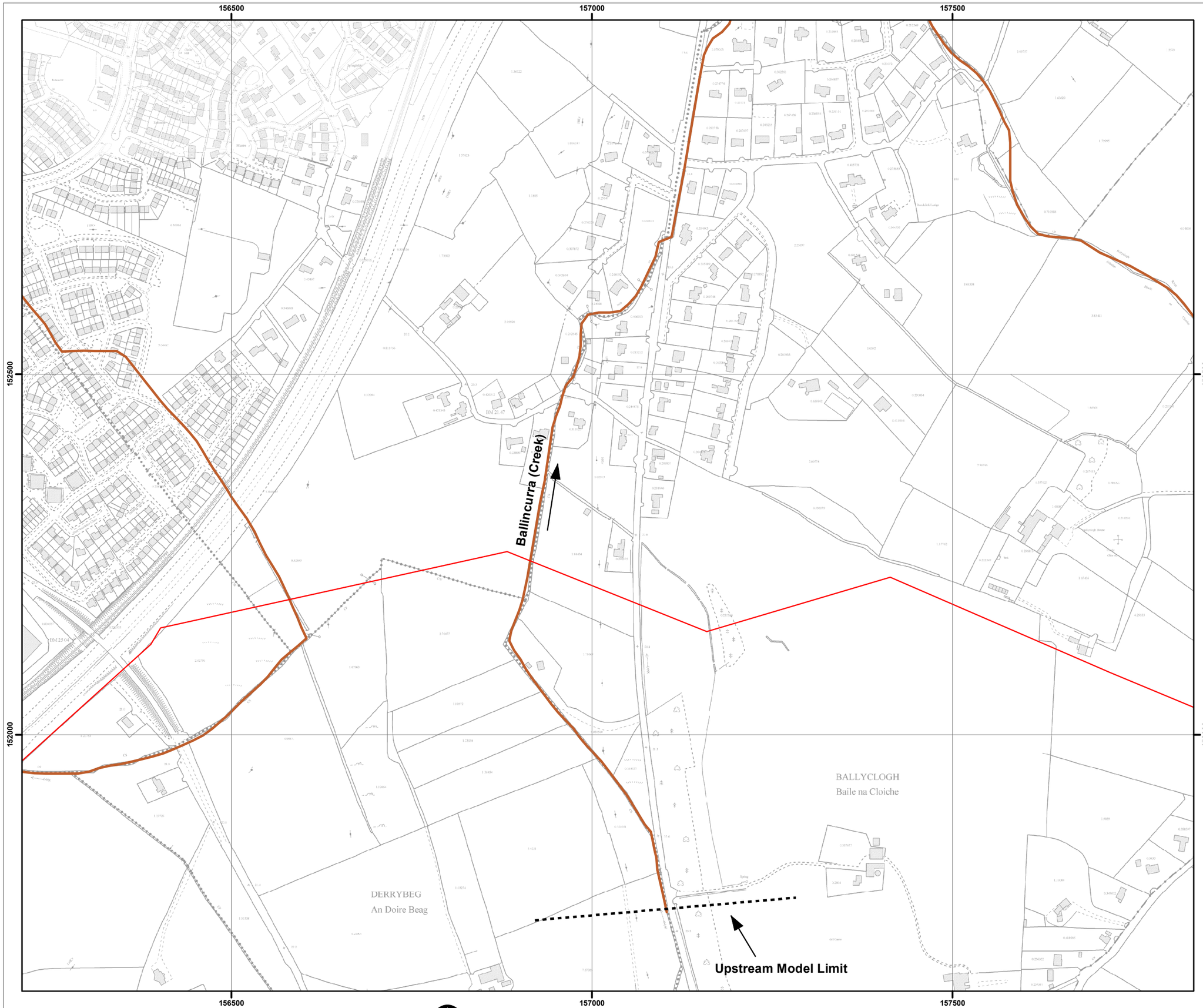
Tel: +353 (0)1 703 8000 Web: www.esb.ie
Engineering and Major Projects is a division of ESB.

DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
J.Byrne	J.Byrne	L.McManus	R.OToole	25/09/2025
CLIENT REF: TC234417		NO. OF SHTS: 1	SIZE: A0	SCALE: 1:250

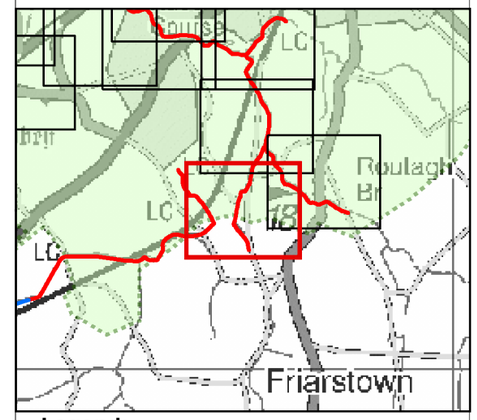
DRAWING NUMBER: PE492-D184-067-005-000
SHEET | REV

Appendix C – Eastern CFRAM Map

- Shannon CRFAM Study – Ballincurra Creek Fluvial Flood Extents: S2526LIK_EXFCD_F1_28
- Shannon CFRAM Study – Ballincurra Creek Coastal Flood Extents: S2526LIK_EXCCD_F1_28



Location Plan:



Legend:

- Nodes
- Model Reach
- AFA Boundary
- Flood Defence: Wall
- Flood Defence: Embankment
- Defended Area

10% AEP Coastal Flood Extent
(1 in 10 chance in any given year)

0.5% AEP Coastal Flood Extent
(1 in 200 chance in any given year)

0.1% AEP Coastal Flood Extent
(1 in 1000 chance in any given year)

IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

The Office of Public Works
Jonathan Swift Street
Trim
Co. Meath
C15 NX36

Merrion House
Merrion Road
Dublin 4
D04 R2C5

Project:		SHANNON CFRAM STUDY
Map Type:		EXTENT
Source:		COASTAL - TIDAL
Area:		LIMERICK
Scenario:		EXISTING
Drawn by:	EH	Date: June 2016
Checked by:	KM	Date: June 2016
Reviewed by:	MC	Date: June 2016
Approved by:	PS	Date: June 2016
Map No.:		S2526LIK_EXCCD_F1_28
Sheet: 28 of 65		Revision: 0
Map Scale: 1: 5000		Plot Scale: 1:1 @ A3

156500
157000
157500
152500
152000

01BCL00528

03BLN01212

Ballynaclogh (River)

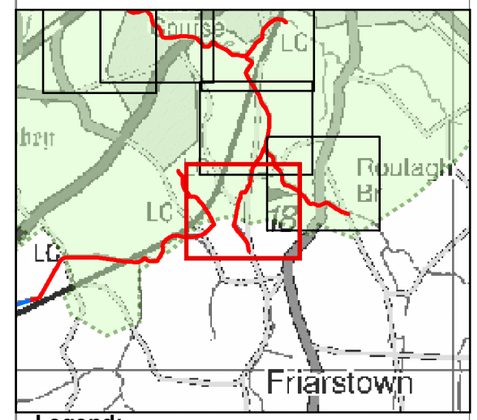
Ballincurra (Creek)

BALLYCLOGH
Baile na Cloiche

Upstream Model Limit

Node Label	10% AEP		1% AEP		0.1% AEP	
	Water Level (mAOD)	Total Flow (m^3/s)	Water Level (mAOD)	Total Flow (m^3/s)	Water Level (mAOD)	Total Flow (m^3/s)
03BLN01212	20.34	1.20	20.43	1.73	20.45	2.27
01BCL00528	16.19	4.01	16.19	5.68	16.25	7.37

0 50 100 200 300 400 500 Meters



Legend:

- Nodes
- Model Reach
- AFA Boundary
- Flood Defence: Wall
- Flood Defence: Embankment
- Defended Area

10% AEP Fluvial Flood Extent
(1 in 10 chance in any given year)

1% AEP Fluvial Flood Extent
(1 in 100 chance in any given year)

0.1% AEP Fluvial Flood Extent
(1 in 1000 chance in any given year)

IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

OPW
Oifig na nOibreacha Poiblí
The Office of Public Works
Jonathan Swift Street
Trim
Co. Meath
C15 NX36

JACOBS
Merrion House
Merrion Road
Dublin 4
D04 R2C5

Project:	SHANNON CFRAM STUDY
Map Type:	EXTENT
Source:	FLUVIAL
Area:	LIMERICK
Scenario:	EXISTING
Drawn by:	Date: June 2016
Checked by:	Date: June 2016
Reviewed by:	Date: June 2016
Approved by:	Date: June 2016
Map No.:	S2526LIK_EXFCD_F1_28
Sheet: 28 of 59	Revision: 0
Map Scale: 1: 5000	Plot Scale: 1:1 @ A3

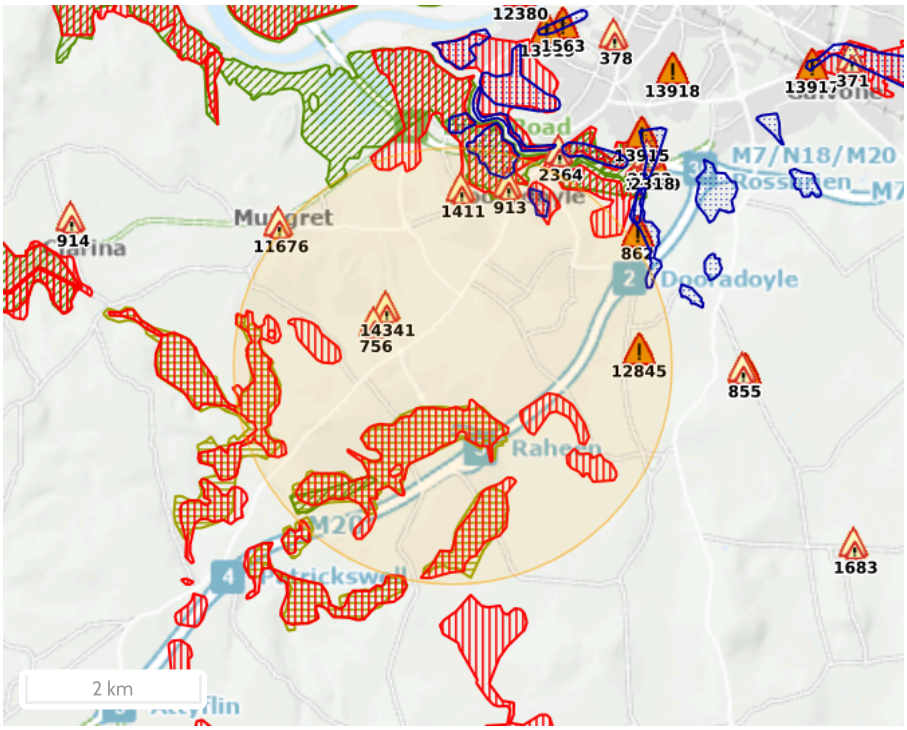
Appendix D – Historic Flood Report

Past Flood Event Local Area Summary Report

Report Produced: **16/6/2025 14:44**

This Past Flood Event Summary Report summarises all past flood events within 2.5 kilometres of the map centre.

This report has been downloaded from www.floodinfo.ie (the "**Website**"). The users should take account of the restrictions and limitations relating to the content and use of the Website that are explained in the Terms and Conditions. It is a condition of use of the Website that you agree to be bound by the disclaimer and other terms and conditions set out on the Website and to the privacy policy on the Website.



Map Legend

- Single Flood Event
- Recurring Flood Event
- Past Flood Event Extents
- Drainage Districts Benefited Lands*
- Land Commission Benefited Lands*
- Arterial Drainage Schemes Benefited Lands*

* Important: These maps do not indicate flood hazard or flood extent. Their purpose and scope is explained on Floodinfo.ie

6 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Baunacloka-Loughmore Recurring (ID-14341)	29/09/2023	Approximate Point
	Additional Information: Reports (6) Press Archive (0)		
2.	Flooding at Ballyclough (Euroville) - 2019 (ID-12845)	n/a	Approximate Point
	Additional Information: Reports (0) Press Archive (0)		
3.	Raheen Dooradoyle, Limerick Feb 1990 (ID-541)	01/02/1990	Area
	Additional Information: Reports (1) Press Archive (0)		
4.	Turlough - Loughmore Common Limerick (ID-756)	n/a	Approximate Point
	Additional Information: Reports (3) Press Archive (0)		
5.	Dooradoyle-St Nessans/Fr Russell recurring (ID-913)	n/a	Approximate Point
	Additional Information: Reports (2) Press Archive (0)		
6.	Dooradoyle Limerick recurring (ID-1411)	n/a	Approximate Point
	Additional Information: Reports (1) Press Archive (0)		