MALONE O'REGAN
CONSULTING ENGINEERS

Hazelboro Ltd.

Proposed 2No. 110Kv Substation and Grid Connection, Toomes, Monvallet, Co. Louth

Engineering Planning Report

Job No: W21019
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Project: Proposed 2No. 110Kv Substation and Grid Connection, Toomes, Monvallet, Co. Louth

Client: Hazelboro Ltd.

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1.0 INTRODUCTION

Hazelboro Limited was set up by Strategic Power Projects as a Special Purpose Vehicle subsidiary to deliver this project. Hazelboro Limited is now the applicant for this SID project.
This S.I.D application is to provide battery energy storage system (BESS), two 110Kv Substation and grid connection to the existing ESB networks Louth 275Kv Substation location in townland of Monvallet.

Malone O'Regan Consulting Engineers have been engaged to provide civil engineering consultancy services for the project. We have compiled this report engineering as part of the SID submission.

2.0 SITE DESCRIPTION

The proposed development site is currently a Greenfield site, 1.75 hectares in area.

Located close to the Louth / Monaghan County border, the site is positioned to the south of Ballykelly village off the L1143 regional road and is characterised as agricultural land. The site is located in a grassland field defined in part by low level fences and hedgerows.

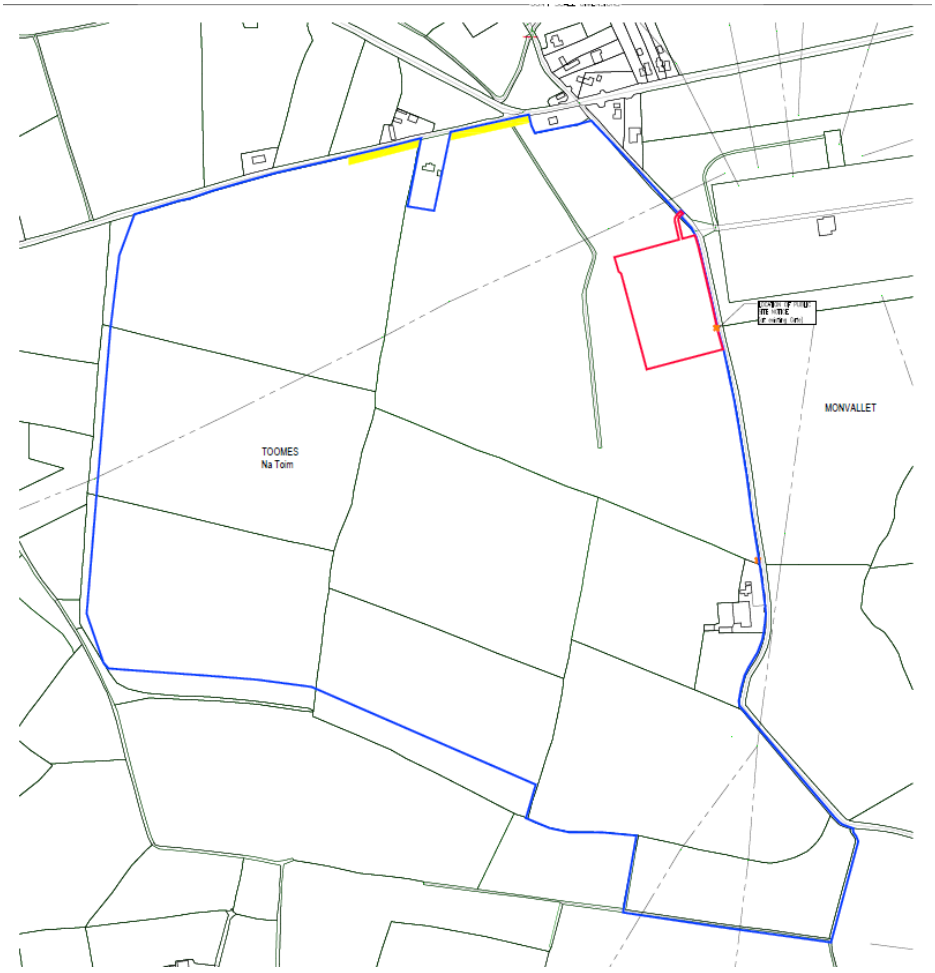

Figure 3 -Aerial map with red line of proposed Substation– Toomes, Co. Louth, Ireland

3.0 SURFACE WATER DRAINAGE

A SuDS approach is proposed for the surface water drainage. Rainfall runoff from the Control building roof in the substation will be collected and piped to a rainwater harvesting tank for reuse in the onsite toilets. As water use for flushing toilets will be very low due to the infrequent use of the building the majority of the rain water from the roof will drain into a proposed soak away. As there is no requirement for grey water in the IPP buildings the run of from the roof will be collected and piped directly to the soak away pit.

The proposed substation access road shall be surfaced with a layer of permeable stone hardcore. This free draining material will allow rainfall to permeate into the ground. A small proportion of the access roads on site will be surfaced in concrete. The surface water run-off from this area will drain freely into the surrounding free draining areas which will be constructed in hardcore stone.

To allow the possibility of an oil spill from the proposed transformer units will be situated on a bunded plinth. The surface water is collected in a sump at the corner of each buned plinth and runs through a full retention oil separator. The resulting surface water discharging into proposed soak ways on the south of the site.

The remainder of the substation compound will consist of hardcore stone material and the rainfall in these areas will permeate through the stone into the ground as per the green field conditions.

4.0 FOUL DRAINAGE

It is expected that the facility will be unoccupied for the majority of its service life. Maximum projected attendance at site and in these buildings is 2 to 3 people for one day every fortnight.

The irregular foul loading due to the sporadic occupancy of the buildings creates unsuitable conditions for a waste water treatment system. It is proposed in this case to pipe the foul water to a 2,800 litre tank for temporary holding storage. A maintenance agreement will be entered with a suitably licensed waste contractor for periodic (3 months) emptying of the tank.

The maximum expected flow into the tank every 3 months is:

3 people x 100 l/person/day (Factory with Canteen) = 300 l/day

300 l/day (1 day every 2 weeks) x 13 weeks period = 1,950 litres

Therefore, a 2,800 litre tank which will be emptied every 3 months will provide ample capacity to store the foul water.

5.0 WATER

Due to the infrequent use of the on-site buildings it is proposed to meet drinking water requirements by using bottled water.

Water for sanitary ware in the control building will be provided by a 3,500 litre rainwater harvesting tank which will be filled from roof runoff. Working with projected usage of the sanitary facilities of 1,950 litres every 13 weeks, the rainwater storage tank will provide for up to 10 weeks without receiving any rainfall.

The Control building roof area is approximately 450m². Rainfall data for Ballyhaise Weather Station, the nearest station to the site, indicates the driest month on average over the past 5 years is May. The mean rainfall for May during this period was 67.8mm.

Taking the mean rainfall value for May the roof control buildings can expect to harvest:

$450m^2 \times 0.0678m/month = 30.01m^3/month$

This volume of runoff will be more than sufficient to fill a $2m^3$ storage tank.

Rainfall values for Ballyhaise are located in Appendix A.

6.0 TRAFFIC / ACCESS

A permanent site entrance is to be provided to south of the proposed substation site as per granted Planning Application Ref 21 631. This entrance is to be completed at the earliest stage of the proposed Construction stage. i.e before any construction materials are transported to site.

The proposed underground electrical cable route will cross the existing local road to the north east of the SID Substation site. To ensure safe passage of public traffic at this location, trained flagmen will be assigned to control such movements in a safe manner. Flagmen must wear high visibility vests and use approved Stop/Go signs. The flagmen must be in visible contact and in voice communication with each other at all times. A traffic management plan for the road crossing works will be prepared prior to the commencement of construction.

Appendix A

Rainfall Values for Ballyhaise Weather station

Monthly values for BALLYHAISE up to 02-aug-2023

Total rainfall in millimetres for BALLYHAISE

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2023	92.7	26.5	130.3	83.6	52.0	94.7	154.7	20.3					654.8
2022	43.7	122.9	32.7	62.6	76.0	76.2	39.5	52.0	135.8	205.2	118.1	84.2	1048.9
2021	107.4	89.5	83.9	19.5	84.9	20.8	44.8	133.4	71.8	120.3	46.3	110.0	932.6
2020	59.2	212.8	77.8	32.8	26.2	99.5	129.7	138.4	60.4	113.3	100.7	111.0	1161.8
LTA	100.5	72.6	84.8	68.0	67.8	67.9	73.4	90.7	79.4	104.4	95.3	102.1	1006.9