03/04/2024

Environmental Impact Assessment Report
Proposed Poultry Farm Development

Belview Eggs

BORD BIA QUALITY ASSURANCE SCHEME ORIGIN-IRELAND

In respect of an proposed poultry farm at:

Carrickbaggott,
Grangebellew,
Co. Louth

On behalf of:

CRAYVALL EGG PRODUCTION LTD. ,
BELVIEW ROAD,
CARSTOWN
DROGHEDA,
CO. LOUTH.

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1. Non - Technical Summary

1.1 Introduction

This Environmental Impact Assessment Report (E.I.A.R.) has been prepared by Mr. Paraic Fay B.Agr.Sc., Mr. Hugh Larkin B.Agr.Sc. and Mr. Oliver Leddy B.Agr.Sc. of C.L.W. Environmental Planners Ltd. with the assistance of persons and bodies referred to hereafter**.** This E.I.A.R. has been prepared after an Environmental Impact Assessment (E.I.A.) of the proposed development in accordance with the Planning and Development Act 2000 (as amended), Planning & Development Regulations 2001, as amended, and Protection of Environment Act 2003.

This E.I.A.R. forms part of a planning application to Louth County Council on behalf of ***CRAYVALL EGG PRODUCTION LTD. at CARRICKBAGGOTT, GRANGEBELLEW, CO. LOUTH,*** for permission to construct;

- 1 No. Poultry House (for barn egg production), and,
- 1 No. Poultry Manure storage shed

together with all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works at Carrickbaggott, Grangebellew, Co. Louth. (National Grid Reference: E 310218 N 284795).

The farm currently operates as a c. 60,000 bird free range farm previously approved by Louth Co. Co. under planning Ref. 19/231 and the E.P.A Under Licence No. P1120-01. The proposed development will provide for an additional c. 64,000 birds on the farm ***with the proposed development deemed necessary to comply with current supermarket and consumer requirements in relation to egg production systems. The proposed development will result in an increase in overall bird numbers to 124,000 birds.***

The proposed development is in excess of the threshold required for the preparation of an Environmental Impact Assessment Report as per S.I. 600 of 2001 (Planning and Development Regulations 2001), Schedule 5 Part 1 17a as follows;

> ***"Installations for intensive rearing of poultry or pigs with more than-***
> ***(a) 85,000 places or broilers, 60,000 places for hens***

EIA requirements derive from Council Directive 85/337/EEC (as amended by Directives 97/11/EC, 2003/35/EC and 2009/31/EC) and as codified and replaced by Directive 2011/92/EU of the European Parliament and the Council on the assessment of the effects of certain public and private projects on the environment and as amended in turn by Directive 2014/52/EU.

1.2 Site Location

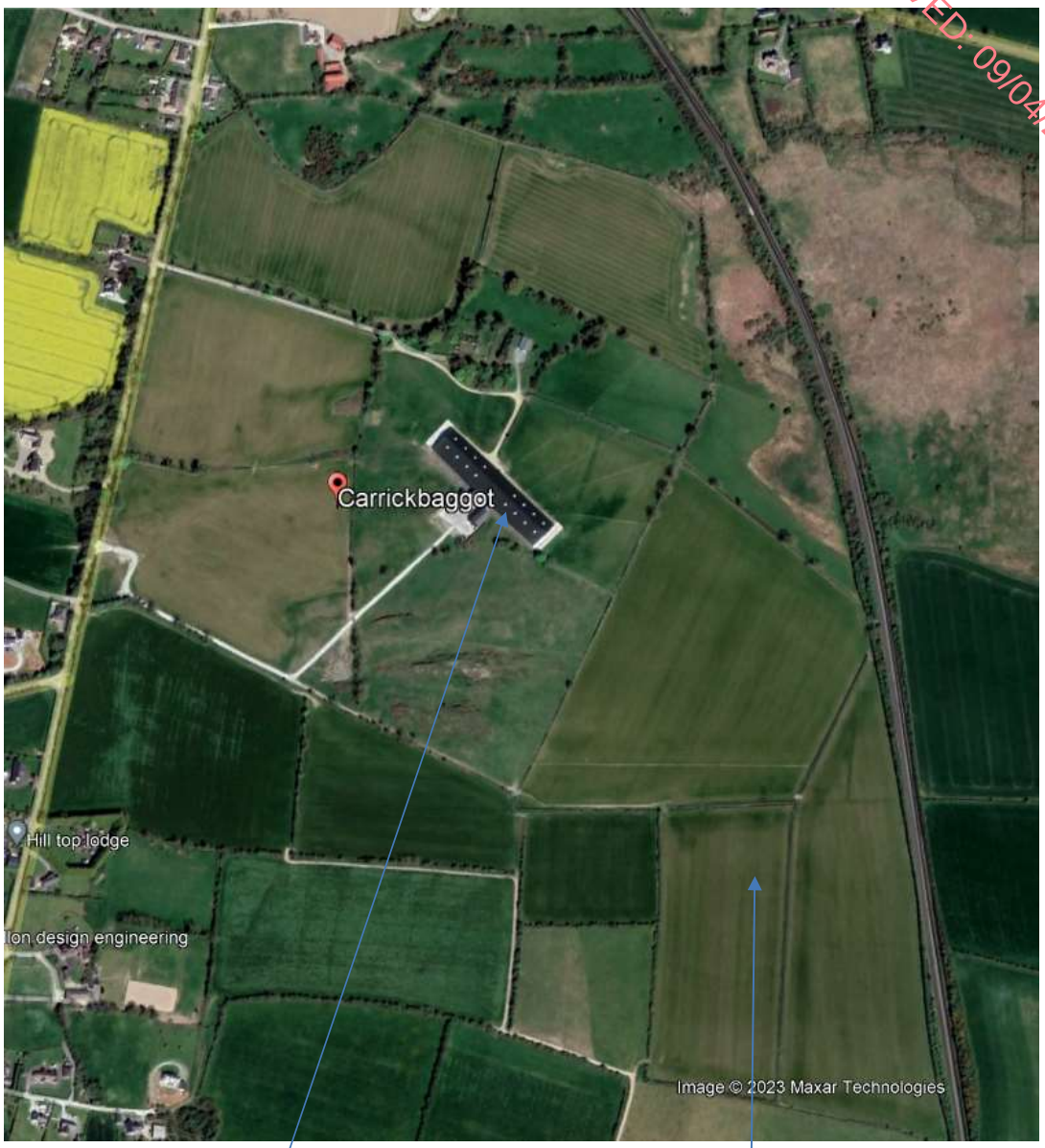
This site of the proposed;

- **Barn production hen house** and ancillary structures is a greenfield site/agricultural land, owned by the applicant and currently in a grassland production system. Part of the site area currently forms part of the existing free range area for the existing Free range poultry house on the farm, which will be revised to accommodate the proposed development.

The site of the proposed development/farm is agricultural land owned by the applicant. The existing developments on the farm were previously approved by Louth Co. Co. under Planning Ref. 19/231 and by the E.P.A. under Licence Ref: 1120-01. This proposed development is to produce high quality nutritious eggs in line with current supermarket/consumer requirements, and to allow Bellview Egg Farm Ltd. transition from enriched cage production/supply to more welfare friendly systems, both within their own farm and to augment their existing farmer supply base.

The site in question is located in a rural area within the townland of Carrickbaggot. Existing access to the farm is via a private access road that is just off a local road, c. 0.5 km's from the junction with the R170 Regional Road, and previously approved by Louth Co. Co. under Planning Ref. 19/231. The area of the development site (1.71 ha), in addition to the existing free range house and associated range area is c. 68 hectares. It is 1.2km south of Grangebellew and 4.6km south-east of Dunleer, and will be accessed by an existing entrance, previously approved under Planning Ref: 19/231, as indicated on the plans and drawings submitted with the application, and internal farm roadway which is to be extended to the site of the proposed development.

Land use surrounding the site is predominantly agricultural and improved agricultural grassland and tillage lands are the dominant habitats locally. Other habitats represented include wet grasslands, mixed broadleaved woodland, scrub, treelines, hedgerows and drains / streams. The location of the farm/proposed development is as detailed below.



The surrounding landscape is typically rural in character, dominated by a patchwork of agricultural fields interspersed with one off dwellings or groupings of same and agricultural buildings.

Existing Free range poultry house

Site of Proposed Barn House

1.3 Description of Development

The E.I.A.R. relates to an application seeking planning permission to construct;

- 1 No. Poultry House (for barn egg production), and,
- 1 No. Poultry Manure storage shed

together with all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works at Carrickbaggott, Grangebellew, Co. Louth, to operated in conjunction with the existing Free Range enterprise..

Total farm capacity upon completion of proposed development will be c. 124,000 birds. The proposed developments are to be constructed in accordance with, and to comply with, S.I. No. 311 of 2010 EUROPEAN COMMUNITIES (WELFARE OF FARMED ANIMALS) REGULATIONS 2010, and in line with current consumer/industry requirements regarding egg production.

In Ireland/E.U there are four official classifications of egg production types: Enriched Cage, Free- Range, Organic, and Barn.

1. **Laying cage systems (As per the existing houses operated by Belview Egg Farm Ltd. and other farmers supplying Belview Eggs Ltd., and which are to be upgraded to Barn Type housing systems with a consequential reduction in stocking numbers.)**

Since c. 2013, all cages in Ireland have been replaced by larger, 'enriched' Colony cages. The enriched cages provide additional space per bird along with a nest box for them to lay their eggs in, perching space for the birds to sleep on and a scratching area to perform natural behaviours. Each Colony contains between 40 and 80 birds. This allows the birds more space to move around the colony. As a result of changing supermarket requirements and a policy among most, if not all of the major retailers, a transition away from enriched cage systems to non-cage systems is to be completed by c. 2025.

2. **Barn egg production**

There are many similarities between the Barn and Free Range (detailed hereafter) systems but in the Barn system the hens are not given access to the outdoors.

3. **Free- Range egg production (As per the proposed development)**

EU egg legislation stipulates that for eggs to be termed 'Free-Range', hens must have continuous daytime access to runs which are mainly covered with vegetation and a maximum stocking density of 2,500 birds* per hectare. Indoors, the maximum stocking density is 9 hens per square metre. Hens are provided with nest boxes and perches providing 15 centimetres of perch per hen. Litter must be provided, accounting for one-third of the floor surface. This is used for scratching and dust bathing.

***In line with the higher standards under Bord Bia the free range stocking density on this farm is 1,000 birds/ha for the existing free range activity.**

4. **Organic egg production**

Hens producing Organic eggs are always Free- Range. In addition, hens must be fed an organically produced diet and ranged on organic land. The hen house conditions for organic hens are set by the EU Organic Regulations and stipulate a maximum stocking density of 6 hens per m2 of useable area and a maximum flock size of 3,000 birds.

The proposed development will encompass;

- the proposed poultry house to comply with the above mentioned standards, and,
- all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works , necessary for the construction, operation and management of the proposed farm developments.

The design, layout and operation of the proposed development will also comply with the provisions of S.I. No. 113 of 2022, as amended EUROPEAN COMMUNITIES (GOOD AGRICULTURAL PRACTICE FOR PROTECTION OF WATERS) REGULATIONS 2022, commonly known as the Nitrates Directive.

The applicant, Crayvall Egg Production Ltd. will operate and manage the proposed development. This proposed development will be one of the most modern and efficient in the Republic of Ireland, and will be fully compliant with the requirements of animal welfare, bio-security and environmental legislation. The daily management practices on-site will involve the feeding, management and husbandry of birds, automated feeding and ventilation systems and general site management. At the end of each cycle (i.e. when the birds are moved off-site), houses are/will be blown or washed down, disinfected and left ready for the next batch of birds.

All eggs produced on this site are to be sent to Belview Egg Farm Ltd.'s egg grading and packing premises at Carstown, Drogheda, Co. Louth. Belview Egg Farm Ltd. have developed trading contacts with a number of the large Irish marketing chains, which are all anxious for modern, welfare quality standard ***Irish*** eggs for the Irish retail market.

The applicant has significant assistance and guidance from Belview Egg Farm Ltd., who have a number of farmers currently producing eggs for them, in addition to their own poultry houses. In addition, as they deal directly with the large retailers they have first-hand knowledge of what the market place currently requires. This experience in all areas of the business and combined with experienced and well educated staff will be of a significant advantage to the management and operation of the proposed development.

The purpose for which this Environmental Impact Assessment Report has been completed is in support of a planning application for the proposed development as required by the planning and development regulations. The E.I.A.R. will also be submitted to the Environmental Protection Agency (E.P.A.) as part of the Licensing review procedures to be completed for this farm, to accommodate the proposed development.

It is the intention of the applicant to operate the farm with the uppermost regard for environmental protection while at the same time implementing modern welfare and environmentally friendly management processes. The structures for which permission is being sought incorporate modern design concepts in the areas of animal welfare, insulation, ventilation and environmental protection in the operation of the farm.

The proposed development has been laid out and designed so as to be as welfare friendly and as labour and input efficient as possible while at the same time providing maximum protection to the environment, and integrating with the existing site and local landscape.

The long term viability of poultry farms is dependent on;

1. the production of high quality food for the supermarket shelves.
2. complying with all welfare and environmental requirements.
3. maximising production efficiencies,
4. maximising performance and feed conversion efficiencies.
5. minimising non-feed costs such as labour and transport where possible.

All of the above are dependent on the provision of top quality housing and welfare in tandem with modern, energy efficient, feeding and ventilation systems and top quality genetics. This will be provided within the proposed development along with the optimum layout, whereby feeding and internal environmental management systems are automated.

Crayvall Egg Production Ltd. ***proposes*** to construct the following:

- 1 No. Barn Type Poultry House ~ Floor Area c. 5,171.32m^2, and,
- 1 No. Ancillary manure storage shed ~ Floor Area c. 578 m^2,

Together with all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works associated with the construction and operation of this proposed poultry house development.

<u>This proposed development is intended to help replace the any loss of capacity in enriched cage poultry housing currently supplying Belview Egg Farm Ltd. (including that previously approved by Louth Co. Co. on Belview Egg Farm Ltd.'s existing farm at Carstown, Drogheda, Co. Louth), which will be affected by the supermarkets requirement for cage free egg production. Mr Dermot Herlihy, who is a director of Belview Egg Farm Ltd. Is also a director of Crayvall Egg Production Ltd.</u>

The type of housing proposed on this farm is a closed building of steel and pre-fabricated panel construction on a concrete base, thermally insulated with a forced computer controlled ventilation system and artificial lighting. The proposed building is of a form, design, colour and materials that are similar to existing agri./poultry developments, located on the farm and/or elsewhere in the country, and sympathetic to the local area.

1.4 Organic Fertiliser Production

The management of organic fertiliser and the efficient use of the nutrients contained therein is a major factor in developing poultry enterprises. Organic manure production (0.81m3/'000 birds per week, as per S.I. 113 of 2022) from the proposed development will equal c. 2,695.68 m3 in addition to the c. 2,223.94 m3 as calculated in line with S.I. 113 of 2022 (c. 1250 tonnes based in 2021/2022 annual records) (net of the 12% deposited by the free range birds on the range area) produced by the existing enterprise, based on the average occupancy rate of c. 124,000 birds combined. ***All manure produced on the farm will be utilised on agricultural lands in accordance with S.I. 113 of 2022.*** These lands have an agronomic requirement for this organic fertiliser.

The proposed manure store into which the manure from the proposed house will be conveyed directly, will have a capacity of 1100m^3, (in addition to the c. 1,100 tonnes already provided under the previously approved development) and will have capacity for in excess of the 26 weeks required by S.I. 113 of 2022

Due to the mitigation measures to be implemented, the organic fertiliser produced on this site as a result of the proposed developments will not have a significant adverse environmental impact on the surrounding area or further afield. These mitigation measures include, but are not limited to the significant demand for organic fertiliser from within the customer farmer's tillage farming activities, and the provision of 6 months storage capacity. It is anticipated that the manure from this proposed development will replace imported inorganic chemical and/or organic fertiliser that is currently being used to satisfy crop agronomic requirements, in line with S.I. 113 of 2022 as discussed hereafter.

1.5 Utilisation of Organic Fertiliser

The existing/proposed customer farmers are experienced tillage farmers. They currently utilise organic fertiliser (such as that produced on the existing poultry farm at Carstown and/or existing poultry farms elsewhere), along with additional chemical fertiliser to meet the agronomic requirements of their crops. This chemical fertiliser will be replaced in part by the organic fertiliser that will arise in the proposed development. This experience will be of significant advantage with regard to the management and utilization of organic fertiliser from the proposed development. ***All of the organic fertiliser from this proposed development will be used by the customer farmers in accordance with S.I. 113 of 2022, as amended,*** and is intended will replace/reduce chemical fertiliser currently imported onto these farms.

The lands are currently farmed in accordance with S.I. 113 of 2022 are primarily tillage lands, utilised to produce wheat and barley that is used by the animal feed industry, to supply farms such as the proposed development, (and other crops such as potatoes, Oil Seed Rape etc.). In turn these lands will be supplied with manure from this development to be used as a fertiliser on these lands. As can be seen from the information provided,

referred to as a customer list in keeping with standard terminology for this type of development, the customer farmers farm > 660 Ha, and these lands will require > 150 % of the cumulative fertiliser that would be produced on this farm upon completion of the proposed development.

Notwithstanding that it is intended that all organic fertiliser will be allocated to the customer farmers lands, this customer list may be complimented with additional customer farmers who are in a position to utilise organic fertiliser to meet their fertiliser needs in line with the provisions of S.I. 113 of 2022, as amended. The feed to be used on this farm will be sourced from, specialised poultry feed suppliers such as A.W. Ennis, Corby Rock Mill etc.,

All information required by, S.I. 113 of 2022, as amended, (European communities (Good Agricultural Practice for Protection of Waters Regulations 2022) will be maintained on-site and will be made available for inspection as required.

1.6 Application of Organic Fertiliser

Notwithstanding that the customer farmers have sufficient capacity to utilise all of the organic fertiliser, any additional customer farmers who may seek a supply of organic fertiliser from this farm upon completion of the proposed development will be advised as to their legal requirements to be complied with when applying organic fertilisers to land. In addition to this Crayvall Egg Production Ltd., will ensure that all information required to be forwarded to the customer farmers, upon receipt by them of organic fertiliser from this proposed farm, is forwarded to them as soon as practicable thereafter, albeit that the management and application of this fertiliser in accordance with S.I. 113 of 2022, after it leaves the poultry farm is the responsibility of the customer farmer. These requirements including the requirements pertaining to the application of animal manures to land are as outlined in S.I. 113 of 2022, as amended.

All lands currently identified for the receipt of manure form the proposed development are tillage lands, be they Wheat, Barley, Oats, Potatoes, Oil Seed Rape etc. In order to minimise any potential adverse environmental impact, and to ensure that they get maximum fertiliser benefit from the organic fertiliser, all manure from this farm should be stored, managed and applied in accordance with S.I. 113 of 2022, as amended and incorporated/ploughed into the soil as soon as practicable after application. Odour nuisance will be minimised and surface and ground waters protected by, using the correct application rates, spreading at the correct times under suitable conditions and strict adherence to cordon sanitaires and the Codes of Good Practice for manure spreading, as outlined in S.I. 113 of 2022, as amended. This fertiliser planning will result in fertiliser substitution.

1.7 Soil

The allocation and utilisation of all fertiliser produced on this farm in accordance with S.I. 113 of 2022, as amended will ensure that this farm has no negative impacts on the farmland. The applicant will ensure that organic fertiliser is spread only under the most favorable soil and climatic conditions, preventing any soil structural damage. Hydraulic and chemical loading will not be exceeded due to the fact that all organic fertiliser is to be applied in accordance with S.I. 113 of 2022, as amended thus preventing nutrient accumulation. As part of this Crayvall Egg Production Ltd. will ensure that any additional farmers, if they arise, receive a copy of all relevant information as required by, and referred to in, S.I. 113 of 2022, as amended. The return of as much of the manure as practicable to the land that was used to grow the grain used in the Irish animal feed industry is the ideal cycle for the utilisation of the nutrients contained therein.

1.8 Surface and Ground Water

The poultry farm will be located in the catchment area of the Morganstown Stream. The E.P.A., Louth Co. Co. and/or the local regional fisheries board carry out water quality monitoring on an ongoing basis in the area and/or county wide. Surface and ground waters in the proximity of the site will remain protected due to separation of clean and soiled waters and the provision of adequate storage facilities. All soiled water will be directed to the soiled water storage facilities. All roof water and uncontaminated storm water from the hard standing areas on site will discharge, to surface water via the proposed storm water attenuation system. There is no history of flooding on or close to the development site. The proposed development will be built to current Department of Agriculture and Food standards, and will have modern feeding and ventilation systems in the house.

As part of the existing and any revised E.P.A. Licence requirements for this farm, once completed Crayvall Egg Production Ltd. will be required to monitor storm water run-off from the site on a weekly basis. This continuous monitoring, in addition to the mitigation measures put in place, will identify any adverse effect on surface water quality in the area of the farm. This monitoring will include any storm water discharge points that arise as a result of this proposed development. Soiled water will be directed into the soiled water storage tanks. All proposed soiled water storage facilities will be constructed and monitored in line with E.P.A., Louth Co. Co. and Department of Agriculture requirements.

The applicant as well as all customer farmers are obliged to farm in accordance with S.I. 113 of 2022, as amended, or any subsequent amendment to/derogation from same. This will also apply to the organic fertiliser utilised by customer farmers from the proposed developments, or that produced on their own/other farms. This will have a long-term benefit, and will ensure that there is no adverse impact on water quality in these areas.

Based on the experience gained by the customer farmers with the existing tillage farming activities, including the use of organic fertiliser such as poultry manure thereon, and the mitigation measures to be implemented as part of the proposed development, it is expected that the operation of the proposed activities at this site will not have any ongoing adverse impact on water quality in the area.

The application site lies within the Newry Fane Glyde and Dee Hydrometric Area and Catchment, the Burren Sub-Catchment and the Slieveboy Sub-Basin. There are open drains within the application site and same will be protected during the construction and operation of this farm. Water in these drains is likely to flow towards the Moganstown Stream, which is 300m north of the application site. This stream flows east until it flows into the sea near Lurganboy, approximately 5.1km north-east of the application site.

The EPA have classified the ecological status of the Morganstown Stream as moderate status for its entire length. Under the requirements of the Water Framework Directive, this is unsatisfactory and all water bodies are obliged to meet good status within the time frame of the current cycle of the Water Framework Directive (2027) .

1.9 Air / Climate / Climate Change

All practicable steps will be planned for and will be taken so as to minimise odour from the site. Its rural setting and location distant from local residences will ensure no effect on Human Health/Population. This development will have no significant adverse affect on climate. The closest third party dwellings to the proposed site, is located c. 640m southeast of the proposed development. An air quality impact assessment has been competed in respect of this farm (cumulative of the existing and proposed developments) and has confirmed that proposed ammonia, odour and /or particulate matter (dust) emissions will not cause an adverse impact at any sensitive location.

As the birds will be maintained in a controlled environment within the proposed house, the operation of the farm is not directly significantly susceptible to climate change, however climate change may impact on energy use associated with ventilation systems to maintain a controlled environment within the house relative to outside climatic conditions, and, may have implications for feed supply to feed the birds.

1.10 Visual Aspects and Landscape

This site of the proposed development is agricultural land, and forms part of an overall area of c. 68 Ha (c. 60 Ha+ of which is dedicated to the current free range enterprise, and as a result of range area required for this existing free range activity, the proposed development is required to be located remote form same and can not be adjacent to the existing house as it would impede free range bird access to and from the existing development.), owned by the applicant at this location. The area of the proposed development is currently a grassland/tillage field.

In the current County Development plan, rural areas are divided into two types as per Table3.3 of the aforementioned plan, and as detailed below.

Table 3.3: Rural Policy Zones

Policy Zone	Description
Rural Policy Zone 1	Area under strong urban influence and of significant landscape value
Rural Policy Zone 2	Area under strong urban influence

The extent of these policy zones are set out in Map 3.2.

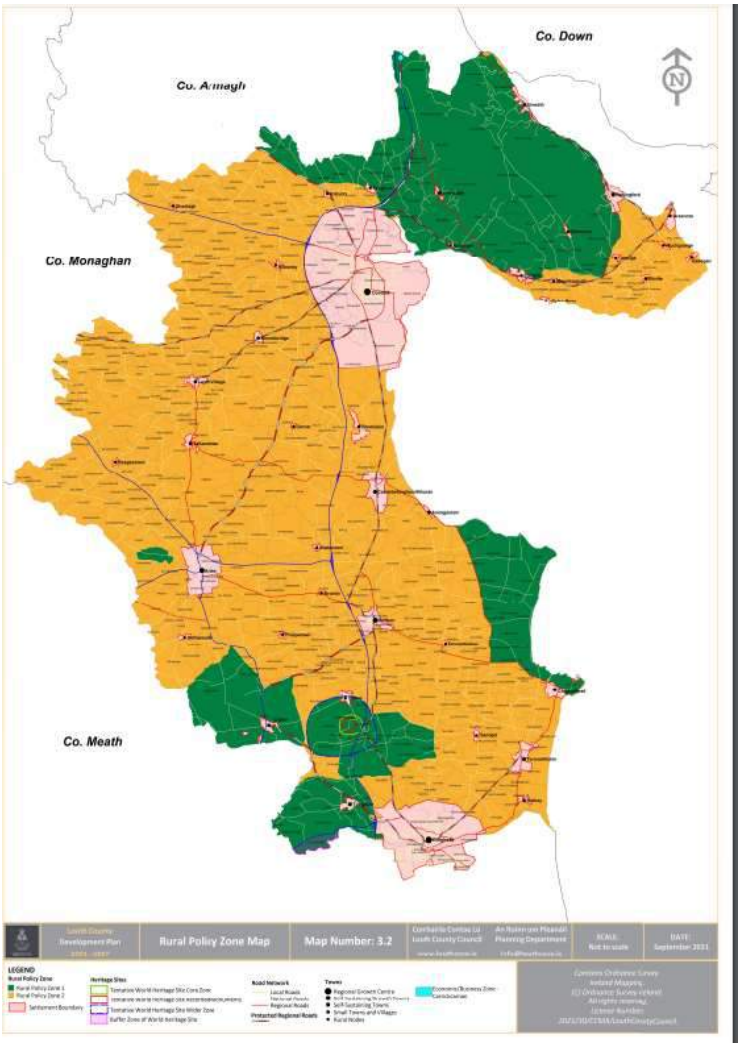
This area is located in an area referred to as ***Rural Policy Zone 2 (Area under strong urban influence) of the Co. Louth Development Plan 2021-2027.***

It is an objective of this Plan, from both social and economic perspectives, that agricultural activity and local communities should be protected and permitted to develop and prosper in this area. This area also affords opportunities for certain resource based and location specific developments and critical infrastructure projects of significant regional or national importance. Such development proposals will be subject to the provision of adequate environmental and landscape protection , and as such is suitable in principle for Agricultural development such as that currently proposed.

The site in question is located in a rural area within the townland of Carrickbaggot. Access to the site is via a private access road that is just off a local, third class road c. 0.5 km's from the junction with the R170 Regional Road. The area of the site is 68.5 hectares in total and this includes the c. 60 Ha range area of the birds (associated with the existing free range development) that surround the site. It is 1.2km south of Grangebellew and 4.6km south-east of Dunleer.

In the Louth County Development Plan 2021-2027 (Landscape Character Area taken from the Louth County Council Landscape Character Assessment – 2002), this area is identified

as being located in the Muirhevna Plain. This is the largest landscape area in the county and is predominantly agricultural in nature.



The agricultural nature of the proposed development and the site, and its location integrated into the existing agricultural holding, and low set in the landscape, will ensure that there will be no visual impact on the local environment from the proposed development. For essential operational reasons, applicable to the nature of the existing free range house, the proposed development can not be located close to, or grouped with the existing free range poultry house, (as it would impede the access of the birds to/from the existing development to the required range area) and therefore has to be located remote from the existing development. The site is not located near to or likely to affect any National Heritage Areas, Special Areas of Conservation (S.A.C.), Special Protection Area (S.P.A.), and/or key views/prospects as listed in the Louth County Development Plan 2021-2027, and will be nestled into the surrounding land topography and integrated into the landscape.

1.11 Noise/Traffic

It is not anticipated that noise at this site will have any adverse impact on the local environment due to the fact that there are no third party dwellings, and no other sensitive locations, located close (i.e. within c. 640m) to the proposed poultry house to be affected by the proposed development. The potential noise emissions from the poultry house are low and should have an imperceptible impact on adjacent dwelling(s) (as confirmed by the Noise Impact Assessment caried out for the proposed development), and the existing development has operated successfully without any adverse impact. As previously detailed the proposed development seeks to complete a sustainable farm diversification from grassland, to barn egg production, complimenting the existing free range egg production, and facilitating Belview Eggs Farm Ltd. in meeting current supermarket/consumer requirements.

While the proposed development will alter the traffic to and from the site, this will be achieved without any significant adverse impact on the local road network. A significant effort will be made by the applicant to minimise traffic flow by optimising load sizes, however while there will be a net increase in traffic associated with this development, compared to existing levels associated with the current agricultural practices, this will not adversely impact on the local area.

The currently proposed development will result in an increase in traffic of on average,

- c. 1.5 loads of organic fertiliser per week,
- c. 1.8 feed deliveries/week and,
- c. 0 additional egg collections/week (as same is to be integrated with the existing egg collection schedule
- 2 staff daily.
- Stock transport (8 loads out and 8 loads in) at the end/start of each flock (c. every 14-15 months)

when fully completed.

Additional traffic will occur due to veterinary inspections, farm maintenance and the transport of waste off the site, however, in the main this will be integrated with the existing activities on the farm resulting in no significant increase in traffic movements.

Transport of dead birds will occur on a weekly/fortnightly basis in line with Louth Co. Co. and E.P.A. requirements, and will be integrated into the waste collectors regular collection schedule. All other wastes such as fluorescent tubes, general waste etc. will be stored appropriately and will be removed from the farm by approved contractors and/or to approved sites in line with E.P.A. and Louth Co. Co. requirements. The amount of any such wastes will vary on a weekly basis, however the collection of all such wastes will be co-ordinated to optimise same

There will be a temporary increase in traffic due to the construction of the proposed development, however this will cease once the development has been completed. This will involve deliveries of steel, concrete, building materials, equipment etc. While there will be new traffic movements to and from the site due to feed deliveries, manure transport and other associated traffic, this will be minimised by optimising load sizes, and co-ordinating collections/deliveries

1.12 Bio Diversity - Flora and Fauna / Special Policy Areas

The organic fertiliser produced on this farm will be allocated to farming lands that have traditionally and/or are currently receiving chemical fertilisers and some organic fertilisers (be they bovine, ovine, porcine and/or avian in origin) to maintain soil fertility and ensure satisfactory grass/crop production. The organic fertiliser produced on this farm will be used to replace the imported fertiliser that would otherwise have to be, and is currently being, used to meet agronomic requirements. All habitats within these lands such as wooded areas, scrubland etc. would be excluded from receiving organic fertiliser from this farm due to the requirements of the nitrates directive, S.I. 113 of 2022, as amended.

A pest control programme, to take account of the proposed development, will be implemented on the farm, in line with the requirements of Bord Bia Sustainable Egg Assurance Scheme (SEAS). This will be devised, completed and maintained in line with Bord Bia requirements.

As this proposed development is planned on an agriculturally managed area which has been part of an intensively managed agricultural enterprise for a significant number of years, the ecological value of the site reflects these previous management practices. This area has been intensively managed for productive grass/crop production, and thus has a low level of plant diversity and is of no significant ecological importance as a habitat. The majority of the surrounding area is traditional grassland/arable based agricultural lands.

The application site lies within the Newry Fane Glyde and Dee Hydrometric Area and Catchment, the Burren Sub-Catchment and the Slieveboy Sub-Basin. There are open drains within the application site. Water in these drains is likely to flow towards the Moganstown Stream, which is 300m north of the application site. This stream flows east until it flows into the sea near Lurganboy, approximately 5.1km north-east of the application site. Surface water from the proposed development will discharge to the local surface water drains via a storm water attenuation system. As this will ensue that storm water form the proposed development will not exceed greenfield run-of rates there will be no adverse impact on the local area incl. any wetland areas.

The EPA have classified the ecological status of the Morganstown Stream as moderate status for its entire length. Under the requirements of the Water Framework Directive, this is unsatisfactory and all water bodies are obliged to meet good status within the time frame of the current cycle of the Water Framework Directive (2027) .

Activities at this site are not expected to have any adverse affect on the conservation of these areas and the wildlife contained therein for the following reasons,

- The proposed poultry house is located a significant distance from the North-West Irish Sea SPA (Candidate), Clogher Head SAC, Boyne Coast and Estuary SAC, Dundalk Bay, and/or The River Boyne and River Blackwater SAC / SPA.

- The existing farming activities have been carried out on these lands without any adverse impact on the designated areas, and the same high levels of management and expertise will be afforded to the operation of the proposed development.

- All organic fertiliser arising from this farm is to be allocated to lands in accordance with S.I. 113 of 2022 in accordance with S.I. 113 of 2022, as amended.

- Given that the manure will be in a dry/solid form there are none of the perceived risks that may be associated with liquid manures.

- ***the currently proposed farm diversification has been deemed necessary to comply with current supermarket and consumer requirements in relation to egg production systems, and to offset any reduction in the capacity of existing egg farms currently supplying Belview Egg Farm.***

- Potential gaseous emissions from the development have been screened, assessed and mitigated where appropriate.

1.13 Amenity Areas

The proposed poultry house site is not located close to or likely to adversely impact on;

- Areas of Outstanding Natural Beauty,
- Areas of High Scenic Quality,
- Scenic Routes, Views and/or prospects,

as listed in the Louth Development Plan 2021-2027.

The proposed development will be set low in the surrounding land topography, nestled into the existing landscape.

1.14 Cultural Heritage (Architectural and Archaeological Features)

There are no buildings/structures of architectural significance located on or adjacent to the proposed site or likely to be impacted by the proposed development.

There are no recorded archaeological features within c. 0.4km of the proposed site;

There are archaeological features on the landholding and ;

- ***The first and second*** are a church and graveyard located at the same location c. 550-600m north of the proposed development, and,

- ***The third*** a holy well (albeit dried up when inspected in 1967) located close to the access route and 400m + from the proposed development

All works are to be completed outside of the Zones of notification associated with these features, and /or any other such features located outside of the landholding.

The proposed poultry house is to be constructed on intensively managed farmland. This development will not involve the construction of significant underground tanks etc. that require significant excavation. It is not considered likely that the agricultural development, as proposed, will cause any direct impacts to any identified archaeological monuments. Furthermore, given the locations of the extant archaeological monuments, together with the topographical situation of the site and its environs, it is considered that no significant adverse impacts will occur to the setting of any monuments.

The site is accessed via an internal farm laneway c. 0.75km from the Local Road. The topography of the site is relatively flat and the proposed development site is c. 6m lower than the road level at the site entrance. The entrance to Rokeby Hall, a protected structure under reference 13901802 & 13901801 is located opposite the entrance to this farm. Rokeby Hall is designated as a Historic Garden and Designated Landscape in the County Development Plan 2021-2027. Given the distance to, and the setting of the proposed development, low set in the landscape and on an existing poultry farm the proposed development will have no significant adverse impact on the Architectural heritage of the area.

1.15 Wastes/By-Products Generated on-site and Emissions from the Farm

All wastes generated on site, such as dead birds, general packaging etc., will be stored and disposed of/recovered in accordance with applicable regulations and in accordance with Louth County Council and E.P.A. requirements.

The potential of the proposed poultry house for adverse impact on environmental parameters is negligible, due to the nature and management of the proposed development. All wastes will be removed from the site by authorised waste contractors for either disposal or use elsewhere. All soiled water generated on-site will be collected in the proposed soiled water collection tanks, pending its application to the landholding adjoining / adjacent to the site. While waste generated on the site would be accumulated and stored temporarily on the site, there will be no disposal or recovery of any waste undertaken on the site. Soiled water will be applied to remaining lands adjacent to the proposed development.

Poultry manure is the main by-product to be produced on the site. This manure is a valuable organic fertiliser, and is keenly sought by tillage farmers, such as the current customer farmers. All manure from the proposed development will be removed off site for use on the lands in accordance with S.I. 113 of 2022 as an inexpensive organic fertiliser to replace purchased expensive inorganic/chemical fertiliser and/or organic fertiliser from other sources. In addition, the manure can be moved off-site for use by other customer farmers for use as an organic fertiliser where required.

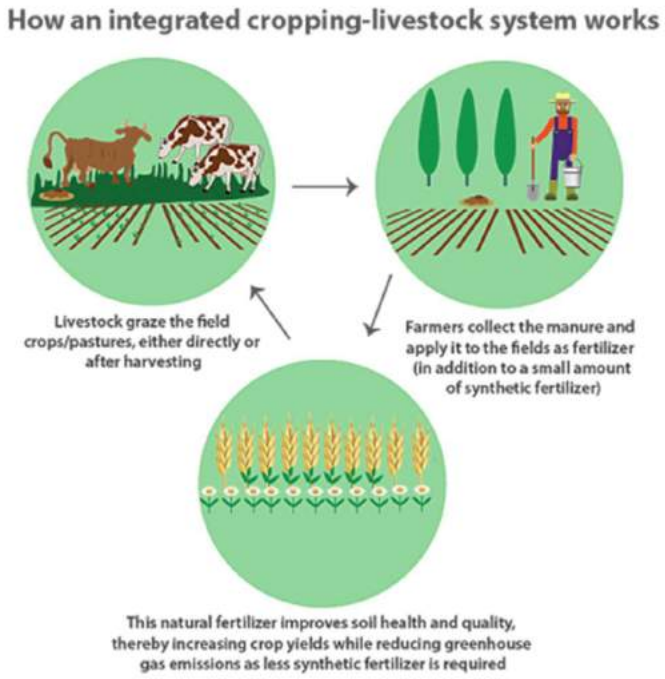
Teagasc have recently (2022) put a value of €43 per m^3 on this fertiliser based on a comparison with 2022 chemical fertiliser prices. This naturally produced organic fertiliser provides significant benefits with regard to improvements in soil organic matter, trace element content, when compared to inorganic imported chemical fertilisers.

Integrated farming systems fight climate change and boost crop yields

Integrated cropping-livestock systems are another sustainable agricultural practice. These practices are based on a simple concept: that crop yields can be maximized by recycling nutrients present in both animal manure and crop residues. This reduces the need for chemical fertilisers that release large quantities of greenhouse gases and thereby contribute to climate change. In an integrated cropping-livestock system, livestock may either graze the field crops directly or may be fed the crop after harvesting. Farmers then collect the manure from the livestock and use it as fertiliser, thereby returning many of the nutrients to the soil. In this regard;

- Soiled water – is to be utilised as an organic fertiliser on adjoining grassland.

- Poultry Manure is to be used as part of a fertiliser substitution programme (to replace imported chemical fertiliser) on customer farmlands to meet crop /grassland agronomic requirements.



In addition to the above Crayvall Egg Production Ltd. / Belview Egg Farm Ltd., are the first poultry farm to partake in the Teagasc Signpost Advisory Programme. This targeted advisory programme operated by Teagasc is designed to support climate and sustainability actions on farms. This new public good programme will be available to all farmers. It will build on the network of Signpost Demonstration Farms by providing enhanced advisory and training support to farmers to commit to, select and implement climate and sustainability actions that will be appropriate and impactful on their farms. Participating farmers will be given the opportunity to commit to taking action for their farms.

1.16 Material Assets

Resources that are valued and that are intrinsic to specific places are called 'material assets'. They may be of either human or natural origin and the value may arise for either economic or cultural reasons. The potential impact of the proposed development on *archaeology / cultural assets* has been discussed previously.

Material Assets that may potentially be affected by the proposed development include:

- (A) Material Assets: Agricultural Properties including all agricultural enterprises
- (B) Material Assets: Non-agricultural Properties including residential, commercial, recreational and non-agricultural land.
- (C) Material Assets: Natural or other resources including mineral resources, land and energy

The proposed development will be completed on a portion of existing agricultural land, and will not adversely impact on agricultural and/or other properties outside of the site boundary. The development will involve the use of a limited amount of construction materials (including quarry products and other construction materials), however the extent of the development is limited in nature and the amount of resources required in the construction of the houses, and potential adverse impact of same, is negligible when sourced from authorized sources.

The operation of the farm will require additional feed (classified as a renewable resource), energy and water. The applicant will operate modern feeding and ventilation systems to minimize same. The farm does not require any major modifications to the existing electricity supplies, water or road infrastructure in the area. Solar Panels have been provided to the existing development and are planed for the proposed development to minimise GHG emissions and demand on the energy network.

1.17 Population / Employment / Human Health

This development will have a positive effect on population in the area. This farm will employ a minimum of 2-4 people directly, and will support additional jobs in the egg packing, distribution and sales business, and the numerous other supporting industries, as well as providing much needed employment to the local construction industries and support services. The proposed development will successfully integrate with the wider agricultural and horticultural sectors in the area of feed supply and providing a valuable resource ingredient for local farmers to utilise in grass/crop production, and replacing imported chemical fertiliser. This farm will have no adverse effect on tourism in the area of the site due to its remote location and comprehensive management and operational practices.

Agriculture is the mainstay of the local/national economy and provides a significant source of local/national employment. Within the country the poultry industry (poultry meat and egg production, packaging, marketing and sales) is a key component of this. Together the poultry sector, including meat and eggs, produces ***an annual output of €611 million at wholesale prices***. ***The sector supports over 5,000 jobs and over 3,500 of these are based in the border region***. An input intensive industry, over €250 million is spent on farm inputs (including animal feed), while the processing sector spend in the order of €140 million on wages, salaries and other inputs. All of this expenditure provides a welcome boost to rural economies across the country but especially in the border region where the sector is most prevalent. If poultry sector output expanded by €10 million (to displace imports for example), the multiplier effect is such that this would generate almost €19 million worth of output in the Irish economy.

An investment/development of the nature proposed will guarantee new jobs, and will secure a significant number of existing jobs (construction servicing etc.), for the local community well into the future. The potential risk to human health / cultural heritage and/or the environment due to accidents and/or disasters is limited due to the innate nature of the production system and activities on-site. There are no significant high risk/hazardous products used, produced and/or released by the proposed development which would pose a risk to human health, cultural heritage and/or the environment outside of the site boundary as a result of any accident/disaster.

1.18 Potential Effects (Cumulative, Long/Medium/Short Term, and/or Transboundary).

Within the County;

This proposed poultry house is located in County Louth. County Louth does not have as intensive an agriculture sector as counties such as Cavan, Monaghan, Cork etc., and farming in the county in based more around the traditional enterprises such as tillage, dairy and beef, however as demonstrated there is significant symbiosis to be achieved with integrating alternative farm enterprises such as poultry with tillage enterprises.

The existing tillage and arable sectors in Co. Louth have relied heavily over the years on a consistent reliable supply of organic fertiliser from Counties such as Cavan and Monaghan, so as to minimise the need for, and costs associated with expensive imported chemical fertiliser. This application is for planning permission for the erection of 1 No. poultry house with capacity for 64,000 hens managed and operated to the highest standards and in line with modern environmental and animal welfare standards. Bird numbers upon completion of proposed development will be c. 64,000 birds in the proposed development, complementing the existing 60,000 bird free range farm already operating.

The recent poor returns from the more traditional farming practices, including beef and tillage, have had a significant adverse impact on the rural Irish economy. Farm diversification is an essential part of a viable agricultural sector, both to meet the economic needs of the farmers, but also the societal needs of the population at large. Productive, efficient and sustainable rural agricultural activities, such as the proposed development, and the jobs dependant thereon, will be critical to the local and wider Irish economy.

Within the Local Area;

While it has been detailed previously that the proposed development will not have any significant adverse cumulative impact within the county the potential cumulative impact on the immediate local area needs to be assessed separately.

The proposed development will result in a significant increase in stock numbers on the site, increasing by 64,000 birds to c. 124,000 birds. While this may be perceived as a significant development, it is in keeping with the current scale of existing poultry farms licensed by the E.P.A. in County Louth and country wide, and small by comparable international standards.

The impact of the proposed development within the local area will be minimised by integrating it successfully with the existing farming activities, proper management and storage of all wastes produced on the site and the utilisation of all organic fertiliser in accordance with S.I. 113 of 2022, as amended.

A number of measures have been provided for in the design, layout and planned operation of the proposed development, so as to mitigate against any adverse impact in the local area or further afield. Any additional requirements placed on this development by Louth Co. Co. and/or the E.P.A. as a result of planning permission or E.P.A. Licence conditions will be integrated into the development and operation of this farm. This will ensure that this proposed development will have no adverse environmental impact on the immediate area and will not lead to a negative cumulative impact on the local environment.

Trans-boundary;

Given the location of the proposed development well removed from any other international boundary, and the inert nature of the construction and operation of the farm and any of any materials used and/or produced on-site together with the range of processes to be carried out there is no potential for adverse trans-boundary impact.

1.19 Measures to avoid, prevent, reduce or if possible offset significant environmental effects.

Although no significant adverse environmental effects are anticipated a number of best practice measures will be implemented in the construction and operation of the farm to ensure that there is no adverse environmental impact. These include, but are not limited to;

- Proper storm water drainage and attenuation system.
- Collection and appropriate management of all soiled water.
- Management of all organic fertiliser / poultry manure in line with requirements of S.I. 113 of 2022, as amended. All poultry manure to be used by customer farmers as an organic fertiliser, as part of a fertiliser substitution programme on their farms to replace imported chemical fertiliser to meet crop / grassland agronomic requirements.
- Proper management and segregation of all wastes produced on site, with use of approved contractors and wastes sent for recycling, recovery where appropriate in preference to disposal.
- Proper management and oversight of the farm at all times.
- Appropriate landscaping.

1.20 Difficulties encountered in compiling the required information

The processes and technology involved in the construction and operation of the proposed development are standard for poultry farm developments, and well understood. In addition the practices are substantially similar to that already in practice on-site and are already in practice within a large number of existing poultry farms elsewhere in the country.

The principles with regard to the feeding and management of the birds, the operation of the feeding, water and ventilation systems, the treatment, storage and management of wastes produced, and the storage, management, distribution and utilisation of the organic fertiliser / poultry manure produced on this farm is similar to existing poultry farm operations. In this regard the proposed development will employ the highest construction, environmental and welfare standards and the allocation of all poultry manure for use in by customer farmers as part of a fertiliser substitution programme to replace chemical fertiliser, similar to the operation of the existing development.

The technical information on which to base an assessment of impact on environmental parameters is readily available in the public domain and additional information can be extrapolated from the operation of the existing farming activities and similar developments elsewhere in the country.

In essence all of the parts of this project (i.e egg production, use of poultry manure as an organic fertiliser, potentially to be used in the production of cereals for feed production using Irish grain,) have been widely practiced country wide, and are as per those practices already operating on the farm. Same will;

- Improve both the economic and environmental sustainability of the existing farm.
- Allow the applicant to develop an alternative farming enterprise that has the potential for significant symbiosis with and benefits to/from the existing farming activities, and the existing business (Belview Egg Farm Ltd.).
- The location of the proposed development outside of the traditional poultry farming areas will also help to maximise bio-security on the farm.
- Interaction with local customer farmers will ensure the utilisation of the poultry manure produced on the farm in another sector of Irish Agri-Food production.

As a result the assessment of any potential impact from the proposed development is factual as well as projected. There were no particular difficulties encountered and there is no reason to consider that there is any serious risk of error attaching to plans and projections for the treatment of wastes to be generated in the proposed development.

1.21 Summary

The proposed agricultural development is to be completed on/in an agricultural area, consistent with local, regional and national policy. This development will assist in diversifying, and integrating with the applicant's existing farming activities and is a progression in / extension of the poultry farming activities operating on these lands, albeit in a different operating system (i.e. Barn housing, not free range as per existing) . The proposal as outlined will make a significant positive contribution to the rural economy of Co. Louth as it will serve to increase employment and secure the viability and competitiveness of the local agri-food sector

Simultaneously, it will integrate seamlessly with the wider agricultural / tillage sectors to the mutual benefit of both, in an environmentally friendly and sustainable manner, as depicted in the Process Flow Diagram below. The new farm buildings will integrate successfully with their surroundings and will not give rise to any significant environmental effects.

The granting of permission to the proposed development would strongly accord with the provisions of the County Development Plan and will provide a significant boost to the economy of Co. Louth. The proposed development will operate under the conditions imposed as part of any grant of planning permission and revised E.P.A. Licence for this farm.

Signed:

Paraic Fay
BAgrSc

4/4/2024
Date

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Tel: 049-4371451
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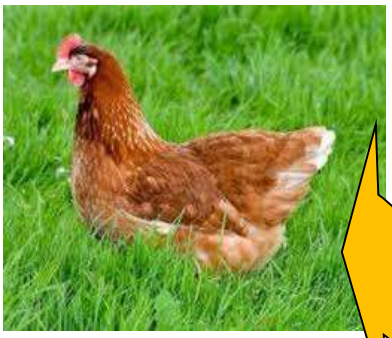
Process Flow Diagram

Horticulture / Agri. Sector



Crayvall Egg Production Ltd.

ic fertiliser / po
c.4 9

Cereals

Feed
c. 75%

Eggs

Belview Eggs

2. INTRODUCTION

The agri-food sector has been credited with playing an integral role in the national economic recovery in recent years. The sector is the country's largest indigenous industry, with an export value of c. €14.5 billion and providing c.165,000 jobs or 7% of the total employment. The sector makes a significant contribution to employment in rural areas, being a pivotal source of enterprise creation and opportunities. The sector has particularly appealing characteristics in that its supply chain is labour intensive in the local economy while its output is primarily for export. This means that it is rich in employment locally but can harness growth opportunities globally.

Reflective of the growing importance and economic potential of the sector, a strong policy emphasis has been placed on the sector in recent years through a number of national frameworks issued by the Department of Agriculture, Food and the Marine including Food Harvest 2020: A Vision for Irish agri-food and fisheries, Milestones for Success 2014, which charts the achievements of the former, and Food Wise 2025: A 10-year Vision for the Irish agri-food industry. Food Wise 2025 sets out a strategic plan for the coming decade, covering the period of the Plan, and focusses on opportunities to increase primary production, exports, add value to the products within the sector, and create 23,000 additional jobs throughout the sector. The sector is broadly described as encompassing everything from primary agriculture to food and beverage production, from fisheries and fish processing to forestry and forestry outputs.

Of the unique nature of the sector, Food Wise comments: 'Its strategic importance to the Irish economy, its roots in local communities and its strengthening global reach (the industry provides quality, safe and nutritious food to consumers in at least 175 countries around the world) make it a sector unlike any other.

Food Vision 2030, seeks to built on these previous strategies with a strengthened focus on sustainability to ensure that Ireland will become a world leader in Sustainable Food Systems (SFS) over the next decade. This will deliver significant benefits for the Irish agri-food sector itself, for Irish society and the environment. In demonstrating the Irish agri-food sector meets the highest standards of sustainability – economic, environmental, and social – this will also provide the basis for the future competitive advantage of the sector. By adopting an integrated food systems approach, Ireland will seek to become a global leader of innovation for sustainable food and agriculture systems, producing safe, nutritious, and high-value food that tastes great, while protecting and enhancing our natural and cultural resources and contributing to vibrant rural and coastal communities and the national economy.

2.1 Poultry Industry

- **National Basis**

The poultry sector is an important sector in the Irish economy accounting for c. 2% of agricultural output (>€600 million of wholesale value) and about 5,000 jobs primarily in rural areas. The predominant outlet for Irish eggs is the Irish retail market, where there is strong demand for fresh Irish product. The poultry sector has faced considerable challenges in recent years from rising feed and energy costs combined with significant pressure from unlabelled cheaper imports. The sector is small scale and highly vertically integrated from breeding stock to final processing. However, it competes with international enterprises which are larger in scale and avail of economies of scale by producing large volumes of product at lower cost. There are opportunities in the sector to reduce costs and increase efficiency through increased scale and modern housing facilities as well as improved food efficiency.

The poultry industry is divided into 2 broad sections – poultry meat and egg production. Both of these industries are of significant importance to the Irish economy. The poultry and egg sector makes a valuable contribution to the Irish agricultural economy, with output at farm level estimated at €156 million in 2016. The sector is a significant employer in rural Ireland with over 5,000 people employed in poultry processing, and at farm level.

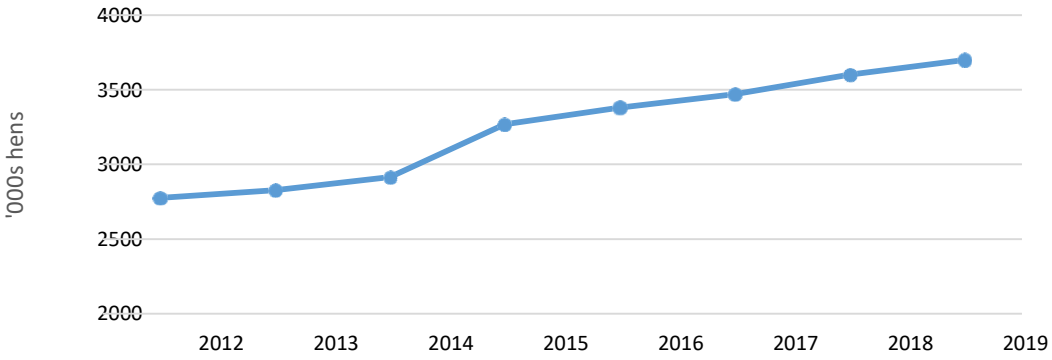
Poultry production in the Republic of Ireland is below market demand for poultry meat (the prime portions (breast), and as a country we are not self-sufficient, while at the same time exporting a significant amount of wings, legs etc.), but at, or about self sufficiency in eggs currently. The proposed upgrading to higher welfare systems is likely to reduce production to below self sufficiency and the proposed development is required to facilitate the applicant replace any production loss in houses currently operated by Belview Egg Farm Ltd., and those of his customer farmers while at the same time being able to meet existing supermarket/consumer demand and organic growth due to increase in per capita consumption and population growth.

2.1.1 : Production and Consumption of Eggs

According to data supplied by Bord Bia, the average consumption of eggs per capita in Ireland was 155 eggs per year in 2019, with the equivalent of a further 26 eggs consumed in egg products, bringing total consumption to 181 eggs per capita per year. At a national level, almost 900 million eggs were consumed in Ireland in 2019, a 16 percent increase on 2014 consumption levels. Eggs are considered a good value for money source of protein. Research by REDC (2017) show that egg consumption tends to be higher in households with children and especially in those with lower than average disposable income.

The completion of the proposed development to facilitate the applicant to meet consumer demand for locally produced, highly nutritious food, with a low carbon footprint is essential in the current climate of rising food prices, and concerns surrounding sustainability of production.

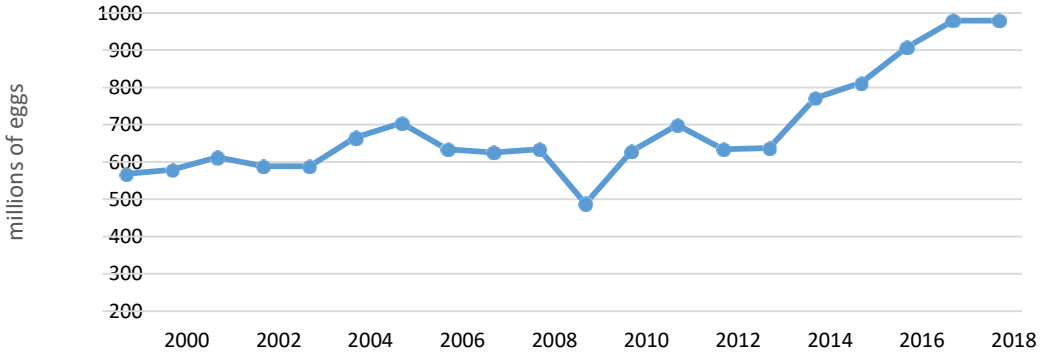
Figure 2.1: Number of Table Egg-Laying Hens in Ireland 2012-2019 (Ref. The Economic Importance of the Poultry (Meat and Egg) Sector in Ireland Thia Hennessy, UCC)



Source: Bord Bia

There were approximately 3.7 million egg-laying hens in Ireland in 2019, making up just 1 percent of the EU population of egg-laying hens, see Figure 7. Total bird numbers have increased by 33 percent since 2012. The 3.7 million egg-laying hens produced over 900 million eggs in 2019. Figure 8 presents the CSO data on the number of eggs produced in Ireland over the last 20 years. Egg production has increased considerably over the last number of years with egg production up 26 percent since 2015. The CSO estimate the output value of the eggsector at €74 million at producer prices in 2019.

Figure 2.2: Egg production Ireland 2000-2019 (Ref. The Economic Importance of the Poultry (Meat and Egg) Sector in Ireland Thia Hennessy, UCC)

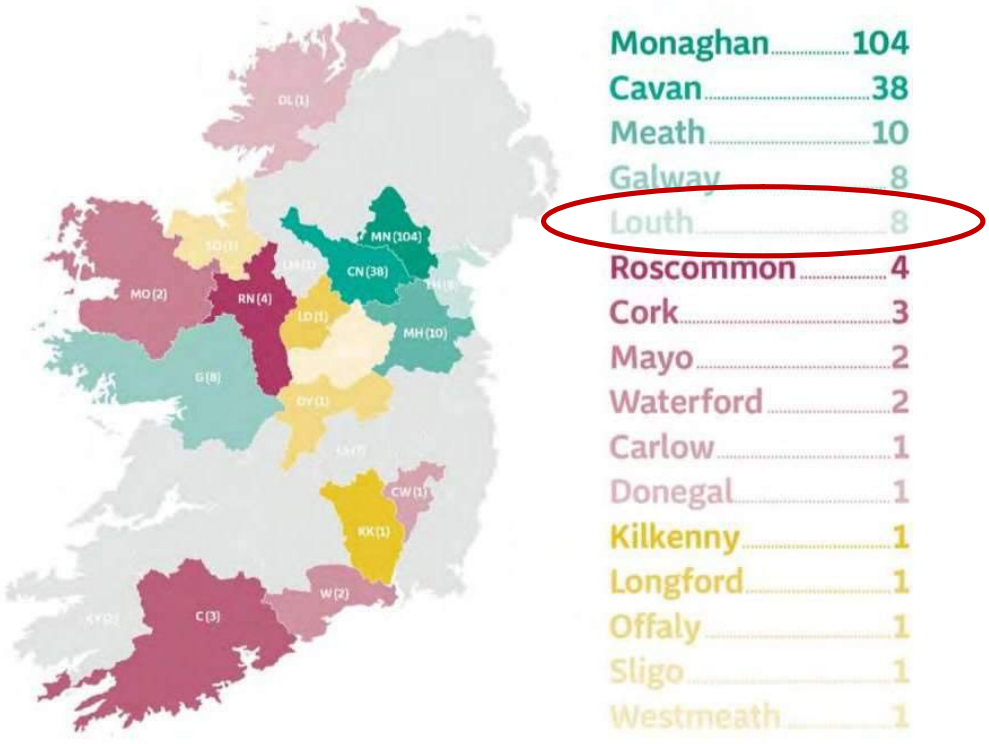


Source: Central Statistics Office (2020)

According to Kantar data, 608.4m million eggs were sold in the Irish retail market in 2019. The total value of sales was €137.4 million with an average egg price of 23 cent. Approximately 80 percent of all of the eggs purchased in Irish retail outlets carry the quality assurance mark. Free range eggs hold 46 percent of the market value share and about 38 percent of the volume. The average price of a free-range egg was 28 cent in 2019. Commercial eggs hold 39 percent of the market value and 45 percent of the volume. Value and organic eggs make up the difference. Both the value and volume of organic and corn-fed eggs declined in 2019. Private label eggs dominate the retail market with just 23 percent of market share going to branded eggs.

According to Bord Bia data, there were 186 egg-laying sites in Ireland in 2019. Of these 130 are independently owned and operated. As with the broiler sector, egg farming is also highly geographically concentrated. 76 percent of the 186 egg-laying sites are located in Monaghan or Cavan. According to the same data there were only 8 such farm in Louth in 2019. Most producers are participants in the Bord Bia Sustainable Egg Assurance Scheme which requires meeting strenuous standards on quality and traceability

Figure 2.3: Map of Bord Bia approved egg-laying sites 2019 (Ref. The Economic Importance of the Poultry (Meat and Egg) Sector in Ireland Thia Hennessy, UCC)



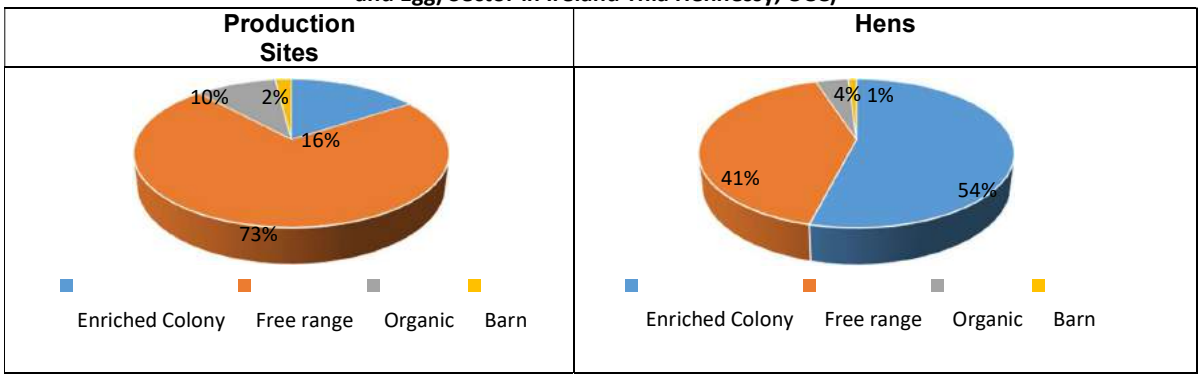
Source: Bord Bia

According to Bord Bia data, see Figure 2.4, 73 percent of egg-laying sites in Ireland operate a free-range system (135 sites), 16 percent (30 sites) an enriched colony systems with smaller numbers of sites in organic production and barn systems. The scale of production in each system is such that the majority of hens are still reared in the enriched colony systems despite the prevalence of free-range farms. In 2019, just over half of the egg-laying hens in Ireland were in enriched caged systems (almost 2 million hens), 41 percent were free range, and less than 4 percent were organic. Free range hens are more common in Ireland than across the EU where just 12 percent of hens are free-range on average and almost 33 percent are barn hens. Organic eggs, while still a relatively small element of the overall market, are a premium product offering new export opportunities.

Egg production in the Republic of Ireland is dominated by enriched cage and Free range with smaller amounts of barn and organic. This confirms the trend to free range production, but also highlights the work to be completed if all existing enriched cage producers are to convert to alternative systems by 2025.

The purpose of the Bord Bia SEAS Standard is to set out the requirements to ensure that the highest commercially achievable standards are achieved in the production of table eggs. The Standard covers all aspects of egg production including, Flock Sourcing, Hygiene and Disease Control, Flock Welfare, Housing and Environment, Feed and Water, Egg Collection/Storage together with Personnel Health and Safety on the Farm and

Figure 2.4: Production systems by egg-laying site (Ref. The Economic Importance of the Poultry (Meat and Egg) Sector in Ireland Thia Hennessy, UCC)



Source: Bord Bia (2020)

Environmental Protection. As detailed above greater than 50% of these birds are currently in enriched cage systems, similar to the existing farm operated by Belview Egg Farm Ltd. at Carstown, Drogheda, Co. Louth, and which are to be converted by 2025, to comply with supermarket and consumer requirements. It is likely that these existing enriched cage houses will transition to barn type production systems (or free range

systems where possible) over the next 5-7 years, with an associated significant drop in bird numbers.

A significant amount of the remaining egg production is in Free Range production systems, which by their nature are less efficient, but produce a premium price product. Given the current transition from enriched cage to alternative systems and the requirement from the supermarket for Barn Eggs the applicant has decided to develop a Barn house in addition to the existing free range house, to make the most use of the resources currently available to him.

While the Irish egg industry was previously characterised as, Small family based farms with low average flock size, Concentrated in the North-east, Ageing producer profile and lack of succession, Limited returns on investment etc., the sector underwent significant rationalisation in the lead up to 2012, with significant investment in enriched cage housing systems.

Within the poultry industry, the trend is towards larger scale poultry houses reflecting, 1) the concentration of resources in terms of skilled labour and capital 2) domestic and more increasingly, global pressures and 3) economies of scale. Due to rising input costs, additional environmental and welfare requirements and the reduction in poultry prices (in real terms) Irish poultry farmers need to improve efficiencies wherever possible.

The current housing requirements are being driven by the supermarkets/consumer with a view to improving animal welfare standards.

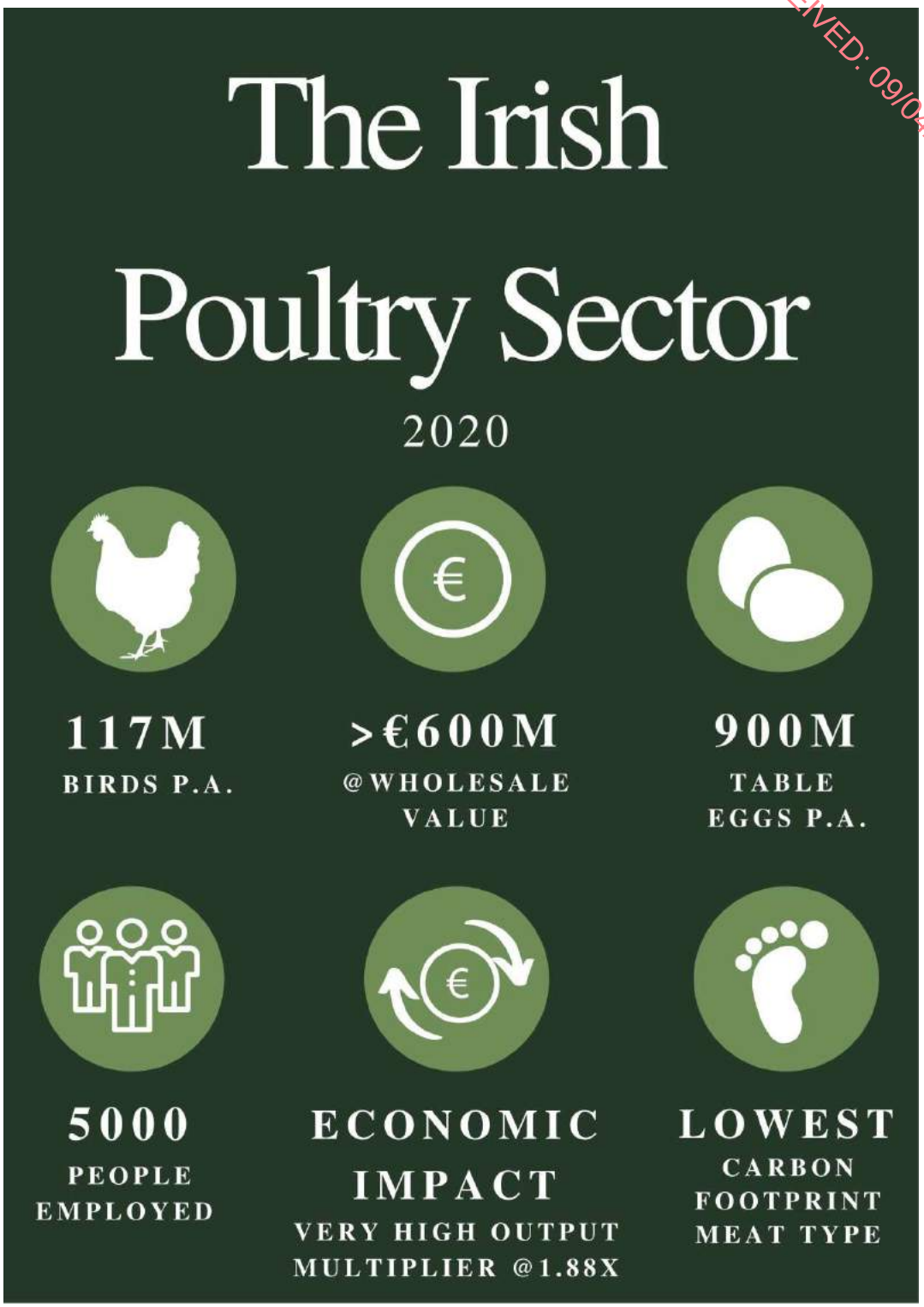


Fig. 2.5 **(Ref. The Economic Importance of the Poultry (Meat and Egg) Sector in Ireland Thia Hennessy, UCC)**

- ***Co. Louth***

Crayvall Egg Production Ltd. & Belview Egg Farm Ltd.

At present all eggs from the existing farm (and the proposed development (once operational) are to be supplied to Belview Egg Farm Ltd. ***The proposed development is deemed necessary to comply with current supermarket and consumer requirements in relation to egg production systems, and will replace eggs currently produced in enriched cage systems (both by Belview Egg Farm Ltd., and other supply farms) as previously detailed.***

The director(s) of Belview Egg Farm Ltd., (also director(s) of Crayvall Egg Production Ltd.) have been involved in the egg business since the nineteen seventies, and have developed their business to be one of the leaders in the development of Ireland's egg industry. The business was established as a farm producing eggs in 1978 by Dermot Herlihy, and has developed into packing and sales and now has a modern and well equipped facility at Carstown, Drogheda, Co. Louth. Belview Egg Farm Ltd. has been approved under the Bord Bia Sustainable Egg Assurance scheme.

Belview Egg Farm Ltd., sort, package and market eggs on behalf of a number of farmers incorporating free range, and conventional egg types, including their own houses at Carstown, Drogheda, Co. Louth. These dedicated farms are all Bord Bia approved and are audited monthly by Belview Egg Farm Ltd.'s own farm auditors to ensure the highest standards are maintained.

Each individual egg is inspected for dirt, defects, blood and cracks. The eggs are weighed and each shell is printed with the Flock traceability code, which allows the egg to be traced back to the farm it came from. The packing center also has an integrated barcode and stock control system to ensure full traceability of every egg.

The experience of Belview Egg Farm Ltd., was invaluable when designing the proposed development, and will be extremely beneficial to the operation of the proposed development. As a company, Belview Egg Farm Ltd., will rely heavily on enthusiastic farmers who are prepared to diversify and invest to comply with increasing standards in all areas of food production, to complement the investment currently proposed by the applicant.

Intensive livestock farming has not developed in County Louth, to the same extent as it has in neighbouring counties such as Cavan and Monaghan. However the agriculture and tillage sector in particular in Co. Louth has relied heavily on the supply of organic fertilisers such as pig and poultry manure from Cavan and Monaghan over the years. Agriculture is the mainstay of the local economy, and the county has a well organised agri-business sector. Local egg packing facilities, tillage farmers, feed mills, haulage contractors and other service industries rely heavily on the poultry industry.

The poultry industry also provides a significantly valuable source of organic fertilisers for farmers and in particular the tillage farmers of Co. Louth. Due to the ever increasing costs associated with chemical fertiliser, organic manures such as poultry manure are becoming ever more sought after by tillage/livestock farmers in order to reduce their fertiliser costs, and for this reason the proposed developments integrate seamlessly with the tillage farming activities carried out by the customer farmers, and provide cost savings to both enterprises.

This development represents a;

- proposed Barn Type house for c. 64,000 laying bird, (consisting of 2 sub-divisions of 32,000 birds.)
- ancillary manure store
- together with all ancillary structures and associated site works, and which will operated in tandem with the existing 60,000 bird capacity free range layer enterprise already operating on the farm.

This is a significant development in terms of poultry house developments and the level of investment required. It will also be a significant boost to local employment in this area, and the local construction industries.

The proposed development is intended to comply with most of the major supermarkets requirements that eggs will not be sourced from cage type production systems after 01/01/2025. This commitment by the supermarkets has required the applicant to develop the proposed site in order to help ensure the continuity of supply of eggs to Belview Egg Farm Ltd.

The operation of this farm will enhance the symbiotic relationship between the tillage farmers (such as the customer farmers) supplying grain to the Irish animal and poultry feed industry, by returning the poultry manure/organic fertiliser to these lands for use as organic fertiliser. At present all lands identified for the receipt of organic fertiliser from this development are farmed in accordance with S.I. 113 of 2022, and this proposed source of additional organic fertiliser will have a positive impact on the economics of their tillage farming activities.

The eggs from the proposed development are supplied to Belview Egg Farm Ltd. The marketing campaign currently being undertaken by Belview Egg Farm Ltd., in conjunction with Bord Bia will return a steady market for welfare quality standard, ***Irish*** eggs, such as the ones that will be produced in the proposed development. The egg business in Ireland is mainly within the country with little international trade.

It is essential for the Irish Egg Industry, including Crayvall Egg Production Ltd. , other poultry producers, Belview Egg Farm Ltd. and all of the industries and jobs depending on this sector, and the local economy, that a consistent supply of eggs is maintained. This will be critical in the period before, during and after the changeover to non-cage systems of production so that this market is not lost, possible irrevocably, to imported product.

This proposed development will help secure the future of the existing facilities operated by Belview Egg Farm Ltd. and the jobs that are directly/indirectly dependant on same.

As a company, Belview Egg Farm Ltd., rely heavily on enthusiastic farmers who are prepared to invest to comply with increasing standards in all areas of food production. In addition Belview Egg Farm Ltd, have always had a direct involvement in primary production and at this juncture, and as per the existing developments, the applicant has deemed it necessary to invest directly in production to meet increasing market demands, particularly in the change over period between different housing systems and to ensure continuity of supply.

Belview Egg Farm Ltd. have fully embraced Bord Bia's Origin Green Programme. The origin Green Programme is the only sustainability Programme in the world that operates on a national scale, uniting government, the private sector and food producers through Bord Bia. Origin Green is independently verified and it enables Ireland's farmers and producers to set and achieve measurable sustainability targets, reducing environmental impact, serving local communities more effectively and protecting the extraordinarily rich natural recourses that our country enjoys.

Belview Egg Farm Ltd. and Crayvall Egg Production Ltd. (the applicant) are committed to environmentally friendly and sustainable food production, and the proposed development and integration of same with the existing agricultural and tillage sectors will have significant benefits in terms of;

- high building standards,
- reduced energy input (due to high insulation standards, and the installation of solar panels on the existing and proposed poultry houses)
- improved bio-security (minimising mortality and treatment of birds) etc.
- Minimizing transport distances by locating the proposed development, in conjunction with the existing development, to facilitate optimising load sizes and a relatively short distance from Belview Egg Farm Ltd. grading and packing facilities at Carstown, Drogheda.

In addition to the above Crayvall Egg Production Ltd., are the first poultry farm to partake in the Teagasc Signpost Advisory Programme. This targeted advisory programme operated by Teagasc is designed to support climate and sustainability actions on farms. This new public good programme will be available to all farmers. It will build on the network of Signpost Demonstration Farms by providing enhanced advisory and training support to farmers to commit to, select and implement climate and sustainability actions that will be appropriate and impactful on their farms. Participating farmers will be given the opportunity to commit to taking action for their farms.

2.2 Context

This Environmental Impact Assessment Report was prepared in conjunction with a planning application to Louth County Council on behalf of;

Crayvall Egg Production Ltd. to construct the following:

- 1 No. Barn Type Poultry House ~ Floor Area c. 5,171.32m^2, and,
- 1 No. Ancillary manure storage sheds~ Floor Area c. 578 m^2,
- together with all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works, and which will operate in tandem with the existing 60,000 bird capacity free range layer enterprise already operating on the farm.

The proposed developments are to be constructed in accordance with, and to comply with, S.I. No. 311 of 2010 EUROPEAN COMMUNITIES (WELFARE OF FARMED ANIMALS) REGULATIONS 2010, and in line with current consumer/industry requirements regarding egg production. (See Appendix No. 16)

In essence this EIAR also sets out the business plan for the proposed development as required by the County Louth Development Plan.

In Ireland/E.U there are four official classifications of egg production types: Enriched Cage, Free- Range, Organic and Barn.

1. **Laying cage systems (As per the existing development operated by Belview Egg Farm Ltd.)**

Since c. 2013, all cages in Ireland have been replaced by larger, 'enriched' Colony cages. The enriched cages provide additional space per bird along with a nest box for them to lay their eggs in, perching space for the birds to sleep on and a scratching area to perform natural behaviours. Each Colony contains between 40 and 80 birds. This allows the birds more space to move around the colony. As a result of changing supermarket requirements and a policy among most, if not all of the major retailers, a transition away from enriched cage systems to non-cage systems is to be completed by c. 2025.

2. **Barn egg production (As per the proposed development)**

There are many similarities between the Barn and Free Range (detailed hereafter) systems but in the Barn system the hens are not given access to the outdoors.

3. **Free- Range egg production (As per the proposed development)**

EU egg legislation stipulates that for eggs to be termed 'Free-Range', hens must have continuous daytime access to runs which are mainly covered with vegetation and a maximum stocking density of 2,500 birds* per hectare. Indoors, the maximum stocking density is 9 hens per square metre. Hens are provided with nest boxes and perches providing 15 centimetres of perch per hen. Litter must be provided, accounting for one-third of the floor surface. This is used for scratching and dust bathing.

***In line with the higher standards under Bord Bia the proposed stocking density on this farm will only be 1,000 birds/ha.**

4. **Organic egg production**

Hens producing Organic eggs are always Free- Range. In addition, hens must be fed an organically produced diet and ranged on organic land. The hen house conditions for organic hens are set by the EU Organic Regulations and stipulate a maximum stocking density of 6 hens per square metre of useable area and a maximum flock size of 3,000 birds.

This farm, currently operates, and will have to operate, under an I.E. Licence (Class 6 - Intensive Agriculture), as required for all pig and poultry farms over the relevant thresholds. A licence has been granted to the existing farm (Ref. P1120-01), and the farm currently operates under same. Any revisions to same will be progressed with the E.P.A. upon receipt of planning permission from Louth Co. Co.

The proposed buildings are of a form, design, colour and materials that are similar to the existing developments, both existing on the farm and elsewhere in the county/country, and sympathetic to the surrounding area.

This Environmental Impact Assessment Report (E.I.A.R.) has been prepared by Mr. Paraic Fay B.Agr.Sc., Hugh Larkin M.Agr.Sc., and Mr. Oliver Leddy B.Agr.Sc. of C.L.W. Environmental Planners Ltd. with the assistance of persons and bodies referred to hereafter**.** This E.I.A.R. has been prepared after an Environmental Impact Assessment (E.I.A.) of the proposed development in accordance with the Planning and Development Act 2000 (as amended), Planning & Development Regulations as amended and the Protection of Environment Act 2003.

The proposed development is in excess of the threshold required for the preparation of an Environmental Impact Assessment Report as per S.I. 600 of 2001 (Planning and Development Regulations 2001), Schedule 5 Part 1 17a as follows;

> ***"Installations for intensive rearing of poultry or pigs with more than-***
> ***(b) 85,000 places or broilers, 60,000 places for hens***

EIA requirements derive from Council Directive 85/337/EEC (as amended by Directives 97/11/EC, 2003/35/EC and 2009/31/EC) and as codified and replaced by Directive 2011/92/EU of the European Parliament and the Council on the assessment of the effects of certain public and private projects on the environment and as amended in turn by Directive 2014/52/EU.

2.3 Project Type as per EPA Guidelines (Note revised Advice Notes specific to E.I.A.R. not yet published)

The EPA have published Guidelines on the Information to be contained in an EIAR (May 2022) and Draft Advice Notes for Preparing an EIS. In these advice notes they have classed development listed under the *Planning and Development Regulations 2001 fifth schedule* into various Project Types. For each project type they have outlined the information to be contained within an EIS for a project of this type. In this case, a pig farm is classed under *Project Type 13 Pig Rearing Installations* and *Poultry Rearing Installations*.

Under *Project Type 13* the EPA Advice Notes outline the information to be contained within the Development Description and the description of the Environmental Effects. Appendix No. 5 includes the summary provided in these notes for *Project Type 13*. It outlines possible mitigation options for this type of development. The notes describe the principle concerns likely to arise as stemming from the issues of manure handling (mainly slurry/manure) and odours. The significance of impacts is very much a factor of the site's proximity to sensitive receptors although it highlights that such projects frequently dispose of wastes at locations which are not adjacent to the animal rearing operations.

While these advice notes remain in a Draft format, and they relate to the preparation of an EIS (forerunner of E.I.A.R.), consideration has been given to these in the preparation of this E.I.A.R. Details of Project Type 13 from the EPA Guidelines have been included as Appendix No. 5.

2.4 Farm Background

This proposed site is located in an area adjacent to the applicant's existing poultry farm and ancillary structures at Carrickbaggott, Grangebellew, Co. Louth. Craycvall Egg Production Ltd. have established managed and operated this existing development over the last c. 2-3 years. Planning permission was granted for the existing developments in 2019, with an E.P.A. Licence granted to the farm for the current activities in 2021, please refer to Appendix No. 7 for a copy of same.

The site in question is located in a rural area within the townland of Carrickbaggot. Access to the site is via a private access road that is just off a local, third class road c. 0.5 km's from the junction with the R170 Regional Road. The area of the site is 68.5 hectares in total and this includes the range area of the birds that surround the site. It is 1.2km south of Grangebellew and 4.6km south-east of Dunleer.

The area of the site and surrounding lands have been used for livestock (Bovine) farming activities, and/or arable production for a number of years, and as part of an existing free range enterprise since c. 2021.

The proposed poultry house will be managed by Crayvall Egg Production Ltd in a manner that is,

1. Compliant with E.U. and Irish animal welfare standards,
2. Beneficial to the local community in terms of direct employment (poultry house staff, advisors and consultants) and indirect employment (animal feed and processing industries, agricultural contractors, haulage contractors), (farmers also benefit from fertiliser nutrients), and,
3. Compliant with Louth Co. Co. and/or E.P.A. environmental standards and without adverse impact on the local environment.

The development of the new poultry house will be operated and managed in a similar way to existing established activates, on site, within the county, and/or, further afield, and will provide much needed employment in the local area due to the additional staff required. The development of the proposed site will also provide additional, much needed work for the local construction and associated services industries, both in terms of labour and inputs required, and will secure the supply and quality of locally produced eggs to the Irish consumer.

The proposed development/farm diversification, represents an opportunity to provide for the diversification into an alternative agricultural production system, but also allows it to integrate with the existing poultry farming activities, on the farm, Belview Egg Farm Ltd.'s business and the local customer farmers in the area of feed supply and organic fertiliser, with cumulative benefits to all enterprises. The proposed development will help ensure that Belview Egg Farm Ltd., have continuity in supply of nutritious, sustainable eggs required by the Irish supermarket/consumer.

This application represents a proposed development for c. 64,000 birds, for egg production. This is a significant development in terms of poultry house developments and the level of investment required. It will also be a significant boost to local employment in this area, and the local construction industries. The proposed development is intended to form a strategic part of the planned development by Belview Egg Farm Ltd., in part preparation for the change in supermarket / consumer requirements in 2025, and, will afford the applicant the ideal opportunity to develop this agricultural enterprise in line with the current supermarket and consumer requirements.

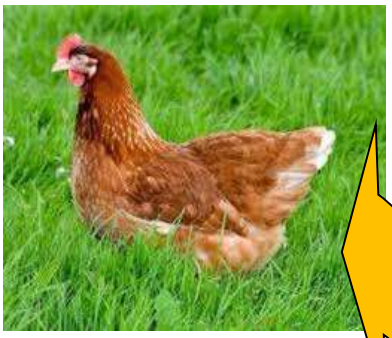
2.5 Integration of the Proposed development into the Existing Farm/ Agri & Construction Sectors:

In addition the operation of this farm will enhance the symbiotic relationship between the tillage farmers supplying grain to the Irish animal and poultry feed industry, by returning the poultry manure/organic fertiliser to these lands for use as organic fertiliser. At present all lands identified for the receipt of organic fertiliser from this development are farmed in accordance with S.I. 113 of 2022, and this proposed source of additional organic fertiliser will have a positive impact on the economics of their tillage farming activities.

The development of the new poultry house will be operated and managed in a similar way to existing poultry houses, on site, within the county and/or further afield, and will provide much needed employment in the local area due to the additional staff required. The development of the proposed site will also provide additional work for the local construction and associated services industries, both in terms of labour and inputs required, and will secure the supply and quality of locally produced eggs to the Irish consumer.

Process Flow Diagram

Horticulture / Agri. Sector



Crayvall Egg Production Ltd.

Organic fertiliser / poultry manure
c.4,919.62 m3

Cereals

Feed
c. 75%

Eggs

Belview Eggs

2.6 Louth Development Plan 2021-2027,

The County Development Plan is the central document of the planning system and sets out the Local Authorities view of the future development of the county. The strategy of the county development plan is based around facilitating the economic development of the county while conserving the natural and built environment of the county and improvement of its physical infrastructure.

Agriculture is an important source of employment and income in rural areas. The County's agricultural land bank is not only a source of value in terms of food production, but also a vital ingredient in the County's character. The 2011 Census illustrates that 2.75% of the population of County Louth is employed directly in the agricultural sector. This is equivalent to 902 persons, representing a slight increase from the 2006 census figure of 2.4% and a significant drop from 6%, as recorded in the 2002 Census.

The locational advantage of Louth along the Dublin-Belfast Economic Corridor with excellent access to Dublin and Belfast City Centre, Airport, Port, and surrounding Key Towns in the Region means the County is well positioned to attract economic investment. The identification of Drogheda and Dundalk as Regional Growth Centres (RGCs) in the National Planning Framework (NPF) and Regional Strategic Economic Strategy (RSES) is recognition of the importance of these settlements at both a regional and national level in facilitating future population and economic growth. Economic development and employment in the County is concentrated in business parks, industrial estates, and town centres in Drogheda, Dundalk, Ardee, and Dunleer. Outside of these settlements there are smaller scale enterprises in the small towns, villages, and open countryside. With over 35,000 jobs in the County and a Jobs:Workforce ratio of 0.71 recorded in Census 2016, the economic benefits associated with the strategic location of the County, and in particular the strength of the employment base, are apparent.

As farming practices evolve and continue to modernise, the design, scale and layout of farm buildings and farmyards has changed. Depending on the farming enterprise e.g. beef, dairying, pigs, poultry, organic or tillage, the type of housing, livestock numbers and storage facilities will vary. Different farming types and enterprises will result in the criteria for assessing applications focusing on different issues such as visual impact, traffic, residential amenity and public health. Each application will be assessed on its individual merit and will take account of the ability of the local landscape to absorb the development, the capacity of the local infrastructure including roads, water and waste water infrastructure to accommodate any additional loading and traffic movements, and any possible impacts on the amenities of residents living in the vicinity of the development. To assist in the assessment of planning applications for agricultural buildings and in particular new farm enterprises on an undeveloped landholding, a business plan setting out the requirement for the development will be required. This shall include full details of the land holding, livestock number and herd number (if applicable).

New buildings shall be designed to maximise efficiency, address any pollution control requirements (e.g. collect soiled water and farm waste management), provide additional feed and machinery storage areas, and improve livestock welfare.

It is acknowledged that the scale of agricultural buildings are such that they will be visible from surrounding roads and public viewpoints. However, new buildings shall be positioned and designed so they are as unobtrusive as possible. When designing a building particular attention shall be given to the sensitivity of the landscape in which it will be located. If the scale and height of the building is particularly large, the reasons for a building of the particular size shall be set out. Wherever possible, new buildings shall be clustered with existing buildings in the yard. Finishes to buildings will normally include rendered/block walls and dark coloured panels to the side and roof of buildings such as dark green, red, or grey. Landscaping can assist in the integration of new buildings into the landscape. Any planting shall include native species only. Details of how any effluent and run-off associated with the development will be collected and stored within the farmyard shall be provided.

Rural areas make an important economic contribution to County Louth, including the provision of local employment, access to areas of high amenity, and the output of high quality agricultural produce. In 2016 33.9% of the population was identified as living in rural areas in Louth. This Plan supports the sustainable development of rural communities and seeks to address the challenges they are facing. It will support job creation, social inclusion, the rejuvenation of towns and villages, and improvements to infrastructure including transport and broadband. At a national level, the Action Plan for Rural Development 'Realising Our Rural Potential' published in 2017 sets out the policy approach for Rural Development by the Government. The EU LEADER Programme supports private enterprises and community groups in delivering projects that aim to improve quality of life and diversification of economic activity in rural areas. Between 2014-2020 Louth received an allocation of €6.1 million to support rural development projects and initiatives. The rural economy in Louth consists of a range of businesses and enterprises including agriculture, equine, construction, manufacturing, and tourism. There is often a high degree of interdependency between rural enterprises in both the supply and manufacturing of products and materials.

This is particularly evident in the agricultural and equine industry, where the nature of activities is such that there is a high level of direct and indirect employment. Any volatility in the agricultural sector therefore extends into the wider rural economy.

The agriculture industry is facing challenges which may have significant impacts on the profitability of farms. Irish farms are heavily dependent on the UK as an export market and the uncertainty surrounding any trade agreements associated with Brexit brings serious concerns to farmers in relation to prices, potential tariffs and the associated higher operating costs associated with this. In addition the industry is coming under

pressure to play a greater role in climate change and the reduction of carbon emissions. This may require changes to farming practices which may result in higher costs. The EU Farm to Fork Strategy and EU Biodiversity Strategy 2030 are key policy documents in the development of sustainable agriculture and the protection integration and management of wildlife habitats. This Plan will continue to support the agriculture industry and will promote any changes to farming practices that will adapt to climate change and provide more sustainable methods of production.

Farming is the traditional form of economic activity in rural areas. However, traditional farming methods have undergone significant changes, through increased mechanisation and the emergence of larger commercial farm units. County Louth occupies an area of 82,613 hectares, of which 63,862 hectares is farmed. A significant proportion of farms in County Louth, some 46%, operate on farm holdings of less than 20 hectares. The average farm size in the county in 2010 was 36.6 hectares which is an increase from the average size of 35.1 hectares in 2006.

It is felt by the applicant that the proposed development satisfies the requirements of Louth Co. Co. as per ***the policies on the rural economy*** as outlined in the Louth County Development Plan 2021-2027, which came into effect on 11/11/2021.), detailed below;

- ***Policy Objective EE 55*** To support rural entrepreneurship and rural enterprise development of an appropriate scale at suitable locations in the County.

- ***Policy Objective EE 59*** To secure vibrant and viable rural communities by supporting the development of rural based enterprises.

- ***Policy Objective EE 60*** To continue to support the agricultural sector and to facilitate the development of environmentally sustainable agricultural activities.

- ***Policy Objective EE 61*** To facilitate the diversification of the agricultural sector by supporting alternative farm enterprises subject to the nature and use of any enterprise being compatible with the environment in which it is located.

Agricultural Buildings: Good quality, purpose built agricultural buildings are important for efficient and sustainable agricultural production. Agricultural buildings should be integrated into the countryside and in this respect the palette of materials used is important. Site selection, setting, landscape features and the maintenance of existing native hedgerows or the planting of new hedgerows is important in terms of screening farm buildings and thus blending these into the landscape in the least obtrusive manner. This Plan will continue to support the agriculture industry and will promote any changes to farming practices that will adapt to climate change and provide more sustainable methods of production.

K1 Agriculture Objective To preserve agricultural land. Guidance This zone is for the use of land for agricultural purposes and farming-related activities and to provide for the development of existing established uses. Individual dwellings for permanent occupancy for persons principally involved in agriculture will be open for consideration subject to normal site suitability considerations and compliance with the policy objectives set out in Chapter 3 of this Plan. Permitted Use Allotments, Agri-Tourism. Open for Consideration B&B/ Guest House, Community Facility, Craft Centre/Shop, Garden Centre, Home Based Economic Activities, Recreational/Sports Facility, Residential, Telecommunications Structures.

This proposed development is located in a rural agricultural area, where such developments are to be facilitated by the local authority, and it is not located near any scenic walks or viewing points. The location of the proposed site, integrated into the surrounding landscape, obscured by its location and integrated where possible with the land topography and the existing landscaping, will ensure that this proposed development is incorporated into the local environment, with no adverse visual impact, while at the same time complying with Department of Agriculture, Food and The Marine and Bord Bia requirements.

These agricultural and rural development plan policies recognise the important and varied role of agriculture within the economy of Co. Louth. These policies serve to recognise and support development proposals that will enable farming to become more competitive, sustainable, environmentally and welfare friendly; adapt to new and changing markets; diversify into new agricultural opportunities; and broaden their operations to “add value” to their primary produce, while at the same time protecting the environmental and cultural heritage of the County.

The proposed development of poultry housing, will complement the existing farming activities and will provide for a sustainable farm diversification for Crayvall Egg Production Ltd. in line with supermarket and consumer requirements, and provide an additional supply of eggs to Belview Egg Farm Ltd., to meet consumer demand and replace capacity lost elsewhere due to a change over to these higher welfare housing systems. The proposed development will be located;

1. in a rural agricultural area,
2. significantly removed from any population centres,
3. located away from any designated areas and/or tourist attractions.
4. well integrated into the local environment with sympathetic design and layout,
5. with proper measures in place for the storage and removal of wastes off site,
6. with all organic fertiliser / poultry manure from the proposed developments to be utilised in accordance with S.I. 113 of 2022, as amended, by customer farmers as an organic fertiliser to substitute for imported chemical fertiliser.

This will help to ensure that the proposed development will be in accordance with the stated plans and objectives of Louth Co. Co. as outlined in the county development plan, and will be an important supply based to Belview Egg farm Ltd.

2.7 Organisations and Bodies Consulted

The scoping exercise for this E.I.A.R. / planning application was carried out with due consideration to Louth Co. Co. Planning File 19231, 23/60288, and in consultation with;

- C.L.W. Environmental Planners Ltd.,
  - ❖ Paraic Fay B.Ag.Sc. Project lead,
  - ❖ Oliver Leddy B.Ag.Sc. and Hugh Larkin B.Ag.Sc.- Technical Input]
- Teagasc,
- the applicant Crayvall Egg Production Ltd. and
- Belview Eggs [Mr. Dermot Herlihy, Poultry Farm Operation, Management and Characteristics].

This Environmental Impact Assessment of the proposed development has been carried out on behalf of the Applicant by CLW Environmental Planners Ltd. Since the company was established in 1997, CLW have specialised and gained extensive experience in Environmental Assessment with a particular focus on the intensive agricultural sector. C.L.W. Environmental Planners Ltd. are heavily involved in the Planning and E.P.A. Licensing of pig and poultry farms countrywide for the last 25 + years and have been deemed by the E.P.A. and numerous local authorities to be competent experts in the preparation of EIAR for Intensive Agricultural farms.

As with any E.I.A., there is significant cross-over in the relevant chapters of the EIA and the expertise of the relevant contributors will be utilised throughout the report, where relevant, and not always specifically confined to any section / sub-section. The team involved directly / indirectly in this EIA, and their main area contributed to, included:

EIA Team Members	**Organisation**
• **Paraic Fay** *BAgrSc*	CLW Environmental Planners (EIA Coordinator, Assessment of existing environment, assessment of proposed emissions/impacts, odour and ammonia screening assessment, nutrient management planning and assessment of potential impact on the local environment)

Paraic joined C.L.W. Environmental Planers Ltd. in 1999 and over the intervening 24 years has specialsed in Planning, EIA and E.P.A. Licensing of intensive agricultural farms (pig and poultry) nationwide.

- **Seamus Clarke** — CLW Environmental Planners
  MAgrSc
  (Pig farm operation, management, assessment of Existing and proposed farm operation input requirements and potential impacts)

Seamas has in excess of 40 years' experience in the intensive agricultural sector. He previously worked as a Pig Development Officer with Teagasc, Ballyhaise and earlier in education with Teagasc.

- **Hugh Larkin** — CLW Environmental Planners
  MAgrSc
  (Pig farm operation, management, assessment of Existing and proposed farm operation input requirements and potential impacts)

Hugh joined C.L.W. Environmental Planners Ltd. in 2020, with a focus on E.P.A. Licence compliance. This knowledge is of particular relevant in identifying, assessing and mitigation potential emissions/impacts from the farm development and identifying appropriate management strategies to prevent same.

Other organisations and bodies consulted directly/indirectly include:

- Valli (Equipment Suppliers)
- Bord Bia
- Department of Agriculture,
- Department of Environment.
- Duchas - The Heritage Service
- Environmental Protection Agency.
- Louth Co. Co.
- Geological Survey of Ireland
- Irish Farmers Association (I.F.A.)
- Met Eireann
- Myles O'Reilly, Civil Engineering Services, Crubany, Cavan, Co. Cavan, (Site Survey/Drawing)
- Noreen McLoughlin, MSc, MCIEEM, Whitehill Environmental — Ecology, Natura Impact Statement
- PE Services, Crubany, Co. Cavan — Ventilation/equipment
- Tir-con Engineering — House design/Construction
- Christy Carr / Shane Carr Irwin Carr Consulting — Air Quality (Ammonia,Odour & Dust / PM) Impact Assessment
- Louth Co. Co. — Planning / Infrastructure (Engineering)
- Traynor Environmental Ltd. — Archaeology
- Byrne Mullins and associates. — Noise Impact Assessment
- CLV Consulting (Brian Johnston MIOA) — Hydrogeology / Storm Water Attenuation
- IE Consulting

2.8 References / Publications Consulted

The following references, among others were consulted when compiling this Environmental Impact Assessment Report:

- Advice Notes for preparing Environmental Impact Assessment Reports, Draft September 2015 – E.P.A.
- Advice Notes on Current Practice in the preparation of Environmental Impact Assessment Reports
- Agri-Environmental Specifications for R.E.P.S. 2000, *Department of Agriculture, Food and Rural Development.*
- Code of Good Agricultural Practice to Protect Waters from Pollution by Nitrates, *Dept. of Agriculture Food and Forestry (D.A.F.F.) and Dept. of Environment (D.o.E.)*
- Commission Implementing Decision (EU) 2017/302 of 15 February 2017 establishing best available techniques (BAT) conclusions under directive 2010/75/EU of the European Parliament and of the council for the intensive rearing of poultry or pigs.
- EIAR relating to proposed poultry farm at Carrickbaggott, Grangebellew, Co. Louth For Crayvall Egg Production Ltd. (Dec 2018)
- E.P.A. Licence No. P1120-01 as issued to Crayvall Egg production Ltd., on 8th October 2020.
- European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2022 (SI No. 113 of 2022, as amended,).
- European Communities (Welfare of Farmed Animals) Regulations 2010 (SI No. 311 of 2010).
- Explanatory Bulletin to the Soil Map of Ireland, *Teagasc 1980*.
- Food Harvest 2020 – Department of Agriculture, Fisheries and Food.
- Food Vision 2030 – Department of Agriculture, Food and the Marine.
- Food Wise 2025 – A 10 year vision for the Irish Agri-Food Industry– Department of Agriculture, Food and the Marine.
- Guidelines on information to be contained in Environmental Impact Assessment Report - EPA Draft August 2017
- Guidelines on the information to be contained in Environmental Impact Assessment Reports.
- Integrated Pollution Prevention and Control (IPPC) Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs. – July 2003
- Louth Development Plan 2021-2027.
- Poultry Products Quality Assurance Scheme Poultry Producer Standard Revision 01, June 2008, Bord Bia
- Protecting our Freshwaters, Nutrient Management Planning Guidelines for Local Authorities, *Dept. of Environment and Local Government.*
- Protection of the Environment Bill 2003.
- Revised guidelines on the information to be contained in Environmental Impact Assessment Reports, Draft September 2015, E.P.A.
- Suitable Development, A Strategy for Ireland, *Department of Environment*

- *Teagasc, Major and Macro Nutrient Advice for Productive Agricultural Crops – 4th Edition 2016.*
- The Economic Importance of the Poultry (Meat and Egg) Sector in Ireland, Prof. Thia Hennessy, Cork University Business School, University College Cork, Ireland
- www.agriculture.gov.ie
- www.archaeology.ie
- www.bordbia.ie
- www.epa.ie/
- www.gsi.ie
- www.Louthcoco.ie

2.9 Environmental Impact Assessment Regulations

The *European Communities (Environmental Impact Assessment) Regulations, (as amended)* (and Directive 2014/52/EU) has laid down a standard list of areas of the environment that must initially be addressed in any E.I.A.R. These areas comprise of:

- Population/Human Health.
- Bio-diversity (Flora and Fauna, Special Policy Areas etc.).
- Land/Soil.
- Water.
- Air.
- Climate.
- Landscape.
- Material Assets.
- Traffic.
- Architectural and Archaeological Heritage.
- Cultural Heritage.
- The inter-relationship between the factors listed above.

It is necessary to encompass each of these sections of the environment with respect to the impacts that the proposed development will have on them. The purpose of this exercise is to shape and mould the E.I.A.R. so as not to overlook any impacts that may be significant, and to focus on the issues that have potential for environmental impact.

Potential Impacts During Construction and Operation

In this case the above criteria were studied and prioritised, ensuring that particular attention was paid to the issues that are directly relevant to the impact of the proposed development. A Matrix has been developed so as to assess the magnitude

and nature of any potential impacts at the Scoping stage. Resulting from this preliminary assessment, only those issues identified as potentially significantly impacted by this development have been assessed in detail in this E.I.A.R.

Any development may result in indirect effects, along with the direct effects of construction. The potential impacts that the proposed development could impose on each aspect of the environment were sub-divided into the following categories, and analysed separately:

- Potential impacts if the proposed development does not proceed.
- Potential impacts during construction phase of proposed development.
- Potential impacts during operational phase of proposed development.

	NO DEVELOPMENT	CONSTRUCTION PHASE	OPERATIONAL PHASE
Human Health/Population	≈	✓✓	✓✓
Flora	≈	×	≈
Fauna	≈	×	≈
Soil	≈	≈	✓✓
Water	≈	×	××
Air	≈	≈	×
Climate	≈	≈	≈
Ambient Noise	≈	×	≈
Cultural Heritage	≈	≈	≈
Landscape	≈	××	×
Material Assets			
▪ Traffic	≈	×	×
▪ Land Use	≈	≈	✓
▪ Employment	×	✓✓	✓

Key:

≈	No Impact		
×	Slight Negative Potential Impact	✓	Slight Positive Potential Impact
××	Moderate Negative Potential Impact	✓✓	Moderate Positive Potential Impact
×××	Significant Negative Potential Impact	✓✓✓	Significant Positive Potential Impact

3. DESCRIPTION OF DEVELOPMENT

This proposed farm development will ensure that a high standard of animal welfare and environmental protection are achieved by this farm enterprise. The proposed development will be built to exacting Department of Agriculture specifications, and will ensure that the highest standards of animal welfare and environmental protection are provided for. The site is situated in a rural location where agriculture is the main industry. The site, which is not visible from any major road or housing complex, is well situated to screen the proposed poultry house from view.

3.1 Site Location

The site of the proposed development/farm is agricultural land owned by the applicant. Planning permission (File ref. 19/231) and an E.P.A. Licence (Ref. P1120-01) have been granted for the existing free range poultry farming activities

The site in question is located in a rural area within the townland of Carrickbaggot. Access to the site is via a private access road that is just off a local, third class road c. 0.5 km's from the junction with the R170 Regional Road. The area of the site is 68.5 hectares in total and this includes the range area associated with the existing free range enterprise. It is 1.2km south of Grangebellew and 4.6km south-east of Dunleer.

Land use surrounding the site is predominantly agricultural and improved agricultural grassland and tillage lands are the dominant habitats locally. Other habitats represented include wet grasslands, mixed broadleaved woodland, scrub, treelines, hedgerows and drains / streams. The location of the farm/proposed development is as detailed below.

The surrounding landscape is typically rural in character, dominated by a patchwork of agricultural fields (tillage and grassland) interspersed with one off dwellings or groupings of same and agricultural buildings.

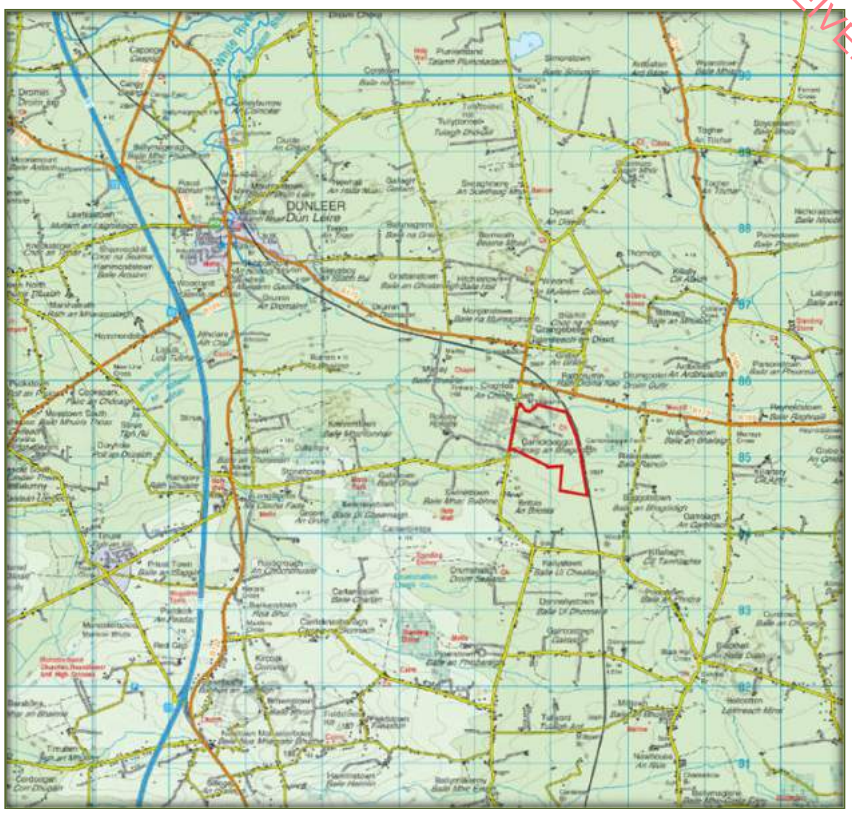


Figure 3.1 A & B – Map showing the Location of the Development Site. Application Site is Outlined in Red.

Figure 3.2 – **Aerial Photograph of the Site (Outlined in Red) and its Surrounding Habitats.**

Figure 3.3 –**Site (Outlined in Red) and revised range Area outlined in green.**

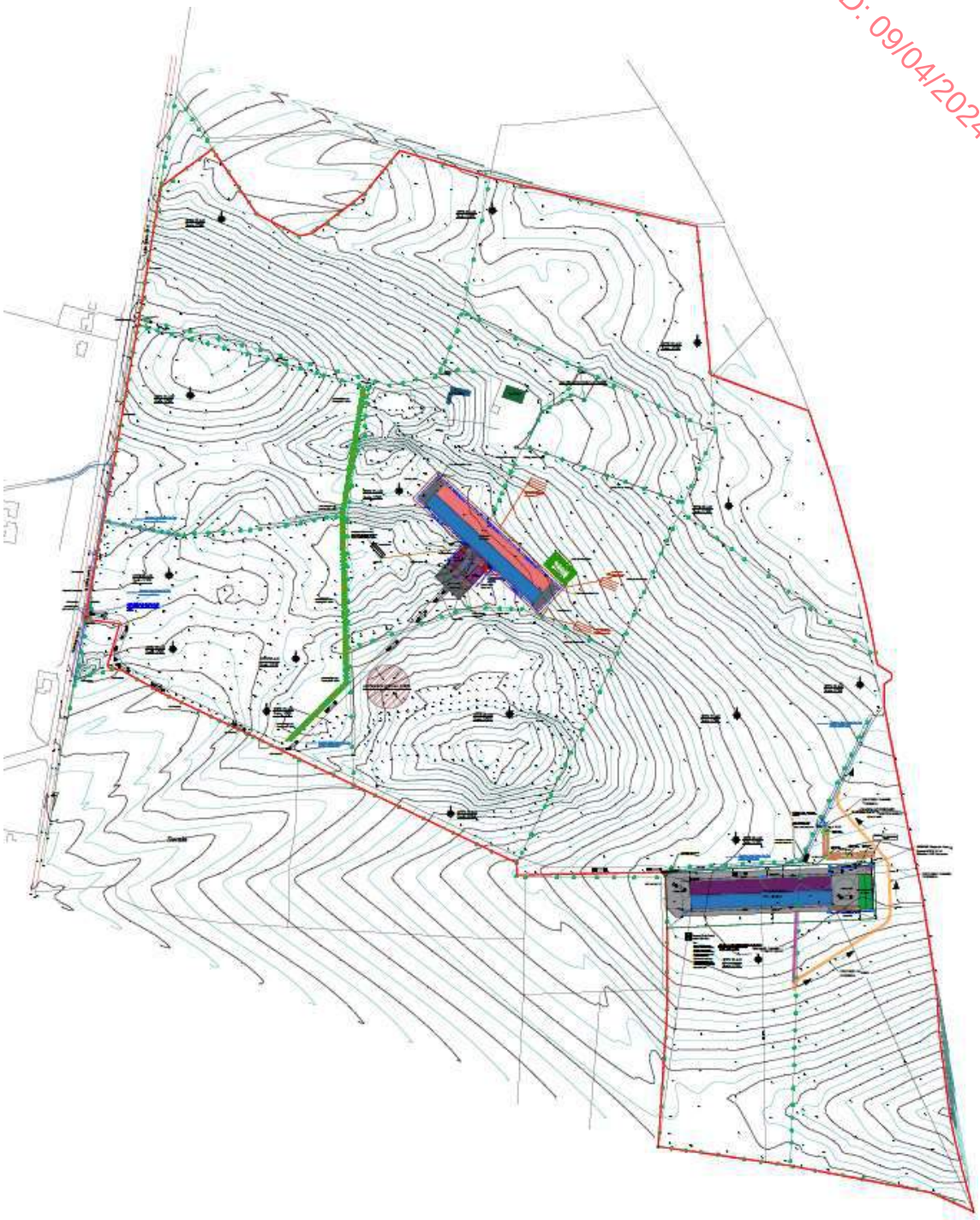


Figure 3.4 – Proposed Site Plan

3.2 Objective of this development

The objective of this planning application is to progress a sustainable farm diversification enterprise, replacing the existing grassland farming activities, on a small portion of the lands with a poultry layer house with a capacity of 64,000 birds in a barn system, that can integrate with the existing farming activities, complement the existing free range enterprise and comply with the supermarket/consumer requirements for cage free egg production, to the benefit of both the applicant, ancillary businesses including Belview Egg Farm Ltd., customer farmer grassland/tillage enterprises and ultimately the consumer with the production of safe nutritious locally produced food produced to a higher welfare standards, and produced in a economically and environmentally sustainable manner .

Due to the uncertainty around the current marked trends for cage free production the applicant had previously deemed it prudent to concentrate on free range production at that time by;

a) Utilising the available lands for the development of free range production (C. 60,000 birds), in line with Bord Bia production standards.

At this point and as we come closer to the proposed transition to cage free systems, the greater understanding of these systems by the supermarket/consumer and the experience gained by the applicant in the conversion/operation of barn systems elsewhere, the applicant has identified the completion of this proposed development as the next stage in the transition away from the existing housing systems to new higher welfare systems.

According to data supplied by Bord Bia, the average consumption of eggs per capita in Ireland was 155 eggs per year in 2019, with the equivalent of a further 26 eggs consumed in egg products, bringing total consumption to 181 eggs per capita per year. Eggs are considered a good value for money source of protein. Research by REDC (2017) show that egg consumption tends to be higher in households with children and especially in those with lower than average disposable income, thus developments such as that proposed are an important development in the provision of safe, healthy, nutritious, sustainable and affordable Irish food, particularly in time of significant food price inflation.

The proposed poultry enterprise will result in the production of valuable organic fertiliser (which is not a waste to be disposed off, but is a valuable organic fertiliser to be utilised by the customer farmers, to meet agronomic requirements (incl. N, P, K, trace elements and organic matter) in line with the requirements of S.I. 113 of 2022, to grow the grain to be utilised in the Irish animal feed industry (to feed birds such as those in the proposed development). Upon completion of the proposed development this poultry house, will only provide c. 66% of the organic fertiliser requirements of the customer farmlands in

accordance with S.I. 113 of 2022 In addition to the above, arrangements have also been made to provide the required 6 months storage capacity on the farm.

This proposed development will operate to the highest standards of animal welfare, environmental protection, animal/bird performance and efficiency. This will ensure that this farm will be viable and will operate with a satisfactory level of profitability to provide the applicant with a satisfactory income, after repayments.

The scale and layout off the proposed development will be designed so as to maximise the economies of scale, while at the same time keeping within a scale that the applicant can manage to a high level.

The scale of the proposed development is linked to;

- The resources available to the applicant in terms of the site, labour and capital, and the availability of land necessary for the required site area, without significantly adversely impacting on the existing farming activities.
- The requirement from Belview Egg Farm Ltd. for a consistent supply of fresh Irish produced eggs to meet increasing consumer demand as a result of population growth, and the conversion from to cage free systems of production (and the associated reduction in capacity of existing poultry layer houses) etc.
- The customer farmers requirement for organic fertiliser to replace imported inorganic chemical fertiliser, or organic fertiliser sourced from elsewhere, thus increasing the efficiencies within the existing tillage farming activities.

The location of the proposed development is a significant advantage to the operation of this farm as it is located centrally within a significant tillage farming area, thus maximising the area of available and suitable land, while minimising manure transport distances. The organic fertiliser from this farm is to be applied to the land farmed by customer farmers to produce wheat and barley (and other crops) for the Irish animal feed industry, to be used to feed farms such as the proposed development. This is the ideal agricultural production/ nutrient cycle.

At a time in the Irish poultry and tillage industries when margins are extremely tight it is essential that every farm is run and managed as efficiently as possible. This is achieved with the efficient use of inputs and optimising animal/bird/crop performance, maximising the value obtained from locally produced sources of organic fertiliser.

Due to the location of the proposed site, the assessment of any impact from this proposed development, needs to take into account the potential cumulative impact of the proposed development along with any existing developments, adjacent to the proposed site.

The site of the proposed development is part of an overall farmed area of c. 68 hectares in accordance with S.I. 113 of 2022, and is located a significant distance from any local residences, and close to good road infrastructure.

The proposed development will be integrated into the landholding owned by the applicant, and existing farming activities thereon and will also integrate with the business of Belview Egg Farm Ltd. The proposed development will not be overtly visible within the landscape. Sympathetic colours/ finishes and landscaping will help to integrate the proposed development into the surrounding landscape.

3.3 Size and Scale of the Development and Construction

The following details should be read in conjunction with the architect's drawings provided in Appendix 2, 3 & 4. Appendix 2 contains site location map(s) (1:2,500). Appendix 3 contains a site layout plan and site sections. Appendix 4 contains the cross-sections, plans and elevations of the structures for which planning permission is sought. Appendix No. 19 contains a Construction Waste Management Plan.

The proposed development is to be integrated into the landscape, and existing farming activities, and located to the rear of the landholding so as to comply with Louth Co. Co., E.P.A., D.A.F.M and/or Biord bia requirements.

Poultry rearing design principles are relatively simple and have not changed significantly over recent years. The type of poultry housing proposed on this farm is designed for barn egg production and comprises a simple closed building of block and timber/steel construction on an impervious concrete base, thermally insulated with a forced computer controlled ventilation system and artificial lighting. Birds are to be housed on a solid floor, with the necessary furniture (including nest boxes, feeders, drinkers etc provided within the house. Automated feeding and drinking systems are proposed and are in line with Best Available Techniques (BAT) requirements. A button nipple drinking system is to be used in the houses as this is the most efficient type of drinking system and it ensures that the manure remains as dry as possible. Same is substantially similar in nature to the existing free range house construction and operation however the birds do not have outdoor access.

Crayvall Egg Production Ltd. ***proposes*** to construct the following:

- 1 No. Barn Type Poultry House ~ Floor Area c. 5,171.32m^2, and,
- 1 No. Ancillary manure storage shed~ Floor Area c. 578 m^2,
- together with all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works, and which will operate in tandem with the existing 60,000 bird capacity free range layer enterprise already operating on the farm.

The proposed development of 1 No. barn type layer house will be of similar design to existing houses located elsewhere within the country, and will comply with Bord Bia requirements for barn egg production systems. Birds will be housed on an open floor and the house will have the necessary equipment internally. The proposed poultry house will be of a steel portal frame construction on a concrete base. Walls will be concrete, and/or a pre-fabricated panel construction. The roof cladding will be box profile juniper green (or similar) cladding.

Crayvall Egg Production Ltd. ***propose*** to construct the following:

- 1 No. Barn Type Poultry House ~ Floor Area c. 5,171.32m^2, will be c. 161.2m long by c. 32.2 m wide with a height of c. 9 m, to accommodate c. 64,000 laying hens.

  and,

- 1 No. Ancillary manure storage sheds~ Floor Area c. 578 m^2, will be c. 39.6 m long by 14.6 m wide with a height of c. 8.3 m.

Together with all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works associated with the construction and operation of this proposed poultry house development.

3.4 Operation of the Farm

Operating Hours

The operation of this proposed development, will be along similar lines to, the existing poultry house and activities on other poultry houses in the county. The main activities at this farm will occur during normal working hours between 06.00 a.m. and 20.00 p.m. Stock inspections in line with normal farming practices are and will be carried out every day including weekends and holidays. Automatic feeding and ventilation systems operate on a 24 hour basis and in addition, essential activities may be carried out outside of core working hours. The proposed development will require 2-4 labour units, in addition to farm management.

The poultry house manager, and/or other designated person(s) will be available at all times should any emergency arise regarding this farm. In addition Crayvall Egg Production Ltd. will retain overall responsibility for the day to day running of the farm.

3.4.1 Stocking and Production Cycle

The proposed development is for 1 No. purposely designed layer houses (for Barn Egg production) The proposed house will have a capacity for c. 64,000 birds. The proposed development may be split into two sub-sections of 32,000 birds and same may operate in a staggered production system, whereby it will be managed to ensure an even distribution of production throughout the year. Stocking rates are based on current standards as prescribed by Bord Bia.

The stock for this farm will be brought from specialised pullet rearing farms at point of lay (c. 16 weeks of age). The birds remain on site for the laying cycle (c. 60 weeks on average) and are removed at c. 76 weeks of age. The house, which when complete will be subdivided into 2 subsections of 32,000 birds, will operate an all in - all out basis (per section) to maintain a single age profile and so as to maintain the health status of the birds. High health status will be a priority on this farm as it is of critical importance to maintain this for the overall viability of the enterprise. An overall animal health and welfare policy in accordance with Bord Bia requirements, as per the Sustainable Egg Assurance Scheme (SEAS), will be developed to cover this farm. Hygiene routines will be carefully planned and monitored. The houses will be carefully cleaned down between flocks.

Once fully operational the site may operate on a rotational basis, whereby one section will be de-stocked and re-filled on average every six months, subject to the bio-security plan developed for the farm. This will even out the workload during the year and the traffic associated with the transfer of birds to and from the site. The staggered production system is important to maintain the consistency of supply of eggs to the packer, Belview Egg Farm Ltd. It is essential for the workload within the grading, packaging and distribution facilities, and to meet customer requirements, that a consistent supply of welfare quality standard, Irish eggs is available.

High health status will be a priority on this farm as it is of critical importance to maintain this for the overall viability of the enterprise. The proposed development will seek approval under the Sustainable Egg Assurance Scheme (EQAS) and an overall animal health and welfare policy in accordance with Bord Bia requirements, as per the Sustainable Egg Assurance Scheme, will be developed to cover this proposed development. The management proposed will be highly trained and experienced. Hygiene routines will be carefully planned and monitored. The houses are carefully cleaned down and rested between batches.

3.4.2 Use of Natural Resourses

There are no significant negative effects expected as a result of the proposed development in relation to the use of natural resources. As previously detailed the development will require a limited land area to facilitate the proposed physical development, and same will have no adverse impact on land, soil and/or bio-diversity outside of the site area. The current free range area utilises c. 60 Ha of the applicant's landholding.

There are no processes involved that have a high requirement for fuel energy and no ancillary heating will be required.

The proposed development will have a definite requirement for a supply of water during the construction phase and once completed there will be additional water used on the farm as a result of this proposed development. The main resource to be consumed would be poultry feed, which is classifiable as a natural resource that is a renewable resource, and water

Feeding - All birds will be fed by means of an energy efficient, low maintenance, automated feeding system. Feed will be moved from the external feed storage bins, into the houses.

During the production cycle c. four different diet specifications are used. Each diet is tailored to meet the birds nutritional requirements for protein/amino acids, energy, minerals and vitamins at that stage of production and to minimise nutrient excretion. This will ensure that birds are healthy and contented and are producing the maximum number of high quality nutritious eggs.

Total Feed Consumption is estimated at circa. 5,500 t/annum. All of the feed to be used on this farm will be supplied from specialised feed suppliers such as A.W. Ennis Ltd., Corby Rock etc. Please refer to Appendix No. 8 for additional information with regard to the feed to be supplied to this farm.

Water supply and use.

Water supply will be from a deep well to be located on-site and/or the Ballymakenny/Sandpit Water Scheme. Water is to be stored in an on-site water storage tank with a capacity of c. 25m^3.

The water used per annum will equal, circa 10,000 m^3(c. 24.5m3/day on average) As detailed in Section 6.2 of the E.I.A.R. the site is located over a Poor Aquifer (Pu), with a Moderate vulnerability.

All animal drinking appliances will be regularly maintained to ensure that there is no leakage to the manure storage structures. Water in this poultry house will be used for the following:

(a) ***Drinking water for livestock.***

Water is to be supplied ad-lib to the birds via a highly efficient button nipple drinking system. This system will have cups under each nipple so that no water is wasted. This also has the additional advantage of keeping the manure as dry as possible.

(b) ***High pressure wash down systems (3,000 psi)***

The proposed houses will be cleaned down after each batch of birds so as to ensure that the highest levels of bio-security are maintained on the farm. Houses will be primarily blown down with limited washing. Soiled water collection tanks have been allowed for so as to facilitate this washing process if and when it occurs.

3.4.3 Heating and Ventilation

Energy supply to the farm is electric three phase supply. A 62 kW solar panel system has been developed on the existing poultry house and additional solar panels will be provided to reduce energy imports and improve the sustainability / reduce the carbon footprint of the proposed activities.

(a) Heating

No ancillary heating required.

(b) Ventilation

All ventilation within the poultry houses will be computer controlled mechanical ventilation.

3.5 Existing / Proposed Poultry Housing

The proposed poultry house is a steel portal frame structure, with green/dark coloured prefabricated insulated wall panels constructed on a mass concrete base. The roof cladding will be box profile juniper green (or similar) cladding. The proposed house is similar in design, construction and operation to the existing free range house.

The existing;

- Free Range poultry house is be c. 167m long by c. 32.675 m wide with a height of c. 7 m, to accommodate c. 60,000 laying hens.
- Manure stores are c. 20.4m long by 10 m wide with a height of c. 7.5 m.

The proposed;

- Barn Type Poultry House will be c. 161.2m long by c. 32.2 m wide with a height of c. 9 m, to accommodate c. 64,000 laying hens.
- Manure storage shed, will be c. 40 m long by 15 m wide with a height of c. 8.3 m.

Poultry housing design principles are relatively simple and have not changed significantly over recent years, albeit that the internal "furniture" has changed with evolving welfare systems. The type of poultry housing existing on this farm is designed for a Free Range production system, and the proposed development will operate as a Barn type Production System. Notwithstanding the different operating systems, the proposed house is similar in design, construction and internal operating systems to the existing development.

The proposed house comprises a simple closed building of pre-fabricated insulated panel and steel construction on an impervious concrete base, thermally insulated with a forced computer controlled ventilation system and artificial lighting. In the proposed development the birds will have free access to move internally around the house, albeit they will be sub-divided into sub-colonies of not > 4,000 birds. Birds are housed on a solid floor, with access to feed, water and nest boxes, with the equipment set up in a multi-tier configuration. Automated feeding and drinking systems, and manure and egg conveyors will be in operation. A button nipple drinking system is to be used as this is the most efficient type of drinking system and it ensures that the manure remains as dry as possible.

The existing free range house has pop-holes along each side open during daylight hours to allow birds access to the paddock areas, and this feature will not be on the proposed development. The proposed development is designed to produce eggs to a different standard to meet consumer demand, and in addition there is insufficient lands available to facilitate an additional free range enterprise at this location, in line with Bord Bia requirements. All systems will be well maintained and serviced so as to ensure that they are operating to maximum efficiency.

Figure 3.5 – Drawing of Proposed House.

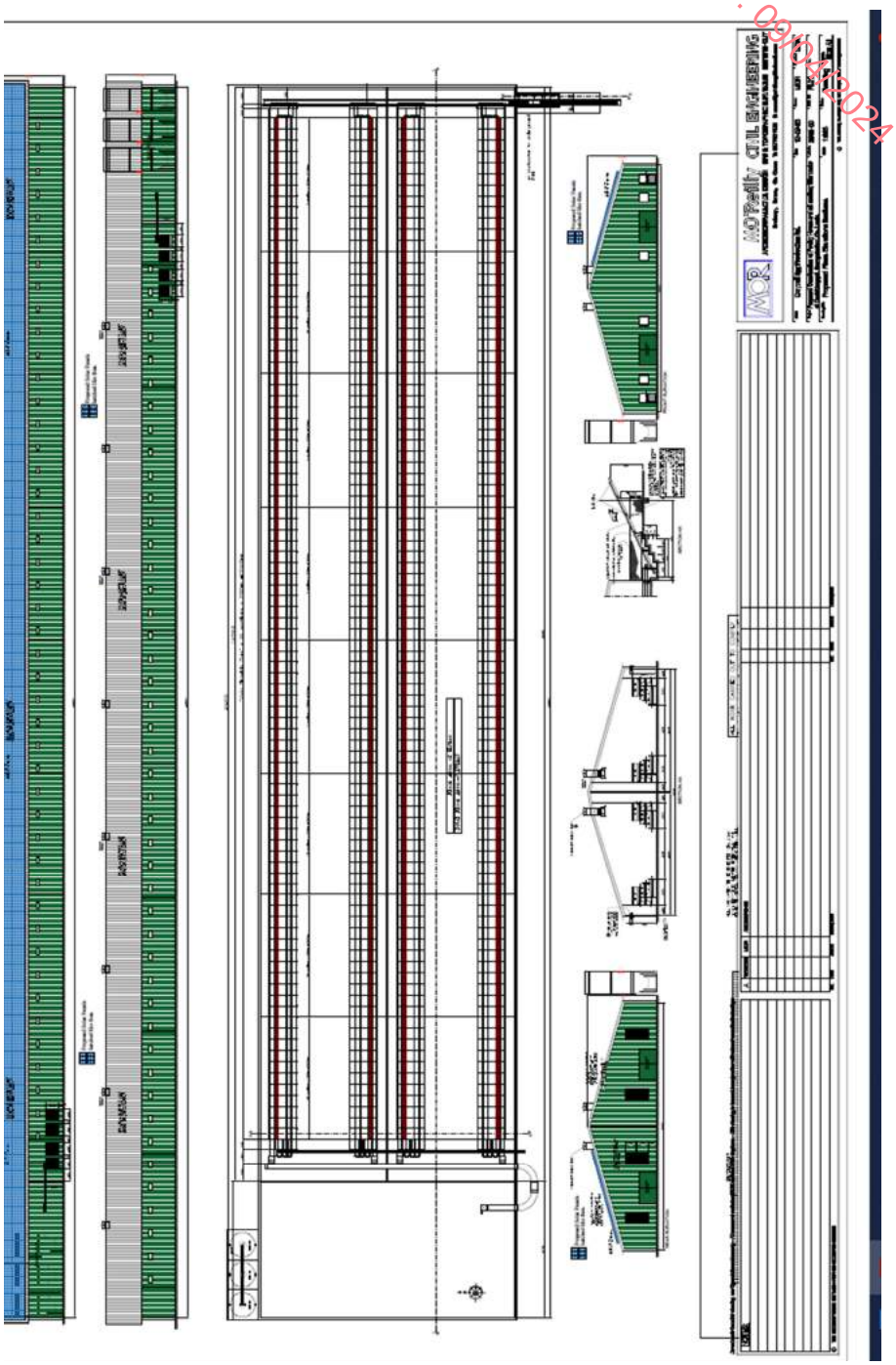
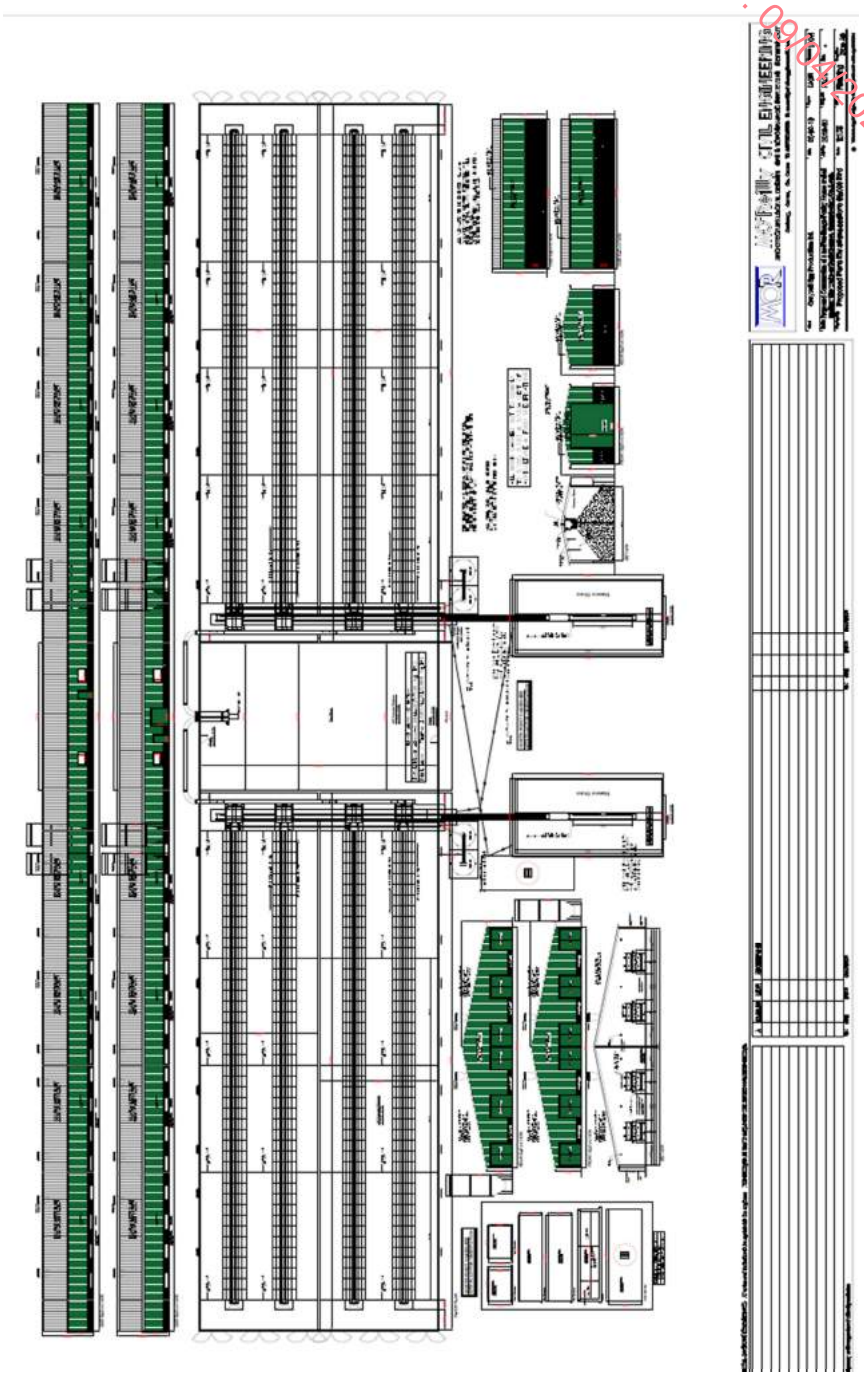


Figure 3.6 – Drawing of Existing House.



3.6 Process of Production

As previously detailed the main activities at this farm occur during normal working hours between 06.00 a.m. and 20.00 p.m. Stock inspections in line with normal farming practices are and will be carried out every day including weekends and holidays. Automatic feeding and ventilation systems operate on a 24 hour basis and in addition, essential activities may be carried out outside of core working hours.

The production process on this farm will be in line with the requirements of Bord Bia and Belview Egg Farm Ltd., and customers of the Belview Egg Farm Ltd.. Belview Egg Farm Ltd. arrange for a number of farm inspections to be carried out during the year, so as to ensure that all of their production standards and requirements are being complied with. In addition to the above the applicant is /will be subject to inspections from Bord Bia, the Department of Agriculture, Food and Marine, Louth Co. Co., and/or the Environmental Protection Agency.

All birds will be fed by means of an energy efficient, low maintenance, automated feeding system. Feed will be moved from the external feed storage bins, into the houses. A number of different rations are fed throughout the lifecycle. Each diet is tailored to meet the birds nutritional requirements for protein/amino acids, energy, minerals and vitamins at that stage of production and to minimise nutrient excretion. This will ensure that birds are healthy and contented and are reared properly so as to ensure healthy efficient birds which achieve set production efficiencies. Total Feed Consumption/annum is expected to be c. 5,000 – 5,500 t. All feed will be supplied from specialist feed suppliers such as Corby Rock and A.W. Ennis.

The applicant is responsible for the maintenance and preparation of the houses, management of the birds, feeding, water and ventilation systems and for ensuring that all of the required records are maintained for each flock.

While the barn production systems differ from the existing free range housing system, the production process within the proposed development will be substantially similar (in nature, design and operation, albeit that the birds do not have an external range area) and the experience gained by Crayvall Egg Production Ltd. and Belview Egg Farm Ltd. will be a significant advantage to the proposed development.

The production process on site will involve;

- Management and husbandry of the birds.
- Management of house temperature, humidity and recording flock performance.
- Cleaning and sweeping down of the houses.
- Automated feeding, watering and ventilation systems.
- Automated manure removal systems.
- Egg Collection and grading.

The poultry manure from this farm will be moved to the existing/proposed manure stores automatically on a weekly / bi-weekly basis, pending application to the customer farmers lands. The estimated manure production as a result of the proposed development and available to the customer farmers will be c. 4,919.62 m3 (increasing from 2,223.94 m3 as calculated in line with S.I. 113 of 2022 (or c. 1250 tonnes based in 2021/2022 annual records)) /annum net. As previously detailed provision has been made on site for 6 months storage capacity in line with the requirements of S.I. 113 of 2022.

Soiled water from the proposed development where applicable, will be collected in dedicated soiled water collection tanks, located as detailed on the site plan. The houses (existing and proposed) will operate on a dry manure and dry cleaning system, whereby the houses are blown down and only washed infrequently (not more than once per annum. Estimated soiled water production will be c. 200m3 (increasing from c. 100 m^3) / annum. This soiled water will then be applied to the lands in accordance with S.I. 113 of 2022, as amended. Soiled water storage facilities (>100m3 to comply with the 26 week storage requirements of S.I. 113 of 2023 are to be provided on site as per the enclosed drawings. As acknowledged by Louth Co. Co., the European Union (Good Agricultural Practice for the protection of waters) Regulations 2022, SI 113 of 2022, deals with the requirements as to the manner of application of fertilisers, soiled waters etc. The purposes of these regulations is to protect surface and ground waters and same details all necessary measures to prevent pollution and/or to protect water quality. A map is included in Appendix 6 indicating the location of the customer farmlands.

The applicant has an additional c. 2Ha hectares of lands (in excess of that required for the range area for the hens for the existing enterprise and the site area for the proposed development) suitable for the application of soiled water. The organic N stocking rate on these lands is c. 0 kg organic N/Ha. ***The application of an c. 200 m^3 of soiled water to these lands with an estimated Organic N content of c. 1.37 kg organic N/m^3 will increase the organic N application rate on the these remaining farmlands from the proposed development to c. 137 kg organic N/Ha, well inside the 170 kg organic N/Ha limit.*** Alternatively this soiled water can be allocated to the customer farmers as identified in Appendix No. 1

To minimise the risk of personnel bringing infection into the poultry house all visitors are banned with the exception of essential personnel such as veterinarians and servicemen. All visitors must sign a register and use appropriate disinfectant procedures. Designated lorries are to be used to deliver feed to the farm. A vital part of maintaining health within the unit is the necessity to fully clean out after each flock is removed. This avoids the build-up of bacteria and viruses which challenge the incoming stock and which may affect their production efficiency.

3.7 Procedures of Production

It is envisaged that Crayvall Egg Production Ltd. will seek approved under the Bord Bia approval system, as per the Sustainable Egg Assurance Scheme (SEAS), upon completion of the proposed development and commencement of poultry farming activities in the new house. As part of this approval the daily procedure will follow the Bord Bia Sustainable Egg Assurance Standard Producer Requirements.

The following house checklist and flock inspection checklist are included as part of this standard;

Appendix 7.13 House Management Checklist

House Identification Number	
Week Ending	
Age of Birds / Date housed	
Number Birds	
Meal Batch Number	
Water Test Next Due	

Checks	Check Frequency	Result / Comment
Water Supply and Drinkers	Daily	
Water Meter Reading	Daily	
Feeding System	Daily	
Flock Mortality	Daily	
Culling (Number of birds)	Daily	
Ventilation	Daily	
Lighting (operating as per programme)	Daily	
House Temperature Max	Daily	
House Temperature Min	Daily	
Litter quality	Daily	
Flock Appearance	Daily	
Egg Store Temperature Max	Daily	
Egg Store Temperature Min	Daily	
Clean and Tidy Egg Store	Weekly	
Foot Dips (Correct Strength)	Weekly	
Sweep Floors	Weekly	
Dust Cages	Weekly	
Check External Bait Points	Weekly	
Check Internal Bait Points	Weekly	
Inspect for Red Mite	Weekly	
Check Alarm Operation	Weekly	
Maintenance Check	Weekly	
Fly Monitoring	Weekly	
Belt Inspection (if appropriate)	Weekly	
Generator Operation (where installed)	Weekly	
Average Feather Loss Score	Monthly	Head/Neck
		Back/Vent

Corrective Actions Required	Date Completed

Fig 3.7 House Management checklist as contained in the Sustainable Egg Assurance Scheme (SEAS)

4. Description of the physical characteristics of the proposed development, the land use requirements during construction and operation and the likely significant effects of the project on the environment.

The poultry farm operation (inclusive of the existing free range and proposed barn houses) will result in the production of 2 saleable products, 1) eggs (both free range and barn to meet consumer requirements) for the packing sector (Belview Egg Farm Ltd.) / consumer and 2) organic fertiliser (destined for customer farmers lands in accordance with S.I. 113 of 2022, as previously outlined).

It is intended that the eggs (Free Range and Barn) produced on this farm would be supplied to Belview Egg Farm Ltd., and that all organic fertiliser would be utilised by, the customer farmers as a source of local organic fertiliser for their crops. Alternatively, and if required organic fertiliser may be utilised by other farmers, in line with the requirements of S.I. 113 of 2022, as amended (Appendix 17). This will reduce the requirement for chemical fertiliser on these farms.

In addition, a number of waste streams will also be generated, and these may/will include, bird carcasses, general waste and paper bags. The quantities of the various wastes generated, their storage and their ultimate disposal are detailed in the following sections. The only remaining emission from this farm is clean storm water from roofs and yards which will be, discharged to ground/surface water via the existing/proposed emission points.

4.1 Organic Fertiliser/Manure Production/Range Area (For Free Range Development only)

The annual estimated production of organic fertiliser/manure from the farm is calculated in Figure 4.1.1.. While this is a significant amount of additional fertiliser, it is significantly below that required by the customer farmlands identified for the receipt of this fertiliser. In line with standard terminology for this type of development the farms/farmlands identified for the receipt of organic fertiliser are referred to as customer farm/farmlands. European Union (national Emission Ceilings) Regulations 2018) S.I. No. 232/2018, measures to control ammonia emissions recommends “promoting the replacement of inorganic fertilisers by organic fertilisers”, in line with the practices proposed for this development.

The customer list contained within Appendix 1, ***detailing the capacity of the customer farmlands to accommodate poultry manure from the proposed development in accordance with S.I. 113 of 2022, (And in line with policy objective ENV 21 as detailed in the Louth County Development Plan)*** indicates a requirement of c. 165 % of the

proposed manure to be produced on the farm after the completion of the proposed development. While it is intended that all manure from this proposed development will be allocated to the customer farmers lands, additional customer farmers may be supplied if, and when, they arise if deemed appropriate.

The information provided and referred to hereafter in respect of third party customer farmers has been compiled in line with the agreement between E.P.A. (as a national environmental regulatory agency with responsibilities under S.I. 113 of 2022, and for the assessment of EIAR for Intensive Agricultural Licence applications) and the I.F.A. to provide the necessary information in order to assess applications incl. EIAR) while at the same time respecting the privacy of third party farmers, who are responsible for the management and application of fertiliser to their lands in accordance with S.I. 113 of 2022.

It should be noted that no poultry manure (and/or soiled water as referred to elsewhere in this E.I.A.R.), is disposed of. This organic fertiliser is to be utilised by customer farmers, in line with S.I. 113 of 2022, as part of their agricultural activities and to meet, in all or part, crop agronomic requirements (incl. N, P, K, trace elements and organic matter) in line with the requirements of S.I. 113 of 2022, to replace chemical fertiliser and ensure optimum crop performance in line with European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2022 (S.I. No. 113 of 2022).

Figure 4.1.1 Existing Organic Fertiliser/Manure Production

Existing Annual Manure Production.				
Animal Type Existing	**Number**	**Manure Production M3/'000 birds /week**	**Weeks**	**Total** M3
Free Range	60,000	0.7128* (0.81*88%)	52	**2,223.94m3** as calculated in line with S.I. 113 of 2022**

Figure 4.1.1 Proposed Organic Fertiliser/Manure Production

Proposed Annual Manure Production.				
Animal Type Proposed	**Number**	**Manure Production M3/'000 birds /week**	**Weeks**	**Total** m3
Free Range (existing)	60,000	0.7128* (0.81*88%)	52	**2,223.94****
Barn (proposed)	64,000	0.81	52	**2,695.68** **4,919.62**

*Data from S.I. 113 of 2022 confirms the manure production per bird place at 0.81m3/'000 birds per week. In free range production 12% of this is deposited on the range area with 88% retained within the house, and subsequently transferred to the manure store by conveyor. The data presented above has been edited to reflect same.
**(c. 1250 tonnes based in 2021/2022 annual records)

European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2022 (S.I. No. 113 of 2022, as amended) data would suggest that the manure would have a nutrient content of 13.7 Kg N and 2.9 kg P / m3.

4.1.1a Range/Paddock Area Management (Applicable to existing authorised free range activities only)

As part of the operation of the Free Range Poultry house the birds are allowed access to an outside range area at a stocking rate of 1,000 birds/ha (in line with Bord Bia Requirements) , or a total of c. 60 Ha, as broadly outlined on the drawings as submitted with the planning application and subject to D.A.F.M. and Bord Bia approval.

For the purposes of the Nitrates Directive the stocking rate of animals/birds / hectare of agricultural area is calculated as kg Organic N/Ha. The additional information provided in this directive also confirms that 1 laying hen/bird place produces the following nutrients;

- **0.56 kg N/year**
- **0.12 kg P/year**

For the purposes of the Nitrates directive (without derogation) not more than 170 Kg Organic N (i.e. N from animal/poultry manure) can be applied /ha of net area, in this case the range area available to the birds. This Organic N allocation is averaged over the area available to the birds.

It should be noted that it is not proposed to apply any additional fertilisers (organic and/or inorganic) to the range area, and that c.1- 2 cuts of silage/round bales will be removed from this area annually.

Nitrogen and Phosphorous Balance/ha

No. of hens	1,000/ha
Total N produced per bird per annum	0.56 Kg
N excreted while grazing per annum (@ 12%)*	67.2 Kg
Total P produced per bird per annum	0.12 Kg
P excreted while grazing per annum (@ 12%)*	14.4Kg
Range Area	1 ha
Organic N deposited /Ha	**67.2 Kg****
P Deposited/Ha	**14.4 Kg**

* The birds deposit c. 12% of the total manure production outside as per correspondence from the Department of Agriculture, Food and Marine).

** This is significantly below the existing permitted application rate of **170 kg Organic N/ha. In addition to this, unlike tillage/grassland farming enterprises, whereby chemical fertiliser is permitted in addition to the organic N allocation, no additional fertiliser (chemical or otherwise) is permitted on the range area.**

Cropping Routine

As can be seen above the stocking rate when equated in terms of the amount of organic N deposited per Ha by the livestock (Laying Hens) proposed, is well below that fertiliser level permitted with the other farming activities, as prescribed by S.I. 113 of 2022.

Therefore the existing free range activities;

1. ***Replaced the previous mono crop tillage farming activity on part of the range area , with permanent pasture/grassland.***
2. ***Resulted in a reduction in the permitted allocation of organic fertiliser to these lands (reduced from 170 kg organic N/Ha to 67.2 Kg organic N/Ha)***
3. ***Ceased the allocation of any additional chemical fertilisers to the identified range area.***
4. ***Resulted in a significant reduction in intensification of activities on these lands, albeit a different system of farming.***

Also introduced under the Nitrates directive were restrictions on the amount of Phosphorous to be applied to land. Based on a stocking rate of 1,000 birds per hectare this would provide a Phosphorous allocation of c. 14.4 kg/Ha. As no other additional P fertiliser is to be be applied to this area this is the total P allocation per annum. Assuming the lands in question are at Index 3 for P (as per Article 16(3)(a) of SI 113 of 2022, as amended) the required allocation for the proposed first cut silage is 20kg/ha in accordance with Table 15 of SI 113 of 2022, as amended. Therefore the P allocation of 14.4 kgP/ha/annum, in conjunction with Soil Index 3, is below the required level of P to achieve the optimum yield of 1 cut of silage/annum.

As a result of the nature and extent of the development proposed, it will not significantly impact on the management /operation of the range area and/or designated stocking density. The boundary of the range area may be altered slightly to exclude the site of the proposed development, with additional available lands included to ensure that the required area remains available to the free range enterprise.

Figure 4.1.2 Bord Bia Requirements specific to the range area.

Production System - Alternative Systems (Free Range)

4.19 The Land

a) The overall stocking density must not exceed 1,000 birds per hectare of ground.

b) The production house must be sited so that the birds have access to all of the land available, in rotation, for the duration of the laying cycle of the flock.

c) A secure perimeter fence must be maintained in place on the land registered for free-range production.

d) The birds must have continuous daytime access to the scratch area and to open-air runs or paddocks, which must be used and rested in rotation[7].

e) The range must be protected against predators (e.g. suitable fencing materials).

f) Shelter / shade from inclement weather must be provided on the range. This can be achieved through:

   i. Additional range enhancement features must be present including, at a minimum, hedgerow / tree cover providing at least 5% effective cover of the range, OR;

   ii. Providing cover that is structurally safe and sound, appropriately distributed across the range, and providing 8m²/1000 birds, OR;

   iii. Combination of 'i' and 'ii' that provides equivalent cover.

g) Pot-holes on the land must be filled in before re-stocking in accordance with good pasture management.

h) The area accessed by the birds must be maintained by a levelling and re-seeding programme to maintain bare patches at <2.5% of the accessible area.

i) The ground to which the birds have access must be well drained and be mainly covered with vegetation (i.e. with grass growing, not weeds or scrub) and topped as required.

j) Measures must be in place to prevent other livestock (mammals or avian species) entering the ground as a safeguard against Salmonella or other infections.

k) Land registered for free range egg production may only be used for this purpose.

l) Rubbish, litter material, farm machinery or manure must not be allowed to accumulate on registered land.

m) Domestic septic tank and / or percolation areas sited on registered land must be fenced and not accessible to poultry.

Fig 4.1 House Management checklist as contained in the Sustainable Egg Assurance Scheme (SEAS)

4.2 Manure Management

The manure management system is based on maintaining dry manure at all times. All manure, existing and/or proposed, is to be removed from each house by way of conveyor directly to the manure store pending transfer to the customer farmers, for use in accordance with S.I. 113 of 2022, as amended. At the end of each flock (c. every 13 – 15 months) the houses will be blown down onto the manure belts and cleaned in preparation for the next batch of birds.

4.3 Allocation of Organic Fertiliser/ Manure

The practice of applying animal manure to agricultural farmland as a valuable source of fertiliser is a well-established practice in farming, and operating in practice with the existing activity. Traditionally, a large number of farms had small numbers of hens/poultry and all of the organic fertiliser was returned to farmland. Due to economics and specialisation of production in order to survive, poultry farming has evolved to a small number of farms with a large number of birds, however the principle of returning organic fertiliser from these birds to farmland in order to utilise the nutrients contained therein still prevails.

The proposed development will be integrated into the existing farming activities. All farmlands currently identified for the receipt of manure from this site are in accordance with S.I. 113 of 2022. However there is also the potential for other customer farmers in the area to utilise organic fertiliser from this development. As present this is not required as the proposed development once completed can only supply c. 66% of the fertiliser P and/or fertiliser N required.

The operation of this farm will enhance the symbiotic relationship between the tillage farmers, supplying grain to the Irish animal and poultry feed industry, by returning the manure to these lands for use as organic fertiliser. It is intended that organic fertiliser from this farm will be recycled onto land, upon which grain/tillage crops are grown in order to utilise the nutrients contained therein for efficient crop production, in line with the operation of the existing activities.

This organic fertiliser will replace chemical fertiliser, and/or complement organic fertiliser from other farms, that would otherwise have to be used and/or is being used. Due to the ever increasing costs associated with chemical fertiliser, organic manures such as poultry manure are becoming ever more sought after by tillage/livestock farmers in order to reduce their fertiliser costs. In this regard tillage farmers, such as the customer farmers, are keen to secure a sustainable source of organic fertiliser to fertiliser their lands. This customer list will be revised on an ongoing basis. This will ensure that customer farmers receive a cheaper source of fertiliser, while at the same time ensuring

that there is a stable and consistent market for the organic fertiliser produced in the existing/proposed development.

The fertiliser from the farm will be, and/or will continue to be, allocated to lands farmed by the customer farmers that have a recognised agronomic need for additional fertiliser. Manure production from the existing and proposed development will the equivalent of c. 3 load/week on average during the year (increasing from c. 1-1.5 currently).

Poultry manure/soiled water is

a) Not a waste, but an organic fertiliser,
b) Not "disposed of" from the farm, it is a valuable organic fertiliser used by the customer farmers.

These are important concepts when framing the assessment of the use of this fertiliser, and the European Union (Good Agricultural Practice for Protections of Waters) Regulations S.I. 113 of 2022) deals with the requirements as to the manner of application of fertilisers, soiled water etc., and these requirements are to be fully implemented as outlined Development plan (albeit that it refers to the previous version of this legislation S.I. 605 of 2017).

It should be noted that

a) the customer farmers are entitled to use organic fertiliser on their lands, and may already do so from the existing authorised farm, (and chemical fertiliser from other sources)and they are responsible for compliance with S.I. 113 of 2022 on their own farms,
b) can continue to utilise organic (or other) fertiliser sources irrespective of the outcome of this planning application, although the proposed development if completed would offset current imported fertiliser usage, either on their farms, or wider agricultural area.
c) the customer farmers are bound by the requirements of S.I. 113 of 2022, and not by conditions that may attach to any grant of planning permission (i.e. they are not a direct party to this application.)
d) in essence all farmers within the county are potential customer farmers, however being pragmatic about it, only customer farms within a reasonable distance are likely to be supplied.

Taking the above into account one can see the difficulty that would arise in a site-specific assessment approach to land spreading, where the activity (i.e. the application of organic fertilser) is not site-specific in the terms normally considered as part of a planning application, i.e. identified within the red line boundary, and/or not within the remit of the application at hand, and, where same remains the responsibility of others to be carried out by them in a manners specifically prescribed for by separate legislation (S.I. 113 of 2022).

The nature of the downstream activity,

- i.e. the application of organic fertiliser by customer farmers to their lands in accordance with S.I. 113 of 2022,
- where the customer farmer is the responsible person under the aforementioned legislation, and
- the relationship between the customer farmers and the applicant in that customer farmers may change from one year/season to another

is that this activity is sufficiently removed from the project as not to be capable of assessment in site-specific terms. Such activities need to be considered on a more programmatic basis and not on a site specific basis. The assessment of the proposed development has been completed to demonstrate that all of the organic fertiliser can be used by the customer farmers in accordance with Applicable legislation, i.e. S.I. 113 of 2022.

Manure from the site would be supplied for use in accordance with the Nitrates directive. As prescribed in Ireland by S.I. 113 of 2022, as amended, (European communities (Good Agricultural Practice for Protection of Waters Regulations 2022), all relevant information pertaining to the potential customer farmers and all other information as required by this directive will be maintained on-site and will be made available for inspection as required.

Upon completion of the proposed development the proposed customer list will be revised to take into account any new customer farmlands as they arise, updated information provided by the proposed customer farmers and any changes to relevant legislation. Please refer to Appendix No. 1 for further details with regard to the current customer list, and general location of the currently proposed lands for the receipt of organic fertiliser from this farm.

At present this proposed development can only supply;

- c. 66% of the customer farmer fertilsier requirements of the calculated phosphorous requirements, and,
- significantly less of the Nitrogen requirements,(The organic N available from the proposed development equates to c. 100 Kg Organic N/Ha, well below the 170 kg Organic N/Ha limit).

of the identified customer farmlands when this proposed farm is at full operational capacity. A significant amount of additional organic/chemical fertilisers will still have to be applied to these lands to achieve optimum crop yields.

The applicant is entitled to supply organic fertiliser to his potential customer farmers who want it and are not prohibited from using it. The use of animal manure to fertilise farmland is subject to statutory control under S.I. 113 of 2022, as amended, and all records as required by same will be maintained by the applicant.

Application to land is the one practical economic means of utilising the nutrients in poultry manure. Organic fertiliser from this farm will be used as an alternative to imported artificial fertiliser. Manure will be utilised as an organic fertiliser by allocating it to those customer farmers with a recognised need for additional fertiliser. The machinery to be used for this activity has been changed and modernised over the years to make this process more environmentally friendly.

To this end all farmers are advised that manure from this development should be applied to land in as accurate and uniform a manner as is practicably possible. All lands currently identified for the receipt of manure form the proposed development are tillage lands, be they wheat, barley etc., and all farmers will be advised that in order to minimise any potential adverse environmental impact and to ensure that they get maximum fertiliser benefit from the organic fertiliser, that all manure from this farm should be stored, managed and applied in accordance with S.I. 113 of 2022, as amended and incorporated/ploughed into the soil as soon as practicable after application.
The annual fertiliser value of poultry manure is significant. Previously the tendency may have been to undervalue these products. However it is considered that significant benefit would arise in developing procedures whereby encouragement would be provided to fully utilise the nutrient value of animal manures as a substitute for commercial fertiliser. This is currently being driven by high/volatile commercial fertiliser prices and the realisation by farmers that locally produced organic fertilisers can provide a sustainable, valuable fertiliser source that will provide a greater range of macro and micro nutrients than that found in standard N, P, K compound fertilisers.

The existing / proposed development actively supports this philosophy by actively encouraging farmers to substitute imported chemical fertilisers with organic fertilisers. The ideal situation is where organic fertiliser can be returned to tillage lands, upon which the crops to feed the poultry (and other agricultural) industry were grown, such as the current proposal.

Poultry (and other) manures can reduce tillage production costs and improve soil structure, soil organic matter and soil organic status. The fertiliser value of 1 m^3 of layers manure (30% Dry Matter) manure has been estimated at €43, based on 2022 fertiliser prices (Teagasc 2022). This would mean that the total fertiliser value to the applicant from the c. 4,919.62 m^3 manure produced in the proposed development is in the region of €210,000 Poultry manure is a very well balanced fertiliser source with good levels of available N, P, K, S, Mg, Ca and minor nutrients.

Available Nutrient Content & Guide Value (€) of Organic Fertilisers 2022

Organic Fertiliser Type	N kg/m³ (units/1,000 gal)[6]	P kg/ m³ (units/1,000 gal)[5,6]	K kg/ m³ (units/1,000 gal)[6]	Value €/ m³ Or (€/ 1,000 gal)[3,4]
Liquid Manures				
Cattle (6% DM)	1.0 (9)	0.6 (5)	3.5 (32)	**11.0** (50)
Pig (4% DM)[2]	2.1 (19)	0.8 (7)	2.2 (20)	**13.3** (60)
Soiled Water	0.48 (4)	0.08 (0.7)	0.6 (5)	**2.7** (12)
Solid Manures	**N kg/t**[1] (units/t)	**P kg/t** (units/t)	**K kg/t** (units/t)	**Value €/ton**
Dungstead Manure	1.4 (3)	0.9 (2)	4.2 (8)	**15**
Farmyard Manure	1.35 (3)	1.2 (2)	6.0 (12)	**19**
Poultry[3]				
Broiler / deep litter	14 (28)	6.0 (12)	18.0 (36)	**97**
Layers (30% DM)	6.85 (14)	2.9 (6)	6.0 (12)	**43**
Layers (55% DM)	11.5(23)	5.5 (11)	12.0 (24)	**78**
Turkeys	14 (28)	13.8 (28)	12.0 (24)	**123**
Spent Mushroom Compost	1.6 (3)	1.5 (3)	8.0 (16)	**25**

[1] The value of N in Cattle slurry is 9 units/1,000 gallon (Based on total N of 2.4kgN/m³ @ 40% N availability by LESS application). Conversion - kg by 2 = units
Spring application of organic manures is required to maximize N recovery. Manures should be tested to determine manure nutrient content.
[2] Incorporation of high N manures within 2 to 6hrs after application assume 50% N availability
[3] Value of N = €2.83/kg. P = €4.55/kg, K = €1.69/kg for 2022 (Nutrient values based on price / volume of range of fertiliser products).
[4] Cost of spreading & transport not included. [5]Reduce P availability to 50% on P Index 1 & 2 soils.
[6] Values under units/1,000gals or per ton have been rounded to closest unit. *Amended 4th Sept. / Updated 14th April, 2022*

Fig. 4.2 Value of organic fertilisers 2022 (Source www.teagasc.ie)

4.4. Location of Potential Customer Farmlands

All potential customer farmlands currently identified for the receipt of manure from this proposed development are tillage lands farmed in accordance with S.I. 113 of 2022. All currently proposed customer farmlands are tillage/arable lands and are located in County Louth, Dublin and Meath and/or adjoining areas.

Any additional customer farmers that may arise in the future, will utilise the poultry manure for efficient tillage production and to reduce the amount of imported chemical fertiliser required. These areas will be primarily agricultural areas with low population densities. Please refer to Appendix No. 6 for details pertaining to the general location of the potential customer farmers currently identified. It is anticipated that any other customer farmers that arise in this area, or within a reasonable distance from this existing / proposed farm can be supplied with organic fertiliser for use in accordance with S.I. 113 of 2022, as amended.

4.5. Farmlands identified for the receipt of organic fertiliser.

In line with the requirements and stipulations of, S.I. 113 of 2022, as amended, (European communities (Good Agricultural Practice for Protection of Waters Regulations 2022) i.e The Nitrates Directive, all information pertaining to the potential customer farmers, if and when they arise and all other information as required by this directive will be maintained on-site and will be made available for inspection as required. In addition each customer farmer will receive a copy of all applicable information as required by S.I. 113 of 2022, as amended.

Included in Appendix No. 1 is a customer list detailing the current potential customers for organic fertiliser from this farm. This format also details the general location of the farmland areas and the requirement for additional fertiliser, as dictated by S.I. 113 of 2022, as amended. Additional information will be maintained on-site for inspection. This customer list is to be revised and updated as required in accordance with legislation, E.P.A. requirements and for the addition of other potential customers as they arise.

The nature of the downstream activity, (i.e. the application of organic fertiliser by customer farmers to their lands in accordance with S.I. 113 of 2022, and where the customer farmer is the responsible person under the aforementioned legislation), and the relationship between the customer farmers and the applicant (in that customer farmers may change from one year/season to another) is that this activity is sufficiently removed from the project as not to be capable of assessment in site-specific terms. Such activities need to be considered on a more programmatic basis and not on a site specific basis. The assessment of the proposed development has detailed that all organic fertiliser can be used by the customer farmers in accordance with Applicable legislation, i.e. S.I. 113 of 2022.

4.6. Organic Fertiliser/Manure Application Rates

Organic fertiliser from this farm is and will be allocated for use in accordance with the requirements of S.I. 113 of 2022, as amended and in line with crop requirements.

This will ensure proper utilisation of the nutrient content of the Poultry manure, which is as follows:

Nitrogen*	13.7 kg/tonne
Phosphorous*	2.9 kg/tonne

*(S.I. 113 of 2022, as amended).

The application of poultry manure/organic fertiliser to lands in accordance with S.I. 113 of 2022 will greatly benefit from receiving organic fertilisers and this will reduce the amount of imported energy in-efficient fertiliser that would otherwise be used.

4.7. Surface Water and Ground Water

All soiled water will be directed to the soiled water storage facilities. All roof water and uncontaminated storm water from the hard standing areas will discharge to the existing / proposed storm water emission points via the proposed storm water attenuation system, and from there to ground/surface water. The applicant and/or other appointed person will inspect these emission point(s) on a regular basis, as may be dictated by E.P.A. Licence requirements.

As the proposed development involves the management and storage of a dry manure, there is no significant potential for contamination of ground water. Dedicated soiled water tanks will be installed to collect the soiled water.

4.8 Animal/Bird Carcasses

Animal/Bird carcasses arise, and will arise, as a result of mortalities on the farm. While a certain level of mortality is unavoidable this will be minimised due to a high health status and the provision of a high quality environment for the birds. All such waste is and will be collected by College Proteins Ltd. to be disposed of at their approved rendering plant. Temporary storage of this waste will be provided at the farm by means of a covered skip.

Animal carcasses will be transported by College Proteins Ltd. and/or other approved contractor from this farm on average on a weekly basis in the April to September period and on a fortnightly basis in the October to March period. Please refer to Appendix No. 9 for further information in this regard. In the event of an outbreak of a disease requiring de-stocking this will be in accordance with and controlled by Dept. of Agriculture supervision and E.P.A. Guidelines, in order to avoid any detrimental impacts on the local environment.

4.9 An estimate, by type and quantity, of expected residues and emissions (including water, air and soil pollution, noise vibration, light, heat and radiation) and quantities and types of waste produced during the construction and operation phases.

The expected residues and emissions that will result from the construction / operation of the proposed development are referred to below. The proposed residues/emissions will be proportionate to the scale, of the proposed development.

- ***Energy Supply -*** Lighting in the premises will in so far as is possible, be by fluorescent tubes / L.E.D. and/or other energy efficient lighting devices. Spent fluorescent and other specialised light tubes may be hazardous waste. The number of tubes to be replaced annually will be small. They will be accumulated in the store area pending

delivery periodically to a local Civic Bring Centre and/or returned to the supplier by/or on behalf of the applicant. Lighting of the site will be the normal for farmyard sites and will not exert influence or interference outside the site boundary.

In addition to the above energy will also be required for the operation of the ventilation, feeding and drinking systems.

Energy usage is anticipated to be c. 3-4 kW per bird place per annum, and same will be supplied in part by existing solar panels on the free range house. Solar panels will be considered in the proposed house.

- ***Supplementary heating*** is not required.

- ***General wastes*** (< 1 t / annum) such as packaging, paper, disposable clothing etc. will be collected regularly by a local contractor and delivered to the Landfill facility. It is intended that the frequency of collection of all wastes produced on site will be in line with E.P.A. and/or legislative requirements in this regard.

- ***Fallen stock / Waste Eggs*** (increasing from c. 1.25 to 2.5 tonnes / month) will be accumulated in a sealed leak proof container on site for collection by College Proteins at 1 - 2 week intervals for transport to an authorised Animal By-Products facility at Nobber, Co. Louth. It is intended that the frequency of collection will be in line with Local Authority / E.P.A. requirements in this regard. See correspondence which is included in Appendix No 9.

- ***The organic fertiliser / poultry manure*** from this farm is/will be managed as previously detailed i.e. utilised on the lands in accordance with S.I. 113 of 2022 as an organic fertiliser. This organic fertiliser is not considered a waste product and is to be utilised as an organic fertiliser in line with S.I. 113 of 2022, as amended.

  Soiled water from the proposed development will be collected in a number of dedicated soiled water collection tanks, 4 existing and 1 proposed, total capacity c. 120 m3 or > 26 week storage capacity . This soiled water will then be applied to the lands in accordance with S.I. 113 of 2022 in accordance with the Nitrates Regulations. Normal operations on the site of the proposed development, will not cause any pollution of soil.

- ***Noise*** generated in the proposed development in the site will not exceed legal limits at the site boundary. Noise is not expected to cause a nuisance at this site, as

confirmed by the Noise Impact Assessment contained in Appendix No. 15. Extensive experience with the existing farm and with a large number of other existing sites would not suggest that the proposed development is likely to have any adverse noise impact.

There would not be any source of significant *vibration* on the site. There will not be any significant *dissipation of heat* from the proposed development. There will be no source of *radiation* on the site that could exert significant influence outside the site.

- ***Waste materials*** generated on the site, under normal operating conditions, and/or during site development works, will be collected and transported off the site by appropriately authorised waste contractors to be consigned for disposal, recovery and/or recycling in appropriately authorised installations, as outlined in the Construction and Demolition Waste Management Plan (See Appendix 19).

  Implementation of the control measures proposed will ensure in so far as it is possible that significant adverse effects on environmental parameters will not occur and that accidental emissions are unlikely from the proposed, development.

  Any paper or other such waste arising from paper waste or any other packaging waste will be stored in an appropriate bin. It is proposed that this will be collected by a local approved waste disposal contractor, such as Oxigen, and brought to an approved site for disposal. The amount of the above waste types would be minimal on this farm.

  All spent fluorescent tubes etc. and/or any other wastes generated on site including all construction and excavation waste from the proposed development, that is to be moved off-site, will be separated and stored in accordance with Louth Co. Co./E.P.A. guidelines prior to transport off site by an authorised contractor(s) for disposal/recovery at an approved disposal/recovery site.
  The collection of all waste materials from the proposed development will be co-ordinated so as to ensure that, where possible, all waste materials are collected at the same time, thus minimising additional traffic as a result of the proposed development.

Mitigation measures are to be implemented to prevent any significant effect of the proposed installation, and the activities carried out therein, on environmental parameters. These measures are directed towards ensuring that the systems for collecting wastes and removing them from the site for appropriate treatment in authorised waste treatment installations will be adequate for that purpose.

4.10 Description of measures envisaged to avoid, reduce, prevent or if possible, offset any identified significant adverse effects on the environment.

The site selection criteria as previously detailed, including location of the existing free range house centrally within the farm to comply with DAFM and Bord Bia requirements, and the location of the proposed development to the rear of the farm away from third party dwellings, sensitive landscape and/or other features, environmentally sensitive areas, and in an agricultural/tillage area where all of the organic fertiliser can be used by the customer farmers, go a significant way to minimising any potential impact.

Notwithstanding same, the following best practice / mitigation measures have been implemented / proposed to reduce any potential adverse impact, significant, or otherwise:

(i) Provision of sufficient and safe access to the site and measures to avoid excessive soiling of the public road during construction on the site.

(ii) Preservation of existing trees and hedgerows surrounding the site together with sympathetic design and layout so as to screen the installation from obtrusive view and to allow it to be absorbed into the rural landscape.

(iii) Provision of a storm water drainage and attenuation system to properly collect and discharge to ground all clean rainwater from roofs and clean surfaces, as described in Appendix No. 3.

(iv) Provision of soiled water drains to properly collect any effluent or soiled water and divert it to the nearest soiled water tank.

(v) The collection and the removal from the site of all manure. All soiled waters / organic fertiliser to be collected and used on lands farmed by the customer farmers.

(vi) Appropriate collection and removal from the site of waste materials generated on the site. Record and maintain records of all consignments of waste despatched from the site in accordance with requirements.

(vii) The collection and the removal from the site of all dead animals and all animal tissues. A small proportion of the birds maintained on the farm die prematurely. These carcasses are and will be stored in a covered sealed container on site, awaiting collection by an authorised contractor.

College Proteins is an authorised contractor who regularly removes these carcasses, and any other such material to their authorised Animal By-Products

plant at Nobber, Co. Louth, in compliance with existing requirements. Correspondence in this regard is included hereafter, in Appendix No. 9. Ensure collection of animal tissue from the site is in appropriate watertight and covered containers, and timely removal so as to ensure minimal generation or release of odours either at the site, or during transit to the disposal/recovery destination.

(viii) Comprehensive cleaning and hygiene routine to minimise potential odour from the site.

(ix) Specially formulated diets to maximise performance and reduce nutrient excretion. See Appendix No. 8.

(x) Proper maintenance and inspection procedures to ensure that all feeding, water supply, manure removal, and ventilation systems are working to maximum efficiency, ensuring manure is maintained as dry as possible and minimising energy consumption.

(xi) Mr. Dermot Herlihy (Director of Crayvall Egg Production Ltd.) is a highly skilled, efficient and competent poultry operator having gained significant experience with the existing poultry houses, both on this farm and at Carstown.

Implementation of the above will ensure that significant effects on the environment will be avoided and the risk of incidents of environmental significance will be near zero.

4.11 Services

4.11.1. Energy

Mains electricity will be required on the farm with a three phase supply. The electricity will be used for the following:

- Control systems for automatic feeding and water supply, including augers and pumps.
- Power for automatic ventilation systems.
- All artificial lighting to Poultry housing, offices and outside yards
- Power for conveyors etc..

Proposed Annual electricity usage is estimated at 3-4 kWh/bird place/year. Electricity requirement will be met in part by the existing solar panels installed in 2023, and same will also be considered for the proposed development to ensure that all activities on the farm are carried out in an environmentally friendly manner, and with a low carbon footprint. A generator will be installed on-site to provide a back-up energy supply. This is essential from an animal welfare as well as an operational perspective.

4.11.2. Water

Water supply will come from an existing / proposed deep bore well located on site and connection to the local group water scheme. Water is to be stored in on-site water storage tank(s). Water usage will be minimised by using nipple drinkers in all houses. This will ensure that the dry manure management system is not compromised.

Proposed Average daily water usage = c. 80 m^3/'000 birds/annum

While rain water harvesting was reviewed, same is deemed to be inappropriate for a development such as this due to the potential disease risk from wild bird contamination.

4.12. Fly and Pest Control

Flies, rats and mice are carriers of some of the infections that are detrimental to flock health. In addition, rats and mice can cause considerable damage to insulation materials and accessible woodwork, thereby reducing buildings thermal efficiencies and longevity. A comprehensive programme for fly control and rodent control, to be carried out in accordance with Bord Bia requirements on this farm will be implemented.

4.13 Difficulties encountered in compiling the required information

The processes and technology involved in the construction and operation of the proposed development are standard for agricultural, and in particular poultry house developments, similar to that as previously completed on the farm, and well understood. In addition the principles are already in practice on existing facilities already operating within the county and further afield.

The technical information on which to base an assessment of impact on environmental parameters is readily available in the public domain and additional information can be extrapolated from the operation of the existing development on the farm and/or existing poultry houses operated by Beliew Egg farm Ltd. elsewhere and/or currently supplying Belview Egg Farm Ltd.. As a result the assessment of any potential impact from the proposed development is factual as well as projected. There were no particular difficulties encountered and there is no reason to consider that there is any serious risk of error attaching to plans and projections for the treatment of wastes to be generated in the proposed development.

5. DESCRIPTION OF REASONABLE ALTERNATIVES

The Food Vision 2030 Strategy is a ten year Strategy for the Irish agri-food sector (taken to include primary agriculture, food and drink processing and manufacturing, fisheries, aquaculture and fish processing, forestry and forestry processing and the equine sector).

Its Vision is that Ireland will become a world leader in Sustainable Food Systems (SFS) over the next decade. This will deliver significant benefits for the Irish agri-food sector itself, for Irish society and the environment. In demonstrating the Irish agri-food sector meets the highest standards of sustainability – economic, environmental, and social – this will also provide the basis for the future competitive advantage of the sector.

Ireland will seek to become a global leader of innovation for sustainable food and agriculture systems, producing safe, nutritious, and high-value food that tastes great, while protecting and enhancing our natural and cultural resources and contributing to vibrant rural and coastal communities and the national economy.

According to data supplied by Bord Bia, the average consumption of eggs per capita in Ireland was 155 eggs per year in 2019, with the equivalent of a further 26 eggs consumed in egg products, bringing total consumption to 181 eggs per capita per year. At a national level, almost 900 million eggs were consumed in Ireland in 2019, a 16 percent increase on 2014 consumption levels. Eggs are considered a good value for money source of protein. Research by REDC (2017) show that egg consumption tends to be higher in households with children and especially in those with lower than average disposable income.

As an be seen, demand for and consumption of eggs in Ireland is increasing. The applicant and/or Mr. Dermot Herlihy is already heavily invested in egg production, grading, packing, sales and distribution and has first hand knowledge of the current supermarket requirements and trends as well as primary production.

The development proposed, as well as the existing free range house have been progressed to meet increasing consumer demand, but also to replace existing production that is going to be lost due to increasing welfare standards and reducing stocking densities in existing houses. This is directly impacting on the supply of eggs to Belview Egg Farm Ltd., from their own primary production, but also from other poultry farms supplying their grading/packing business.

Given the recent debate(s) relating to Irish Agriculture our commitment as a society to reduce green house gas emissions, looking at alternative farming systems, to meet current/future food requirements is pragmatic on the part of the applicant.

Overall, animal-based foods tend to have a higher footprint than plant based but poultry meat and eggs tend to be at the lower end of the spectrum. The lower rate of methane emissions from poultry relative to cows, the lower energy input per unit of production and the more efficient conversion of feed product all make eggs a highly efficient, sustainable and nutritious food source.

Unlike most other animal protein sources, eggs come pre-packaged, with no need for further processing (Albeit that a portion of these eggs will be destined for processing to liquid egg to meet customer demand).

Given the proximity of the proposed development to the existing services (grading/packing, feed supply, service industries etc.) it is envisaged that it is logical for future development of the poultry sector to radiate out from these facilities, to minimise transport costs and emissions.

As the proposed development is to supply Belview Egg Farm Ltd. this location is within the radius of existing farms supplying them and given the added advantages of a being an existing poultry site (facilitating optimising load sizes) with an area therein suitable for the proposed development without compromising the existing activities, good road network, distance from other poultry farms etc., the geographic areas is deemed by the applicant as suitable for the proposed development.

5.1. Alternative Sites Considered

Poultry farming is a relatively traditional activity in the North east region, and while this site is located outside of the Monaghan / Cavan area it is in relatively close proximity to same, and poultry farming has previously been approved for this site. Furthermore the applicant has a long established tradition in poultry farming and in particular egg production.

As a result of the tradition of poultry farming in the North east, a significant number of ancillary business have established around this production base including , processing, packing and service industries. In the context of the development at hand, the site is located c. 5.5km north east of Belview Egg Farm Ltd., grading and packing premises at Carstown, which is currently supplied by a number of farmers in the north east and local region.

In this regard as the predominant volume of traffic will be associated with the transport of eggs to Belview Egg Farm Ltd., and as this is an existing egg farm supplying Belview Egg Farm Ltd., it is deemed prudent to locate the proposed development close to same, to take advantage of the efficiencies of integrating with the existing transport arrangements.

The regional context for the proposed development has also been considered. While any such assessment is multi-factorial a number of the main issues that were considered in this assessment included;

- This is an existing poultry farm site supplying a local egg packing centre (Belview Egg Farm Ltd.) operated by Mr. Dermot Herlihy (director of the applicant).

- The location of the customer tillage farms, and their proximity to the proposed development. A number of farms in the area are already successfully using the poultry manure produced on the farm to meet crop nutrient requirements, to replace organic matter and trace elements, and improve soil structure on tillage lands where these are lacking and where organic manures are recommended. There is significant demand locally for this organic fertiliser, to displace existing chemical fertiliser use. Same is and will be fully recorded in line with the requirements of S.I. 113 of 2022. Unlike other "litter " based poultry systems, layer manure is not suitable for mushroom composting, therefore proximity to mushroom compost production facilities is not applicable to this development.

- The proposed development is in close proximity to the applicants packing centre at Carstown, Drogneda, and the production on this farm will integrate with this existing supply business.

- The proposed development, via the packing centre at Carstown, will supply eggs to the local supermarkets (particularly Lidl) in the eastern half of the country within which the development is located.

- The proposed development being located outside of the traditional poultry areas of Monaghan and Cavan, can maintain a higher bio-security and disease control an minimise bio-security risks to the existing and proposed developments.

As can be seen from the above the development is/will be located in an area where the organic fertiliser can be used locally, the eggs supplied to a local existing packer, to be consumed in large by customers in Co. Louth and the surrounding counties, and with the existing local workforce.

Notwithstanding the above, as part of the scoping exercise for this proposed development a number of alternative sites were considered. The areas considered by the applicant for the proposed development, included, but were not limited to the following;

- ***Other lands available to Crayvall Egg Production Ltd.*** This farm was purchased with the specific intention of completing the existing free range development. While additional potential sites were looked at prior to the purchase of these lands, they were deemed to be less suitable for a number of reasons, including poorer road access, proximity to sensitive receptors/areas, etc.

  Upon completion of the existing free range development there was an additional c. 4 Ha remaining, which has now been identified as the site for the currently proposed development.

  The proposed development has to be located away from the existing development due to the free range nature of the existing activity. This was discussed with Louth Co. Co. when this free range activity was granted planning permission. As detailed there in this 60,000 bird free range house requires an area of 60 Ha adjacent to the house and available to the birds to satisfy DAFM and Bord Bia requirements, thus it is not possible to locate the proposed development adjacent to (or clustered with) same.

  While it has not proven possible to cluster the proposed development with the existing poultry house (due to the specific operational characteristics and nature of the existing activities, the applicant sought what he feels is the most visually suitable, and inobtrusive location for this development so as to ensure that it does not have an adverse visual impact.

- ***Purchase and re-development of an existing poultry site.*** This option was looked at, however same has a number of inherent disadvantages, including the purchase price of an additional site, dispersion of activity rather then consolidating on existing available lands, additional traffic, as same would not facilitate optimising load sizes and collections/deliveries etc.

  Upon review this option had to be discounted as there were no suitable sites available that matched or surpassed the advantages of the existing site. One has to remember that the proposed development is essentially replacing enriched cage egg production in other parts of the county (potentially including those currently operated by Belview Egg Farm Ltd.), as from 2025 the major supermarkets have confirmed that they require cage free production systems such as barn and free range.

- ***Purchase of an entire Green-field site.*** This option has been discounted at present as it was determined that a separate site would be significantly less efficient due to the additional costs involved in the site purchase cost. This would place the proposed development under significant additional financial strain, and as;
  a) The applicant owns the existing site.
  b) The proposed site has no significant and/or specific environmental constraints which mitigate against the proposed development and/or would support the selection of any alternative site available to the applicant, in preference to the currently proposed site.
  c) The farm has previously been approved by Louth Co. Co. and the E.P.A. as a poultry farm site, the proposed site is the logical development site.

The site selected was arrived at on the basis that;

- the proposed site has previously been approved by Louth Co. Co. and the E.P.A. for a poultry farming activity, and has no inherent and/or significant environmental concerns or restrictions.
- The proposed site has access with an existing entrance onto the local public road, previously approved by Louth Co. Co. The local road network is more than adequate to serve the proposed development.
- the selected site is secluded given the land topography and the proposed development can be easily integrated into the applicant's existing land parcel, and existing poultry farming activities.
- Location of the proposed site in close proximity to the lands proposed for the receipt of organic fertiliser from this development.
- The site was in a rural location with a low density of housing in the area, and well screened from local housing and the public road.

The existing site has no significant and/or specific environmental constraints which mitigate against the proposed site and/or would support the selection of any alternative site available to the applicant, in preference to the currently proposed site.

5.2. Alternative Layout and Design

The design of the proposed development to be undertaken by the applicant was researched and reviewed with the aid and guidance of Belview Egg Farm Ltd., commercial poultry house designers, the engineer and commercial poultry equipment suppliers, after the appropriate production systems (as detailed in Section 2.2) had been reviewed.
The layout of the proposed housing was designed to ensure that the proposed developments were;

1. integrated into the existing site with minimal, if any, adverse visual impact on the surrounding landscape, and minimal impact on the existing free range enterprise, albeit that there may be some modification to the boundary of the free range enterprise.

2. designed so as to ensure optimum access on site for all traffic associated with same, while accommodating the nature and extent of the proposed developments,

3. satisfying he necessary requirements to comply with the Department of Agriculture, Food and The Marine, Bord Bia, supermarket and consumer requirements, and,

4. to ensure that the site is contained, safe and efficient in operation.

Existing landscaping will be maintained where possible, and strengthened where necessary, along the boundary to further screen the proposed developments from view.

As previously stated the design of the proposed housing (Barn type production system) is in line with supermarket, consumer and animal welfare requirements, and is to accommodate, 64,000 birds, complementing the existing 60,000 free range birds already on the farm. Same will be operated as 2 sections of c. 32,000 birds with each phase divided into colonies of 4,000 birds.

The site location/layout of the existing free range development within the overall landholding was determined in order to comply with D.A.F.M. and Bord Bia requirements whereby the birds must have access to the land adjoining the house at a stocking rate of 1000 birds/ha. Furthermore to achieve same and comply with the requirements the house must be located centrally within the available land area, and the birds are to be divided up into independent colonies of not more than 4,000 birds.

In effect in the existing development there is 16 separate colonies of c. 3,750 which will have their own section within the house and their own independent range area. Within the proposed development there will be 2 sections of 32,000 birds sub-divided into 8*4,000 bird sub-sections. In line with Bord Bia and animal welfare requirements.

The proposed development can be completed on its own independent site and can operate independently of the existing activities without adversely impacting on same, albeit that activities (egg collection, waste collection, feed delivery, labour etc.) will be co-ordinated to optimise the operation of the overall farm.

The exterior finish, where practicable will be green or similar in colour and will be sympathetic to the local environment. All roofing materials will be green or dark in colour. As the proposed design is in line with BAT requirements and as natural/dark coloured/grey finishes are proposed, similar to the existing and no other alternatives were deemed appropriate.

No other alternative sites, layouts and/or designs were deemed satisfactory and/or appropriate, as the proposed location, design and layout;

- Complies with the requirements of the Nitrates Directive.
- Satisfies the applicants need for efficiencies of scale while not requiring significant additional lands.
- Will be well integrated into the landscape with the use of agri. construction techniques, natural/dark coloured finishes as proposed, and additional landscaping where required.
- Complies with the requirements of the County Development Plan.
- Integrates with the existing agricultural activities and associated enterprises carried out on this farm by the applicant and/or by customer farmers / Belview Egg Farm Ltd., at their own farms/premises.
- Is in line with BAT requirements. The measures outlined as BAT for the Poultry Sector, (***COMMISSION IMPLEMENTING DECISION (EU) 2017/302 of 15 February 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the intensive rearing of poultry or pigs)***, and in particular this type of production include:
    - **Manure belts (in case of aviary).**

- Will be well integrated into the landscape with the use of standard construction techniques, natural/dark coloured finishes as proposed, and additional landscaping where required.

- Complies with the requirements of the County Development Plan.

5.3. Alternative Size

The proposed development of 1 No. poultry houses has been designed and scaled to take into account the;

- Physical restraints/parameters of the site/available lands.
- Economies of scale for the applicant so that the scale of the proposed development is sufficient to cover the development as well as operational costs.
- The requirements of Belview Egg Farm Ltd. in terms of their supply requirements and recommendations from same with regard to economic and sustainable food production.

The scale of the proposed development is in keeping with the scale of other existing farms supplying Belview Egg Farm Ltd., and licensed by the E.P.A. which are operating without adverse environmental impact, and are of a scale that can be appropriately managed by the applicant.

5.4 Alternative Process's Considered

This proposed development is to replace the production envisaged to be lost from the existing enriched cage developments supplying Belview Egg Farm Ltd. as the supermarkets/packers/consumer has dictated that they require cage free (i.e. barn, or free range) production systems, and/or to meet increasing consumer demand, arising fro increased consumption and/or population growth. Therefore in order to meet the stated supermarket requirements, the applicant has only the barn and free range options available to him.

Previously it had been decided to concentrate on the free range system of production, as per that currently in operation and approved at this location. In light of current requirements and the need for both types of eggs to meet supermarket demand the applicant has decided to use a portion of the remaining lands to complete the proposed Barn development. This development will complement the existing production system

and broaden the supply based to Belview Egg farm Ltd., to replace production lost due to the transition to higher welfare standards on other farms.

- Broiler/Turkey/Duck– Poultry meat production is the main alternative, within the poultry sector, to the egg production systems, however this system does not suit the applicant as it does not address the applicants fundamental requirement i.e. to broaden the supply base supplying Belview Egg Farm Ltd. to meet current consumer demand,

The proposed development offers the best fit between the resourses available to the applicant and the market requirements and will be carried out to ensure that same is operated in a sustainable manner. All eggs from the proposed farm are to be sent to Belview Egg Farm Ltd..

5.5. Alternative Management of By-products

Application to land is the main practical economic means of utilising the nutrients in poultry manure. Organic fertiliser from this farm is and will be used as an alternative to imported artificial fertiliser by allocating it to those lands with a recognised need for additional fertiliser. All farmlands currently proposed for the receipt of organic fertiliser from, the proposed developments, are farmed in accordance with S.I. 113 of 2022. The machinery used for this activity has been changed and modernised over the years to make this process more environmentally friendly. To this end all farmers are advised that manure from this development should be applied to land in as accurate and uniform a manner as is practicably possible.

All lands currently identified for the receipt of manure from the proposed development are tillage lands, be they Wheat, Barley, etc., and any new customer farmers will be advised that in order to minimise any potential adverse environmental impact and to ensure that they get maximum fertiliser benefit from the organic fertiliser, that all manure from this farm should be stored, managed and applied in accordance with S.I. 113 of 2022, as amended and incorporated/ploughed into the soil as soon as practicable after application.

In any event this proposed development can only supply;

- c. 66% of the customer farmers fertilsier requirements of the Phosphorous requirements, and,
- significantly less of the Nitrogen requirements,

of the identified customer farmlands when this proposed farm is at full operational capacity. Therefore a significant amount of additional organic/chemical fertilisers will continue to be applied also.

At present there is no other suitable option for the utilisation of organic fertiliser produced within the proposed development, however the applicant will continue to examine the possibility of alternative uses for this fertiliser.

The proposed development will have to obtain and operate under a revised E.P.A. licence and, any potential alternative destination for poultry manure that may arise/be considered (be that Anaerobic digestion etc., and subject to any such site having its own appropriate authorisation,), and notwithstanding that appropriate management practices for the existing/proposed poultry manure have already been demonstrated, will be agreed with the Agency in advance, in line with applicable licence conditions.

The location of all farmlands currently proposed for the receipt of organic fertiliser / soiled water from, the proposed developments have been identified in this EIAR and NIS.

6. *A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.*

The existing development on the farm consists of ;

- 1 No. Poultry House (for free range egg production, capacity 60,000 birds), and,
- 2 No. Poultry Manure storage sheds

as previously approved by Louth Co. Co. under Planning Ref. 19/231, and the Environmental Protection Agency under I.E. Licence No. P1120-01

The proposed development of for permission to construct;

- 1 No. Poultry House (for barn egg production, proposed capacity 64,000 birds), and,
- 1 No. Poultry Manure storage shed

together with all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works at Carrickbaggott, Grangebellew, Co. Louth. (National Grid Reference: E 310218 N 284795), is to be completed on a Greenfield site, within the applicant's existing landholding. Same will operated independently of the existing poultry house due to the differing production system, however existing services etc. can be shared to optimise the activity on the overall farm.

Therefore the baseline (or do nothing scenario) in the absence of any alternative proposed development is that;

- the proposed development area associated with the free range poultry house remain as per the existing activities, and the remaining lands will be operated as tillage and/or grassland production. The c 4 Ha that remains outside of the required range area, is not a viable agricultural activity in it own right.

The following section details the existing environment.

6.1 Land/Soil

The existing development and location of the proposed poultry house site is located at Carrickbaggott, Grangebellew, Co. Louth, on farmland owned by the applicant. Please refer to Appendix No. 2, for a 1:2,500 scale map indicating the general location of the proposed poultry house site.

6.1.1 Topographic Features and Solid Geology

(a) Site and immediate area.

County Louth is situated in the east of Ireland. The proposed site is located, in an area identified as the ***Rural Policy Zone 2*** as contained in the Louth County Development Plan 2021-2027, ie. Area under strong Urban influence, (similar to the majrity of Co. Louth.) This area is outside of any area of significant landscape value (which constitutes Rural Policy Zone 1, the only other rural policy zone area.) .

"K1 Agriculture Objective To preserve agricultural land. Guidance This zone is for the use of land for agricultural purposes and farming-related activities and to provide for the development of existing established uses. Individual dwellings for permanent occupancy for persons principally involved in agriculture will be open for consideration subject to normal site suitability considerations and compliance with the policy objectives set out in Chapter 3 of this Plan. Permitted Use Allotments, Agri-Tourism. Open for Consideration B&B/ Guest House, Community Facility, Craft Centre/Shop, Garden Centre, Home Based Economic Activities, Recreational/Sports Facility, Residential, Telecommunications Structures."

The proposed site is located south west of Dunleer, and North of Drogheda, in an area also referred to as the ***Muirhevna Plain***, (and/or on the border of same with the area classified as the uplands of Collon and Monasterboice) in the Co. Louth Landscape Character Assessment. The Muirhevna Plain is an extensive plain located between the Carlingford/Slieve Gullion Mountain Complex and the uplands of Collon and Monasterboice. This is the largest landscape area in the County. The topography in this area is flat and undulating, and is drained by the meandering rivers of the Fane, Glyde, White and Dee. This area contains the most fertile agricultural lands in the county, and these rich soils are conducive to a wide variety of productive agricultural practices in both animal and crop production.

The geology of Louth exhibits a wide variety of geological formations, recording ancient environments. The environment of the time the rocks were deposited, whether on land or in the ocean, as well as the prevailing climate at the time, all contribute to the type of rock formations, and are used by geologists to unravel the earth's history through time.

The topography of the site / landholding, while gently undulating, rises c. 6m from the site entrance to a high point along the access route and then subsequently falls to the proposed development site. The development site is relatively level, but falls marginally in a west to east direction. The ground levels are as depicted in the site plans, sections and contour details as submitted with this application. A copy of same is contained in Appendix No. 3. The proposed development is integrated into the landscape, and, located behind higher elevations to the south, west and north west of the site, and the railway line to the east. The proposed development is sufficiently set back from same.

Map 8.5: Landscape Character Areas

Fig. 6.1.1 Landscape Character Areas

This area has a relatively flat to gently undulating topography similar to a significant part of Co. Louth and surrounding areas. The site of the proposed development is integrated into the surrounding landscape, with the surrounding lands to the north west of the site, (including the site of the existing poultry house) and towards the public road, rising above the level of the site. The ground levels are as depicted in the site plans, sections and contour details as submitted with this application. A copy of same is contained in Appendix No. 3.

The Bedrock geology of the site is referred to as the Clogherhead Formation, which consists of Thickly bedded calcareous greywacke.

Unit Name	Clogherhead Formation
Stratigraphic Code	CV
Lithological Code	
Description	Thickly bedded calcareous greywacke
Sheet Number	13.00
Formation	Clogherhead Formation
Definition	Vaughan (1991)
Type Section	GR 31755/28440
Lithology Description	Generally composed of dark grey calcareous greywacke and mudrock and, at the type locality, a series of feldspathic litharenites. The sandstones contain small, but significant, amounts of igneous and metamorphic detritus; buff feldspar, quartz, white mic
Lithology Summary	
Lithology Legend	Thickly bedded calcareous greywacke
Rock Type	Calcareous greywacke
Thickness	
System	Silurian
Series	Llandovery
Stage	
Zone	
Comments	

Status	FORMAL NAME 100
Contacts	Base of the formation is not seen.
Map Sheet No.	13

Fig. 6.1.2 Bedrock Geology (www.gsi.ie)

Please refer to;

- Appendix No. 11 for details relating to the landscape character assessment as contained in the county development plan..

(b) Proposed customer farmlands.

The customer farmland areas cover/will cover a significantly larger area than the site of interest, i.e. the site of the proposed development. As a result the topographic features and solid geology will be more varied and are deemed to be beyond both the scope and requirement of this E.I.A.R. The application of organic and inorganic fertilisers to these customer farmland areas will be governed by the requirements of the nitrates directive on each individual customer farmer, i.e. the requirement not to spread on steep slopes where there is a risk of pollution, the requirement not to spread on, or within 15 m of exposed bedrock and/or other vulnerable features, not to apply excess fertilisers etc.

Some notable features that could distinguish the site from the customer farmland areas will be, 1) the variability in the topography across the area from flat, to gently sloping to more steeply sloping, 2) the variability in soil type from one area to another, and, 3) the transition from one River Catchment area to another etc.

6.1.2 Soil Geology

(a) Site and immediate area

The deposits in the area of the proposed development are referred to as a mix of:

Teagasc Soils

A.

Parent Material	L
Parent Material Name	Lake sediments
Parent Material Desciption	Lake sediments undifferentiated
Soil Group	Variable
IFS Soil Code	Lac
IFS Soil Description	Lacustrine–type soils
County	LOUTH
Category	Lacustrine type soils
Legend	Lac - Lacustrine type soils

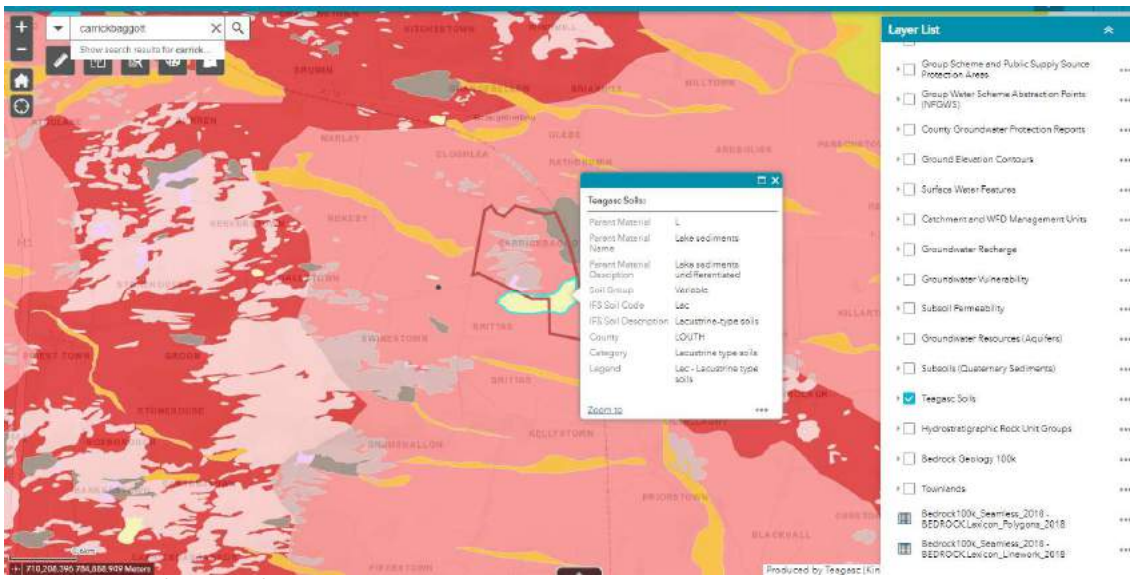


Fig. 6.1.3 Soil Type (www.gsi.ie)

B.

Parent Material	TLPSsS
Parent Material Name	Till derived chiefly from Lower Palaeozoic rocks
Parent Material Desciption	Sandstone and shale till (Lower Palaeozoic)
Soil Group	Surface water Gleys, Ground water Gleys
IFS Soil Code	AminPD
IFS Soil Description	Derived from mainly non-calcareous parent materials
County	LOUTH
Category	Mineral poorly drained (Mainly acidic)
Legend	AminPD - Mineral poorly drained (Mainly acidic)

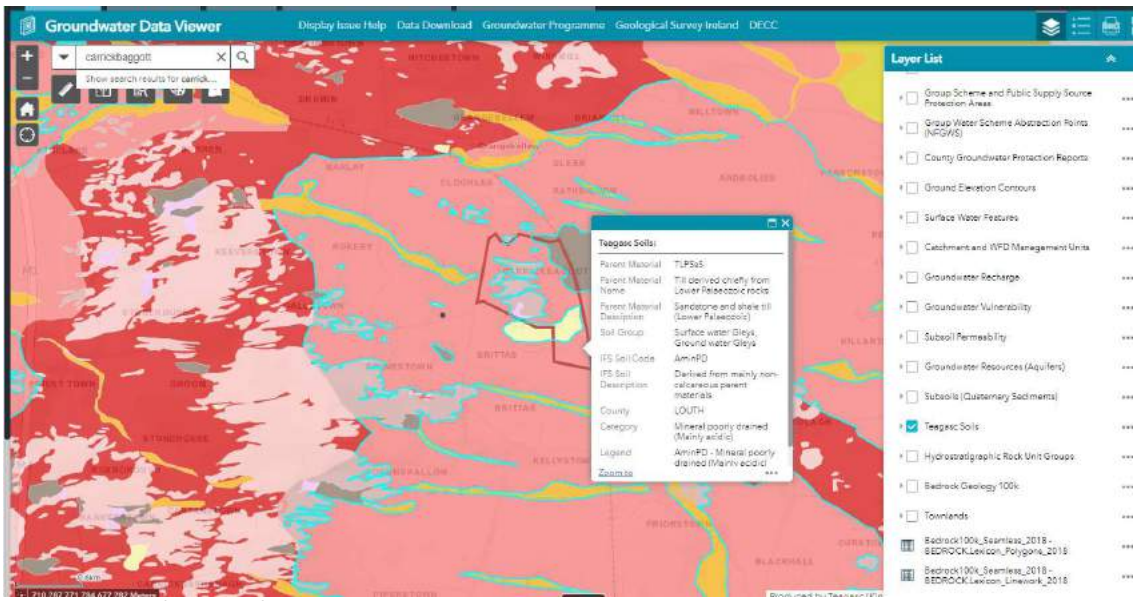


Fig. 6.1.4 Soil Type (www.gsi.ie)

Further north there is some rock outcrop associated with the site of the existing free range house.

Parent Material	RckNCa
Parent Material Name	Bedrock at surface-Non calcareous
Parent Material Desciption	Bedrock at surface
Soil Group	Surface water Gleys (Shallow), Ground water Gleys (Shallow)
IFS Soil Code	AminSP
IFS Soil Description	Derived from mainly non-calcareous parent materials

(b) Proposed customer farmlands.

The customer farmland areas cover/will cover a significantly larger area than the site of interest, i.e. the site of the proposed development. As a result the soil geology will be more varied and are deemed to be beyond both the scope and requirement of this E.I.A.R. Due to the nature of the activities to be carried out on these farms, i.e. the application of organic fertilisers (from the proposed developments and other farms) and inorganic fertilisers (from the local co-op), the customer farmland areas will be governed by the requirements of the nitrates directive (S.I. 113 of 2022, as amended), i.e. the requirement not to spread on waterlogged, frozen, snow covered ground, not to apply excess fertilisers etc. thus protecting soils from chemical and hydraulic loading and other physical damage.

Mitigation measures where applicable are discussed in Section 7.1.

Fig 6.1.5 – Sites of Geological Interest (– Source Louth CO. Development Plan 2021-2027)

6.2 Ground Water

(a) Site and immediate area

The groundwater adjacent to the site is overlain by a low permeability overburden, but of varying thickness. According to G.S.I. records the aquifer classification of the site of the site is referred to as a Poor Aquifer, Bedrock which is generally unproductive, (Pu).

Aquifer Category	Pu
Category Description	Poor Aquifer - Bedrock which is Generally Unproductive
Area (sq km)	60.51

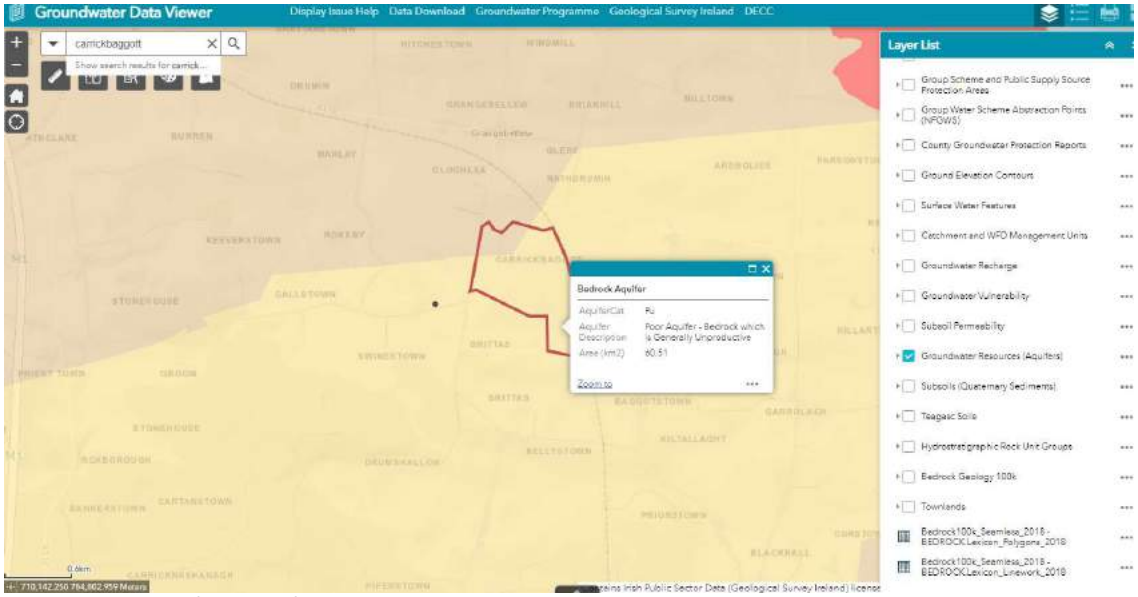


Fig. 6.2.1 Aquifer Type (www.gsi.ie)

The aquifer vulnerability for the area of the proposed development is classed as Moderate Vulnerability (M).

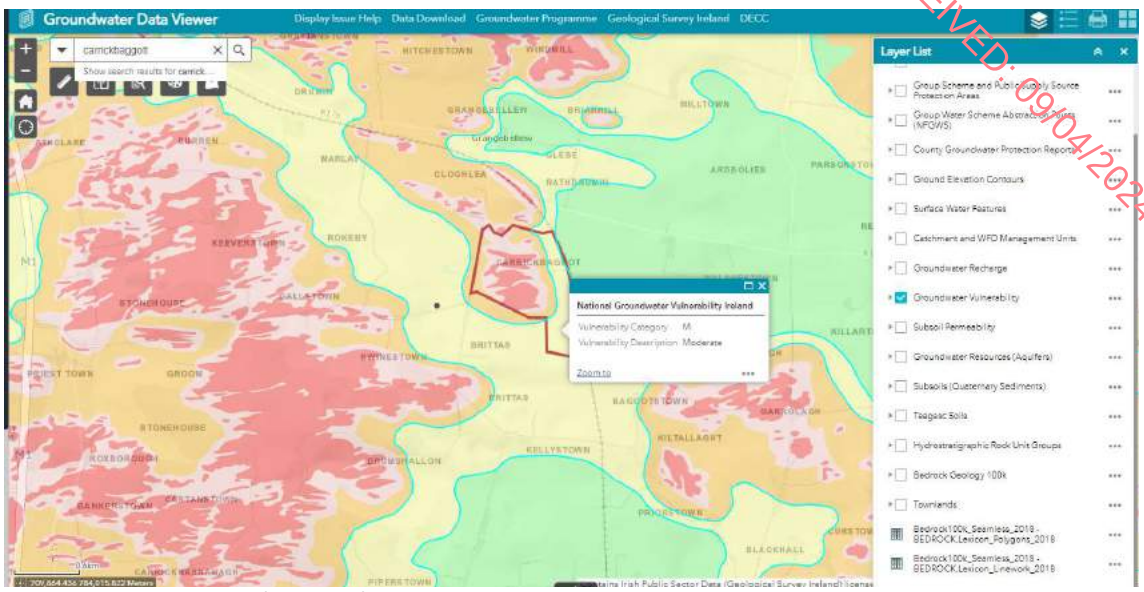


Fig. 6.2.2 Aquifer Vulnerability (www.gsi.ie)

Rock outcrop is evident on the landholding, albeith that this is further north than the currently proposed site.

Given the nature of the proposed development there will be no underground manure storage tanks, with the exception of soiled water collection tank(s), and all manure on site will be produced and stored dry in above ground manure stores.

(b) Proposed customer farmlands.

Soils are the basic resource for the production of commercial food crops and rearing of livestock. In order to achieve the required crop/animal yield from soils additional fertiliser, such as the organic fertiliser from this farm, must be applied.

As all fertiliser from this farm is to be allocated for use in accordance with S.I. 113 of 2022, as amended, the groundwater resources in the relevant areas will be afforded the required protection.

Mitigation measures where applicable are discussed in Section 7.2.

6.3 Surface Water

(a) Site and immediate area

The application site lies within the Newry Fane Glyde and Dee Hydrometric Area and Catchment, the Burren Sub-Catchment and the Slieveboy Sub-Basin. There are open drains within the landholding, and it is planned that clean surface water from the farm will be directed to same via a proposed storm water attenuation system (As discussed in Section 7.3). Water in these drains is likely to flow towards the Moganstown Stream, which is 300m north of the application site. This stream flows east until it flows into the sea near Lurganboy, approximately 5.1km north-east of the application site.

The EPA have classified the ecological status of the Morganstown Stream as moderate status for its entire length. Under the requirements of the Water Framework Directive, this is unsatisfactory and all water bodies are obliged to meet good status within the time frame of the current cycle of the Water Framework Directive (2027) .

There is no historical evidence of flooding in the area of the proposed poultry house. As part of the screening exercise completed as part of this application, the historic 6 inch and historic 25" maps were consulted and these have identified no areas susceptible to flooding. In addition the area is not identified on the OPW records, and there are no records of flooding of this area. The area of the site is sufficiently above the area of some of the surrounding lands

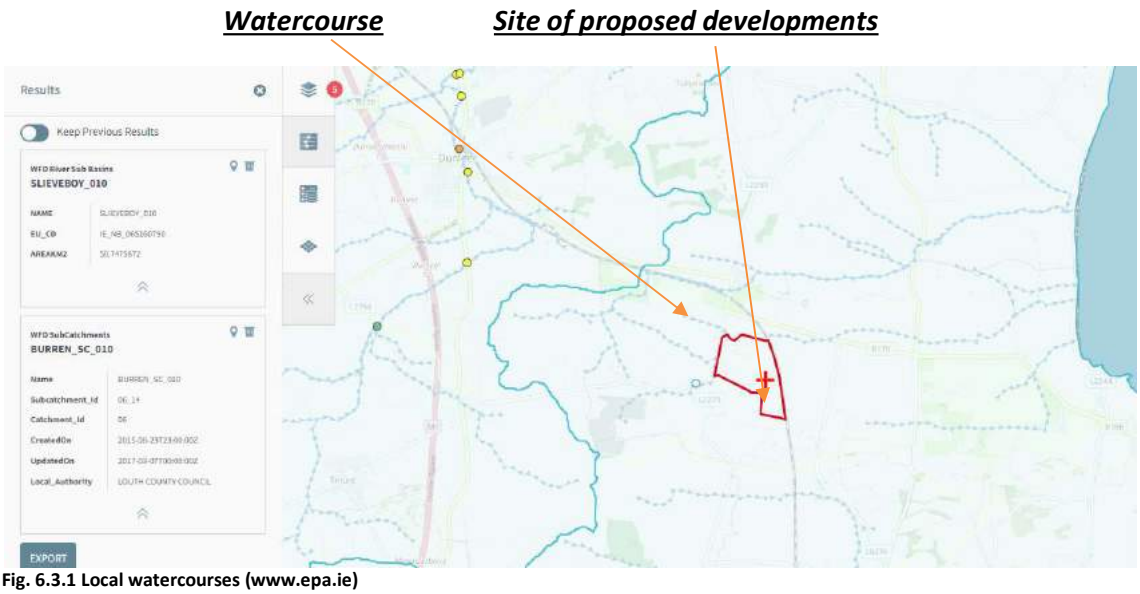


Fig. 6.3.1 Local watercourses (www.epa.ie)

Please refer to Appendix No. 10 for details on local river water quality data and associated information.

The proposed development will also involve the creation of additional hardstanding area, the re-design and replacement of some existing culverts, and, the piping/re-direction of a section of field drain within the application site. Please refer to Appendix No. 20 of the E.I.A.R. for a full and detailed Sub-soil and Hydrogeological Storm water Management Assessment of the proposed development.

(b) Customer farmlands.

Soils are the basic resource for the production of commercial food crops and rearing of livestock. In order to achieve the required crop/animal yield from soils additional fertiliser, such as the organic fertiliser from this farm, must be applied. This organic fertiliser will replace imported chemical fertiliser that would otherwise have to be used. As all fertiliser from this farm is to be allocated for use in accordance with S.I. 113 of 2022 as amended, the surface water resources in the relevant areas will be afforded the required protection.

The protection and improvement of water quality in Ireland is to be co-ordinated on the basis of the areas known as river basin districts, established for the purposes of the EU Water Framework Directive (2000/60/EC). The Water Framework Directive, or WFD, came into force on 22 December 2000 and established a new, strengthened system for the protection and improvement of water quality and water-dependent ecosystems. It provides for co-ordinated water quality management based on natural river basins (i.e. catchments). It aims at preventing any deterioration in the status of any waters and at achieving at least “good status” for all waters.

River Basin Management Planning takes an integrated approach to the protection, improvement and sustainable management of the water environment. The planning process revolves around a six year planning cycle of action and review, so that every six years a revised river basin management plan is produced.

The status of waters will be determined by chemical and ecological criteria for surface waters and chemical and quantitative criteria for ground waters. It requires the carrying out of numerous preparatory tasks and their implementation, review and updating on a six-year cycle. This first cycle has been completed, and we are currently in cycle 2 with the preparation of plans for the 3rd Cycle underway.

- ***River Basin Management Plan 2022 – 2027***

  Ireland's third River Basin Management Plan is due to be published in December 2021. River Basin Management Plans (RBMPs) are key tools for implementation of the EU Water Framework Directive (WFD), key European legislation which requires our rivers, lakes, groundwater and coastal water to achieve a healthy state, or what's known as 'good ecological status', by 2021. Ireland's first River Basin Management Plan (RBMP) was published in 2009, the second in 2018, and the third RBMP is due to be published by the end of 2021 and will run for six years to 2027.

- *2nd Cycle River Basin Management Plans: 2015-2021*

The PUBLIC CONSULTATION ON THE RIVER BASIN MANAGEMENT PLAN FOR IRELAND (2018-2021) is/was open for submission until 31st August 2017. On April 17th 2018 the Government published the River Basin Management Plan for Ireland 2018-2021.

The Plan sets out the actions that Ireland will take to improve water quality and achieve 'good' ecological status in water bodies (rivers, lakes, estuaries and coastal waters) by 2027. Ireland is required to produce a river basin management plan under the Water Framework Directive (WFD). Water quality in Ireland has deteriorated over the past two decades. The Plan provides a more coordinated framework for improving the quality of our waters — to protect public health, the environment, water amenities and to sustain water-intensive industries, including agri-food and tourism, particularly in rural Ireland.

The River Basin Management Plan outlines the new approach that Ireland will take to protect our waters over the period to 2021. It builds on lessons learned from the first planning cycle in a number of areas:

- Stronger and more effective delivery structures have been put in place to build the foundations and momentum for long-term improvements to water quality
- A new governance structure, which brings the policy, technical and implementation actors together with public and representative organisations. This will ensure the effective and coordinated delivery of measures.
- The newly-established Local Authority Waters and Communities Office will help people to get involved in improving water quality at a local level. An Fóram Uisce, also newly established, is a forum for stakeholders, community groups and sectoral representatives. It will analyse and raise awareness of water issues.

An enhanced evidence base has been developed to guide national policies and the targeting of local measures. Technical assessments of 4,829 water bodies have been carried out, examining their status (quality) and whether they are 'at risk' of not meeting status objectives in the future. Using this information, the Plan sets out national policies and regional prioritised measures.

1st Cycle River Basin Management Plans: 2009-2014

River Basin Management Plans (RBMP) and Programmes of Measures (PoMs) were prepared for each of the eight River Basin Districts (RBDs). They were valid for a six year period and ran from 2009-2014. The plans summarised the waterbodies that may not meet the environmental objectives of the WFD by 2015 and identified which pressures are contributing to the environmental objectives not being achieved. The plans described the classification results and identified measures that can be introduced in order to safeguard waters and meet the environmental objectives of the WFD.

An overview of the status of all waterbodies is published in compliance with the requirements of the Water Framework Directive and is available in the WaterMaps section of the official Irish Water Framework website. The water maps provide details on the overall status of individual waterbodies and also the assessment results for different quality elements e.g. chemistry, macroinvertebrates, plants, fish, hydromorphology, etc. The water maps also indicate which programmes of measures have been assigned to water bodies and the timescale by which a waterbody has to achieve its target status.

Changes to River Basin Districts for the 2nd Cycle

For the 2nd Cycle, the Eastern, South Eastern, South Western, Western and Shannon River Basin Districts will be merged to form one national River Basin District. In relation to the North Western and Neagh Bann International River Basin Districts a single administrative area will be established in the Republic of Ireland portion of these two IRBDs for the purpose of coordinating their management with authorities in Northern Ireland

While this rearrangement will lead to efficiencies in relation to matters such as assessment and reporting, regionalised administrative structures will be put in place to support implementation (e.g. river basin district characterisation, the development of programmes of measures, enforcement, public consultation and awareness activities). Arrangements will also need to be put in place to facilitate the input of communities at local catchment level.

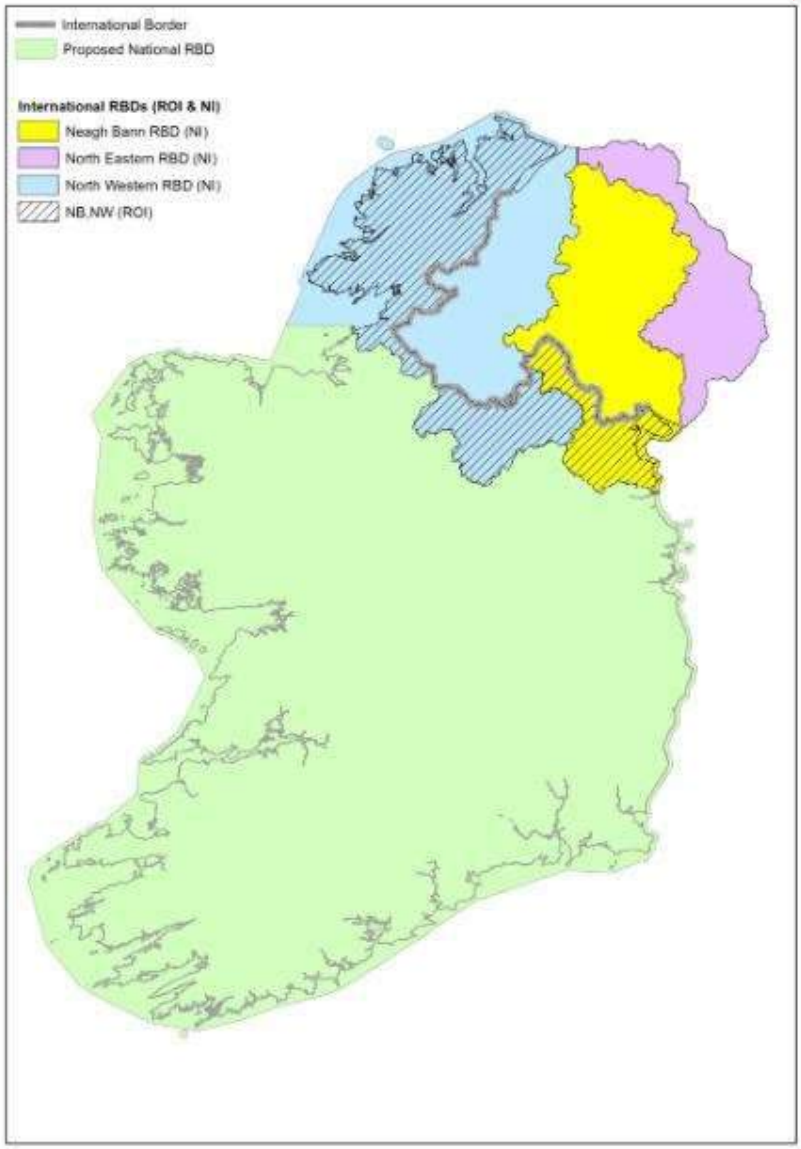


Figure 6.3.2): River Basin Districts for the 2nd Cycle of the WFD (2015-2021)

Water Classification System and Beneficial Uses

Table 6.1.3b: System of Water Quality Classification		
Biotic Index Classification	**Quality Status**	
Q5, Q4-5, Q4	Unpolluted Waters	A
Q3-4	Slightly Polluted Waters	B
Q3, Q2-3	Moderately Polluted Waters	C
Q2, Q2-1, Q1	Seriously Polluted Waters	D

Unpolluted Waters	High quality waters suitable for supply and abstraction.
Class A	Game fisheries and high amenity value. (Satisfactory)
Slightly Polluted Waters	Usually good game fisheries. Suitable for supply. Moderate
Class B	to high amenity value. (Transitional)
Moderately Polluted Waters	Coarse fisheries. Not likely to support a healthy game
Class C	fishery. Suitable for supply after advanced treatment. (Unsatisfactory)
Seriously Polluted Waters	Fish absent or only sporadically present. May be used for
Class D	low grade industrial abstraction. Low amenity value. (Unsatisfactory)

The customer farmlands that will potentially utilise organic fertiliser from this farm have been farmed well with due care to waterways, spreading rates and nutrient requirements. This will continue in line with the requirements of S.I. 113 of 2022 as amended. Please refer to Appendix 10 for details relating to water quality in the area of the proposed poultry house.

Surface water quality in the area of the customer farmers lands where organic fertiliser from this poultry house is / will be used, (be that in County Louth and/or further a field) will not be affected as the organic fertiliser will replace chemical fertiliser that would otherwise have to be used and all organic fertiliser is to be allocated for use, as part of a fertiliser substitution programme to replace imported chemical fertiliser with local organic fertiliser, in accordance with the Nitrates directive, S.I. 113 of 2022 as amended. While the proposed development will provide for a sustainable increase in organic fertiliser production the applicant has demonstrated significant capacity within the currently proposed customer base in accordance with S.I. 113 of 2022, to accommodate the increase in organic fertiliser to be produced.

As previously indicated the site of the proposed development is located in the catchment of the Moganstown Stream, see extract below.

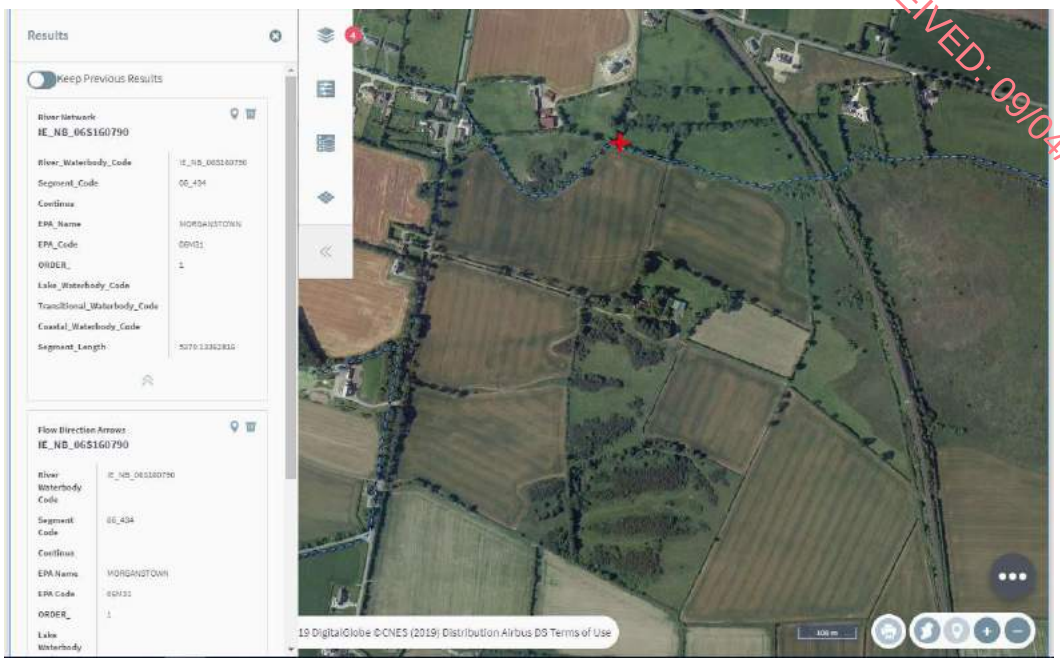


Fig. 6.3.3 source www.epa.ie

6.3.1 Lake Water Quality

The application site lies within the Newry Fane Glyde and Dee Hydrometric Area and Catchment, the Burren Sub-Catchment and the Slieveboy Sub-Basin. There are open drains within the application site and clean surface water from the farm will be directed to these drains. Water in these drains is likely to flow towards the Moganstown Stream, which is 300m north of the application site. This stream flows east until it flows into the sea near Lurganboy, approximately 5.1km north-east of the application site. During the course of this river from the proposed site to the point where it enters the Irish sea, there are no significant lakes, or other similar surface water features. This is typical of this area of central / east Co. Louth.

6.3.2 Beneficial uses of surface waters in the Catchment Areas.

Beneficial uses may be defined as activities, which are dependent on the river/lake for their existence. These include,

1. Water extraction for, Drinking, Process, Irrigation
2. Fisheries
3. Recreation and Water sports
4. Receiving waters for waste water discharges.

Water may be abstracted by both public and private bodies for drinking water and industrial use. Mitigation measures where applicable are discussed in Section 7.3.

6.4 Air

Odour associated with poultry housing enterprises may arise from two situations:

- The poultry house site, and,
- The manure spreading operation.

The sites of the existing and proposed poultry houses are to be located in an agricultural hinterland where typical levels of farm odour are to be found and expected. This odour arises from farmyards and lands during the day to day operations such as silage feeding, manure agitation and manure spreading. The proposed development, using the best available practices, will operate without a significant effect on the environment and the applicant/farm management will strive to minimise all potential environmental impacts. Well maintained, properly ventilated poultry houses with modern manure management systems will minimise any potential adverse odour impact and will be practically odour free outside the confines of the site/immediate area. Transient increases in odour emissions may be associated with manure removal from the site.

There are no noise/odour sensitive locations likely to be affected by the existing and / or proposed developments. This development will have no significant adverse affect on climate. The closest third party dwelling to the proposed site, is located c. 640m east of the proposed development. This proposed poultry house/site of the proposed development, is located in a sparsely populated rural environment and hence the farm will cause no nuisance. An air quality Impact assessment report (assessing potential odour, ammonia, Nitrogen and Dust (PM_{10} and $PM_{2.5}$ emissions)) and noise impact assessment has been completed in respect of this entire farm, cumulative of the existing and proposed development and this will be discussed in the relevant sections hereafter.

Crayvall Egg Production Ltd. will advise any future customer farmers receiving organic fertiliser from this farm, if and when they arise, that it should be applied to land in as accurate and uniform a manner as is practicably possible. All lands currently identified for the receipt of manure form the proposed development are tillage lands, be they Wheat, Barley etc., and all farmers will be advised that in order to minimise any potential adverse environmental impact and to ensure that they get maximum fertiliser benefit from the organic fertiliser, that all manure from this farm must be stored, managed and applied in accordance with S.I. 113 of 2022, as amended. It should also be incorporated/ploughed into the soil as soon as practicable after application. The utilisation of organic fertiliser in this way and in accordance with the Teagasc Codes of Good Practice will help them maintain a good working relationship with their neighbours. The application of organic fertiliser in accordance with S.I. 113 of 2022, as amended will ensure that excessive application of manure, which could lead to extra odour due to surface soil saturation, will be avoided.

Mitigation measures where applicable are discussed in Section 7.4.

6.4.1 Odour –

A total of 11 locations have been identified with 640-1000 m of the existing farm/proposed development. See Table 14 from Irwin Carr Report detailed below. An odour impact assessment was completed based on the potential impact of the proposed development, as discussed further in Section 7.4.

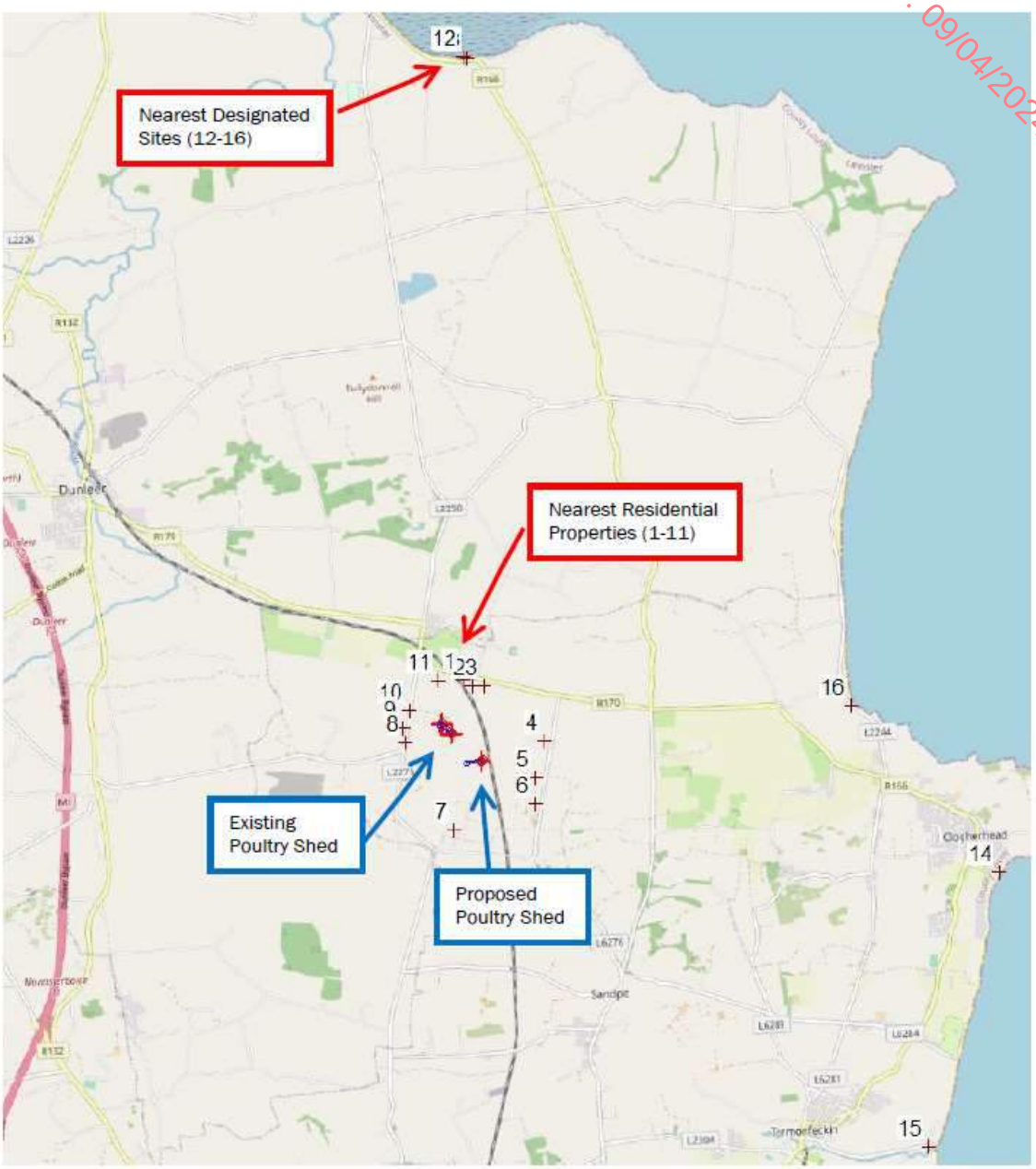
Fig. 6.4.1 - Table 14: Nearest Residential Properties

Location	Description	Co-ordinates		Approx. distance to nearest shed (m)*
1	Property to the North	310116	285804	960
2	Property to the North	310235	285731	880
3	Property to the North	310373	285734	890
4	Property to the East	311065	285080	745
5	Property to the SE	310968	284648	640
6	Property to the SE	310968	284351	770
7	Property to the South	310013	284038	790
8	Property to the West	309442	285063	760
9	Property to the West	309410	285241	855
10	Property to the West	309484	285442	910
11	Property to the NW	309835	285784	1000

**It should be noted that all distances detailed in the Table above are approximate and are provided for information purposes only. The grid co-ordinates provided were input into the model, and the source locations are provided in Appendix B. These distances have no bearing on the AERMOD model, and the only input from Table 14 is the actual grid co-ordinates.*

While the property addresses could not be identified, the exact co-ordinates used in the modelling process are provided in the Table above, and all of the properties are shown in the figure in Appendix A.

Figure 3: Proposed Site Layout & Nearest Sites.



*Exact co-ordinates of the closest designated sites were obtained from SCAIL and are detailed in Table 9 above.

Fig 6.4.1 – Appendix A - (– Source Irwin Carr Air Quality Impact Assessment Report, see Appendix. No. 18)

The applicant, Crayvall Egg Production Ltd., will advise any farmers receiving organic fertiliser from this farm, if and when they arise, that it should be applied to land in as accurate and uniform a manner as is practicably possible and all farmers will be advised that in order to minimise any potential adverse environmental impact and to ensure that they get maximum fertiliser benefit from the organic fertiliser/soiled water, that same must be stored, managed and applied in accordance with S.I. 113 of 2022, as amended, as amended.

This fertiliser planning will result in fertiliser substitution, not addition, and all farmers will be advised that organic fertiliser should be incorporated into the soil immediately after spreading, to minimise odours and ammonia emissions and maximise the fertiliser value/uptake by the crop.

The utilisation of organic fertiliser/soiled water in this way and in accordance with the Teagasc Codes of Good Practice will help them maintain a good working relationship with their neighbours. The application of organic fertiliser/soiled water in accordance with S.I. 113 of 2022, as amended, will ensure that excessive application, which could lead to extra odour due to surface soil saturation, will be avoided.

Mitigation measures where applicable are discussed in Section 7.4.

6.4.2 Ammonia and Nitrogen Emissions –

An ammonia impact assessment was completed based on the potential impact of the existing and proposed development, as discussed further in Section 6.10.

All areas within approximately 7.5km of the site were searched on the EPA website for the designated areas listed below:

- **Special Areas of Conservation (SAC)**
  These areas are given special protection under the European Union's Habitats Directive to protect some of the most seriously threatened habitats and species across Europe.
- **Special Protection Areas (SPA)**
  Areas designated under the European Commission on the conservation of wild birds (the Birds Directive). All EU member states are required to identify internationally important areas for breeding, over-wintering and migrating birds and designate them as SPA's.

There were five designated sites located within approx. 7.5km of the poultry sheds which are shown in Table 16 (extract from Air Quality Impact Assessment Report – Irwin Carr) below. The closest location of each site to the proposed facility were obtained from SCAIL.

6.4.2(a) Table 16: Designated areas in vicinity of the proposed site

Location	Description	Designation	Approx. distance to shed (km)*	ING Grid Co-ordinates	
12	Dundalk Bay	SAC	7.8	310127	293062
13	Dundalk Bay	SPA	7.8	310162	293043
14	Clogher Head	SAC	6.6	316399	283546
15	Boyne Coast and Estuary	SAC	7.4	315562	280342
16	North- West Irish Sea	SPA	4.4	314670	285494

**It should be noted that all distances detailed in the Table above are approximate and are provided for information purposes only. The grid co-ordinates provided were input into the model, and the source locations are provided in Appendix B. These distances have no bearing on the AERMOD model, and the only input from Table 16 is the actual grid co-ordinates.*

There are four additional Natura 2000 sites located up to 15km from the site which are detailed in Table 17 (extract from Air Quality Impact Assessment Report – Irwin Carr) below. It should be noted that these sites would only be required at the screening stage of an assessment for 'plans' rather than 'projects', but they have been included in the detailed assessment for this project in the interests of clarity.

6.4.2 (b) Table 17: Designated areas located up to 15km from proposed site.

Description	Designation	Approx. distance to shed (km)	ING Grid Co-ordinates	
River Boyne And River Blackwater	SAC	9.4	311027	275893
River Boyne and River Blackwater	SPA	10.5	305001	275986
Stabannan-Braganstown	SPA	10.8	302326	292904
River Nanny Estuary and Shore	SPA	14.4	316248	272337

Given that the predicted levels of ammonia and nitrogen are expected to be negligible at distances greater than 7.5km from the site, no assessment for ammonia or nitrogen was undertaken at the site detailed above.
Ammonia modelling was carried out for the sites located within 7.5km for each individual year, with the results at the nearest identified locations presented in Table 18 below. All results are the Ammonia concentration in µg/m^3.

Mitigation measures where applicable are discussed in Section 7.4 / 7.10.

6.4.3 Particulate Matter (Dust) –

The Air Framework Directive deals with each EU member state in terms of "Zones" and "Agglomerations". These air quality zones have been declared for air quality management and assessment purposes. As part of the EU Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined for Ireland.

- Zone A: Dublin Conurbation
- Zone B: Cork Conurbation
- Zone C: Other cities and large towns comprising Limerick, Galway, Waterford, Drogheda, Dundalk, Bray, Navan, Ennis, Tralee, Kilkenny, Carlow, Naas, Sligo, Newbridge, Mullingar, Wexford, Letterkenny, Athlone, Celbridge, Clonmel, Balbriggan, Greystones, Leixlip and Portlaoise
- Zone D: Rural Ireland, i.e. the remainder of the country excluding Zones A, B and C

The subject site is in Zone D, Rural Ireland. Background sources of pollutants within the vicinity of the study site most likely include residential solid fuel emissions, which are a more significant source that traffic emissions.

Existing Air Quality

Environmental Protection Agency (EPA) mobile and fixed monitoring units monitor air quality at locations within Zone D. The typical baseline air quality data outlined below in Table 5 is based on a review of the Air Quality Monitoring Report 2020 (EPA, 2021[1]).

It can be seen from Table 18 (extract from Air Quality Impact Assessment Report – Irwin Carr) included as Fig 6.4.3 below that the annual mean PM_{10} and $PM_{2.5}$ concentrations for all pollutants are below the relevant limit values for the protection of human health.

The background concentrations utilised within this assessment represents an average of the above values.

A particulate matter impact assessment was completed based on the potential impact of the proposed development, as discussed further in Section 7.4.

Mitigation measures where applicable are discussed in Section 7.4.

[1] *Air Quality in Ireland 2020. Key Indicators of Ambient Air Quality. Environmental Protection Agency (EPA). 2021*

Table 6.4.3: Table 18 Typical Air Quality Monitoring Data Representative of EPA Zone D Monitoring Sites

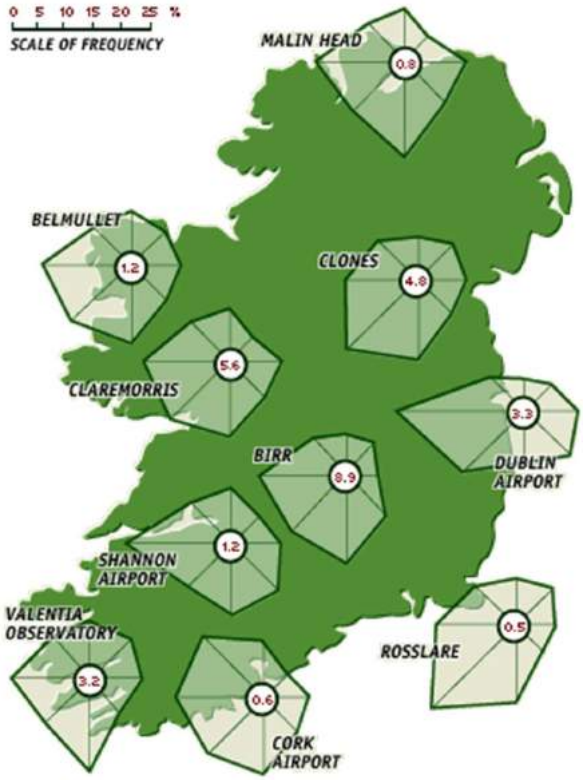
Pollutant	Zone D Monitoring Stations	EPA Baseline Monitoring Data Annual Mean 2020 (µg/m³)	Average (µg/m³)	Relevant Limit Value
PM_{10}	Tipperary Town	12	**11.2**	PM_{10} annual mean limit for the protection of human health = 40 µg/m³
	Carrick-on-shannon	10		
	Enniscorthy	15		
	Birr	10		
	Askeaton	7		
	Macroom	15		
	Castlebar	14		
	Cobh	13		
	Claremorris	10		
	Kilkitt	8		
	Cavan	9		
	Roscommon Town	11		
$PM_{2.5}$	Tipperary Town	8	**7.8**	$PM_{2.5}$ annual mean limit for the protection of human health = 25 µg/m³
	Carrick-on-shannon	7		
	Mallow	10		
	Enniscorthy	12		
	Birr	6		
	Askeaton	4		
	Macroom	11		
	Longford	9		
	Cobh	8		
	Claremorris	5		
	Cavan	6		
	Roscommon Town	7		

6.5. Climate / Climate Change

Climate information is useful for predicting the likely impacts that the farm operation and the application of manure in the area will have upon the residents. Details of annual rainfall and wind direction can be found in Appendix 12 and Figure 6.5. Wind direction at the site is critical to odour movements and rainfall is critical factor in the application of manure. The prevailing wind in the Louth area (Dublin Airport weather station, which is the closest to the proposed development) is from the west. Rainfall in the area of the site/Proposed customer farmlands. a c. 758 mm, (1981 – 2010 average for Dublin airport).

Mitigation measures where applicable are discussed in Section 7.5.

Figure 6.5 Prevailing Wind Direction.



Large livestock populations and nitrogen inputs to soil generate one-third of all greenhouse gases in Ireland. The amount of *methane* emitted by livestock is a lot higher for ruminants such as cattle and sheep versus non-ruminants such as poultry/pigs. This is as a result of the different digestive systems.

As can be seen from the Fig. 6.5.1 below, the GHG emissions from mono-gastric animals such as pigs and poultry is significantly less than ruminants, albeit that a majority of the GHG from ruminant agriculture (i.e. CH4) is eventually absorbed by plants etc. to be eaten by ruminants to carry on the cycle (Carbon Cycle).

N_2O emissions can be divided into three areas,

- Direct from agricultural soils and from agricultural production systems.
- Indirect emissions which take place after nitrogen is lost from the field
- Emissions resulting from agricultural burning.

Mitigation measures where applicable are discussed in Section 7.5.

Growing concerns about climate change and policy initiatives aimed at reducing agriculture's contribution to greenhouse gas emissions have drawn increased attention to the carbon footprint of food production globally.

The carbon footprint of a food product is the measure of total greenhouse gas (GHG) emissions caused by production and/or consumption of the food product, expressed as carbon dioxide equivalent, which reflects its global warming potential. Carbon footprints are generally measured using Life-Cycle Assessment (LCA) which estimates the emissions and resource use, from the very beginning of the production process (e.g. growing and milling of animal feed) through to the manufacture, use and disposal of food. Globally, agriculture is directly responsible for about a quarter of all GHG emissions and these are dominated by nitrous oxide from fertilised soils and methane from farm animals. The size of the carbon foot print associated with each food type depends on the volume of methane emitted by the animal, the level of fertiliser used in the production system, and the burning of fossil fuels in the manufacture or transport of the food product.

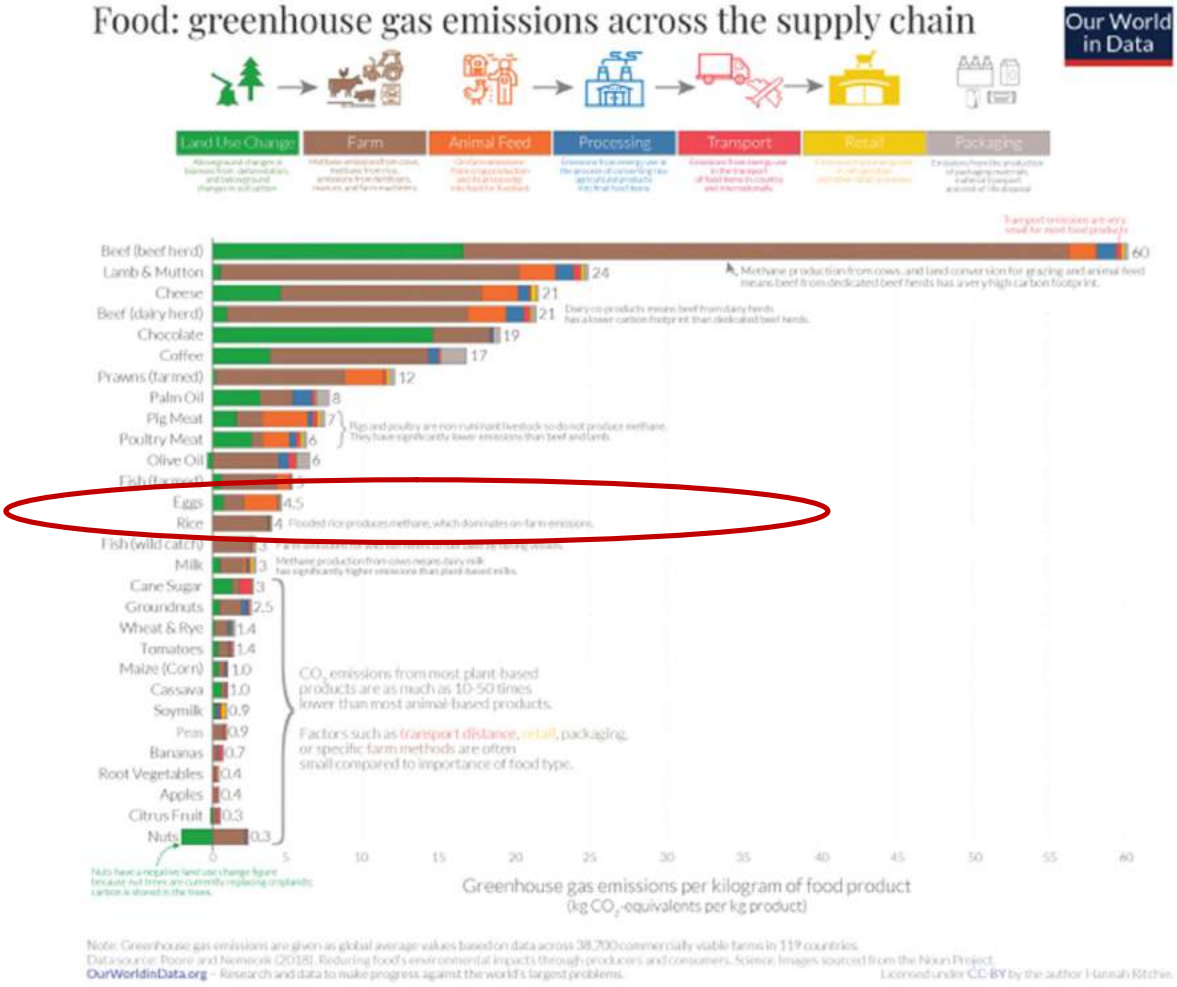
Numerous studies have developed measures of the carbon footprint of various food stuffs. For example, the extract from Our World in Data presents estimates of the greenhouse gas emissions of various food stuffs and the sources of those emissions. The data in Figure 16 is from the largest meta-analysis of global food systems to date, collected from 38,000 commercial farms across 119 countries, Poore and Nemecek (2018).

There are significant differences in the GHG emissions of different foods. For most foods GHG emissions result from land use change, and from processes at the farm stage. Farm-stage emissions include processes such as the application of fertilisers – both organic and synthetic; and enteric fermentation (the production of methane in the stomachs of cattle). Combined, land use and farm stage emissions account for more than 80% of the footprint for most foods. For most foods, processes in the supply chain after the food leaves the farm account for a smaller share of the overall emissions profile.

Overall, animal-based foods tend to have a higher footprint than plant based but poultry meat and eggs tend to be at the lower end of the spectrum. Global estimates of the carbon footprint of food stuffs suggest that a consumer could eat 13 times more eggs and 10 times more chicken than beef for the same carbon footprint. The lower rate of methane emissions from chicken relative to cows, the shorter life-cycle and the more efficient conversion of feed to weight gain all make poultry meat more carbon efficient than beef, sheep-meat or pork.

Poultry and pork production systems tend to be very similar internationally but production systems for beef and milk can vary substantially as can their emissions. According to Herrero et al (2013) carbon footprint values for beef and milk production in Europe can vary between 10 and 50 kg CO2 eq/kg per kilogram depending on the production system. It is therefore useful to compare the carbon footprint of poultry production and other foodstuffs on data taken from local production systems.

Fig. 6.5.1: Estimates of the Carbon Footprint of Irish Livestock Products



Source http:// https://ourworldindata.org/food-choice-vs-eating-local

6.6. Visual Aspects and Landscape

This site of the proposed development/farm is agricultural land owned by and/or available to Crayvall Egg Production Ltd. and forms part of and/or is directly adjacent to, this overall landholding, at the site of the proposed development. The area of the proposed development is a greenfield site, located to the rear (east) of the farm holding / existing poultry house.

This area is identified as the ***Muirhevna Plain*** in the ***landscape classification*** contained in the Louth County Development Plan, albeit that same is on, or close to the boundary with the uplands of Collon and Mnasterboice. This is an area of predominantly agricultural activity. The general area and the area immediately adjacent to the proposed site has a relatively flat to gently undulating topography similar to significant areas of this part of Co. Louth.

This area is by far the largest landscape area in the county. It extends from the top of the Boyne Valley up to the and including Dundalk. It is identified for its flat undulating features (typical of the proposed site) drained by the meandering lazy rivers of the Fane, Glyde and Dee rivers. It contains the most fertile agricultural land in the county, which gives the overall impression of good farming husbandry. In the western half the landscape horizon is limited due to the smaller field patterns with their mature hedgerows and trees.

This area is located in an area referred to as ***Rural zone of the Co. Louth Development Plan 2021-2027. The proposed development is in line with Agriculture Objective K1,*** which is designated ***To preserve agricultural land. Guidance This zone is for the use of land for agricultural purposes and farming-related activities and to provide for the development of existing established uses. Individual dwellings for permanent occupancy for persons principally involved in agriculture will be open for consideration subject to normal site suitability considerations and compliance with the policy objectives set out in Chapter 3 of this Plan. Permitted Use Allotments, Agri-Tourism. Open for Consideration B&B/ Guest House, Community Facility, Craft Centre/Shop, Garden Centre, Home Based Economic Activities, Recreational/Sports Facility, Residential, Telecommunications Structures."***

The nature of the proposed site and its location integrated into the landscape will ensure that there will be no significant adverse visual impact on the local environment from the proposed development. The site is not located near to or likely to affect any Natural Heritage Areas, Special Areas of Conservation (S.A.C.), Special Protection Area (S.P.A.), and/or key views/prospects as listed in the Louth County Development Plan 2021-2027.

The site in question is located in a rural area within the townland of Carrickbaggot. Access to the site is via a private access road that is just off a local, third class road c. 0.5

km's from the junction with the R170 Regional Road. The area of the site is 68.5 hectares in total and this includes the range area of the birds that surround the site. It is 1.2km south of Grangebellew and 4.6km south-east of Dunleer.

Land use surrounding the site is predominantly agricultural and improved agricultural grassland and tillage lands are the dominant habitats locally. The site location nestled into the surrounding land topography will help screen the proposed farm from view.

The existing farm and site of the proposed development is not located close to, or likely to adversely impact on;

- Areas of Outstanding Natural Beauty,
- Areas of High Scenic Quality,
- Scenic Routes, Views and/or prospects,

as listed in the Louth Development Plan 2021-2027.

Figure 6.6(1) Areas of Outstanding natural Beauty and Areas of High Scenic Quality.

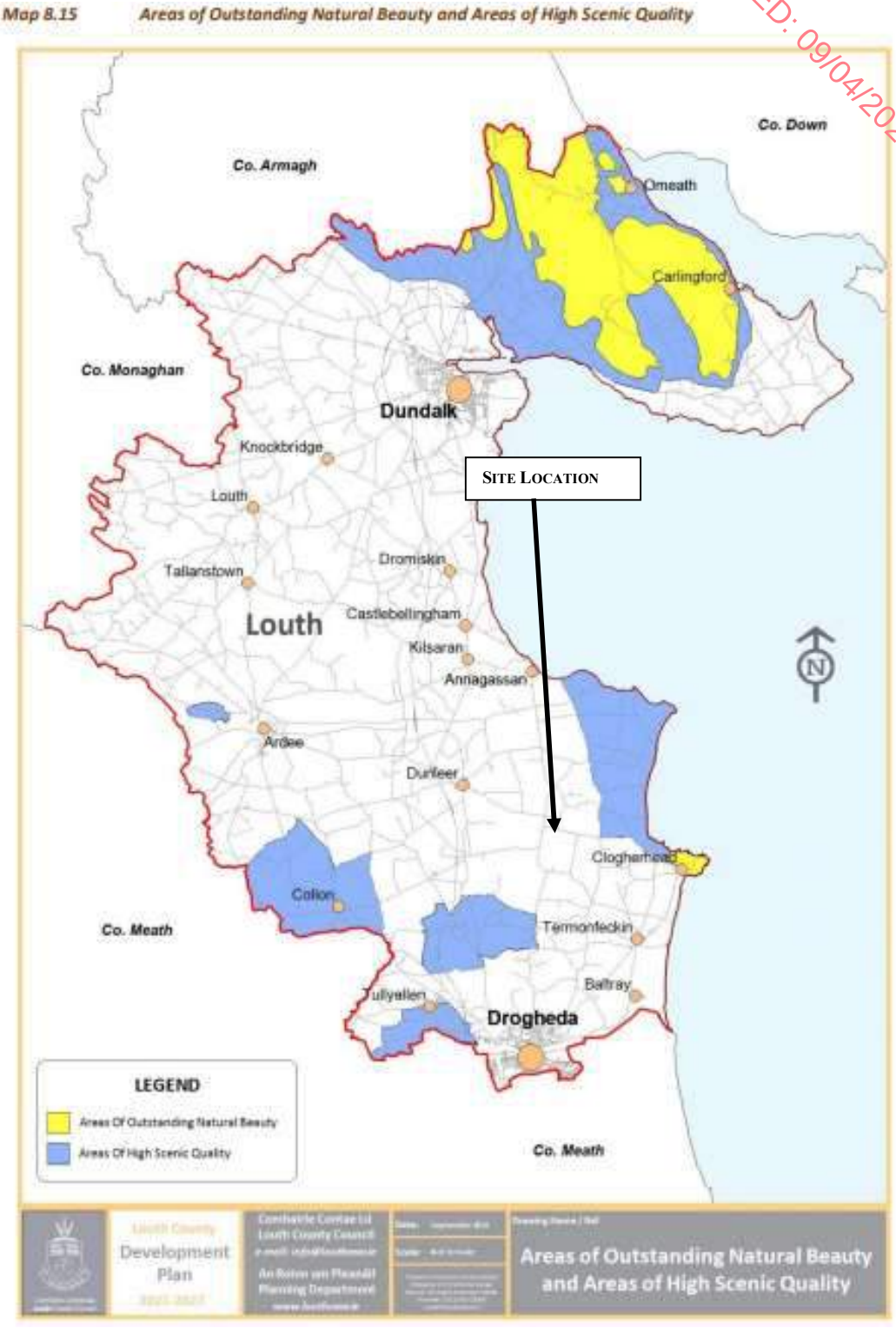


Figure 6.6(2) Views / Prospects as Detailed in the Louth County Development Plan.

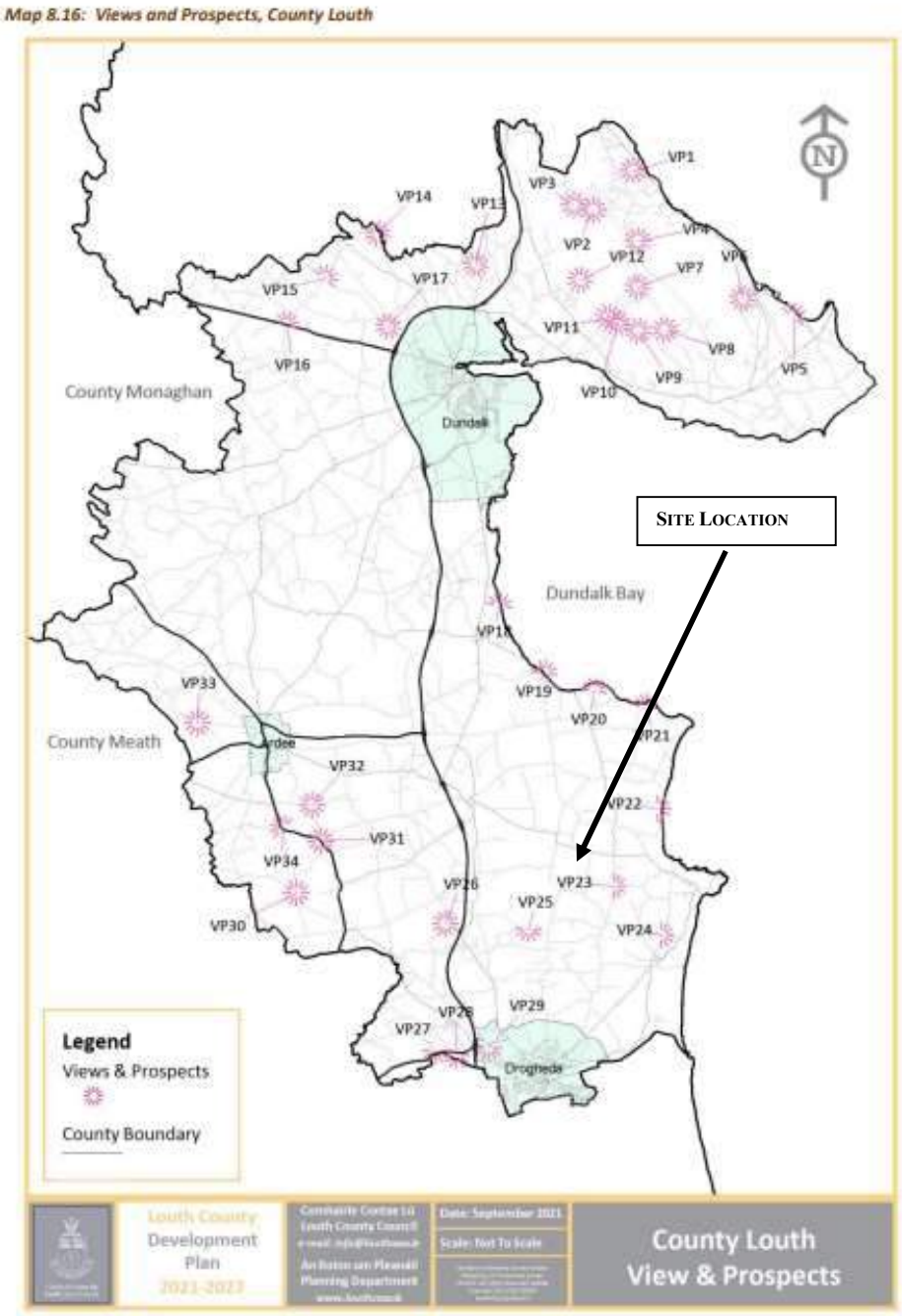
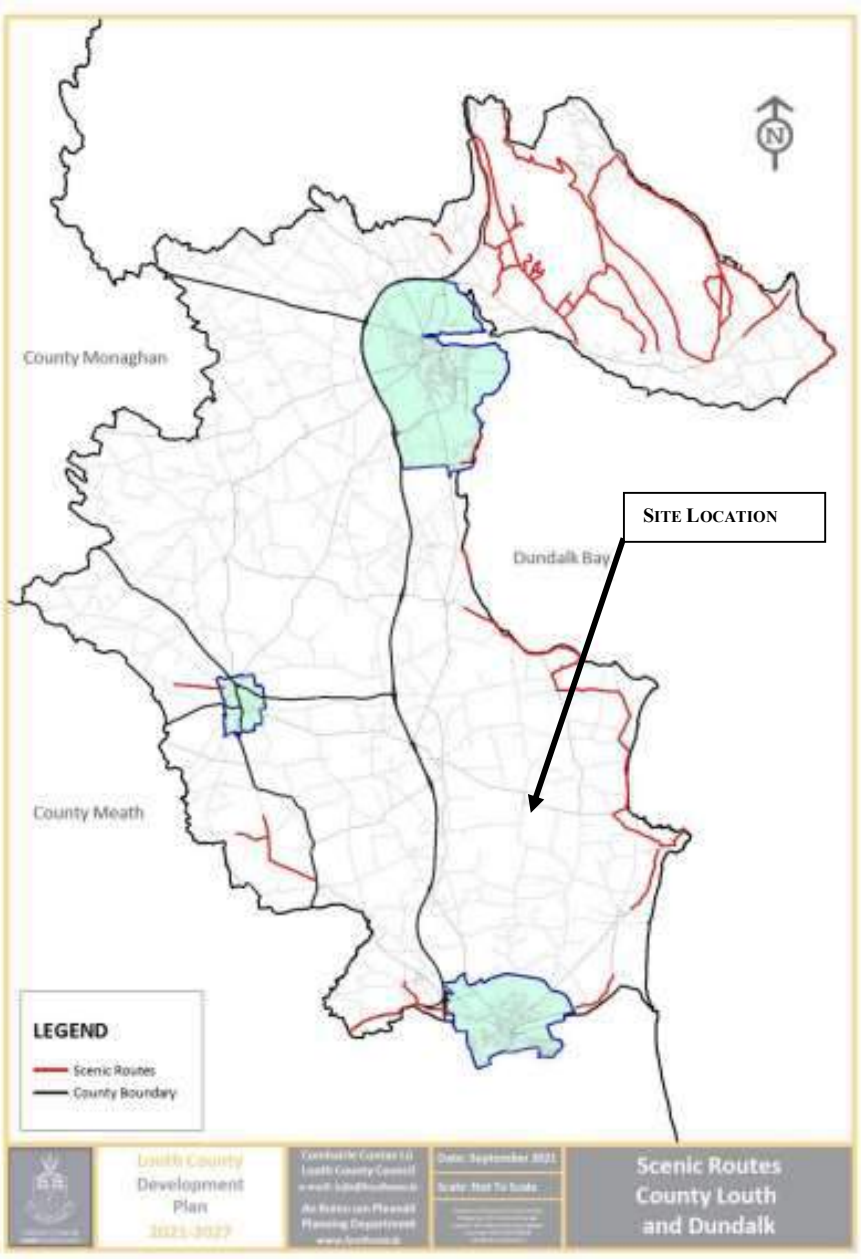


Figure 6.6(3) Scenic Routes as Detailed in the Louth County Development Plan.

Map 8.20: Scenic Routes, County Louth and Dundalk



6.7. Noise Levels

Noise levels are measured in decibels and a weighting factor (A) is applied to approximate the frequency response of the human ear. This weighted decibel scale, dB (A), correlates well with human sensations of loudness, disturbance and annoyance. Background noise levels in rural areas of Ireland are in the 45-50 dB (A) range. The peak noise periods on Poultry houses are associated with feed deliveries which will occur during the normal working day. This farm will have state of the art buildings with high insulation standards. Due to its remote location and the low population density in the area, this poultry house will not create a disturbance or annoyance to anyone. has detailed existing noise levels in the area of the farm and closest potential sensitive locations.

Noise levels are measured in decibels and a weighting factor (A) is applied to approximate the frequency response of the human ear. This weighted decibel scale, dB (A), correlates well with human sensations of loudness, disturbance and annoyance. Background noise levels in rural areas of Ireland are in the 45-50 dB (A) range. The peak noise periods on Poultry houses are associated with feed deliveries which will occur during the normal working day. This farm will have state of the art buildings with high insulation standards. Due to its remote location and the low population density in the area, this poultry house will not create a disturbance or annoyance to anyone. The existing activity has operated without complaint from local residences.

The nearest noise sensitive receptors to the proposed new poultry farm house (and the only ones visible from its location) are a number of detached residential dwellings located at a distance of 600m to the west / southwest.

See Figure 6.7.1, on the following page, for a location map of the proposed development.

Figure 6.7.1 Proposed New Poultry House Location & Nearest Noise Sensitive Receptors

6.7.1 AMBIENT ENVIRONMENTAL NOISE SURVEY

In order to obtain a baseline for assessing the potential noise impact of the identified sources, an environmental noise survey was firstly conducted in order to quantify the existing noise environment in the vicinity of the development. The survey was conducted in general accordance with *ISO 1996: 2016: Acoustics - Description, measurement and assessment of environmental noise*.

Specific details are set out in the following sections.

6.7.1(a) Choice of Noise Measurement Location

The measurement location was selected in the vicinity the nearest residential dwellings (ref Section 2.0) described as follows and shown in Figure 3 on the following page.

NML is located in the vicinity of the nearest residential dwellings which are located to the west / southwest of the proposed development.

Given the ruralness of this area and the lack of significant noise sources in the vicinity, the ambient noise level environment noise levels measured at this location could therefore be considered representative of the ambient noise environment in the surrounding environment.

Figure 3 Site Layout Showing Approximate Positions of Measurement Location

6.7.1(b) Survey Periods

Noise measurements were conducted over the course of two survey periods as follows:

- Daytime 14:45 to 17:05 hrs on 18 January 2024
- Night-time 23:00 to 01:15 hrs on 18 / 19 January 2024

The daytime measurements cover a period that was selected in order to provide a typical snapshot of the existing noise climate, with the primary purpose being to ensure that the proposed noise criteria associated with the development are commensurate with the prevailing environment.

The night-time period provides a measure of the existing background noise levels. The weather observations made during the survey are detailed in Table 6.7.1 below.

Date	Period	Temp	Wind Speed	Precipitation
18 January 2024	Daytime	≈ 2 - 3 ^{o}C	2 - 3 m/s (W)	None.
18 / 19 January 2024	Night Time	≈ -1 - 0 ^{o}C	1 - 2 m/s (WSW)	None.

Table 1 Meteorological Data Observed During Measurement Survey Periods

6.7.1 (c) Personnel & Instrumentation

Brian S. Johnson (CLV) conducted the noise level measurements during both survey periods. He is an internationally experienced acoustic consultant who has been working in the fields of architectural / building acoustics and noise control since 1994. He has been based in America, Europe, Asia and Australia and is a member of the Institute of Acoustics. Brian also has extensive knowledge in the field of environmental acoustics and holds a Certificate of Competence in Environmental Noise Measurements from the Institute of Acoustics.

The measurements were conducted using an NTI Audio type XL2 Sound Level Meter (Serial #A2A-11070-EO). It was fitted with a 90mm windshield and before and after the survey the measurement apparatus was check calibrated using a Casella Cel 120 Acoustic Calibrator (Serial #5072087). The microphone was positioned approximately 1.4m above the ground.

The calibration certificates for the sound level meter and acoustic calibrator are provided in Appendices A & B respectively of this document.

6.7.1(d) Procedure

Measurements were conducted over two full 2-hour periods. Sample periods for the noise measurements were 15 minutes during both the daytime and night-time periods. The results were saved to the instrument memory for later analysis. All primary noise sources contributing to noise build-up were also noted.

6.7.1(e) Measurement Parameters

The noise survey results are presented in terms of the following five parameters:

L_{Aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

L_{Amax} is the instantaneous maximum sound level measured during the sample period.

L_{Amin} is the instantaneous minimum sound level measured during the sample period.

L_{A10} is the sound level that is exceeded for 10% of the sample period.

L_{A90} is the sound level that is exceeded for 90% of the sample period.

The "A" suffix denotes the fact that the sound levels have been "A-weighted" in order to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to $2x10^{-5}$ Pa.

6.7.1(f) Measurement Results

The survey results are summarised in Table 6.7.1.

Time		Measured Noise Levels (dB re. $2x10^{-5}$ Pa)				
		L_{Aeq}	L_{Amax}	L_{Amin}	L_{A10}	L_{A90}
Daytime	15:15 - 15:30 hrs	**43**	52	33	46	36
	15:30 - 15:45 hrs	**43**	66	34	45	36
	15:45 - 16:00 hrs	**43**	59	35	46	38
	16:00 - 16:15 hrs	**45**	56	36	47	39
	16:15 - 16:30 hrs	**47**	65	35	49	38
	16:30 - 16:45 hrs	**44**	55	35	47	38
	16:45 - 17:00 hrs	**45**	59	35	48	38
	17:00 - 17:15hrs	**46**	64	34	48	37
Night Time	23:00 - 23:15 hrs	**39**	54	28	43	30
	23:15 - 23:30 hrs	**37**	56	26	40	27
	23:30 - 23:45 hrs	**36**	51	26	40	27
	23:45 - 00:00 hrs	**35**	48	25	39	27
	00:00 - 00:15 hrs	**37**	51	27	41	29
	00:15 - 00:30 hrs	**32**	49	25	33	27
	00:30 - 00:45 hrs	**38**	53	26	42	29
	00:45 - 01:00 hrs	**34**	52	25	37	27

Table 6.7.1 Summary of Measured Noise Levels

During daytime monitoring periods, the dominant source of background noise observed was from traffic movements on the adjacent and nearby roads. There were also contributions from birdsong and low levels of wind generated noise as well as intermittent aircraft fly overs. Daytime noise levels were in the range of 43 to 47dB L_{Aeq} and 36 to 39dB L_{A90}.

The night time noise measurements at this location were also controlled by traffic movements on the adjacent and nearby roads. There were also contributions from birdsong and occasional aircraft fly overs. Night time noise levels were in the range of 32 to 39dB L_{Aeq} and 27 to 30dB L_{A90}.

Mitigation measures where applicable are discussed in Section 7.7.

6.8. Traffic

This site of the proposed development currently forms part the applicant's existing landholding / poultry farm area. The site in question is located in a rural area within the townland of Carrickbaggot.

Existing access to the farm is via a private access road that is just off a local road, c. 0.5 km's from the junction with the R170 Regional Road. The development area of the site is 1.7 hectares, albeit that c. 60+ Ha of the existing 68 Ha farm is be utilised for the free range poultry enterprise. It is 1.2km south of Grangebellew and 4.6km south-east of Dunleer, and will be accessed by a proposed new entrance as indicated on the plans and drawings submitted with the application. This poultry house will be located in an agricultural area.

The existing development results in an average of,

- c. 1.5 loads of organic fertiliser per week (@ 30 m3/load),
- c. 1.5 feed deliveries/week and,
- c. 5 egg collections/week
- 2 staff daily.
- Stock transport (8 loads out and 8 loads in) at the end/start of each flock (c. every 14-15 months)

and is typical for the nature and scale of a poultry fam such as this.

Transport of dead birds and waste poultry products (broken and damaged eggs) occurs on a weekly/fortnightly basis in line with Louth Co. Co. and E.P.A. requirements, and is integrated into the waste collectors regular collection schedule for this area. All other

wastes such as fluorescent tubes, general waste etc. will be stored appropriately and will be removed from the farm by approved contractors and/or to approved sites in line with E.P.A. and Louth Co. Co. requirements.

Mitigation measures where applicable are discussed in Section 7.8.

6.9 Biodiversity - Flora and Fauna

(a) Site and immediate area

As previously described the proposed development will be carried out on lands owned by and/or available to the applicant, adjacent to the existing poultry farm. The Bio-diversity (Flora and Fauna) associated with the site and surrounding lands has developed in line with the agricultural activities and management practices carried out within this area. In recent times the previous mono-crop tillage enterprise was replaced with grassland to facilitate the existing free range enterprise.

There are no specific unique habitats, flora and/or fauna on this site that require specific protection. See Fig. 6.10 for details on heritage areas and important habitats as contained in the county development plan. The proposed development will required some hedgerow removal to facilitate the site development works including on site and at the site access road however same will be minimal and, there will be minimal hedgerow removal.

(b) Proposed customer farmlands.

The Proposed customer farmlands. are/will be typical Co. Louth agricultural land. Organic fertiliser / soiled water from this proposed poultry farm can only be applied to agricultural lands where a crop response, be it tillage/maize etc., is anticipated. S.I. 113 of 2022, as amended, governs fertiliser application on all Irish farms. The land for receipt of soiled from this farm will be used for tillage production. Traditionally animal manure has been applied to these lands as a source of fertiliser, and to replace energy inefficient inorganic fertiliser / poultry manure. The Bio-diversity (Flora and Fauna) associated with these areas and surrounding lands has developed in line with the agricultural activities carried out.

Mitigation measures where applicable are discussed in Section 7.9.

6.10 Biodiversity - Special Policy Areas

To provide protection to heritage items Planning Authorities have designated Special Policy Areas. These areas relate to areas of important heritage items worthy of protection and conservation. Within the special policy area it is the policy of the Planning Authorities to regulate and restrict any development that may threaten the value or integrity of the asset. Development proposals which would have an unacceptable impact on objects, items or sites included in the above lists will not be allowed. Where

development is allowed the Planning Authority may include conditions to reduce or ameliorate adverse impacts.

These Special Policy Areas include:

(A) <u>Nationally Designated Environmental areas.</u>

- **Natural Heritage Areas (N.H.A.'s)**

The basic designation for wildlife is the Natural Heritage Area. This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. To date, 75 raised bogs have been given legal protection, covering some 23,000 hectares. These raised bogs are located mainly in the midlands. A further 73 blanket bogs, covering 37,000ha, mostly in western areas are also designated as NHAs. In addition, there are 630 proposed NHAs (pNHAs), which were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats. The pNHAs cover approximately 65,000ha and designation will proceed on a phased basis over the coming years.

Until formal statutory designation of these sites takes place proposed H.N.A.'s are subject to limited protection, one of which includes the recognition of NHA ecological values by Planning and Licensing Authorities. Under the Wildlife Amendment Act (2000) , NHAs are legally protected from damage from the date they are formally proposed for designation.

- **Special Protection Areas (S.P.A.'s)**

Ireland is a special place for wild birds. We are at the end of major flyways of waterfowl migrating south for the winter from North America, Greenland, Iceland and the Arctic. In spring and summer, Ireland provides important breeding grounds for species from the continent of Europe or Africa. Our long coastlines provide safe breeding and wintering grounds for large numbers of seabirds. In addition we have resident species which are scarce or rare in other parts of Europe.

Specific proposals to designate Special Protection Areas (SPAs) in order to safeguard certain habitats pursuant to EU Directive requirements are advertised in the local press and on local radio. These proposals are intended to safeguard the habitat of these selected sites.

Map 8.3 Proposed Natural Heritage Areas (pNHAs)

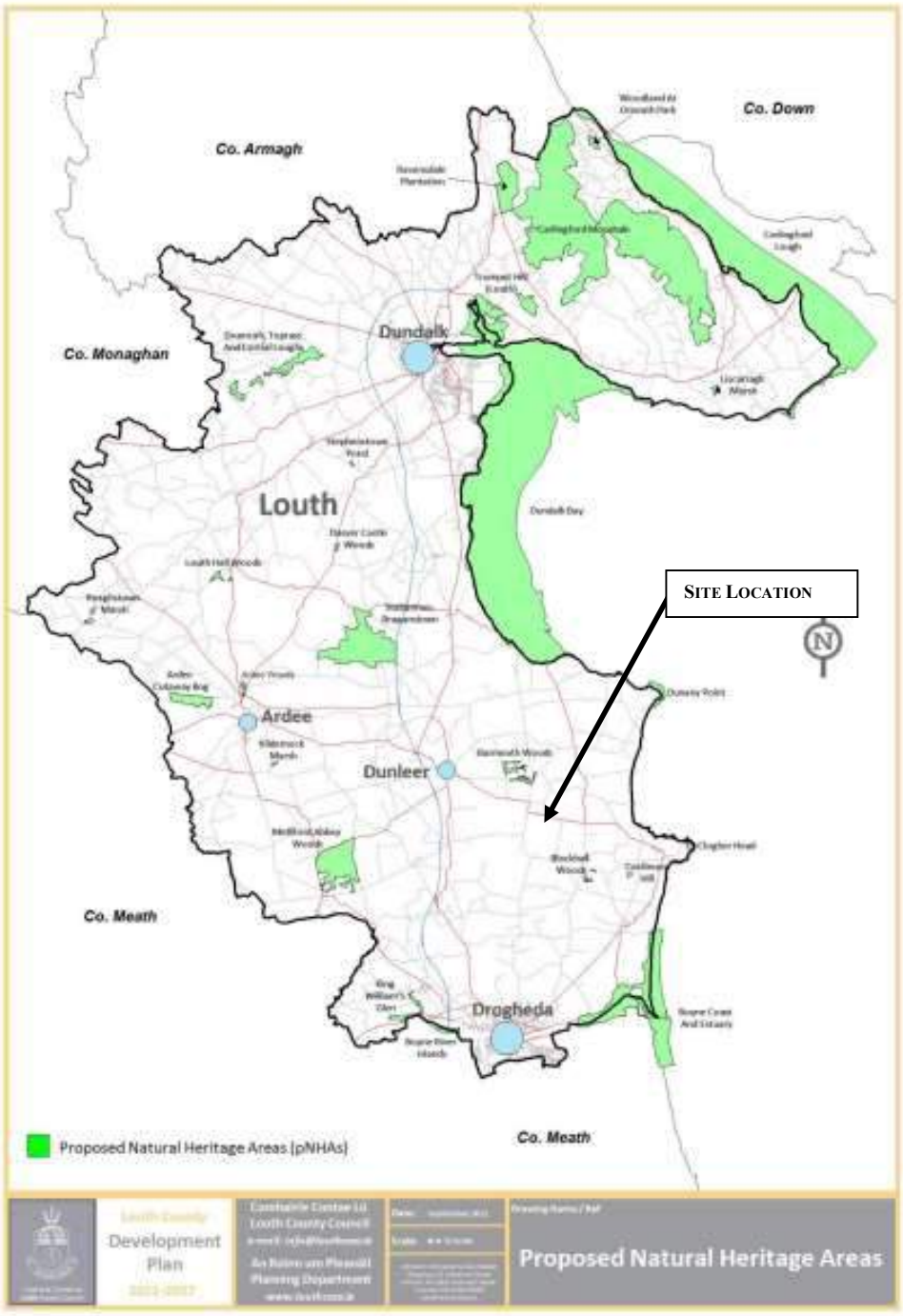


Fig 6.10.1(i) – pNHA's (– Source Louth CO. Development Plan 2021-2027)

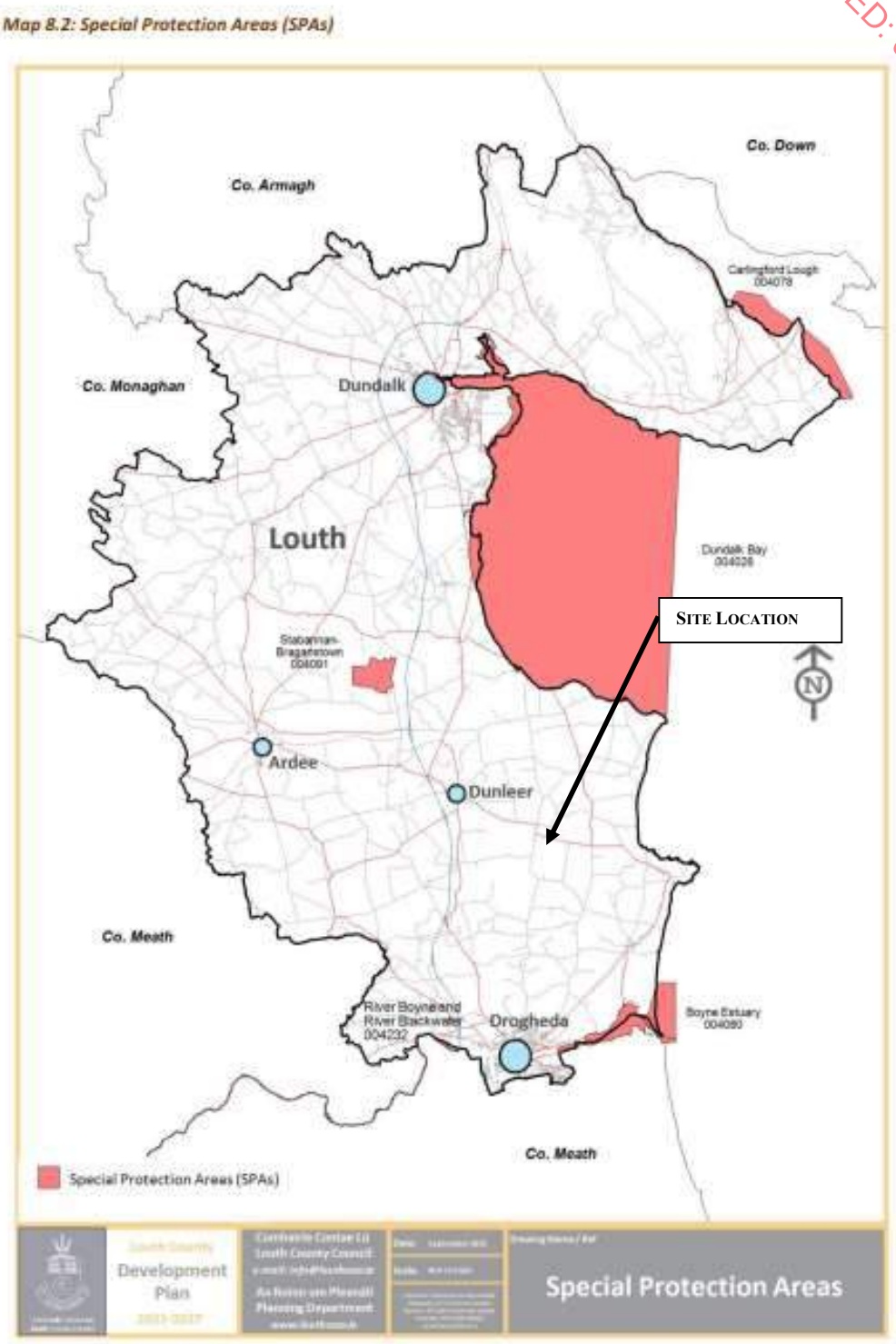


Fig 6.10.1(ii) – SPA's (– Source Louth CO. Development Plan 2021-2027)

Map 8.1: Special Areas of Conservation (SAC)

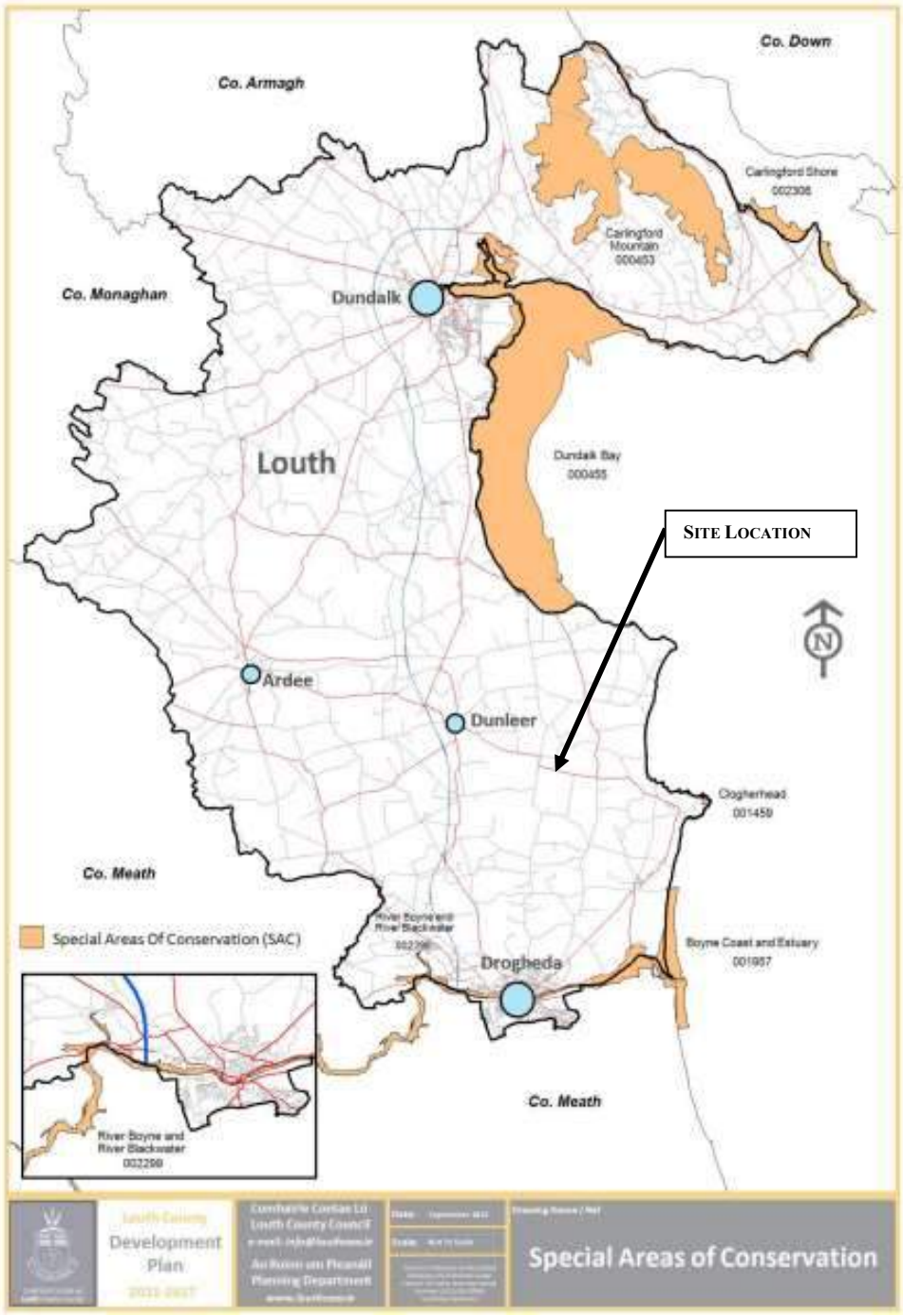


Fig 6.10.1(iii) – SAC's (– Source Louth CO. Development Plan 2021-2027)

<u>The EU Birds Directive (79/409/EEC)</u> requires designation of SPAs for:

- Listed rare and vulnerable species.
- Regularly occurring migratory species, such as ducks, geese and waders.
- Wetlands, especially those of international importance, which attract large numbers of migratory birds each year. (Internationally important means that 1% of the population of a species uses the site, or more than 20,000 birds regularly use the site.)

A significant number of SPAs have been designated since 1985. It should be noted that many existing and future SPAs overlap with SACs. The Irish SPAs join a total of around 3,000 sites across the European Union.

- **Special Areas of Conservation (S.A.C.'s)**

Special areas of conservation are prime wildlife conservation areas considered to be important on a European level as well as an Irish Level. The legal basis on which Special Areas of Conservation are selected and designated is the EU Habitats Directive (92/43/EEC), transposed into Irish law in the European Union (Natural Habitats) Regulations, 1997. These regulations have been amended twice with SI 233/1998 and SI 378/2005. The areas chosen as SAC in Ireland cover an area of approximately 13,500 square kilometers. Roughly 53% is land, the remainder being marine or large lakes. Across the EU, over 12,600 sites have been identified and proposed, covering 420,000 sq. km. of land and sea, an area the size of Germany. S.P.A.'s and S.A.C.'s collectively form part of 'Natura 2000', a network of protected areas throughout the European Union.

The application site lies within the Newry Fane Glyde and Dee Hydrometric Area and Catchment, the Burren Sub-Catchment and the Slieveboy Sub-Basin. There are open drains within the application site and clean surface water from the farm will be directed to these drains. Water in these drains is likely to flow towards the Moganstown Stream, which flows along the northern perimeter of the landholding. This stream flows east until it flows into the sea near Lurganboy, approximately 5.1km north-east of the application site. The proposed development is located c. 4.2 km from the closest Natura 2000 site, North West Irish Sea. The Natura Impact Statement has determined no potential for adverse impact on Natura 2000 sites.

As the proposed development is a significant distance from the North West Irish Sea, the development is unlikely to have a significant adverse impact on these protected areas.

See Appendix No. 13 for further details in the Natura Impact Statement.

There are ten Natura 2000 designated sites within 15km of the application site. These designated areas and their closest points to the proposed development site are summarised in Table 6.10.1 and a map showing their locations relative to the application site is shown in Figure 6.10.1.(iv) A full description of these sites can be read on the websites of the National Parks and Wildlife Service (npws.ie).

Site Name & Code	Distance	Qualifying Interests	Significant Effects
North-West Irish Sea SPA (candidate)	4.2km east 4.9km downstream via the Morganstown Stream	• Common Scoter (*Melanitta nigra*) • Red-throated Diver (*Gavia stellata*) • Great Northern Diver (*Gavia immer*) • Fulmar (*Fulmarus glacialis*) • Manx Shearwater (*Puffinus puffinus*) • Shag (*Phalacrocorax aristotelis*) • Cormorant (*Phalacrocorax carbo*) • Little Gull (*Larus minutus*) • Kittiwake (*Rissa tridactyla*) • Black-headed Gull (*Chroicocephalus ridibundus*) • Common Gull (*Larus canus*) • Lesser Black-backed Gull (*Larus fuscus)* • Herring Gull (*Larus argentatus*) • Great Black-backed Gull (*Larus marinus)* • Little Tern (*Sterna albifrons*) • Roseate Tern (*Sterna dougallii*) • Common Tern (*Sterna hirundo*) • Arctic Tern (*Sterna paradisaea*) • Puffin (*Fratercula arctica*) • Razorbill (*Alca torda*) • Guillemot (*Uria aalge*)	*Having regards to the hydrological connectivity of the application site to this SPA, significant effects arising from construction and operation of this proposed development cannot be ruled out.* *As this SPA is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*
Clogher Head SAC 001459	6.6km east	• Vegetated sea cliffs of the Atlantic and Baltic coasts • European dry heaths	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *As this SAC is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*
Boyne Coast and Estuary SAC 001957	7.4km south	• Estuaries • Mudflats and sandflats not covered by seawater at low tide • Salicornia and other annuals colonizing mud and sand • Spartina swards (*Spartinion maritimae*) • Atlantic salt meadows (*Glauca*	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *As this SAC is within 7.5km of the application site, significant effects arising from atmospheric*

		Puccinellietalia maritimae) • Mediterranean salt meadows (*Juncetalia maritimi)* • Embryonic shifting dunes • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) • Fixed coastal dunes with herbaceous vegetation (grey dunes) •	*emissions will be considered further.*
Dundalk Bay SPA 004026	7.8km north	• Great Crested Grebe *(Podiceps cristatus)* • Greylag Goose *(Anser anser)* • Light-bellied Brent Goose *(Branta bernicla hrota)* • Shelduck *(Tadorna tadorna)* • Teal *(Anas crecca)* • Mallard *(Anas platyrhynchos)* • Pintail *(Anas acuta)* • Common Scoter *(Melanitta nigra)* • Red-breasted Merganser *(Mergus serrator)* • Oystercatcher *(Haematopus ostralegus)* • Ringed Plover *(Charadrius hiaticula)* • Golden Plover *(Pluvialis apricaria)* • Grey Plover *(Pluvialis squatarola)* • Lapwing *(Vanellus vanellus)* • Knot *(Calidris canutus)* • Dunlin *(Calidris alpina)* • Black-tailed Godwit *(Limosa limosa)* • Bar-tailed Godwit *(Limosa lapponica)* • Curlew *(Numenius arquata)* • Redshank *(Tringa totanus)* • Black-headed Gull *(Chroicocephalus ridibundus)* • Common Gull *(Larus canus)* • Herring Gull *(Larus argentatus)* • Wetland and Waterbirds	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *As this SPA is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*
Dundalk Bay SAC 000455	7.8km north	• Estuaries • Mudflats and sandflats not covered by seawater at low tide • Perennial vegetation of stony banks • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Mediterranean salt meadows *(Juncetalia maritimi)*	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *As this SAC is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*
The Boyne Estuary SPA 004080	8.4km south-east	• Shelduck *(Tadorna tadorna)* • Oystercatcher *(Haematopus ostralegus)* • Golden Plover *(Pluvialis apricaria)* • Grey Plover *(Pluvialis squatarola)* • Lapwing *(Vanellus vanellus)* • Knot *(Calidris canutus)*	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there*

		• Sanderling *(Calidris alba)* • Black-tailed Godwit *(Limosa limosa)* • Redshank *(Tringa totanus)* • Turnstone *(Arenaria interpres)* • Little Tern *(Sterna albifrons)* • Wetlands & Waterbirds	*will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*
The River Boyne and River Blackwater SAC 002299	9.4km south	• River lamprey *(Lampetra fluviatilis)* • Salmon *(Salmo salar)* • Otter *(Lutra lutra)* • Alkaline fens • Alluvial forests with alder *Alnus glutinosa* and ash *Fraxinus excelsior*	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*
River Boyne and Blackwater SPA	10.5km south	• Kingfisher Alcedo atthis	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*
Stabannan-Braganstown SPA	10.8km north-west	• Greylag Goose (Anser anser)	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*
River Nanny Estuary and Shore SPA	14.4km south-east	• Oystercatcher (*Haematopus ostralegus*) • Ringed Plover (*Charadrius hiaticula*) • Golden Plover (*Pluvialis apricaria*) • Knot (*Calidris canutus*) • Sanderling (*Calidris alba*) • Herring Gull (*Larus argentatus*) • Wetlands & Waterbirds	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*

Table 6.10.1 – Natura 2000 Sites Within 15km of the Proposed Site

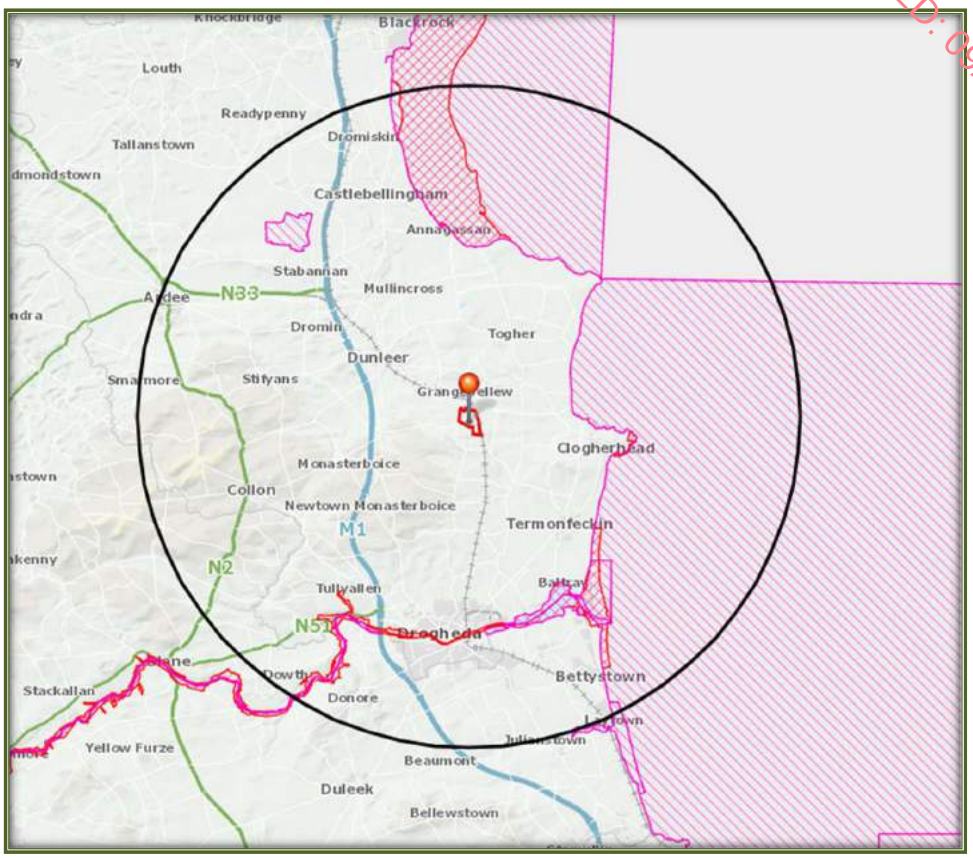


Figure 6.10.1(iv) – The Application Site in relation to the Natura 2000 site (SACs – Red Hatching, SPAs – Pink Hatching)

- ***Louth's Green Infrastructure Strategy***

A Green Infrastructure Strategy (GIS) has been incorporated into the Louth County Development Plan 2021-2027. The principles of a green infrastructure approach to land use planning have been embedded as a cross cutting theme in the policies and objectives of this Plan.

The Strategic Objectives of Louth's Green Infrastructure Strategy are outlined below:

- Flood Risk Management and Climate Change Adaptation;
- An Ecological Framework;
- A Sustainable Movement Network;
- A Sense of Place;
- River Corridor and Coastal Management;
- Support for Urban Regeneration; and
- Community, Health and Enjoyment.

Policy Objective NBG 41 To support the green infrastructure network of County Louth and ensure its implementation in the assessment of all development proposals to prevent adverse impact on the ecological connectivity of County Louth's Core Areas.

Policy Objective NBG 42 To require the use of and develop the green infrastructure network, and support re-establishing connectivity to ensure the conservation and enhancement of biodiversity and as a supplementary guide for the protection and conservation of the European Sites in County Louth.

Policy Objective NBG 43 To utilise all information available on the Louth Baseline Assessment as evidence based decision making in the Louth Core Strategy.

Policy Objective NBG 44 To protect, maintain, and enhance the natural and organic character of the watercourses in the County, including opening up to daylight where safe and feasible. The creation and/or enhancement of riparian buffer zones will be required where possible. All proposed coastal walkways will be required to comply with the Habitats, EIA and SEA Directives

Policy Objective NBG 45 To prepare specific Green Infrastructure Strategies for the Regional Growth Centres of Drogheda and Dundalk and integrate into the local area plan for each settlement.

Policy Objective NBG 46 To develop linear parks, particularly along waterways, and to link existing parks and open spaces in order to provide green chains that promote

permeability for pedestrians and cyclists in the Regional Growth Centres of Drogheda and Dundalk.

Policy Objective NBG 47 To support the existing features of interest in the Level 3 and 4 Settlements of County Louth and promote and facilitate any areas identified for green infrastructure enhancement.

Policy Objective NBG 48 All future development proposals shall require within the overall design scheme the integration of environmental assets and existing biodiversity features including those identified in Table 9 of the Green Infrastructure Strategy Appendix 8, Volume 3, to enhance the quality, character and design of the proposal.

Policy Objective NBG 49 To require the integration of green infrastructure and inclusion of native planting schemes in all development proposals in landscaped areas, open spaces and areas of public space.

Policy Objective NBG 50 To incorporate all identified stone walls into development proposals. Where retention of the stone wall is not feasible there shall be a requirement to rebuild the stone wall at an alternative, suitable location.

Policy Objective NBG 51 To require the integration of climate change mitigation measures in any future spatial plans and climate change adaptation measures in proposed developments.

Policy Objective NBG 52 To develop and support the implementation of a Regional Green Infrastructure approach by working collaboratively and in partnership with the Eastern and Midland Regional Assembly, adjoining local authorities and other key stakeholders to identify, protect, enhance and manage existing green infrastructure within the County and to provide additional GI where possible.

Policy Objective NBG 53 To support and increase investment in the on-going maintenance of existing, and provision of additional green infrastructure by accessing relevant EU funding mechanisms and national funding opportunities, including tourism related funding.

Policy Objective NBG 54 To ensure the protection, enhancement and maintenance of Green Infrastructure in recognition of its health benefits in addition to the economic, social, environmental and physical value of green spaces, through the integration of Green Infrastructure planning and development in the planning process.

Policy Objective NBG 55 To create an integrated and coherent green infrastructure for County Louth by ensuring compliance with the objectives listed in the Green Infrastructure Strategy outlined in Appendix 8, Volume 3, to improve pedestrian and

cycle access routes within this green infrastructure network while ensuring that ecosystem functions and existing amenity uses are not compromised and existing biodiversity and heritage is protected and enhanced.

Policy Objective NBG 56 To focus on 'greening' key streets in the Regional Growth Centres of Drogheda and Dundalk and key towns and villages by way of higher standards for planning and amenity along key routes.

Policy Objective NBG 57 To ensure that no development, including clearing or storage of materials, takes place within a minimum distance of 10m measured from each bank of any river, stream or watercourse.

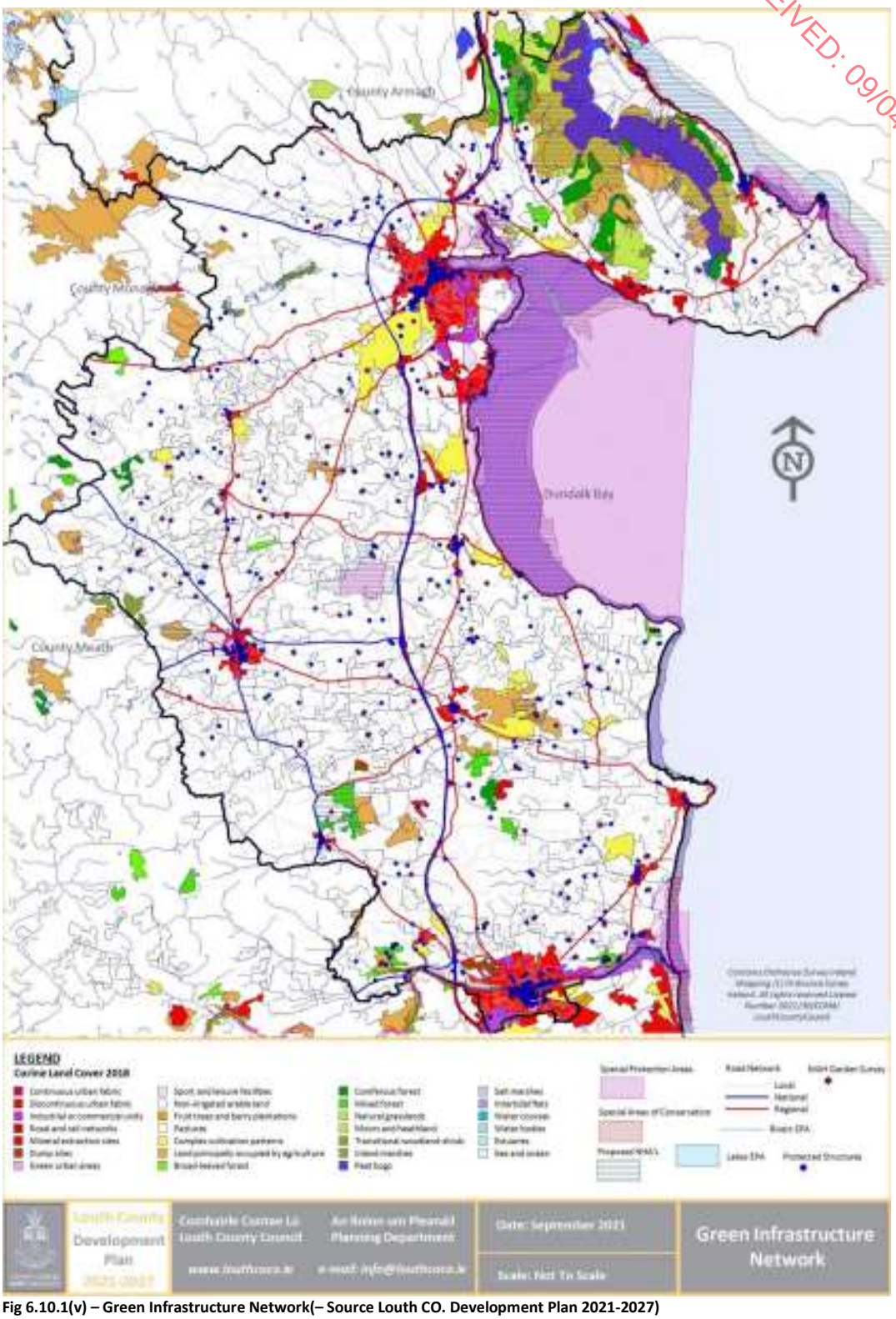


Fig 6.10.1(v) – Green Infrastructure Network(– Source Louth CO. Development Plan 2021-2027)

(B) Amenity Areas

The proposed poultry farm site is not located near, and/or likely to adversely impact on, any of the tourist/amenity areas as listed in the Louth Development Plan.

These areas include;

- Areas of Outstanding Natural Beauty,
- Areas of High Scenic Quality,
- Scenic Routes, Views and/or prospects,

as listed in the Louth Development Plan 2021-2027, and as referred to previously in Section 6.6.

(C) Cultural Heritage (Architectural and Archaeological Features)

There are no buildings/structures of architectural significance located on or adjacent to the proposed site or likely to be impacted by the proposed development.

There are no recorded archaeological features within c. 0.4km of the proposed site;

There are archaeological features on the landholding as detailed below.

- ***The first and second*** are a church and graveyard located at the same location c. 550-600m north of the proposed development, and,

Record Number:LH018-046002-
Classification: Graveyard
Scheduled for Protection:1
Description:
Rectangular shaped graveyard (map dims. c. 30m NE-SW; c. 24m NW-SE) with church remains (LH018-046001-) in centre. When inspected by ASI in 1966 no gravemarkers were noted and according to local information no burials had taken place in living memory. Compiled by: Claire Breen Date of upload: 5 July 2012

Record Number:LH018-046001-
Classification: Church
Scheduled for Protection:1
Description:
The following description is derived from both the published 'Archaeological Inventory of County Louth' (Dublin: Stationery Office, 1986) and the 'Archaeological Survey of County Louth' (Dublin: Stationery Office, 1991). In certain instances the entries have been revised and updated in the light of recent research. Date of upload/revision: 17 July 2007 Built of limestone blocks, boulders and greywacke (int. dims. 13m E-W, 5m N-S). Double wall at W gable, the outer one being 0.5m thick and the inner one 0.7m. E window not extant and only foundation level of gable wall survives. E end of N wall has the remains of a splayed window which extends down close to ground level, and has a two-centred arch of greywacke with central keystone. The church is fifteenth- or sixteenth-century in date and the Visitation of 1692 states that it was in disrepair. (CLAJ 1919, 338; CLAJ 1944, 278).

- ***The third*** a holy well (albeit dried up when inspected in 1967) located close to the access route and 400m + from the proposed development

Record Number:LH018-047----
Classification: Ritual site - holy well
Scheduled for Protection:1
Description:
The OS Letters refer to a well called 'St. Columba's in Carrickbaggot' (Stubbs 1908, 40). According to the IFC Schools Mss (vol. 673, 76) there is a stone in a field called the 'paddocks' which has an imprint of St. Columcille's knee on it. When inspected by ASI in 1967 the well was dried up and briars covered the site. Compiled by: Claire Breen Date of upload: 6 July 2012

In addition to same there is an enclosure located c. 400 m east of the landholding boundary.

Record Number:LH021-017----
Classification: Enclosure
Scheduled for Protection:1
Description:
The following description is derived from both the published 'Archaeological Inventory of County Louth' (Dublin: Stationery Office, 1986) and the 'Archaeological Survey of County Louth' (Dublin: Stationery Office, 1991). In certain instances the entries have been revised and updated in the light of recent research. Date of upload/revision: 17 July 2007 Sub-circular enclosure (max. dims. c. 52m N-S, c. 42m E-W) showing as cropmark on aerial photograph (CUCAP, AOY 22).

All works are to be completed outside of the Zones of notification associated with these features.

The proposed poultry house is to be constructed on intensively managed farmland, adjacent and/or in close proximity to the existing poultry farm site. This development will not involve the construction of significant underground tanks etc. that require significant excavation. It is not considered likely that the agricultural development, as proposed, will cause any direct impacts to any identified archaeological monuments. Furthermore, given the locations of the extant archaeological monuments, together with the topographical situation of the site and its environs, it is considered that no significant adverse impacts will occur to the setting of any monuments.

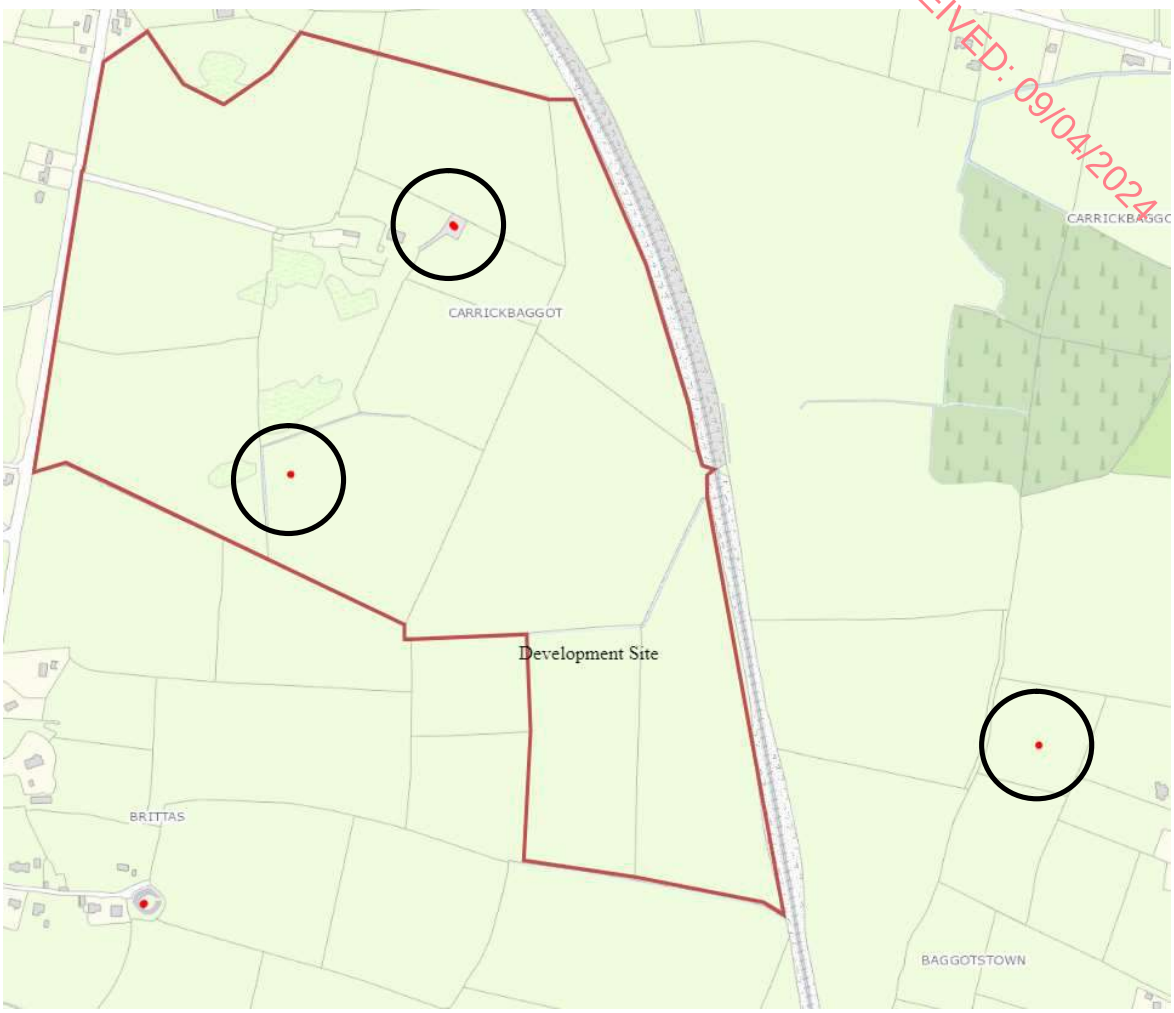


Fig 6.10.6 Location of recorded monuments Source www.myplan.ie

Architectural Heritage: There are no structures listed in the Record of Protected Structures (RPS) of the Louth County Development Plan 2021-2027 as being located within, or in the immediate environs of, the subject site.

The site is accessed via an internal farm laneway c. 0.75km from the Local Road. The topography of the site is relatively flat and the proposed development site is c. 6m lower than the road level at the site entrance. The entrance to Rokeby Hall, a protected structure under reference 13901802 & 13901801 is located opposite the entrance to this farm. Rokeby Hall is designated as a Historic Garden and Designated Landscape in the County Development Plan 2021-2027. Given the distance to, and the setting of the proposed development, low set in the landscape and on an existing poultry farm the proposed development will have no significant adverse impact on the Architectural heritage of the area.

6.11 Population / Employment / Human Health

As a county, Louth has seen unprecedented growth in its population since the early 2000's. This was significantly driven by its close proximity to Dublin and the commuter routes that have developed.

Agriculture will continue to be an important component of County Louth's economy. Advancing technology and farm consolidation will result in increased output but will also continue to reduce agriculturally based employment. Farm practices are experiencing a shift away from traditional agriculture activities such as dairying and livestock farms. Specialist beef production is now the main enterprise on some 40% of farms in County Louth which reflects a national shift to this type of farming.

Agriculture is an important source of employment and income in rural areas. The County's agricultural land bank is not only a source of value in terms of food production, but also a vital ingredient in the County's character. The 2011 Census illustrates that 2.75% of the population of County Louth is employed directly in the agricultural sector. This is equivalent to 902 persons, representing a slight increase from the 2006 census figure of 2.4% and a significant drop from 6%, as recorded in the 2002 Census.

Farming is the traditional form of economic activity in rural areas. However, traditional farming methods have undergone significant changes, through increased mechanisation and the emergence of larger commercial farm units. County Louth occupies an area of 82,613 hectares, of which 63,862 hectares is farmed. A significant proportion of farms in County Louth, some 46%, operate on farm holdings of less than 20 hectares. The average farm size in the county in 2010 was 36.6 hectares which is an increase from the average size of 35.1 hectares in 2006.

The agricultural sector must continue to adapt to the challenges posed by modernisation, restructuring, market development and the increasing importance of environmental issues. An economically efficient agricultural and food sector, is an essential component of the development of a sustainable rural economy.

The Council acknowledges that farming will remain an important economic activity essential for the economic prosperity and well being of rural areas and will facilitate the development of agriculture subject to ensuring the protection of the environment, particularly water resources.

The role of the rural area as a key resource for the county is vital and agricultural and amenity lands should be carefully managed to ensure that their primary use is protected from encroachment, fragmentation and urban driven development.

For the sustainability conscious consumer, chicken and eggs can be considered an excellent source of animal-based protein. Poultry production is extremely efficient from a carbon perspective. International research shows that poultry has the lowest carbon footprint of all meats and that eggs are an even more carbon efficient source of protein than poultry meat.

The transition to a more sustainable form of agriculture, which minimises resource (feed, water and energy) consumption per unit of production will be essential to meet the ever increasing demands on an increasing population, while at the same time helping to avoid food poverty. As the lowest Carbon Foot print farmed animal protein source together with high levels of efficiency poultry production is well placed to meet these societal requirements. Furthermore as developments such as the proposed development are required to meet domestic demand for high welfare eggs, with minimal carbon footprint / environmental impact, the proposed development is intrinsically sustainable and beneficial to the Irish economy.

Mitigation measures where applicable are discussed in Section 7.11.

6.12 Material Assets

Resources that are valued and that are intrinsic to specific places are called 'material assets'. They may be of either human or natural origin and the value may arise for either economic or cultural reasons. The assessment objectives vary considerably according to the type of assets, those for economic assets being concerned primarily with ensuring equitable and sustainable use of resources. Assessments of cultural assets are more typically concerned with securing the integrity and continuity of both the asset and its necessary context.

The potential impact of the proposed development on *archaeology / cultural assets* has been discussed previously. Material Assets that may potentially be affected by the proposed development include:

- ***(A) Material Assets: Agricultural Properties including all agricultural enterprises***

The existing poultry farm and site of the proposed development are located on existing agricultural farmlands, in a predominantly agricultural area. The proposed development is surrounded by agricultural farmland, and the proposed development will not adversely impact on any other farmland outside the confines of the site. The proposed development will have a positive interaction with the applicant's and customer farmers agricultural activities as previously detailed. The proposed development will require a minimal amount of land to complete the proposed works, however this land requirement will not have a significant adverse impact outside of the development area, and will not adversely impact on the existing free range activities.

- ***(B) Material Assets: Non-agricultural Properties including residential, commercial, recreational and non-agricultural land.***

The proposed development site is surrounded by agricultural lands and is located well away from any built up areas and/or development clusters. The closest third party residential location is c. 640 m from the proposed development. A total of 11 locations have been identified with 640-1000 m of the existing farm/proposed development. See Table 14 from Irwin Carr Report detailed below. An odour impact assessment was completed based on the cumulative potential impact of the existing and proposed development, as discussed further in Section 7.4.

6.4.1 - Table 14: Nearest Residential Properties

Location	Description	Co-ordinates		Approx. distance to nearest shed (m)*
1	Property to the North	310116	285804	960
2	Property to the North	310235	285731	880
3	Property to the North	310373	285734	890
4	Property to the East	311065	285080	745
5	Property to the SE	310968	284648	640
6	Property to the SE	310968	284351	770
7	Property to the South	310013	284038	790
8	Property to the West	309442	285063	760
9	Property to the West	309410	285241	855
10	Property to the West	309484	285442	910
11	Property to the NW	309835	285784	1000

**It should be noted that all distances detailed in the Table above are approximate and are provided for information purposes only. The grid co-ordinates provided were input into the model, and the source locations are provided in Appendix B. These distances have no bearing on the AERMOD model, and the only input from Table 14 is the actual grid co-ordinates.*

While the property addresses could not be identified, the exact co-ordinates used in the modelling process are provided in the Table above, and all of the properties are shown in the figure in Appendix A.

(C) Material Assets: Natural or other resources including mineral resources, land and energy

The proposed development will also involve the use of a limited amount of construction materials (including quarry products and other construction materials), however the extent of the development is limited in nature and the amount of resources required in the construction of the houses, and potential adverse impact of same, is negligible when sourced from authorized sources.

The operation of the farm will require additional feed (classified as a renewable resource), energy and water. The applicant will operate modern feeding, ventilation and heating systems to minimize same. The farm does not require any major modifications to the existing electricity supplies, water or road infrastructure in the area.

6.13 Tourism

Crayvall Egg Production Ltd. is very aware of the beneficial impact that tourism is having on the local economy of the Louth area. The local tourism industry in this area is based primarily around the natural landscape, including the coastlnes and rich heritage of the area.

The coastline is of high intrinsic and special amenity value and is home to a variety of natural habitats. Special Areas of Conservation (SAC) and Special Protection Areas (SPA) designations cover much of the coastline. Termonfeckin Strand, Clogherhead, Port and Templetown are superb beaches which have considerable tourism potential. The latter three beaches were awarded Blue Flag status in 2015. The coastline also contains economically significant sites which include the ports at Drogheda, Greenore, Dundalk and Clogherhead.

The proposed poultry house site itself, integrated into the existing poultry farm and associated landholding, will in no way affect the tourism industry in the area due to the fact that, it is in an agricultural area and a remote location, will be well screened from public view, and is located away from any areas frequented by tourists.

Crayvall Egg Production Ltd. will ensure that any potential effects on the local environment and tourism industry are minimised. Crayvall Egg Production Ltd. will inform all farmers in receipt of organic fertiliser from the proposed development, of the requirements of S.I. 113 of 2022, as amended in relation to spreading of animal manure's and overall good farming practice so as to at least maintain, if not improve, this balance.

Mitigation measures where applicable are discussed in Section 7.13.

6.14 Potential Effects (Cumulative, Long/Medium/Short Term, Transboundary and/or other).

This development will have a positive effect on population in the area. The poultry farm will employ c. 2-4 additional people directly. The farm profitability of the customer farmers receiving poultry manure is boosted by cheap fertiliser nutrients replacing imported energy demanding inorganic nutrients. This farm will have no adverse effect on tourism in the area of the site due to its remote location and comprehensive management and operational practices.

The agricultural and associated added value industries that have developed on the back of the Irish Agri-sector are of significant importance to the local and Irish economy and provide a significant source of employment. Within this, the poultry industry is a key component. The poultry sector makes a valuable contribution to the Irish agricultural economy, with output at farm level estimated at €600 million (wholesale) in 2019. The sector is a significant employer in rural Ireland with over 5,000 people employed in processing, packing and at farm level.

Nationally

The report "Irelands Inventory Report 2021" (EPA 2021), identifies agriculture as the primary contributor (99.4%) of Irish ammonia emissions in 2019, emitting a total of 124.6 kilotons (kt) of ammonia in that year. According to that report the emissions from the poultry sector in 2019 were approximately 4.61 Kt.

DAFM has published a Code of Good Agricultural Practice for reducing Ammonia Emissions from Agriculture " as required by the National Emissions Ceiling Directive and this is the appropriate manner in which to address the national ceiling.

The main sources of ammonia emissions from agriculture arise from the production and application of livestock manures and synthetic fertilisers. The good practice measures give guidance on reducing emissions from these key areas:

- Limiting ammonia emissions from the use of mineral fertilisers;
- Manure application and low-emission manure spreading techniques;
- Animal feeding strategies;
- Animal housing systems;
- Manure storage systems;

The proposed development will be operated in line with BAT requirements (as enforced by the required E.P.A. Licence). This will ensure that the farm is operated to the highest standards, and that emissions (incl. ammonia) and resource (energy, feed and water) consumption is minimised to ensure that the proposed development produces high

quality food in a sustainable manner in line with the goals of Agri Food Strategy 2030 and the Good Agricultural Practice for reducing Ammonia Emissions from Agriculture.

Within the County;

This farm and site of the proposed poultry house is located in County Louth. Intensive agricultural enterprises have not developed in Co. Louth to the same extent as counties Cavan and Monaghan. The poultry industry is a specialised farming activity with well established practices in place for the transport of poultry manure to specialised tillage farmers in surrounding areas. The proximity of the proposed developments to the tillage lands farmed by the customer farmers, will be a significant competitive advantage to both enterprises, and will significantly reduce transport costs and emissions associated with same.

Given the poor returns from the more traditional farming practices (including Tillage), efficient and sustainable agricultural activities, such as the proposed developments, and the jobs dependant thereon, will be critical to the Irish economy.

This ***currently proposed development*** seeks to develop;

- 1 No. Poultry House (for barn egg production, 64,000 bird capacity), and,
- 1 No. Poultry Manure storage shed

Which will operate in conjunction with the

- The existing c. 60,000 birds Free Range house, and,
- 2 No. Poultry Manure storage sheds

together with all ancillary structures (to include, soiled water tank(s) and 3 No. meal storage bins) and associated site works at Carrickbaggott, Grangebellew, Co. Louth.

This is a significant development in terms of poultry house developments and the level of investment required. It will also be a significant boost to local employment in this area, and the local construction industries.

Within the Local Area;

It has been demonstrated that the proposed development will have little or no adverse cumulative impact within the county. This proposed poultry house development will have significant integration with the existing poultry farming activity on the farm and Belview Egg Farm Ltd.'s existing farming activities. This additional experience in the areas of experience, egg packing and sales, farm management etc., will be a significant advantage to both enterprises, while at the same time demonstrating a more integrated, environmentally friendly and sustainable production system.

The proposed development will result in a significant increase in stock numbers on the site, from 60,000 birds to c. 124,000 birds, however same is similar to and/or below the scale of other layer farms approved in Co. Louth and further afield.

A number of measures have been provided for so as to mitigate against any adverse cumulative impact. This in conjunction with any requirements placed on the proposed development by Louth Co. Co. and/or the E.P.A. as a result of planning permission and/or E.P.A. Licence conditions will ensure that this proposed development will have no adverse environmental impact on the immediate area.

It is anticipated that the proposed development will not lead to a negative cumulative impact on the local environment due to the array of mitigation measures proposed and/or implemented and the applicant has demonstrated that the customer farmers have sufficient capacity to utilise all organic fertiliser to be produced on this farm. The existing poultry farming activities have not received any complaint to date.

Mitigation measures where applicable are discussed in Section 7.14.

Trans-boundary;

Given the location of the proposed development well removed from any other international boundary, and the inert nature of the construction and operation of the farm and any of any materials used and/or produced on-site together with the range of processes to be carried out there is no potential for adverse trans-boundary impact.

Mitigation measures where applicable are discussed in Section 7.14.

7. Description of the aspects of the environment with potential to be significantly affected by the proposed development.

It is envisaged that no aspects of the environment will be significantly affected by this proposed development, for the reasons as outlined hereafter. The proposed development is agricultural in nature, has the potential to be well integrated into the existing farming activities and local horticultural sectors, remote from 3rd party dwellings, not located in a sensitive area/landscape, does not involve practices/processes that have the potential for significant adverse impact, does not result in the use or production of materials/products with potential for significant adverse impact, and, is a widely practiced agricultural enterprise, and, is similar in nature to other previously approved developments on the farm and within the county.

The current requirement for barn and free range egg production is driven by changing supermarket and consumer requirements for higher welfare systems of production and phasing out the current predominant housng system.

The potential effects on the environment required to be addressed include population and human health, bio-diversity (flora and fauna), land and soil, water, air, the landscape and material assets including archaeological heritage. These amongst other aspects of the environment are addressed hereafter.

7.1. Land and Soil

(a) Site and Immediate area

The proposed development will have a significant effect on the soil in the development area, given the nature of the site and the proposed works. At present the site is a relatively level area that facilitates the existing farming activities/management practices. The site will require excavation, and levelling in preparation for the proposed development, with a significant proportion of the excavated soil to be used for site amelioration works.

Site development activities will have no significant adverse environmental impact on the environment at large and no adverse impact outside of the site boundary, and thus there are no specific mitigation measures that can be carried out or are deemed to be required. There are no habitats, flora, fauna, protected sites and/or other notable sensitive/valuable features within the boundary of the proposed site that are deemed to require special protection.

The general topography of the site/area has been detailed in Section 6.1. The finished floor level has been detailed so as to average out the ground levels on the site and ensure

that all of the soil/subsoil can be accommodated and utilised within the site, while at the same time ensuring that the proposed development is integrated into the landscape.

(b) Proposed customer farmlands.

The customer farmland areas are eminently suitable for grass/crop production, and environmentally safe for the application of organic fertiliser / soiled water at the levels permitted by, and in accordance with the requirements of S.I. 113 of 2022, as amended.

All soiled water from this poultry farm is to be allocated for use in accordance with S.I. 113 of 2022, as amended. All areas that are environmentally sensitive, as detailed in S.I. 113 of 2022, as amended, will be removed and/or an adequate buffer-zone applied to them. The principal impacts on the soil arise from,

1. Hydraulic loading
2. Chemical loading
3. Soil Structure damage.

In relation to hydraulic loading, the anticipated rate of application proposed at present is c. 8-10m3/ha. It is anticipated that there will be no surface run-off due to the omission of steeply sloping lands and strict adherence to the cordon sanitaires, application rates and ground and weather conditions at the time of application, as required by S.I. 113 of 2022, as amended.

In relation to chemical loading of the soils, this development is promoting nutrient substitution rather than addition. The organic fertiliser / soiled water from this farm will satisfy the growth requirements of the tillage/other crops. All organic fertiliser / poultry manure from this existing / proposed poultry farm will be allocated for use as organic fertiliser as part of a fertiliser substitution programme to replace existing use of imported chemical fertiliser on customer farmlands.

All farmers will also be advised that the application of organic fertiliser to farmland should not occur;

- In the period 1st Oct – 15th January, for lands in Zone B (incl. Co. Meath, Louth and Dublin) Please refer to S.I. 113 of 2022, as amended, for details pertaining to other areas.

- When soils are waterlogged, and/or ground conditions are unsuitable.

These are the times of year when the majority of soil structure damage can occur, and are in line with the requirements of S.I. 113 of 2022, as amended.

7.2 Ground Water

(a) Site and Immediate area

The groundwater adjacent to the site is overlain by a low permeability overburden. According to G.S.I. records the aquifer classification of the site is referred to as a Poor Aquifer – Bedrock which is generally unproductive except for local zones(Pu). The aquifer vulnerability for the area of proposed development is classed as Moderate.

With any intensive agricultural enterprise one of the main areas of consideration arises from the storage and management of a relatively large volume of animal/poultry manures. In order to ensure that the proposed development does not impact on the groundwater adjacent to the poultry farm site the following measures will be implemented.

- The proposed structures will be constructed to Department of Agriculture, Food and Rural Development Standards for the construction of farm buildings.

- There is no external movement of stock between the houses this preventing the generation of soiled water outside the houses. The only soiled water will arise from the washing of houses and cleaning down of the concrete apron at the start/end of each batch. Appropriate measures for the collection and management of same have been demonstrated.

- Manure will be stored in the house on a solid concrete floor pending transport off-site to customer farmers.

- The fact that the manure will be a dry product will eliminate any of the potential concerns that may arise with the storage of liquid manure.

- Dedicated soiled water tanks (4 No. existing @ 15.9 m3 each and 1 No. proposed @ 60 m3, >26 week storage capacity) are/will be provided at the existing/proposed house and manure store which will collect any soiled water associated with the washing of same. Soiled water drainage detail as indicated on proposed plans. All soiled water will be applied to farmlands in accordance with S.I. 113 of 2022, as amended.

- Staff facilities W/C have been provided at the existing poultry house and no additional facilities are currently proposed.

(b) Proposed customer farmlands.

All organic fertiliser / soiled water from this farm is to be allocated for use in accordance with S.I. 113 of 2022, as amended. This legislation which is applicable to all farmers in the country with regard to the application of all organic and inorganic fertiliser (incl. soiled water) places certain requirements on farmers, including the applicant / customer farmers, with regard to the application of fertilisers to farmland. The measures referred to in this directive include, but are not limited to the following,

- Maximum limits with regard to the application of organic and inorganic fertiliser / poultry manures, thus ensuring that there is no leaching of nutrients through the soil.

- Organic fertiliser / poultry manure shall not be applied to land within 200m, or such other distance as may be specified by the local authority, of any borehole, spring or well used for the abstraction of water for human consumption in a scheme supplying 100m^3 or more of water per day or serving 500 or more persons.

- Organic fertiliser / poultry manure shall not be applied to land within 100m, or such other distance as may be specified by the local authority, of any borehole, spring or well used for the abstraction of water for human consumption in a scheme supplying 10m^3 or more of water per day or serving 50 or more persons.

- Organic fertiliser / poultry manure shall not be applied to land within 25m, or such other distance as may be specified by the local authority, of any borehole, spring or well used for the abstraction of water for human consumption not referred to at b and c above.

- Organic fertiliser / poultry manure shall not be applied to land within 15m, of exposed cavernous of karsified limestone features (such as swallow holes and collapse features).

- Organic fertiliser / poultry manure shall not be applied to land within the prohibited periods as applicable.

Proper management on the site by the applicant, and, by the applicant's customer farmers in line with S.I. 113 of 2022, as planned will result in little or no impact on the ground water in this area. Crayvall Egg Production Ltd. will ensure that both they and any potential customer farmers are aware of the requirements of the nitrates directive with regard to the application of organic fertiliser / soiled water to their farmland.

7.3 Surface Water

Ireland is fortunate in having a relatively abundant supply of fresh water, which constitutes a key resource in economic, amenity and aesthetic terms. The principle legislation governing water quality in Ireland is the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003) (as amended), which transposed directive 2000/60/EC (the water framework Directive, WFD) into Irish Law.

(a) Site and Immediate area

As previously detailed, The application site lies within the Newry Fane Glyde and Dee Hydrometric Area and Catchment, the Burren Sub-Catchment and the Slieveboy Sub-Basin. There are open drains within the application site. Water in these drains is likely to flow towards the Moganstown Stream, which is 300m north of the application site. This stream flows east until it flows into the sea near Lurganboy, approximately 5.1km north-east of the application site.

The application site lies within the Newry Fane Glyde and Dee Hydrometric Area and Catchment, the Dee Sub-Catchment and the Slieveboy Sub-Basin. As previously stated, all surface water from this farm will discharge through a number of storm water discharge points, which will be monitored in accordance with existing / proposed E.P.A. Licence requirements;

- All roof water and uncontaminated storm water from the proposed development site will discharge, via a petrol interceptor (See Appendix No. 21) and storm water drainage system to surface water via a swale attenuation drainage system and/or storm water attenuation tank (as soil infiltration characteristics did not facilitate a soak pit system) as per Surface Water Management Assessment (Contained in Appendix No. 20). These discharge point(s) will be visually inspected on a weekly basis for any signs of contamination i.e. visual and or odour, in line with the anticipated requirements of the E.P.A. Licence review to be applied for.

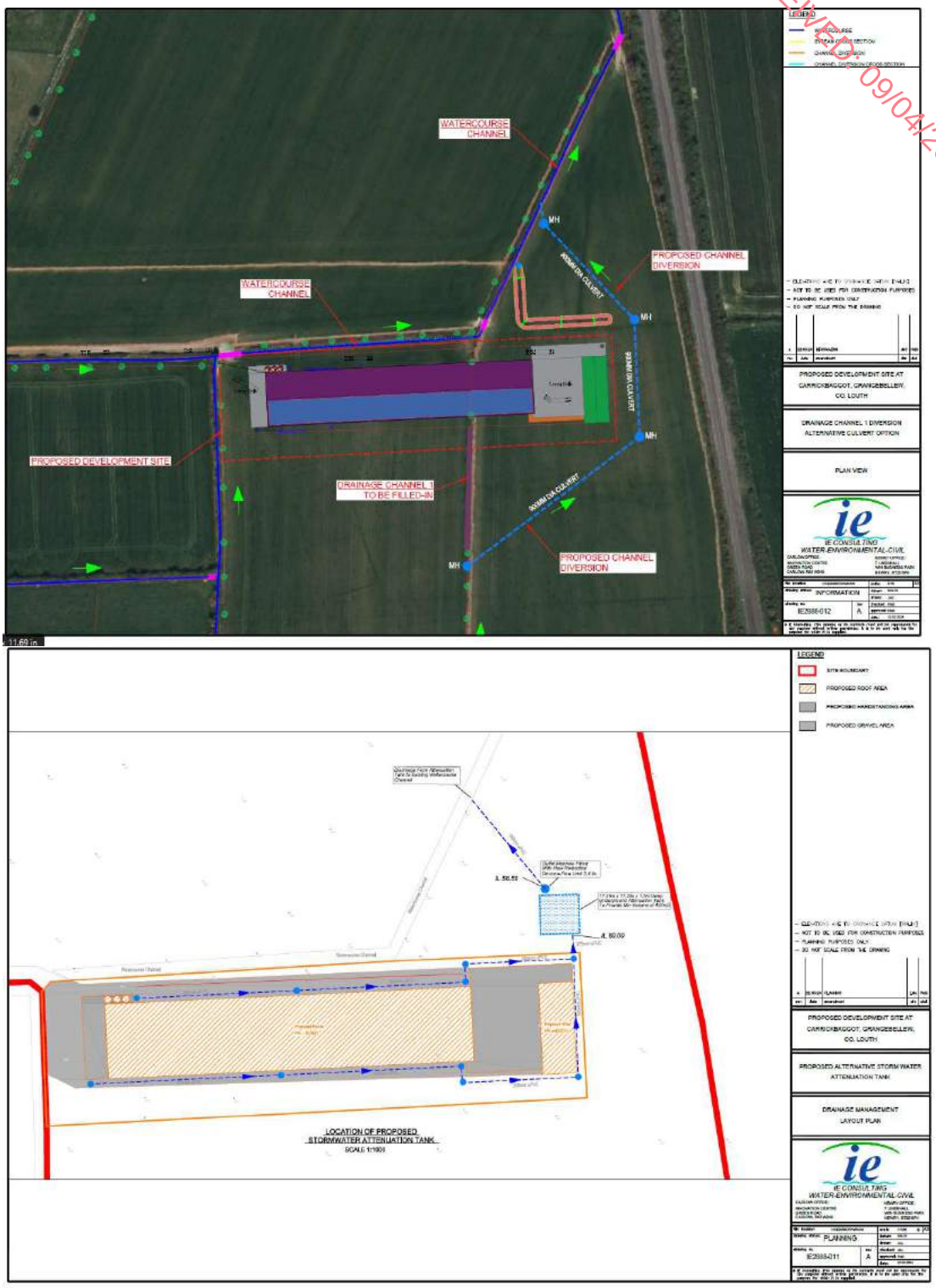


Fig: 7.3 a and b detailing both stormwater attenuation options (Open Swale, or enclosed tank)

- The replacement of existing drain culverts, and the re-direction of the open drain bi-secting the site will be completed in line with the specifications as detailed in Surface Water Management Assessment (Contained in Appendix No. 20).

Fig 7.3 c- detaining the option of an open diversion drain.

- The proposed developments have been designed so as to minimise the amount of soiled water generated on the farm with dedicated soiled water storage tank(s) provided, thus ensuring all soiled water is collected and that there is no possibility of contaminated storm water entering the clean storm water discharge system.

- All potentially polluting liquids (fuels, disinfectants chemicals etc.) to be stored in an appropriately bunded area in line with E.P.A . Licence requirements.

In order to minimise emissions from the poultry facility at Carrickbaggot and in order to protect certain designated sites and species, the following mitigation measures must be implemented:

Construction

- Prior to the commencement of any site works, the applicant and the contactors must be made aware of the overall sensitivity of this site. They must be made familiar with the overall content of this NIS and they must be made aware of the mitigation measures contained in this NIS.

- Site preparation and construction should be confined to the development site only and should adhere to all the mitigation measures outlined in this NIS.

- The work areas must be kept to the minimum area required to carry out the proposed works and the area should be clearly marked out and cordoned off in advance of work commencement.

- The construction and operation of the proposed development must comply with the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2022 (S.I. 113 of 2022).

- It is vital that there is no deterioration in water quality in the drains that surround the site that are upstream of the Morganstown Stream. Therefore, strict controls of erosion, sediment generation and other pollutants associated with the construction process should be implemented to reduce and intercept sediment release where necessary. It is strongly recommended that prior to the commencement of works, that a robust geotextile membrane silt fence is installed around the main construction works area in the site to prevent run off mobilising to the north.

- All silt fences should be sturdy and constructed of a suitable geotextile membrane to ensure that water can pass through, but that silt will be retained. An interceptor trench will be required in front of this silt fence. The silt fence must be capable of preventing particles of 425µm from passing though.

- There must be no discharges of contaminated waters to ground or surface waters from this development, either during the construction or operation of the development. The control and management of hydrocarbons on site will be vital to prevent deteriorations in surface and groundwater quality locally. The following measures must be employed on site:
  - A dedicated re-fuelling location should be established on the site in a suitable compound area away from the proposed locations of excavations and groundworks. If possible, the re-fuelling of machines on site should be avoided.
  - The risk of fuel spillages on a construction site is at its greatest when refuelling plant. Therefore, only designated trained and competent operatives should be authorised to refuel plant on site. Plant and equipment should be brought to a

designated refuelling area rather than refuelling at numerous locations about the site.

- Spill kits stations should be provided at the fuelling location for the duration of the works.
- Workers should be provided with training on spill control and the use of spill kits.
- All fuel storage containers must be appropriately bunded, roofed and protected from vehicle movements. These bunds will provide added protection in the event of a flood event on site.
- All chemicals must be stored as per manufacturer's instructions. A dedicated chemical bund should be provided on site if chemicals are to be stored on site. Any chemicals used on site should be returned to the site compound and secured in a lockable and sealed container overnight in proximity to the fuel storage area.
- Procedures and contingency plans should be established on site to address cleaning up small spillages as well as dealing with an emergency incident. A stock of absorbent materials such as sand, spill granules, absorbent pads and booms should be kept on site, on plant working near the water and at the refuelling area.
- Daily plant inspections will be completed by all plant operators on site to ensure that all plant is maintained in good working order. Where leaks are noted on these inspection sheets, the applicant should remove the plant from operations for repairs.
- All personnel shall observe standard precautions for handling of materials as outlined in the Safety Data Sheets (SDS) for each material, including the use of PPE. Where conditions warrant, emergency spill containment supplies should be available for immediate use.

- Best practice concrete / aggregate management measures must also be employed on site. These will include:

  - A designated concrete wash out area should be set up on site; typically this will involve washing the chutes, pumps into a designated IBC before removing the waste water off site for disposal.
  - Best practice in bulk-liquid concrete management should be employed on site addressing pouring and handling, secure shuttering, adequate curing times etc.
  - Stockpile areas for sands and gravel must be kept to a minimum size, well away from the stream on site.
  - Where concrete shuttering is used, measures should be put in place to prevent against shutter failure and control storage, handling and disposal of shutter oils.
  - Activities which result in the creation of cement dust should be controlled by dampening down the areas.
  - Raw and uncured waste concrete should be disposed of by removal from the site;
  - Stockpile areas for sands and gravel must be kept to a minimum size.

- The applicant must follow the guidelines set out in the Department of Agriculture's Explanatory Handbook for Good Agricultural Practice Regulations.

- The proposed storage tanks must adhere to the Department of Agriculture's Farm Building and Structures Specifications. Before use, they should undergo an integrity test that is performed by a suitably qualified person. They should be inspected regularly for deficiencies.

- All construction waste must be removed from site by a registered contractor to a registered site. Evidence of the movement and safe disposal of the construction waste will be retained and presented to Local Authority upon request. The applicants and construction contractors will be responsible for the safe removal of any construction waste generated on site. There must be no disposal of construction waste or spoil in areas outside of the application site.

Site Operation

- During operation, only clean surface water should be discharged to on site soakaways or local drains. All soiled water run-off should be directed to suitably designed storage tanks.
- Inappropriate lighting could result in the fragmentation of the habitats of otters, bats and other nocturnal mammals. Therefore, it is recommended that night time lighting is kept to a low level, that results in minimal spill.
- In so far as possible, landscaping should be sympathetic to the natural landscapes that surround the site. The future landscaping of the site should adhere to the following recommendations:
    - Existing vegetation should be retained.
    - Only native trees and shrubs should be used in the landscaping.
    - A proportion of the grass areas should be maintained through methods that mimic traditional grassland management (low level grazing and mowing regimes). This will benefit local pollinators. Locally sourced wildflower seed would also be beneficial;
    - Where possible the importation of topsoil from outside the area should be avoided;
    - When planting flowers, shrubs and trees native species should be used, ideally from a local source;
    - Garden plants that have the potential to become invasive must be avoided;

Land-Spreading

In order to avoid any reductions in water quality within the catchment as a whole, all organic fertiliser must be used in accordance with S.I. 113 of 2022 European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2022).

(b) Proposed customer farmlands.

All organic fertiliser / soiled water from this farm is to be allocated for use in accordance with S.I. 113 of 2022, as amended. This legislation which is applicable to all farmers in the country with regard to the application of all organic and inorganic fertiliser (incl. poultry manure and soiled water) places certain requirements on farmers with regard to the application of fertilisers to farmland.

The measures referred to in this directive include, but are not limited to the following,

- Maximum limits with regard to the application of organic and inorganic fertiliser / soiled water, thus ensuring that there is no overland flow of nutrients.

- All fertiliser to be applied in a uniform manner ensuring an even spread.

- Organic fertiliser / soiled water shall not be applied to land that is waterlogged, flooded or likely to flood, snow covered or frozen, when heavy rain is forecast within 48 hours, or, where the ground slopes steeply and taking into account factors such as proximity to waters, soil condition, ground cover and rainfall, there is a significant risk of causing water pollution.

- Organic fertiliser / soiled water shall not be applied by the use of an upward facing splash plate or a rain gun.

- Organic fertiliser / soiled water shall not be applied within 20 m of a lake shoreline.

- Organic fertiliser / soiled water shall not be applied within 5 m of a surface watercourse.

- Organic fertiliser / soiled water shall not be applied to land within the prohibited periods as applicable.

Proper manure management (poultry manure and soiled water) on the site and proper management of organic fertiliser on the lands identified/farmed by the applicant/customer farmlands will result in little or no impact on the surface water in this area. Crayvall Egg Production Ltd. will ensure that all customer farmers are aware of the requirements of the nitrates directive with regard to the application of organic fertiliser to their farmland.

Independent water monitoring in this catchment is and it is envisaged will be conducted on an on-going basis by Louth Council, the E.P.A. and the Regional Fisheries Board(s). Results relating to surface water quality for the relevant watercourses associated with the proposed poultry farm site are detailed in Appendix 10.

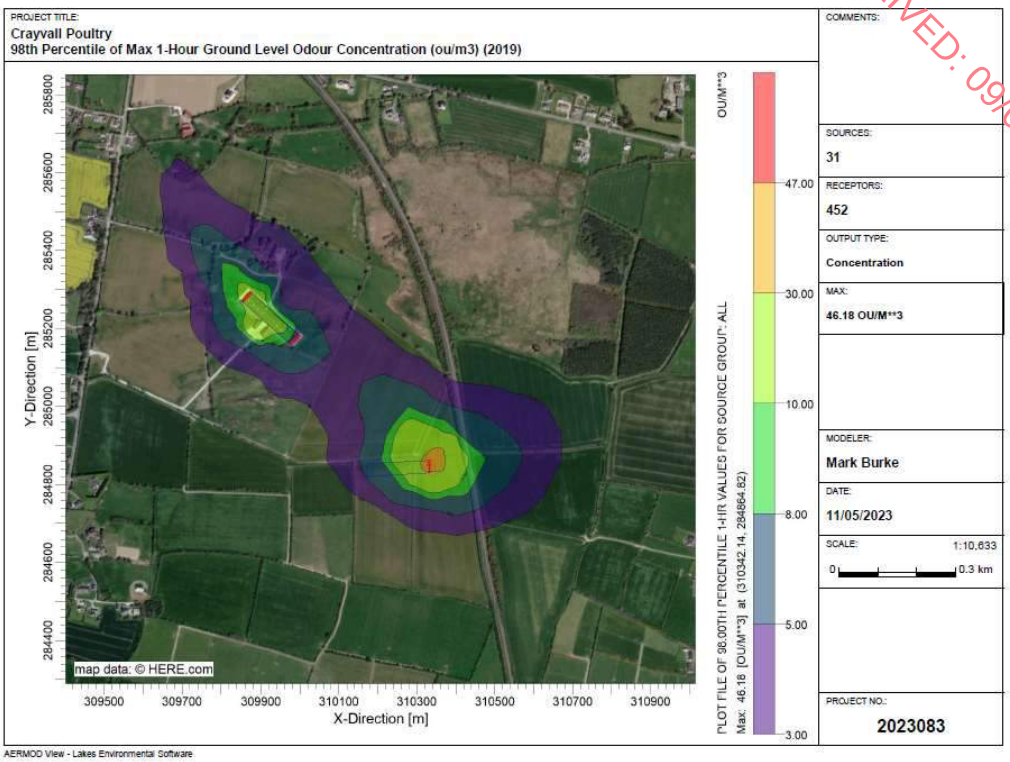
7.4. Air

The proposed customer farmlands. and poultry farm are non-urban based, the rural residents are accustomed to agricultural smells such as animal manure spreading, silage and silage effluent spreading. The rural location of the site of the proposed development, well isolated from neighbouring dwellings and potential odour sensitive locations makes this an ideal site for the purposes of the proposed development.

All practicable steps, such as landscaping, management routines etc., have been/will be planned for and will be taken so as to minimise odour from the site. Its rural setting and location distant from local residences will ensure no effect on Human Health/Population. This development will have no significant adverse affect on climate. Low Emission Spreading Systems (LESS) will be recommended for the application of all soiled water arising from the proposed development.

The closest third party dwelling to the proposed site, is located > c. 640m east of the proposed development. The site specific;

- **Air Quality (Ammonia, Odour and Particulate Matter) Impact Assessment contained in Appendix No. 18.**



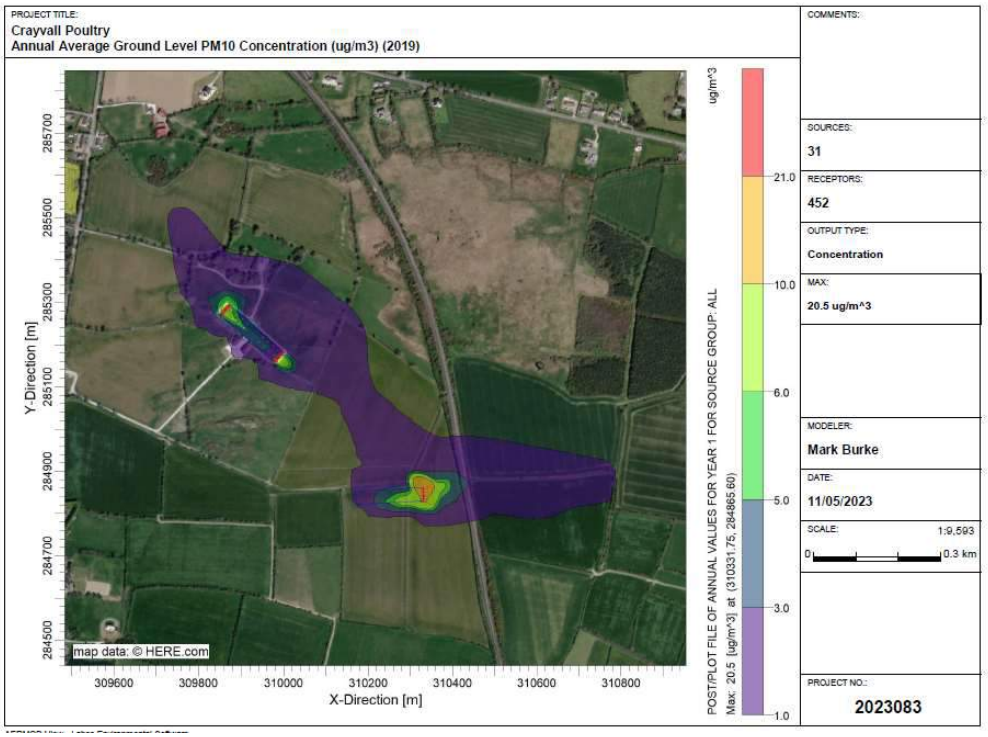


Fig 7.4(I & ii) – Extract from Air Quality Impact Assessment

has confirmed that the proposed development will not cause an adverse impact at the closest sensitive receptors and potential impacts will be imperceptible, and/or within applicable criteria at these locations**.**

The standard of management required for the proposed farm is high, and the operation of the proposed development, and its integration with the existing farming activities will benefit from the experience gained , coupled with the significant expertise and experience from Bellview Egg Farm Ltd..

The houses will be continuously cleaned, the manure removed on a regular basis, stocked at optimum levels and adequately ventilated, ensuring minimal odour emissions. Should technical advances be made in any area of operation within the farm Crayvall Egg Production Ltd. will adopt any economically viable practices. Potential odour emissions from the proposed development will be minimised due to the high standard of design, construction and operation of the existing and proposed farm developments.

All lands currently identified for the receipt of soiled water from the proposed development are tillage lands, be they Wheat, Barley, Beans, Potatoes, Oil Seed Rape etc., and all farmers will be advised that in order to minimise any potential adverse environmental impact and to ensure that they get maximum fertiliser benefit from the organic fertiliser, that all organic fertiliser from this farm should be stored, managed and utilised/applied in accordance with S.I. 113 of 2022, as amended. Odour nuisance will be minimised and surface and ground waters protected by, using the correct application rates, even application, spreading at the correct times under suitable conditions and strict adherence to cordon sanitaires and Good Practice for manure spreading, as outlined in S.I. 113 of 2022, as amended. This fertiliser planning will result in fertiliser substitution.

In addition to the mitigation measures previously referred to Crayvall Egg Production Ltd. will recommend to all farmers that organic fertiliser / soiled water from this farm should not be applied to lands adjacent to neighbouring dwellings/potential odour sensitive locations. A recommended set back distance of 100 meters from an isolated dwelling and/or 200 meters from a potential odour sensitive area/group of dwellings will be recommended. Please refer to Appendix No. 12 for additional Met. Data.

7.4.1 Odour – The exiting and proposed poultry farm and adjoining lands are non-urban based, the rural residents are accustomed to agricultural smells such as animal manure spreading, silage and silage effluent spreading. The rural location of the site of the proposed development and the nature of currently proposed activities on the farm, well isolated from neighbouring dwellings and potential odour sensitive locations makes this an ideal site for the purposes of the proposed development. All practicable steps, such as landscaping, management routines etc., have/will be planned for and will be taken so as

to minimise odour from the site. Its rural setting and location distant from local residences will ensure no effect on Human Health/Population. This development will have no significant adverse affect on climate. The closest third party dwelling to the proposed site, is located c. 640m east of the proposed development.

The standard of management required for the proposed farm is high, and the operation of the proposed development, and its integration with the existing farming activities will benefit from the experience gained in the existing farming activities. The houses will be continuously cleaned, the manure removed on a regular basis, stocked at optimum levels and adequately ventilated, ensuring minimal odour emissions.

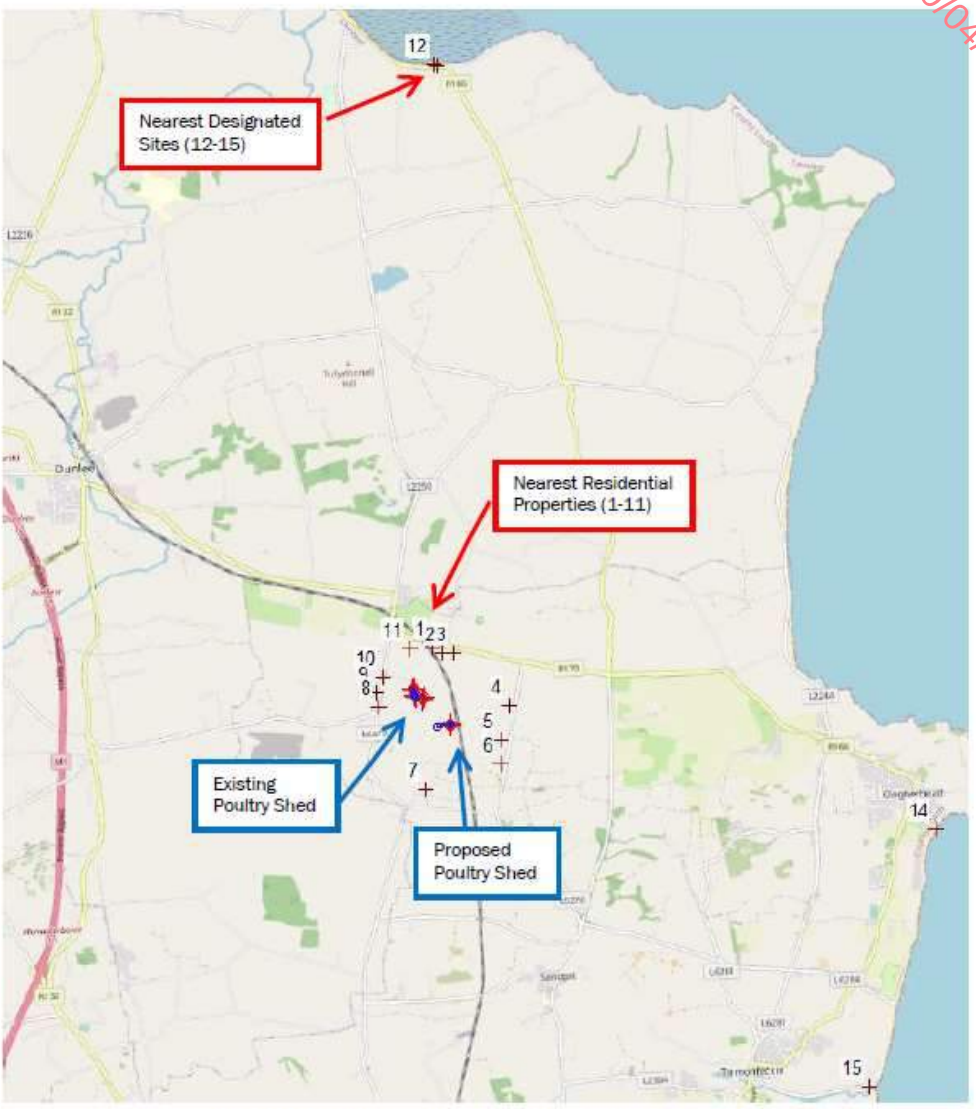
Odour nuisance will be minimised and surface and ground waters protected by, using the correct application rates, even application, spreading at the correct times under suitable conditions and strict adherence to cordon sanitaires and Good Practice for manure spreading. This fertiliser planning will result in fertiliser substitution, not addition, and all farmers will be advised that manure should be incorporated as soon as practicable after spreading, to minimise odour emissions and maximise the fertiliser value/uptake by the crop.

Site specific ammonia, odour and particulate matter impact (dust) assessments were completed as part of the report. Please refer to Appendix No. 18.

As part of these assessments, a total of 11 third party residences have been identified with 640-1000 m of the proposed development. See Fig.7.4.1 and 7.4.2(Tables 14 and 15 extracted from Irwin Carr Report) detailed below.

APPENDIX A SITE LAYOUT

Figure 3: Proposed Site Layout & Nearest Sites.



Exact co-ordinates of the closest designated sites were obtained from SCAIL and are detailed in Table 9 above.

Fig 7.4.1 location of third party residences closest to the existing/proposed poultry farm site.

Fig. 7.4.1 - Table 24: Nearest Residential Properties

Location	Description	Co-ordinates		Approx. distance to nearest shed (m)*
1	Property to the North	310116	285804	960
2	Property to the North	310235	285731	880
3	Property to the North	310373	285734	890
4	Property to the East	311065	285080	745
5	Property to the SE	310968	284648	640
6	Property to the SE	310968	284351	770
7	Property to the South	310013	284038	790
8	Property to the West	309442	285063	760
9	Property to the West	309410	285241	855
10	Property to the West	309484	285442	910
11	Property to the NW	309835	285784	1000

**It should be noted that all distances detailed in the Table above are approximate and are provided for information purposes only. The grid co-ordinates provided were input into the model, and the source locations are provided in Appendix B. These distances have no bearing on the AERMOD model, and the only input from Table 14 is the actual grid co-ordinates.*

While the property addresses could not be identified, the exact co-ordinates used in the modelling process are provided in the Table above, and all of the properties are shown in the figure in Appendix A.

Odour modelling was carried out for each individual year with the results at the nearest sensitive locations presented in 7.4.2. All results are the odour concentration in (ou/m^3).

Fig.7.4.2 – Table 15: 98th Percentile of the max 1-hr odour levels at nearest residential properties

Location	2015	2016	2017	2018	2019	Average
1	1.02	1.16	1.20	1.13	1.26	**1.15**
2	1.06	1.08	1.03	1.26	1.19	**1.12**
3	0.84	0.85	0.85	1.03	0.97	**0.91**
4	0.71	0.95	0.92	0.81	0.74	**0.83**
5	0.72	0.86	0.74	0.53	0.77	**0.72**
6	0.34	0.45	0.40	0.30	0.33	**0.36**
7	0.10	0.15	0.06	0.17	0.13	**0.12**
8	0.75	1.19	0.51	0.70	0.64	**0.76**
9	0.94	1.43	0.63	0.96	0.77	**0.95**
10	0.92	0.93	0.63	1.14	0.88	**0.90**
11	1.65	1.40	1.30	1.75	1.77	**1.57**

For the site layout all third party dwellings are significantly below the 3ou/m^3 threshold when considered as individual years and as a 5-year average of the 98th percentile.

7.4.2 Ammonia (& Nitrogen) Emissions

An ammonia impact assessment was completed based on the potential impact of the proposed development, as discussed further in Section 7.10.

7.4.3 Particulate Matter (Dust) –

- **PM_{10}**

PM_{10} modelling was carried out for each individual year with the results at the nearest sensitive locations presented in Fig below. All results are the concentration in µg/m^3. See Fig.7.4.3.1 (Table 23 extracted from Irwin Carr Report) detailed below..Please refer to Appendix No. 18 for complete report.

Fig 7.4.3.1: - Table 23 Annual Average PM_{10} concentrations at nearest residential locations

	2015	2016	2017	2018	2019	Average
1	0.17	0.17	0.18	0.18	0.19	**0.18**
2	0.19	0.17	0.18	0.20	0.20	**0.19**
3	0.16	0.15	0.16	0.18	0.16	**0.16**
4	0.17	0.20	0.23	0.18	0.18	**0.19**
5	0.13	0.14	0.14	0.10	0.13	**0.13**
6	0.07	0.08	0.08	0.06	0.07	**0.07**
7	0.04	0.04	0.02	0.05	0.04	**0.04**
8	0.14	0.19	0.10	0.15	0.12	**0.14**
9	0.16	0.21	0.12	0.17	0.14	**0.16**
10	0.20	0.20	0.16	0.21	0.20	**0.19**
11	0.24	0.21	0.21	0.26	0.26	**0.24**
Limit	40	40	40	40	40	40

The predicted pollutant PM_{10} level concentrations in each year, as well as the 5-year average are significantly below the limit values.

Fig7.4.3.2 below (Table 24 – Air Quality Impact Assessment report – Irwin Carr – See Appendix 18 for full report)details the 90.4% of the max 24-hour PM_{10} concentrations at each of the sensitive receptors for the MET Data 2015 – 2019.

Fig7.4.3.2: Table 24 Short Term PM_{10} concentrations at nearest residential locations

	90.4% of Max 24-Hour
1	0.56
2	0.54
3	0.44
4	0.49
5	0.42
6	0.24
7	0.10
8	0.51
9	0.55
10	0.71
11	0.74
Limit	**50**

Conclusions:

An air quality impact assessment has been undertaken for a proposed poultry shed at Carrickbaggot, Grangebellew, Co. Louth. Modelling has been undertaken to determine the impact associated with the existing and proposed shed assuming the maximum capacity of the sheds (60,000 birds in the existing shed and 64,000 in the proposed shed), the lowest possible temperature of the birds during a crop cycle (20^0C) and an average fan capacity of the proposed stacks. It is expected that the typical operation of the site will result in lower predicted ammonia and nitrogen impacts at the closest sensitive receptors than the worst case results presented in this report. The predicted results of the ammonia modelling process show that the limits for the protection of vegetation are not exceeded at the designated habitats within the vicinity of the poultry farm. Thus, any areas of ecological interest will not be adversely affected from the ammonia emissions for the operation of the farm.

Table 25 (extract from Air Quality Impact Assessment Report – Irwin Carr) below details the maximum impact at the closest receptors for ammonia, nitrogen, odour, PM10 and PM2.5.

Fig. 7.4.3 Air Quality Impact Assessment Report Conclusions

Table 25: Maximum predicted impact at closest sensitive receptors

Receptor	Pollutant	Limit Type	Units	Limit Value	Baseline	Max Level	PEC	PC of limit (%)	PEC of Limit (%)
11	Odour	98th Percentile of Max 1-Hour	ou_E/m^3	3	N/A	1.77	1.77	**59**	59
14	Ammonia	Annual Average	$\mu g/m^3$	1	2.2	0.029	2.229	**2.90**	223
16	Nitrogen	Annual Average	kg.N/ha/yr	20	6.83	0.32	7.15	**3.22**	72
11	PM_{10}	90.4% of max 24-hr	$\mu g/m^3$	50	22.8	0.7	23.5	**1.5**	47.1
		Annual Avg	$\mu g/m^3$	40	11.4	0.3	11.7	**0.7**	29.2
11	$PM_{2.5}$	Annual Avg	$\mu g/m^3$	25	6.5	0.03	6.5	**0.1**	26.1

It can be seen from the Table above and as discussed in detail in this assessment, the predicted impact of each pollutant is within the appropriate limit/ threshold level.

Appendix C indicates the predicted dispersion of the ammonia plume for 2019 at the site.

7.5. Climate / Climate Change

The wind direction is from the west/south west. The rainfall levels are low, the annual rainfall for Dublin Airport Station is on average 730mm. The applicant will ensure that manure is allocated for use only at times that is acceptable to the regulatory authorities, i.e. Local Authority, E.P.A. and the Department of Agriculture.

Large livestock populations and nitrogen inputs to soil generate one-third of all greenhouse gases in Ireland. The amount of *methane* emitted by livestock is a lot higher for ruminants such as cattle and sheep versus non-ruminants such as poultry/pigs. This is as a result of the different digestive systems.

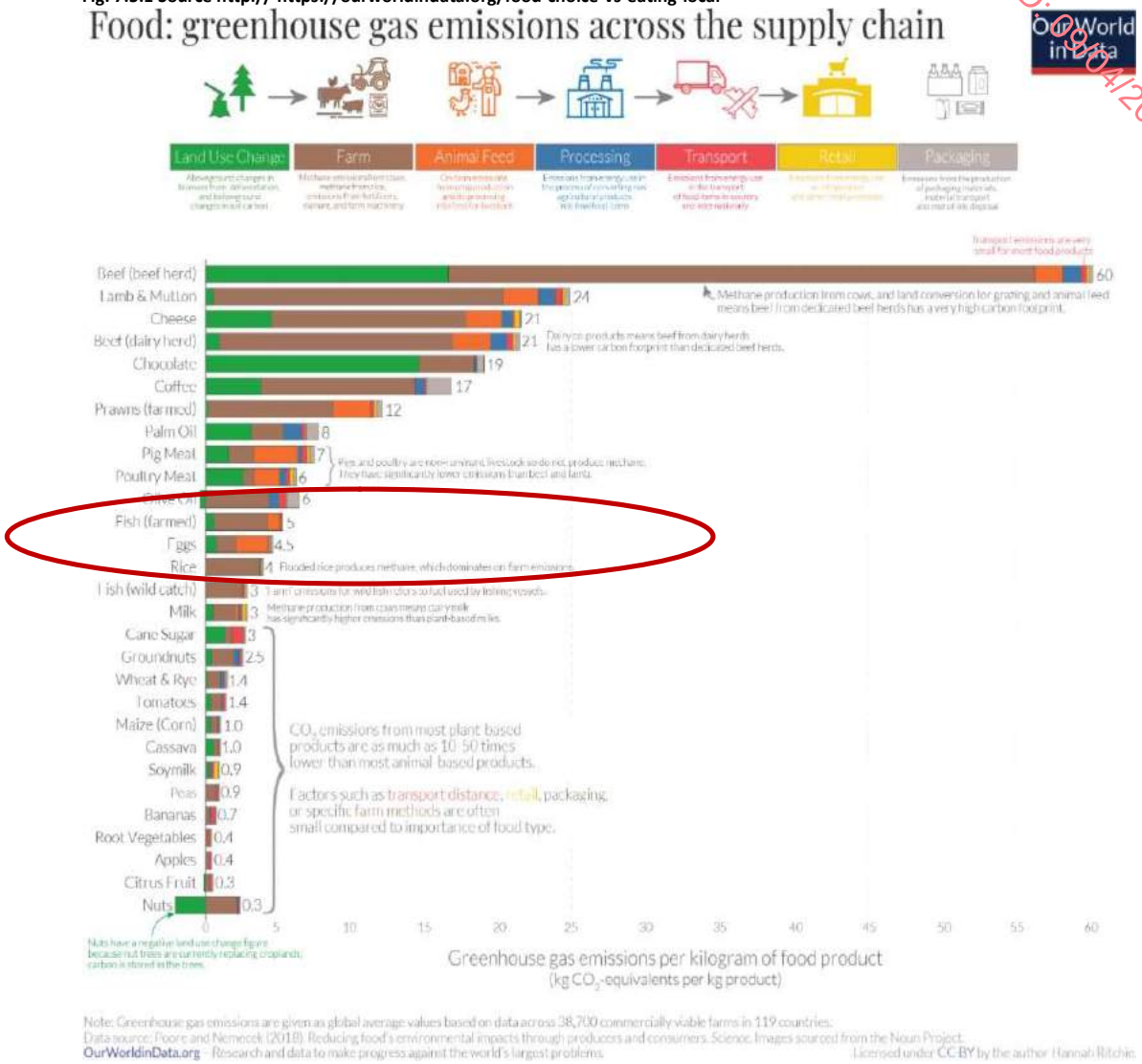
N_2O emissions can be divided into three areas,

- Direct from agricultural soils and from agricultural production systems.
- Indirect emissions which take place after nitrogen is lost from the field
- Emissions resulting from agricultural burning.

As the birds will be maintained in a controlled environment within the proposed development, the operation of the farm is not directly significantly susceptible to climate change, however climate change may impact on energy use associated with ventilation systems to maintain a controlled environment within the houses relative to outside climatic conditions, and, may have implications for feed supply to feed the birds, due to impact on crop yields etc.

The fact that the farmers in the proposed customer farmer list are allocating organic fertiliser in accordance with the provisions of S.I. 113 of 2022, as amended, particularly with regard to amounts applied, weather and ground conditions at the time of spreading, and even application, etc., will ensure that emissions are kept to an absolute minimum.

Fig. 7.5.1 Source http:// https://ourworldindata.org/food-choice-vs-eating-local



Note: Greenhouse gas emissions are given as global average values based on data across 38,700 commercially viable farms in 119 countries.
Data source: Poore and Nemecek (2018). Reducing food's environmental impacts through producers and consumers. Science. Images sourced from the Noun Project.
OurWorldinData.org – Research and data to make progress against the world's largest problems. Licensed under CC BY by the author Hannah Ritchie.

Please refer to Appendix No. 12 for additional met. data.

Poultry production is extremely efficient from a carbon perspective. International research shows that poultry has the lowest carbon footprint of all meats and that eggs are an even more carbon efficient source of protein than poultry meat.

7.6 Landscape and Visual Impacts

This site of the proposed development is agricultural land owned by Crayvall Egg Production Ltd. , and forms part of their overall landholding of c. 68 hectares, adjacent to, and including the site of the proposed development.

The site in question is located in a rural area within the townland of Carrickbaggot. Access to the site is via a private access road that is just off a local, third class road c. 0.5 km's from the junction with the R170 Regional Road. The area of the site is 68.5 hectares in total and this includes the range area of the birds that surround the site. It is 1.2km south of Grangebellew and 4.6km south-east of Dunleer.

The proposed development has to be located away from the existing development due to the free range nature of the existing activity. This was discussed with Louth Co. Co. when this free range activity was granted planning permission. As detailed therein this 60,000 bird free range house requires an area of 60 Ha adjacent to the house and available to the birds to satisfy DAFM and Bord Bia requirements, thus it is not possible to locate the proposed development adjacent to (or clustered with) same.

While it is not practicable to cluster the proposed development with the existing poultry house (due to the specific operational characteristics and nature of the existing activities, the applicant sought what he feels is the most visually suitable, and inobtrusive location for this development so as to ensure that it does not have an adverse visual impact.

This poultry house will be located in an agricultural area and has been located so as to comply with D.A.F.M. and/or Bord Bia Requirements. The site location nestled into the surrounding land topography, integrated within the landscape and set low in the landscape will help screen the proposed development from view and integrate it into the local area.

The existing farm and site of the proposed development is not located close to, or likely to adversely impact on;

- Areas of Outstanding Natural Beauty,
- Areas of High Scenic Quality,
- Scenic Routes, Views and/or prospects,

as listed in the Louth Development Plan 2021-2027.

The proposed farm will be developed on a site that is nestled into the surrounding lands and is not intrusive on the landscape. The poultry house will be dark/green in colour with dark/green coloured roofs and approximately 6-6.5 metres in height, similar to the existing poultry house already completed on the farm. The circular feed silos will be c. 10 metres high and are green or grey in colour. While the proposed development will change the appearance of the application site, it is not anticipated that this development

will have any significant impact upon the setting of the surrounding countryside, for the following reasons;

- The location selected for the proposed development, integrated into the surrounding landscape, and the selected finished floor level ensures that the proposed development will not have a significant adverse visual impact.
- The location of the site, bounded by the existing hedgerows and with the benefit of additional landscaping will screen the farm from view from the adjoining road.
- The buildings will be clad in Juniper Green cladding (or similar), thus integrating the proposed buildings into the local environment. Should the planning authority request more suitable colours for the buildings, Crayvall Egg Production Ltd. will be happy to oblige.

As a result of the;

- nature of the proposed development (low overall height, green finish to buildings),
- set back distance from the public road,
- Removed from any sensitive locations (dwelling houses etc.)
- Nature of the site (low set in the landscape)
- Existing hedgerows bounding the site,
- Proposed landscaping

And /or other mitigation measures as outlined, this farm will have no impact on the landscape or visual/scenic characteristics of this area.

7.7 Noise

The noise from the development will be limited to that arising from the operation of ventilation systems, feed augers, blowers on feed delivery trucks etc. Any potential noise generated by the birds etc. will not be detectable outside the site boundary due to high insulation standards.

It is not considered that noise resulting from activities at this site, at the proposed stocking rates, will have any significant impact on the local environment. A noise Impact Assessment (See Appendix No. 15) has been competed in respect of the existing and proposed development and no adverse impacts are predicted. The proposed development in terms of bird numbers and level of activity is similar to the existing activity on the farm which has operated without complaint. Due to the nature of the development will not give rise to any significant sound emanating from the proposed development.
Environmental noise resulting from activities at the site should not exceed 55dB (A) Leq during daytime (07.00 to 19.00hrs), 50dB (A) Leq during evening time (19.00 to 23.00hrs) and 45dB(A) Leq during night-time (23.00 to 07.00hrs). Due to its rural location and the low population density in the area, this poultry house will not create a disturbance or annoyance to anyone. All traffic and movements into and out from the site will occur during the normal working day.

7.4.1 Construction Phase

There is no published statutory Irish guidance relating to the maximum permissible noise levels that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and may consider noise limits at their discretion.

In the absence of specific noise limits, appropriate criteria relating to permissible construction noise levels for a development of this scale may be found in the British Standard *BS 5228 - 1: 2009: Code of Practice for Noise and Vibration Control on Construction and Open Sites: Noise*.
The approach adopted here calls for the designation of a noise sensitive location into a specific category (A, B or C) based on exiting ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded, indicates a significant noise impact is associated with the construction activities.

Table 3 below sets out the values which, when exceeded, indicate a significant effect at the facades of residential receptors as recommended by BS 5228 - 1. Please note that these are cumulative levels, i.e. the sum of both ambient and construction noise levels.

Assessment Category & Threshold Value Period (L_{Aeq})	Threshold Value, Decibels (dB)		
	Category A [A]	Category B [B]	Category C [C]
Night-Time (23:00 to 07:00hrs)	45	50	55
Evenings & Weekends [D]	55	60	65
Daytime (07:00 - 19:00) & Saturdays (07:00 - 13:00)	65	70	75

Table 3 Example Threshold of Significant Effect at Dwellings

A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values.

B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values.

C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values.

D) 19:00 - 23:00 weekdays, 13:00 - 23:00 Saturdays and 07:00 - 23:00 Sundays.

For the appropriate period (e.g. daytime), the ambient noise level is determined and rounded down to the nearest 5dB. In this instance, the ambient noise levels measured in the vicinity of the nearest noise sensitive receptors to the proposed development have daytime ambient noise levels in the range of 43 to 47dB L_{Aeq} (ref Section 3.6). These properties will therefore all be afforded the lowest designation of Category A.

CONSTRUCTION NOISE IMPACT ASSESSMENT

A variety of items of plant will be in use for the construction of the new poultry farm house, such as excavators, lifting equipment and dumper trucks. Due to the fact that the construction programme has not been established, it is difficult to calculate the actual magnitude of noise emissions to the local environment. However, it is possible to predict typical noise levels using guidance set out in *BS 5228-1: 2009: Code of practice for noise and vibration control on construction and open sites - Part 1: Noise*.

The nearest noise sensitive receptors are detached residential dwellings located to the west / southwest at approximate distances of 600 - 700m from the nearest point of the proposed new poultry house. The results of construction noise emission predictions are detailed in Table 5 on the next page. Note that a utilisation of equipment of 75% over a working day was assumed in the preparation of these construction noise predictions.

Phase	Plant Item (BS 5228 Ref.)	Plant Noise Level at 10m Distance[2] (dB L_{Aeq})	Predicted Noise Level at Dwellings to West / Southwest (dB $L_{Aeq,1hr}$)
Site Preparation	Tracked Excavator (C2.22)	72	42
	Dumper (C4.2)	78	
Steel Erection	Wheeled Mobile Crane (C4.38)	78	44
	Articulated Lorry (C11.10)	77	
General Construction	Compressor (D7 6)	77	45
	Diesel Hoist (C7.98)	76	
	Pneumatic Circular Saw (D7.79)	75	
	Generator (C4.84)	74	

Table 5 Predicted Noise Emission Levels at Nearest Noise Sensitive Receptors During Construction Phases

The predicted construction noise levels at the nearest residential dwellings in the vicinity of the proposed development are all well below the 65dB L_{Aeq} maximum criteria for construction activities during daytime and 55dB L_{Aeq} maximum criteria during evening / weekend periods. However, we would still recommend restricting construction periods to daytime periods only given the relatively low ambient noise levels in the vicinity of the site.

7.4.2 Operational Phase

Due consideration must be given to the nature of the primary noise sources when setting noise emissions criteria. In this instance, there are three primary sources of noise expected to be associated with the proposed poultry house once operational. These are summarised as follows:

- Poultry House Livestock Emissions (Chickens)

[2] All plant noise levels are derived from BS 5228: Part 1.

- Feed Delivery Truck Events
- Poultry House Ventilation Fans

There is no Irish Standard containing guidance for noise emissions from poultry farms. In the absence of such standards, best practice dictates that the potential noise impact of the proposed development is assessed against appropriate British and / or International Standards.

Appropriate guidance in this instance can be referenced from *BS 8233 (2014): Guidance on Sound Insulation and Noise Reduction for Buildings*. This British Standard sets out recommended noise limits for indoor ambient noise levels in residential dwellings as detailed in Table 7.4.2 below.

Activity	Room Type	Design Criterion $L_{Aeq,T}$ (dB)	
		Daytime (07:00 - 23:00hrs)	Night Time (23:00 - 07:00hrs)
Resting / Sleeping Conditions	Living Rooms	35dB $L_{Aeq,16hr}$	-
	Bedrooms	35dB $L_{Aeq,16hr}$	30dB $L_{Aeq,8hr}$

Table 7.4.2 Recommended Indoor Ambient Noise Levels from *BS 8233 (2014)*

For the purposes of this assessment, it is necessary to derive external limits based on the internal criteria noted in the paragraph above. This is done by factoring in a degree of noise reduction afforded by an open window, which is defined in the standard as being 15dB.

Applying the 15dB factor to the values from the BS 8233 table, the following criteria would apply at the façades of the adjacent dwellings:

- ***Daytime (07:00 to 23:00 hours)*** ***50dB $L_{Aeq,16hr}$***
- ***Night-time (23:00 to 07:00 hours)*** ***45dB $L_{Aeq,8hr}$***

7.4.2 (a) OPERATIONAL NOISE IMPACT ASSESSMENT

As discussed in Section 2.0, there were three identified operational noise emission sources of significance associated with the proposed development. These are summarised as follows:

- Poultry House Livestock (Poultry) Emissions
- Feed Delivery Truck Events
- Poultry House Ventilation Fans

Each of these sources are discussed individually in the following sections.

- **Poultry House Livestock Emissions (Chickens)**

It is understood that the new poultry house is to house up to 64,000 birds (which is marginally more than the capacity of the existing poultry house). Although this is a large number of animals, noise emissions from these birds are typically very low and all livestock in the new poultry house will be contained internally (as opposed to the existing poultry house which allows the birds to circulate externally).

In order to inform this assessment, CLV personnel surveyed the perimeter of the existing poultry house which is a free range building and therefore had opened sides (as well as a few hens present externally at the time). A sound level measurement conducted at a distance of 1m from the poultry house wall resulted in an overall level of 48dB L_{Aeq}.

Although the proposed poultry house will not have opened sides or external hens and will therefore have quieter noise emissions, this 48dB L_{Aeq} level will be used in our assessment as a worst case noise source basis.

Noise level emission predictions based on a noise level of this order to the nearest noise sensitive receptors are as follows:

Noise Sensitive Receptor	**Noise Level**
Nearest Dwellings	< 10 dB L_{Aeq}

The predicted noise emission levels of poultry house livestock are predicted to be in the range of < 10 dB L_{Aeq} at the nearest noise sensitive receptors. Levels of this order would not only be well below both the daytime ambient noise criteria and ambient noise levels in the vicinity, they would also be inaudible.

No mitigation measures would therefore be required in respect of poultry house livestock noise emissions.

- **Feed Delivery Truck Events**

We understand that feed trucks will make deliveries at a frequency of two times per week (on average) to the farm and that they will last for about an hour on average. This will mean that a 'worst case' scenario would only see delivery truck noise occurring about 2 hours per week.

In order to quantify feed delivery truck noise, a delivery event was measured for a previous poultry farm assessment so that its actual noise emissions could be quantified. The noise level measured at a distance of 3m from the feed truck during the delivery was of the order of 83dB L_{Aeq}.

Noise level emission predictions based on a noise level of this order to the nearest noise sensitive receptors are as follows:

Noise Sensitive Receptor	**Noise Level**
Nearest Dwellings	34 dB L_{Aeq}

The predicted noise emission levels of delivery truck activity are of the order of 34dB L_{Aeq} at the nearest noise sensitive receptors during a typical delivery event. Levels of this order would be less than both the daytime ambient noise criteria and ambient noise levels at the nearby noise sensitive receptors. In addition, given that these noise emissions are only expected to occur of the order of 2 hours per week, it would be considered negligible on a time consideration basis.

No mitigation measures would therefore be required in respect of feed delivery truck events apart from restricting their occurrences to daytime periods only (as a good neighbour policy).

- **Poultry House Ventilation Fans**

The proposed poultry house is to be served by eight ventilation fans that will locate on the gable end of the building. Noise level data received from the unit manufacturer for the selected fan types is summarised in Table 6 below.

Manufacturer	Model	Location	Number of Fans	Manufacturer Listed Sound Power Level (Maximum)
Munters	EM 50	East Gable End	8	**70.4 dB(A)**

Table 6 Ventilation Fan Details & Noise Levels

Note that these fans will typically operate at lower operating conditions and will likely only reach maximum output during emergency situations / extreme weather events; however, in order to consider an extreme worst case condition, we have assumed that all of the development fans will be operating at their maximum flow capacity and that the fans are running continuously throughout both daytime and night time periods.

Noise level emission predictions at the nearest noise sensitive receptors based on the provision of fans with noise levels of this order and ALL fans operating simultaneously are as follows:

Noise Sensitive Receptor	**Noise Level**
Nearest Dwellings	< 10 dB L_{Aeq}

The predicted cumulative noise emission levels of the ventilation fans are < 10 dB L_{Aeq} at the nearest noise sensitive receptors. Noise levels of this order would not only be well below both the daytime ambient noise criteria and ambient noise levels in the vicinity, they would also be inaudible.

In addition, it is important to note that our assessment considers a worst-case condition. It is likely that the fans will not all be operating at maximum capacity during most daytime periods (and likely all night time periods) and some may not even be operating at all (on the day and night of our survey, the ventilation fans in the existing poultry house were either inaudible or not in operation). This would obviously reduce poultry house ventilation fan noise emissions even lower than those predicted above.

No further mitigation measures would therefore be required in respect of the poultry house ventilation fans apart from ensuring they are selected at the maximum noise emission levels for the selections listed in Table 6.

- **Cumulative Noise Levels**

The total level of combined noise emissions from the proposed development noise sources can be determined by summing together all of the individual contributions. The total levels of each are summarised in Table 7 on the following page.

Note that the feed delivery truck event noise emissions were not included given that they will only occur approximately 2 hours per week; however, a worst-case condition has been considered with respect to the ventilation fans by assuming that they are all in operation constantly over the full daytime and night time periods.

Noise Source	Noise Level Emissions at Nearest Dwellings (dB L_{Aeq})
Poultry House Livestock Emissions	< 10
Poultry House Ventilation Fans	< 10
Cumulative Noise Level	≤ 10

Table 7 Proposed Development Cumulative Noise Levels

These cumulative noise levels are compared with the established project noise emission criteria in Table 8 below.

Location	Predicted Noise Level	Noise Emission Criteria	Compliant?
Nearest Dwellings	≤ 10 dB L_{Aeq}	50dB $L_{Aeq,16hr}$ [Daytime] 45dB $L_{Aeq,8hr}$ [Night Time]	✓

Table 8 Proposed Development Noise Emission Level Comparison with Established Criteria

As can be seen from the comparisons in the preceding tables, the expected levels of noise emissions from the proposed development are well within the established criteria at the nearby noise sensitive receptors. They are also below the existing ambient noise levels in the vicinity during both daytime and night time periods. Refer to Table 9 below for a comparison.

Location	Predicted Noise Level	Measured Daytime Ambient Noise Level	Measured Night Time Ambient Noise Level
Nearest Dwellings	< 10 dB L_{Aeq}	43 - 47 dB L_{Aeq}	32 - 39 dB L_{Aeq}

Table 9 Proposed Development Noise Emission Level Comparison with Measured Ambient Noise Levels

It should also be reiterated that the noise level conditions that were assessed for each aspect of the development noise sources would be considered worst case in each instance. During standard operating conditions, the proposed new poultry house noise emissions are expected to be nominally inaudible at all nearby noise sensitive receptors during all time periods.

There is therefore no significant noise impact that would be expected from the proposed new poultry house on any of the identified nearby noise sensitive receptors.

7.4.3 CONCLUSIONS

A comprehensive assessment of noise emissions from the proposed new poultry house at the Carrickbaggot Poultry Farm expansion was conducted in relation to its planning permission submission. An ambient environmental noise survey was carried out in order to quantify the existing noise levels and sources in the vicinity. The results of this survey were then used in conjunction with applicable noise criteria to determine both the relative noise impact of the development on adjacent noise sensitive receptors as well as the required noise mitigation measures to protect the amenity of the nearby residential dwellings.

The results of the assessment confirmed that potential noise emissions from the proposed poultry house noise sources are expected to be nominally inaudible and should therefore have an imperceptible noise impact on the residential dwellings located in the vicinity. The only mitigation measures that were deemed as being required in relation to this assessment consisted of the following:

<u>Construction Phase Noise Mitigation Measures</u>

- ✓ Restrict construction activities to daytime periods only.

<u>Operational Phase Noise Mitigation Measures</u>

- ✓ Selection of poultry house ventilation fans with maximum sound pressure levels similar to those listed in Table 6.
- ✓ Restriction of feed truck deliveries to daytime periods only.

Provided these measures are appropriately incorporated into the design / construction of the proposed development, there should be no risk of noise impact occurring from the identified sources of the proposed new poultry house on any of the nearest noise sensitive receptors.

The existing E.P.A. Licence details the noise limits for the site and these requirements will be extended to the proposed development as part of the E.P.A. License review to be competed to facilitate the proposed development. Please see below extract from existing E.P.A. Licence detailing noise emission limits.

B.4 Noise Emissions

Daytime dB LAr, T (30 minutes)	Evening dB LAr, T (30 minutes)	Night-time dB LAeq, T (30 minutes) Note 1
55	50	45

Note 1: During night time hours, there shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise-sensitive location.

Fig 7.7.2 Extract from E.P.A. Licence

7.8 Traffic

While the proposed development will increase the traffic volume to and from the proposed site, this will be achieved without any significant adverse impact on the local road network in the area, as the proposed development will utilise the same access routes as the existing farm.

The currently proposed development will result in an increase in traffic of on average,

- c. 1.5 loads of organic fertiliser per week (Increasing to c. 3 loads/week @ 30m3/load),
- c. 1.5 feed deliveries/week and (Increasing to c. 3 loads/week),,
- c. 2-3 egg collections/week
- 2 staff daily (increasing to 4)
- Stock transport at the end/start of each flock (c. every 14-15 months)

when fully completed.

Additional traffic will arise due to veterinary inspections, farm maintenance and the transport of waste off the site, however this will be co-ordinated with the existing collection schedule for the farm.

Transport of dead birds will occur on a weekly/fortnightly basis in line with Louth Co. Co. and E.P.A. requirements, and will be integrated into the waste collectors regular collection schedule. All other wastes such as fluorescent tubes, general waste etc. will be stored appropriately and will be removed from the farm by approved contractors and/or to approved sites in line with E.P.A. and Louth Co. Co. requirements. The amount of any such wastes will vary on a weekly basis, however the collection of all such wastes will be co-ordinated to optimise same

There will be a temporary increase in traffic due to the construction of the proposed development, however this will cease once the development has been completed. This will involve deliveries of steel, concrete, building materials, equipment etc. While there will be new traffic movements to and from the site due to feed deliveries, manure transport and other associated traffic, this will be minimised by optimising load sizes, and co-ordinating collections/deliveries

Notwithstanding the above the applicant appreciates that the proposed development will result in additional traffic at the site entrance, ***however projected traffic levels will not result in a significant adverse impact on the local road network.***

7.8.2 Construction Traffic

The completion of the proposed development is expected to be completed over a 12 month period. Due to the relatively level nature of the site it is not expected that there will be any excess soil to be removed off-site. Any topsoil moved from the site of the proposed development will be used for landscaping works as previously identified.

HGV Construction traffic to and from the site will involve the movement of,

- plant and machinery to the site,
- Stone for roadway and site development /levelling
- Concrete (Ready Mix)
- Insulated and Pre- Cast concrete wall panels.
- Roofing materials
- Feeding, Drinking , Ventilation Systems.

This will equate to c. 3-4 loads/day over the construction period, with an additional 2 – 4 journeys daily associated with labour to and from the site, similar to that as required to complete the existing development and which was completed without complaint.

7.9 Biodiversity - Flora and Fauna

(a) Site and immediate area

As previously described the site and adjoining area is predominantly agricultural lands that have been intensively managed over a long number of years, albeit that the site and a significant portion of same has recently been converted from tillage to grassland. The area of the proposed site forms part of the existing landholding owned/farmed by Crayvall Egg Production Ltd. The area of the proposed site is currently managed agricultural lands, and as such the flora and fauna associated with this site has developed in this context.

The proposed development will required minimal hedgerow removal to facilitate the site development works however no significant habitats will be impacted.

The majority of the land in the surrounding area is used for grass/arable based agricultural production. The flora and fauna associated with this site has developed accordingly as the site has been managed over the years. There are no specific unique habitats on, or adjacent to this site that require specific protection, and/or are likely to be adversely impacted by the proposed development. This proposed development is not anticipated to adversely impact, either directly or indirectly on any NHA, SAC, and/or SPA.

(b) Proposed customer farmlands.

All organic fertiliser / soiled water from this farm will be allocated for use in accordance with S.I. 113 of 2022, as amended. This legislation which is applicable to all farmers in the country with regard to the application of organic and inorganic fertiliser places certain requirements on farmers with regard to the application of organic fertiliser / poultry manures. In order to prevent any adverse impact on flora and fauna in the area the following practices are to be implemented,

- Organic fertiliser / soiled water from this farm is not to be allocated to areas of woodland/scrubland habitat.
- Organic fertiliser / soiled water from this farm is not to be allocated within 10m of hedgerows.
- Organic fertiliser / soiled water from this farm is not to be allocated within 5m of a watercourse or 20 m of a lake shoreline
- Organic fertiliser / soiled water from this farm is not to be applied to areas where it is likely to adversely impact on a N.I.I.A., S.A.C. and/or S.P.A, or other such sensitive area.
- Organic fertiliser / soiled water from this farm is not to be applied within 10 m of an archaeological feature.

There should be no negative impact on the flora and fauna of the area from activities associated with this development. It will be advised that organic fertiliser (soiled water) spreading operations be carried out in accordance with Codes of Good Practice.

7.10. Biodiversity - Special Policy Areas

(A) Nationally Designated Environmental Areas

The proposed development is located a significant distance from the closest Natura 2000 site (North West Irish Sea) and a significant distance (>4.5 Km's upsteam) from North West Irish Sea SPA / SAC. It is not expected to have any adverse affect on the conservation of these areas and the flora and fauna contained therein for the following reasons,

- The existing and proposed poultry houses are located a significant distance away from any such areas, as identified in the County Development Plan, and farming activities have been carried out on this site to date without any adverse impact on the designated areas.
- All organic fertiliser / poultry manure arising from this farm is to be allocated to lands in accordance with S.I. 113 of 2022, as amended, and as part of a fertiliser substitution programme.
- Given that the manure will be in a dry/solid form there is none of the perceived risks associated with liquid manures.

Due to the location of the proposed poultry farm site, located away from such areas it will not have an adverse environmental impact on same. All farmlands proposed for the receipt of soiled water from this farm will allocate same in accordance with S.I. 113 of 2022, as amended, so as to ensure that there is no significant adverse impact on any of these areas.

Significant atmospheric emissions arising from agricultural developments can have negative impacts upon designated sites and their sensitive vegetation communities. Some vegetation communities are most sensitive to the effects of ammonia and nitrogen deposition than others. In general, communities containing notable bryophyte communities are the most sensitive and have a lower critical load for ammonia of 1 $\mu g/m^3$. Less sensitive habitats have a critical load of 3 $\mu g/m^3$.

The proposed development will also lead to atmospheric emissions, mainly in the form of ammonia and nitrogen. In order to correctly assess the potential impacts of the operation of the farm on the Natura 2000 sites, detailed atmospheric modelling of the proposed development was undertaken by Irwin Carr Consulting in May 2023 (updated August 2023). The overall purpose of this report was to quantify the ammonia and nitrogen levels at the ecologically sensitive areas in the vicinity of the proposed poultry farm. The predicted impacts can then be compared to an appropriate criterion and graphically illustrated in the form of "contours of equal concentration" or isopleths which are superimposed on base maps. The conclusions of this assessment follow the guidelines contained in the EPA's Guidelines on Atmospheric Emissions (2021, revised 2022).

Using an AERMOD Dispersion Modelling Package, the projected ammonia and nitrogen emissions from the proposed development at Carrickbaggot were modelled using details such as animals per house and the ventilation currently used in the house. Other factors taken into consideration as part of the model included meteorological data, building downwash, storage of manure (assuming full storage) and digital terrain data.

The report provided the annual average ammonia concentrations at ecologically sensitive sites, including the Natura 2000 sites considered as part of this assessment. The results are presented in Table 3, whilst Table 4 provides an assessment of the process contribution for ammonia on the Natura 2000 sites arising from the proposed development. For the purpose of this report, Natura 2000 sites beyond 7.5km from the sheds were screened out from further assessment. This Natura 2000 sites included:

- River Boyne and Blackwater SAC
- River Boyne and Blackwater SPA
- Stabannan-Braganstown SPA
- River Nanny Estray and Shore SPA

Given that the predicted levels of ammonia and nitrogen are expected to be negligible at distances greater than 7.5km from the site, no detailed emission assessment for these sites was completed.

Detailed emission modelling was carried out for the following five sites:

- North-West Irish Sea cSPA
- Clogher Head SAC
- Boyne Coast and Estuary SAC
- Dundalk Bay SAC
- Dundalk Bay SPA

Ammonia

The emission report provides the annual average ammonia concentrations (worst case scenario) arising from the farm at ecologically sensitive sites, including the Natura 2000 sites considered as part of this assessment. Ammonia modelling was carried out for the years 2015 – 2019 and an average figure was presented. The results are presented in Table 3, whilst Table 4 takes the highest predicted process concentration from the sheds and it uses this figure to determine the percentage contribution of the farm to the critical load of the designated site. These results are based on the worst case scenario, i.e., the worst case process contribution over the 5-year period.

Natura 2000 Site	2015	2016	2017	2018	2019	Average
North-West Irish Sea cSPA	0.046	0.058	0.062	0.050	0.050	0.053
Dundalk Bay SAC	0.020	0.015	0.017	0.021	0.020	0.019
Dundalk Bay SPA	0.020	0.015	0.017	0.021	0.020	0.019
Clogher Head SAC	0.019	0.029	0.024	0.018	0.020	0.022
Boyne Coast and Estuary SAC	0.014	0.016	0.014	0.011	0.011	0.013

Table 7.10.1– Ammonia Concentrations (µg/m3) at Natura 2000 Sites (Taken from Table 18 Of Ammonia Impact Assessment Report)

All of the predicted ground level concentrations of ammonia detailed above are significantly below the limit values in relation to the protection of vegetation.

Natura 2000 Site	Critical Load Guideline	Background	Highest PC	PEC	PC / Guideline Level (%)	PEC / Guideline Level (%)
North-West Irish Sea cSPA	3	2.34	0.062	2.402	2.07	80
Dundalk Bay SAC	3	2.51	0.021	2.531	0.70	84
Dundalk Bay SPA	3	2.51	0.021	2.531	0.70	84
Clogher Head SAC	1	2.2	0.029	2.229	2.90	223
Boyne Coast and Estuary SAC	1	2.12	0.016	2.136	1.60	214

Table 7.10.2– Ammonia Concentrations (µg/m3) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 19 Of Ammonia Impact Assessment Report)

It should be noted that the maximum PC of 2.9% at Clogher Head is based on the worst case process contribution over the 5-year period. It can be seen from Table 4 above that the average impact of the sheds is 0.022 µg/m3 which represents a PC of approx. 2%.
The ammonia concentrations at the sites are dominated by the background concentrations, which are approximately 80 – 223% of the air quality guideline for ammonia.

It can be seen from the Table above that the guideline level (critical level) of ammonia is not exceeded at Dundalk Bay SAC / SPA or the North-West Irish Sea.
Where the Critical Level of ammonia is exceeded (Clogher Head, Boyne Estuary and Coast), the PC of the existing and proposed site is <4%, and as a result considered insignificant for the purposes of this assessment.

Nitrogen

The AERMOD modelling also report provides an estimate of nitrogen arising from the proposed poultry farm. A summary is provided in Table 5. This is based on a worst case scenario and the figure generated for the Highest PC for N at these sites was generated using a conversion factor.

Natura 2000 Site	Guideline	Background	Highest PC	PEC	PC / Guideline Level (%)	PEC / Guideline Level (%)
North-West Irish Sea cSPA	20	6.83	0.32	7.15	3.22	72
Dundalk Bay SAC	10	15.79	0.11	15.90	1.09	159
Dundalk Bay SPA	10	15.79	0.11	15.90	1.09	159
Clogher Head SAC	10	15	0.15	15.15	1.51	152
Boyne Coast and Estuary SAC	10	15	0.08	15.08	0.83	151

Table 7.10.3 – Nitrogen Concentrations (kg/N/ha/yr) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 22 Of Ammonia Impact Assessment Report)

It can be seen from Table 5 that there are no exceedances of the nitrogen concentrations at each of the sites, and as a result, the predicted impact would be considered deminimus for the purposes of the Nitrogen assessment.

AERMOD Conclusions

It is expected that the typical operation of the site will result in lower predicted ammonia and nitrogen impacts at the closest sensitive receptors than the worst case results presented in Ammonia Impact Assessment report. The report concluded that the predicted results of the ammonia and nitrogen modelling process showed that the limits for the protection of vegetation are not exceeded at the designated habitats within the vicinity of the poultry farm. Thus, any areas of ecological interest will not be adversely affected from the ammonia or nitrogen emissions arising from the operation of the farm.

Cumulative Impacts

There are other agricultural activities ongoing close to the current application site, therefore cumulative impacts arising from the operation of these farms together were considered. All farms, regardless of whether licensed by the EPA or not, are required to operate within the legalisation defined in S.I. 113 of 2022 regarding manure storage,

minimisation of soiled water and general good agricultural practice, etc. Therefore, cumulative impacts arising from the combined operation of these activities with the proposed operation of the poultry farm at Carrickbaggot will be negligible.

The Ammonia Impact Assessment report has also considered potential cumulative impacts.

The following points detail whether or not a cumulative assessment is necessary as part of this assessment.

- It is noted that Step 1 of the flowchart states "Are the background levels already exceeded for the ammonia critical level or nitrogen critical load at Natura sites within the zone of influence? (Go to step 4)

- It can be seen from Table 4 above that the background is exceeded at two of the Natura 2000 sites (Clogher Head SAC and Boyne Coast & Estuary SAC), and therefore the assessment continues to Step 4:

- 'Following detailed modelling and a NIS, is the process contribution (PC) ≤1% of the critical level for ammonia and ≤1% of the critical load for nitrogen deposition?

It can be seen from Table 4 that the total ammonia at both of these Locations is over 1% and as a result, a cumulative assessment may be required at these locations.

In order to carry out a cumulative assessment it was necessary to identify any nearby installations that also have the potential to contribute a significant ammonia impact, in line with the provisions of the E.P.A. guidelines on ammonia assessment for intensive Agricultural sites.. There were no such sites in the relevant vicinity of the sites and as such, there are no relevant sites which are to be considered in a cumulative/ in-combination assessment for this application.

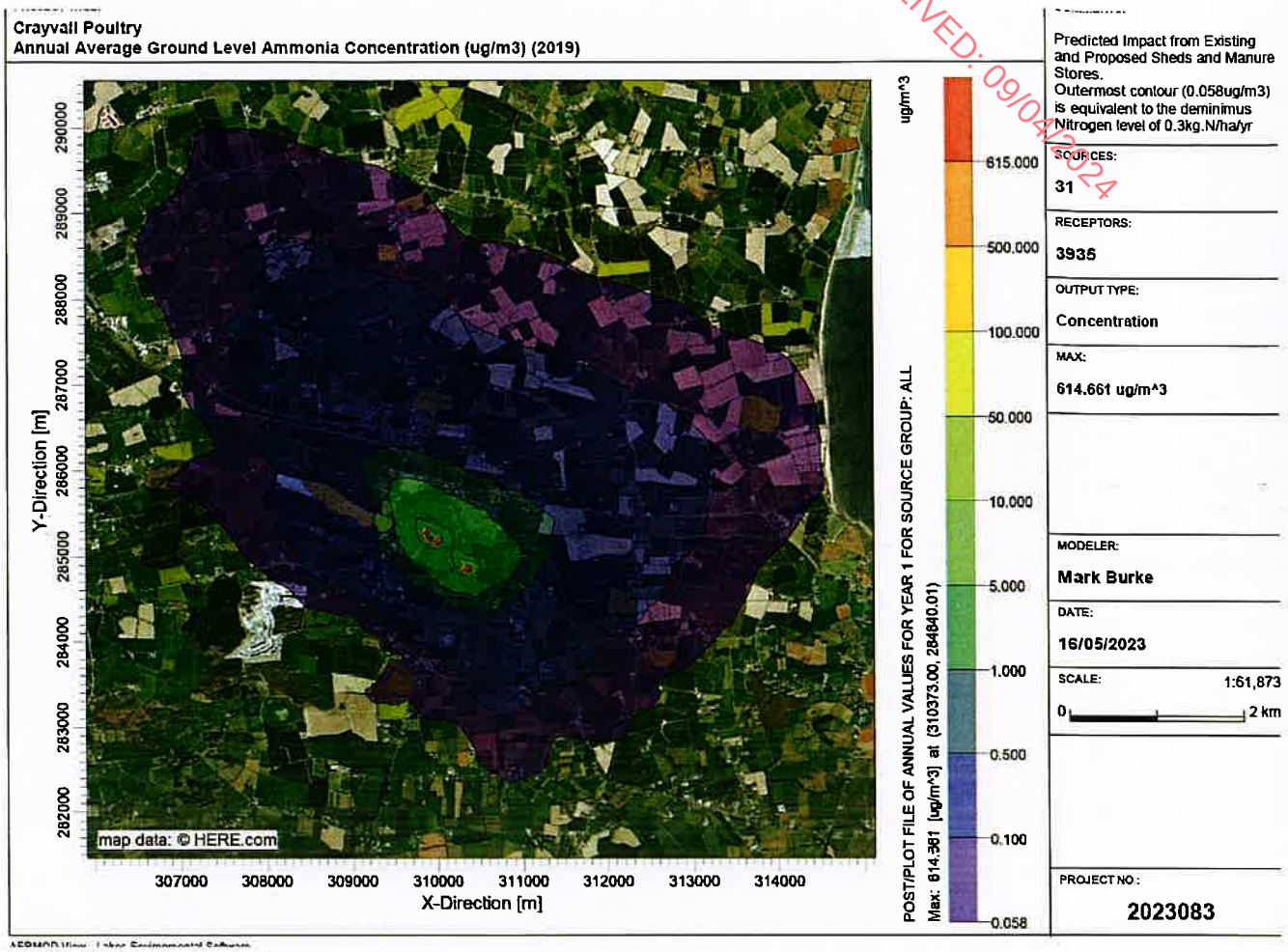


Fig 7.10 Ammonia Dispersion Plume

The proposed development will result in a significant increase in stock numbers on the site, to 124,000 birds. A number of measures have been provided for so as to mitigate against any adverse cumulative impact. As previously detailed there are only 5 licensed intensive agricultural farms in the county (of twhich this existing site is one), and none of the remaining sites are located close to the site of the existing farm/proposed development, therefore there is negligible risk of an adverse cumulative impact.

Furthermore only one of these sites (the current development at this location) has been granted permission and/or developed since the last Ammonia/Nitrogen background measurements (2018) and this has been assessed cumulatively as part of thei application. Planning permission was only granted for one other sub-Epa licence threshold poultry farm in this area (and same related to a re-development of an existing site) therefore there is negligible risk of cumulative impact associated with the proposed development.

- ***Application of Organic Fertiliser***

This NIS has identified the locations of lands for the receipt of the organic fertiliser and the location of the farmlands relative to the Natura 2000 sites are provided in Appendix 1 of the NIS.

Inappropriate application of fertiliser (organic or inorganic) can lead to deleterious impacts upon the receiving waters in local catchments and it can result in eutrophication, algal blooms, fish kills and loss of biodiversity. Impacts can affect both surface water and groundwater. In response to this, specific regulations, known as EUROPEAN COMMUNITIES (GOOD AGRICULTURAL PRACTICE FOR PROTECTION OF WATERS) REGULATIONS (currently SI 113 of 2022, as amended, as amended) have been implemented over the last c. 15+ years, to address these risks.

These regulations apply to all customer farmers, and make specific provision to the manner, amount, timing and conditions associated with the application of fertiliser to land and all associated requirements pertaining to same. These requirements are routinely updated (at least every 4 years) to respond directly to trends in water quality, and advances in agricultural practices, and the requirements therein are the appropriate measures that govern the customer farmers when applying organic fertiliser from this farm (existing and proposed) to their lands as an alternative to other/chemical fertiliser. The re-distribution of organic fertiliser nutrients from farms such as this to farms lacking in fertiliser nutrients is an important part of the Agricultural cyclical economy and the local redistribution of nutrients should be should be prioritised and encouraged in preference to imported chemical nutrients.

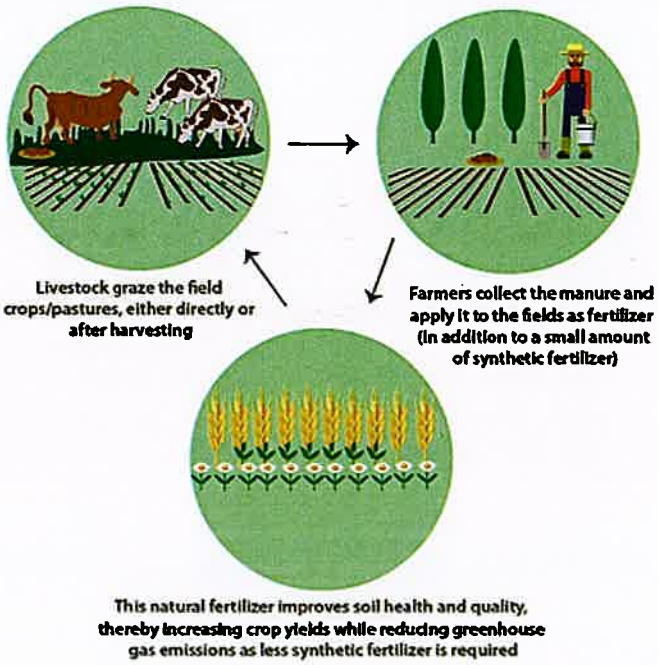
The customer farmers will utilise / will continue to utilise the organic manure from this development on their agricultural lands as an organic fertiliser to replace existing fertiliser sources, ***as part of a fertiliser substitution programme (organic for inorganic/chemical) with no increase in the overall level of nutrients applied*** and in line with fertiliser application limits prescribed by S.I. 113 of 2022, as amended. These lands are identified to DAFM on an annual basis for agricultural purposes.

Integrated farming systems fight climate change and boost crop yields

Integrated cropping-livestock systems are another sustainable agricultural practice. These practices are based on a simple concept: that crop yields can be maximized by recycling nutrients present in both animal manure and crop residues. This reduces the need for chemical fertilisers that release large quantities of greenhouse gases and thereby contribute to climate change. In an integrated cropping-livestock system, livestock may either graze the field crops directly or may be fed the crop after harvesting. Farmers then collect the manure from the livestock and use it as fertiliser, thereby returning many of the nutrients to the soil. In this regard;

- Soiled water – is to be utilised as an organic fertiliser on adjoining grassland.
- Poultry Manure is to be used as part of a fertiliser substitution programme (to replace imported chemical fertiliser) on customer farmlands to meet crop /grassland agronomic requirements.

How an integrated cropping-livestock system works



In addition to the above Crayvall Egg Production Ltd. / Belview Egg Farm Ltd., are the first poultry farm to partake in the Teagasc Signpost Advisory Programme. This targeted advisory programme operated by Teeagasc is designed to support climate and sustainability actions on farms. This new public good programme will be available to all farmers. It will build on the network of Signpost Demonstration Farms by providing enhanced advisory and training support to farmers to commit to, select and implement climate and sustainability actions that will be appropriate and impactful on their farms. Participating farmers will be given the opportunity to commit to taking action for their farms.

(B) Amenity areas

This proposed farm will not be located near to any Highly Sensitive Landscapes, Special Amenity Areas, or other such areas as listed in the Louth County Development Plan. All farmers will be informed that spreading of organic fertiliser / soiled water from this farm should not occur near such areas, especially at weekends or holiday periods.

(C) Cultural Heritage (Architectural and Archaeological Features)

There are no buildings/structures of architectural significance located on or adjacent to the proposed site or likely to be impacted by the proposed development. There is no evidence of any archaeological features at the site of the proposed development. The site of the proposed development is not located near, and/or likely to impact on any monuments or sites of archaeological interest.

It is not considered likely that the development, as proposed, will cause any direct impacts to any structures of architectural heritage interest. Consequently, no further mitigation measures are considered necessary.

- ***The first and second*** are a church and graveyard located at the same location c. 550-600m north of the proposed development, and,

Record Number:LH018-046002-
Classification: Graveyard
Scheduled for Protection:1

Description: Rectangular shaped graveyard (map dims. c. 30m NE-SW; c. 24m NW-SE) with church remains (LH018-046001-) in centre. When inspected by ASI in 1966 no gravemarkers were noted and according to local information no burials had taken place in living memory. Compiled by: Claire Breen Date of upload: 5 July 2012

Record Number:LH018-046001-
Classification: Church
Scheduled for Protection:1

Description: The following description is derived from both the published 'Archaeological Inventory of County Louth' (Dublin: Stationery Office, 1986) and the 'Archaeological Survey of County Louth' (Dublin: Stationery Office, 1991). In certain instances the entries have been revised and updated in the light of recent research. Date of upload/revision: 17 July 2007 Built of limestone blocks, boulders and greywacke (int. dims. 13m E-W, 5m N-S). Double wall at W gable, the outer one being 0.5m thick and the inner one 0.7m. E window not extant and only foundation level of gable wall survives. E end of N wall has the remains of a splayed window which extends down close to ground level, and has a two-centred arch of greywacke with central keystone. The church is fifteenth- or sixteenth-century in date and the Visitation of 1692 states that it was in disrepair. (CLAJ 1919, 338; CLAJ 1944, 278).

- ***The third*** a holy well (albeit dried up when inspected in 1967) located close to the access route and 400m + from the proposed development

Record Number:LH018-047----

Classification: Ritual site - holy well

Scheduled for Protection:1

Description:
The OS Letters refer to a well called 'St. Columba's in Carrickbaggot' (Stubbs 1908, 40). According to the IFC Schools Mss (vol. 673, 76) there is a stone in a field called the 'paddocks' which has an imprint of St. Columcille's knee on it. When inspected by ASI in 1967 the well was dried up and briars covered the site. Compiled by: Claire Breen Date of upload: 6 July 2012

In addition to same there is an enclosure located c. 400 m east of the landholding boundary.

Record Number:LH021-017----

Classification: Enclosure

Scheduled for Protection:1

Description:
The following description is derived from both the published 'Archaeological Inventory of County Louth' (Dublin: Stationery Office, 1986) and the 'Archaeological Survey of County Louth' (Dublin: Stationery Office, 1991). In certain instances the entries have been revised and updated in the light of recent research. Date of upload/revision: 17 July 2007 Sub-circular enclosure (max. dims. c. 52m N-S, c. 42m E-W) showing as cropmark on aerial photograph (CUCAP, AOY 22).

All works are to be completed outside of the Zones of notification associated with these features.

The proposed poultry houses are to be constructed on intensively managed farmland. This development will not involve the construction of significant underground tanks etc. that require significant excavation. It is not considered likely that the agricultural development, as proposed, will cause any direct impacts to any identified archaeological monuments. Furthermore, given the locations of the extant archaeological monuments, together with the topographical situation of the site and its environs, it is considered that no significant adverse impacts will occur to the setting of any monuments.

Architectural Heritage:

The site is accessed via an internal farm laneway c. 0.75 km from the Local Road. The topography of the site is relatively flat and the proposed development site is c. 6m lower than the road level at the site entrance. The entrance to Rokeby Hall, a protected structure under reference 13901802 & 13901801 is located opposite the entrance to this farm. Rokeby Hall is designated as a Historic Garden and Designated Landscape in the County Development Plan 2021-2027. Given the distance to, and the setting of the proposed development, low set in the landscape and on an existing poultry farm the proposed development will have no significant adverse impact on the Architectural heritage of the area.

It is not considered likely that the development, as proposed, will cause any direct impacts to any identified structures of architectural heritage interest. Furthermore, given the locations of the extant archaeological monuments, together with the topographical situation of the site and its environs, it is considered that no significant adverse impacts will occur to the setting of any monuments, and that the mitigation measures as proposed, are appropriate.

7.11. Human Health / Population / Employment

As previously stated agriculture is important to the ecomomy of Co. Louth. It is anticipated that employment in the traditional agriculture sectors will continue to decline, resulting in opportunities in farm diversification and off farm employment becoming critical to the survival of many rural communities. The proposed development will create additional agricultural employment on the farm and will secure the existing jobs already employed.

The proposed development will create additional agricultural employment for c. 2-4 people directly on a full time basis. Outside service employment for building contractors, repairmen, nutritionists, veterinarians, hauliers and sales personnel are a spinoff of this development.

The proposed site is located well away from any of the larger settlement areas in the county The wellbeing of the agricultural industry in the county, and in more rural areas, is essential in halting the decline in rural employment. This activity will contribute to the employment in rural communities and will therefore help stabilise the rural population.

The proposed development and existing activities have been planned and will be operated to the benefit of the applicant, the local community in terms of direct and indirect employment, supporting the local / national agricultural economy and construction industry.

The Louth Co. Development Plan 2021-2027 encourages the development of appropriate agricultural enterprises; however appropriate activities will be required to have a minimal negative impact on the landscape and physical environment.

Development Plan Objectives

It is felt by the applicant that the proposed development satisfies the requirements of Louth Co. Co. as per ***the obectives on Agriculture*** as outlined in the Louth County Development Plan 2021-2027, detailed below;

"K1 Agriculture Objective To preserve agricultural land. Guidance This zone is for the use of land for agricultural purposes and farming-related activities and to provide for the development of existing established uses. Individual dwellings for permanent occupancy for persons principally involved in agriculture will be open for consideration subject to normal site suitability considerations and compliance with the policy objectives set out in Chapter 3 of this Plan. Permitted Use Allotments, Agri-Tourism. Open for Consideration B&B/ Guest House, Community Facility, Craft Centre/Shop, Garden Centre, Home Based Economic Activities, Recreational/Sports Facility, Residential, Telecommunications Structures."

Agricultural Buildings : Good quality, purpose built agricultural buildings are important for efficient and sustainable agricultural production. Agricultural buildings should be integrated into the countryside and in this respect the palette of materials used is important. Site selection, setting, landscape features and the maintenance of existing native hedgerows or the planting of new hedgerows is important in terms of screening farm buildings and thus blending these into the landscape in the least obtrusive manner.

This proposed development is located in a rural agricultural area, where such developments are to be facilitated by the local authority, and it is not located near any scenic walks or viewing points. The location of the proposed site, integrated into the surrounding landscape, obscured by its location and integrated where possible with the land topography and the existing landscaping, will ensure that this proposed development is incorporated into the local environment, with no adverse visual impact, while at the same time complying with Department of Agriculture, Food and The Marine and Bord Bia requirements.

These agricultural and rural development plan policies recognise the important and varied role of agriculture within the economy of Co. Louth. These policies serve to recognise and support development proposals that will enable farming to become more competitive, sustainable, environmentally and welfare friendly; adapt to new and changing markets; diversify into new agricultural opportunities; and broaden their operations to "add value" to their primary produce, while at the same time protecting the environmental and cultural heritage of the County.

The proposed development of poultry housing, will modify the existing farming activities and will provide for a sustainable farm diversification for Crayvall Egg Production Ltd. in line with supermarket and consumer requirements, for Barn Eggs. The proposed development will be located;

1. in a rural agricultural area,
2. significantly removed from any population centres,
3. located away from any designated areas and/or tourist attractions.
4. well integrated into the local environment with sympathetic design and layout,
5. with proper measures in place for the storage and removal of wastes off site,
6. with all poultry manure from the proposed developments to be utilised as organic fertiliser on lands, to substitute for imported chemical fertiliser in accordance with S.I. 113 of 2022, as amended,

will help to ensure that the proposed development will be in accordance with the stated plans and objectives of Louth Co. Co. as outlined in the county development plan.

While requiring a certain amount of land upon which the development will be completed this is minor in terms of the applicant's overall landholding and given the setback from the local road and third party dwellings will have no adverse impact on the landscape, character and/or environment of the local area. The development has

been designed to ensure the proper access and egress from the site and is located remote from third party residences and/or sensitive receptors.

The potential risk to human health / cultural heritage and/or the environment due to accidents and/or disasters is limited due to the innate nature of the production system and activities on-site. There are no significant high risk/hazardous products used, produced and/or released by the proposed development which would pose a risk to human health, cultural heritage and/or the environment outside of the site boundary as a result of any accident/disaster.

7.12. Material Assets

Resources that are valued and that are intrinsic to specific places are called 'material assets'. They may be of either human or natural origin and the value may arise for either economic or cultural reasons. The potential impact of the proposed development on *archaeology / cultural assets* has been discussed previously.

Material Assets that may potentially be affected by the proposed development include:

- ***(A) Material Assets: Agricultural Properties including all agricultural enterprises***

The proposed development is located on an existing agricultural lands owned by / available to the applicant and are in a predominantly agricultural area and currently used as part of an existing poultry farming actvity. The proposed development is surrounded by agricultural farmland, and the proposed development will not adversely impact on any other farmland outside the confines of the site. The proposed development will have a positive interaction with the rest of the applicant's lands, and existing related activities as previously detailed.

The proposed development will require a minimal amount of land to complete the proposed works, however the land requirement will not have a significant adverse impact outside of the development area.

Bio- Security is an important concern for all developing poultry (and any agricultural livestock system). As with all agri-livestock systems (and as with any animal population wild or domestic) and as we have seen recently, even the human population, disease transmission is an important factor. The proposed development is well removed from any other poultry farm, excluding the existing free range house operated by the applicant so as not to be considered a bio security risk to other such farms.

(B) Material Assets: Non-agricultural Properties including residential, commercial, recreational and non-agricultural land.

The proposed development site is surrounded by agricultural lands and is located well away from any built up areas and/or development clusters. There are no third party residential dwellings within c. 640 m of the proposed development site.

- ***(C) Material Assets: Natural or other resources including mineral resources, land and energy***

The proposed development will also involve the use of a limited amount of construction materials (including quarry products and other construction materials), however the extent of the development is limited in nature and the amount of resources required in the construction of the houses, and potential adverse impact of same, is negligible when sourced from authorized sources.

The operation of the farm will require additional feed (classified as a renewable resource), energy and water. The applicant will operate modern feeding, ventilation and heating systems to minimize same.

The farm does not require any major modifications to the existing electricity supplies, water or road infrastructure in the area.

7.13 Tourism

Agriculture and tourism are two significant industries important to the economy of this area. A significant proportion of rest of the economy of the area has arisen as ancillary services/businesses to these two industries. It is of extreme importance therefore that these two industries can coexist and develop together for the good of everyone in the area.

Agriculture is an all year round industry whereas tourism is mainly a seasonal one with the majority of the trade occurring in late spring, through the summer and into early autumn. The poultry farm site itself will have no impact on tourism in the area. The customer farmers will prioritise lands that are away from areas frequented by tourists or areas with a higher population density for the application of organic fertiliser.

7.14. Potential Effects (Cumulative, Long/Medium/Short Term, Transboundary / other).

Nationally

The report "Irelands Inventory Report 2021" (EPA 2021), identifies agriculture as the primary contributor (99.4%) of Irish ammonia emissions in 2019, emitting a total of 124.6 kilotons (kt) of ammonia in that year. According to that report the emissions from the poultry sector in 2019 were approximately 4.61 Kt.

DAFM has published a Code of Good Agricultural Practice for reducing Ammonia Emissions from Agriculture " as required by the National Emissions Ceiling Directive and this is the appropriate manner in which to address the national ceiling. The proposed development will have negligible impact on the National Ammonia emissions.

As detailed previously Poultry prodution results in one of the, if not the lowest, emissions of Green House Gases, and meeting any increase in consumer demand with eggs will result in lower Greenhouse gas emissions than other animal source proteins.

The existing farming activities operating adjacent to, and including, the proposed site, have been managed by the applicant and activities at this site have not had an adverse affect on the local environment, either independently, or, when assessed cumulatively with other activities in the area.

A number of measures have been instigated to mitigate against adverse cumulative impact.

- The site was selected so as to screen the poultry farm from view and mitigate against any adverse visual impact.

- The proposed development is planned so as to organise the allocation of organic fertiliser to the tillage lands in accordance with S.I. 113 of 2022, as amended. The proposed development will not have an adverse cumulative impact as all of the organic fertiliser (soiled water) is proposed to be used to replace chemical fertiliser.

- A proper stormwater/soiled water, separation, collection and drainage system is to be installed so as to prevent any potential adverse impact on surface water quality in the area of the farm.

This in conjunction with any requirements placed on the proposed development by Louth Co. Co. and/or the E.P.A. as a result of planning permission and/or E.P.A. Licence conditions will ensure that this proposed development has no adverse environmental impact on the immediate/wider area.

Within the County;

This proposed poultry farm is located in County Louth. Intensive agricultural enterprises have not developed in Co. Louth to the same extent as counties Cavan and Monaghan. Agricultural activity in Louth includes tillage, cereals and other crops, beef and dairy and is an important part of the economic life of rural Louth helping to sustain, enhance and maintain the rural economy. Agriculture will continue to be an important component of Louth's rural economy. The agricultural sector must adapt to the challenges posed by modernisation, restructuring, market development and the increasing importance of environmental issues.

The poultry industry is a specialised farming activity and the proposed development will benefit from well established practices in place for the utilisation of poultry manure, incl. that produced in the existing development. The proximity of the proposed developments to the applicants grading and packing facilities at Carstown, will be a significant competitive advantage, and will significantly reduce transport costs and emissions associated with same.

Given the mixed returns from the more traditional farming practices (including Tillage), and the concerns pertaining to future expansion of the Irish Dairy herd, productive, efficient and sustainable agricultural activities, such as the proposed development, and the production of eggs to meet local Irish demand for a highly nutritious, sustainable and affordable foodstuff, and the jobs dependant thereon, will be critical to the Irish economy.

This existing plans for this farm represent a proposed development of c. 64,000 birds. This is a significant development in terms of poultry farm developments and the level of investment required. It will also be a significant boost to local employment in this area, and the local construction industries.

Within the Local Area;

It has been demonstrated that the proposed development will have little or no adverse cumulative impact within the county. This proposed poultry farm development will have significant integration with,

- the applicant, and the local agri.-sectors existing farming activities, in the areas of feed, labour etc., and,

- the Irish tillage sector with the with the use of poultry manure in the fertiliser substitution programme

and same will be a significant advantage to both enterprises, while at the same time demonstrating a more integrated, environmentally friendly and sustainable production system.

The proposed development will result in a significant increase in stock numbers on the site, to 124,000 birds. A number of measures have been provided for so as to mitigate against any adverse cumulative impact. This in conjunction with any requirements placed on the proposed development by Louth Co. Co. and/or the E.P.A. as a result of planning permission and/or E.P.A. Licence conditions will ensure that this proposed development will have no adverse environmental impact on the immediate area.

It is anticipated that the proposed development will not lead to a negative cumulative impact on the local environment due to the array of mitigation measures proposed and/or to be implemented, together with the low level of poultry farming in the area. The area of the proposed development is an agricultural area, and poultry farming activities are already established on the farm.

Transboundary

The proposed development is significant in nature and will result in 1 No. additional house with capacity for c. 64,000, resulting in the overall site capacity of c. 124,000 birds. Poultry farming activities are less well established in Louth when compared to other counties such as Monaghan and Cavan. There has been a long tradition of supplying the organic fertiliser / poultry manure produced on these farms in Monaghan and Cavan to tillage lands in Meath, / Louth to optimize the use of the organic fertiliser / poultry manure and nutrients contained therein. The proposed development is located well away from any international boundary and will have no adverse transboundary impact.

8. Interaction of Effects

Human Health, bio-diversity (flora, fauna), land and soil, water, air, climatic factors, landscape, material assets, population and cultural heritage.

8.1 Inter-relationships

As a requirement of the European Communities (Environmental Impact Assessment) Amendment Regulations, (as amended) not only are the individual significant impacts required to be considered, but so must the inter-relationship between these factors be identified and assessed. Part II (Second Schedule) of the Regulations requires that the interactions between Human Health, bio-diversity (flora, fauna), land and soil, water, air, climatic factors, landscape, material assets, population and cultural heritage (incl. architectural and archaeological) be assessed.

The aspects of the environment likely to be significantly affected by the proposed development on this poultry farm have been considered in detail in the relevant Chapters of the E.I.A.R.. In order to demonstrate the areas in which significant interactions occur a matrix has been prepared, see figure 8.1 below.

Where any environmental element in the top row of the matrix (the receptor) is likely to be affected in any way by any element in the left most column (the impactor), which contains the list of aspects of the environment likely to be significantly affected by the proposed development, these have been indicated. A distinction has been made between positive, negative and neutral impacts in this matrix.

Figure 8.1 Matrix Indication Inter-relationships between EIA Factors

	Land and Soil	Water	Air & Climate	Landscape & Visual	Noise	Traffic	Bio-diversity (Flora & Fauna)	Human Healt / Population	Cultural Heritage	Material Assets
Land and Soil		N	N/a	N	N/a	N/a	N	Pos	N/a	N/a
Water	N/a		N/a	N/a	N/a	N/a	N	N/a	N/a	N/a
Air & Climate	N/a	N/a		N/a	N/a	N/a	N	N	N/a	N/a
Landscape & Visual	N/a	N/a	N/a		N/a	N/a	N/a	N/a	N/a	N/a
Noise	N/a	N/a	N/a	N/a		N/a	N/a	N/a	N/a	N/a
Traffic	N/a	N/a	N	N/a	N		N/a	N	N/a	N/a
Bio-diversity Flora & Fauna	N/a	N/a	N/a	N	N/a	N/a		N/a	N/a	N/a
Human Health / Population	Pos	Pos	Pos	Pos	N/a	N	Pos		Pos	Pos
Cultural Heritage	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a		Pos
Material Assets	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a	

Neutral	N
Positive	Pos
Negative	Neg
Not Applicable	N/a

8.1.1 Discussion – Positive Impacts

The following details the rationale for concluding that there is a net positive impact as a result of the inter-relationship between the factors listed below.

- **Impacts of soil on Human Health / Population –** the proposed development will provide for a modern poultry farm fully contained within the proposed site, thus maximising performance and minimizing bio-security risks.

- **Impacts of Human Health and Population on other factors -** The increase in wealth as a result of the proposed project would mean that there will be funds available to facilitate improvements through human endeavor in factors land & soil, water, air & climate, landscape & visual, bio-diversity (flora & fauna) and cultural heritage. Improvements in soil can be achieved through the addition of organic fertiliser, improvements in water through improved management and separation of storm and soiled waters, improvements in air through better

manure management processes, improvement in bio-diversity (flora & fauna) through the provision of additional site landscaping and maintenance and improvement in cultural heritage by the availability of time and money for the enjoyment of heritage.

8.1.2 Discussion – Neutral Impacts

The following details the rationale for concluding that there is a neutral impact as a result of the inter-relationship between the factors listed below.

- **Impacts of Land/Soil on Water, Landscape & Visual and Bio-diversity (Flora & Fauna)** – The organic fertiliser (poultry manure and soiled water) will have a positive overall impact in the wider agricultural sectors, providing additional nutrients, for use in a fertiliser substitution programme on customer farms to replace imported chemical fertiliser.

  All poultry manure is to be allocated to customer farmers for use in accordance with S.I. 113 of 2022, as amended, and excessive application of this organic fertiliser will not occur. The area of customer farmland identified is more than sufficient to utilize the resource that is the volume of soiled water generated. The positive impact on soils will potentially see a change in landscape through the improvement in field pastures, this may be viewed as a slightly positive impact overall and any changes will be minimal through compliance with S.I. 113 of 2022, as amended. The changes in soil may result in a reduction in diversity of flora & fauna in receiving spreadlands. However all lands proposed for receipt of soiled water will comprise productive agricultural lands for the production of crops and soiled water will not be applied to areas of scrub or other habitats.

- **Impacts of Water on Bio-diversity (Flora & Fauna)**– The organic manure generated together with any soiled water on site has the potential to negatively impact on water. A reduction in water quality in the area would have an effect on both local bio-diversity (flora & fauna) and bio-diversity (flora & fauna) in the wider river catchment area. This potential threat has been mitigated through, the management of all organic fertiliser on site in accordance with S.I. 113 of 2022, as amended. This is further mitigated through the provision of appropriate on site storm water drainage and attenuation system, separation of clean and soiled water and the provision of sufficient soiled water storage. These mitigating measures are sufficient to ensure that there is no negative impact on Flora & Fauna as a result of its relationship with water. All soiled water to be applied to the applicant's / customer farmers lands in accordance with S.I. 113 of 2022, as amended, with all poultry manure destined for use as an organic fertiliser to replace imported chemical fertiliser.

- **Impacts of Air & Climate on Bio-diversity (Flora & Fauna) and Human Health/Population**– There is a potential threat to Bio-diversity (Flora & Fauna) and Human Health/Population as a result of any impact on air due to the proposed

project. The generation of mal-odour on site may have a slight negative impact on Bio-diversity (Flora & Fauna) and in particular on Human Health/Population, however this is mitigated by the fact that the proposed developments are to be completed to the highest standards of construction and operation. Based on previous experience with other farms of a similar scale, and on the site specific reports completed as part of this assessment, odour, ammonia and /or particulate matter (dust) are not anticipated to be an issue on this farm.

Adequate mitigating measures have been described in this E.I.A.R. to ensure that this threat does not materialise and thereby ensuring the potential impact is neutral.

- **Impacts of Traffic on Air & Climate, Noise and Human Health/Population** – The traffic generated as a result of the proposal will have some impact on Air & Climate, Noise and Human Health/Population. However the change in traffic will not cause an adverse impact. The proposed site is located in close proximity to good road infrastructure and it is not anticipated that the proposal will generate levels of additional traffic that would adversely impact on the environment and therefore the impact is considered neutral, as supported by the traffic Impact Assessment.

- **Impacts of Bio-diversity (Flora & Fauna) on Landscape & Visual** – A reduction in Flora & Fauna as a result of the proposed development could impact on Landscape & Visual characteristics of the area. Many habitat areas such as stands of trees, scrub or hedgerow are important landscape features. These enclose and form our landscape and are critical to retain the unique characteristics of the local landscape. The mitigating measures provided for in this E.I.A.R. will ensure that no significant landscape features will be altered or removed unnecessarily as a result of this proposal.

- **Impacts of Human Health/Population on Traffic** – an increase in prosperity as a result of the proposed development could see some small increase in traffic. This is slight in nature. The overall impact of Human Health/Population on Traffic is considered neutral.

8.2 Potential Impacts and Mitigation Measures

This section presents the significance of potential impacts following the implementation of mitigation measures. The E.P.A. classifies impacts as follows:

Impact		Description
Quality of Effects	Positive Effects	A change which improves the quality of the environment
	Neutral Effects	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative Effects	A change which reduces the quality of the environment
Describing the Significance of Effects	Imperceptible	An effect capable of measurement but without significant consequences.
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
	Very Significant Effects	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound Effects	An effect which obliterates sensitive characteristics
Describing the Duration and Frequency of Effects	Momentary Effects	Effects lasting from seconds to minutes
	Brief Effects	Effects lasting less than a day
	Temporary Effects	Effects lasting less than a year
	Short-term Effects	Effects lasting one to seven years.
	Medium-term Effects	Effects lasting seven to fifteen years.
	Long-term Effects	Effects lasting fifteen to sixty years
	Permanent Effects	Effects lasting over sixty years
	Reversible Effects	Effects that can be undone, for example through remediation or restoration
	Frequency of Effects	Describe how often the effect will occur. ((once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually))
Describing the Extent and Context of Effects	Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Describing the	Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly

Probability of Effects		implemented.
	Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Interactions between the above environmental factors show the potential effect of the poultry farm on the community and its environs. Human Health/Population are the main impact receptor, Bio-diversity (Flora and Fauna) being the other. The poultry farm and its production processes will minimally impact upon the landscape, archaeology, terrestrial, water quality and climate described under the heading natural environment.

Traffic, air quality, noise, tourism and material assets are the factors that affect the community directly. This poultry farm with its planned integration into the existing farming activities, and wider agri.- tillage activities will have no significant impact on the rural community. There are a number of positive features associated with this proposed farm:

- It will serve to create additional employment and secure existing employment.
- It will serve to ensure that there is a consistent supply of eggs to Belview Egg Farm Ltd. to supply the main supermarkets, and meet the demand for fresh Irish eggs.
- All organic fertiliser is to be used in a fertiliser substitution programme to replace imported chemical fertiliser in accordance with the requirements of S.I. 113 of 2022

	Category	Potential Environmental Issues/Effects	Potential Impact ~ Site	Potential Impact ~ Customer Lands	Duration	Mitigation	Residual Impact
Natural Environment	Terrestrial						
	Bio diversity (Flora and Fauna)	Destruction/loss of habitats.	Neutral	Neutral	Long-term	Existing site of no significant ecological importance. Organic fertilizer to replace chemical fertilizer in accordance with S.I. 113 of 2022, no impact. Integration with existing farm enterprise/activity.	None
		Eutrophication	Negative	Neutral	Long-term	High quality development and storm water discharge systems. Nutrient balance / organic fertiliser substitution. Organic fertiliser will replace chemical fertiliser. Customer Farmers have capacity to utilise all nutrients.	slight
	Fresh Water / Groundwater	Risk of contamination	Negative	Neutral	Long-term	Fertiliser planning / Buffer Zones / Codes of Good Practice applied (S.I. 113 of 2022, Customer Farmlands).	Slight
	Landscape	Visual impact	Negative	Neutral	Long-term	Site integrated into landscape. Low finished floor level relative to adjoining ground level. Well set back from the local road. Existing poultry farm.	Slight
	Archaeology	Disturbance of archaeological finds	Neutral	Neutral	Long-term	Site not likely to impact on, and well removed from any archaeological sites.	Neutral
	Climate / Climate Change	Contribution of greenhouse gases	Positive	Neutral	Long-term	Poultry production is less harmful than ruminant production in terms of methane. Organic manure will replace inorganic fertilisers eliminating manufacturing / transport energy use. Integration with existing farming activities.	None
Human Health / Population	Agriculture and land use	Fertiliser substitution	Neutral	Positive	Long-term	Loss of agricultural land (site), however not significant due to limited area. Improves profitability by reducing costs and improving output.	None
	Community	Application of manure	Neutral	Neutral	Long-term	Significant requirement for additional organic fertiliser. All organic fertiliser to be applied to customer farmers in accordance with S.I. 113 of 2022	None

		Vermin and pest infestation	Negative	Neutral	Long-term	Control programme to be practiced on farm in line with Bord Bia requirements.	None
		Fire Hazards	Negative	Neutral	Long-term	Fire points / extinguishers / staff training	None
	Traffic	Long-term increase in traffic.	Negative	Neutral	Long-term	In-ward/out-ward traffic primarily during working hours. Minimise traffic volume by optimising load sizes. Additional Short term peak during construction. Good road infrastructure.	Slight
	Noise	Stock Noise at feeding/moving. Feed deliveries, manure removal	Negative	Neutral	Long-term	Prioritise activities during during working hours. Remote Location.	None
	Air	Generation of Odours	Negative	Neutral	Short-term	Adherence to Code of Good Practice to Reduce Odour Emissions at Spreading. High standard of housing and management and washing between batches. Buffer zones from sensitive dwellings / areas.	None
	Tourism/ Ammenities	Landscape	Neutral	Neutral	Long-term	Site location will result in no adverse impact on the environment.	None
		Water Quality	Neutral	Neutral	Long-term	High standard of development and management / Fertiliser planning / Buffer Zones / Codes of Good Practice applied / Integration with existing farming activities.	None
	Material Assets	Reduction in material / residential quality	Neutral	N/A	Long/ short-term	Site location will ensure that there is no negative impact on the material assets of the area.	None

9. ENVIRONMENTAL MANAGEMENT PROGRAMME

9.1. Introduction

The applicant will implement and maintain a comprehensive monitoring programme on site to provide maximum protection for the environment. This plan will in effect be governed by the requirements of the E.P.A., as detailed in any existing / revised Licence issued to this farm, and by the applicant's requirements under environmental legislation such as S.I. 113 of 2022, as amended. This management plan will involve, but is not limited to, maintaining an organic fertiliser / poultry manure register and visual inspection of all storm water outlets.

Implementing this programme will ensure that there are no negative environmental impacts from the activities associated with the operation of the poultry farm. Any recommendations of the planning authority will be complied with in relation to this Environment Management Programme.

9.2. Organic fertiliser / poultry manure Management Programme

The applicant will implement and manage a programme for the allocation of organic fertiliser / soiled water in each particular year. The main aspects of the Organic fertiliser / poultry manure Management Programme are to ensure that the requirements of S.I. 113 of 2022, as amended, are met in full by the applicant. This will include;

- The allocation of poultry manure to customer farmers for use as organic fertiliser with the requirements of S.I. 113 of 2022, as amended,.

- Proper separation of all clean water on site, and the collection of all soiled water in the soiled water storage tanks. The allocation of soiled water for use as an organic fertiliser in line with the requirements of S.I. 113 of 2022, as amended.

- Continuous recording of all organic fertiliser / poultry manure / soiled water transfers off the farm, as per the record 3 form (Record 3 is the term given to the recording of movement of organic fertilisers from one farm to another, for compliance with S.I. 113 of 2022, as amended) or commercial documents (for compliance with Animal By-products regulations) developed by The Department of Agriculture, Food and The Marine, and submission of all records to The Department of Agriculture, Food and The Marine as required.

9.3. Environmental Monitoring Programme

(i) ***Work schedule for fixed structures.***

- A maintenance programme for all structures and systems to be implemented to ensure that same are operating to maximum efficiency

(ii) ***Monitoring fixed structures for the following:***

- checking soiled water and clean water drainage systems for deterioration, leaks and blockages.

(iv) ***Monitoring and analysis***.

- Storm water emission points to be visually inspected and recorded on a weekly basis.

- Soiled Water Storage Tanks – To be monitored and recorded as required for remaining storage capacity, and certified in line with E.P.A. requirements or at least every 5 years.

- Noise, Odour and Dust emissions not to exceed EPA Licence thresholds. Such thresholds may be revised as per any licence issued to this farm. As per previous licences issued by the Agency this license will have specific requirements/conditions pertaining to odour/noise and dust to be complied with.

- Remaining monitoring and analysis as may be determined by the requirements of any E.P.A. licence issued to this farm.

10. Summary

Summary

The proposal as outlined will make a significant positive contribution to the rural economy of this area and will serve to increase employment and secure the viability and competitiveness of the applicant's existing farm and Belview Egg Farm ltd.s existing business.

The proposed development is the ideal scenario/model whereby;

1. ***The proposed development will produce a highly nutritious, efficient, sustainable and affordable food for the local Irish market, whereby same is to be completed to a high welfare standard, and with a lower environmental/GHG foot pint than alterative animal based protein sources.***
2. ***The proposed development will off set production loss in other houses proposed to be upgraded to higher welfare standards, and also to meet increasing Irish consumer demand as a result of increased consumption / population.***
3. ***the manure produced by the birds housed in the proposed developments, is used in a fertiliser substitution programme, as a substitute for imported chemical fertiliser and will off set the Green house gas emissions associated with the production of this fertiliser.***

The new farm buildings and ancillary structures will integrate successfully within the existing landscape and its surroundings, as well as successfully integrating with the applicant's existing farming activities to the benefit of both the existing and proposed enterprises and will not give rise to any significant environmental effects.

It is envisaged that no aspects of the environment will be significantly affected by this proposed development, for the reasons as outlined. The proposed development is agricultural in nature, has the potential to be well integrated into the local farming activities (with some of the associated activities i.e. spreading of organic fertiliser / soiled water on land, already occurring), remote from 3rd party dwellings, not located in a sensitive area/landscape, does not involve practices/processes that have the potential for significant adverse impact, does not result in the use or production of materials/products with potential for significant adverse impact, and, is a widely practiced agricultural enterprise.

The granting of permission to the proposed development would strongly accord with the provisions of the County Development Plan, as previously detailed, and will provide a significant boost to the economy of Co. Louth. The proposed development would not seriously injure the amenities of the area or of property in the vicinity, would be acceptable in terms of traffic safety and convenience of road users and would not be prejudicial to public health or pose a threat of environmental pollution and will operate under the conditions imposed as part of any grant of planning permission and revised E.P.A. Licence for this farm.

The proposed development would, therefore, be in accordance with the proper planning and sustainable development of the area, and will provide for an efficient and sustainable development which will help to meet the dietary requirements of Irish Consumers in an efficient manner, well below the environmental footprint of other comparable foodstuffs.

The diversification into a farming system that seeks to produce high quality, nutritious food with a lower carbon footprint than existing farming systems, and with a focus on producing food primarily destined for domestic consumption, and meeting increasing demand for high quality, affordable and nutritious food has to be considered both pragmatic and sustainable for the applicant and the local Agri food sector.

Signed:

Paraic Fay BAgrSc

Date 4/4/2024

C.L.W. Environmental Planners Ltd.
The Mews,
23 Farnham St.,
Cavan Town,
Co. Cavan.

Tel: 049-4371447

Email: info@clw.ie

Appendixes

Appendix No. 1	~	***Customer Farmland Details***
Appendix No. 2	~	***Site Location Map (1:2,500 & 1:10,560)***
Appendix No. 3	~	***Site Layout (Not to scale)***
Appendix No. 4	~	***Engineers Drawings (Not to scale)***
Appendix No. 5	~	***Environmental Protection Agency – Draft Advice Notes on EIS – Project Type 13***
Appendix No. 6	~	***Location of Customer Farmlands***
Appendix No. 7	~	**Existing E.P.A. Licence**
Appendix No. 8	~	**Feed Details**
Appendix No. 9	~	**Animal Tissue Disposal**
Appendix No. 10	~	***Local Water Quality Data***
Appendix No. 11	~	***Extracts from Co. Louth Development Plan***
Appendix No. 12	~	***Met Data***

CLW

Appendix No. 13	~	**Natura Impact Statement**
Appendix No. 14	~	***Extract from General Soil Map of Ireland. Profile of Soil***
Appendix No. 15	~	***Noise Impact Assessment***
Appendix No. 16	~	**European Communities (Welfare of Farmed Animals) Regulations 2010 – S.I. 311 of 2010**
Appendix No. 17	~	**Copy of Nitrates Directive – S.I. 113 of 2022**
Appendix No. 18	~	**Air Quality Impact Assessment**
Appendix No. 19	~	**Construction Waste Management Plan**
Appendix No. 20	~	**Sub Soil & Hydrological Assessment & Surface Water Management Assessment**
Appendix No. 21	~	**By-pass Separator details**

Appendix No. 1

Customer Farmland Details

2023 Estimated Customer Fertiliser Plan ***For Internal Farm and Contractor Use only. Distribution of this report to any person/body strictly prohibited.***

THIS IS NOT A RECORD 3 / SLURRY REGISTER

Farm	Crayvall Egg Production	Herd No	Dept. Of Ag	Total N	Total P	Area	NPH	Storage (weeks)	Meal (Est.)	Chemical P	Sheep, Horses	Silage 2 Cut	Est.Max allocation 2023
1			2023	0	0	344.91	0.0	18	N/A	0			4280
2			2023	0	0	319.24	0.0	18	N/A				3961
3							#DIV/0!	18	N/A	0			0
4							#DIV/0!	18	N/A	0			0
5							#DIV/0!						0
6							#DIV/0!						0
7							#DIV/0!						0
							#DIV/0!						0
							#DIV/0!						0
													0
							#REF!						8241

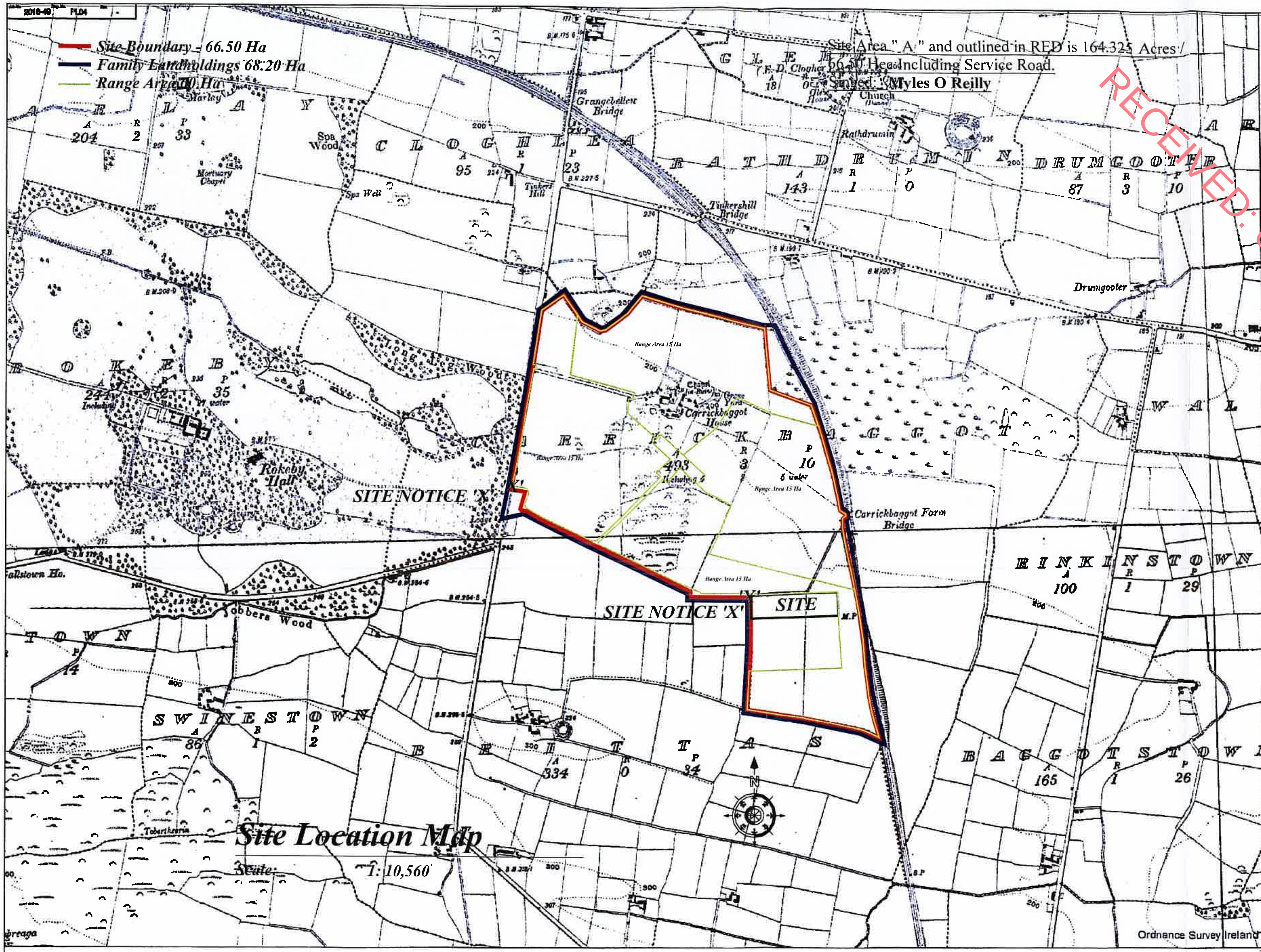
Capacity% 168

Estimated production		Hens	Manure production	Weeks	Total
	existing	60000	0.81 / '000 birds * 88%	52	2223.936
	proposed	64000	0.81 / '000 birds * 100%	52	2695.68
					4919.616

CLW

Appendix No. 2

Site Location Map (1:2,500 & 1:10,560)



National Mapping Agency

CENTRE COORDINATES:
ITM 709713,785210

PUBLISHED: 21/02/2019

ORDER NO.: 50048156_1

MAP SERIES:	MAP SHEETS:
6 Inch Raster	9900-19
6 Inch Raster	LH018
6 Inch Raster	LH019
6 Inch Raster	LH021
6 Inch Raster	LH022

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CAPTURE RESOLUTION:
The map objects are only accurate to the resolution at which they were captured.

OUTPUT SCALE: 1:10,560

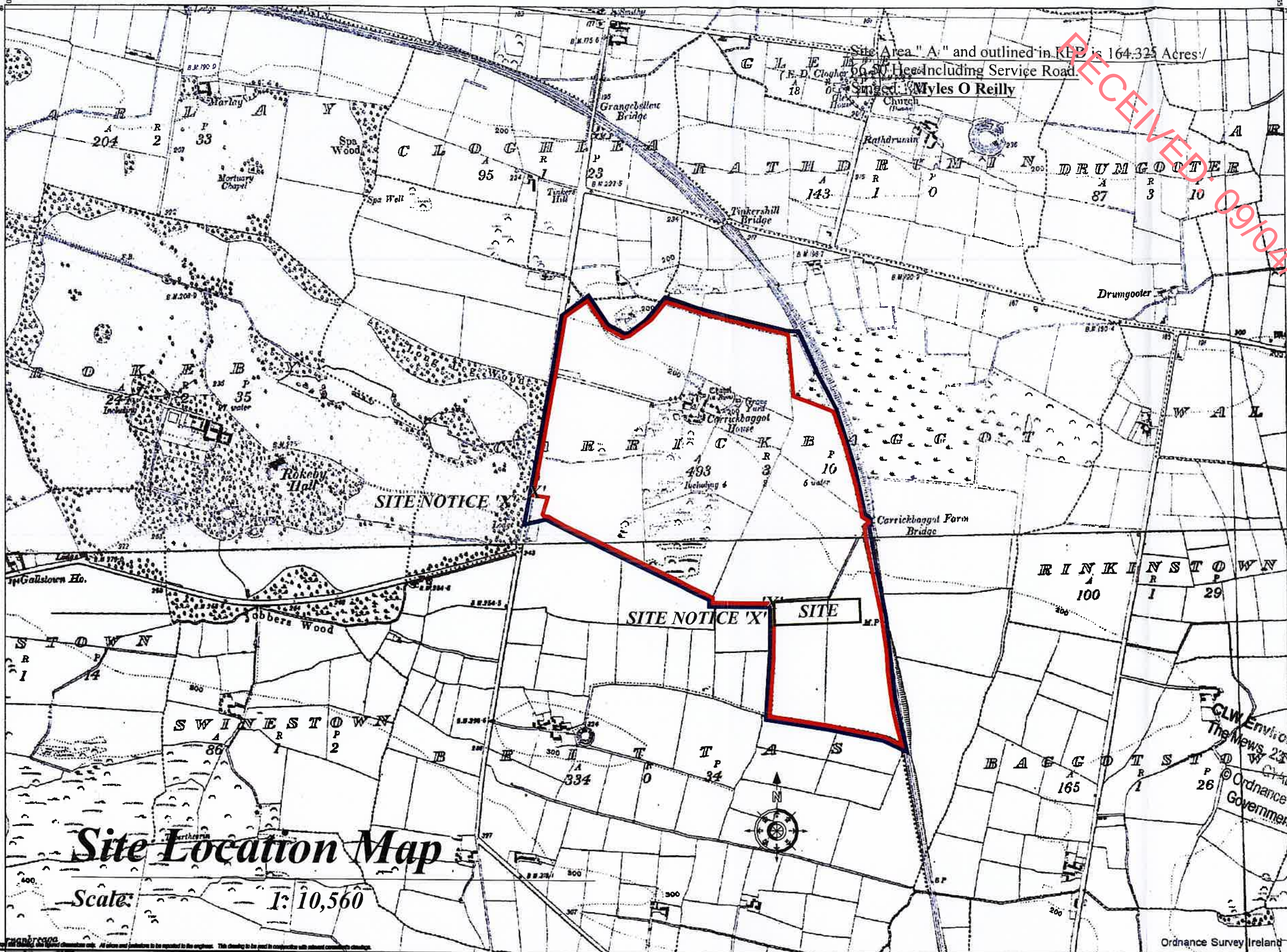
1,150 Metres

NOTES:

MO'Reilly CIVIL ENGINEERING
ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT

Client: Crayvell Egg Production ltd.	Date: 07-06-22	Drawn: MOR	Checked: MOR
Project: Proposed Construction of 1 no Free Range Poultry House and all ancillary Site works at Carrickbaggot, Grangebellew, Co. Louth.	Job No.: 2018-49	Dwg No.: PL05	Rev.: -
Drawing Title: Site Location Map	Scale: 1:10560	Status: Planning	Size A3

2018-49 PL04 -



Ordnance Survey Ireland
National Mapping

CENTRE COORDINATES:
ITM 709713,785210

PUBLISHED:
21/02/2019

MAP SERIES:
6 Inch Raster
6 Inch Raster
6 Inch Raster
6 Inch Raster
6 Inch Raster

COMPILED AND PUBLISHED BY:
Ordnance Survey Ireland,
Phoenix Park,
Dublin 8,
Ireland.

NOTES:

rev.	date	drawn	description
A	18.02.09	MOR	ABCDEFGHIJ

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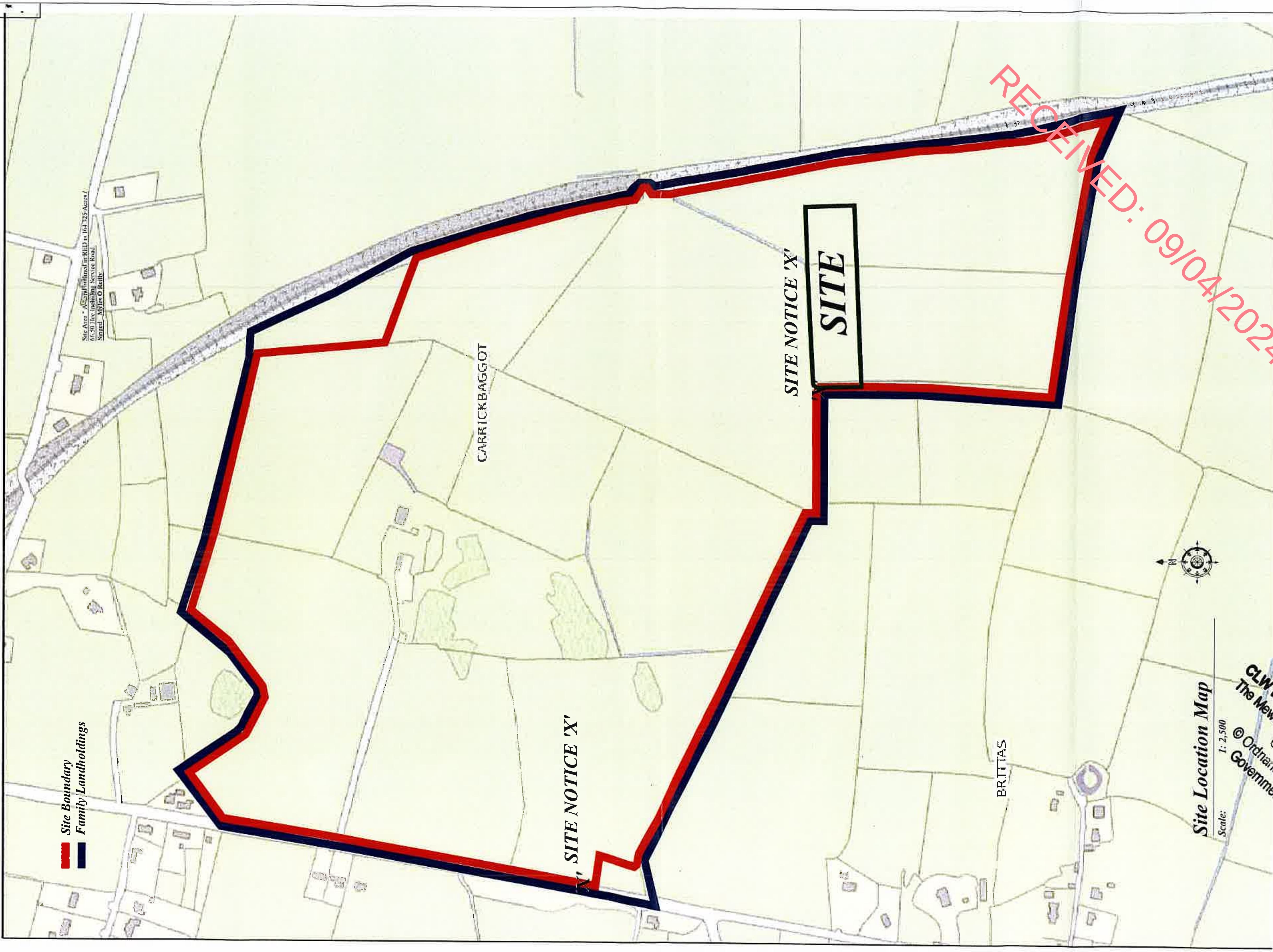
ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT

Client: Craywell Egg Production ltd.	Date: 12-07-23	Drawn: MOR	Checked: MOR
Project: Proposed Construction of 1 no Free Range Poultry House and all ancillary Site works at Carrickbaggot, Grangebellew, Co. Louth.	Job No.: 2018-49	Dwg No.: PL04	Rev.: -
Drawing title: Site Location Map	Scale: 1:10560	Status: Planning	Paper Size: Size A3

Job No. 2018-60 Dwg. No. PL07 Rev. -



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NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

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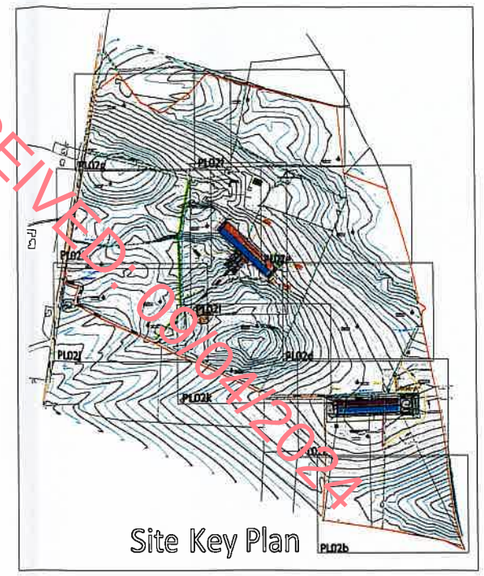
Crubany, Cavan, Co. Cavan T: 0877521970 E: moreillycivileng@hotmail.com

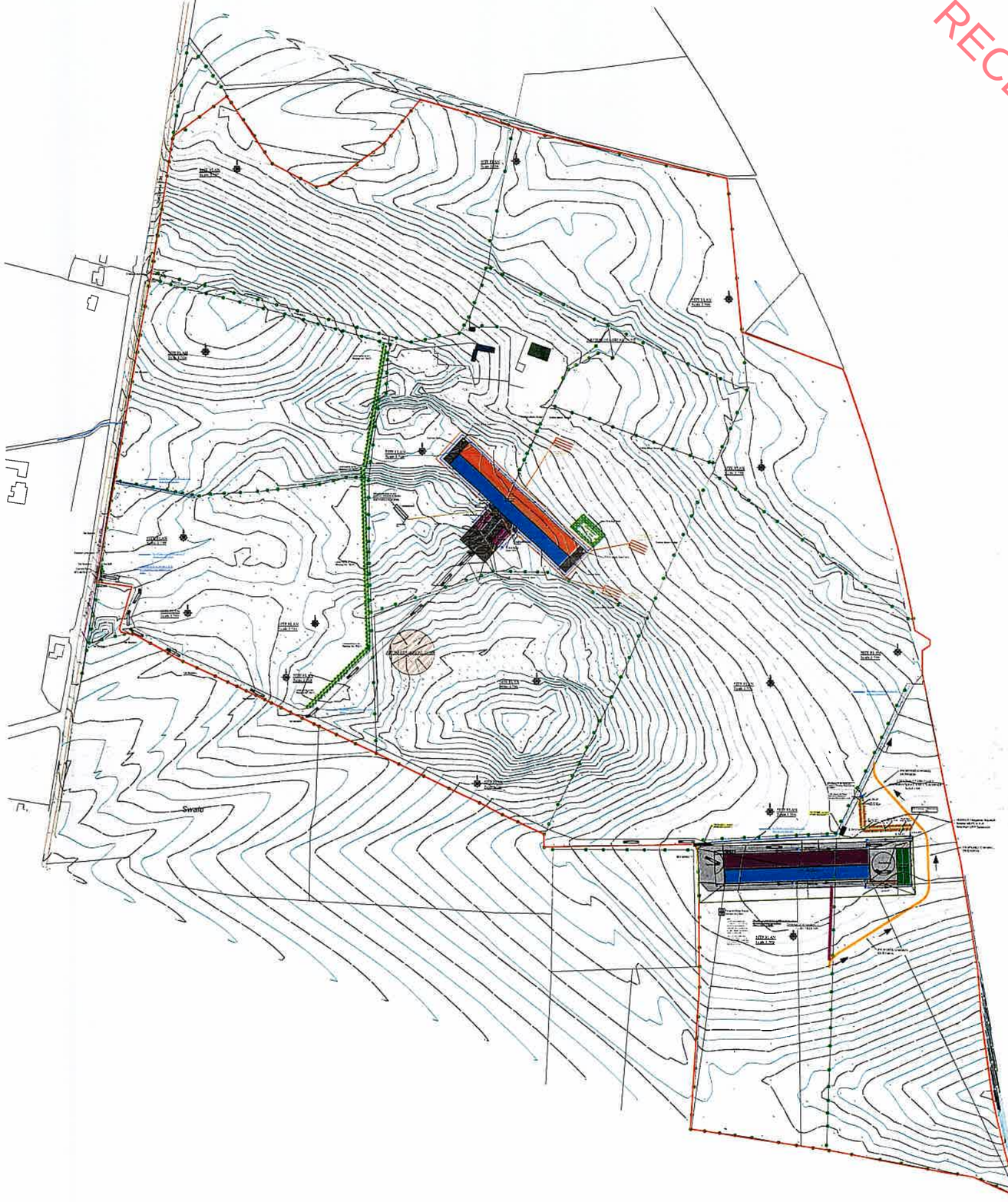
Client	Crayvall Egg Production ltd.	Date	14-08-23	Drawn	MOR	Checked	MOR
Project	Proposed Poultry House and all ancillary Site works at Carrickbaggot, Grangebellew, Co. Louth.	Job No.	2018-60	Dwg. No.	PL07	Rev.	-
Drawing title	Site Location Map	Scale	1:2500	Status	Planning	Dwg Size	Size A1

Appendix No. 3

Site Layout
(Not to scale)

Job No. 2018-60 Dwg No. PL02 Rev. -





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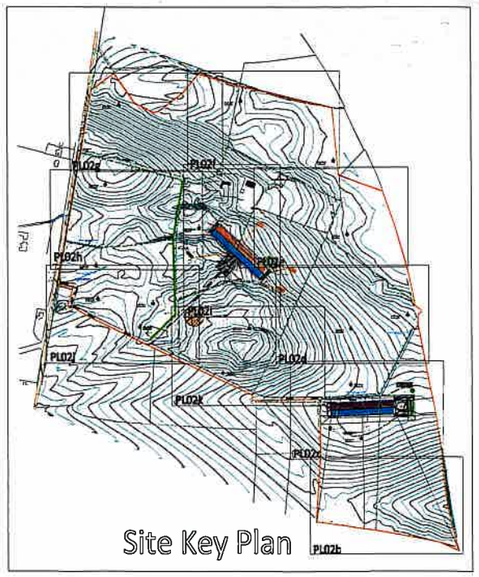
ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877921970 E: morellycivileng@hotmail.com

Client	Crayvall Egg Production ltd.	Date	26-03-24	Drawn	MOR
Project	Proposed Poultry House and all ancillary Site works at Clerkhaspot, Grangebellew, Co. Louth.	Job No.	2018-60	Dwg No.	PL02
Drawing Title	Proposed Site Plan	Scale	1:2500	Status	F.I.

Checked MOR | Rev. - | Dwg Size Size A1

Job No. 2018-60 Dwg No. PL02b Rev.



MO'Reilly CIVIL ENGINEERING
ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877821970 E: morellycivileng@hotmail.com

Client: Craywall Egg Production ltd.	Date: 14-08-23	Drawn: MOR	Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickdagget, Grangebellew, Co. Louth.	Job No. 2018-60	Dwg No. PL02b	Rev. -
Drawing Title: Proposed Site Plan	Scale: 1:500	Status: Planning	Dwg Size: Size A1

2018-60 PL02c

SITE PLAN
Scale 1/500

PROPOSED CULVERT UPGRADE-CULVERT 1

PROPOSED CULVERT UPGRADE-CULVERT 2

Existing Open Drains (Inc Dry drains) marked thus

Discharge From Attenuation Swale to Existing Watercourse Channel

Outlet Manhole Fitted With Flow Restriction Device - Flow Limit 3.4 l/s

60.82

IL 59.26

Check Dam Weir IL 59.86

Stormwater Attenuation Swale

Check Dam Weir IL 59.91

Check Dam Weir IL 59.96

Check Dam Weir IL 60.00

IL 59.36

IL 59.31

IL 59.40

375mm uPVC

300mm uPVC

Sealed Storm Line

Open Drain

SITE NOTICE " X "

Turning Circle

Proposed House
FFL - 60.50m

Turning Circle

Proposed Shed
FFL - 60.50m

300mm uPVC

Sealed Storm Line
300mm uPVC

PROPOSED CHANNEL DIVERSION

LOCATION OF PROPOSED STORMWATER ATTENUATION SWALE
SCALE 1:500

NSBE025 Klargester Bypass MDPE & Full Retention GRP Separ

PROPOSED CH DIVERSION

RECEIVED: 09/04/2024

Proposed Solar Panels hatched like thus.

NOTE:
All surface water to local watercourse
All Existing Surface Water To be Picked up
New Surface water to be connected to Existing Surface Water Lines with Silt Trap
All Surface Water To be Picked up outside pop holes to distribution drains.

All sound trees on site shall be retained, except for those that require to be moved to facilitate the actual physical development of the site. Existing Hedgerows to be buffed thickened up where required.

Site Area " A " and outlined in RED is 164.325 Acres / 66.50 Hec Including Service Road.
Singed: **Myles O Reilly**

DRAINAGE CHANNEL 1
TO BE FILLED-IN

SITE PLAN
Scale 1/500

PROPOSED CHANNEL DIVERSION

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NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

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ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Cruberry, Cavan, Co. Cavan T: 0877521970 E: moreillyciviling@hotmail.com

Client: Craywall Egg Production ltd.
Drawn: MOR
Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickhapool, Grangebellew, Co. Louth.
Job No. 2018-60
Dwg No. PL02c
Rev. -
Drawing Title: Proposed Site Plan
Scale: 1:500
Dwg Size: Size A1

Drainage from stone area outside pop holes to distribution drains

Existing Mature Headge

15.9m3 Waste Water Tank

Apron

Drainage from stone area outside pop holes to distribution drains

isting Matore Headge

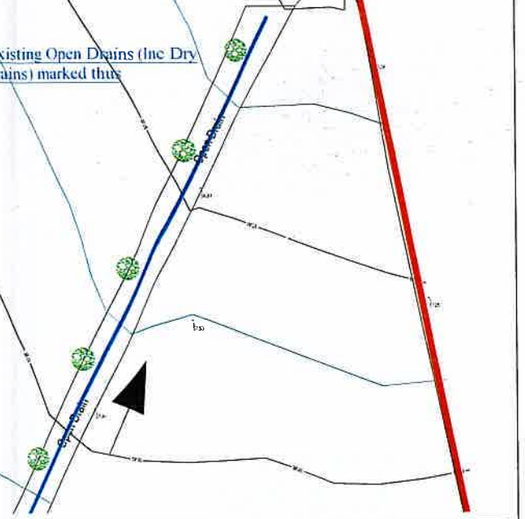
SITE PLAN
Scale 1/500

SITE PLAN
Scale 1/500

Existing Open Drains (Inc Dry drains) marked thus

Open Drain

Open Drain



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NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

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ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877321970 E: moreillycivileng@hotmail.com

Client: Crayvall Egg Production ltd.	Date: 26-03-24	Drawn: MOR	Checked: MOR
Project: Proposed Poultry Houses and all ancillary Site works at Carrickbagget, Grangebellew, Co. Louth.	Job No: 2018-60	Dwg No: PL02d	Rev: -
Drawing Title: Proposed Site Plan	Scale: 1:500	Status: F.I.	Dwg Size: Size A1

ARCHAEOLOGICAL ZONE

Existing Mature Headge

Existing Mature Headge

Drainage from stone area outside pop holes to detribution drains

Soak Pit to Eng Detail

Sealed Storm Line

Drainage from stone area outside pop holes to detribution drains

SITE PLAN
Scale 1/500

Site Key Plan

NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

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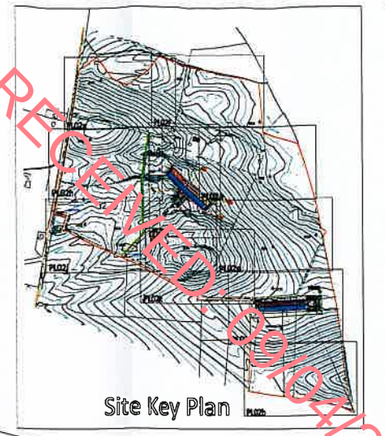
Crubany, Cavan, Co. Cavan T: 0877921970 E: moreillycivileng@hotmail.com

Client: Crayvall Egg Production ltd. | Date: 14-08-23 | Drawn: MOR | Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickbagot, Grangebellew, Co. Louth. | Job No. 2018-60 | Dwg. No. PL02a | Rev. -
Drawing Title: Proposed Site Plan | Scale: 1:500 | Status: Planning | Dwg Size: Size A1

Job No. 2018-60 Dwg No. PL02f Rev.

SITE PLAN
Scale 1/500



SITE PLAN
Scale 1/500

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NOTES:

rev.	date	drawn	description
A	12.02.06	MOR	ABCDEFGHIJ

rev.	date	drawn	description

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ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877921970 E: morellychrilling@hotmail.com

Client: Crayvall Egg Production ltd.	Date: 14-08-23	Drawn: MOR	Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickteggot, Orangebellew, Co. Louth.	Job No. 2018-60	Dwg. No. PL02f	Rev. -
Drawing Title: Proposed Site Plan	Scale: 1:500	Status: Planning	Dwg Size: Size A1

2018-60 PL02g -

Section 1

SITE PLAN
Scale 1/500

Sight Distance 150m

Site Boundary

Existing Entrance

Service Road

Service Road

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NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

rev.	date	drawn	description

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ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877321970 E: moreillycivileng@hotmail.com

Client: Crayvall Egg Production ltd.	Date: 14-08-23	Drawn: MOR	Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickleagoe, Grangebellew, Co. Louth.	Job No.: 2018-60	Dwg No.: PL02g	Rev: -
Drawing Title: Proposed Site Plan	Scale: 1:500	Status: Planning	Dwg Size: Size A1

2018-60 PL02h

SITE PLAN
Scale 1/500

Site Boundary

Service Road

Landscaping as per Planning Ref: 19/231.

Conc

SITE PLAN
Scale 1/500

Landscaping as per Planning Ref: 19/231.

Existing Open Drains (Inc Dry drains) marked thus

PERCOLATION TRENCHES 18m LONG
100mm Ø uPVC PERFORATED DISTRIBUTION PIPE (8mm Ø PERFORATIONS AT 4, 6 & 8 O'CLOCK AT 300mm C/C ALONG THE PIPE)

PERCOLATION AREA

DISTRIBUTION BOX

Site Boundary

Distance 75m

SITE PLAN
Scale 1/500

Do not scale from this drawing, use figured dimensions only. All errors and omissions to be reported to the engineer. This drawing to be read in conjunction with relevant consultant's drawings.

NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

MOR MO'Reilly CIVIL ENGINEERING
ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877321970 E: morellycivileng@hotmail.com

Client: Crayvall Egg Production ltd.	Date: 14-08-23	Drawn: MOR	Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickbeggot, Grangebellew, Co. Louth.	Job No.: 2018-60	Dwg No.: PL02h	Rev.: -
Drawing Title: Proposed Site Plan	Scale: 1:500	Status: Planning	Dwg Size: Size A1

2018-60 PL02j

SITE PLAN
Scale 1/500

Proposed Landscaping

Sight Distance

Site Boundary

Concrete Apron

SITE NOTICE " X "

Head Wall

Existing Open Drains (Inc Dry drains) marked thus

Aqua drain to be set back at the site entrance and piped to open drain.

Sight Distance 75m

Head Wall

Site Boundary

Site Boundary

Site Boundary

SITE PLAN
Scale 1/500

SITE PLAN
Scale 1/500

Landscaping as per Planning Ref: 19/231.

Landscaping as per Planning Ref: 19/231.

ARCHAEOLOGICAL

SITE PLAN
Scale 1/500

Landscaping as per Planning Ref: 19/231.

Existing Open Drains (Inc Dry drains) marked thus

Site Boundary

Site Boundary

SITE NOTICE " X "

Site Boundary

Site Boundary

Do not scale from this drawing. Use figured dimensions only. All errors and omissions to be reported to the engineer. This drawing to be read in conjunction with relevant consultant's drawings.

NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

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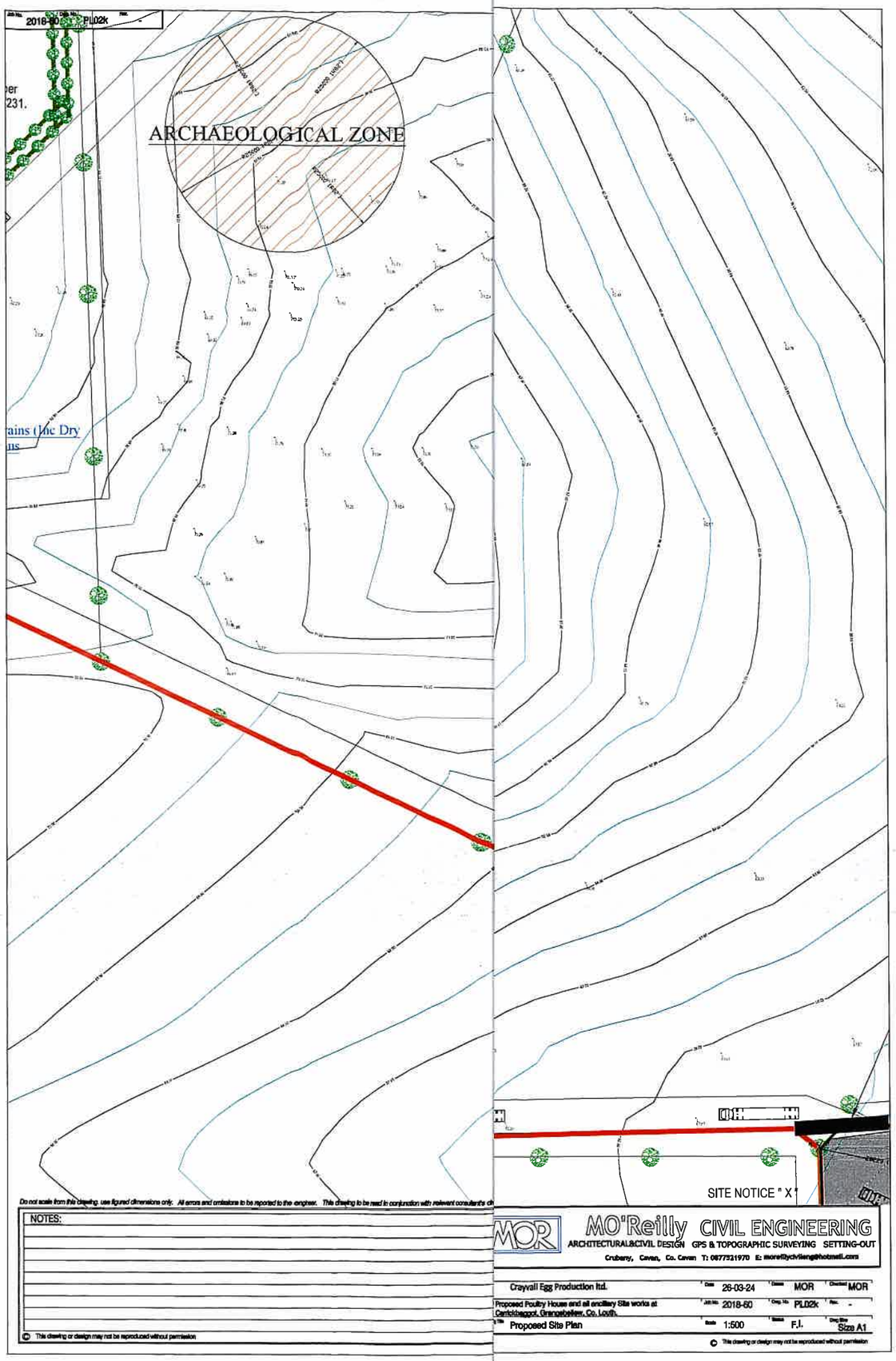
Crubany, Ceven, Co. Ceven T: 0877321970 E: morellycivileng@hotmail.com

Client: Crayvall Egg Production ltd.	Date: 14-08-23	Drawn: MOR	Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickbeggot, Grangebellew, Co. Louth.	Job No.: 2018-60	Dwg No.: PL02	Rev: -
Drawing Title: Proposed Site Plan	Scale: 1:500	Status: Planning	Dwg Size: Size A1



ARCHAEOLOGICAL ZONE

SITE PLAN
Scale 1/500

SITE PLAN
Scale 1/500

SITE NOTICE " X "

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NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

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ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877321970 E: morellycivileng@hotmail.com

Client: Crayvall Egg Production ltd.	Date: 26-03-24	Drawn: MOR	Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickacoot, Grangebellew, Co. Louth.	Job No.: 2018-60	Dwg. No.: PL02k	Rev.: -
Drawing Title: Proposed Site Plan	Scale: 1:500	Status: F.I.	Dwg Size: Size A1

ARCHAEOLOGICAL ZONE

SITE PLAN
Scale 1/500

Existing Mature Headge
Concrete Apron
15.9m3 Waste Water Tank
Stoned Area
Sealed Storm Line
Turning Circle
Ancillary Shed
Oil Tank
Generator
Ex-Shed FFL -0.20cm
Ex-Shed FFL -0.20cm
Concrete Apron
Switch Manhole
DISTRIBUTION BOX
PERCOLATION AREA
TRENCHES 18m LONG PERFORATED DISTRIBUTION PERFORATIONS AT 4, 8 & 12cm C/C ALONG THE PIPE
Meal Bins
Treatment System
Existing House FFL - 0.50cm
Sealed Storm Line
Soak Pit to E
Drainage from stone area outside pop holes to distribution drains
Concrete Apron
Existing Mature Headge
Existing Mature Headge
15.9m3 Waste Water Tank
Concrete Apron
Ex-Dwelling
Ex-Shed
Ex-Shed
Service Road

Rev	Date	Drawn	description
A	11.0.02.(26)	MOR	ABCDEFGHIJ

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Cruiskeey, Cavan, Co. Cavan T: 0877031970 E: morr@eircom.net

Client	Crayell Egg Production ltd.	Date	14-06-23
Drawn	MOR	Checked	MOR
Job No.	2016-60	Dwg No.	PL02
Rev.	-		
Title	Proposed Poultry Houses and all ancillary Site works at Gortdrehagool, Grangebellew, Co. Louth.		
Drawing Title	Proposed Site Plan	Scale	1:500
Status	Planning	Size	A1

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2018-49 PL03

SITE PLAN
Scale 1/500

PROPOSED CULVERT
UPGRADE-CULVERT 2

PROPOSED CULVERT
UPGRADE-CULVERT 1

Existing Open Drains (Inc Dry drains) marked thus

Discharge From Attenuation Swale to Existing Watercourse Channel

Outlet Manhole Fitted With Flow Restriction Device - Flow Limit 3.4 l/s

60.82

IL 59.26

Check Dam Weir IL 59.86

Check Dam Weir IL 59.91

IL 59.31

IL 59.36

Check Dam Weir IL 59.96

Check Dam Weir IL 60.00

IL 59.40

Stormwater Attenuation Swale

375mm uPVC

300mm uPVC

Sealed Storm Line

Open Drain

NOTICE " X "

Turning Circle

Proposed House
FFL 60.50m

Turning Circle

Proposed Shed
FFL 60.50m

PROPOSED CHANNEL DIVERSION

LOCATION OF PROPOSED STORMWATER ATTENUATION SWALE
SCALE 1:500

NSPE025 Klargester AquaOil Bypass MDPE & Full Retention GRP Separator

PROPOSED CHANNEL DIVERSION

Proposed Solar Panels hatched like thus.

NOTE:
All surface water to local watercourse
All Existing Surface Water To be Picked up
New Surface water to be connected to Existing Surface Water Lines with Silt Trap
All Surface Water To be Picked up outside pop holes to distribution drains.

All sound trees on site shall be retained, except for those that require to be moved to facilitate the actual physical development of the site. Existing Hedgerows to be buffed/ tickened up where required.

Site Area " A " and outlined in RED is 164.325 Acres / 66.50 Hec Including Service Road.
Singed: **Myles O Reilly**

DRAINAGE CHANNEL 1
TO BE FILLED-IN

SITE PLAN
Scale 1/500

PROPOSED CHANNEL DIVERSION

SITE SERVICES PLAN

Do not scale from this drawing, use figured dimensions only. All errors and omissions to be reported to the engineer. This drawing to be read in conjuction with relevant consultant's drawings.

NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

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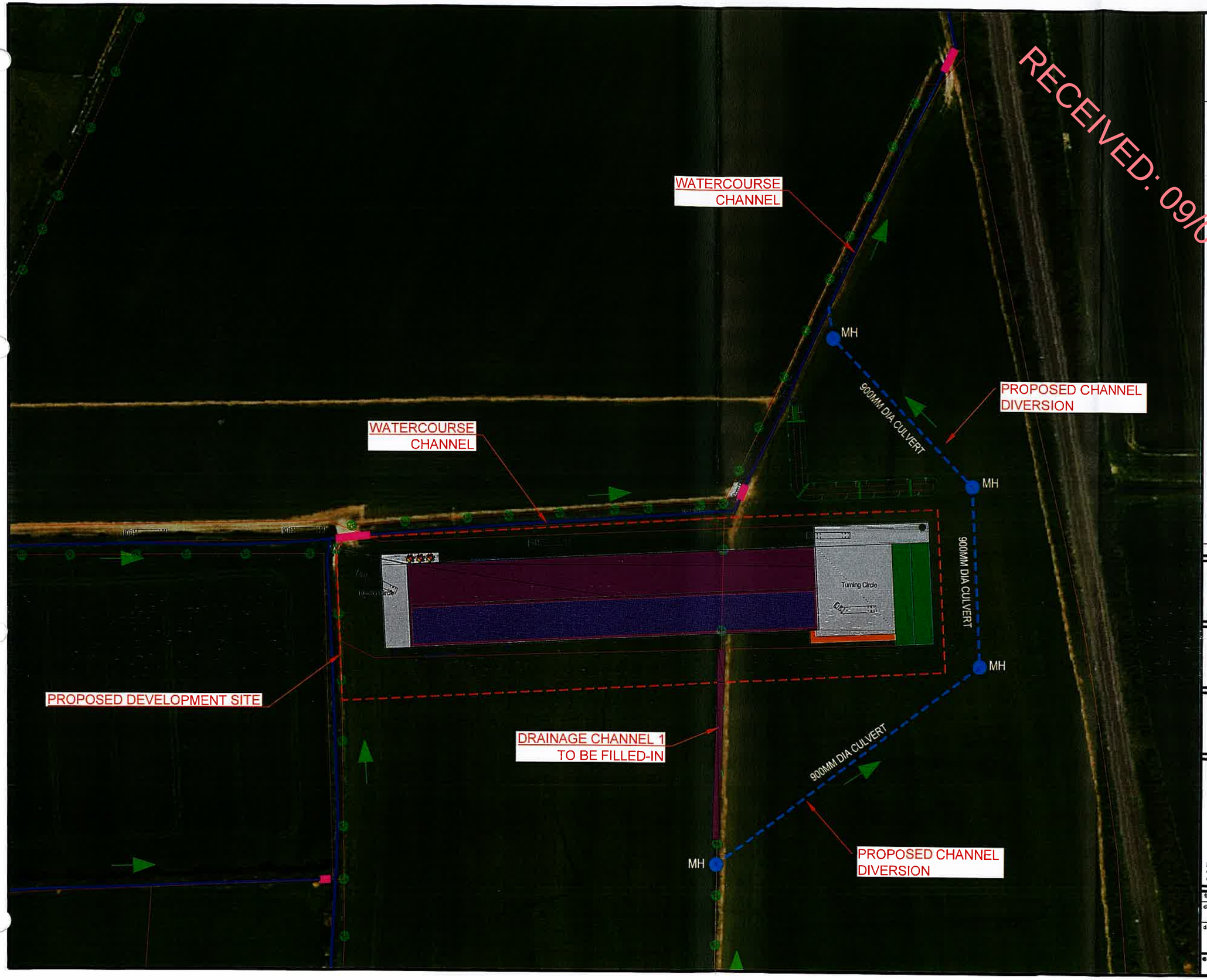
ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877321970 E: morellycivileng@hotmail.com

Client: Crayvall Egg Production ltd.	Date: 26-03-24	Drawn: MOR	Checked: MOR
Project: Proposed Poultry Houses and all ancillary Site works at Carrickbeggot, Grangebellew, Co. Louth.	Job No.: 2018-60	Dwg No.: PL03	Rev.: -
Drawing Title: Proposed Site Services Plan	Scale: 1:450	Status: F.I	Dwg Size: Size A1



LEGEND

- WATERCOURSE
- STREAM CROSS SECTION
- CHANNEL DIVERSION
- CHANNEL DIVERSION CROSS SECTION

- ELEVATIONS ARE TO ORDINANCE DATUM [MALIN]
- NOT TO BE USED FOR CONSTRUCTION PURPOSES
- PLANNING PURPOSES ONLY
- DO NOT SCALE FROM THE DRAWING

rev.	date	amendment		
A	22.03.24	INFORMATION	JMC	PMS

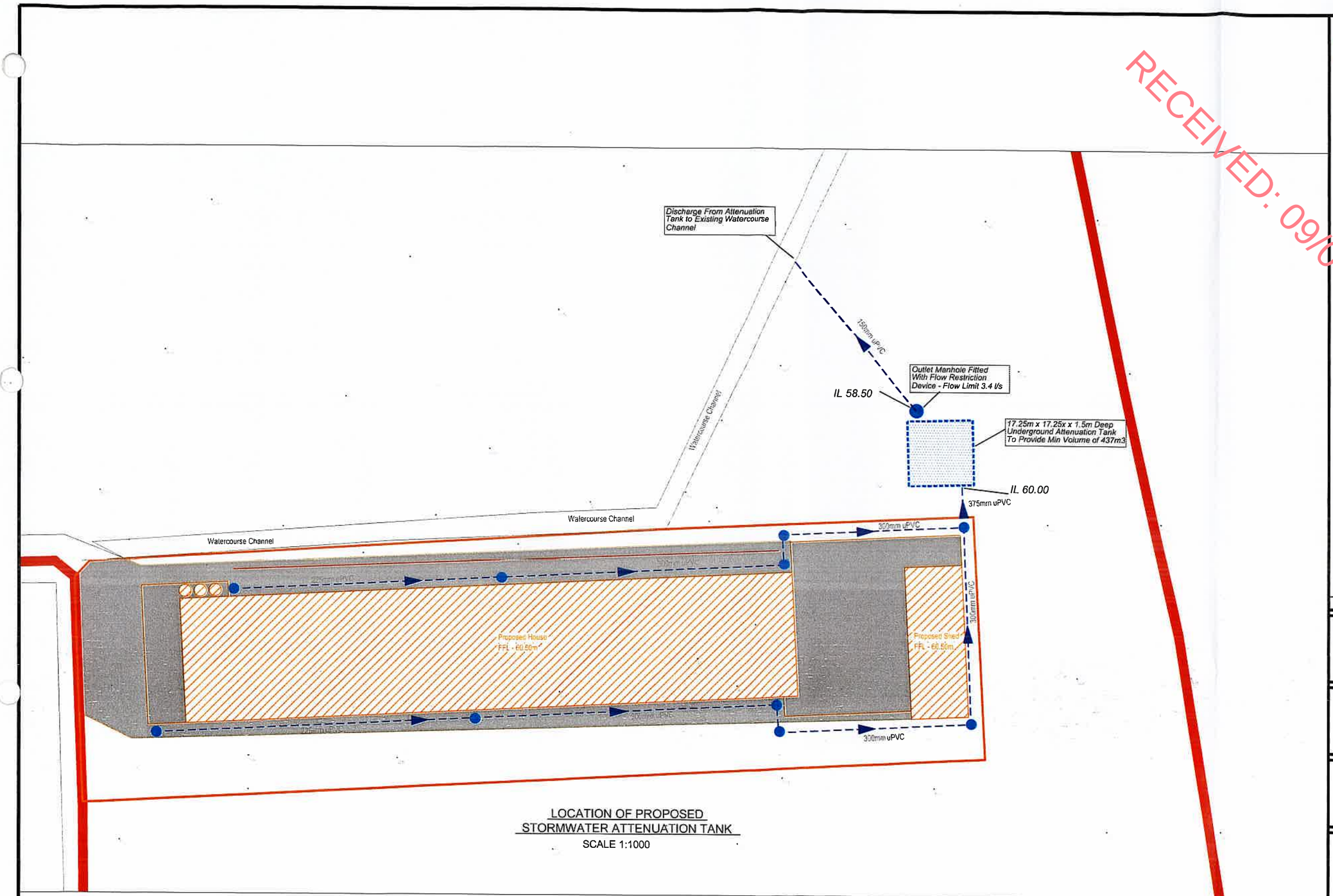
PROPOSED DEVELOPMENT SITE AT CARRICKBAGGOT, GRANGEBELLEW, CO. LOUTH

DRAINAGE CHANNEL 1 DIVERSION
ALTERNATIVE CULVERT OPTION

PLAN VIEW

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL
CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248
NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY, BT35 6PH

file location:	N:\IE2888\DRAWINGS	scale:	NTS A3
drawing status:	INFORMATION	datum:	MALIN
		drawn:	JMC
drawing no.	rev	checked:	PMS
IE2888-012	A	approved:	PMS
		date:	22.03.2024



LOCATION OF PROPOSED
STORMWATER ATTENUATION TANK
SCALE 1:1000

LEGEND

- SITE BOUNDARY
- PROPOSED ROOF AREA
- PROPOSED HARDSTANDING AREA
- PROPOSED GRAVEL AREA

- ELEVATIONS ARE TO ORDNANCE DATUM [MALIN]
- NOT TO BE USED FOR CONSTRUCTION PURPOSES
- PLANNING PURPOSES ONLY
- DO NOT SCALE FROM THE DRAWING

rev.	date	amendment	drn	ckd
A	22.03.24	PLANNING	LMc	PMS

PROPOSED DEVELOPMENT SITE AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

PROPOSED ALTERNATIVE STORM WATER ATTENUATION TANK

DRAINAGE MANAGEMENT
LAYOUT PLAN

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL
CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248
NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY, BT35 6PH

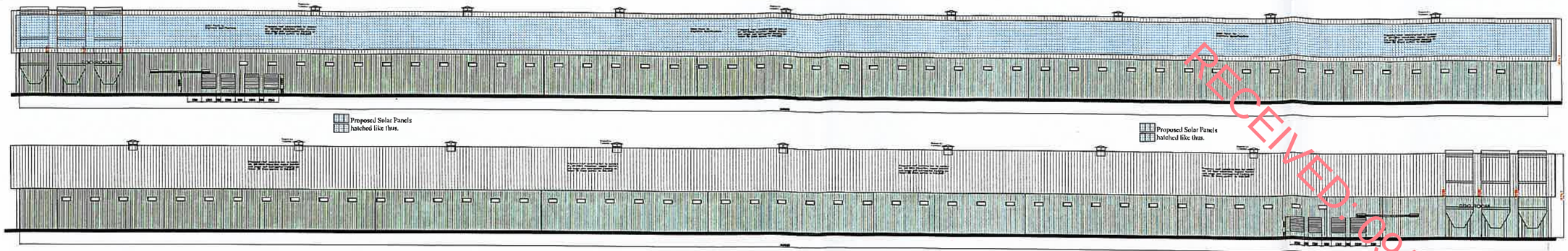
file location: N:\IE2888\DRAWINGS	scale: 1/1000 @ A3
drawing status: PLANNING	datum: MALIN
	drawn: LMc
drawing no. IE2888-011	rev A
	checked: JMc
	approved: PMS
	date: 22.03.2024

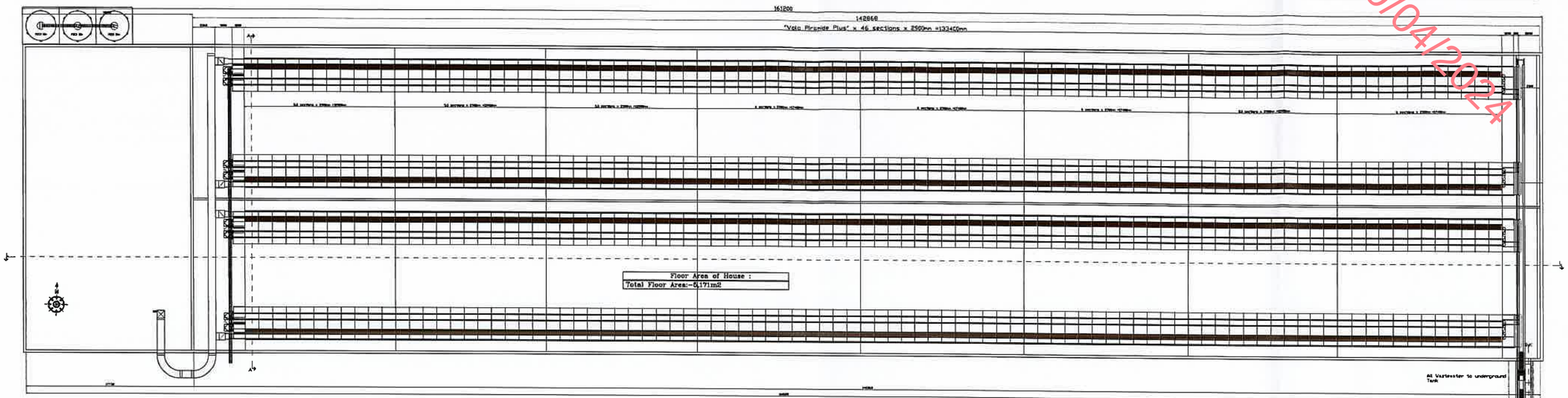
CLW

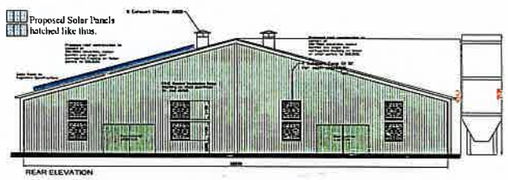
Appendix No. 4

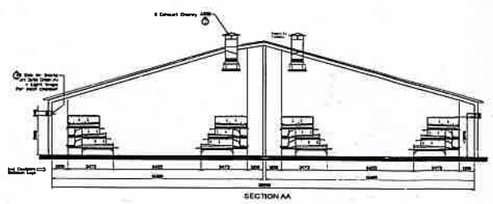
Engineers Drawings
(Not to scale)

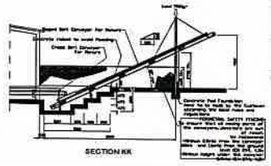
Job No. 2018-60 Dwg No. PL01 Rev. -

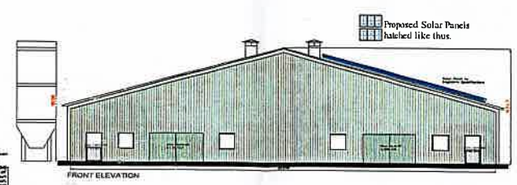


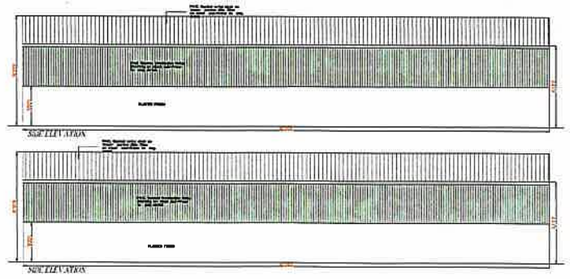










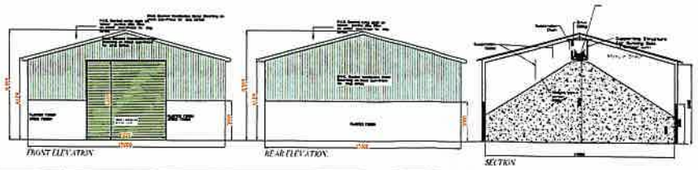


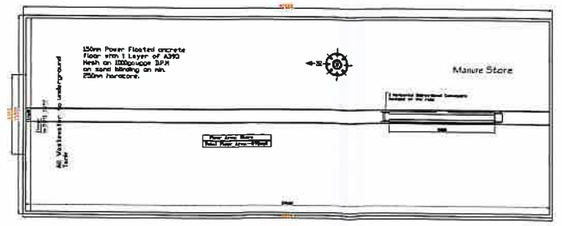
ALL RAINWATER TO BE DIVERTED VIA 150mm P.V.C. DOWNPIPES LOCATED EXTERNALLY AND FIXED TO PORTAL COLUMNS WHERE THEY WILL EXIT INTO GULLYS AT THIS POINT THEY WILL ALL BE CONNECTED & DIVERTED INTO NEARBY OPEN DRAIN

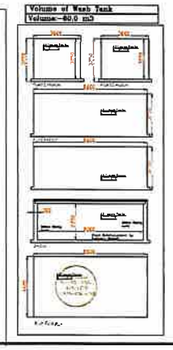
ALL WORK CARRIED OUT TO COMPLY TO S.150, S.123 & S:123A DEPT OF AGRICULTURE & FOOD SPECIFICATIONS

ALL STEEL SIZES WILL BE VERIFIED BY STRUCTURAL ENGINEERS AND WILL BE SUBJECT TO THEIR DESIGN

THE COLLECTION AND DISPOSAL NETWORK FOR THE CONTROL OF SOILED WATER AT THE FARMYARD, ON COMPLETION OF THE PROPOSED DEVELOPMENT PLAN SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF S.I.69







Do not scale from this drawing, use figured dimensions only. All errors and omissions to be reported to the engineer. This drawing to be read in conjunction with relevant consultant's drawings.

NOTES:

rev.	date	drawn	description
A	12.02.08	MOR	ABCDEFGHIJ

rev.	date	drawn	description

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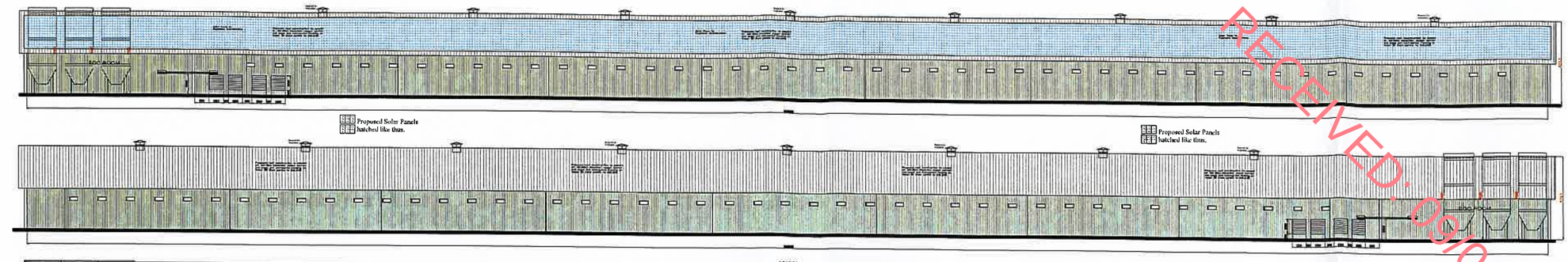
ARCHITECTURAL&CIVIL DESIGN GPS & TOPOGRAPHIC SURVEYING SETTING-OUT
Crubany, Cavan, Co. Cavan T: 0877321970 E: moreillycivileng@hotmail.com

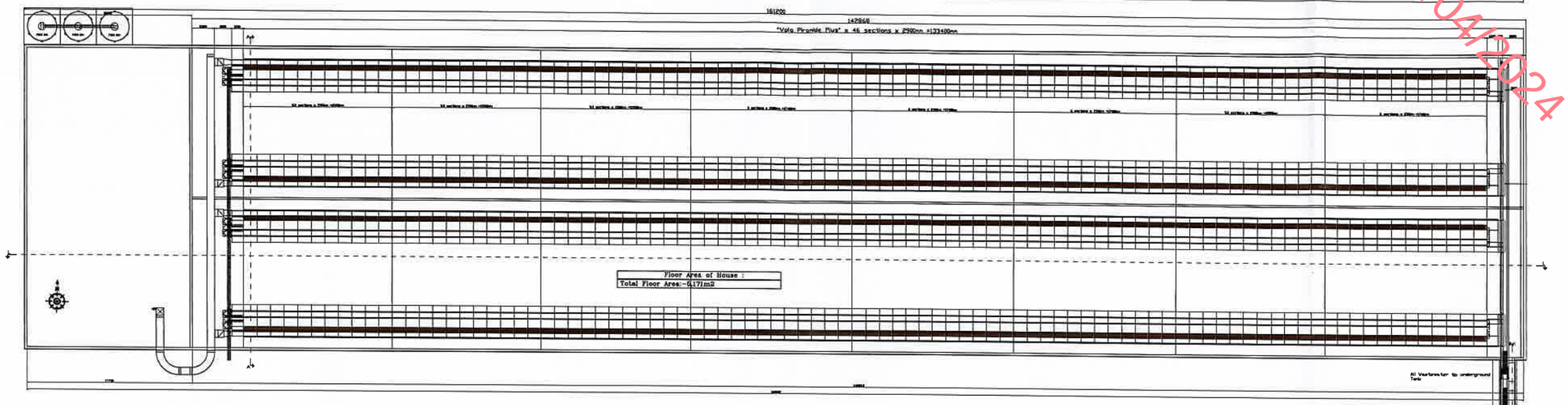
Client: Crayvall Egg Production ltd. | Date: 12-07-23 | Drawn: MOR | Checked: MOR

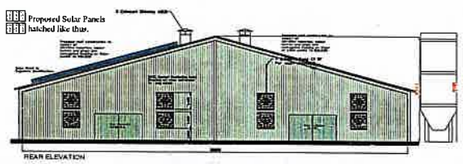
Project: Proposed Construction of Poultry House and all ancillary Site works at Carrickhaggot, Grangebellew, Co. Louth. | Job No. 2018-60 | Dwg No. PL01 | Rev. -

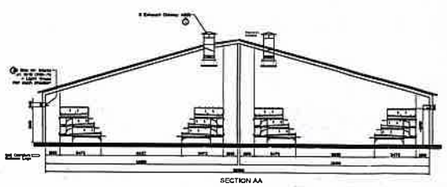
Drawing Title: Proposed Plans Elevations Sections | Scale: 1:225 | Status: Planning | Dwg Size: Size A1

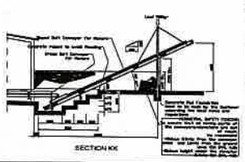
Job No. 2018-60 Dwg No. PL01a Rev. -

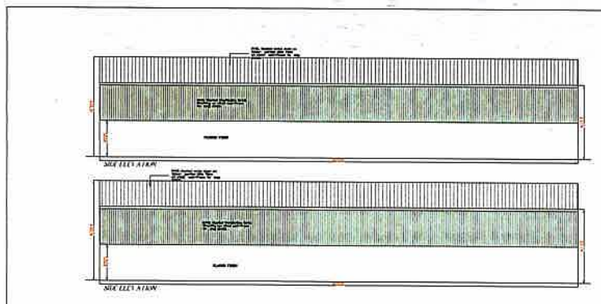










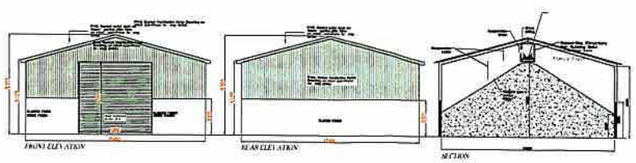


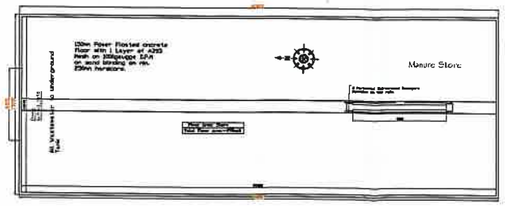
ALL RAINWATER TO BE DIVERTED VIA 150mm P.V.C. DOWNPIPE LOCATED EXTERNALLY AND FIXED TO PORTAL COLUMNS WHERE THEY WILL EXIT INTO GROUND AT THIS POINT THEY WILL ALL BE CONNECTED & DIVERTED INTO NEARBY 170Ltr SWAN

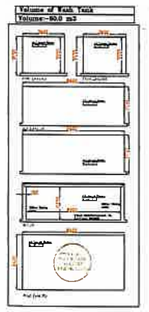
ALL STEEL SIZES WILL BE VERIFIED BY STRUCTURAL ENGINEERS AND WILL BE SUBJECT TO THEIR DESIGN

THE COLLECTION AND DISPOSAL NETWORK FOR THE CONTROL OF FOULED WATER AT THE FARMYARD ON COMPLETION OF THE PROPOSED DEVELOPMENT PLANS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF S.I.293

ALL WORK CARRIED OUT TO COMPLY TO S.150, S.123 & S:123A DEPT OF AGRICULTURE & FOOD SPECIFICATIONS







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NOTES:

rev.	date	drawn	description
A	12.02.06	MOR	ABCDEFGHIJ

rev.	date	drawn	description

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Crubany, Ceven, Co. Ceven T: 0877321970 E: morellycivileng@hotmail.com

Client: Crayvall Egg Production ltd.	Date: 12-07-23	Drawn: MOR	Checked: MOR
Project: Proposed Poultry House and all ancillary Site works at Carrickbeagot, Grangebellew, Co. Louth.	Job No.: 2018-60	Dwg No.: PL01a	Rev.: -
Drawing Title: Proposed Plans Elevations sections	Scale: 1:175	Status: Planning	Dwg Size: Size A0

Appendix No. 5

Environmental Protection Agency – Draft Advice Notes on EIS – Project Type 13

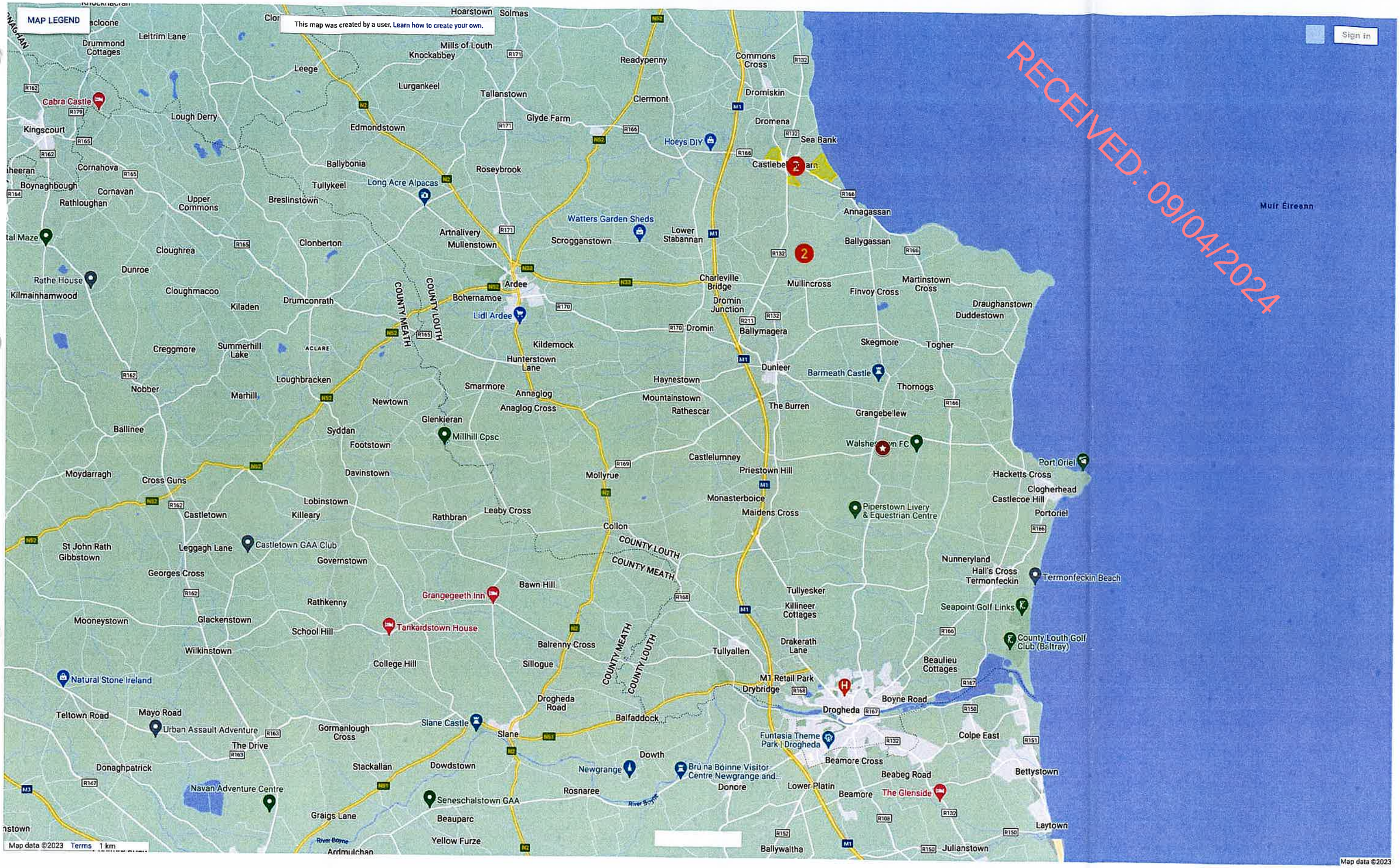
PROJECT TYPE 13

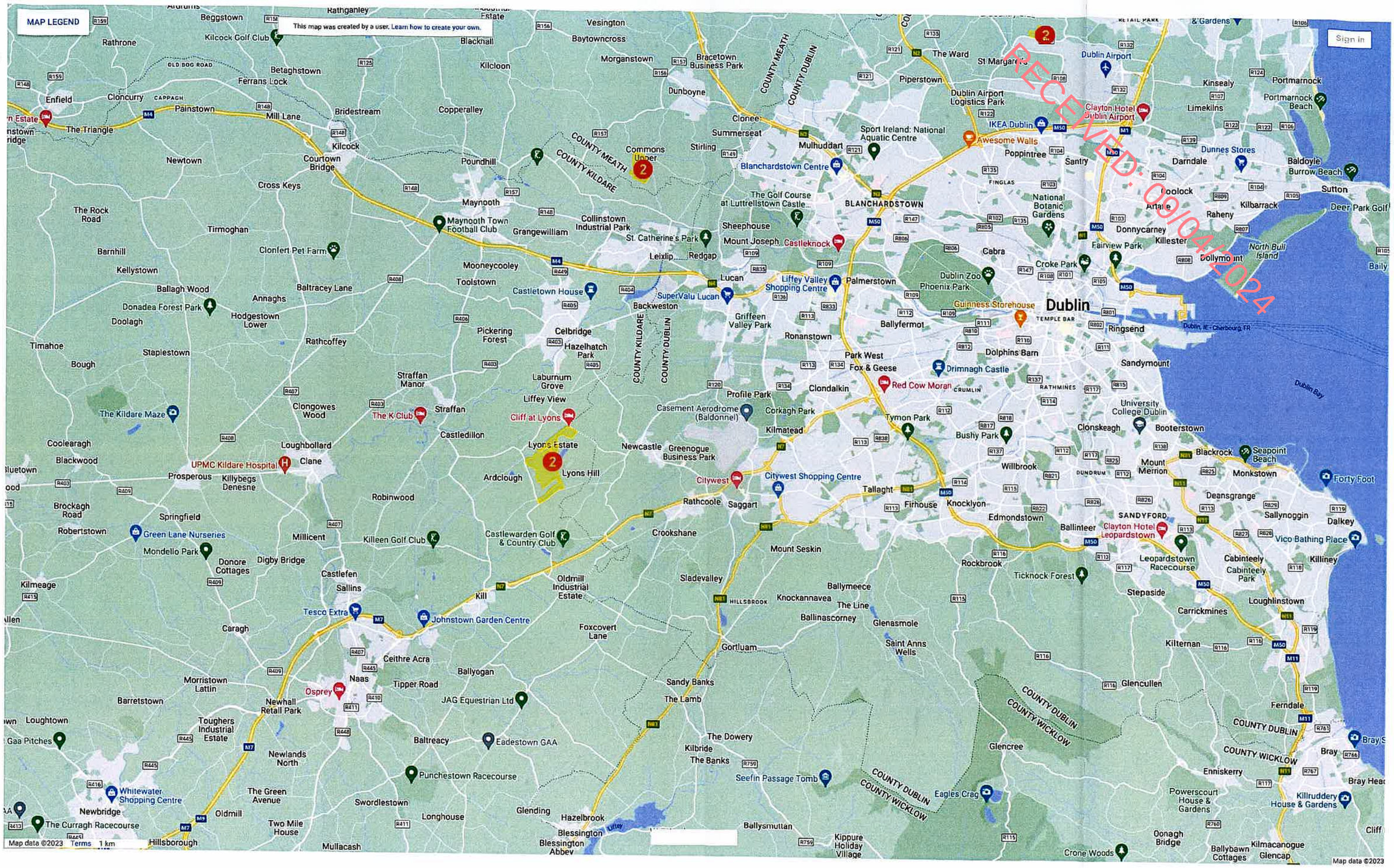
Pig-rearing installations; Poultry-rearing installations.	
Introduction	The principal concerns which are likely to arise in this context stem from the issues of waste handling (mainly slurry/manure) and odours. The significance of impacts is very much a factor of the site's proximity to sensitive receptors such as aquifers or residences. Such projects frequently dispose of wastes at locations which are not adjacent to the animal rearing operations.
Project Description	**Checklist of items to be described:-**
Construction:-	▼ Extension of infrastructure (water, power, access); ▼ Site preparation works; ▼ Materials; ▼ Access.
Operation (including relevant alternatives):-	▼ Access and transportation; ▼ Food, storage, handling and transportation; ▼ Water and power supply; ▼ Quantification of inputs (feed, stock, power); ▼ Quantification of outputs (animal wastes, products, other wastes); ▼ Animal housing structures and associated activities, heating, ventilation, cleaning; ▼ Other structures (offices, maintenance); ▼ Waste storage, handling and transportation; ▼ On-site infrastructure, water storage, roads, fences; ▼ Waste disposal areas and transportation routes; ▼ Waste disposal methods including equipment, duration, frequency, seasons, weather conditions, monitoring and recording.
Decommissioning (if applicable):-	▼ Removability of structures; ▼ Long-term contamination.
Growth:-	▼ Potential changes in numbers, types, intensity or methods.
Associated developments:-	▼ Processing plants; ▼ Foodstuff suppliers; ▼ Breeding stock suppliers; ▼ Equipment suppliers; ▼ Off-site infrastructure upgrading.
Environmental Effects	**Typical significant impacts likely to affect:-**
Human Beings	▼ Nuisance and loss of amenity.
Fauna	▼ Introduction of predator and scavenger species; ▼ Pest control measures; ▼ Spreading of disease as a result of contact with contaminated domestic animals/birds, carcasses or slurry.
Flora	▼ Potential effects on vegetation due to eutrophication, effluent seepage/ run-off; ▼ Waste spreading
Soils (and Geology)	▼ Nutrient levels; ▼ Assimilative capacity of soils; ▼ Transmissivity and conductivity of geology.

Pig-rearing installations; **Poultry-rearing installations.**	
Water	▼ Leakage of effluent (including during transportation); ▼ Pollution by contaminated run-off; ▼ Disposal of carcasses; ▼ Location and timing of slurry spreading.
Air	▼ Malodours arising from housing units and manure/slurry stores; ▼ Malodours arising from slurry spreading; ▼ Malodours due to transportation of livestock/slurry; ▼ Noise (particularly in anticipation of feeding); ▼ Volatilisation of ammonia.
Climate	▼ Gases emitted from slurry/manure; ▼ Methane (contribution to greenhouse gases); ▼ Ammonia (contribution to acidifying gases).
The Landscape	▼ Visibility of structures; ▼ Potential visual impact as a result of water body eutrophication; ▼ Impact of odours on amenities and landscape character.
Material Assets	▼ Potential positive impact if slurry/manure gases are trapped for energy usage; ▼ Source of soil nutrients.
Cultural Heritage	
The Interaction of the Foregoing	
Possible Mitigation Options	
	▼ Re-cycling of slurry/manure as energy source or fertiliser; ▼ Monitoring of waste disposal; ▼ Management of waste disposal; ▼ Noise absorption measures; ▼ Effective slurry containment.

Appendix No. 6

Location of Customer Farmlands




MAP LEGEND
This map was created by a user. Learn how to create your own.
Sign in
RECEIVED: 09/04/2024
Dublin
Dublin Airport
Clayton Hotel Dublin Airport
IKEA Dublin
Awesome Walls
Sport Ireland: National Aquatic Centre
Blanchardstown Centre
The Golf Course at Luttrellstown Castle
BLANCHARDSTOWN
Mulhuddart
Commons Upper
Stirling
Summerseat
Clonee
Dunboyne
Bracetown Business Park
Piperstown
Dublin Airport Logistics Park
The Ward
St Margaret's
Kinsealy
Portmarnock
Portmarnock Beach
Limekilns
Dunnes Stores
Darndale
Baldoyle
Burrow Beach
Sutton
Deer Park Golf
Kilbarrack
Raheny
Donnycarney
Killester
Fairview Park
Clontarf
North Bull Island
Dollymount
Croke Park
Cabra
National Botanic Gardens
Santry
Poppintree
Finglas
Glasnevin
Phoenix Park
Dublin Zoo
Guinness Storehouse
TEMPLE BAR
Ringsend
Dublin, IE - Cherbourg, FR
Dolphins Barn
Sandymount
Drimnagh Castle
Red Cow Moran
CRUMLIN
RATHMINES
Ballyfermot
Ronanstown
Park West
Fox & Geese
Clondalkin
Profile Park
Corkagh Park
Casement Aerodrome (Baldonnel)
Kilmatead
Tymon Park
Bushy Park
University College Dublin
Clonskeagh
Booterstown
Blackrock
Seapoint Beach
Monkstown
Forty Foot
Dalkey
Sallynoggin
Deansgrange
Willbrook
Mount Merrion
DUNDRUM
SANDYFORD
Clayton Hotel Leopardstown
Leopardstown Racecourse
Ballinteer
Edmondstown
Knocklyon
Firhouse
Tallaght
Citywest
Citywest Shopping Centre
Rathcoole
Saggart
Crookshane
Mount Seskin
Rockbrook
Ticknock Forest
Cabinteely
Cabinteely Park
Killiney
Vico Bathing Place
Stepaside
Loughlinstown
Carrickmines
Kilternan
Glencullen
Ferndale
Bray
Enniskerry
Powerscourt House & Gardens
Killruddery House & Gardens
Glencree
Eagles Crag
Seefin Passage Tomb
The Dowery
Kilbride
The Banks
Sandy Banks
The Lamb
Ballysmuttan
Kippure Holiday Village
Crone Woods
Oonagh Bridge
Ballybawn Cottages
Kilmacanogue
Glencap
Ballymeece
Knockannavea
The Line
Ballinascorney
Glenasmole
Saint Anns Wells
Gortluam
Sladevalley
Oldmill Industrial Estate
Foxcovert Lane
Ballyogan
Tipper Road
Naas
Ceithre Acra
Sallins
Kill
Caragh
Millicent
Killeen Golf Club
Castlewarden Golf & Country Club
Castlefen
Digby Bridge
Donore Cottages
Mondello Park
Green Lane Nurseries
Robertstown
Kilmeage
Springfield
Brockagh Road
Robinwood
Mullacash
Hillsborough
Oldmill
Two Mile House
Longhouse
Swordlestown
Glending
Hazelbrook
Blessington
Blessington Abbey
Lutley
Punchestown Racecourse
Baltreacy
Eadestown GAA
JAG Equestrian Ltd
Osprey
Newhall Retail Park
Toughers Industrial Estate
Barretstown
Morristown Lattin
Newlands North
The Green Avenue
Newbridge
Whitewater Shopping Centre
The Curragh Racecourse
Gaa Pitches
Loughtown
Tesco Extra
Johnstown Garden Centre
Green Lane Nurseries
Lyons Estate
Lyons Hill
Ardclough
Cliff at Lyons
Liffey View
Laburnum Grove
Straffan Manor
Straffan
The K Club
Castledillon
Clongowes Wood
The Kildare Maze
Loughbollard
Clane
UPMC Kildare Hospital
Prosperous
Killybegs
Denesne
Coolearagh
Blackwood
Bluetown
Celbridge
Hazelhatch Park
Pickering Forest
Rathcoffey
Staplestown
Timahoe
Bough
Doolagh
Donadea Forest Park
Ballagh Wood
Kellystown
Barnhill
Clonfert Pet Farm
Tirmoghan
The Rock Road
Maynooth Town Football Club
Maynooth
Grangewilliam
Collinstown Industrial Park
St. Catherine's Park
Leixlip
Redgap
Mooneycooley
Toolstown
Baltracey Lane
Annaghs
Hodgestown Lower
Castletown House
Backweston
SuperValu Lucan
Lucan
Griffeen Valley Park
Liffey Valley Shopping Centre
Palmerstown
Mount Joseph
Castleknock
Sheephouse
Poundhill
Courtown Bridge
Kilcock
Newtown
Cross Keys
Enfield
Cloncurry
CAPPAGH
Painstown
Mill Lane
Bridestream
Copperalley
Kilcloon
Morganstown
Vesington
Baytowncross
Blackhall
Ferrans Lock
Betaghstown
OLD BOG ROAD
Rathrone
Kilcock Golf Club
Beggstown
Rathganley
Estate
Ardrums
COUNTY MEATH
COUNTY DUBLIN
COUNTY KILDARE
COUNTY WICKLOW
HILLSBROOK
FINGLAS
BALLYMUN
CRUMLIN
RATHMINES
DUNDRUM
SANDYFORD
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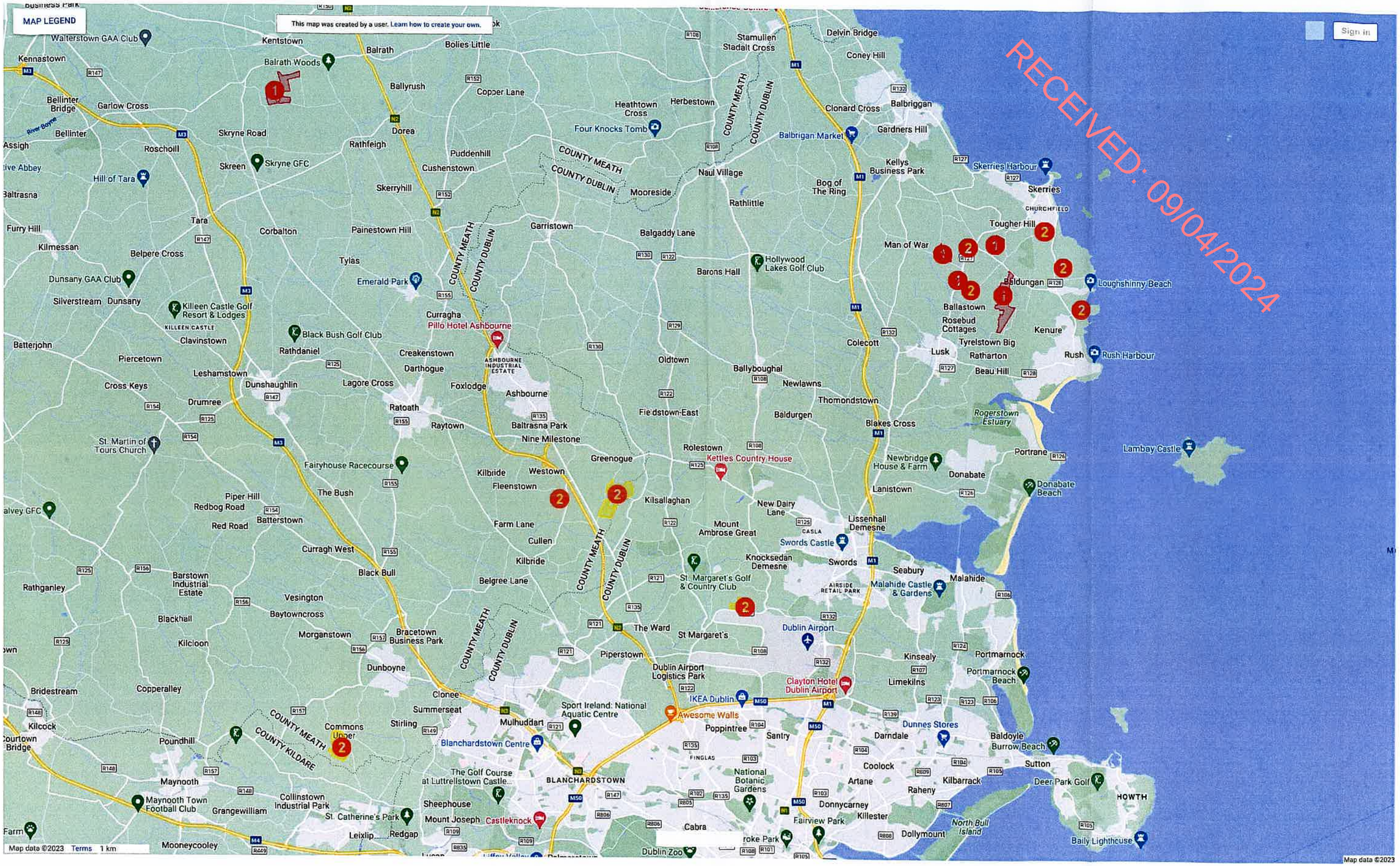
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Walterstown GAA Club
Kentstown
Balrath
Balrath Woods
Bolies Little
Kennastown
Ballyrush
Copper Lane
Bellinter Bridge
Garlow Cross
Heathtown Cross
Herbestown
Four Knocks Tomb
Stamullen
Stadalt Cross
Delvin Bridge
Coney Hill
Clonard Cross
Balbriggan
Balbrigan Market
Gardners Hill
Bellinter
Skryne Road
Dorea
Rathfeigh
Roschoill
Skreen
Skryne GFC
Puddenhill
Cushenstown
COUNTY MEATH
COUNTY DUBLIN
Naul Village
Mooreside
Bog of The Ring
Kellys Business Park
Skerries Harbour
Skerries
CHURCHFIELD
Hill of Tara
Skerryhill
Rathlittle
Tara
Corbalton
Painestown Hill
Garristown
Balgaddy Lane
Tougher Hill
Man of War
Furry Hill
Kilmessan
Belpere Cross
Tylas
Barons Hall
Hollywood Lakes Golf Club
Dunsany GAA Club
Emerald Park
Baldungan
Loughshinny Beach
Silverstream
Dunsany
Killeen Castle Golf Resort & Lodges
KILLEEN CASTLE
Curragha
Pillo Hotel Ashbourne
Ballastown
Rosebud Cottages
Tyrelstown Big
Kenure
Batterjohn
Clavinstown
Black Bush Golf Club
Rathdaniel
Colecott
Lusk
Ratharton
Rush
Rush Harbour
Piercetown
Creakenstown
Darthogue
ASHBOURNE INDUSTRIAL ESTATE
Oldtown
Ballyboughal
Beau Hill
Leshamstown
Cross Keys
Dunshaughlin
Lagore Cross
Foxlodge
Ashbourne
Newlawns
Thomondstown
Drumree
Ratoath
Fieldstown-East
Baldurgen
Rogerstown Estuary
Raytown
Baltrasna Park
Blakes Cross
St. Martin of Tours Church
Nine Milestone
Rolestown
Kettles Country House
Newbridge House & Farm
Portrane
Lambay Castle
Fairyhouse Racecourse
Greenogue
Donabate
Donabate Beach
Kilbride
Westown
Fleenstown
Lanistown
The Bush
Piper Hill
Redbog Road
Batterstown
Kilsallaghan
New Dairy Lane
Farm Lane
Mount Ambrose Great
CASLA
Lissenhall Demesne
Swords Castle
Cullen
Curragh West
Knocksedan Demesne
Swords
Seabury
Malahide
Black Bull
Belgree Lane
St. Margaret's Golf & Country Club
AIRSIDE RETAIL PARK
Malahide Castle & Gardens
Rathganley
Barstown Industrial Estate
Vesington
Baytowncross
Blackhall
The Ward
St Margaret's
Dublin Airport
Kilcloon
Morganstown
Bracetown Business Park
Piperstown
Kinsealy
Portmarnock
Portmarnock Beach
Dunboyne
Dublin Airport Logistics Park
Limekilns
Clayton Hotel Dublin Airport
Bridestream
Copperalley
Clonee
Summerseat
Sport Ireland: National Aquatic Centre
IKEA Dublin
Awesome Walls
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Kilcock
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Poppintree
Santry
Darndale
Baldoyle
Courtown Bridge
Commons Upper
Poundhill
Blanchardstown Centre
FINGLAS
Burrow Beach
Sutton
Coolock
Maynooth
The Golf Course at Luttrellstown Castle...
BLANCHARDSTOWN
National Botanic Gardens
Artane
Kilbarrack
Deer Park Golf
Maynooth Town Football Club
Collinstown Industrial Park
Grangewilliam
Sheephouse
Mount Joseph
Castleknock
St. Catherine's Park
Raheny
HOWTH
Donnycarney
Killester
Fairview Park
North Bull Island
Leixlip
Redgap
Cabra
Dollymount
Baily Lighthouse
Mooneycooley
Dublin Zoo
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Appendix No. 7

Existing E.P.A. Licence

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

Headquarters
P.O. Box 3000
Johnstown Castle Estate
County Wexford
Ireland

INDUSTRIAL EMISSIONS LICENCE

Licence Register Number:	**P1120-01**
Company Register Number	**549836**
Licensee:	**Crayvall Egg Production Limited**
Location of Installation:	**Carrickbaggott Grangebellew County Louth**

ENVIRONMENTAL PROTECTION AGENCY ACT 1992 AS AMENDED

INDUSTRIAL EMISSIONS LICENCE

Decision of Agency, under Section 83(1) of the EPA Act 1992 as amended in respect of licence

Reference number in Register of licences: P1120-01

Further to notice dated 08/09/20, the Agency in exercise of the powers conferred on it by the Environmental Protection Agency Act 1992 as amended, for the reasons hereinafter set out, hereby grants an Industrial Emissions licence to Crayvall Egg Production Limited, Carrickbaggott, Grangebellew, County Louth, CRO number 549836,

to carry on the following activity

6.1 (a)	The rearing of poultry in installations where the capacity exceeds 40,000 places

at Carrickbaggott, Grangebellew, County Louth, subject to the conditions as set out.

GIVEN under the Seal of the Agency on this the 8th day of October 2020.

PRESENT when the seal of the Agency
was affixed hereto:

Tara Gillen

Tara Gillen, Authorised Person

INTRODUCTION

This introduction is not part of the licence and does not purport to be a legal interpretation of the licence.

This licence is for the operation by Crayvall Egg Production Limited, of a 60,000 place free range poultry (layers) farm, within one poultry house, located at Carrickbaggott, Grangebellew, County Louth.

The installation is on a greenfield site in a rural location. The main activities proposed at this installation occur during normal working hours between 06:00 and 20:00. Stock inspections will be carried out every day, including weekends and bank holidays and additional essential activities may be undertaken outside of core working hours.

The stock for this farm will be brought from specialised pullet rearing farms at point of lay (c. 16 weeks of age). The birds remain on the site/range area for the laying cycle (c. 56 – 60 weeks on average) and are removed at approximately 72 – 76 weeks. The house, which when complete will be subdivided into 4 subsections of 15,000 birds each and will operate on an all in - all out basis (per section) to maintain a single age profile and to maintain the health status of the birds. Once fully operational the site will operate on a rotational basis, whereby one section will be de-stocked and re-filled on average every three months. The house will be cleaned down after each batch of birds to ensure that the highest levels of bio-security are maintained. Houses will be primarily blown down with limited washing. Soiled water collection tanks will collect any wash water which does occur.

The activity is above the IE licensing threshold of 40,000 places specified under Annex 1 of the Industrial Emissions Directive and the First Schedule of the EPA Act 1992 as amended. This licence limits the number of birds (layers) housed at the installation to 60,000.

For the purposes of the Industrial Emissions Directive (2010/75/EU), this installation falls within the scope of Annex 1, Category:

> Intensive rearing of poultry with more than 40,000 places for poultry.

The licence sets out in detail the conditions under which Crayvall Egg Production Limited will operate and manage this installation.

Table of Contents

Page No

Glossary of Terms

All terms in this licence should be interpreted in accordance with the definitions in the Environmental Protection Agency Act 1992 as amended/Waste Management Act 1996 as amended, unless otherwise defined in the section.

Accident	For the purpose of this licence an accident means an unplanned event that may result in pollution.
AER	Annual Environmental Report.
Animal By-Product Regulations	Regulation (EC) No.1069/2009 of the European Parliament and of the Council of 21 October 2009 and Commission Regulation (EU) No. 142/2011 of 25 February 2011.
Annually	All or part of a period of twelve consecutive months.
Application	The application by the licensee for this licence.
Appropriate Facility	A waste management facility or installation duly authorised under relevant law and technically suitable.
Approval	Approval in writing/electronically.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of this licence application.
BAT	Best Available Techniques (BAT) as described in the Commission Implementing Decision (CID) (EU 2017/302) of 15 February 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the intensive rearing of poultry or pigs. Reference to BAT numbers in the conditions of this licence are references to the BAT Conclusions according to how they are numbered in the aforementioned CID.
BAT conclusions	A document containing the parts of a BAT reference document laying down the conclusions on best available techniques, their description, information to assess their applicability, the emission levels associated with the best available techniques, associated monitoring, associated consumption levels and, where appropriate, relevant site remediation measures.
BAT reference document	A document drawn up by the Commission of the European Union in accordance with Article 13 of the Industrial Emissions Directive, resulting from the exchange of information in accordance with that Article of that Directive and describing, in particular, applied techniques, present emissions and consumption levels, techniques considered for the determination of best available techniques as well as BAT conclusions and any emerging techniques.
Biannually	At approximately six-monthly intervals.

Biennially	Once every two years.
BOD	5 day Biochemical Oxygen Demand (without nitrification suppression).
CEN	Comité Européen De Normalisation – European Committee for Standardisation.
CID	Commission Implementing Decision (EU 2017/302) of 15 February 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the intensive rearing of poultry or pigs.
COD	Chemical Oxygen Demand.
Containment boom	A boom that can contain spillages and prevent them from entering drains or watercourses or from further contaminating watercourses.
CRO No.	Company Registration Number.
Customer Farmers	Farmers who may use/recover organic fertiliser generated at the installation as fertiliser on their lands.
Daily	During all days of plant operation and, in the case of emissions, when emissions are taking place; with at least one measurement on any one day.
Day	Any 24-hour period.
Daytime	07:00hrs to 19:00hrs.
dB(A)	Decibels (A weighted).
Diffuse Emissions	Non-channelled emissions which can result from 'area' sources (e.g. tanks) or 'point' sources (e.g. pipe flanges).
DO	Dissolved oxygen.
Documentation	Any report, record, results, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
EIA	Environmental Impact Assessment.
EIAR	Environmental Impact Assessment Report.

Emission limits	Those limits, including concentration limits and deposition rates, established in *Schedule B: Emission Limits,* of this licence.
EMS	Environment Management System. The aspect of the organisation's overall management structure that addresses immediate and long-term impacts of its products, services and processes on the environment.
Environmental damage	As defined in Directive 2004/35/EC.
EPA	Environmental Protection Agency.
Evening Time	19:00hrs to 23:00hrs.
Facility	Any site or premises used for the purpose of the recovery or disposal of waste.
Farm	An installation as defined in Article 3(3) of Directive 2010/75/EU where pigs or poultry are reared.
Fortnightly	A minimum of 24 times per year, at approximately two-week intervals.
Freeboard	The difference in elevation between the maximum elevation of the washwater and the minimum elevation of the storage tank (i.e. the minimum spare vertical height between tank contents and point of over-topping).
Groundwater	Has the meaning assigned to it by Regulation 3 of the European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 9 of 2010), as amended.
Hazardous Substances	Substances or mixtures as defined in Article 3 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures.
ha	Hectare.
Hours of operation	The hours during which the installation is authorised to be operational.
IE	Industrial Emissions.
IFI	Inland Fisheries Ireland.

Incident	The following shall constitute an incident for the purposes of this licence: (i) an emergency; (ii) any emission which does not comply with the requirements of this licence; (iii) any malfunction or breakdown of key environmental abatement, control or monitoring equipment; (iv) any trigger level specified in this licence which is attained or exceeded; and (v) any indication that environmental pollution has, or may have, taken place.
Industrial Emissions Directive	Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast).
Installation	A stationary technical unit or plant where the activity concerned referred to in the First Schedule of EPA Act 1992 as amended is or will be carried on and shall be deemed to include any directly associated activity, which has a technical connection with the activity and is carried out on the site of the activity.
Intensive Pig and/or Poultry Unit	Activities which are required to hold an IE licence.
Irish Water	Irish Water, Colvill House, 24/26 Talbot Street, Dublin 1.
$L_{Aeq,T}$	This is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period (T).
$L_{Ar,T}$	The Rated Noise Level, equal to the L_{Aeq} during a specified time interval (T), plus specified adjustments for tonal character and/or impulsiveness of the sound.
Laying Hens	Grown female chickens for egg production after 16 to 20 weeks of age.
Licensee	Crayvall Egg Production Limited, Carrickbaggot, Grangebellew, County Louth. CRO Number: 549836.
List of Wastes (LoW)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 2014/955/EU, as amended by any subsequent amendment published in the Official Journal of the European Community.
Livestock	All animals kept for use or profit (including cattle, horses, pigs, poultry, sheep and any creature kept for the production of food, wool, skins or fur) as assigned to it by Regulation 4(1) of the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017 (S.I. 605 of 2017), as amended.
Local Authority	Louth County Council.

Maintain	Keep in a fit state, including such regular inspection, servicing, calibration and repair as may be necessary to perform its function adequately.
Manure	Animal faeces, urine, washwater and any associated feed or bedding.
Monthly	A minimum of 12 times per year, at intervals of approximately one month.
New Activity	Activity first licensed following the publication of the BAT conclusions under the Commission Implementing Decision 2017/302/EU, BAT conclusion requirements must be met by the installation before commencement of operations.
Night-time	23:00hrs to 07:00hrs.
Noise-sensitive location (NSL)	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other premises or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.
Odour-sensitive location	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other premises or area of high amenity which for its proper enjoyment requires the absence of odour at nuisance levels.
Organic fertiliser	Any fertiliser other than that manufactured by industrial process and includes livestock manure, dungstead manure, farmyard manure, slurry, soiled water, silage effluent, non-farm organic substances such as sewage sludge, industrial by-products and sludges and residues from fish farms.
Owner/operator	IE licensee.
Potential emissions	Emissions which take place only under abnormal operating conditions. Examples include emissions from overpressure valves, bursting discs, and emergency generators.
Poultry	Shall be construed in accordance with Regulation 2(2) of the European Communities (Poultry and Hatching Eggs) Regulations 2010 (S.I. No. 564 of 2010).
PRTR	Pollutant Release and Transfer Register.
Quarterly	All or part of a period of three consecutive months beginning on the first day of January, April, July or October.
Relevant Hazardous Substances	Those substances or mixtures defined within Article 3 of Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) which, as a result of their hazardousness, mobility, persistence and biodegradability (as well as other characteristics), are capable of contaminating soil or groundwater and are used, produced and/or released by the installation.

SAC	Special Area of Conservation designated under the Habitats Directive, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
Sample(s)	Unless the context of this licence indicates to the contrary, the term samples shall include measurements taken by electronic instruments.
Sanitary effluent	Wastewater from installation toilet, washroom and canteen facilities.
Soil	The top layer of the Earth's crust situated between the bedrock and the surface. The soil is composed of mineral particles, organic matter, water, air and living organisms.
SOP	Standard operating procedure.
SPA	Special Protection Area designated under the *Birds Directive*, Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.
Specified emissions	Those emissions listed in *Schedule B: Emission Limits*, of this licence.
Standard method	A National, European or internationally recognised procedure (e.g. I.S. EN, ISO, CEN, BS or equivalent); or an in-house documented procedure based on the above references; a procedure as detailed in the current edition of "Standard Methods for the Examination of Water and Wastewater" (prepared and published jointly by A.P.H.A., A.W.W.A. and W.E.F.), American Public Health Association, 1015 Fifteenth Street, N.W., Washington DC 20005, USA; or an alternative method as may be agreed by the Agency.
Storm water	Rain water run-off from roof and non-process areas.
The Agency	Environmental Protection Agency.
Wash Water	Rainwater run-off commonly mixed with manure, water derived from the cleaning of surfaces (e.g. floors) and equipment and water derived from the operation of air cleaning systems.
Waste	Any substance or object which the holder discards or intends or is required to discard.
Water Services Authority	Louth County Council.
Weekly	During all weeks of plant operation and, in the case of emissions, when emissions are taking place; with at least one measurement in any one week.

Decision and Reasons for the Decision

The Environmental Protection Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of this licence, any emissions from the activity will comply with and will not contravene any of the requirements of Section 83(5) of the Environmental Protection Agency Act 1992 as amended.

The Agency also considers that the activity will not adversely affect the integrity of any European Site and has decided to impose conditions for the purposes of ensuring it does not do so. It has determined that the activity, if managed, operated and controlled in accordance with the licence, will not have any adverse effect on the integrity of any of those sites.

The Agency has applied the Commission Implementing Decision (CID) of 15/02/2017 establishing Best Available Techniques (BAT) Conclusions, under Directive 2010/75/EU of the European Parliament and of the Council for the intensive rearing of poultry or pigs as a reference when setting licence conditions.

The Agency has accordingly decided to grant a licence to Crayvall Egg Production Limited to carry on the activity listed in *Part I, Schedule of Activities Licensed*, subject to the conditions set out in *Part II, Conditions*.

No objection having been received to the proposed determination, the licence is granted in accordance with the terms of the proposed determination.

In reaching this decision the Agency has considered the documentation relating to: the application, Register Number: P1120-01 and the supporting documentation received from the applicant; the submissions received; the Inspector's Report dated 27 August 2020; and has carried out an Environmental Impact Assessment (EIA) and an Appropriate Assessment of the likely significant effects of the activity on European Sites.

It is considered that the Inspector's Report contains a fair and reasonable examination, evaluation and analysis of the likely significant effects of the activity on the environment, and adequately and accurately identifies, describes and assesses those effects. The assessment as reported in this document is adopted as the assessment of the Agency. Having regard to this assessment, it is considered that the activity, if managed, operated and controlled in accordance with the licence will not result in the contravention of any relevant environmental quality standards or cause environmental pollution.

Having regard to the examination of environmental information in the Inspector's Report, and in particular to the content of the Environmental Impact Assessment Report (EIAR) and supplementary information provided by the applicant and the submission from the planning authority, and any other third parties in the course of the application, it is considered that the potential significant direct and indirect effects of the activity on the environment are as follows:

- Emissions to air;
- Noise emissions; and
- Accidental leakages or spills.

Having assessed those potential effects, the Agency has concluded as follows:

- Emissions to air will be mitigated through: imposing emission limit values to comply with the CID and implementing monitoring, maintenance and control measures;
- Noise emissions will be mitigated through: imposing daytime, evening-time and night-time noise limits at noise-sensitive locations and implementing monitoring, maintenance and control measures; and
- Accidental leakages or spills will be mitigated through inspection and maintenance of bunds and tanks and accident and emergency requirements specified in the licence.

Having regard to the effects (and interactions) identified, described and assessed throughout the Inspector's Report, it is considered that the monitoring, mitigation and preventative measures proposed will enable the activity to operate without causing environmental pollution, subject to compliance with the licence.

The Conditions of the licence and the mitigation measures will significantly reduce the likelihood of accidental emissions occurring and limit the environmental consequences of an accidental emission should one occur.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on any European Site. In this context, particular attention was paid to the European Sites at: Clogher Head SAC; Boyne Coast and Estuary SAC; Dundalk Bay SPA, Dundalk Bay SAC; Boyne Estuary SPA; River Boyne and River Blackwater SAC; River Boyne and River Blackwater SPA; Stabannan-Braganstown SPA; and River Nanny Estuary and Shore SPA.

The activity is not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it cannot be excluded, on the basis of objective information, that the activity, individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the activity was required, and for this reason determined to require the applicant to submit a Natura Impact Statement.

- Air emissions have been modelled by the Agency using a screen model (SCAIL Agriculture). The model results indicated that the potential for adverse impact of emissions to air and their consequential potential impact on sensitive receptors cannot be ruled out due to elevated ammonia levels at Clogher Head SAC.

The Agency has completed the Appropriate Assessment of potential impacts on these sites and has made certain, based on best scientific knowledge in the field and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 as amended, pursuant to Article 6(3) of the Habitats Directive, that the activity, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site, in particular those listed above, having regard to their conservation objectives and will not affect the preservation of these sites at favourable conservation status if carried out in accordance with this licence and the conditions attached hereto for the following reasons:

- The installation is not located within a European site.
- There is no surface water pathway connecting the installation to any European site.
- The risk of surface water or groundwater contamination because of accidental emissions during washing activities, or from spillage from the wash water tanks, is minimal, given the distance between the activity and a European site and that there is no surface water pathway connecting the installation with a European Site.
- The litter generated at the installation has a high dry matter content.
- Litter is removed from the aviary parts of the poultry house regularly via a covered conveyor to litter stores. The litter from the communal areas of the poultry house remains within the concrete-floored, covered poultry house until all birds are removed at the end of each cycle. Therefore, there is no pathway between the litter and surface water/groundwater while the house is stocked.
- When the house is destocked, the litter is removed from the animal house and taken off-site.
- The modelling supplied as part of the NIS incorporated modelling of the ammonia emissions from animal housing and litter storage. However, after submitting the modelling, additional information was submitted, revising poultry litter storage capacity by an additional 300m^3. The modelling demonstrates that there is sufficient capacity for this proportional increase in storage and associated ammonia emissions as the surface area of the storage area will not change.
- Calculations supplied regarding the nutrient stocking rate of the free-range areas demonstrate that the range areas have capacity to accept the increased load when the birds are outside.

- Wash water is used as a fertiliser on lands that are not within the installation boundary. Poultry litter is transported to farmers to be used as an organic fertiliser on land in accordance with the Nitrates Regulations.
- The licence relates to the site of the activity for which the licence application is made, i.e. the farming of poultry within the installation boundary, and does not extend to the lands on which organic fertiliser may be spread as fertiliser.
- Activities which can take place within European sites are restricted by legislation. All persons must obtain the written consent from the relevant Minister before performing particular operations on, or affecting, particular habitats where they occur on lands or waters within the SACs and SPAs.
- Noise levels from poultry installations are very low and as the nearest European Site is 6.8km east of the installation, Clogher Head SAC, it is considered that noise will not impact on the qualifying interests within that, or any other European Site.
- The application includes a number of measures to comply with BAT to prevent/reduce any likely impact of ammonia and nitrogen deposition on the designated sites. This includes a commitment to use a low protein feed for the birds.
- The licence includes a number of conditions in relation to ammonia and nitrogen minimisation from the activity.
- As part of the AA screening carried out by the Agency, using SCAIL Agriculture, the model results indicated the potential for the poultry farming process from this site to contribute to elevated ammonia levels at European Sites. The SCAIL Agriculture model is conservative. Air emissions (from both animal housing and poultry litter storage) were subsequently modelled as part of a NIS requested by the Agency, with more refined input data using site specific modelling. The modelling concluded that process emissions from the proposed bird numbers at the installation will not contribute significantly to ammonia levels at Clogher Head SAC, or any other European site.
- The installation is in a rural area where the predominant farming activities involve the rearing of livestock. There are no other licensed installations within a 5km radius of the installation. Given the small scale of emissions associated with this activity, it is considered that the activity in combination with other plans or projects will not have a significant effect on any protected sites.

The Agency is satisfied that no reasonable scientific doubt remains as to the absence of adverse effects on the integrity of those European Sites at: Clogher Head SAC; Boyne Coast and Estuary SAC; Dundalk Bay SPA, Dundalk Bay SAC; Boyne Estuary SPA; River Boyne and River Blackwater SAC; River Boyne and River Blackwater SPA; Stabannan-Braganstown SPA; and River Nanny Estuary and Shore SPA.

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Part I Schedule of Activities Licensed

In pursuance of the powers conferred on it by the Environmental Protection Agency Act 1992 as amended, the Agency hereby grants this Industrial Emissions licence to:

Crayvall Egg Production Limited, Carrickbaggott, Grangebellew, County Louth, CRO Number: 549836,

under Section 83(1) of the said Act to carry on the following activity:

The rearing of poultry in installations where the capacity exceeds 40,000 places,

at Carrickbaggott, Grangebellew, County Louth, subject to the following twelve Conditions, with the reasons therefor and associated schedules attached thereto.

Part II Conditions

Condition 1. Scope

1.1 Industrial Emissions Directive activities at this installation shall be restricted to those listed and described in *Part I Schedule of Activities Licensed* and shall be as set out in the licence application or as modified under Condition 1.4 of this licence and subject to the conditions of this licence.

1.2 The licensee shall carry on the licensed activity in accordance with the limitations set out in *Schedule A: Limitations,* of this licence.

1.3 For the purposes of this licence, the installation is the area of land outlined in red on the Drawing No: PL16; Job Number 2018-60, submitted to the Agency on the 18 June 2020 as part of the application. Any reference in this licence to "installation" shall mean the area thus outlined in red. The licensed activity shall be carried on only within the area outlined.

1.4 No alteration to, or reconstruction in respect of, the activity, or any part thereof, that would, or is likely to, result in

(i) a material change or increase in:

- the nature or quantity of any emission;
- the abatement/treatment or recovery systems;
- the range of processes to be carried out;
- the fuels, raw materials, intermediates, products or wastes generated, or

(ii) any changes in:

- site management, infrastructure or control with adverse environmental significance;

shall be carried out or commenced without prior notice to, and without the approval of, the Agency.

1.5 The installation shall be controlled, operated and maintained and emissions shall take place as set out in the licence. All programmes required to be carried out under the terms of this licence become part of this licence.

1.6 This licence is for the purpose of licensing under the EPA Act 1992 as amended only and nothing in this licence shall be construed as negating the licensee's statutory obligations or requirements under any other enactments or regulations.

Reason: ***To clarify the scope of this licence.***

Condition 2. Management of the Installation

2.1 Installation Management

2.1.1 The licensee shall ensure that a person in charge, as defined under the terms of the Environmental Protection Agency Act 1992 as amended shall be available on-site to meet with authorised persons of the Agency at all reasonable times.

2.2 Environmental Management System (EMS)

2.2.1 The licensee shall establish, maintain and implement an Environmental Management System (EMS), which shall incorporate energy efficiency management, in advance of the commencement of the activity. The EMS shall be reviewed for suitability, adequacy and effectiveness and updated on an annual basis.

2.2.2 The EMS shall include, as a minimum, the following elements:

2.2.2.1 An environmental policy defined for the installation that includes the continuous improvement for the installation by the management.

2.2.2.2 The necessary procedures, objectives and targets, in conjunction with financial planning and investment.

2.2.2.3 Management and Reporting Structure and responsibility.

2.2.2.4 Procedures for ensuring compliance with environmental legislation.

2.2.2.5 Procedure that pays attention to safeguarding compliance with environmental legislation.

2.2.2.6 A procedure for checking performance by sectoral benchmarking on a regular basis.

2.2.2.7 Tracking the development of cleaner technologies.

2.2.2.8 Maintenance programmes.

2.2.2.9 Effective process control.

2.2.2.10 Maintenance of records.

2.2.2.11 Schedule of Environmental Objectives and Targets

The licensee shall prepare, maintain and implement a Schedule of Environmental Objectives and Targets. The schedule shall, as a minimum, provide for a review of all operations and processes, as referred to in the conditions of this licence, including an evaluation of practicable options for:

(i) energy and resource efficiency;

(ii) the reduction in water consumption;

(iii) the use of cleaner technology, cleaner production;

(iv) the prevention, reduction and minimisation of waste including waste reduction targets; and

(v) the impacts from eventual decommissioning of the installation.

The Schedule shall include time frames for the achievement of set targets and shall address a five-year period as a minimum. The Schedule shall be reviewed annually.

2.2.2.12 Documentation

(i) The licensee shall establish, maintain and implement an environmental management documentation system.

(ii) The licensee shall issue a copy of this licence to all relevant personnel whose duties relate to any condition of this licence.

2.2.2.13 Corrective and Preventative Action

(i) The licensee shall establish, maintain and implement procedures to ensure that corrective and preventative action is taken should the specified requirements of this licence not be fulfilled. The responsibility and authority for persons initiating further investigation and corrective and preventative action in the event of a reported non-conformity with this licence shall be defined.

(ii) Where a breach of one or more of the conditions of this licence occurs, the licensee shall without delay take measures to restore compliance with the conditions of this licence in the shortest possible time and initiate any feasible preventative actions to prevent recurrence of the breach.

(iii) All corrective and preventative actions shall be documented.

2.2.2.14 Internal Audits

The licensee shall establish, maintain and implement a programme for internal audits of the EMS. Such audits shall be carried out at least once every three years. The audit programme shall determine whether or not the EMS is being implemented and maintained properly, and in accordance with the requirements of the licence. Audit reports and records of the resultant corrective and preventative actions shall be maintained as part of the EMS in accordance with Condition 2.2.2.12 above.

2.2.2.15 Awareness, Training and Competence

The licensee shall establish, maintain and implement procedures for identifying training needs, and for providing appropriate training, for all personnel whose work can have a significant effect upon the environment to ensure awareness and competence in their work area. Appropriate records of training shall be maintained.

2.2.2.16 Public Awareness and Communications Programme

The licensee shall establish, maintain and implement a Public Awareness and Communications Programme to ensure that members of the public can obtain information at the installation, at all reasonable times, concerning the environmental performance of the installation.

2.2.2.17 Maintenance Programme

(i) The licensee shall establish, maintain and implement a programme for maintenance of all plant and equipment based on the instructions issued by the manufacturer/supplier or installer of the equipment. Appropriate record keeping and diagnostic testing shall support this maintenance programme. The licensee shall clearly allocate responsibility for the planning, management and execution of all aspects of this programme to appropriate personnel (see Condition 2.1 above). The maintenance programme shall use appropriate techniques and measures to ensure the optimisation of energy efficiency in plant and equipment.

(ii) The licensee shall maintain concrete yards over which wash water may be directed, or organic fertiliser may be moved.

Reason:	***To make provision for management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.***

Condition 3. Infrastructure and Operation

3.1 The licensee shall ensure, at all times after commencement of the activity, that all infrastructure and all equipment required under this licence has been and is:

(i) installed;
(ii) commissioned;
(iii) present on site; and
(iv) maintained in full working order.

3.2 Where any condition/schedule of this licence specifies any later deadline for installation of any piece of infrastructure or equipment, condition 3.1 shall apply as and from the deadline specified.

3.3 The licensee shall establish and maintain, for each component of the installation, all infrastructure referred to in this licence in advance of the commencement of the licensed activities in that component, or as required by the conditions of this licence. Infrastructure specified in the application that relates to the environmental performance of the installation and is not specified in the licence, shall be installed in accordance with the schedule submitted in the application.

3.4 The licensee shall use all the techniques listed in BAT 2 (good housekeeping) in order to prevent or reduce the environmental impact and improve overall performance of the installation.

3.5 Sampling Points

3.5.1 The licensee shall clearly label and provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency. With regard to off-site points, this requirement is subject to the prior agreement of the landowner concerned.

3.5.2 The licensee shall provide and maintain an inspection chamber(s) at the inlets of the storm water drainage system to the soak pits, prior to commencement of the activity.

3.6 Tank, Container and Drum Storage Areas

3.6.1 All tank, container and drum storage areas shall be rendered impervious to the materials stored therein. Bunds shall be designed having regard to Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (2004).

3.6.2 All tank and drum storage areas shall, as a minimum, be bunded, either locally or remotely, to a volume not less than the greater of the following:

(i) 110% of the capacity of the largest tank or drum within the bunded area; or

(ii) 25% of the total volume of substance that could be stored within the bunded area.

3.6.3 All drainage from bunded areas shall be treated as contaminated unless it can be demonstrated to be otherwise. All drainage from bunded areas shall be diverted for collection and safe disposal, unless it can be deemed uncontaminated.

3.6.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.

3.6.5 All tanks, containers and drums shall be labelled to clearly indicate their contents.

3.6.6 All bunds shall be uniquely identified and labelled at the bund.

3.7 The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage at the installation. Once used, the absorbent material shall be disposed of/recovered at an appropriate facility.

3.8 The wash water storage tanks shall be fitted with high liquid level indicators, prior to utilisation.

3.9 The licensee shall provide a minimum of 26 weeks' storage of organic fertiliser on-site, or

(i) have a contract providing exclusive access to adequate alternative storage capacity located outside the installation, or

(ii) have a contract for the transfer of organic fertiliser to a treatment facility for livestock organic fertiliser, or

(iii) have a contract for the transfer of the organic fertiliser to a person registered under and in accordance with the European Communities (Transmissible Spongiform Encephalopathies and Animal By-products) Regulations 2008 S.I. 252 of 2008, to undertake the transport of organic fertiliser.

3.10 The licensee shall install and maintain a water meter on all water supplies serving the installation. In the case of new water supplies installed on site, the meters shall be fitted in advance of utilisation. Records of water usage shall be maintained on site and a summary records report shall be submitted annually as part of the AER.

3.11 The licensee shall undertake annual maintenance of the back-up generator.

3.12 All wellheads at the installation, shall be adequately protected to prevent contamination or physical damage.

3.13 In the event of sanitary facilities being installed at the installation, the licensee shall, prior to their utilisation, provide and maintain a system for domestic wastewater collection and treatment. Any wastewater treatment system and percolation area shall satisfy the criteria set out in the *Code of Practice Wastewater Treatment and Disposal Systems Serving Single Houses (p.e. ≤ 10)*, published by the Environmental Protection Agency.

3.14 The licensee shall establish, maintain and implement a rodent and pest control programme. This programme shall be in accordance with any relevant guidelines issued by the Department of Agriculture, Food and the Marine.

Reason: ***To provide for appropriate operation of the installation to ensure protection of the environment.***

Condition 4. Interpretation

4.1 Noise

Noise from the installation shall not give rise to sound pressure levels measured at noise-sensitive locations (NSLs) which exceed the limit value(s).

Reason: ***To clarify the interpretation of limit values fixed under the licence.***

Condition 5. Emissions

5.1 Emissions may be made from the specified emission points set out in *Schedule B: Emission Limits*, of this licence subject to compliance with the Emission Limit Values specified in that Schedule.

5.1.1 Uncontaminated storm water may be discharged to surface water.

5.1.2 Uncontaminated storm water may be emitted to groundwater or to soil.

5.1.3 Minor, diffuse and potential emissions may be emitted to air as specified in the application, or as approved by the Agency under Condition 1 of this licence.

5.2 Notwithstanding the requirements of Condition 5.1, there shall be no other emissions from the installation.

5.3 No emissions, including odours and dust, from the activities carried on at the site shall result in an impairment of, or an interference with amenities or the environment beyond the installation boundary or any other legitimate uses of the environment beyond the installation boundary.

5.4 The licensee shall ensure that all or any of the following:

- Vermin
- Birds
- Flies
- Mud
- Litter

associated with the activity do not result in an impairment of, or an interference with, amenities or the environment at the installation or beyond the installation boundary or any other legitimate uses of the environment beyond the installation boundary. Any method used by the licensee to control or prevent any such impairment/interference shall not cause environmental pollution.

5.5 Nutritional Management

5.5.1 The licensee shall ensure that a diet formulation and nutritional strategy is used to reduce the total nitrogen excreted, using one or a combination of the techniques given in BAT 3.

5.5.2 The licensee shall ensure that a diet formulation and nutritional strategy is used to reduce the total phosphorus excreted, using one or a combination of the techniques given in BAT 4.

5.6 Ammonia Control

5.6.1 The licensee shall establish, maintain and implement an ammonia management programme outlining ammonia reduction measures, including timeframes for implementation, appropriate for the site, prior to commencement of the activity.

5.6.2 The ammonia management programme shall be reviewed annually, and amendments thereto notified to the Agency as part of the AER. A report on the programme, including the success in meeting ammonia reduction on site, shall be prepared and submitted to the Agency as part of the AER.

5.6.3 The licensee shall in accordance with BAT 23, estimate or calculate the reduction of ammonia emissions from the whole production process using the BAT implemented at the installation. The estimated or calculated reductions shall be submitted to the Agency as part of the Annual Environmental Report (AER).

Reason:	***To provide for the protection of the environment by way of control and limitation of emission.***

Condition 6. Control and Monitoring

6.1 The licensee shall carry out such sampling, analyses, measurements, examinations, maintenance and calibrations as set out below and as in accordance with *Schedule C: Control and Monitoring*, of this licence.

(i) Sampling and analysis shall be undertaken by competent staff in accordance with documented operating procedures.

(ii) Such procedures shall be assessed for their suitability for the test matrix and performance characteristics shall be determined.

(iii) Such procedures shall be subject to a programme of Analytical Quality Control using control standards with evaluation of test responses.

(iv) Where any analysis is sub-contracted it shall be to a competent laboratory.

6.2 The licensee shall ensure that:

(i) sampling and analysis for all parameters listed in the schedules to this licence; and

(ii) any reference measurements for the calibration of automated measurement systems

shall be carried out in accordance with CEN-standards. If CEN standards are not available, ISO, national or international standards that will ensure the provision of data of an equivalent scientific quality shall apply.

6.3 The licensee shall ensure that groundwater monitoring well sampling equipment is available/installed on-site and is fit for purpose at all times. The sampling equipment shall be to Agency specifications.

6.4 All emission control equipment shall be calibrated and maintained in accordance with the instructions issued by the manufacturer/supplier or installer.

6.5 The frequency, methods and scope of monitoring, sampling and analyses, as set out in this licence, may be amended as required or approved by the Agency following evaluation of test results.

6.6 The integrity and water tightness of all tanks, bunding structures, containers and underground pipes and their resistance to penetration by water or other materials carried or stored therein shall be tested and demonstrated by the licensee prior to use. This testing shall be carried out by the licensee at least once every three years thereafter and reported to the Agency on each occasion. This testing shall be carried out in accordance with any guidance published by the Agency. A written record of all integrity tests and any maintenance or remedial work arising from them shall be maintained by the licensee.

6.7 The licensee shall inspect the integrity of the floors of all deep litter houses after each wash down and shall undertake remedial actions to repair any damaged or cracked floors as necessary. The licensee shall maintain a record of all inspections and remedial actions taken.

6.8 The licensee shall carry out measures to provide that the ingress of storm/flood water from adjoining lands does not generate excess wash water or cause the release of polluting matter to ground, groundwater or surface waters.

6.9 The licensee shall ensure that all organic fertiliser generated on-site is stored in a manner which does not pollute ground or surface waters.

6.10 Storm Water

(i) A visual examination of the storm water discharge shall be carried out weekly.

(ii) Prior to commencement of the activity, the licensee shall provide and maintain a silt trap and oil separators at the installation to ensure that all storm water discharges from the paved areas of the installation, passes through the silt trap and interceptor in advance of discharge.

(iii) The storm water drainage system (i.e., gullies, manholes, any visible conduits and such other aspects as may be required by the Agency), bunds, silt trap and oil separator shall be inspected weekly, desludged as necessary, and properly maintained at all times. All sludge and drainage from these operations shall be collected for safe disposal. The licensee shall maintain a drainage map on site. The drainage map shall be reviewed annually and updated as necessary.

(iv) The licensee shall provide and subsequently maintain a rainwater collection and drainage system for all poultry housing on-site.

(v) The licensee shall divert all uncontaminated storm water run-off from roofs and non-contaminated impervious areas of the site, to the storm water drainage system.

6.11 Wash Water

(i) Prior to the removal of poultry manure from the poultry houses and any wash down of the poultry houses and yard areas, and until such time as wash down activities are complete, the licensee shall take measures to ensure that wash water will be diverted to the wash water tanks. The licensee shall establish, maintain and implement a written procedure for the diversion of soiled wash water to the underground wash water tanks. The licensee shall maintain a record of each diversion event.

(ii) The licensee shall use a combination of the techniques listed in BAT 6 in order to reduce the generation of wash water on site.

(iii) The licensee shall use one or a combination of the techniques listed in BAT 7 in order to reduce emissions to water from wash water.

6.12 The licensee shall calculate and record the quantity of organic fertiliser stored on-site on the 1st January annually. The licensee shall maintain the record on-site and the record shall be available for inspection by authorised persons, including Agency personnel.

6.13 The licensee shall ensure that a freeboard of at least 200 mm from the top of each covered wash water storage tank and 300 mm from the top of uncovered wash water storage tanks is maintained, as a minimum, at all times. The required freeboard shall be clearly indicated in the tank.

6.14 Underground, partly underground or overground storage facilities shall conform to the Department of Agriculture, Food and the Marine specifications (S108, S123) or equivalent standard.

6.15 The licensee shall use one of the techniques listed in BAT 24 in order to monitor the total nitrogen and total phosphorus excreted in manure annually. The estimated or calculated amounts shall be submitted to the Agency as part of the Annual Environmental Report (AER).

6.16 Dust

The licensee shall use one or a combination of the techniques listed in BAT 11 in order to prevent, or where that is not practicable, to reduce dust emissions from each animal house.

6.17 Noise

(i) The licensee shall carry out a noise survey of the site operations as required by the Agency. The survey programme shall be undertaken in accordance with the methodology specified in the *'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)'* as published by the Agency.

(ii) The licensee shall use one or a combination of the techniques listed in BAT 10 in order to prevent, or where that is not practicable, to reduce noise emissions.

6.18 Odour Control

The licensee shall use a combination of the techniques listed in BAT 13 in order to prevent, or where that is not practicable, to reduce odour emissions and/or odour impact.

6.19 Pollutant Release and Transfer Register (PRTR)

The licensee shall submit a PRTR data report for the site. The pollutants and/or wastes to be included in the PRTR shall be determined by reference to EC Regulations No. 166/2006 concerning the establishment of a European Pollutant Release and Transfer Register. The PRTR shall be prepared in accordance with any relevant Agency guidance and shall be submitted electronically in the format specified by the Agency.

6.20 Solid Manure Storage

(i) The licensee shall use one or a combination of the techniques listed in BAT 14 (Emissions from solid manure storage), in order to reduce ammonia emissions to air from the storage of solid manure.

(ii) The licensee shall use a combination of the techniques listed in BAT 15 (Emissions from solid manure storage), in order to prevent, or where that is not practicable, to reduce emissions to soil and water from the storage of solid manure.

6.21 The licensee shall use one or a combination of the applicable techniques listed in BAT 31 (Ammonia emissions from poultry houses) in order to reduce ammonia emissions to air from each house for laying hens.

6.22 The licensee shall ensure the specifications of the ventilation system listed below, are met and monitored as appropriate, at all times, when the animal houses are stocked:

(i) Minimum stack height - 7m

(ii) Minimum fan diameter

- EM50 fans – 1,270mm
- EM36 fans – 915mm

(iii) Minimum fan speed

- EM50 fans – minimum 5.71m^3/sec
- EM36 fans – minimum 4.17m^3/sec

The specifications listed above, for both fan types, can be varied, subject to the approval of the Agency, based on air dispersion modelling.

Reason: ***To provide for the protection of the environment by way of treatment and monitoring of emissions.***

Condition 7. Resource Use and Energy Efficiency

7.1 The licensee shall carry out an audit of the energy efficiency of the site within twelve months of the date of grant of this licence. The audit shall be carried out in accordance with the guidance published by the Agency, "Guidance Note on Energy Efficiency Auditing". The energy efficiency audit shall be repeated at intervals as required by the Agency.

7.2 The audit shall identify all opportunities for energy use reduction and efficiency and the recommendations of the audit shall be incorporated into a Resource Use and Energy Programme.

7.3 The licensee shall use a combination of the techniques listed in BAT 8 (Efficient use of energy), to ensure that energy is used efficiently.

7.4 The licensee shall identify opportunities for reduction in the quantity of water used on site including recycling and reuse initiatives, wherever possible. Reductions in water usage shall be incorporated into a Resource Use and Energy Programme.

7.5 The licensee shall use a combination of the techniques listed in BAT 5 (Efficient use of water), in order to use water efficiently.

7.6 The licensee shall undertake an assessment of the efficiency of use of materials, including feeds and organic fertiliser, in all processes, having particular regard to the reduction in waste generated. The assessment should take account of best international practice for this type of activity. Where improvements are identified, these shall be incorporated into a Resource Use and Energy Programme.

Reason: ***To provide for the efficient use of resources and energy in all site operations.***

Condition 8. Materials Handling

8.1 The licensee shall ensure that waste generated in the carrying on of the activity shall be prepared for re-use, recycling or recovery or, where that is not technically or economically possible, disposed of in a manner which will prevent or minimise any impact on the environment.

8.2 All waste that is not reused on site shall be sent off-site to an authorised facility for disposal or recovery or reuse.

8.3 Waste sent off-site for recovery or disposal shall be transported only by an authorised waste contractor or an exempted person (Waste Management (Collection Permit) Regulations 2007 as amended). The waste shall be transported from the site of the activity to the site of recovery/disposal only in a manner which will not adversely affect the environment and in accordance with the appropriate National and European legislation and protocols.

8.3.1 Animal tissue or carcasses sent off site for disposal/recovery shall be transported in covered, leak-proof containers.

8.3.2 Waste sent off-site for recovery or disposal shall be transferred only to an appropriate facility.

8.4 The loading and unloading of materials shall be carried out in designated areas protected against spillage and leachate run-off.

8.5 Waste and materials shall be stored in designated areas, protected as may be appropriate against spillage and leachate run-off. The waste and materials shall be clearly labelled and appropriately segregated.

8.6 Unless approved in writing, in advance, by the Agency, the licensee is prohibited from mixing a hazardous waste of one category with a hazardous waste of another category or with any other non-hazardous waste.

8.7 The licensee shall neither import waste into the State nor export waste out of the State except in accordance with the relevant provisions of Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14th June 2006 on shipments of waste and associated national regulations.

8.8 Organic fertiliser

8.8.1 Poultry litter shall not be stored in the open pending its collection.

8.8.2 Poultry litter shall only be stored within the houses and any designated manure store as agreed by the Agency.

8.8.3 There shall be no landspreading of organic fertiliser at the installation.

8.9 Organic fertiliser shall not be discarded to ground while loading for shipment off site. Any organic fertiliser spilled during loading shall be collected and returned to storage or to the vehicle into which it was being loaded.

8.10 Animal tissue or carcasses stored on-site pending disposal shall be placed in covered, leak-proof containers and shall at a minimum be removed fortnightly.

8.11 Organic Fertiliser Movements

8.11.1 The licensee shall record all organic fertiliser movements off-site in an 'organic fertiliser register' which shall be available for inspection on-site by authorised persons.

8.11.2 The licensee shall maintain an 'organic fertiliser register' to the satisfaction of the Agency, showing, as a minimum the name, herd number of the customer farmer receiving organic fertiliser, quantity of organic fertiliser, date of movement off site, and details in accordance with Article 23 of S.I. No. 605 of 2017 European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017 and as otherwise specified by the Agency or Department of Agriculture, Food and the Marine.

8.11.3 The licensee shall, on or before the 31st December annually, submit to the Department of Agriculture, Food and the Marine the completed records of movement of organic fertiliser from the installation (referred to as 'Record 3' by the Department of Agriculture, Food and the Marine). The record shall be in accordance with Article 23 of S.I. No. 605 of 2017 European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017 and as otherwise specified by the Agency or Department of Agriculture, Food and the Marine. A copy of the record submitted shall be maintained on site for inspection.

8.11.4 The licensee shall calculate and record by the 31st of January annually:

(i) The quantity of organic fertiliser generated by the animals housed on-site in the previous calendar year;

(ii) The total quantity of organic fertiliser moved off site and recorded in the organic fertiliser register and 'Record 3' as submitted to the Department of Agriculture, Food and the Marine in the previous calendar year; and

(iii) The opening quantity of organic fertiliser (1st January of the previous year) and closing quantity of organic fertiliser (1st January of the current year).

These details shall be submitted to the Agency as part of the AER.

8.12 Birds for slaughter shall be sent off-site only to Department of Agriculture, Food and the Marine approved facilities, unless otherwise agreed by the Agency.

8.13 Recovery of Organic Fertiliser by means other than use as fertiliser on land

8.13.1 Where organic fertiliser is not used as a fertiliser on land, the licensee shall by the first of February each year submit details of all proposed recipients of organic fertiliser for recovery/disposal other than by landspreading. Details required shall include method of recovery/disposal, location of recovery/disposal facility, permit/authorisation for recovery/disposal facility, agreements between recipient and licensee and quantities to be accepted by the recipient.

8.13.2 Recovery/disposal of organic fertiliser shall take place only by methods agreed in advance by the Agency and at agreed recovery/disposal facilities which have appropriate authorisation.

8.13.3 Agreements between the licensee and recipients of organic fertiliser for recovery/disposal, other than landspreading, shall not conflict with any conditions of this licence.

Reason: ***To provide for the appropriate handling of material and the protection of the environment.***

Condition 9. Accident Prevention and Emergency Response

9.1 The licensee shall, in advance of the commencement of the activity ensure that a documented Accident Prevention Procedure is in place that addresses the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment. This procedure shall be reviewed annually and updated as necessary.

9.2 The licensee shall, in advance of the date of commencement of the activity ensure that a documented Emergency Response Procedure is in place, that addresses any emergency situation which may originate on-site. This procedure shall include provision for minimising the effects of any emergency on the environment. This procedure shall be reviewed annually and updated as necessary.

9.3 Incidents

9.3.1 In the event of an incident the licensee shall immediately:

(i) carry out an investigation to identify the nature, source and cause of the incident and any emission arising therefrom;

(ii) isolate the source of any such emission;

(iii) evaluate the environmental pollution, if any, caused by the incident;

(iv) identify and execute measures to minimise the emissions/malfunction and the effects thereof;

(v) identify the date, time and place of the incident; and

(vi) notify the Agency as required by Condition 11.5 of this licence.

9.3.2 Where an incident or accident that significantly affects the environment occurs, the licensee shall without delay take measures to limit the environmental consequences of the incident or accident and to prevent further incident or accident.

Reason: ***To provide for the protection of the environment.***

Condition 10. Decommissioning and Residuals Management

10.1 Following termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the site in the licensed activity, the licensee shall, to the satisfaction of the Agency, decommission, render safe or remove for disposal/recovery any soil, subsoil, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

Reason:	***To make provision for the proper closure of the activity ensuring protection of the environment.***

Condition 11. Notification, Records and Reports

11.1 The licensee shall submit the reports, proposals and submissions required by this licence by the deadlines specified. The licensee shall not be in compliance with the requirements of this condition unless and until it has submitted every report, proposal and submission, the deadline for which has passed.

11.2 The licensee shall carry out every action required by the Agency, and arising out of such reports, proposals or submission, by such deadline as the Agency may specify. The licensee shall not be in compliance with the requirements of this condition unless and until it has carried out every such action.

11.3 The licensee shall notify the Agency of the intended date of commencement of the Scheduled Activity, one month in advance of commencement, in a format as may be specified by the Agency.

11.4 The licensee shall identify the technique, or combination of techniques where required, used for each BAT referenced in the applicable CIDs. The licensee shall prepare a report setting out the selected technique(s) used and submit this report as part of the AER.

11.5 The licensee shall notify the Agency, by both telephone and either email or webform, to the Agency's headquarters in Wexford, or to such other Agency office as may be specified by the Agency, as soon as practicable after the occurrence of any of the following:

(i) an incident or accident as defined by the glossary;

(ii) any breach of one or more of the conditions attached to this licence.

The licensee shall include as part of the notification, date and time of the incident, summary details of the occurrence, and where available, the steps taken to minimise any emissions. All details required to be communicated must be in accordance with any guidance provided by the Agency.

11.6 The following shall be notified, as soon as practicable after the occurrence of any incident which relates to a discharge to water:

11.6.1 Inland Fisheries Ireland in the case of discharges to receiving waters.

11.7 The licensee shall make a record of any notification made under Condition 11.5 above. This record shall include details of the nature, extent, and impact of, and circumstances giving rise to, the incident or accident. The record shall include all corrective actions taken to manage the incident or accident, minimise wastes generated and the effect on the environment, and avoid recurrence. In the case of a breach of a condition, the record shall include measures to restore compliance.

11.8 The licensee shall record all complaints of an environmental nature related to the operation of the activity. Each such record shall give details of the date and time of the complaint, the name of the

complainant (if provided), and give details of the nature of the complaint. A record shall also be kept of the response made in the case of each complaint.

11.9 The licensee shall record all sampling, analyses, measurements, examinations, calibrations and maintenance carried out in accordance with the requirements of this licence and all other such monitoring which relates to the environmental performance of the installation.

11.10 The licensee shall submit to the Agency, by the 31st March of each year, an AER covering the previous calendar year. This report shall include as a minimum the information specified in *Schedule D: Annual Environmental Report*, of this licence and shall be prepared in accordance with any relevant guidelines issued by the Agency.

11.11 A full record which shall be open to inspection by authorised persons of the Agency at all times, shall be kept by the licensee on matters relating to the waste management operations and practices at this site. This record shall as a minimum contain details of the following:

(i) the tonnages and LoW Code for the waste materials sent off-site for disposal/recovery;

(ii) the names of the agent and carrier of the waste, and their waste collection permit details, if required (to include issuing authority and vehicle registration number);

(iii) details of the ultimate disposal/recovery destination facility for the waste and its appropriateness to accept the consigned waste stream, to include its permit/licence details and issuing authority, if required;

(iv) written confirmation of the acceptance and disposal/recovery of any hazardous waste consignments sent off-site;

(v) details of all waste consigned abroad for Recovery and classified as 'Green' in accordance with the EU Shipment of Waste Regulations (Council Regulation EEC No. 1013/2006, as may be amended). The rationale for the classification must form part of the record;

(vi) details of any rejected consignments;

(vii) details of any approved waste mixing; and

(viii) the results of any analyses as required by the Agency.

11.12 The licensee shall as a minimum ensure that the following documents are accessible at the site:

(i) the licences relating to the installation;

(ii) the previous year's AER for the installation;

(iii) records of all sampling, analyses, measurements, examinations, calibrations and maintenance carried out in accordance with the requirements of this licence and all other such monitoring which relates to the environmental performance of the installation;

(iv) relevant correspondence with the Agency;

(v) up-to-date site drawings/plans showing the location of key process and environmental infrastructure, including monitoring locations and emission points;

(vi) up-to-date Standard Operational Procedures for all processes, plant and equipment necessary to give effect to this licence or otherwise to ensure that standard operation of such processes, plant or equipment does not result in unauthorised emissions to the environment; and

(vii) any elements of the licence application or EIA documentation referenced in this licence.

This documentation shall be available to the Agency for inspection at all reasonable times.

11.13 The licensee shall maintain the following records:

(i) Register of layer hen stock levels;

(ii) Mortality and dead bird disposal;

(iii) Floor plan;

(iv) Floor integrity inspection/remedial action records;

(v) Weekly house humidity and temperature records;

(vi) Weekly water consumption;

(vii) Electric energy consumption;

(viii) Fuel consumption;

(ix) Feed delivery records and details of feed consumption;

(x) Organic fertiliser (poultry litter and wash water) generation;

(xi) Commercial documents for the transport of animal by-products or derived product, as required by the Animal By-product Regulations, sent off site, unless a derogation is applicable;

(xii) Rodent control programme including bait point plan and bait replenishment;

(xiii) Storm water inspection records and test reports;

(xiv) Groundwater monitoring results;

(xv) Heating systems and back-up generator maintenance certificates;

(xvi) Hours of operation and reason for operation of back-up generator;

(xvii) Safety statement;

(xviii) Emergency action plan; and

(xix) Chemical inventory and usage.

These records shall be available for inspection by authorised persons of the Agency at all reasonable times.

11.14 The licensee shall submit report(s) electronically as required by the conditions of this licence to the Agency.

11.15 All reports shall be certified accurate and representative by the installation manager or a nominated, suitably qualified and experienced deputy.

Reason: ***To provide for the collection and reporting of adequate information on the activity.***

Condition 12. Financial Charges and Provisions

12.1 Agency Charges

12.1.1 The licensee shall pay to the Agency an annual contribution of €2,768 or such sum as the Agency from time to time determines, having regard to variations in the extent of reporting, auditing, inspection, sampling and analysis or other functions carried out by the Agency, towards the cost of monitoring the activity as the Agency considers necessary for the performance of its functions under the Environmental Protection Agency Act 1992 as amended. The first payment shall be a pro-rata amount for the period from the date of grant of this licence to the 31st day of December and shall be paid to the Agency within one month from the date of grant of the licence. In subsequent years, the licensee shall pay to the Agency such revised annual contribution as the Agency shall from time to time consider necessary to enable performance by the Agency of its relevant functions under the Environmental Protection Agency Act 1992 as amended, and all such payments shall be made within one month of the date upon which demanded by the Agency.

12.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased, the licensee shall contribute such sums as determined by the Agency to defray its costs in regard to items not covered by the said annual contribution.

12.2 Environmental Liabilities

12.2.1 The licensee shall as part of the AER, provide an annual statement to the satisfaction of the Agency as to the measures taken or adopted at the site, in relation to the prevention of environmental damage, for remedial actions following closure/decommissioning or accidents/incidents, as may be associated with the carrying on of the activity.

12.2.2 The licensee shall have regard to the Environmental Protection Agency's Guidance on Assessing and Costing Environmental Liabilities (2014) and, as appropriate, Guidance on Financial Provision for Environmental Liabilities (2015) when implementing Condition 12.2.1 above.

12.2.3 The Agency may amend this licence at any time in certain circumstances in accordance with Section 96 of the Environmental Protection Agency Act 1992 as amended to require, or not require as the case may be, the putting in place of a financial provision to incorporate costings for CRAMP and/or Environmental Liabilities Risk Assessment. This amendment may be implemented by the Agency in the event of an incident that creates a significant residual environmental liability or where the environmental risk profile, changes on site.

Reason:	***To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.***

SCHEDULE A: Limitations

A.1 Bird numbers housed at the installation

Poultry Type	Numbers
Laying hens	60,000

SCHEDULE B: Emission Limits

B.1 Emissions Limits for ammonia emissions to air from each animal house

Emission Point Reference No: Laying Hens House No. 1

Source of Emissions	Parameter	Emission Limit
Laying Hens	Ammonia	0.08kgNH_3 /animal place/year

B.2 Emissions to Water

There shall be no emissions to water of environmental significance.

B.3 Emissions to Sewer

There shall be no process effluent emissions to sewer.

B.4 Noise Emissions

Daytime dB LAr, T (30 minutes)	Evening dB LAr, T (30 minutes)	Night-time dB LAeq, T (30 minutes) Note 1
55	50	45

Note 1: During night time hours, there shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise-sensitive location.

SCHEDULE C: Control and Monitoring

C.1 Control and Monitoring of Emissions to Air

Source/description of point of measurement: Laying Hen House 1

Parameter	Monitoring Frequency	Monitoring/Analysis Method/ Technique
Ammonia	Annually	Refer to BAT 25
Dust	Annually	Refer to BAT 27

C.2.1. Control of Emissions to Water

There shall be no emissions to water of environmental significance.

C.2.2. Monitoring of Emissions to Water

There shall be no emissions to water of environmental significance.

C.2.3. Monitoring of Storm Water Discharges

Discharge Point Reference No: **SW1** Note 1

Parameter	Monitoring Frequency	Analysis Method/Technique
COD or BOD	As required by the Agency	Standard method
Visual Inspection	Weekly	Sample and examine for colour and odour.

Note 1: Location of discharge points (National Grid Reference (12-digit 6E,6N) and labelled on an appropriately scaled map) to be submitted to the Agency upon installation and prior to commencement of the activity.

C.3.1. Control of Emissions to Sewer

There shall be no process effluent emissions to sewer.

C.3.2. Monitoring of Emissions to Sewer

There shall be no process effluent emissions to Sewer.

C.4.1 Organic Fertiliser Monitoring

Class	Frequency	Parameter
Organic Fertiliser (poultry litter and wash water)	Monthly and as of 1st January annually	Available storage capacity

C.4.2 Organic Fertiliser Process Monitoring

Source / description of point of measurement	Parameter	BAT-associated total nutrient excreted levels Note 1	Monitoring frequency	Monitoring standard or method
Laying hens	Nitrogen	0.8Kg Nitrogen (N) excreted/animal place/year	Annually	Refer to BAT 24
	Phosphorus	0.45Kg Phosphorus (P_2O_5) excreted /animal place/year		

Note 1: The BAT-associated total nitrogen and phosphorus excreted levels are assigned in accordance with BAT 3 and BAT 4.

C.5 Noise Monitoring

No additional noise monitoring is required in this schedule.

C.6 Ambient Monitoring

Groundwater Monitoring

Location: Well AGW-1 Note 1

Parameter	Monitoring Frequency	Analysis Method/Techniques
Nitrate	Annually	Standard Method
Total Ammonia	Annually	Standard Method
Faecal Coliforms	Annually	Standard Method

Note 1: Location of well (National Grid Reference (12-digit 6E,6N) to be identified and labelled on an appropriately scaled map) to be submitted to the Agency one month prior to commencement of activity.

SCHEDULE D: Annual Environmental Report

Annual Environmental Report Content [Note 1]
Waste management record.
Monitoring of emissions to air including estimation of the reduction of ammonia emissions from the whole production process using BAT implemented.
Report on dust emissions from animal houses (where applicable).
Report on total nitrogen and phosphorus in manure.
Report on technique(s) used at the installation for each BAT referenced in the applicable CIDs.
Resource consumption summary.
Tank and pipeline assessment report.
Bund integrity test.
Reported incidents/complaints summary.
Energy efficiency audit report summary.
Report on ammonia management programme.
Report on the assessment of the efficiency of use of raw materials in processes and the reduction in waste generated.
Report on progress made and proposals being developed to minimise water demand.
Resource use and energy programme.
Development/Infrastructural works summary (completed in previous year and/or prepared for current year).
Statement of measures in relation to prevention of environmental damage and remedial actions (Environmental Liabilities).
Quantity of organic fertiliser generated during the AER reporting year.
Quantity of organic fertiliser moved off-site and recorded during the AER reporting year.
Opening and closing quantity of organic fertiliser at the installation.
Organic fertiliser monthly monitoring.
Monitoring of storm water discharges.
Groundwater monitoring results.
Any other items specified by the Agency.

Note 1: Content may be revised subject to the approval of the Agency.

Sealed by the seal of the Agency on this the 8th day of October 2020.

PRESENT when the seal of the Agency was affixed hereto:

Tara Gillen

Tara Gillen, Authorised Person

Appendix No. 8

Feed Details

A.W. Ennis Ltd.
ERIN FARM FEEDS
Since 1836

Virginia
Co. Cavan
Tel: 049 854 7588
Fax: 049 854 7598
Email: sales@awennis.ie
Web: www.awennis.ie

6th December 2018.

Mr Paraic Fay
CLW Environmental Planner
The Mews, 23 Farnham St, Cavan

Good morning Paraic

In order to address your point regarding minimising the poultry manure and to reduce nutrient excretion we formulate our poultry diets as follows:

- Regular reformulation considering material quality to provide accurate nutrient supply in the diet and optimise nutrient efficiency
- Selection of high nutrient quality materials with high nutrient digestibility and feed conversion efficiency
- Formulation of diets on available amino acid using the ideal protein concept in order to minimise non-essential protein supply and reduce the overall crude protein level of the diet and minimise nitrogen excretion through the manure.
- Use of amino acid to optimise the protein supply
- Addition of "non-starch polysaccharide" enzymes to assist the digestion of non-digestible dietary components and improve digestion of the diet overall. The use of these enzymes also reduce the volume of manure and can improve the consistency (higher dry matter).
- Addition of phytase enzyme to improve the release of phosphorous from phytate bound phosphorus contained in plant derived dietary ingredients allowing the bird to absorb more of the phosphorous inherent in the diet and thereby reduce inorganic phosphorous use in the diet and overall phosphorous excretion via the manure.

Please let me know if you require further information on any of these points.

Best regards

P.P. Finbarr O'Keefe.

Aidan Leek, PhD
Poultry Business Development & Technical Manager
AW Ennis Ltd., Virginia, Co. Cavan

C:\Users\Finbarro'keefe\Desktop\Clogher Distribution 12.09.18.Docx

Appendix No. 9

Animal Tissue Disposal

Crayvall Egg Production Ltd.,
Carrickbaggott,
Co. Louth.

11th July 2023

To Whom It May Concern:

We wish to confirm that we collect and dispose of dead poultry from the above on a regular basis. The pigs are contained in 240 litre or 660 litre wheelie bins. Our plant at Nobber, which was custom built on a green field site in 1989 is fully equipped with a modern effluent system, which is regularly monitored by the E.P.A. under IPC licence no. P0037-03. We pride ourselves on having a good reputation in the Rendering Industry, and we have been certified under EU Directive 1069/2009, which governs the industry.

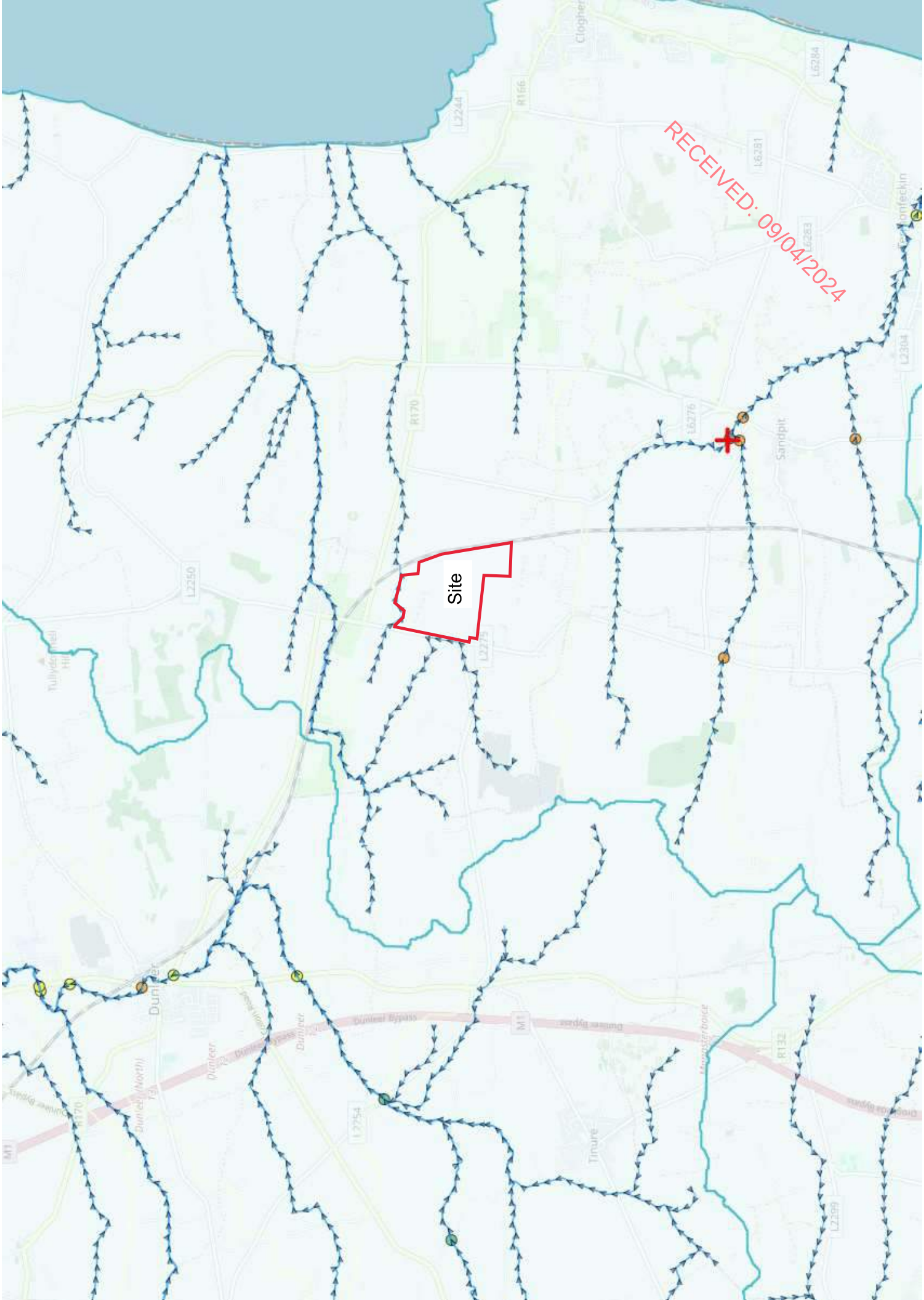
If you require any further assistance, please do not hesitate to contact me.

Yours faithfully,

Ita Brady
Transport Manager

Appendix No. 10

Local Water Quality Survey


Site
RECEIVED: 09/04/2024

Environmental Protection Agency

EPA RIVER QUALITY SURVEYS: BIOLOGICAL

Biotic indices ("Q Values") reflect average water quality at any location as follows:

Q Value*	WFD Status	Pollution Status	Condition **
Q5, Q4-5	High	Unpolluted	Satisfactory
Q4	Good	Unpolluted	Satisfactory
Q3-4	Moderate	Slightly polluted	Unsatisfactory
Q3, Q2-3	Poor	Moderately polluted	Unsatisfactory
Q2, Q1-2,	Bad	Seriously polluted	Unsatisfactory

* These Values are based primarily on the relative proportions of pollution sensitive to tolerant macroinvertebrates (the young stages of insects primarily but also snails, worms, shrimps etc.) resident at a river site. The intermediate values (Q1-2, 2-3, 3-4 etc.) denote transitional conditions. The scheme mainly reflects the effects of organic pollution (i.e. de-oxygenation and eutrophication) but where a toxic effect is apparent or suspected the suffix '0' is added to the biotic index (e.g. Q1/0, 2/0 or 3/0). An asterisk after the Q value (e.g. Q3*) indicates something worthy of special attention, typically heavy siltation of the substratum.

** "Condition" refers to the likelihood of interference with beneficial or potential beneficial uses.

Also presented is a description of the exact location surveyed with relevant OS Grid Reference, WFD river water body code and relevant Local Authority.

Hydrometric Area 06

Name	Code
ANNAHALE STREAM	06A01
BALLYKELLY	06B03
BALLYMAKENNY STREAM	06B04
BALLYMASCANLAN	06B02
BIG (LOUTH)	06B01
CARRICKASLANE LOUGH STREAM	06C04
CASTLETOWN	06C01
COUNTY WATER	06C03
CULLY WATER	06C02
DEE	06D01
DRUMCONRATH	06D04
DRUMSALLAGH STREAM	06D07
DRUMSHALLON LOUGH STREAM	06D03
FANE	06F01
FLURRY	06F02
GENTLE OWEN'S LAKE STREAM	06G04
GLYDE	06G02
KILCURRY	06K02
KILLARY WATER	06K01
KILMAINHAM (DEE)	06K04
MAGHERACLOONE STREAM	06M01
PIPERSTOWN HOUSE STREAM	06P02

Name	Code
PROULES	06P01
RASKEAGH	06R02
ROSSDREENAGH STREAM	06R03
TERMONFECKIN	06T01
WHITE (LOUTH)	06W01

TERMONFECKIN

06T01

Date Surveyed (last survey year only): 16/07/20, 17/07/20

Biological Quality Rating (Q Values)

Station Code	1983	1986	1990	1994	1997	2000	2003	2006	2009	2011	2015	2018	2020
RS06T010350	3-4	3	3			3*	3*	3/0	3	3	3	3	3
RS06T010400	3-4	3	2-3	3	3/0	3-4	3-4	3-4		3	3	3-4	3-4*

Most Recent Assessment:

Unsatisfactory conditions were recorded at both sites (0350 and 0400) in July 2020. Site 0350 (Sandpit Bridge) has remained at Q3, poor ecological condition. Site 0400 (Bridge in Termonfeckin) has maintained its moderate ecological condition (Q3-4) but siltation is an issue here.

Station Details

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS06T010350	Sandpit Br.	IE_NB_06T010250	311850	282079	Louth County Council
RS06T010400	TERMONFECKIN - Br in Termonfeckin	IE_NB_06T010400	314005	280318	Louth County Council

Appendix No. 11

Extracts from Co. Louth Development Plan

MUIRHEVNA PLAIN

LANDSCAPE EXAMPLES IN THIS AREA.

Muirhevna Plain

Key Characteristics

- Serves as a major traffic corridor between North and South.
- Extensive plain located between the Carlingford/Slieve Gullion mountain complex and the uplands of Collon and Monasterboice.
- Rich soils are conducive to extensive agricultural practices both in crop and animal production.
- Robust hedgerows give a sense of enclosure.
- The nature of the topography has had the effect that a number of small meandering rivers drain the flat landscape.
- Contains a number of fine broadleaf wooded areas around country houses.
- Area is rich in archaeological features.
- Renowned for its mythological past leading to the definition of the Táin Trail.
- Isolated housing is very evident especially in the eastern half.

Landscape Description

This area is by far the largest landscape area in the county. It extends from the top of the Boyne Valley up to the and including Dundalk. It is identified for its flat undulating features drained by the meandering lazy rivers of the Fane, Glyde, White and Dee rivers. It contains the most fertile agricultural land in the county, which gives an overall impression of good farming husbandry. In the western half the landscape horizon is limited due to the smaller field patterns with their mature hedgerows and trees. The new motorway, when travelling north, offers uninterrupted views of the Cooley mountains for miles.

Landform and Landcover

In the Blackhall area there is a variety of black mudstones, quartzose and calcareous grey wackes, from the Ordovician/Silurian period. Around Ardee there are undifferentiated groups of limestone, mudstone and sandstone from the Carboniferous/Dinantian Period.

For the greater part of this area, from Salterstown to the western and northern boundaries, there are calcareous limestones, banded mudstones, calcareous red-mica greywackes and turbidites with red mica and red shale.

Glacial deposits comprise in the main of boulder clay and kames along the basins of the Glyde and Dee rivers.

The soils in the area are essentially of two types viz. Acid brown earths with some gleys and brown podzolics; and gleys with brown earths and peaty gleys.

Water to supply the area is abstracted from the rivers Fane, Glyde, Dee and White Rivers. In addition there are 4 aquifers in use.

Whilst there are little are no commercial forests in the area, it abounds in small woodlands which are primarily broadleaf in character, particularly beech, with some oak and chestnut occasionally. Many of these trees are entwined with the ubiquitous climbing ivy. Ardee is particularly rich in tree cover. Other areas include Barmeath (N.H.A), Blackhall (N.H.A), Corderry, Darver (N.H.A.), Drumcar, Drumcashel, Lisrenny House, Rathbrist and Stephenstown.

In addition Louth Hall, Stabannon/Braganstown, Stephenstown Pond, and Ardee Bog are proposed National Heritage Areas.

Rathescor Lake is in charge of The Irish Game Council and is worthy of a N.H.A. designation.

Human Intervention

Field sizes are generally larger in this area than elsewhere in the county. There is some evidence of hedgerow removal to facilitate more intensive farming. Hedgerows consist in the main of thorn, bramble, ash, sycamore, elder and generally maintained in their mature state thereby limiting any extensive views. In some cases the trees on both sides of the road merge, giving a shaded arched effect. The rich soils allow for a wide range of tillage and grassland enterprises. Where intensive animal production takes place it would generally be in beef farming with some mushroom units. The hedgerows tend to obscure and minimise the visual impact of any large farm structures.

Because of the inclusion of Dundalk and Ardee and the manageable nature of the landscape it is not surprising that the highest density of archaeological recorded monuments (particularly souterrains) occurs in this area with the figure in excess of 500. The towns of Dundalk, Ardee and Dunleer are also considered to be of archaeological importance in their own right.

There are some mythological events identified within this area. Táin Bo Cuailgne records the exploits of Queen Maeve and Cú chúlaínn when the former stole the prized Bull of Cooley from Ulster. Cú chúlaínn endeavoured to defend Ulster and to regain the Bull from captivity, and return it to the Cooley area. Cú chulainn's slaying of Ferdia at Ardee (after which the town was called) was one of those skirmishes.

Throughout this area there are a number of old country estates with existing houses on them e.g. Athclare Castle, Glyde Court (fast becoming a ruin), Drumcar (now a hospital), Darver Castle, Smarmore Castle, Barmeath Castle and Rokeby Hall.

Milltown village (near Termonfeckin) is listed as a conservation area of architectural merit.

The new motorway (M1) passes through the area and has five junctions along it. The Dublin - Derry N2 and Dundalk –Limerick N52, passes through Ardee at present, and a bypass is being proposed to relieve the traffic congestion in the town. Apart from Dundalk other listed settlements include Knockbridge, Tallanstown, Dromin, Darver, Mansfieldstown, Smarmore, Stabannon and Sandpit. The Dublin Belfast railway offers views of the farmlands and landscape which might not be readily seen from any public road.

Isolated rural housing is much more obvious in the eastern half of the area, due to the influence of the two large county towns and the more open landscape.

There are a number of telecommunications masts in the areas, which in most cases have been located on sites set well back from public roads.

E.S.B. power lines (220 kv) are quite obvious in the landscape.

Landscape Sensitivity

The existence of glacial kames suggests that sand and gravel is a possible mineral resource leading to proposals for quarrying in this area. In the event of permission being granted, it should have a relatively short life span, or phased into a series of small areas which should be returned to their former state as soon as possible.

The soils and topography dictate that farming in this area is the most intensive in the county. In this open flat landscape the removal of traditional hedgerows would have a significant impact on the landscape. Where in some cases hedgerows have to be removed their replacement should be a similar hedgerow and not a post and wire fence, wooden fence, or brick wall.

The rivers Glyde, Dee and Fane have the potential for change in terms of recreation and fishing which can be both positive and negative.

Ardee bog (proposed N.H.A.) is currently under threat from land drainage. The proposed N52 bypass of the town touches on the area also. Another area under threat is the proposed N.H.A. at Stabannon-Braganstown by land reclamation. This bog is an important ecological, botanical, zoological and ornithological site.

With regard to the built environment the question of isolated housing continues apace. The scale of the houses themselves is difficult to integrate into this flat open landscape. New farm buildings, if feasible, should be scaled down so as to have several small units rather that one very large structure.

The recent vandalism and dereliction of Glyde Court House is regrettable, making its reinstatement much more difficult to achieve.

Many of the small broadleaf woodlands are at maturity stage and their regeneration and tree replacement should be encouraged. Commercial farming is not expected to occur in this area, but in the event of it happening, it should be set back from the roadside so as to retain the general

open landscape character of the area and have a 30% broadleaf mix. Any forestry in proximity to the motorway should not interfere with the scenic views for the motorist travelling north.

With theoretical wind speeds of less than 7.5 m/s the building of wind farms is not likely in the current economic energy climate. The least sensitive area in this regard would be north-west of Ardee where the hedgerows are robust and mature.

Muirhevna Plain

Landscape Values & Classification

Key Values	Objective
▪ Extensive area of good quality agricultural land with fine traditional hedgerows.	Conserve /enhance/restore
▪ Small but very fine broadleaf woodlands throughout the area and within the town of Ardee.	Conserve/ enhance
▪ High density of archaeological features, particularly souterrains.	Conserve
▪ Contains four proposed N.H.A.s	Conserve /create
▪ Rathescar Lake worthy of N.H.A. status.	Conserve /create
Overall Classification	Regional

LOUTH COUNTY DEVELOPMENT PLAN 2021-2027

APPENDIX 7

Views and Prospects

Table 1 Views and Prospects

Ref:	Location	Direction	Description
VP 1	Drummullagh	Drummullagh; elevated site accessed off a local road onto a country road. View can be accessed to the front of an existing dwelling.	Extensive views east towards Narrow Water, above Omeath village and across Carlingford Lough towards Northern Ireland, including Rostrevor Mountain.
VP 2	Clermontpase Bridge	Clermontpase Bridge; is located along the main road and a lay-by beside the bridge to access views.	Views west uplands towards Clermont Cairn and east towards Northern Ireland. The panoramic views are separated from the foreground by rolling rural landscape.
VP 3	Clermont Cairn RTE mast	Clermont Cairn; The site is accessed from the top of Black Mountain at the RTE Mast and carpark.	Panoramic views to the north, south, east and west of Cooley mountains, Mourne Mountains and beyond. Extensive views south of Dundalk, Dundalk Bay and surrounding countryside.
VP 4	Windy Gap	The site is accessed from a northern pathway at the Long Woman's Grave.	View is available horizontally along the hollow at the gap both north and south at the base of "The Foxes Rock" Mountain.
VP 5	Carlingford Lough	Carlingford Lough; Viewpoint is along a section of the main road on the Greenore Road (R173) between Carlingford and Greenore.	Views north of Carlingford in the middle distance and with the setting of Slieve Foye to the rear. In the foreland across Carlingford Lough, views of the Mourne Mountains in Northern Ireland.
VP 6	Slieve Foye	Viewpoint at the highest point of mountain park outside of the Carlingford Settlement Limit.	View of the settling of Carlingford along the coastline and panoramic views of the Lough towards Northern Ireland.
VP 7	Spelickanee	Viewpoint along section of road where the local road splits south.	180 degree views of the mountains and valley within the Cooley peninsula.
VP 8	Glenmore – mountains and valley	Slieve Halpen; Views access along the main road after forested area between Mutlaghattin and Annaloughan Mountain.	Panoramic Views down through the valley towards Slieve Foye and, Barnavave and to the south Slieve Halpen.
VP 9	Barnavave and Carlingford mountain	At Ballygoly townland, views are taken from the bridge along the main road.	Middle distance views to the north east of the back of Slieve Foye and Barnavave and Carlingford Mountain. A dwelling at the crossroads at this causes a certain amount of obstruction to the south east views.

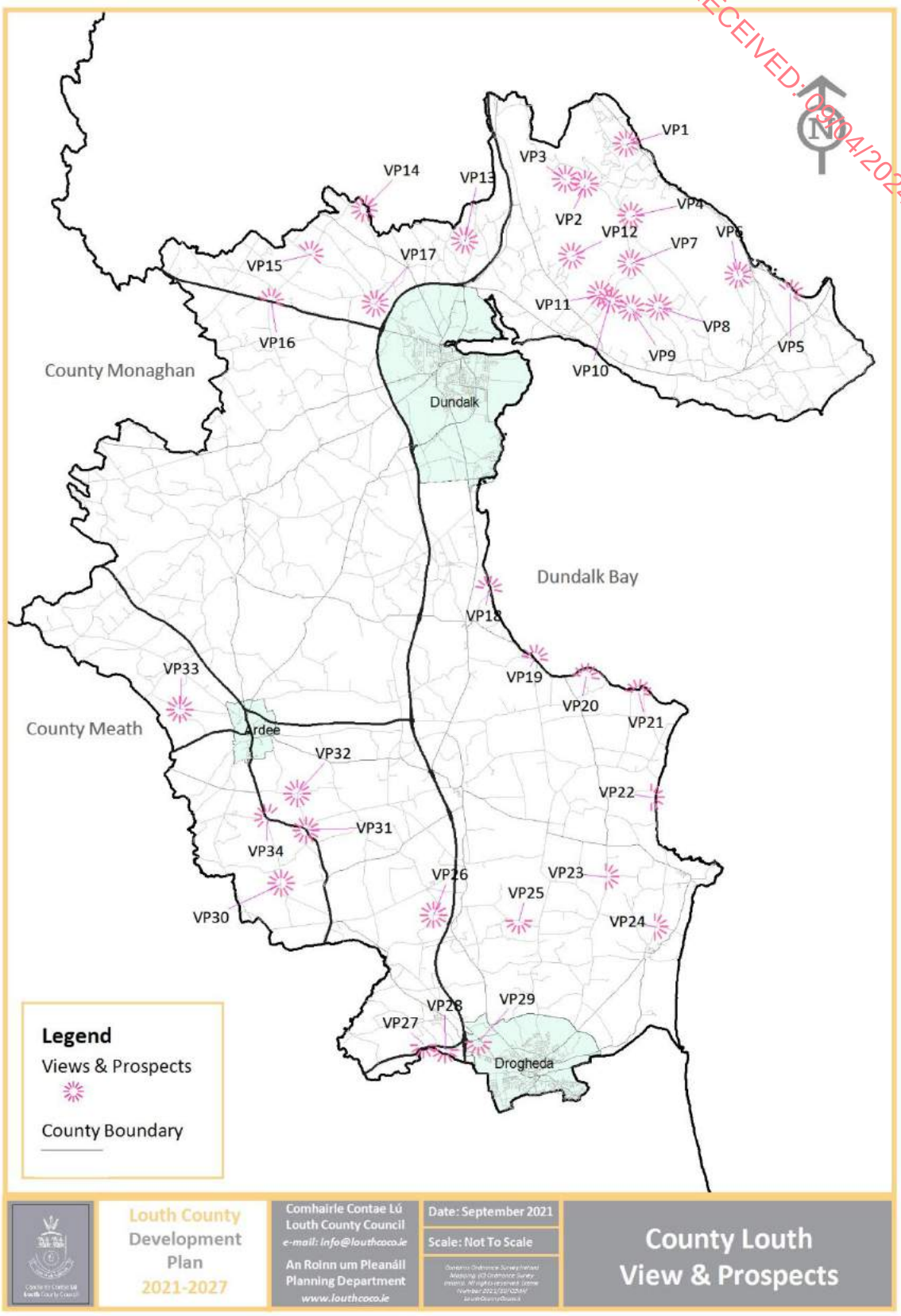
Ref:	Location	Direction	Description
VP 10	Jenkinstown Hill	Jenkinstown Hill towards Dundalk Bay. Views at the top of the hill from the site of the road across from the carpark into Annaloughan Mountain.	Panoramic views south towards Dundalk Bay and across to Dundalk.
VP 11	Jenkinstown	Jenkinstown at the top of local road and at the base of the Round Mountain.	All panoramic views to the south of the site of Dundalk Bay, Views north of the Black Mountain
VP 12	Ballymakellett	Ballymakellett at the top of the local road.	Views towards Dundalk bay, panoramic, scenic views
VP 13	Faughart Hill	Faughart Hill. Views recorded at the top of the Hill at the parking bay adjacent to the graveyard.	Panoramic views across north, south, east and west to include views of the Cooley Mountains and valley with one off rural housing at the base of the hill. Views of Dundalk to the south. Views to the east have been disturbed by the erection on a wind turbine adjacent to the view point.
VP 14	Dungooly Crossroads	Site is accessed via a narrow laneway at Dungooly townland	Views from Dungooly crossroads north of Slieve Gullion and east of Forkhill Mountain.
VP 15	Views of Castle Roche	Views of Castle Roche, views recorded at several points along adjoining local roads L-7112-0 and L-8112-20.	Views of Castle Roche are available along adjoining local roads. Views are dominant along L-7112-0 and L-8112-20 of the elevated Castle site and its dominant skyline presence.
VP 16	Hackballscross	Hackballscross Views recorded at the cross road at Hackballscross.	Views of mountains in the far distance to the north east of the site. In the short term the views contain mature trees and hedges and it is more the skyline which is of importance at the site.
VP 17	Killin Golf Course	Views recorded at junction past Killen Golf course towards Dundalk.	Uninterrupted panoramic views of Cooley Mountains in the foreground separated from the road by rolling rural landscape.
VP 18	Dromiskin	Sea views across to Dundalk, Cooley and Mourne Mountains	Views of sea across to Cooley and Mourne Mountains and including Dundalk Bay.
VP 19	North of Annagassan	Annagassan Village, beach strip between Annagassan Pier and lands to the north of the Salting.	Coastal beach strip, approximately 250m long, providing uninterrupted sea view looking north across Dundalk Bay towards the Cooley Mountains and the Mourne Mountains.
VP 20	Salterstown	Salterstown, along Scenic Route No. 18 northernmost end of local secondary road L6220.	Coastal beach strip, providing uninterrupted sea view looking north across Dundalk Bay towards the Cooley and Mourne Mountains.

Ref:	Location	Direction	Description
VP 21	Corstown	Draghanstown, northernmost end of local secondary road L6220.	Uninterrupted sea view looking north across Dundalk Bay towards the Cooley and Mourne Mountains.
VP 22	Lurganboy	Lurganboy, beach strip along Scenic Route No. 18, adjacent to public carpark.	Coastal beach strip, providing uninterrupted panoramic sea view. View to north along coast towards Dunany Point. View to the south-east towards Clogherhead Village, Almondstown, Clogher Head and Clogherhead Harbour.
VP 23	Callystown to Clogherhead	Garrolagh, 300 metres north of T-junction of L2278 with L6279.	Extensive panorama towards the coast across large working landscape. Dunany Point visible to the north-east, Lurganboy coastline in the middle distance and Clogherhead Village and Clogher Head to the south-east. Some modern housing and agricultural buildings visible in the middle distance.
VP 24	Dardisrath	Towards coast and Clogherhead Dardisrath along L6281, 800m north of Barnhill Crossroads	Partial coastline view across working landscape, interrupted by some modern housing and agricultural buildings. Ganderstown and Port Oriel partially visible to the south-east.
VP 25	Brownstown	Southern side of L6286, opposite Fieldstown/Brownstown	Southwards over AHSQ towards Drogheda. Long distance view to south-east towards Drogheda town, Tom Roes Point and Premiere Periclase. Open grazing fields and hedge lines in foreground and middle-distance. Limited modern housing visible in the left foreground.
VP 26	Newtown Monasterboice	Newtown Monasterboice along L6293 on high ground 260m north of Monasterboice Round Tower.	View south-west across open working field toward Monasterboice Round Tower. Upper portion of Tower visible behind copse of mature deciduous native trees.
VP 27	Townley Hall Nature Walk	Townley Hall Nature Walk, 200m east from Townley Hall entrance along nature walking trail.	Elevated view south east towards Battle of the Boyne Site. Boyne River visible in foreground, partial view of Battle of the Boyne Visitor Centre Boyne and Oldbridge house behind copse of mature deciduous native trees.
VP 28	Drybridge Escarpment	Drybridge Escarpment	180 degree view from the N51 at the rocky outcrop where the former Obelisk stood. Panoramic view over the Battle of the Boyne site. King William approached from the north & King James approached from the south at Donore Hill.

Ref:	Location	Direction	Description
VP 29	Waterunder Plateau	View from M1 Retail Park, M1, Motorway bridge	View south from N51 between Mell roundabout and Motorway roundabout Junction 10. Drybridge Escarpment. View of Ravine which was the route of the Williamite army from their camp at Tullyallen Hill to cross the Boyne river.
VP 30	Mount Oriel	Belpatrick townland along L5286, 600m west of Mount Oriel.	Uninterrupted view to the north east towards Mullacapple. Valley view incorporating open working fields, native hedgerows, wooded areas in middle distance and tree-topped drumlins in right middle-distance. Mount Oriel to right foreground. Visual absence of any residential or agricultural structures.
VP 31	N2 Funshog	Junction of N2 with L2253	View eastwards from N2 junction with L2253 of tree-lined avenue of mature deciduous trees. Avenue is largely interrupted and extends to 600 metres.
VP 32	Millockstown	Millockstown at junction of L5257 with L5258	180 degree panoramic view southwards across Millockstown towards Roestown, Funshog and Mount Oriel. Landscape contains large open fields, native hedgerow, some modern housing and agricultural buildings visible in the middle distance. 3no. Wind turbines visible in the distance to the south-west.
VP 33	Townparks	Townparks at westernmost end of Scenic Route No.17	View to north flat open field, infill site between two bungalows. New two-storey house in middle background. View to south: Flat open field with backdrop of mature deciduous trees. View of Ardee Bog.
VP 34	Anaglog	Anaglog, 1.5km west of VP32 along the N2	Open landscape view north-west across towards Hunterstown and Ardee town. Landscape contains large open fields, native hedgerow, limited modern housing and agricultural buildings visible in the middle distance. 3-phase Pylon visible in right foreground.

Table 2 Views and Prospects within Level 3 Settlements

Settlement	Ref:	Location	Description
Carlingford	VPC 1	King Johns Castle	Views east, south and west of Carlingford Lough, towards Carlingford and Slieve Foye.
	VPC2	Taaffes Castle	Views north east across Carlingford Lough and towards Northern Ireland and the Mourne Mountains from Taaffes Castle.
	VPC3	Holy Trinity Heritage Centre Church	Views north and east Views towards the Bay and Carlingford Lough.
	VPC4	Dominican Friary	View protected into the Dominican Friary with regard to those lands zoned adjacent for town centre use.
	VPC5	The Coast and Harbour	Views south towards Carlingford Village and Slieve Foye
Clogherhead	VPCL 1	Clogherhead Harbour	Uninterrupted sea view looking north-west along the coast towards Dunany Point. Distant views to the north towards the Cooley and Mourne Mountains.
Tullyallen	VPT 1	In front of Tullyallen Graveyard, Old Church Lane	Landscape view to the south over Boyne Valley area. Open field and stone wall in immediate foreground, copse of mature deciduous trees in right foreground and right middle distance, uninterrupted view south towards Platin. Distant view to the south-east of Drogheda Town and the coast. Irish Cement Works (Platin) visible in middle background, Boyne Cable-stayed bridge visible in middle distance.
	VPT 2	Between two houses along the east of the Old Church Lane	Landscape view to the south over Boyne Valley area. Open field and stone wall in immediate foreground, copse of mature deciduous trees in right foreground and right middle distance, uninterrupted view south towards Platin. Distant view to the south-east of Drogheda and the coast. Irish Cement Works (Platin) visible in middle background, Boyne Cable-stayed bridge visible in middle distance.



Appendix No. 12

Met Data

Dublin Airport 1991–2020 averages													
TEMPERATURE (degrees Celsius)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
mean daily max	8	8.5	10.1	12.3	14.8	17.7	19.5	19.1	16.9	13.6	10.3	8.3	13.3
mean daily min	2.3	2.2	3	4	6.6	9	11.3	11.2	9.5	7.1	4.3	2.6	6.1
mean temperature	5.2	5.3	6.6	8.2	10.7	13.3	15.4	15.1	13.2	10.4	7.3	5.5	9.7
absolute max.	16.4	16.2	18.6	21.7	23.2	26.4	27.1	27.2	25	20.9	17.5	15.4	27.2
min. maximum	-3.2	-0.6	-0.6	4.2	6.3	10.3	11.8	13.8	9.6	5.2	-1.9	-4.8	-4.8
max. minimum	11.8	11.9	11.9	12.5	14.6	15.8	17.6	18.1	19.1	15.9	12.8	12.9	19.1
absolute min.	-9.5	-7.9	-7.9	-5.6	-3	0.7	3.9	2.4	0.4	-4.7	-8.4	-12.2	-12.2
mean num. of days with air frost	7.1	7.2	5.5	3.9	0.5	0	0	0	0	0.8	3.3	6.7	35
mean num. of days with ground frost	15.2	14.3	13.3	10.4	4.2	0.4	0	0.2	0.7	4.9	9.5	13.9	87
mean 5cm soil	4	4	5.4	8.5	12.4	15.5	16.7	15.7	13.2	9.6	6.4	4.5	9.7
mean 10cm soil	4.2	4.3	5.4	7.9	11.4	14.6	15.9	15.2	12.9	9.7	6.7	4.8	9.4
mean 20cm soil	4.8	4.9	6	8.4	11.6	14.7	16.1	15.6	13.5	10.5	7.5	5.5	9.9
RELATIVE HUMIDITY (%)													
mean at 0900UTC	87.9	87.9	84.7	79.8	77	76.2	78.6	81.1	84.1	86.5	89.4	88.8	83.5
mean at 1500UTC	81.6	76.9	71.6	68.7	67.8	67.7	69	69.8	71.9	75.8	81.6	83.9	73.9
SUNSHINE (hours)													
mean daily duration													
greatest daily duration	8.1	10	11.5	13.9	15.3	15.9	15.8	14.5	12.4	10.2	8.6	7.3	15.9
mean num. of days with no sun	8.6	5.4	4.2	2.5	1.6	1.7	1.5	1.3	2.2	4.6	6.6	9	49.2
RAINFALL (mm)													
mean monthly total	61.8	52.4	51.4	55	57	64	61	73.4	63.3	78.4	82.7	72.1	772.5
greatest daily total	27.1	28.1	35.8	37	42.1	73.9	39.2	68.3	42.1	71.3	62.8	42.4	73.9
mean num. of days with >= 0.2mm	17.7	16.1	16.5	15.8	15.3	14.8	16.9	17.1	15.5	17	18.3	18.6	199.6
mean num. of days with >= 1.0mm	12.5	11	10.7	11.1	10.5	9.8	11.6	11.8	10.7	11.6	12.5	13.3	137.1
mean num. of days with >= 5.0mm	3.8	3.2	3.5	3.5	3.6	3.9	3.8	4.4	4.1	5	5.2	4.8	48.8
WIND (knots)													
mean monthly speed	12.3	12	11.4	10.3	9.9	9.2	9.1	9.2	9.6	10.5	11.2	11.7	10.5
max. gust	80	67	66	54	57	53	49	44	56	69	66	76	80
max. mean 10-minute speed	53	48	45	37	39	38	36	32	39	51	42	55	55
mean num. of days with gales	2.1	1.1	1.2	0.3	0.3	0.1	0	0.3	0.2	0.5	0.7	1.4	8.2
WEATHER (mean no. of days with..)													
snow or sleet	3.2	3.2	2.4	0.7	0.1	0	0	0	0	0	0.6	2.3	12.5
snow lying at 0900UTC	0.7	0.4	0.3	0	0	0	0	0	0	0	0.1	0.7	2.2
hail	1.1	1.5	1.8	2	1	0.1	0.2	0.1	0.1	0.2	0.4	0.7	9.2
thunder	0.2	0.2	0.3	0.2	0.7	0.6	0.9	1	0.2	0.3	0.3	0.2	5
fog	2.4	2.4	3.4	2.6	2.4	2.2	2.3	2.8	3.4	2.6	2.3	3.4	32.3

Appendix No. 13

Naura Impact Statement

Whitehill
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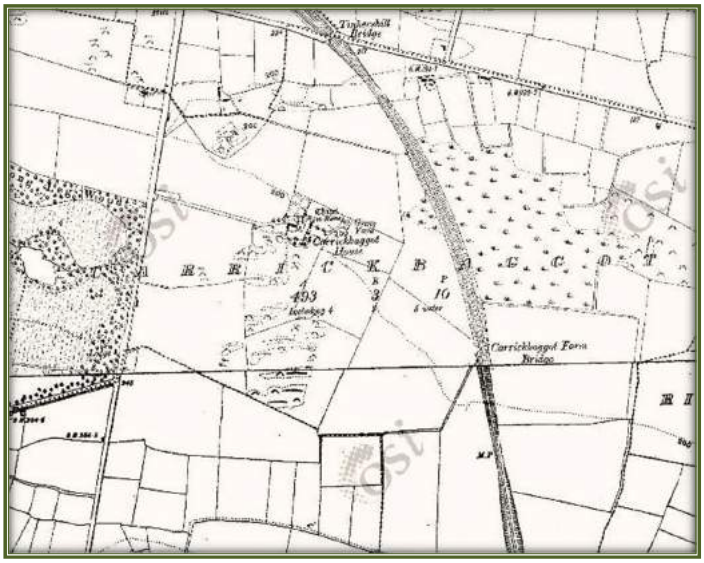
NATURA IMPACT STATEMENT OF AN APPLICATION FOR A LICENCE AT CARRICKBAGGOT, GRANGEBELLEW, CO LOUTH



Crayvall Poultry
c/o Paraic Fay
C.L.W. Environmental Planners Ltd
The Mews
23 Farnham Street

July 2023
Updated April 2024

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1 INTRODUCTION

1.1 REQUIREMENT FOR AN APPROPRIATE ASSESSMENT

This Natura Impact Assessment was prepared for the proposed development at a free range poultry farm at Carrickbaggot, Grangebellew, Co. Louth.

Having regard to the location of the proposed development site and its proximity to certain sites designated under the Natura 2000 network, an Appropriate Assessment of the proposed development was prepared in accordance with Article 6 of the Habitats Directive.

The purpose of the assessment is to determine the appropriateness of the proposed project, in the context of the conservation status of the site or sites. In Ireland, an Appropriate Assessment takes the form of a Natura Impact Statement (NIS), which is a statement of the likely impacts of the plan or project on a Natura 2000 site. The NIS comprises a comprehensive impact assessment of the plan or project and it examines the direct and indirect impacts that the plan or project might have on its own or in combination with other plans or projects on one or more Natura 2000 sites in view of the sites' conservation objectives.

1.2 THE AIM OF THIS REPORT

This Natura Impact Statement (NIS) has been prepared in accordance with the current guidance (DoEHLG, 2009, Revised February 2010), and it provides an assessment of the potential impacts of a poultry farm at Carrickbaggot, Grangebellew, Co. Louth on designated European sites.

An NIS should provide the information required in order to establish whether or not a proposed development is likely to have a significant impact on certain Natura sites in the context of their conservation objectives and specifically on the habitats and species for which the Natura 2000 conservation sites have been designated.

Accordingly, a comprehensive assessment of the ecological impacts of this application was carried out in July 2023 by Noreen McLoughlin, MSc, MCIEEM of Whitehill Environmental. This assessment allowed areas of potential ecological value and potential ecological constraints associated with this proposed development to be identified and it also enabled potential ecological impacts associated with the proposed development to be assessed and mitigated for.

1.3 REGULATORY CONTEXT

RELEVANT LEGISLATION

The Birds Directive (Council Directive2009/147/EC) recognises that certain species of birds should be subject to special conservation measures concerning their habitats. The Directive requires that Member States take measures to classify the most suitable areas as Special Protection Areas (SPAs) for the conservation of bird species listed in Annex 1 of the Directive. SPAs are selected for bird species (listed in Annex I of the Birds Directive), that are regularly occurring populations of migratory bird species and the SPA areas are of international importance for these migratory birds.

The EU Habitats Directive (92/43/EEC) requires that Member States designate and ensure that particular protection is given to sites (Special Areas of Conservation) which are made up of or support particular habitats and species listed in annexes to this Directive.

Articles 6(3) and 6(4) of this Directive also call for the undertaking of an Appropriate Assessment for plans and projects not directly connected with or necessary to the management of, but which are likely to have a significant effect on any European designated sites (i.e. SACs and SPAs).

The Water Framework Directive (WFD) (2000/60/EC), which came into force in December 2000, establishes a framework for community action in the field of water policy. The WFD was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003). The WFD rationalises and updates existing legislation and provides for water management on the basis of River Basin Districts (RBDs). RBDs are essentially administrative areas for coordinated water management and are comprised of multiple river basins (or catchments), with cross-border basins (i.e. those covering the territory of more than one Member State) assigned to an international RBD. The aim of the WFD is to ensure that waters achieve at least good status by 2027 and that status does not deteriorate in any waters.

Appropriate Assessment and the Habitats Directive

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora – the 'Habitats Directive' - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as

Natura 2000. Natura 2000 sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC).

Articles 6(3) and 6(4) of the Habitats Directive sets out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Article 6(4) deals with the steps that should be taken when it is determined, as a result of appropriate assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case.

Article 6(4) states:

"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

<u>The Appropriate Assessment Process</u>

The aim of Appropriate Assessment is to assess the implications of a proposal in respect of a designated site's conservation objectives.

The 'Appropriate Assessment' itself is an assessment which must be carried out by the competent authority which confirms whether the plan or project in combination with other plans and projects will have an adverse impact on the integrity of a European site.

Screening for Appropriate Assessment shall be carried out by the competent authority as set out in Section 177U(1) and (2) of the Planning and Development Act 2000 (as amended) as follows:

'(1) A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.

(2) A competent authority shall carry out a screening for appropriate assessment under subsection (1) before—

(a) a Land use plan is made including, where appropriate, before a decision on appeal in relation to a draft strategic development zone is made, or

(b) consent for a proposed development is given.'

The competent authority shall determine that an Appropriate Assessment is not required if it can be excluded, that the proposed development, individually or in combination with other plans or project will have a significant effect on a European site.

Where the competent authority cannot exclude the potential for a significant effect on a European site, an Appropriate Assessment shall be deemed required.

Where an Appropriate Assessment is required, the conclusions of the Appropriate Assessment Report (Natura Impact Statement (NIS)) should enable the competent authority to ascertain whether the plan or proposed development would adversely affect the integrity of the European site. If adverse impacts on the integrity of a European site cannot be avoided, then mitigation measures should be applied during the appropriate assessment process to the point where no adverse impacts on the site remain. Under the terms of the Habitats Directive consent can only be granted for a project if, as a result of the appropriate assessment either (a) it is concluded that the integrity of any European sites will not be adversely affected, or (b) after mitigation, where adverse impacts cannot be excluded, there

is shown to be an absence of alternative solutions, and there exists imperative reasons of overriding public interest for the project should go ahead.

Section 177(V) of the Planning and Development Act 2000 (as amended) outlines that the competent authority shall carry out the Appropriate Assessment, taking into account the Natura Impact Statement (amongst any other additional or supplemental information). A determination shall then be made by the competent authority in line with the requirements of Article 6(3) of the Habitats Directive as to whether the plan or proposed development would adversely affect the integrity of a European site, prior to consent being given.

2 METHODOLOGY

2.1 APPROPRIATE ASSESSMENT

This NIS has been prepared with reference to the following:

- European Commission (2018) Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- European Commission (2021) Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission (2006). Nature and Biodiversity Cases: Ruling of the European Court of Justice.
- European Commission (2007). Clarification of the Concepts of: Alternative Solution, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- Department of Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.

The EC Guidance sets out a number of principles as to how to approach decision making during the process. The primary one is 'the precautionary principle' which requires that the conservation objectives of Natura 2000 should prevail where there is uncertainty.

When considering the precautionary principle, the emphasis for assessment should be on objectively demonstrating with supporting evidence that:

- There will be no significant effects on a Natura 2000 site;
- There will be no adverse effects on the integrity of a Natura 2000 site;
- There is an absence of alternatives to the project or plan that is likely to have an adverse effect to the integrity of a Natura 2000 site; and
- There are compensation measures that maintain or enhance the overall coherence of Natura 2000.

This translates into a four stage process to assess the impacts, on a designated site or species, of a policy or proposal.

The EC Guidance states that "each stage determines whether a further stage in the process is required". Consequently, the Council may not need to proceed through all four stages in undertaking the Appropriate Assessment.

The four-stage process is:

Stage 1: Screening – The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether or not these impacts are likely to be significant;

Stage 2: Appropriate Assessment – The consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

Stage 3: Assessment of Alternative Solutions – The process which examines alternative ways of achieving objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site;

Stage 4: **Assessment where no alternative solutions exist and where adverse impacts remain –** An assessment of the compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

In complying with the obligations set out in Articles 6(3) and following the guidelines described above, this screening statement has been structured as a stage by stage approach as follows:

- Description of the proposed project;
- Identification of the Natura 2000 sites close to the proposed development;
- Identification and description of any individual and cumulative impacts on the Natura 2000 sites likely to result from the project;
- Assessment of the significance of the impacts identified above on site integrity. Exclusion of sites where it can be objectively concluded that there will be no significant effects;
- Description of proven mitigation measures.

2.2 STATEMENT OF COMPETENCY

This AA report was carried out by Noreen McLoughlin, BA, MSc, MCIEEM. Noreen has an honours degree in Zoology and an MSc in Freshwater Ecology from Trinity College, Dublin and she has been a full member of the Chartered Institute of Ecology and Environmental Management for over seventeen years. Noreen has over 19 years' experience as a professional ecologist in Ireland.

2.3 DESK STUDIES & CONSULTATION

Information on the site and the area of the proposed development was studied prior to the completion of this statement. The following data sources were accessed in order to complete a thorough examination of potential impacts:

- National Parks and Wildlife Service - Aerial photographs and maps of designated sites, information on habitats and species within these sites and information on protected plant or animal species, conservation objectives, site synopses and standard data forms for relevant designated sites.
- Environmental Protection Agency (EPA)- Information pertaining to water quality, geology and licensed facilities within the area.
- Myplan.ie – Mapped based information.
- National Biodiversity Data Centre (NBDC) – Information pertaining to protected plant and animal species within the study area.
- Bing maps & Google Street View – High quality aerials and street images.
- CLW Environmental Planners / Irwin Carr – Plans and Information Pertaining to the Development.
- Louth County Council – Information on planning history in the area for the assessment of cumulative impacts.

2.4 ASSESSMENT METHODOLOGY

The proposed development was assessed to identify its potential ecological impacts and from this, the Zone of Influence (ZoI) of the proposed development was defined. Based on the potential impacts and their ZoI, the Natura 2000 sites potentially at risk from direct, indirect or in-combination impacts were identified. The assessment considered all potential impact sources and pathways connecting the proposed development to Natura 2000 sites, in view of the conservation objectives supporting the favourable conservation condition of the site's Qualifying Interests (QIs) or Special Conservation Interests (SCIs).

The conservation objectives relating to each Natura 2000 site and its QIs/SCIs are cited generally for SACs as "to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or Annex II species for which the SAC has been selected", and for SPAs "to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA".

As defined in the Habitat's Directive, the favourable conservation status of a habitat is achieved when:

- Its natural range and area it covers within that range is stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future;

The favourable conservation status of a species is achieved when:

- The population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future;
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Where site-specific conservation objectives (SSCOs) have been prepared for a European site, these include a series of specific attributes and targets against which effects on conservation condition, or integrity, can be measured. Where potential significant effects are identified, then these SSCOs should be considered in detail.

3 DESCRIPTION OF PROPOSED DEVELOPMENT

3.1 PROJECT OVERVIEW

Crayvall Egg Production Ltd have indicated their intention to shortly apply to Louth County Council for planning permission for a development at an existing poultry farm site at Carrickbaggot, Grangebellew, Co. Louth. Planning permission is being sought here for the construction on one additional poultry house on the site. There is one existing poultry house on the site that has the capacity for 60,000 free range birds. The additional house will facilitate the housing on an additional 64,000 birds in a barn system. The proposed range of the birds will include the agricultural lands that are surrounding the site.

The applicant will also be seeking a review of the EPA License on foot of the proposed expansion of this farm.

An extract from the planning drawings can be seen in Figure 1.

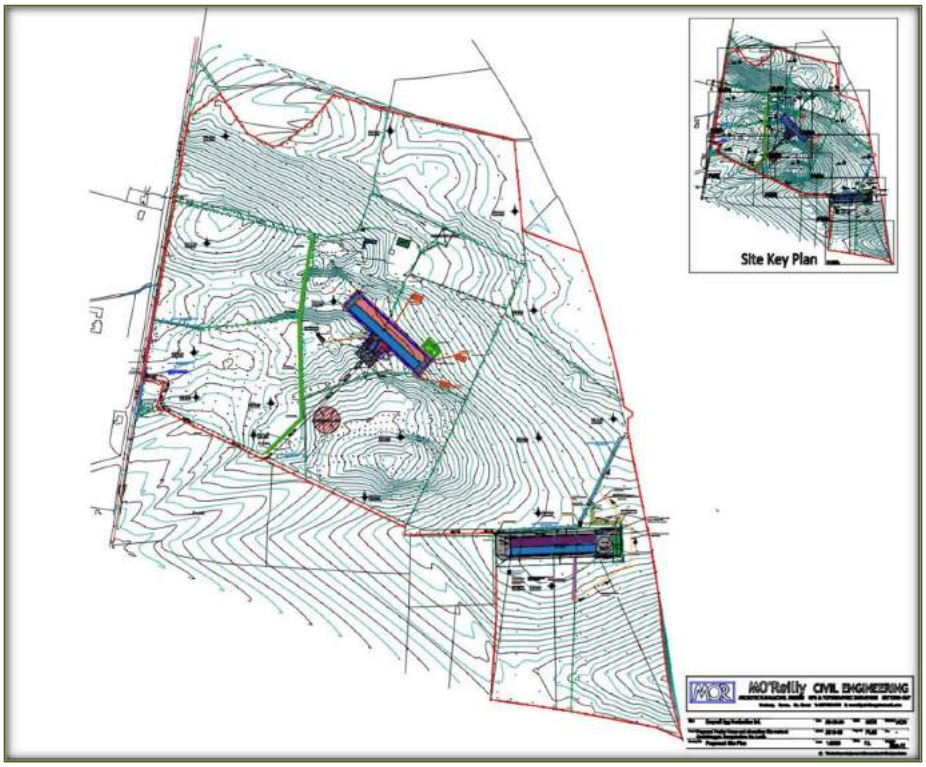


Figure 1 – Proposed Site Plan (as prepared by M O'Reilly Civil Engineering)

Once operation, the proposed development will accommodate up to 64,000 additional egg laying birds in a barn system. The birds will be moved in at approximately 16 weeks old and moved out at end of their lay stage, approximately 56-60 weeks later. Manure will be removed from the houses to a manure store on a weekly basis. The houses will be cleaned down at the end of each 13-14 month cycle.

The main emissions from the poultry farm will include poultry litter, clean surface water and soiled water. The poultry litter will be incorporated into a fertiliser management system where it will be used as an organic fertiliser to replace imported chemical fertiliser and it will be used by customer farmers. Clean roof water will be discharged to local watercourses and soiled water will be directed to storage tanks prior to its application on suitable landholdings.

There will be 4,919.62 tonnes of manure produced per annum. There will be 6 months storage capacity on the farm. The spent poultry litter and manure will be removed from the farm by specialised contractors once a week where it will be composted and used in the mushroom industry or it will be used as an organic fertiliser in accordance with S.I. 113 of 2022.

Management of Storm Water

A Hydrological Assessment of the site has been carried out by IE Consulting. This report concluded that the subsoil conditions within the site are not suitable for the provision of a stormwater infiltration system or soakaway system. It was therefore proposed that stormwater management and attenuation for the development as proposed is provided via a stormwater swale system and incorporating an appropriate flow restriction device. Alternatively, a below ground tank or cellular system may be utilised for stormwater attenuation purposes. The report makes the following conclusions:

- The hydraulic analysis of the "Watercourse Channel" and "Drainage Channel 1" indicates that these watercourses have adequate capacity to convey the predictive 1% AEP+CC (1 in 100 year + climate change) flow volume and surcharging of the channel or out of channel flow is not predicted to occur.

- The hydraulic analysis of "existing culvert 1" and "existing culvert 2" indicates that these culverts do not have sufficient hydraulic capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and that culvert surcharging and overtopping is predicted to occur.

- The access road/entrance to the site of the proposed development shall partially cross over the watercourse at and in the vicinity of the "existing culvert 2", therefore this existing culvert will need to be removed and upgraded.

- It is proposed to provide a new box culvert of geometric profile 1.8m wide x 0.8m high x 13.8m at the site access road/entrance. This culvert has adequate capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and provides adequate freeboard.

- "Existing culvert 1" is located on the watercourse channel immediately downstream of the proposed development. The insufficient hydraulic capacity of this culvert presents a potential fluvial flood risk to the development as proposed, therefore it is recommended that this culvert be removed and upgraded.

- It is proposed to replace "existing culvert 1" with a new box culvert of geometric profile 1.8m wide x 0.8m high x 6.2m long. This has adequate capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and provides adequate freeboard.

- Part of "drainage channel 1" falls with the area of the site of the proposed development. In order to accommodate the development it is proposed to partially divert "drainage channel 1".

- The proposed diversion of 2drainage channel 1" has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) and surcharging of the channel or out of channel flow is not predicted to occur.

- Alternatively, a 0.9m diameter culvert may utilised for the proposed partial diversion of "drainage channel 1".

- In summary, the proposed stormwater management system, culvert upgrading works and drainage channel diversion works presented in this study report and not expected to result in an adverse impact to the existing hydrological regime of the area and are therefore considered appropriate from a hydrological perspective.

An extract from the storm water management proposals is included in Figure 2.

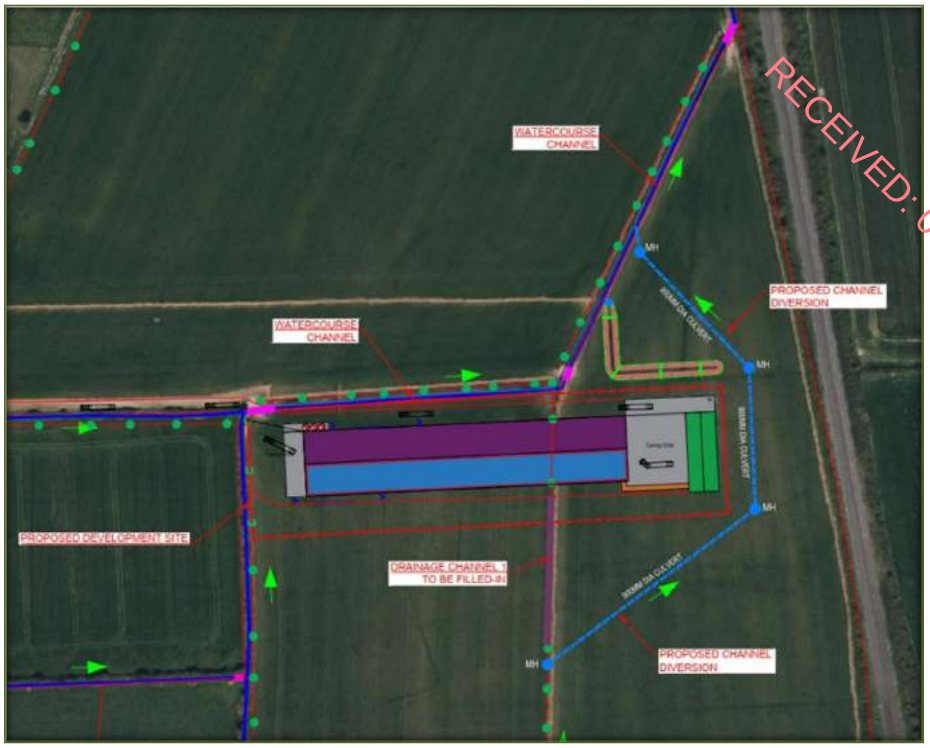


Figure 2 – Surface Water Management Proposals (IE Consulting)

Land-Spreading

Land-spreading is the term generally given to the application of fertiliser (in this case poultry manure/organic fertiliser to land). This activity is carried out by customer farmers to fertilise their lands for productive agricultural purposes in line with applicable legislative requirements and good practice, in the same way as they currently utilise their existing fertiliser sources.

The manure produced on the farm will be distributed to customer farmers to allow them to utilise the manure as a fertiliser on their farms in accordance with the Nutrient Management Plan for each specific farm. Currently, the fertiliser needs of these farmers is met from other sources, including chemical fertiliser. The customer farmers will utilise the manure in accordance with S.I. 113 of 2022 and in accordance with their own specific farm requirements. The use of the manure on this land will not result in any additional load of nutrients on this land, rather it will be used as a replacement source. The customer list capacity can receive >165% of projected manure production.

The current customer farms identified for the receipt of the manure produced on the farm are located in Counties Kildare, Meath, Dublin and Louth and they have been mapped and are shown in Appendix I. Records for the movement of all manure will be kept. These customer farms are subject to change on an annual basis. It is beyond the scope of this AA to assess the land spreading activities of these separate farms that are not within the control

of the applicant (as per a recent planning decision made by An Bord Pleanála in regards to an appeal brought against the granting of a farm developments where land-spreading was cited in the appeal).

S.I. 113 OF 2022

The European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022 provides a basic set of measures to ensure the protection of waters, including drinking water sources, against pollution caused by nitrogen and phosphorus from agricultural sources, with the primary emphasis being on the management of livestock manures and other fertilisers. The purpose of these Regulations is to give effect to Ireland's Nitrates Action Programme. This directive outlines measures that must be followed during the land-spreading of manure. These measures are summarised in the points below.

- The amount of livestock manure applied in any year to land on a holding, together with that deposited to land by livestock, shall not exceed an amount containing 170 kg nitrogen per hectare.
- The spreading of any organic fertiliser during certain times of the year is prohibited (The prohibited spreading period, generally between Mid-October and Mid-January).
- Farmers must keep within the overall maximum fertilisation rates for nitrogen and phosphorus.
- Farmers must have sufficient storage capacity to meet the minimum requirements of the regulations.
- All storage facilities must be kept leak proof and structurally sound.
- Records for the movement of fertilisers must be kept.
- Chemical fertilisers, livestock manure and other organic fertilisers, effluents and soiled water must be spread as accurately and as evenly as possible.
- An upward-facing splash plate or sludge irrigator on a tanker or umbilical system must not be used for the spreading of organic fertiliser or soiled water.
- Chemical fertilisers, livestock manure, soiled water or other organic fertilisers must not be spread when:
    - The land is waterlogged;
    - The land is flooded, or it is likely to flood;
    - The land is frozen, or covered with snow;
    - Heavy rain is forecast within 48 hours;
    - The ground slopes steeply and there is a risk of water pollution, when factors such as

surface run-off pathways, the presence of land drains, the absence of hedgerows to mitigate surface flow, soil condition and ground cover are taken into account.

- Chemical fertilisers must not be spread on land within 2 metres of a surface watercourse.

Table 1 shows the buffer zones for various water bodies (lakes, rivers, wells etc.). Soiled water, effluents, farmyard manures or other organic fertilisers must not be spread inside these buffer zones.

Water Feature	Buffer Zone
Any water supply source providing 100m3 or more of water per day, or serving 500 or more people	200m (or as little as 30m where a local authority allow)
Any water supply source providing 10m3 or more of water per day, or serving 50 people or more	100m (or as little as 30m where a local authority allows)
Any other water supply for human consumption	25m (or as little as 15m where a local authority allows)
Lake shoreline or a turlough likely to flood	20m
Exposed cavernous or karstified limestones features	15m
Any surface watercourse where the slope towards the watercourse exceeds 10%	10m
Any other surface waters	5m

Table 1 – Requirements for the Application of Fertilisers and Soiled Water as set out in S.I. 113 of 2022

Prior to its implementation, S.I. 113 of 2022 was subjected to Appropriate Assessment (AA) and a Strategic Environmental Assessment (SEA) Screening). At this stage, it was referred to as Ireland's Fourth Nitrates Action Programme (NAP). This draft NAP was assessed in terms of the likely significant effects of the programme and where it would adversely affect the integrity of European sites. The NIS identified that the existing and proposed measures would be predominantly positive for European sites. The measures of the NAP were influenced to avoid, as appropriate, measures that would have an adverse effect upon the integrity of the European sites. Any project falling under the requirements of the NAP will be required to conform to the mitigation measures contained within the NIS prepared and to any further regulatory provisions aimed at preventing pollution or other environmental effects. The applicant is fully aware of his obligations under S.I. 113 of 2022 and they will meet all the requirements under this Directive with the proposed application.

3.2 SITE LOCATION AND SURROUNDING ENVIRONMENT

The site in question is located in a rural area within the townland of Carrickbaggot. Access to the site is via a private access road that is just off a local, third class road. The area of the site is 68.5 hectares in total and this includes the range area of the birds that surround the site. It is 1.2km south of Grangebellew and 4.6km south-east of Dunleer.

The land use surrounding the site is predominantly agricultural and improved agricultural grassland and tillage lands are the dominant habitats locally. Other habitats represented locally include wet grasslands, mixed broadleaved woodland, scrub, treelines, hedgerows and drains / streams. Site location maps can be seen in Figures 3 and 4a and 4b, whilst an aerial photograph of the site and its surrounding habitats can be seen in Figure 5.

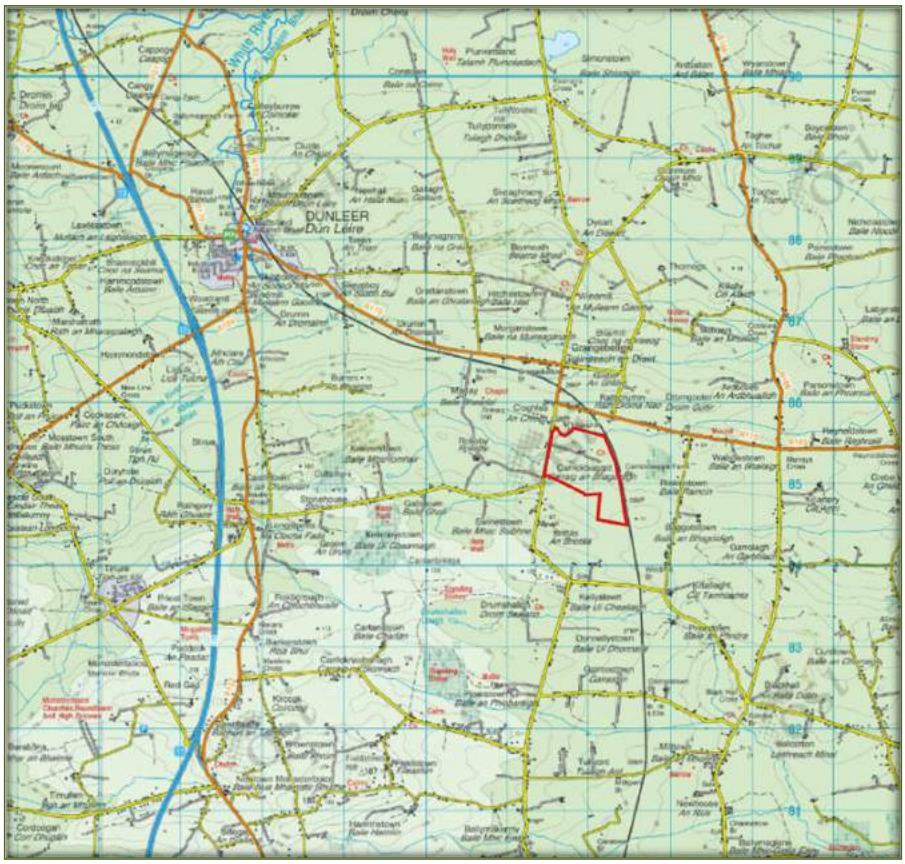


Figure 3 – Map showing the Location of the Proposed Development Site (Pinned)

Figure 4a – Map showing the Location of the Proposed Development Site (Outlined in Red).

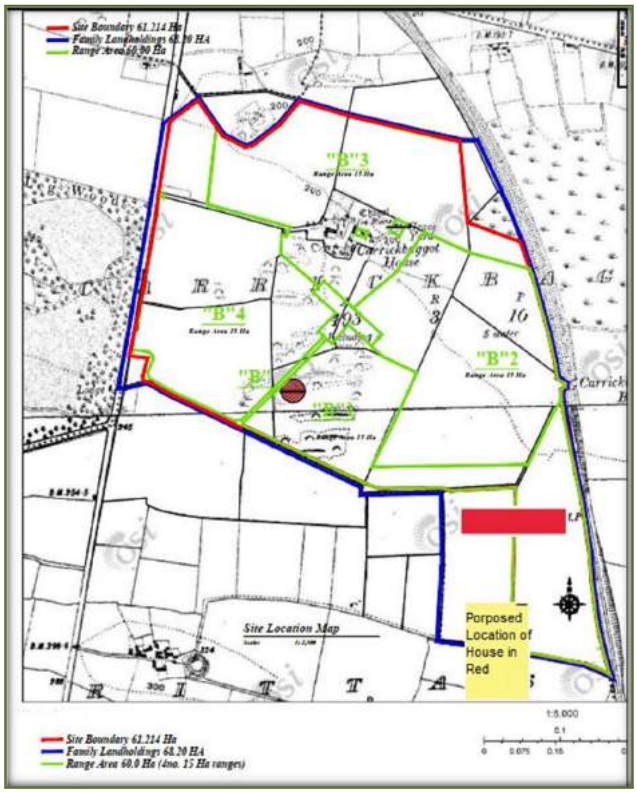


Figure 4b – Map showing the Proposed Range Areas

HABITATS AND SPECIES

Currently, there is a range of natural habitats occurring within the application site. These include tillage lands, areas of neutral grasslands, scattered trees and shrubs and scrub / immature woodland habitats. There are also mature treelines and hedgerows associated with the site boundaries.

The range area of the birds is confined to areas that are currently used for tillage, as well as the neutral and wet grassland habitats that are just west of the site.

An examination of the website of the National Biodiversity Data Centre, revealed that there are no records for the presence of any protected plant or mammal species from the relevant 1km square (O0985) of this proposed development.

WATER FEATURES AND QUALITY

The application site lies within the Newry Fane Glyde and Dee Hydrometric Area and Catchment, the Burren Sub-Catchment and the Slieveboy Sub-Basin. There are open drains within the application site. Water in these drains is likely to flow towards the Moganstown Stream, which flows along the northern perimeter of the landholding. This stream flows east until it flows into the sea near Lurganboy, approximately 5.1km north-east of the application site.

The EPA have classified the ecological status of the Morganstown Stream as moderate status for its entire length. Under the requirements of the Water Framework Directive, this is unsatisfactory and all water bodies are obliged to meet good status within the time frame of the current cycle of the Water Framework Directive (2027) .

Figure 5 – Aerial Photograph of the Site (Outlined in Red) and its Surrounding Habitats. The Range Area of the Birds is Highlighted in Yellow.

4 NATURA 2000 SITES IDENTIFIED

In accordance with the guidelines issued by the Department of the Environment and Local Government, a list of Natura 2000 sites within 15km of the proposed development have been identified and described according to their site synopsis, qualifying interests and conservation objectives. In addition, any other sites further than this, but potentially within its zone of interest were also considered. The zone of impact may be determined by an assessment of the connectivity between the application site and the designated areas by virtue of hydrological connectivity, atmospheric emissions, flight paths, ecological corridors etc.

For significant effects to arise, there must be a potential impact facilitated by having a *source*, i.e., the proposed development and activities arising out of its construction or operation, a *receptor*, i.e., the European site and its qualifying interests and a subsequent *pathway* or *connectivity* between the source and receptor, e.g., a water course. The likelihood for significant effects on the European site will largely depend on the characteristics of the source (e.g., nature and scale of the construction works), the characteristics of the existing pathway and the characteristics of the receptor, e.g., the sensitivities of the Qualifying Interests (habitats or species) to changes in water quality.

There are ten Natura 2000 designated sites within 15km of the application site. These designated areas and their closest points to the proposed development site are summarised in Table 2 and a map showing their locations relative to the application site is shown in Figure 6. A full description of these sites can be read on the websites of the National Parks and Wildlife Service (npws.ie).

Site Name & Code	Distance	Qualifying Interests	Significant Effects
North-West Irish Sea SPA (candidate)	4.2km east 4.9km downstream via the Morganstown Stream	• Common Scoter (*Melanitta nigra*) • Red-throated Diver (*Gavia stellata*) • Great Northern Diver (*Gavia immer*) • Fulmar (*Fulmarus glacialis*) • Manx Shearwater (*Puffinus puffinus*) • Shag (*Phalacrocorax aristotelis*) • Cormorant (*Phalacrocorax carbo*) • Little Gull (*Larus minutus*) • Kittiwake (*Rissa tridactyla*) • Black-headed Gull (*Chroicocephalus ridibundus*)	*Having regards to the hydrological connectivity of the application site to this SPA, significant effects arising from construction and operation of this proposed development cannot be ruled out.* *As this SPA is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*

		• Common Gull (*Larus canus*) • Lesser Black-backed Gull (*Larus fuscus)* • Herring Gull (*Larus argentatus*) • Great Black-backed Gull (*Larus marinus)* • Little Tern (*Sterna albifrons*) • Roseate Tern (*Sterna dougallii*) • Common Tern (*Sterna hirundo*) • Arctic Tern (*Sterna paradisaea*) • Puffin (*Fratercula arctica*) • Razorbill (*Alca torda*) • Guillemot (*Uria aalge*)	
Clogher Head SAC 001459	6.6km east	• Vegetated sea cliffs of the Atlantic and Baltic coasts • European dry heaths	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *As this SAC is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*
Boyne Coast and Estuary SAC 001957	7.4km south	• Estuaries • Mudflats and sandflats not covered by seawater at low tide • Salicornia and other annuals colonizing mud and sand • Spartina swards (*Spartinion maritimae*) • Atlantic salt meadows (*Glauca Puccinellietalia maritimae)* • Mediterranean salt meadows (*Juncetalia maritimi)* • Embryonic shifting dunes • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) • Fixed coastal dunes with herbaceous vegetation (grey dunes) •	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *As this SAC is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*
Dundalk Bay SPA 004026	7.8km north	• Great Crested Grebe *(Podiceps cristatus)* • Greylag Goose *(Anser anser)* • Light-bellied Brent Goose *(Branta bernicla hrota)* • Shelduck *(Tadorna tadorna)* • Teal *(Anas crecca)* • Mallard *(Anas platyrhynchos)* • Pintail *(Anas acuta)* • Common Scoter *(Melanitta nigra)* • Red-breasted Merganser *(Mergus serrator)*	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *As this SPA is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*

		• Oystercatcher *(Haematopus ostralegus)* • Ringed Plover *(Charadrius hiaticula)* • Golden Plover *(Pluvialis apricaria)* • Grey Plover *(Pluvialis squatarola)* • Lapwing *(Vanellus vanellus)* • Knot *(Calidris canutus)* • Dunlin *(Calidris alpina)* • Black-tailed Godwit *(Limosa limosa)* • Bar-tailed Godwit *(Limosa lapponica)* • Curlew *(Numenius arquata)* • Redshank *(Tringa totanus)* • Black-headed Gull *(Chroicocephalus ridibundus)* • Common Gull *(Larus canus)* • Herring Gull *(Larus argentatus)* • Wetland and Waterbirds	
Dundalk Bay SAC 000455	7.8km north	• Estuaries • Mudflats and sandflats not covered by seawater at low tide • Perennial vegetation of stony banks • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Mediterranean salt meadows *(Juncetalia maritimi)*	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *As this SAC is within 7.5km of the application site, significant effects arising from atmospheric emissions will be considered further.*
The Boyne Estuary SPA 004080	8.4km south-east	• Shelduck *(Tadorna tadorna)* • Oystercatcher *(Haematopus ostralegus)* • Golden Plover *(Pluvialis apricaria)* • Grey Plover *(Pluvialis squatarola)* • Lapwing *(Vanellus vanellus)* • Knot *(Calidris canutus)* • Sanderling *(Calidris alba)* • Black-tailed Godwit *(Limosa limosa)* • Redshank *(Tringa totanus)* • Turnstone *(Arenaria interpres)* • Little Tern *(Sterna albifrons)* • Wetlands & Waterbirds	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*
The River Boyne and River Blackwater SAC 002299	9.4km south	• River lamprey *(Lampetra fluviatilis)* • Salmon *(Salmo salar)* • Otter *(Lutra lutra)* • Alkaline fens • Alluvial forests with alder *Alnus glutinosa* and ash *Fraxinus*	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has*

		excelsior	*concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*
River Boyne and Blackwater SPA	10.5km south	• Kingfisher Alcedo atthis	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*
Stabannan-Braganstown SPA	10.8km north-west	• Greylag Goose (Anser anser)	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*
River Nanny Estuary and Shore SPA	14.4km south-east	• Oystercatcher (*Haematopus ostralegus*) • Ringed Plover (*Charadrius hiaticula*) • Golden Plover (*Pluvialis apricaria*) • Knot (*Calidris canutus*) • Sanderling (*Calidris alba*) • Herring Gull (*Larus argentatus*) • Wetlands & Waterbirds	*No hydrological connectivity therefore effects arising from run-off during construction / operation are unlikely.* *The Ammonia Impact Assessment report has concluded that there will no significant effects upon Natura 2000 sites beyond 7.5km from the application site.*

Table 2 – Natura 2000 Sites Within 15km of the Proposed Site

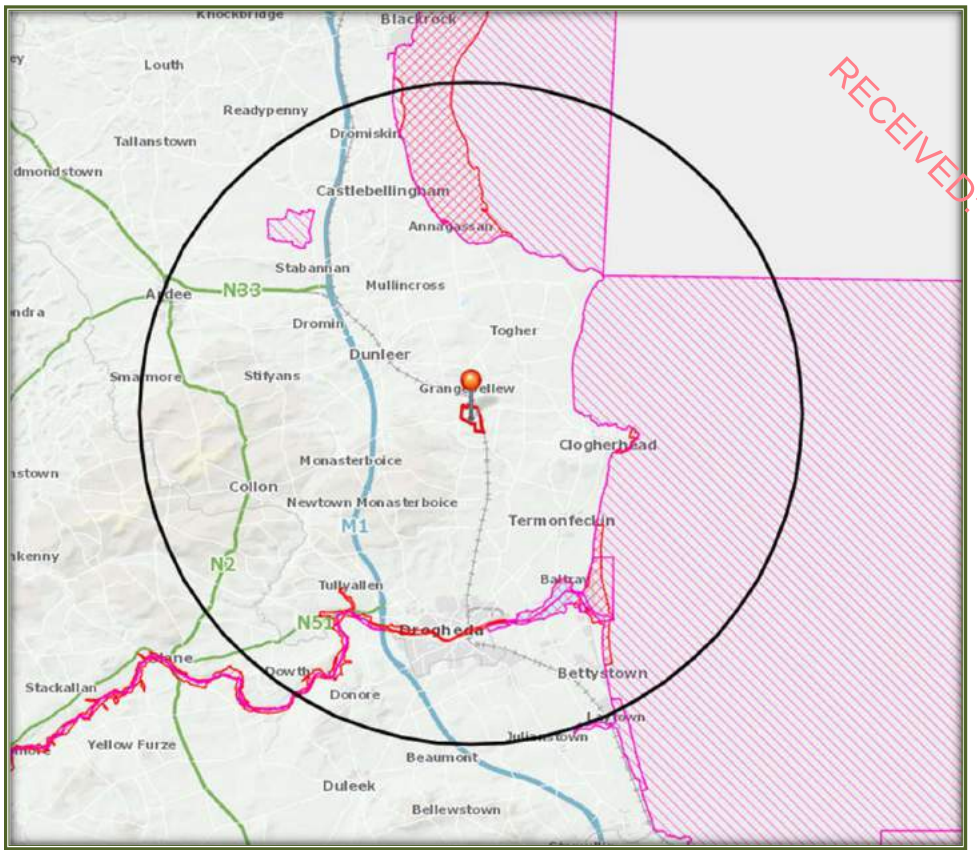


Figure 6 –The Application Site in relation to the Natura 2000 site (SACs – Red Hatching, SPAs – Pink Hatching)

5 IDENTIFICATION OF POTENTIAL EFFECTS

5.1 INTRODUCTION

Only those features of the development that have the potential to affect the integrity and conservation objectives of the identified Natura 2000 sites and protected species have been considered. A number of factors were examined at this stage and dismissed or carried forward for Appropriate Assessment as relevant. Assessment of the potential impacts on the integrity of the identified Natura 2000 sites is also conducted utilising a standard source-pathway-receptor model. In order for an impact to be established all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. The following areas were examined in relation to potential impacts from the proposed development on the Natura 2000 sites identified:

- Significant effects upon the North-West Irish Sea cSPA arising from pollution due to run-off during the construction and operation of the proposed development.
- Effects upon the designated sites within 15km from atmospheric emissions arising from the operation of the proposed development, either individually or in combination with other ongoing activities.
- Cumulative impacts.

5.2 EMISSIONS TO WATER

The proposed site works will involve the excavation of soil and the pouring of concrete for foundations and other hard surfaces. These works will take place on a site that is upstream of the recently designated North-West Irish Sea cSPA. Connectivity is provided by the Morganstown Stream. If appropriate mitigation measures are not taken during the proposed works, then there is the possibility that water quality in this cSPA may be negatively impacted upon. Potential direct impacts include the pollution of the water during construction and operation with silt, oil, cement, hydraulic fluid etc. These substances could also have a toxic effect on the ecology of the water in general, directly affecting certain species / communities and their food supplies. Any reduction in water quality could lead to general impacts and effects upon this cSPA and its protected bird species.

5.3 ATMOSPHERIC EMISSIONS

Dispersion Modelling

In order to correctly assess the potential impacts of the operation of the farm on the Natura 2000 sites, detailed atmospheric modelling of the proposed development was undertaken by Irwin Carr Consulting in May 2023. The overall purpose of this report was to quantify the ammonia and nitrogen levels at the ecologically sensitive areas in the vicinity of the proposed poultry farm. The predicted impacts can then be compared to an appropriate criterion and graphically illustrated in the form of "contours of equal concentration" or isopleths which are superimposed on base maps. The conclusions of this assessment follow the guidelines contained in the EPA's Guidelines on Atmospheric Emissions (2021, revised 2022).

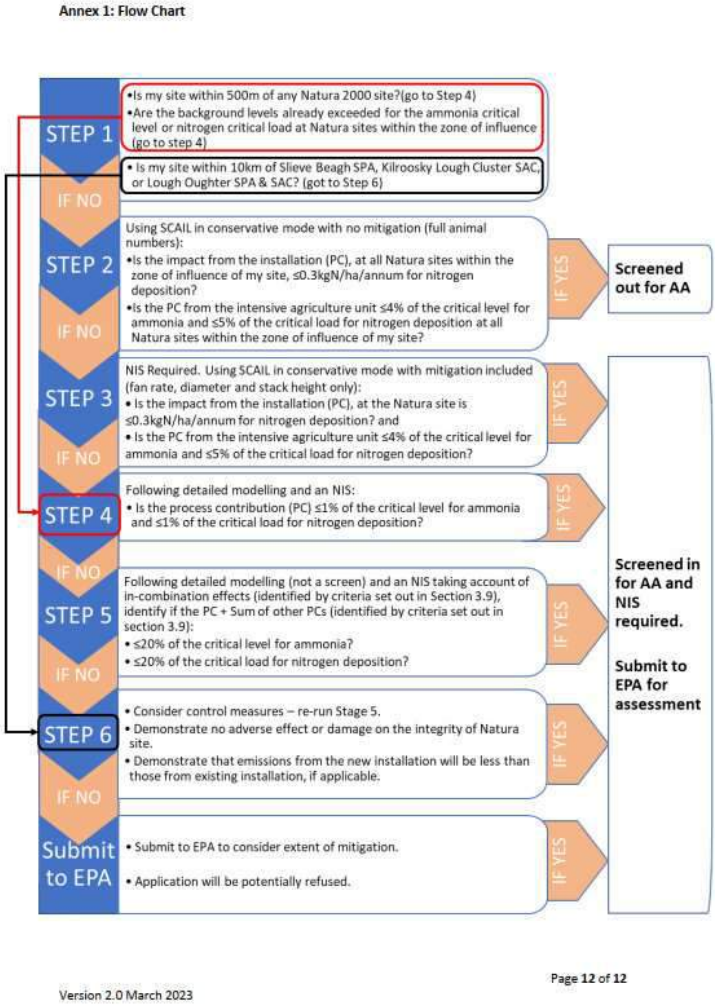


Figure 7 – EPA Flow Chart, Taken from Annex I of the Assessment of the Impact of Ammonia and Nitrogen on Natura 2000 sites from Intensive Agriculture Installations, EPA 2022

Using an AERMOD Dispersion Modelling Package, the projected ammonia and nitrogen emissions from the proposed development at Carrickbaggot were modelled using details such as animals per house and the ventilation currently used in the house. Other factors taken into consideration as part of the model included meteorological data, building downwash, storage of manure (assuming full storage) and digital terrain data.

The report provided the annual average ammonia concentrations at ecologically sensitive sites, including the Natura 2000 sites considered as part of this assessment. The results are presented in Table 3, whilst Table 4 provides an assessment of the process contribution for ammonia on the Natura 2000 sites arising from the proposed development. For the purpose of this report, Natura 2000 sites beyond 7.5km from the sheds were screened out from further assessment. This Natura 2000 sites included:

- River Boyne and Blackwater SAC
- River Boyne and Blackwater SPA
- Stabannan-Braganstown SPA
- River Nanny Estray and Shore SPA

Given that the predicted levels of ammonia and nitrogen are expected to be negligible at distances greater than 7.5km from the site, no detailed emission assessment for these sites was completed.

Detailed emission modelling was carried out for the following four sites:

- North-West Irish Sea cSPA
- Clogher Head SAC
- Boyne Coast and Estuary SAC
- Dundalk Bay SAC
- Dundalk Bay SPA

Ammonia

The emission report provides the annual average ammonia concentrations (worst case scenario) arising from the farm at ecologically sensitive sites, including the Natura 2000 sites considered as part of this assessment. Ammonia modelling was carried out for the years 2015 – 2019 and an average figure was presented. The results are presented in Table 3, whilst Table 4 takes the highest predicted process concentration from the sheds and it uses this figure to determine the percentage contribution of the farm to the critical load of the designated site. These results are based on the worst case scenario, i.e., the worst case process contribution over the 5-year period.

Natura 2000 Site	2015	2016	2017	2018	2019	Average
North-West Irish Sea cSPA	0.046	0.058	0.062	0.050	0.050	0.053
Dundalk Bay SAC	0.020	0.015	0.017	0.021	0.020	0.019
Dundalk Bay SPA	0.020	0.015	0.017	0.021	0.020	0.019
Clogher Head SAC	0.019	0.029	0.024	0.018	0.020	0.022
Boyne Coast and Estuary SAC	0.014	0.016	0.014	0.011	0.011	0.013

Table 3 – Ammonia Concentrations (µg/m3) at Natura 2000 Sites (Taken from Table 18 Of Ammonia Impact Assessment Report)

All of the predicted ground level concentrations of ammonia detailed above are significantly below the limit values in relation to the protection of vegetation.

Natura 2000 Site	Critical Load Guideline	Background	Highest PC	PEC	PC / Guideline Level (%)	PEC / Guideline Level (%)
North-West Irish Sea cSPA	3	2.34	0.062	2.402	2.07	80
Dundalk Bay SAC	3	2.51	0.021	2.531	0.70	84
Dundalk Bay SPA	3	2.51	0.021	2.531	0.70	84
Clogher Head SAC	1	2.2	0.029	2.229	2.90	223
Boyne Coast and Estuary SAC	1	2.12	0.016	2.136	1.60	214

Table 4 – Ammonia Concentrations (µg/m3) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 19 Of Ammonia Impact Assessment Report)

It should be noted that the maximum PC of 2.9% at Clogher Head is based on the worst case process contribution over the 5-year period. It can be seen from Table 4 above that the average impact of the sheds is 0.022 µg/m3 which represents a PC of approx. 2%.

The ammonia concentrations at the sites are dominated by the background concentrations, which are approximately 80 – 223% of the air quality guideline for ammonia.

It can be seen from the Table above that the guideline level (critical level) of ammonia is not exceeded at Dundalk Bay SAC / SPA or the North-West Irish Sea.

Where the Critical Level of ammonia is exceeded (Clogher Head, Boyne Estuary and Coast), the PC of the existing and proposed site is <4%, and as a result considered insignificant for the purposes of this assessment.

Nitrogen

The AERMOD modelling also report provides an estimate of nitrogen arising from the proposed poultry farm. A summary is provided in Table 5. This is based on a worst case scenario and the figure generated for the Highest PC for N at these sites was generated using a conversion factor.

Natura 2000 Site	Guideline	Background	Highest PC	PEC	PC / Guideline Level (%)	PEC / Guideline Level (%)
North-West Irish Sea cSPA	20	6.83	0.32	7.15	3.22	72
Dundalk Bay SAC	10	15.79	0.11	15.90	1.09	159
Dundalk Bay SPA	10	15.79	0.11	15.90	1.09	159
Clogher Head SAC	10	15	0.15	15.15	1.51	152
Boyne Coast and Estuary SAC	10	15	0.08	15.08	0.83	151

Table 5 – Nitrogen Concentrations (kg/N/ha/yr) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 22 Of Ammonia Impact Assessment Report)

It can be seen from Table 5 that there are no exceedances of the nitrogen concentrations at each of the sites, and as a result, the predicted impact would be considered deminimus for the purposes of the Nitrogen assessment.

AERMOD Conclusions

It is expected that the typical operation of the site will result in lower predicted ammonia and nitrogen impacts at the closest sensitive receptors than the worst case results presented in Ammonia Impact Assessment report. The report concluded that the predicted results of the ammonia and nitrogen modelling process showed that the limits for the protection of vegetation are not exceeded at the designated habitats within the vicinity of the poultry

farm. Thus, any areas of ecological interest will not be adversely affected from the ammonia or nitrogen emissions arising from the operation of the farm.

5.4 CUMULATIVE IMPACTS

There are other agricultural activities ongoing close to the current application site, therefore cumulative impacts arising from the operation of these farms together were considered. All farms, regardless of whether licensed by the EPA or not, are required to operate within the legalisation defined in S.I. 113 of 2022 regarding manure storage, minimisation of soiled water and general good agricultural practice, etc. Therefore, cumulative impacts arising from the combined operation of these activities with the proposed operation of the poultry farm at Carrickbaggot will be negligible.

Cumulative impacts arising from predicted emissions from the facility when considered in-combination with other farms in the locality have also been considered. There are no other Licensed farms within 5km of the proposed site.

The Ammonia Impact Assessment report has also considered potential cumulative impacts.

The following points detail whether or not a cumulative assessment is necessary as part of this assessment.

- It is noted that Step 1 of the flowchart states "Are the background levels already exceeded for the ammonia critical level or nitrogen critical load at Natura sites within the zone of influence? (Go to step 4)
- It can be seen from Table 4 above that the background is exceeded at two of the Natura 2000 sites (Clogher Head SAC and Boyne Coast & Estuary SAC), and therefore the assessment continues to Step 4:
- 'Following detailed modelling and a NIS, is the process contribution (PC) ≤1% of the critical level for ammonia and ≤1% of the critical load for nitrogen deposition?

It can be seen from Table 4 that the total ammonia at both of these Locations is over 1% and as a result, a cumulative assessment may be required at these locations.

In order to carry out a cumulative assessment it was necessary to identify any nearby installations that also have the potential to contribute a significant ammonia impact. There were no such sites in the vicinity of the sites and as such, a cumulative/ in-combination assessment is not required for this application.

The land-spreading of the poultry manure produced at the proposed facility has also been considered as part of this process. Records for the distribution and movement of all the manure produced will be kept on site and presented to the Department of Agriculture, Food and Marine if necessary. All organic fertiliser will replace the use of chemical fertiliser; therefore there will be no overall increase in the amount of nutrients spread.

All farmers that receive the manure from the proposed farm will do so under the European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2022 (S.I. 113 of 2022). Upon the receipt of the manure, they will be informed of their obligation under this legalisation. Compliance with these regulations will minimise cumulative impacts as well as any impacts

6 MITIGATION MEASURES

In order to minimise emissions from the poultry facility at Carrickbaggot and in order to protect certain designated sites and species, the following mitigation measures must be implemented:

Construction

- Prior to the commencement of any site works, the applicant and the contactors must be made aware of the overall sensitivity of this site. They must be made familiar with the overall content of this NIS and they must be made aware of the mitigation measures contained in this NIS. A statement signed by personnel on site to say that they will adhere to the mitigation measures as outlined in this NIS must be presented to the Local Authority prior to the commencement of any works.

- Site preparation and construction should be confined to the development site only and should adhere to all the mitigation measures outlined in this NIS.

- The work areas must be kept to the minimum area required to carry out the proposed works and the area should be clearly marked out and cordoned off in advance of work commencement.

- The construction and operation of the proposed development must comply with the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2022 (S.I. 113 of 2022).

- It is vital that there is no deterioration in water quality in the drains that surround the site that are upstream of the Morganstown Stream. Therefore, strict controls of erosion, sediment generation and other pollutants associated with the construction process should be implemented to reduce and intercept sediment release where necessary. It is strongly recommended that prior to the commencement of works, that a robust geotextile membrane silt fence is installed around the main construction works area in the site to prevent run off mobilising to the north.

- All silt fences should be sturdy and constructed of a suitable geotextile membrane to ensure that water can pass through, but that silt will be retained. An interceptor trench will be required in front of this silt fence. The silt fence must be capable of preventing particles of 425µm from passing though.

- There must be no discharges of contaminated waters to ground or surface waters from this development, either during the construction or operation of the development. The control and management of hydrocarbons on site will be vital to prevent deteriorations in surface and groundwater quality locally. The following measures must be employed on site:

    - A dedicated re-fuelling location should be established on the site in a suitable compound area away from the proposed locations of excavations and groundworks. If possible, the re-fuelling of machines on site should be avoided.
    - The risk of fuel spillages on a construction site is at its greatest when refuelling plant. Therefore, only designated trained and competent operatives should be authorised to refuel plant on site. Plant and equipment should be brought to a designated refuelling area rather than refuelling at numerous locations about the site.
    - Spill kits stations should be provided at the fuelling location for the duration of the works.
    - Workers should be provided with training on spill control and the use of spill kits.
    - All fuel storage containers must be appropriately bunded, roofed and protected from vehicle movements. These bunds will provide added protection in the event of a flood event on site.
    - All chemicals must be stored as per manufacturer's instructions. A dedicated chemical bund should be provided on site if chemicals are to be stored on site. Any chemicals used on site should be returned to the site compound and secured in a lockable and sealed container overnight in proximity to the fuel storage area.
    - Procedures and contingency plans should be established on site to address cleaning up small spillages as well as dealing with an emergency incident. A stock of absorbent materials such as sand, spill granules, absorbent pads and booms should be kept on site, on plant working near the water and at the refuelling area.
    - Daily plant inspections will be completed by all plant operators on site to ensure that all plant is maintained in good working order. Where leaks are noted on these inspection sheets, the applicant should remove the plant from operations for repairs.
    - All personnel shall observe standard precautions for handling of materials as outlined in the Safety Data Sheets (SDS) for each material, including the use of PPE. Where conditions warrant, emergency spill containment supplies should be available for immediate use.

- Best practice concrete / aggregate management measures must also be employed on site. These will include:
    - A designated concrete wash out area should be set up on site; typically this will involve washing the chutes, pumps into a designated IBC before removing the waste water off site for disposal.
    - Best practice in bulk-liquid concrete management should be employed on site addressing pouring and handling, secure shuttering, adequate curing times etc.
    - Stockpile areas for sands and gravel must be kept to a minimum size, well away from the stream on site.
    - Where concrete shuttering is used, measures should be put in place to prevent against shutter failure and control storage, handling and disposal of shutter oils.
    - Activities which result in the creation of cement dust should be controlled by dampening down the areas.
    - Raw and uncured waste concrete should be disposed of by removal from the site;
    - Stockpile areas for sands and gravel must be kept to a minimum size.

- The applicant must follow the guidelines set out in the Department of Agriculture's Explanatory Handbook for Good Agricultural Practice Regulations.

- The proposed storage tanks must adhere to the Department of Agriculture's Farm Building and Structures Specifications. Before use, they should undergo an integrity test that is performed by a suitably qualified person. They should be inspected regularly for deficiencies.

- All construction waste must be removed from site by a registered contractor to a registered site. Evidence of the movement and safe disposal of the construction waste will be retained and presented to Local Authority upon request. The applicants and construction contractors will be responsible for the safe removal of any construction waste generated on site. There must be no disposal of construction waste or spoil in areas outside of the application site.

Site Operation

- The management of surface water from the site has been described in detail in the accompanying report prepared by IE Consulting. The recommendations in this report should be adhered to in full. The development of the surface water management system, including the construction of the swales, the installation of the new box culvert over the road and the diversion of the drainage channel should be supervised by a suitably qualified engineer. The works should be inspected by IE Consulting or similar experts prior to use.

- The mature hedgerow and woodland within the site should be retained in so far as possible. Any removal of hedgerow vegetation should be done outside of the bird nesting season.

- Inappropriate lighting could result in the fragmentation of the habitats of otters, bats and other nocturnal mammals. Therefore, it is recommended that night time lighting is kept to a low level, that results in minimal spill.

- In so far as possible, landscaping should be sympathetic to the natural landscapes that surround the site. The future landscaping of the site should adhere to the following recommendations:
  - Existing vegetation should be retained.
  - Only native trees and shrubs should be used in the landscaping.
  - A proportion of the grass areas should be maintained through methods that mimic traditional grassland management (low level grazing and mowing regimes). This will benefit local pollinators. Locally sourced wildflower seed would also be beneficial;
  - Where possible the importation of topsoil from outside the area should be avoided;
  - When planting flowers, shrubs and trees native species should be used, ideally from a local source;
  - Garden plants that have the potential to become invasive must be avoided;

Land-Spreading

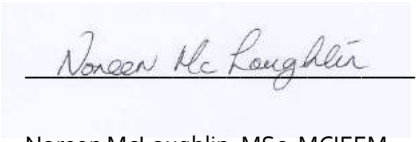
In order to avoid any reductions in water quality within the catchment as a whole, all organic fertiliser must be used in accordance with S.I. 113 of 2022 European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2022).

Reduction of Emissions to Atmosphere

Any other technologies to further reduce the emissions from the poultry installation should be considered where possible.

7 CONCLUSIONS

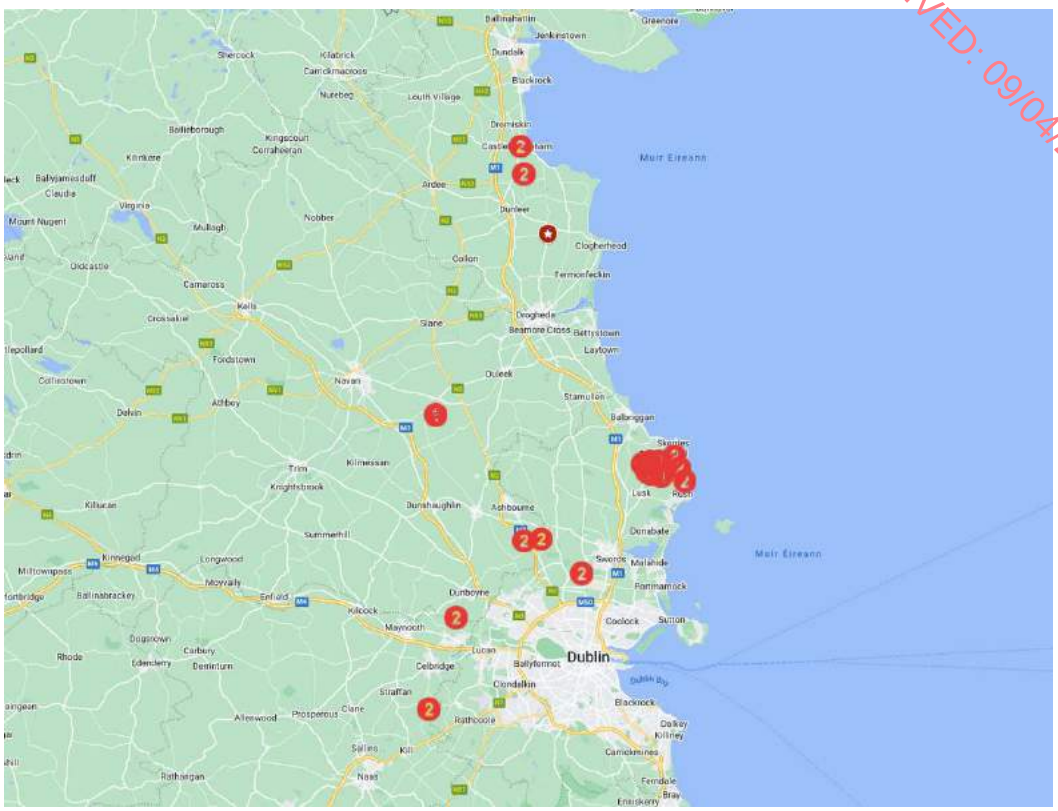
This current NIS has been undertaken to evaluate the potential impacts of the proposed development with regard to the effects upon the conservation objectives and qualifying interests (including the habitats and species) of the Natura 2000 sites within 15km of the application site. It is considered that following mitigation, that the proposed project does not have the potential to significantly affect the conservation objectives of these aforementioned Natura 2000 sites and the integrity of these sites as a whole will not be adversely impacted.



Noreen McLoughlin, MSc, MCIEEM.
Ecologist.

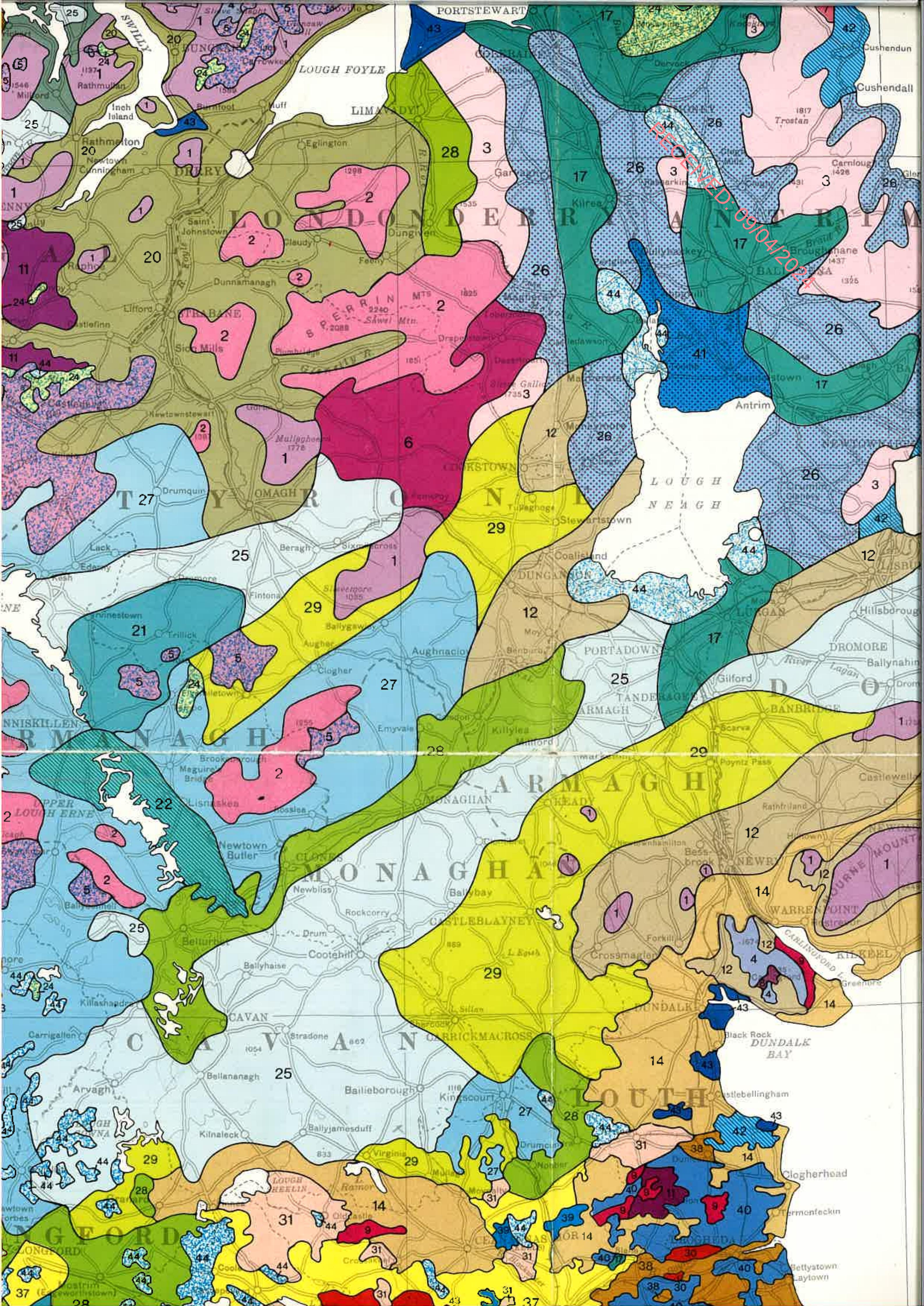
(PI Insurance details available on request)

Appendix I: CUSTOMER FARMLAND LOCATIONS



Appendix No. 14

Extract from General Soil Map of Ireland.



PORTSTEWART
LOUGH FOYLE
LIMAVADY
Eglington
DERRY
Rathmelton
Newtown Cunningham
Rathmullan
Inch Island
Milford
SWILLY
LONDONDERRY
ANTRIM
Saint Johnstown
Claudy
Dungiven
Feeny
Raphoe
Dunnamanagh
Lifford
STRABANE
Sion Mills
Castlefinn
SPERRIN MTS
Sawel Mtn.
Draperstown
Plumbridge
Newtownstewart
Gortin
Mullaghcarn
Drumquin
OMAGH
TYRONE
COOKSTOWN
Tullaghoge
Stewartstown
Coalisland
DUNGANNON
Moy
Benburb
Beragh
Sixmilecross
Fintona
Dromore
Lack
Ederny
Kesh
Irvinestown
Trillick
Ballygawley
Augher
Clogher
Aughnacloy
Emyvale
Killylea
Milford
Kilrea
Ballymoney
Dervock
Cushendun
Cushendall
Trostan
Carnlough
Broughshane
BALLYMENA
Antrim
Randalstown
LOUGH NEAGH
PORTADOWN
TANDERAGEE
ARMAGH
LURGAN
Hillsborough
DROMORE
Ballynahinch
Gilford
BANBRIDGE
River Lagan
Scarva
Poyntz Pass
ARMAGH
Markethill
Keady
Rathfriland
Castlewellan
Hilltown
Newtownhamilton
Bessbrook
NEWRY
WARRENPOINT
Rostrevor
MOURNE MOUNTAINS
Kilkeel
CARLINGFORD L.
Greenore
Forkill
Crossmaglen
DUNDALK
DUNDALK BAY
Black Rock
Castlebellingham
LOUTH
Clogherhead
Termonfeckin
DROGHEDA
Bettystown
Laytown
ENNISKILLEN
FERMANAGH
UPPER LOUGH ERNE
Brookeborough
Maguiresbridge
Lisnaskea
Rosslea
Newtown Butler
MONAGHAN
CLONES
MONAGHAN
Newbliss
Ballybay
Rockcorry
CASTLEBLAYNEY
L. Egish
Drum
Cootehill
Ballyhaise
Belturbet
Ballyconnell
Killashandra
Carrigallen
CAVAN
CAVAN
Stradone
Bellananagh
Arvagh
Bailieborough
Kingscourt
Ballyjamesduff
Kilnaleck
Virginia
L. Sillan
CARRICKMACROSS
Shercock
LOUGH SHEELIN
L. Ramor
Oldcastle
Mullagh
Drumconra
Nobber
KELLS
LONGFORD
Mostrim (Edgeworthstown)
Granard
Coole
Crossakeel
Ardee
Dunleer
RECEIVED: 09/04/2024

Soils	Parent Material	Per cent of total area
	Mostly granite or rhyolite glacial till	1·13 2·50
zolics (15)	Mixed sandstone, limestone glacial till	1·69 1·40
(10)	Ordovician–Silurian–Cambrian shale glacial till	4·22 4·32
hs (20)	Sandstone, Lower Avonian shale glacial till	6·31 5·23
sols (3),	Morainic sands and gravels and blown sands	·42 ·35
	Basalt glacial till	·02 1·35
t (10)	Sandstone, granite, mica schist glacial till	·74 ·61
)	Upper Carboniferous shale and sandstone glacial till	·77 ·64
hs (20),	Mica schist glacial till	1·41 2·46
)	Sandstone glacial till	2·95 2·78
hs (15)	Upper Carboniferous shale glacial till	4·86 4·27
d Peat	Granite and sandstone and shallow glacial till (quartzite in places)	1·31 1·08
		5·14 4·40

the Controller of H.M.Stationery Office. Smaller islands not surveyed.

Broad Physiographic Divisions	Soil Association			Parent Material	Per cent of total area
	Nos.	Principal Soil	Associated Soils		
Drumlin (Wet Mineral and Organic Soils)	25	Gleys (50%)*	Acid Brown Earths (40%) Interdrumlin Peat and Peaty Gleys (10%)	Mostly Ordovician–Silurian shale sandstone glacial till	2·57 3·66
	26	Gleys (60)*	Acid Brown Earths (40)	Basalt glacial till	— 1·86
	27	Gleys (85)*	Interdrumlin Peat and Peaty Gleys (15)	Mostly Upper Carboniferous limestone and shale–sandstone glacial till	3·77 4·73
Drumlin (Drier Mineral and Organic Soils)	28	Grey Brown Podzolics (60)	Gleys (20), Interdrumlin Peat and Peaty Gleys (20)	Mostly limestone glacial till	3·43 3·23
	29	Acid Brown Earths (75)	Interdrumlin Peat and Peaty Gleys (25)	Mostly Ordovician–Silurian shale–glacial till	1·16 2·73
Flat to Undulating Lowland (Mainly dry Mineral Soils)	30	Grey Brown Podzolics (70)	Brown Earths (20) Gleys (5) Basin Peat (5)	Limestone morainic gravels and sands	2·64 2·18
	31	Minimal Grey Brown Podzolics (80)	Gleys(10) Brown Earths(5) Basin Peat (5)	Limestone glacial till	4·47 3·70
	32	Degraded Grey Brown Podzolics (50)	Peat(15)Brown Earths(15 Gleys (10), Podzols (10)	Mostly limestone glacial till	3·08 2·56
	33	Shallow Brown Earths and Rendzinas (60)	Grey Brown Podzolics(25) Gleys (10) Peat (5)	Limestone till, shallow in places	3·21 2·66
	34	Minimal Grey Brown Podzolics (70)	Gleys (20) Brown Earths (10)	Limestone glacial till	6·02 4·98
	35	Grey Brown Podzolics (80)	Gleys (10), Brown Earths (10)	Stony limestone glacial till	·64 ·53
	36	Grey Brown Podzolics (80)	Gleys (20)	Limestone gravelly till	·70 ·58
	37	Grey Brown Podzolics (75)	Gleys (20), Brown Earths (5)	Limestone and shale glacial till	1·42 1·18
	38	Grey Brown Podzolics (75)	Gleys (25)	Till of Irish Sea origin with limestone and shale	1·14 ·95
Flat to Undulating Lowland (Mainly wet Mineral and Organic Soils)	39	Gleys** (90)	Grey Brown Podzolics (10)	Limestone glacial till	3·27 2·86
	40	Gleys* (80)	Grey Brown Podzolics (20)	Till of Irish Sea origin with limestone and shale	2·07 1·56
	41	Gleys* (75)	Acid Brown Earths (15) Peaty Gleys (10)	Basalt glacial till	— ·22
	42	Gleys* (90)	Grey Brown Podzolics (10)	Glacial muds of Irish Sea origin	·49 ·61
	43	Gleys (60)	Brown Earths (20) Peaty Gleys (20)	Alluvium	1·34 1·15
	44	Basin Peat			5·79 5·08

Appendix No. 15

Noise Impact Assessment

TECHNICAL REPORT

CRAYVALL EGG PRODUCTION
CARRICKBAGGOT POULTRY FARM EXPANSION
NOISE IMPACT ASSESSMENT
CARRICKBAGGOT, CO. LOUTH

For:

CLW Environmental
Planners
23 Farnham St.
Abbeyland
Cavan

Report Prepared By:
Brian S. Johnson MIOA

Our Reference:
24/0109R01

Date:
20 March 2024

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Address: The NSC Campus, Mahon, Cork, Ireland.

CONTENTS **PAGE**

1.0 INTRODUCTION

CLW Planning (on behalf of Crayvall Egg Production, Ltd.) is submitting a planning permission application in respect of the expansion of an existing poultry farm facility. The proposed poultry farm is located in the townland of Carrickbaggot, approximately 9km north of Drogheda in Co. Louth. The proposed development expansion consists of the addition of an additional poultry house building that is slightly larger than the existing one. The existing house has the capacity for 60,000 free range chickens and the new house will cater for up to 64,000 chickens (non-free range).

In order to assist with this application, CLV Consulting was commissioned to carry out a noise impact assessment of the proposed development by quantifying the expected degree of noise emissions that the new poultry house will have on the nearest noise sensitive receptors during both the construction and operational phases of the development.

This report summarises the results of this assessment and considers the magnitude of the expected noise emissions from the proposed new poultry house expansion in relation to applicable best practice noise criteria limits.

2.0 PROPOSED POULTRY FARM EXPANSION LOCATION & LAYOUT

As detailed in the precious section, the existing poultry farm facility is located in the townland of Carrickbaggot. The farm currently has one free range poultry house located on its property and is applying for planning permission to construct an additional poultry house that is cage free (i.e. with no outdoor access for hens). See Figure 1 below for a layout diagram of the proposed facility expansion building.

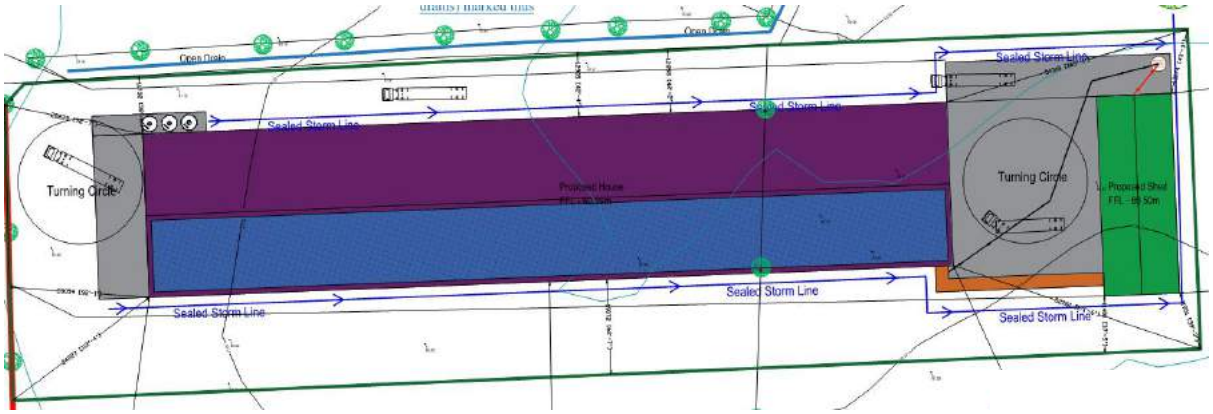


Figure 1 Proposed Poultry Farm Facility Expansion Layout

The nearest noise sensitive receptors to the proposed new poultry farm house (and the only ones visible from its location) are a number of detached residential dwellings located at a distance of 600m to the west / southwest.

See Figure 2, on the following page, for a location map of the proposed development.

Figure 2 Proposed New Poultry House Location & Nearest Noise Sensitive Receptors

3.0 AMBIENT ENVIRONMENTAL NOISE SURVEY

In order to obtain a baseline for assessing the potential noise impact of the identified sources, an environmental noise survey was firstly conducted in order to quantify the existing noise environment in the vicinity of the development. The survey was conducted in general accordance with *ISO 1996: 2016: Acoustics - Description, measurement and assessment of environmental noise*.

Specific details are set out in the following sections.

3.1 Choice of Noise Measurement Location

The measurement location was selected in the vicinity the nearest residential dwellings (ref Section 2.0) described as follows and shown in Figure 3 on the following page.

NML is located in the vicinity of the nearest residential dwellings which are located to the west / southwest of the proposed development.

Given the ruralness of this area and the lack of significant noise sources in the vicinity, the ambient noise level environment noise levels measured at this location could therefore be considered representative of the ambient noise environment in the surrounding environment.

Figure 3 Site Layout Showing Approximate Positions of Measurement Location

3.2 Survey Periods

Noise measurements were conducted over the course of two survey periods as follows:

- Daytime 14:45 to 17:05 hrs on 18 January 2024
- Night-time 23:00 to 01:15 hrs on 18 / 19 January 2024

The daytime measurements cover a period that was selected in order to provide a typical snapshot of the existing noise climate, with the primary purpose being to ensure that the proposed noise criteria associated with the development are commensurate with the prevailing environment.

The night-time period provides a measure of the existing background noise levels.

The weather observations made during the survey are detailed in Table 1 below.

Date	Period	Temp	Wind Speed	Precipitation
18 January 2024	Daytime	≈ 2 - 3 ^{o}C	2 - 3 m/s (W)	None.
18 / 19 January 2024	Night Time	≈ -1 - 0 ^{o}C	1 - 2 m/s (WSW)	None.

Table 1 Meteorological Data Observed During Measurement Survey Periods

3.3 Personnel & Instrumentation

Brian S. Johnson (CLV) conducted the noise level measurements during both survey periods. He is an internationally experienced acoustic consultant who has been working in the fields of architectural / building acoustics and noise control since 1994. He has been based in America, Europe, Asia and Australia and is a member of the Institute of Acoustics. Brian also has extensive knowledge in the field of environmental acoustics and holds a Certificate of Competence in Environmental Noise Measurements from the Institute of Acoustics.

The measurements were conducted using an NTI Audio type XL2 Sound Level Meter (Serial #A2A-11070-EO). It was fitted with a 90mm windshield and before and after the survey the measurement apparatus was check calibrated using a Casella Cel 120 Acoustic Calibrator (Serial #5072087). The microphone was positioned approximately 1.4m above the ground.

The calibration certificates for the sound level meter and acoustic calibrator are provided in Appendices A & B respectively of this document.

3.4 Procedure

Measurements were conducted over two full 2-hour periods. Sample periods for the noise measurements were 15 minutes during both the daytime and night-time periods. The results were saved to the instrument memory for later analysis. All primary noise sources contributing to noise build-up were also noted.

3.5 Measurement Parameters

The noise survey results are presented in terms of the following five parameters:

L_{Aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

L_{Amax} is the instantaneous maximum sound level measured during the sample period.

L_{Amin} is the instantaneous minimum sound level measured during the sample period.

L_{A10} is the sound level that is exceeded for 10% of the sample period.

L_{A90} is the sound level that is exceeded for 90% of the sample period.

The “A” suffix denotes the fact that the sound levels have been “A-weighted” in order to account for the non-linear nature of human hearing.

All sound levels in this report are expressed in terms of decibels (dB) relative to $2x10^{-5}$ Pa.

3.6 Measurement Results

The survey results are summarised in Table 2 on the following page.

Time		Measured Noise Levels (dB re. $2x10^{-5}$ Pa)				
		L_{Aeq}	L_{Amax}	L_{Amin}	L_{A10}	L_{A90}
Daytime	15:15 - 15:30 hrs	**43**	52	33	46	36
	15:30 - 15:45 hrs	**43**	66	34	45	36
	15:45 - 16:00 hrs	**43**	59	35	46	38
	16:00 - 16:15 hrs	**45**	56	36	47	39
	16:15 - 16:30 hrs	**47**	65	35	49	38
	16:30 - 16:45 hrs	**44**	55	35	47	38
	16:45 - 17:00 hrs	**45**	59	35	48	38
	17:00 - 17:15hrs	**46**	64	34	48	37
Night Time	23:00 - 23:15 hrs	**39**	54	28	43	30
	23:15 - 23:30 hrs	**37**	56	26	40	27
	23:30 - 23:45 hrs	**36**	51	26	40	27
	23:45 - 00:00 hrs	**35**	48	25	39	27
	00:00 - 00:15 hrs	**37**	51	27	41	29
	00:15 - 00:30 hrs	**32**	49	25	33	27
	00:30 - 00:45 hrs	**38**	53	26	42	29
	00:45 - 01:00 hrs	**34**	52	25	37	27

Table 2 Summary of Measured Noise Levels

During daytime monitoring periods, the dominant source of background noise observed was from traffic movements on the adjacent and nearby roads. There were also contributions from birdsong and low levels of wind generated noise as well as intermittent aircraft fly overs. Daytime noise levels were in the range of 43 to 47dB L_{Aeq} and 36 to 39dB L_{A90}.

The night time noise measurements at this location were also controlled by traffic movements on the adjacent and nearby roads. There were also contributions from birdsong and occasional aircraft fly overs. Night time noise levels were in the range of 32 to 39dB L_{Aeq} and 27 to 30dB L_{A90}.

4.0 NOISE EMISSION CRITERIA

4.1 Construction Phase

There is no published statutory Irish guidance relating to the maximum permissible noise levels that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and may consider noise limits at their discretion.

In the absence of specific noise limits, appropriate criteria relating to permissible construction noise levels for a development of this scale may be found in the British Standard *BS 5228 - 1: 2009: Code of Practice for Noise and Vibration Control on Construction and Open Sites: Noise*.

The approach adopted here calls for the designation of a noise sensitive location into a specific category (A, B or C) based on exiting ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded, indicates a significant noise impact is associated with the construction activities.

Table 3 below sets out the values which, when exceeded, indicate a significant effect at the facades of residential receptors as recommended by BS 5228 - 1. Please note that these are cumulative levels, i.e. the sum of both ambient and construction noise levels.

Assessment Category & Threshold Value Period (L_{Aeq})	Threshold Value, Decibels (dB)		
	Category A [A]	Category B [B]	Category C [C]
Night-Time (23:00 to 07:00hrs)	45	50	55
Evenings & Weekends [D]	55	60	65
Daytime (07:00 - 19:00) & Saturdays (07:00 - 13:00)	65	70	75

Table 3 Example Threshold of Significant Effect at Dwellings

A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values.

B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values.

C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values.

D) 19:00 - 23:00 weekdays, 13:00 - 23:00 Saturdays and 07:00 - 23:00 Sundays.

For the appropriate period (e.g. daytime), the ambient noise level is determined and rounded down to the nearest 5dB. In this instance, the ambient noise levels measured in the vicinity of the nearest noise sensitive receptors to the proposed development have daytime ambient noise levels in the range of 43 to 47dB L_{Aeq} (ref Section 3.6). These properties will therefore all be afforded the lowest designation of Category A.

4.2 Operational Phase

Due consideration must be given to the nature of the primary noise sources when setting noise emissions criteria. In this instance, there are three primary sources of noise expected to be associated with the proposed poultry house once operational. These are summarised as follows:

- Poultry House Livestock Emissions (Chickens)
- Feed Delivery Truck Events
- Poultry House Ventilation Fans

There is no Irish Standard containing guidance for noise emissions from poultry farms. In the absence of such standards, best practice dictates that the potential noise impact of the proposed development is assessed against appropriate British and / or International Standards.

Appropriate guidance in this instance can be referenced from *BS 8233 (2014): Guidance on Sound Insulation and Noise Reduction for Buildings*. This British Standard sets out recommended noise limits for indoor ambient noise levels in residential dwellings as detailed in Table 4 below.

Activity	Room Type	Design Criterion $L_{Aeq,T}$ (dB)	
		Daytime (07:00 - 23:00hrs)	Night Time (23:00 - 07:00hrs)
Resting / Sleeping Conditions	Living Rooms	35dB $L_{Aeq,16hr}$	-
	Bedrooms	35dB $L_{Aeq,16hr}$	30dB $L_{Aeq,8hr}$

Table 4 Recommended Indoor Ambient Noise Levels from *BS 8233 (2014)*

For the purposes of this assessment, it is necessary to derive external limits based on the internal criteria noted in the paragraph above. This is done by factoring in a degree of noise reduction afforded by an open window, which is defined in the standard as being 15dB.

Applying the 15dB factor to the values from the BS 8233 table, the following criteria would apply at the façades of the adjacent dwellings:

- ***Daytime (07:00 to 23:00 hours)*** ***50dB $L_{Aeq,16hr}$***
- ***Night-time (23:00 to 07:00 hours)*** ***45dB $L_{Aeq,8hr}$***

5.0 CONSTRUCTION NOISE IMPACT ASSESSMENT

A variety of items of plant will be in use for the construction of the new poultry farm house, such as excavators, lifting equipment and dumper trucks.

Due to the fact that the construction programme has not been established, it is difficult to calculate the actual magnitude of noise emissions to the local environment. However, it is possible to predict typical noise levels using guidance set out in *BS 5228-1: 2009: Code of practice for noise and vibration control on construction and open sites - Part 1: Noise*.

As discussed in Section 2.0, the nearest noise sensitive receptors are detached residential dwellings located to the west / southwest at approximate distances of 600 - 700m from the nearest point of the proposed new poultry house.

The results of construction noise emission predictions are detailed in Table 5 on the next page. Note that a utilisation of equipment of 75% over a working day was assumed in the preparation of these construction noise predictions.

Phase	Plant Item (BS 5228 Ref.)	Plant Noise Level at 10m Distance[1] (dB L_{Aeq})	Predicted Noise Level at Dwellings to West / Southwest (dB $L_{Aeq,1hr}$)
Site Preparation	Tracked Excavator (C2.22)	72	42
	Dumper (C4.2)	78	
Steel Erection	Wheeled Mobile Crane (C4.38)	78	44
	Articulated Lorry (C11.10)	77	
General Construction	Compressor (D7 6)	77	45
	Diesel Hoist (C7.98)	76	
	Pneumatic Circular Saw (D7.79)	75	
	Generator (C4.84)	74	

Table 5 Predicted Noise Emission Levels at Nearest Noise Sensitive Receptors During Construction Phases

The predicted construction noise levels at the nearest residential dwellings in the vicinity of the proposed development are all well below the 65dB L_{Aeq} maximum criteria for construction activities during daytime and 55dB L_{Aeq} maximum criteria during evening / weekend periods. However, we would still recommend restricting construction periods to daytime periods only given the relatively low ambient noise levels in the vicinity of the site.

6.0 OPERATIONAL NOISE IMPACT ASSESSMENT

As discussed in Section 2.0, there were three identified operational noise emission sources of significance associated with the proposed development. These are summarised as follows:

- Poultry House Livestock (Poultry) Emissions
- Feed Delivery Truck Events
- Poultry House Ventilation Fans

Each of these sources are discussed individually in the following sections.

6.1 Poultry House Livestock Emissions (Chickens)

It is understood that the new poultry house is to house up to 64,000 birds (which is marginally more than the capacity of the existing poultry house). Although this is a large number of animals, noise emissions from these birds are typically very low and all livestock in the new poultry house will be contained internally (as opposed to the existing poultry house which allows the birds to circulate externally).

In order to inform this assessment, CLV personnel surveyed the perimeter of the existing poultry house which is a free range building and therefore had opened sides (as well as a few hens present externally at the time). A sound level measurement conducted at a distance of 1m from the poultry house wall resulted in an overall level of 48dB L_{Aeq}.

1 All plant noise levels are derived from BS 5228: Part 1.

Although the proposed poultry house will not have opened sides or external hens and will therefore have quieter noise emissions, this 48dB L_{Aeq} level will be used in our assessment as a worst case noise source basis.

Noise level emission predictions based on a noise level of this order to the nearest noise sensitive receptors are as follows:

Noise Sensitive Receptor	Noise Level
Nearest Dwellings	< 10 dB L_{Aeq}

The predicted noise emission levels of poultry house livestock are predicted to be in the range of < 10 dB L_{Aeq} at the nearest noise sensitive receptors. Levels of this order would not only be well below both the daytime ambient noise criteria and ambient noise levels in the vicinity, they would also be inaudible.

No mitigation measures would therefore be required in respect of poultry house livestock noise emissions.

6.2 Feed Delivery Truck Events

We understand that feed trucks will make deliveries at a frequency of two times per week (on average) to the farm and that they will last for about an hour on average. This will mean that a 'worst case' scenario would only see delivery truck noise occurring about 2 hours per week.

In order to quantify feed delivery truck noise, a delivery event was measured for a previous poultry farm assessment so that its actual noise emissions could be quantified. The noise level measured at a distance of 3m from the feed truck during the delivery was of the order of 83dB L_{Aeq}.

Noise level emission predictions based on a noise level of this order to the nearest noise sensitive receptors are as follows:

Noise Sensitive Receptor	Noise Level
Nearest Dwellings	34 dB L_{Aeq}

The predicted noise emission levels of delivery truck activity are of the order of 34dB L_{Aeq} at the nearest noise sensitive receptors during a typical delivery event. Levels of this order would be less than both the daytime ambient noise criteria and ambient noise levels at the nearby noise sensitive receptors. In addition, given that these noise emissions are only expected to occur of the order of 2 hours per week, it would be considered negligible on a time consideration basis.

No mitigation measures would therefore be required in respect of feed delivery truck events apart from restricting their occurrences to daytime periods only (as a good neighbour policy).

6.3 Poultry House Ventilation Fans

The proposed poultry house is to be served by eight ventilation fans that will locate on the gable end of the building. Noise level data received from the unit manufacturer for the selected fan types is summarised in Table 6 below.

Manufacturer	Model	Location	Number of Fans	Manufacturer Listed Sound Power Level (Maximum)
Munters	EM 50	East Gable End	8	**70.4 dB(A)**

Table 6 Ventilation Fan Details & Noise Levels

Note that these fans will typically operate at lower operating conditions and will likely only reach maximum output during emergency situations / extreme weather events; however, in order to consider an extreme worst case condition, we have assumed that all of the development fans will be operating at their maximum flow capacity and that the fans are running continuously throughout both daytime and night time periods.

Noise level emission predictions at the nearest noise sensitive receptors based on the provision of fans with noise levels of this order and ALL fans operating simultaneously are as follows:

Noise Sensitive Receptor	**Noise Level**
Nearest Dwellings	< 10 dB L_{Aeq}

The predicted cumulative noise emission levels of the ventilation fans are < 10 dB L_{Aeq} at the nearest noise sensitive receptors. Noise levels of this order would not only be well below both the daytime ambient noise criteria and ambient noise levels in the vicinity, they would also be inaudible.

In addition, it is important to note that our assessment considers a worst-case condition. It is likely that the fans will not all be operating at maximum capacity during most daytime periods (and likely all night time periods) and some may not even be operating at all (on the day and night of our survey, the ventilation fans in the existing poultry house were either inaudible or not in operation). This would obviously reduce poultry house ventilation fan noise emissions even lower than those predicted above.

No further mitigation measures would therefore be required in respect of the poultry house ventilation fans apart from ensuring they are selected at the maximum noise emission levels for the selections listed in Table 6.

6.4 Cumulative Noise Levels

The total level of combined noise emissions from the proposed development noise sources can be determined by summing together all of the individual contributions. The total levels of each are summarised in Table 7 on the following page.

Note that the feed delivery truck event noise emissions were not included given that they will only occur approximately 2 hours per week; however, a worst-case condition has been considered with respect to the ventilation fans by assuming that they are all in operation constantly over the full daytime and night time periods.

Noise Source	Noise Level Emissions at Nearest Dwellings (dB L_{Aeq})
Poultry House Livestock Emissions	< 10
Poultry House Ventilation Fans	< 10
Cumulative Noise Level	≤ 10

Table 7 Proposed Development Cumulative Noise Levels

These cumulative noise levels are compared with the established project noise emission criteria in Table 8 below.

Location	Predicted Noise Level	Noise Emission Criteria	Compliant?
Nearest Dwellings	≤ 10 dB L_{Aeq}	50dB $L_{Aeq,16hr}$ [Daytime] 45dB $L_{Aeq,8hr}$ [Night Time]	✓

Table 8 Proposed Development Noise Emission Level Comparison with Established Criteria

As can be seen from the comparisons in the preceding tables, the expected levels of noise emissions from the proposed development are well within the established criteria at the nearby noise sensitive receptors. They are also below the existing ambient noise levels in the vicinity during both daytime and night time periods. Refer to Table 9 below for a comparison.

Location	Predicted Noise Level	Measured Daytime Ambient Noise Level	Measured Night Time Ambient Noise Level
Nearest Dwellings	< 10 dB L_{Aeq}	43 - 47 dB L_{Aeq}	32 - 39 dB L_{Aeq}

Table 9 Proposed Development Noise Emission Level Comparison with Measured Ambient Noise Levels

It should also be reiterated that the noise level conditions that were assessed for each aspect of the development noise sources would be considered worst case in each instance. During standard operating conditions, the proposed new poultry house noise emissions are expected to be nominally inaudible at all nearby noise sensitive receptors during all time periods.

There is therefore no significant noise impact that would be expected from the proposed new poultry house on any of the identified nearby noise sensitive receptors.

7.0 CONCLUSIONS

A comprehensive assessment of noise emissions from the proposed new poultry house at the Carrickbaggot Poultry Farm expansion was conducted in relation to its planning permission submission. An ambient environmental noise survey was carried out in order to quantify the existing noise levels and sources in the vicinity. The results of this survey were then used in conjunction with applicable noise criteria to determine both the relative noise impact of the development on adjacent noise sensitive receptors as well as the required noise mitigation measures to protect the amenity of the nearby residential dwellings.

The results of the assessment confirmed that potential noise emissions from the proposed poultry house noise sources are expected to be nominally inaudible and should therefore have an imperceptible noise impact on the residential dwellings located in the vicinity.

The only mitigation measures that were deemed as being required in relation to this assessment consisted of the following:

Construction Phase Noise Mitigation Measures

- ✓ Restrict construction activities to daytime periods only.

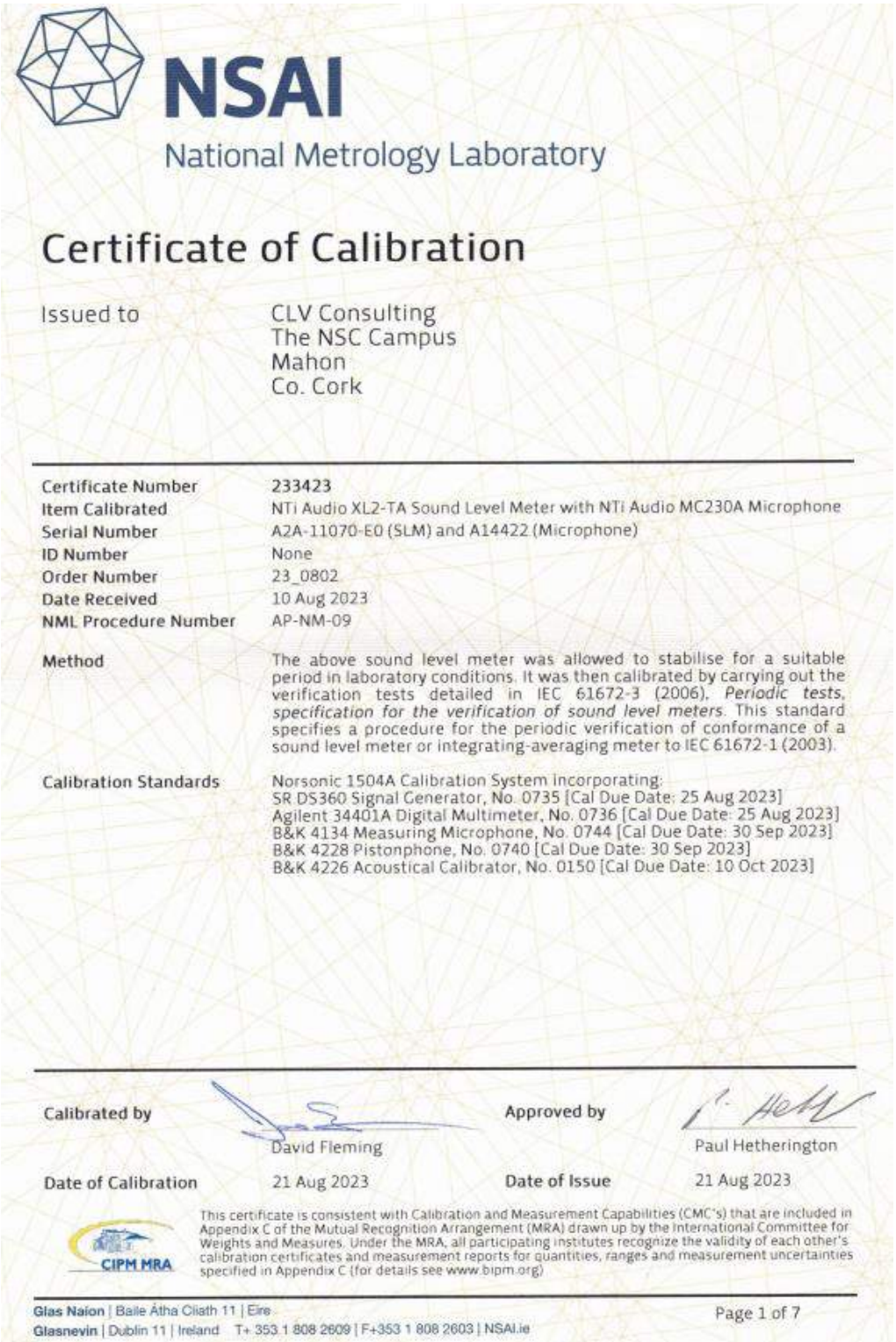
Operational Phase Noise Mitigation Measures

- ✓ Selection of poultry house ventilation fans with maximum sound pressure levels similar to those listed in Table 6.
- ✓ Restriction of feed truck deliveries to daytime periods only.

Provided these measures are appropriately incorporated into the design / construction of the proposed development, there should be no risk of noise impact occurring from the identified sources of the proposed new poultry house on any of the nearest noise sensitive receptors.

APPENDIX A

SOUND LEVEL METER CALIBRATION CERTIFICATE



NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to
CLV Consulting
The NSC Campus
Mahon
Co. Cork

Certificate Number	233423
Item Calibrated	NTi Audio XL2-TA Sound Level Meter with NTi Audio MC230A Microphone
Serial Number	A2A-11070-E0 (SLM) and A14422 (Microphone)
ID Number	None
Order Number	23_0802
Date Received	10 Aug 2023
NML Procedure Number	AP-NM-09
Method	The above sound level meter was allowed to stabilise for a suitable period in laboratory conditions. It was then calibrated by carrying out the verification tests detailed in IEC 61672-3 (2006), *Periodic tests, specification for the verification of sound level meters*. This standard specifies a procedure for the periodic verification of conformance of a sound level meter or integrating-averaging meter to IEC 61672-1 (2003).
Calibration Standards	Norsonic 1504A Calibration System incorporating: SR DS360 Signal Generator, No. 0735 [Cal Due Date: 25 Aug 2023] Agilent 34401A Digital Multimeter, No. 0736 [Cal Due Date: 25 Aug 2023] B&K 4134 Measuring Microphone, No. 0744 [Cal Due Date: 30 Sep 2023] B&K 4228 Pistonphone, No. 0740 [Cal Due Date: 30 Sep 2023] B&K 4226 Acoustical Calibrator, No. 0150 [Cal Due Date: 10 Oct 2023]

Calibrated by	David Fleming	Approved by	Paul Hetherington
Date of Calibration	21 Aug 2023	Date of Issue	21 Aug 2023

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

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APPENDIX B

SOUND LEVEL CALIBRATOR CALIBRATION CERTIFICATE

NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to
CLV Consulting
The NSC Campus
Mahon
Co. Cork

Certificate Number	233422
Item Calibrated	Casella CEL-120/1 Acoustic Calibrator
Serial Number	5072087
ID Number	None
Order Number	23_0802
Date Received	10 Aug 2023
NML Procedure Number	AP-NM-13
Method	The above calibrator was allowed to stabilize for a suitable period in laboratory conditions. It was then calibrated by measuring the sound pressure level generated in its measuring cavity (half-inch configuration). The calibrator's operating frequency was also measured.
Calibration Standards	Norsonic 1504A Calibration System incorporating: Agilent 34401A Multimeter, No. 0736 [Cal due date: 25 Aug 2023] B & K 4134 Measuring Microphone, No. 0744 [Cal due date: 30 Sep 2023] B & K 4228 Pistonphone, No. 0740 [Cal due date: 30 Sep 2023]

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Appendix No. 16

European Communities (Welfare of Farmed Animals) Regulations 2010 – S.I. 311 of 2010

STATUTORY INSTRUMENTS.

S.I. No. 311 of 2010

EUROPEAN COMMUNITIES (WELFARE OF FARMED ANIMALS) REGULATIONS 2010

(Prn. A10/0932)

S.I. No. 311 of 2010

EUROPEAN COMMUNITIES (WELFARE OF FARMED ANIMALS) REGULATIONS 2010

ARRANGEMENT OF REGULATIONS

Part 1

PRELIMINARY & GENERAL

Part 2

ANIMAL WELFARE GENERALLY

Part 3

WELFARE OF LAYING HENS

Part 4

WELFARE OF CHICKENS KEPT FOR MEAT PRODUCTION

Part 5

WELFARE OF CALVES AND PIGS

Part 6

SLAUGHTER OF ANIMALS

Part 7

AUTHORISED OFFICERS

Part 8

WELFARE NOTICE AND EMERGENCY MEASURES

Part 9

FINAL PROVISIONS

S.I. No. 311 of 2010

EUROPEAN COMMUNITIES (WELFARE OF FARMED ANIMALS) REGULATIONS 2010

I, BRENDAN SMITH, Minister for Agriculture, Fisheries and Food, in exercise of the powers conferred on me by section 3 of the European Communities Act 1972 (No. 27 of 1972) and for the purpose of giving effect to Council Directive No. 93/119/EEC of 22 December 1993[1], Council Directive 98/58/EC of 20 July 1998[2], Council Directive No. 1999/74/EC of 19 July 1999[3] and Commission Directive 2002/4/EC of 30 January 2002[4], Council Directive No 2007/43/EC of 28 June 2007[5], Council Directive No. 2008/119/EC of 18 December 2008[6] and Council Directive No. 2008/120/EC of 18 December 2008[7], hereby make the following regulations-

Part 1

Preliminary and General

Citation

1.These Regulations may be cited as the European Communities (Welfare of farmed animals) Regulations 2010 and come into operation on 30 June 2010.

Interpretation

2. (1) In these Regulations—

"animal" means an animal (including fish, reptiles or amphibians) bred or kept for the production of food, wool, skin or fur or for other farming purposes;

"authorised officer" means-

(*a*) an authorised officer within the meaning of section 17A (inserted by the Diseases of Animals (Amendment) Act 2001 (No. 3 of 2001)) of the Diseases of Animals Act 1966 (No. 6 of 1966),

(*b*) an authorised person or inspector within the meaning of the Protection of Animals Kept for Farming Purposes Act 1984 (No. 13 of 1984),

(*c*) an authorised officer within the meaning of the European Communities (Food and Feed Hygiene) Regulations 2009 (S.I. No. 432 of 2009),

[1]O.J. No. L 340 of 31.12.1993, p. 21.
[2]O.J. No. L 221 of 8.8.1998, p. 23.
[3]O.J. No. L 203 of 3.8.1999, p. 53.
[4]O.J. No. L 30 of 31.1.2002, p.44.
[5]O.J. No. L182 of 12.7.2007 p. 19
[6]O.J. No. L010 of 15.1.2009 p. 7
[7]O.J. No. L047 of 18.2.2009 p. 5

Notice of the making of this Statutory Instrument was published in "Iris Oifigiúil" of 2nd July, 2010.

(*d*) a member of the Garda Síochána,

(*e*) an officer of Customs and Excise, or

(*f*) a person appointed under Regulation 30;

"calf" means a bovine animal less than six months old;

"Calves Directive" means Council Directive No.2008/119/EC of 18 December 2008;

"Chicken welfare Directive" means Council Directive No 2007/43/EC of 28 June 2007;

"General Welfare Directive" means Council Directive No. 98/58/EC of 20 July 1998;

"Laying Hens Directive" means Council Directive No. 1999/74/EC of 19 July 1999 and Commission Directive 2002/4/EC of 30 January 2002;

"Minister" means Minister for Agriculture, Fisheries and Food;

"Pigs Directive" means Council Directive No. 2008/120/EC of 18 December 2008;

"premises" includes land, with or without buildings;

"registered veterinary practitioner" has the same meaning as in the Veterinary Practice Act 2005 (No. 22 of 2005);

"Slaughter Directive" means Council Directive No. 93/119/EEC of 22 December 1993.

(2) A word or expression that is used in these Regulations and is also used in the Chicken welfare Directive, the Calves Directive, the General Welfare Directive, the Laying Hens Directive, the Pigs Directive or the Slaughter Directive has, unless the contrary intention appears, the same meaning in these Regulations as it has in the Directive in which it occurs.

Codes of practice

3. (1) The Minister may-

(*a*) publish or cause to be published codes of practice, or

(*b*) adopt a code of practice published by another person (whether within the State or otherwise),

for the purpose of providing practical guidance relating to any of the purposes of these Regulations.

(2) The Minister may amend or replace a code of practice referred to in paragraph (1).

(3) A person who has in his or her possession or under his or her control an animal of a particular class or description shall have due regard to a code of practice (if any) that relates to an animal of that class or description or kept under similar types of management or husbandry practices, published or adopted in accordance with paragraph (1).

(4) If a person fails to comply with a code of practice, that person is not by reason only of that failure liable in any civil or criminal proceedings but the code of practice is admissible in evidence in proceedings and a court may take account of any failure to act in accordance with it in deciding any question in the proceedings.

Part 2

Animal Welfare Generally

Scope

4. (1) This Part does not apply to—

(*a*) an animal living in the wild,

(*b*) subject to paragraph (2), an animal used in competitions, shows, cultural or sporting events or activities while being so used,

(*c*) an experimental or laboratory animal that is the subject of a licence issued under the Cruelty to Animals Act 1876, or

(*d*) an invertebrate animal.

(2) Notwithstanding paragraph (1)(*b*), these Regulations apply to an animal of a kind or species that is normally bred or kept for the production of food, wool, skin, fur or feathers or for use in, or for the purpose of, the farming of land or of animal husbandry and, in particular, includes animals of the bovine, ovine, porcine and caprine species, equidae and poultry.

Obligation to ensure welfare of an animal

5. (1) A person shall take all necessary steps to ensure the welfare of an animal in his or her possession, in his or her control or under his or her care and to ensure that the animal is not caused unnecessary pain, suffering or injury.

(2) A person shall ensure that the conditions under which an animal (other than fish, a reptile or an amphibian) is bred or kept, having regard to its species and degree of development, adaptation and domestication, and to its physiological and ethological needs in accordance with established experience and scientific knowledge, comply with Schedule 1.

Part 3

Welfare of laying hens

Application of Part 3

6. (1) This Part applies to premises where there are 350 or more laying hens.

(2) This part is without prejudice to the generality of Regulation 5.

General conditions for keeping laying hens

7. A person shall not have in his or her possession or under his or her control or cause or permit another person to have in his or her possession or under his or her control a laying hen unless the hen is kept and reared in conditions that comply with Schedule 2.

Free-range or barn systems

8. (1) Subject to paragraph (3), the owner or person in charge of a barn or free-range system used to keep laying hens shall not confine, or cause or permit another person to keep or confine a laying hen unless the premises is equipped—

(*a*) with either linear feeders providing at least 10 cm per hen or circular feeders providing at least 4 cm per hen,

(*b*) with either continuous drinking troughs providing at least 2.5 cm per hen or circular troughs providing at least 1 cm per hen,

(*c*) without prejudice to paragraph (4), with at least one nest for every seven hens, and

(*d*) with, subject to paragraph (5), adequate perches without sharp edges, mounted other than above litter, that provide space of at least 15 cm in length per hen.

(2) A person shall not provide or use nipple drinkers or cups in a barn or free-range system unless, without prejudice to paragraph (3), there is at least one nipple drinker or cup for every ten hens.

(3) A person shall not keep a laying hen in a barn or free- range system where drinking points are plumbed in to a water supply unless, at least two nipple drinkers or cups are within reach of each hen.

(4) A person shall not keep a laying hen in a barn or free- range system in group nests unless there is a minimum of 1 square metre of nest space available for every group of a maximum of 120 hens.

(5) A person shall not keep a laying hen in a barn or free-range system unless the horizontal distance between perches is at least 30 cm and the distance between a perch and a wall is at least 20 cm.

(6) A person shall not keep a laying hen in a barn or free- range system unless a littered area, that covers at least one third of the ground surface, of at least 250 square centimetres per hen is provided.

(7) A person shall not keep a laying hen in a barn or free-range system unless the floor is constructed in a manner that adequately supports each forward facing claw of the laying hen.

(8) A person shall not keep a laying hen in a barn or free- range system if-

(*a*) the laying hen has access to more than four different levels,

(*b*) the headroom between different levels is less than 45 centimetres,

(*c*) the hen does not have equal access to drinking and feeding facilities, or

(*d*) droppings from one level may fall on another level.

(9) A person shall not keep a laying hen in a barn or free- range system if the laying hens have access to open runs unless-

(*a*) there are several popholes, at least 35 centimetres high and 40 centimetres wide and extending along the whole length of the building, giving access to the outer area,

(*b*) a total opening of 2 metres is available for each group of 1,000 laying hens,

(*c*) open runs are of an area appropriate to the stocking density and nature of the ground in order to prevent contamination, and

(*d*) the stocking density does not exceed 9 laying hens per square metre usable area.

(10) A person shall, if laying hens have access to open runs, ensure that the runs are equipped—

(*a*) with appropriate shelter to protect the laying hens from predators and weather conditions, and

(*b*) where necessary, with appropriate drinking troughs.

Un-enriched cage systems

9. (1) Subject to paragraphs (2) and (3), the owner or person in charge of an un-enriched cage system shall not keep a laying hen in a cage unless-

(*a*) the cage has at least 550 unrestricted square centimetres of area (measured in a horizontal plane and not including non-waste deflection plates that may restrict the available area) available for each laying hen in the cage,

(*b*) a feed trough, to which each laying hen has unrestricted access, the length of which measures at least 10 centimetres multiplied by the number of laying hens in the cage, is present in the cage,

(*c*) subject to subparagraph (*d*), a drinking channel, to which each laying hen has unrestricted access, the length of which measures at least 10 centimetres multiplied by the number of laying hens in the cage, is present in the cage,

(*d*) where drinking points are plumbed in, at least two nipple drinkers or cups are within reach of the cage,

(*e*) the cage is at least 40 centimetres high over at least 65 per cent of its floor area and not less than 35 centimetres at any point,

(*f*) the floor of the cage is constructed in a manner that adequately supports each forward facing claw of each hen,

(*g*) the slope of the floor of the cage does not exceed 14 per cent or 8 degrees, and

(*h*) the cage is fitted with suitable claw-shortening devices.

(2) A person shall not keep or rear laying hens in an un-enriched cage system built, renovated or brought into service for the first time after 1 January 2003.

(3) A person shall not keep or rear laying hens in an un-enriched cage system after 1 January 2012.

Enriched cage systems

10. (1) The owner or person in charge of an enriched cage system shall not keep a laying hen in an enriched cage system unless-

(*a*) each cage has a total area of at least 2000 square centimetres,

(*b*) at least 750 square centimetres, of which a minimum of 600 square centimetres is usable area, is available for each laying hen in each cage,

(*c*) the height of each cage other than above the usable area is at least 20 centimetres at every point,

(*d*) there is a nest in each cage,

(*e*) adequate litter is available in each cage to permit pecking and scratching by each laying hen,

(*f*) appropriate perches, that measure, in length, at least 15 centimetres multiplied by the number of laying hens in each cage, are present in the cage,

(*g*) a feed trough, to which each laying hen has unrestricted access, that measures at least 12 centimetres multiplied by the number of laying hens in the cage, is present in each cage,

(*h*) subject to subparagraph (i), a drinking system, to which each laying hen has unrestricted access, appropriate to the number of laying hens is provided in each cage,

(*i*) if drinking points are plumbed in, at least two nipple drinkers or two cups are within reach of each laying hen,

(*j*) there is a minimum aisle width of at least 90 centimetres between tiers of cages,

(*k*) there is a minimum distance of 35 centimetres between the floor of the building and the bottom tier of cages, and

(*l*) each cage is fitted with suitable claw-shortening devices.

Register

11. (1) The Minister shall cause to be established and maintained a register ("the Register") of all persons owning, keeping, rearing or having under their control laying hens.

(2) A person shall not own or have in his or her charge or under his or her control a laying hen if he or she is not entered in the Register in relation to the premises where the laying hen is located.

(3) An application under this Regulation shall be in writing, be in a form and include any information that the Minister may require.

(4) The Minister shall not consider an application for registration if the application does not contain all information sought by the Minister.

(5) The Minister may enter a person's name and particulars on the register, attach conditions to registration, vary a condition, refuse an application or revoke a registration.

(6) Without prejudice to the generality of paragraph (5), the Minister may refuse to enter a person's name on the Register, or may revoke registration if—

(*a*) the application does not comply with this Regulation,

(*b*) in the opinion of the Minister, the application contains a statement that is false or misleading in a material respect,

(*c*) the premises to which the application or registration relates does not comply, in the opinion of the Minister, with these Regulations,

(*d*) the person is, in the opinion of the Minister, not a fit person to keep laying hens,

(*e*) he or she is satisfied that these Regulations have not been or will not be complied with,

(*f*) the applicant or registered person has committed an offence, whether he or she has been convicted or not, under any enactment relating to animals, animal health, animal welfare or public health,

(*g*) the applicant or registered person has failed to comply with a condition of registration,

(*h*) a registered person has ceased to keep or rear laying hens at the premises to which registration relates,

(i) a person is disqualified by a Court of competent jurisdiction under any enactment from keeping, dealing in or having charge or control of, directly or indirectly, laying hens, or

(*j*) it is necessary, in the opinion of the Minister—

(i) to prevent the risk or spread of disease,

(ii) to eradicate disease, or

(iii) is necessary, incidental, supplementary or consequential for the purposes of giving effect to an act of the institutions of the European Union.

(7) Without prejudice to the generality of paragraph (5), the Minister shall refuse an application or revoke registration in accordance with paragraph (10) if the applicant or registered person has been convicted, on indictment, of an offence relating to an animal, animal health, animal welfare or public health.

(8) Other than in the case of refusal or revocation under paragraph (7) or (9), if the Minister proposes to revoke a registration, or to refuse an application, he or she shall—

(*a*) notify applicant or registered person in writing of the proposal and of the reasons for the proposal, and that he or she may make representations to the Minister in relation to the proposal within 14 days of the notification,

(*b*) consider a representation made before deciding whether to proceed with, modify or annul the proposal, and

(*c*) notify the applicant or registered person of the decision and the reasons for the decision.

(9) If the Minister is of the opinion that it is necessary to prevent the risk of disease or to give effect to an act of an institution of the European Union, he or she may refuse an application or revoke a registration in accordance with paragraph (10).

(10) If the Minister refuses an application or revokes a registration in accordance with this paragraph, he or she shall—

(*a*) notify the applicant or registered person in writing of the decision and the reasons for the decision, and that he or she may make representations to the Minister in relation to the decision within 14 days of the date of the notification,

(*b*) consider a representation made, and

(*c*) confirm, modify or annul the decision and notify the applicant or registered person of the decision and the reasons for the decision.

(11) A person to whom a registration is granted shall make such returns to the Minister as and when, and in a form that, the Minister may direct.

(12) A person to whom registration is granted ceases to be registered upon he or she informing the Minister, in writing that he or she has ceased to keep laying hens.

(13) The Minister may establish and maintain the register in a form that is not legible if it is capable of being converted into a legible form.

(14) If a person entered in the Register dies the Minister shall, without prejudice to paragraph (7), on the application of the personal representative of such person enter in the Register the name of the personal representative in place of that person.

(15) A person who, on the coming into operation of this Regulation, is registered under Regulation 10 of the Regulations revoked by Regulation 42 (1)(*a*) is considered to be registered under this Regulation and may be dealt with as if registered under this Regulation.

(16) On the coming into operation of these Regulations, an application for registration under Regulation 10 of the Regulations revoked by Regulation 42(1)(*a*) is considered to be an application for registration under this Regulation and shall be determined in accordance with this Regulation.

Part 4

Welfare of chickens kept for meat production

Application of Part 4

12. (1) This Part applies to premises where there are 500 or more chickens kept for meat production but does not apply to premises—

(*a*) with breeding stock only,

(*b*) used solely as a hatchery,

(*c*) used solely in connection with extensive indoor and free range chickens, or

(*d*) organically reared chickens.

(2) This part is without prejudice to the generality of Regulation 5.

General conditions for keeping chickens meant for meat production

13. A person shall not have in his or her possession or under his or her control or cause or permit another person to have in his or her possession or under his or her control a chicken meant for meat production—

(*a*) unless the chicken is kept and reared in conditions that comply with Part 1 of Schedule 3, and

(*b*) the stocking density on a premises or on an individual building on a premises—

(i) does not exceed 33 kilogrammes per square metre,

(ii) in the case of a premises that conforms to Parts 1 and 2 of Schedule 3, does not exceed 39 kilogrammes per square metre, or

(iii) in the case of a premises that conforms to Parts 1, 2 and 3 of Schedule 3, does not exceed 42 kilogrammes per square metre.

Training

14. (1) The Minister may approve appropriate training courses for the purpose of ensuring that a person has adequate training in the proper husbandry of chickens kept for meat production and, in particular, the matters listed in Part 4 of Schedule 3

(2) A person providing a course shall furnish—

(*a*) a person who has successfully completed a training course with a certificate ("certificate in chicken welfare"), and

(*b*) the Minister with the names and addresses of persons who have successfully completed the course.

(3) Notwithstanding paragraph (2)(*a*), the Minister may require a person to undergo additional training, if the Minister considers it necessary.

(4) A person shall not purport to act as the owner or keeper of chickens kept for meat production unless he or she has been issued with a certificate in chicken welfare.

(5) The owner or keeper of chickens kept for meat production shall provide, to persons engaged in rearing, handling or transport of the chickens, adequate training regarding the welfare of the chickens, and record the details of that training.

(6) Paragraph (4) does not apply to a person who, immediately before the making of these Regulations, was the keeper or owner of chickens kept for meat

production for a period of not less than five years (the proof of which rests with him or her).

Part 5

Welfare of calves and pigs

Application of Part 5

15. (1) This Part applies to—

(*a*) calves confined for rearing or fattening, and

(*b*) pigs confined for breeding, rearing or fattening.

(2) Regulations 19(1), (2), (3) and (4) and 20 apply to-

(*a*) a premises built, rebuilt or used, for the first time for breeding, rearing or fattening pigs from 1 January 2003, and

(*b*) all premises used for breeding, rearing or fattening pigs from 1 January 2013.

(3) This part is without prejudice to the generality of Regulation 5.

Accommodation for calves and pigs

16. (1) A person shall not have in his or her possession or under his or her control or cause or permit another person to have in his or her possession or under his or her control a calf or pig unless the conditions for keeping, rearing and fattening the calf or pig, as the case may be, comply with Part 1 of Schedule 4.

(2) A person shall not have in his or her possession or under his or her control or cause or permit another person to have in his or her possession or under his or her control a calf unless the conditions for keeping, rearing and fattening the calf comply with Part 2 of Schedule 4.

(3) A person shall not have in his or her possession or under his or her control or cause or permit another person to have in his or her possession or under his or her control a pig unless the conditions for keeping, rearing and fattening the pig comply with Part 3 of Schedule 4.

Accommodation for calves

17. (1) Subject to paragraph (3), the owner or person in charge of a premises built, rebuilt or brought into use on or after 1 January 1998 and used for rearing or fattening calves shall not confine, or cause or permit another person to confine a calf-

(*a*) over eight weeks of age in an individual pen unless a registered veterinary practitioner certifies that the health or behaviour of the calf requires that it be isolated to receive treatment,

(*b*) unless the pen in which the calf is confined is of a width at least equal to the height of the calf at the withers and of a length at least 10% greater than the body length of the calf, measured from the tip of the nose to the caudal end of the pin bone (tuber ischia).

(2) A person shall not keep, or cause or permit another person to keep, a calf in an individual pen with solid walls but a pen shall have perforated walls that ensure that a calf confined therein has direct visual and tactile contact with other calves unless the person is in possession of a certificate from a registered veterinary practitioner that states that the calf, due to health or behaviour, requires to be individually isolated to receive treatment.

(3) A person shall not keep calves in a group, or cause or permit another person to keep calves in a group, unless the unobstructed space available for each calf is at least equal to—

(*a*) 1.5 square metres for each calf with a live weight of less than 150 kilogrammes,

(*b*) 1.7 square metres for each calf with a live weight of 150 kilogrammes or more but less than 220 kilogrammes, and

(*c*) 1.8 square metres for each calf with a live weight of 220 kilogrammes or over.

(4) A person shall not use, or cause or permit another person to use, premises built, rebuilt or brought into operation before 1 January 1998 for rearing or fattening calves unless the premises complies with paragraphs (1), (2) and (3).

(5) This Regulation does not apply to—

(*a*) a calf kept with its mother for suckling, or

(*b*) a premises with fewer than six calves.

Accommodation for pigs

18. (1) The owner or person in charge of a premises used for breeding, rearing or fattening pigs shall not confine, or cause or permit another person to confine, a pig unless the floor area available to each weaner or rearing pig (other than sows and gilts after service) reared in a group is at least—

(*a*) 0.15 square metres for each pig of an average weight of 10 kilogrammes or less

(*b*) 0.20 square metres for each pig of an average weight of between 10 kilogrammes and less than or equal to 20 kilogrammes,

(*c*) 0.30 square metres for each pig of an average weight of greater than 20 kilogrammes and less than or equal to 30 kilogrammes,

(*d*) 0.40 square metres for each pig of an average weight of greater than 30 kilogrammes and less than or equal to 50 kilogrammes,

(*e*) 0.55 square metres for each pig of an average weight of greater than 50 kilogrammes and less than or equal to 85 kilogrammes,

(*f*) 0.65 square metres for each pig of an average weight of greater than 85 kilogrammes and less than or equal to 110 kilogrammes,

(*g*) 1.00 square metre for each pig of an average weight of greater than 110 kilogrammes.

(2) A person shall not keep a pig or cause or permit another person to keep a pig in a building or part of a building if there are continuous noise levels, equal to or greater than 85dBA in the building or part thereof where pigs are kept.

(3) A person shall not keep a pig, or cause or permit another person to keep a pig unless the pig is kept where there is a light intensity of 40 lux or more for a continuous period of at least 8 hours in any 24 hour period.

Accommodation for sows and for gilts after service

19. (1) Subject to paragraphs (2) and (3), the owner or person in charge of a premises used for breeding, rearing or fattening pigs shall not confine, or cause or permit another person to confine, either a sow or a gilt after service unless the floor area available to each sow or gilt after service reared in a group is at least—

(*a*) a minimum of 2.50 square metres for each sow in a group of sows or gilts if there are fewer than 6 pigs in the group,

(*b*) a minimum of 2.25 square metres for each sow in a group of sows or gilts if there are more than 5 but fewer than 40 pigs in the group,

(*c*) a minimum of 2.025 square metres for each sow in a group of sows or gilts if there are 40 or more pigs in the group,

(*d*) a minimum of 1.81 square metres for each gilt after service if there are fewer than 6 pigs in the group,

(*e*) a minimum of 1.64 square metres for each gilt after service if there are more than 5 but fewer than 40 pigs in the group, or

(*f*) a minimum of 1.48 square metres for each gilt after service if there are 40 pigs or more in the group.

(2) A minimum floor area of at least—

(*a*) 1.3 square metres for each pregnant sow, or

(*b*) 0.95 square metres for each gilt after service,

shall comprise a continuous solid floor and no more than 15% of the floor area referred to in this paragraph shall consist of openings designed for drainage.

(3) Subject to paragraph (4), the owner or person in charge of a premises used for breeding, rearing or fattening pigs shall not confine, or cause or permit another person to confine, either a sow or a gilt in the period commencing 28 days after service and ending 7 days before the expected date of farrowing other than in—

(*a*) a group in a pen the sides of which are greater than 2.8 metres in length, or

(*b*) a group in a pen the sides of which are greater than 2.4 metres in length if there are no more than five sows or gilts in the group.

(4) A person may keep a sow or gilt to which paragraph (3) refers in an individual pen during the period mentioned in that paragraph if—

(*a*) there are no more than 9 sows on the premises, and

(*b*) the sow or gilt may turn easily in the pen

(5) A person shall not tether or cause or permit another person to tether a sow or gilt.

(6) A person shall not have in his or her possession or under his or her control a sow or gilt that has been tethered in contravention of paragraph (5).

Use of concrete slatted floors

20. The owner or person in charge of a premises used for breeding, rearing or fattening pigs shall not keep, or cause or permit another person to keep, a pig on a concrete slatted floor unless—

(*a*) the maximum width of each opening is no more than—

(i) 11 millimetres in any floor where a piglet is kept,

(ii) 14 millimetres in any floor where a weaner is kept,

(iii) 18 millimetres in any floor where a rearing pig is kept, or

(iv) 20 millimetres in any floor where either a sow or a gilt after service is kept,

and

(*b*) the minimum width of each slat is at least-

(i) 50 millimetres in any floor where a piglet or weaner is kept, or

(ii) 80 millimetres in any floor where a rearing pig, a sow or a gilt after service is kept.

Restrictions on certain procedures

21. (1) Subject to paragraph (2), a person shall not carry out or cause or permit another person to carry out a procedure (other than for therapeutic or diagnostic purposes) on a pig that is likely to result in damage to, or loss of a sensitive part of the body or the alteration of the bone structure of, a pig other than—

(*a*) non-routine, uniform reduction of corner teeth of piglets, by grinding or clipping, no later than 7 days after birth, leaving an intact smooth surface where injury has occurred to a sow's teats or to the tails or ears of another pig,

(*b*) reduction in length of boars tusks where necessary to prevent injury to other animals or for safety reasons,

(*c*) non-routine docking of part of the tail where injury has occurred to the tail or ear of a pig,

(*d*) castration of male pigs by means that do not involve tearing tissue, or

(*e*) nose ringing when the pig is kept in an outdoor husbandry system.

(2) (*a*) Subject to paragraph (3), a procedure outlined in paragraph (1) may only be carried out under hygienic conditions by a registered veterinary practitioner or a person who has competence relating to, and experience of, the procedure.

(*b*) A person shall only carry out a procedure specified in paragraph (1) (*a*) or (*c*) if the environment, stocking density or the management system in which a pig is reared would not, in the opinion of a registered veterinary practitioner who is familiar with the premises, and has been consulted in a professional capacity regarding the necessity of carrying out the procedure, facilitate injury to the pig.

(3) A person, other than a registered veterinary practitioner, shall not castrate or dock the tail of a pig older than 7 days.

(4) A registered veterinary practitioner shall not castrate or dock the tail of a pig older than 7 days unless the pig is under anaesthetic and additional prolonged analgesia administered by that registered veterinary practitioner.

Import of calves or pigs

22. A person shall not import—

(*a*) a calf, or

(*b*) a pig,

from a country that is not a member state of the European Union unless the calf or pig is accompanied by a certificate, issued by a competent authority in

that country, certifying that the animal has received treatment at least equal to the treatment provided for in these Regulations.

Part 6

Slaughter of animals

Slaughter of an animal

23. (1) A person shall take all necessary care during movement, lairaging, restraint, stunning, slaughter or killing of an animal to ensure that the animal is spared avoidable excitement, pain or suffering.

(2) This part is without prejudice to the generality of Regulation 5.

General requirements for slaughterhouses

24. (1) Subject to paragraph (2), the owner or person in charge of a slaughterhouse shall ensure that-

(*a*) the construction, facilities and equipment of the slaughterhouse, and its operation, are such as to spare an animal any avoidable excitement, pain or suffering, and

(*b*) a soliped, ruminant, pig, rabbit or poultry brought into the slaughterhouse is—

(i) moved and if necessary lairaged in accordance with Part 1 of Schedule 5,

(ii) restrained in accordance with Part 2 of Schedule 5,

(iii) stunned before slaughter or killed instantaneously in accordance with Part 3 of Schedule 5,

(iv) bled in accordance with Part 4 of Schedule 5.

(2) Subparagraph (1)(*b*)(iii) does not apply in the case of an animal subject to particular methods of slaughter required by certain religious rites, if the religious authority on whose behalf slaughter is carried out is competent to apply and monitor the special provisions which apply to slaughter according to the religious rites of that religion.

(3) A religious authority to which paragraph (2) applies shall operate under the responsibility of a registered veterinary practitioner.

Other requirements for slaughterhouses

25. (1) The owner or person in charge of a slaughterhouse or a person engaged in the slaughter of an animal shall ensure that-

(*a*) instruments, restraint and other equipment and installations used for stunning or killing are designed, constructed, maintained and used in such a way as to achieve rapid and effective stunning or killing,

(*b*) suitable spare equipment and instruments are kept at the place of slaughter for emergency use and that spare equipment and instruments are properly maintained and are inspected at least once a month,

(*c*) subject to paragraph (2), a person shall not move, lair, restrain, stun, slaughter or kill an animal unless that person has the knowledge and skill necessary to perform the tasks humanely and efficiently, and

(*d*) a person carrying out the slaughter of an animal takes all necessary care to ensure that the animal is rendered unconscious, killed or slaughtered in a manner or by a means that does not cause unnecessary, avoidable or excessive pain or suffering to the animal.

(2) If an authorised officer is of the opinion that a person employed for slaughtering or killing an animal does not possess the necessary skill, ability and professional knowledge, the owner or the person in charge of the slaughterhouse or other premises shall, in accordance with the directions of the authorised officer and subject to any time limits that he or she may specify, arrange a staff training programme enabling such person to obtain the required training in order to satisfy the standards appropriate to that type of employment.

(3) A person shall comply with a direction under paragraph (2).

Requirements for slaughter or killing other than at a slaughterhouse

26. A person shall not kill or slaughter or cause or permit another person to kill or slaughter a soliped, ruminant, pig, rabbit or poultry, which is to be killed or slaughtered other than at a slaughterhouse unless Regulation 24(1)(*b*)(ii), (iii) and (iv) are complied with.

Disease control, fur animal, surplus chicks

27. (1) A person shall not slaughter or kill or permit a person to slaughter or kill a soliped, ruminant, pig, rabbit or poultry, if it is to be slaughtered or killed for the purpose of disease control, other than in accordance with Part 5 of Schedule 5.

(2) A person shall not slaughter or kill or permit a person to slaughter or kill an animal farmed for its fur other than in accordance with Part 6 of Schedule 5.

(3) A person shall not slaughter or kill or permit a person to slaughter or kill surplus day-old chicks, and embryos in hatchery waste unless they are killed as rapidly as possible in accordance with Part 7 of Schedule 5.

Emergency and humane killing and slaughtering

28. (1) Regulations 25 and 26 do not apply in the case of an animal which has to be killed immediately for emergency reasons.

(2) Subject to paragraph (3), the owner or person in charge of a seriously injured or diseased animal shall ensure that it is slaughtered or killed immediately to avoid unnecessary suffering, unless a registered veterinary practitioner

considers, after examining the animal, that it is not necessary to slaughter or kill the animal.

(3) A registered veterinary practitioner may authorise the transport of an injured or diseased animal for the purpose of slaughter or killing provided the practitioner is of the opinion that transport does not entail further unnecessary suffering for the animal.

Import of meat

29. A person shall not import meat obtained from a soliped, ruminant, pig, rabbit or poultry from a third country unless it is accompanied by a veterinary certificate certifying that the animal had been slaughtered or killed under conditions which offer guarantees of humane treatment at least equivalent to that granted to an animal of European Union origin.

Part 7

Authorised officers

Appointment of authorised officer

30. (1) The Minister may, by instrument in writing, appoint such and so many persons as he or she thinks fit to be authorised officers for the purposes of some or all of these Regulations as may be specified in the instrument.

(2) The manager of a local authority may by instrument in writing, appoint such and so many persons as he or she thinks fit to be authorised officers for the purposes of Part 6 of these Regulations.

(3) The Minister or manager of a local authority may terminate the appointment of an authorised officer appointed by him or her, whether or not the appointment was for a fixed period.

(4) An appointment as an authorised officer ceases-

(*a*) if it is terminated pursuant to paragraph (3),

(*b*) if it is for a fixed period, on the expiry of that period, or

(*c*) if the person appointed is an officer of the Minister or a local authority, upon the person ceasing to be such an officer.

(5) Nothing in paragraph (4) is to be construed so as to prevent the Minister or manager of a local authority from reappointing as an authorised officer a person to whom that paragraph relates.

(6) An officer of the Minister or of a local authority shall furnish an authorised officer appointed under this Regulation with a warrant of his or her appointment as an authorised officer and, when exercising a power conferred on him or her, the officer, an officer of Customs and Excise or a member of the Garda Síochána shall, if requested by a person affected, produce the warrant or evidence that he or she is such an officer or member to the person.

Functions of authorised officer

31. (1) If an authorised officer has reasonable cause to suspect that—

(*a*) an animal is present, has been present or may be present on a premises,

(*b*) an animal is or has been killed, slaughtered, processed, stored or otherwise dealt with on a premises, or

(*c*) a document relating to an animal is present, was present or may be present on a premises,

the authorised officer may enter the premises and he or she may—

(i) search the premises,

(ii) stop a person, vehicle, vessel or container,

(iii) board and search a vehicle, vessel or container,

(iv) examine an animal, vehicle, vessel, container or other thing that may be used in connection with an animal,

(v) take, without payment, samples from an animal, feed or other thing or an article, substance or liquid as he or she may reasonably require and carry out or cause to be carried out on a sample such tests, analyses, examinations or inspections as he or she considers necessary or expedient,

(vi) require the production of a document or thing relating to an animal, feed, vehicle, vessel, container or other thing,

(vii) retain a document or thing (for so long as is necessary),

(viii) give a direction to, or request information of, a person regarding an animal, feed, vessel, vehicle, container, premises or other thing as he or she considers necessary,

(ix) require the name and address of a person and the name and address of any other relevant person including the person to whom an animal or feed, is being delivered or who is causing it to be delivered,

(x) require of a person the ownership, identity and origin of the animal or feed,

(xi) make a record whether in writing, by photography or otherwise, or

(xii) mark or otherwise identify an animal, feed, or a sample taken under subparagraph (v).

(2) If an authorised officer has reasonable cause to suspect that-

(*a*) an offence is being or has been committed under these Regulations,

(*b*) a contravention of an act of the institutions of the European Union relating to animal welfare is being or has been committed, or

(*c*) evidence of an offence or contravention may be, is or has been on a premises-

the authorised officer may, in addition to the powers exercisable by him or her under subsection (1)—

(i) search a person, where the authorised officer considers it necessary,

(ii) seize and detain, an animal, carcass, animal product, animal by-product, animal feed, food, vessel, vehicle, container, equipment, machinery or other thing, or

(iii) dispose of, or require the owner or person in charge of or in possession of an animal, carcass, animal product, animal by-product, animal feed, food or other thing to deal with or dispose of it (or any equipment, machinery, plant or other thing used in connection with, or that may have been in contact with, the animal, carcass, animal product, animal by-product, animal feed or food) in a manner that the authorised officer sees fit.

(3) An authorised officer shall not enter, except with the consent of the occupier, a private dwelling, unless he or she has obtained a search warrant under Regulation 32 other than if he or she has reasonable cause to suspect that before a search warrant could be sought in relation to the dwelling anything to which either paragraph (1) or (2) relates is being or is likely to be destroyed or disposed of.

(4) An authorised officer may use reasonable force, if necessary, in exercise of his or her powers under this Regulation.

(5) An authorised officer, when exercising a power under this Regulation may be accompanied by other persons and may take with him or her, or those persons may take with them, any equipment or materials to assist the officer in the exercise of the power.

(6) An authorised officer is not liable in any proceedings for anything done in the purported exercise of his or her powers under these Regulations if the court is satisfied that the act was done in good faith and that there were reasonable grounds for doing it.

(7) Without prejudice to the generality of paragraph (1), a direction or requirement of an authorised officer may include conditions prohibiting,

restricting or otherwise controlling the use, processing or movement of an animal as may be specified by the authorised officer.

(8) Nothing in this Regulation operates to prejudice any power to search, or to seize or detain property, which may, apart from these Regulations, be exercised by a member of the Garda Síochána or an officer of Customs and Excise.

(9) If a member of the Garda Síochána has reasonable grounds to suspect that a person has committed an offence under these Regulations, the member may without warrant arrest the person.

Search warrant

32. (1) If a judge of the District Court is satisfied by information on oath of an authorised officer that there are reasonable grounds for suspecting-

(*a*) that evidence of, or relating to, the commission or intended commission of an offence under these Regulations is to be found on a premises,

(*b*) there is or was an animal, feed, equipment or other thing made, used or adapted for use (including manufacture and transport) in connection with an animal or feed, on a premises,

(*c*) a document or other record related to a thing to which subparagraph (*a*) or (*b*) refers is or may be on the premises,

the judge may issue a search warrant.

(2) A search warrant under this Regulation shall be expressed and operate to authorise a named authorised officer, accompanied by such authorised officers or other persons as the named authorised officer thinks necessary, at any time, within one month from the date of issue of the warrant, on production if so requested of the warrant, to enter (if necessary by use of reasonable force) the premises, vehicle, vessel or aircraft named in the warrant.

(3) If a premises is entered pursuant to a warrant issued under this Regulation, an authorised officer so entering may exercise all or any of the powers conferred on an authorised officer under these Regulations.

Part 8

Welfare notice and emergency measures

Welfare Notice

33. (1) If an authorised officer is of the opinion that—

(*a*) an animal is being caused unnecessary pain, suffering or injury,

(*b*) an animal is at risk of being caused unnecessary pain, suffering or injury,

(*c*) there is a serious risk to the welfare of an animal, herd or flock or

(*d*) the conditions under which an animal, herd or flock is being bred or kept contravene these Regulations,

he or she may serve or cause to be served on the owner or keeper of the animal, herd or flock a notice ("welfare notice") stating that opinion and directing that—

(i) an ill or injured animal be cared for in an appropriate manner,

(ii) veterinary or other specialist advice be obtained in respect of an ill or injured animal,

(iii) an animal be supplied with feed appropriate to its age and species and in such quantity as will maintain it in good health,

(iv) an animal be given access to such a supply of suitable liquid as will enable it to fulfil its fluid intake needs,

(v) one or more animals be moved to and kept in such place as the officer specifies in the notice,

(vi) one or more animals be sold, destroyed or otherwise disposed of in such manner and at such place (if any) as the officer may specify in the notice,

(vii) such alterations or additions be made to the premises, land or place at which the animal is kept, or to the equipment and facilities found there, as the officer may specify in the notice,

(viii) such alterations be made to the manner in which the animal is kept as the officer may specify in the notice, or

(ix) such other measures be taken as are necessary to ensure that the animal is kept in a manner that complies with these Regulations.

(2) A welfare notice may specify one or more requirements or refer to one or more animals or species of animal.

(3) A requirement contained in a welfare notice may specify a time limit within which it is to be complied with.

(4) A welfare notice may require the owner or keeper of the animal to choose between two or more of the requirements specified in the welfare notice.

(5) A requirement specified in a welfare notice (in this Regulation referred to as "the earlier welfare notice") may be modified or withdrawn in a further welfare notice and in that event the earlier welfare notice shall have effect subject to such modification or withdrawal.

(6) A person, including a person upon whom a welfare notice is served, shall not deal with an animal to which the welfare notice relates other than in accordance with the terms of the welfare notice.

(7) In the event of an appeal made pursuant to Regulation 35 a person, including the person appealing, shall not deal with an animal to which a welfare notice relates pending the determination of the appeal other than in accordance with such directions as shall be given in writing to the appellant by an authorised officer.

(8) If the terms of a welfare notice are confirmed with or without modification by the judge of the District Court hearing an appeal under Regulation 35, a person including the person who made the appeal shall not deal with an animal to which the welfare notice relates other than in accordance with the welfare notice as confirmed.

(9) Any costs pertaining to action required to comply with a welfare notice will be borne by the owner of the animal to which the welfare notice relates.

Service of Welfare Notice

34. (1) A welfare notice shall, subject to paragraph (2), be addressed to the person concerned by name and may be served on a person—

(*a*) by giving it to the person,

(*b*) by leaving it at the address at which the person ordinarily resides or, where an address for service has been furnished, at that address,

(*c*) by sending it by post in a prepaid registered letter to the address at which the person ordinarily resides or, where an address for service has been furnished, at that address, or

(*d*) if the address at which the person ordinarily resides cannot be ascertained by reasonable enquiry and the compliance notice relates to a premises, by delivering it to the premises or by affixing it in a conspicuous position on or near the premises.

(2) If a welfare notice is to be served on a person who is the owner or keeper of an animal and the name of the person cannot be ascertained by reasonable enquiry, it may be addressed to that person by using the words "the owner" or "the keeper".

(3) A person shall not, at any time within 6 months after a welfare notice is affixed under paragraph (1)(*d*), remove, damage or deface the notification or compliance notice without lawful authority.

(4) For the purposes of this Regulation, a company within the meaning of the Companies Acts is considered to be ordinarily resident at its registered office and every other body corporate or unincorporated body is considered to be ordinarily resident at its principal office or place of business.

Appeal against welfare notice

35. (1) A person may appeal within 7 days of the service of a welfare notice to the judge of the District Court having jurisdiction in the District Court District where the animal to which the welfare notice relates is situated or to the

judge of the District Court where the person bringing the appeal ordinarily resides or carries on business on the grounds that the notice or any terms thereof are not justified having regard to these Regulations and the objectives of the Calves Directive, Chicken Welfare Directive, General Welfare Directive, Laying Hens Directive or Pigs Directive (hereafter referred to as "an appeal").

(2) An appeal may be heard at any sitting of the District Court within the appropriate District Court District.

(3) Notice of an appeal shall be served on the Minister at least 2 days prior to the hearing of the appeal by serving it on the Minister or by leaving it at the place and in the manner specified in the welfare notice.

(4) A notice of appeal shall contain a statement of the grounds upon which it is alleged that the notice or any of the terms thereof are not justified.

(5) A copy of the notice of appeal shall be lodged with the District Court Clerk in the manner specified in the welfare notice (if any) at least 2 days prior to the hearing of the appeal.

(6) On the hearing of an appeal under this Regulation a judge of the District Court may confirm, modify or annul a welfare notice.

Power to seize and dispose of an animal

36. (1) Without prejudice to Regulation 31 or 33, if—

(*a*) the owner or keeper of an animal fails to comply with the terms of a welfare notice within the time limit specified therein,

(*b*) an authorised officer has reasonable grounds for believing that the terms of a welfare notice will not be complied with,

(*c*) a welfare notice has been confirmed with or without modification under Regulation 35 and the notice has not been complied with,

(*d*) an authorised officer has reasonable grounds for believing that the terms of a welfare notice which has been confirmed with or without modification under Regulation 35 will not be complied with, or

(*e*) pending the determination of an appeal made under Regulation 35, an authorised officer has reasonable grounds for believing that—

(i) a welfare notice, or

(ii) a direction given pursuant to Regulation 31,

has not been or will not be complied with, an authorised officer may at any time seize the animal at such premises as he or she thinks fit.

(2) An authorised officer may sell or dispose of a seized animal or cause it to be sold or be otherwise disposed of or destroyed in such manner and at such

place as the authorised officer considers appropriate in the circumstances of the case.

(3) Any profits arising out of the sale or disposal of an animal under this Regulation shall be paid to the owner of the animal less any expenses incurred in connection with seizure, maintenance, sale, disposal or destruction of the animal.

(4) The costs (including ancillary costs) of seizure, maintenance, sale, disposal or destruction of an animal under Regulation 31, this Regulation or Regulation 37 are, subject to paragraph (3), recoverable-

(*a*) by deducting the costs from any sum that is or becomes payable by the Minister to the owner of the animal, or

(*b*) as a simple contract debt in any court of competent jurisdiction from the person who was the owner of the animal at the time of seizure, sale, disposal or destruction took place.

Emergency measures

37. Notwithstanding Regulation 33(1), if an authorised officer who is a veterinary practitioner is of the opinion that an animal-

(*a*) is suffering a degree of pain, suffering or injury, or

(*b*) is seriously at risk of being subject to a degree of pain, suffering or injury,

and that measures should be taken immediately to relieve its pain or suffering or risk of pain or suffering, he or she may seize, sell, dispose of or destroy or may arrange for the sale, disposal or destruction of the animal.

Part 9

Final provisions

Obstruction, etc

38. A person shall not—

(*a*) obstruct or impede an authorised officer in the exercise of his or her functions under these Regulations,

(*b*) fail, without reasonable cause, to comply with a requirement or direction of an authorised officer under Regulation 31,

(*c*) in purporting to give information to an authorised officer for the performance of the officer's functions under Regulation 31—

(i) make a statement that he or she knows to be false in a material particular or recklessly make a statement which is false in a material particular, or

(ii) fail to disclose a material particular,

(*d*) tamper or otherwise interfere with a sample taken under Regulation 31, or

(*e*) aid or abet a contravention of these Regulations.

Forgery

39. (1) A person shall not forge or utter knowing it to be forged a direction or requirement of an authorised officer under Regulation 31 (if the direction or requirement is in written form) or a welfare notice or a document purporting to be an extract therefrom (hereafter in this Regulation referred to as "a forged document").

(2) A person shall not alter with intent to defraud or deceive, or utter knowing it to be so altered a direction or requirement of an authorised officer under Regulation 31 (if the direction or requirement is in written form) or a welfare notice or an extract therefrom (hereafter in this Regulation referred to as "an altered document").

(3) A person shall not have, without lawful authority, in his or her possession or under his or her control a forged document or an altered document.

Evidence on certificate

40. (1) In proceedings for an offence consisting of a contravention of these Regulations, a certificate purporting to be signed by a person employed at a laboratory named in the certificate stating the capacity in which that person is so employed and stating any one or more of the following, namely—

(*a*) that the person received a sample submitted to the laboratory,

(*b*) that, for such period as is specified in the certificate, the person had in his or her custody a sample so submitted,

(*c*) that the person gave to such other person as is specified in the certificate a sample so submitted, or

(*d*) that the person carried out any laboratory examination and the result of that examination,

is, unless the contrary is proved, evidence of the matters stated in the certificate.

(2) A certificate purporting to be signed by an officer of the Minister and to certify that on a specific day or days or during the whole of a specified period-

(*a*) a particular person was registered in the register,

(*b*) the registration of a particular person had been revoked, or

(*c*) that a particular, registration was subject to a particular condition or conditions,

is, without proof of the signature of the person purporting to sign the certificate or that he or she is an officer of the Minister, evidence, unless the contrary is shown, of the matters stated in the certificate.

(3) In proceedings for an offence under these Regulations the court may, if it considers that the interests of justice so require, direct that oral evidence of the matters stated in a certificate under paragraph (1) or (2) be given, and the court may for the purpose of receiving oral evidence adjourn the matter.

(4) In proceedings for an offence, evidence of an act of the institutions of the European Community may be given by production of a copy of the act certified by an officer of the Minister to be a copy of the act, and it is not necessary to prove the signature of the officer or that he or she is an officer of the Minister.

(5) Paragraph (4) is in addition to and not in substitution for the European Communities (Judicial Notice and Documentary Evidence) Regulations 1972 (S.I. No. 341 of 1972).

Offences

41. (1) A person who—

(*a*) contravenes Regulation 5, 7, 8, 9, 10, 11 (2), (12), 13, 14(4), (5), 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 (1), (3), 26, 27, 28 (2), 29, 33 (6), (7), 34 (3), 38 or 39, or

(*b*) fails to comply with a direction or requirement of an authorised officer under Regulation 31 or the requirements of a welfare notice or a welfare notice confirmed with or without modification,

commits an offence and is liable—

(*i*) on conviction to a fine not exceeding €5,000 or to a term of imprisonment not exceeding 6 months or both, or

(*ii*) on conviction on indictment to a fine not exceeding €100,000 or to a term of imprisonment not exceeding 3 years or both.

(2) A summary offence under these Regulations may be prosecuted by—

(*a*) the Minister, or

(*b*) in respect of Part 6, the local authority in whose functional area the alleged offence occurs.

(3) If an offence under these Regulations is committed by a body corporate or by a person purporting to act on behalf of a body corporate or on behalf of an unincorporated body of persons and it is proved to have been so committed with the consent or connivance of or to be attributable to any wilful neglect on the part of any other person who, when the offence was committed, was, or purported to act as, a director, manager, secretary or other officer (including a member of any committee of management or other controlling authority) of the

body, such other person as well as the body, or the person so purporting to act on behalf of the body, commits an offence and is liable to be proceeded against and punished as if he or she were guilty of the first-mentioned offence.

(4) If the affairs of a body corporate are managed by its members, paragraph (3) applies in relation to the acts and defaults of a member in connection with the functions of management as if the member were a director or manager of the body corporate.

(5) In a prosecution for an offence under these Regulations, it is not a defence for the defendant to show that Regulation 6 applies to that person in respect of the premises to which the alleged offence relates if he or she is entered in the Register maintained under Regulation 11 unless he or she can show to the satisfaction of the Court that he or she has given notice in accordance with Regulation 11(13) and the Minister is put on notice of this defence no later than 10 days prior to the sitting of the Court where the case is heard.

Revocation and savers

42. (1) The following are revoked—

(*a*) the European Communities (Welfare of farmed animals) Regulations 2008 (S.I. No. 14 of 2008),

(*b*) the European Communities (Welfare of farmed animals) (Amendment) Regulations 2009 (S.I. No. 32 of 2009), and

(*c*) the European Communities (Welfare of farmed animals) (Amendment)(No. 2) Regulations 2009 (S.I. No. 71 of 2009).

(2) A welfare notice within the meaning of the Regulations revoked by paragraph (1) that is in force immediately before the making of these Regulations remains in force and shall be dealt with as if it were a welfare notice.

(3) An appeal under Regulations revoked by paragraph (1) shall be dealt with as if it were an appeal under Regulation 35 of these Regulations.

(4) These Regulations are in addition to and not in substitution for the Protection of animals kept for farming purposes Act 1984 (No. 13 of 1984).

(5) In case of conflict, these Regulations prevail over the Slaughter of Animals Act 1935.

Schedule 1

Regulation 5(2)

CONDITIONS UNDER WHICH AN ANIMAL SHOULD BE KEPT

Staffing.

1. An animal shall be cared for by a sufficient number of persons possessing the appropriate ability, knowledge and professional competence.

Inspection.

2. An animal kept in a husbandry system in which the welfare of the animal depends on frequent human attention shall be inspected at least once a day and an animal in another system shall be inspected at intervals sufficient to detect and allow for action to avoid any suffering.

3. Adequate lighting (fixed or portable) shall be available to enable an animal to be thoroughly inspected at any time.

4. An animal which appears to be ill or injured must be cared for appropriately without delay and, where the animal does not respond to such care, veterinary advice must be obtained as soon as possible. Where necessary, a sick or injured animal shall be isolated in suitable accommodation with, where appropriate, dry comfortable bedding.

Record keeping.

5. The owner or keeper of an animal shall maintain a record of any medicinal treatment given and of the number of mortalities found at each inspection. Equivalent information being kept for other purposes shall suffice.

6. These records shall be retained for a period of at least 3 years and shall be made available to an authorised officer when requested by him or her.

Freedom of movement.

7. The freedom of movement of an animal, having regard to its species and in accordance with established experience and scientific knowledge, must not be restricted in such a way as to cause it unnecessary suffering or injury. Where an animal is continuously or regularly tethered or confined, it must be given the space appropriate to its physiological and ethological needs in accordance with established experience and scientific knowledge.

Buildings and accommodation.

8. Materials to be used for the construction of accommodation, and in particular for the construction of pens and equipment with which an animal may come into contact, must not be harmful to the animal and must be capable of being thoroughly cleaned and disinfected.

9. Accommodation and fittings for securing an animal shall be constructed and maintained so that there are no sharp edges or protrusions likely to cause injury to the animal.

10. Air circulation, dust levels, temperature, relative air humidity and gas concentrations must be kept within limits which are not harmful to an animal.

11. An animal kept in buildings must not be kept either in permanent darkness or without an appropriate period of rest from artificial lighting. Where the natural light available is insufficient to meet the physiological and ethological needs of an animal appropriate artificial lighting must be provided.

Animals not kept in buildings.

12. An animal not kept in buildings shall where necessary and possible be given protection from adverse weather conditions, predators and risks to its health.

Automatic or mechanical equipment.

13. All automated or mechanical equipment essential for the health and well-being of an animal must be inspected at least once daily. If defects are discovered these must be rectified immediately or, if this is impossible, appropriate steps must be taken to safeguard the health and well-being of the animal. Where the health and well-being of an animal is dependent on an artificial ventilation system, provision must be made for an appropriate backup system to guarantee sufficient air renewal to preserve the health and well-being of the animal in the event of failure of the system and an alarm system must be provided to give warning of breakdown. The alarm system must be tested regularly.

Feed, water and other substances.

14. An animal must be fed a wholesome diet which is appropriate to its age and species and which is fed to the animal in sufficient quantity to maintain it in good health and satisfy its nutritional needs. No animal shall be provided with food or liquid in a manner, nor shall such food or liquid contain any substance, which may cause unnecessary suffering or injury.

15. An animal must have access to feed at intervals appropriate to its physiological needs.

16. An animal must have permanent access to a suitable water supply or be able to satisfy its fluid intake needs by other means.

17. Feeding and watering equipment must be designed, constructed and placed so that contamination of food and water and the harmful effects of competition between animals are minimised.

18. No animal remedy may be administered to an animal other than an animal remedy authorised under and administered in accordance with the European Communities (Animal Remedies) (No. 2) Regulations 2007 (S.I. No. 786 of

2007) and the European Communities (Control of Animal Remedies and their Residues) Regulations 2009 (S.I. No. 183 of 2009) and no other substance may be given to an animal unless it has been demonstrated by scientific studies of animal welfare or established experience that the effect of that substance is not detrimental to the health or welfare of the animal.

Breeding procedures.

19. Natural or artificial breeding or breeding procedures that cause or are likely to cause suffering or injury to an animal must not be practised. This provision does not preclude the use of certain procedures likely to cause minimal or momentary suffering or injury or which might necessitate interventions which would not cause lasting injury.

20. An animal shall not be kept for farming purposes unless it can reasonably be expected, on the basis of its genotype or phenotype, that it can be kept without detrimental effect on its health or welfare.

Schedule 2

Regulation 7.

Conditions under which laying hens should be kept

1. All laying hens shall be inspected by the owner or person in charge of the premises where they are located at least once each day.

2. The sound level shall be minimised and constant and sudden noises on a premises shall be avoided.

3. Ventilation fans, feeding machinery and other equipment shall be constructed, located, operated and maintained in a manner that causes the least possible noise.

4. Each building used to keep or rear laying hens shall have light levels that are sufficient to allow laying hens to see one another and be seen clearly, to investigate their surroundings visually and show normal levels of activity. Where there is natural light, light apertures shall be placed in a manner that light is distributed evenly within the accommodation.

After the first days of conditioning, lighting shall follow a 24 hour cycle, include an uninterrupted period of darkness of approximately eight hours so that the laying hens may rest and avoid problems such as immuno-depression and ocular anomalies and, otherwise, be such as to prevent health and behavioural problems. An adequate period of twilight, when the light is dimmed and which facilitates the laying hens setting down without disturbance or injury, shall be provided.

5. Without prejudice to paragraph 6, parts of buildings, equipment, machinery or other utensils that may come into contact with laying hens shall be thoroughly cleansed and disinfected at regular intervals.

6. On each occasion when depopulation is carried out, parts of buildings, equipment, machinery or other utensils that may come into contact with laying hens shall be thoroughly cleansed and disinfected prior to the introduction of a new batch of laying hens.

7. While cages are occupied, they shall be kept satisfactorily clean.

8. Droppings must be removed as often as necessary and dead laying hens must be removed when found or, at a minimum, once a day.

9. Each cage shall be constructed in a manner that prevents a laying hen from escaping.

10. Accommodation that comprises two or more tiers of cages must have devices (or other appropriate measures must be taken) to facilitate inspection of each tier and removal of laying hens without difficulty.

11. A cage door must be designed and be of such dimensions that an adult laying hen may be removed without unnecessary suffering or sustaining injury.

12. Mutilation of a laying hen is, without prejudice to point 19 of the Annex of the General Welfare Directive, prohibited.

13. Beak trimming may only be undertaken by trained and competent personnel and the beaks of laying hens over 9 days old shall not be trimmed.

Regulation 13(a)

Schedule 3

Part 1

Conditions applicable to premises where chickens are kept for meat production.

1. Drinkers

Drinkers shall be positioned and maintained in such a way that spillage is minimised

2. Feeding

Feed shall be either continuously available or meal fed and must not be withdrawn from chickens more than 12 hours before the expected slaughter time.

3. Litter

All chickens shall have permanent access to litter that is dry and easily crumbled on the surface.

4. Ventilation and heating

Ventilation shall be sufficient to avoid a chicken overheating and shall operate, where necessary, in combination with heating systems to remove excessive moisture.

5. Noise

The sound level shall be minimised. Ventilation fans, feeding machinery or other equipment shall be constructed, placed, operated and maintained in such a way that they cause the least possible amount of noise.

6. Light

All buildings shall have lighting with an intensity of at least 20 lux during the lighting period, measured at birds-eye level and illuminating at least 80% of the usable area. A temporary reduction in lighting may be allowed when necessary following veterinary advice.

Within seven days of chickens being placed in a building until three days before the anticipated time of slaughter, lighting must follow a 24 hour rhythm and include periods of darkness lasting at least 6 hours, with one period of darkness of at least 4 hours, excluding dimming periods.

7. Inspection

All chickens kept for meat production must be inspected at least twice per day. Special attention must be paid to signs indicating a possible reduced level of welfare or health.

Chickens that are seriously injured or show evident signs of health disorder (such as those having difficulty in walking, abnormal accumulation of fluid or severe malformations), and are likely to suffer, shall receive appropriate treatment or be culled immediately.

A registered veterinary practitioner shall be contacted when necessary.

8. Cleaning

Those parts of a building, equipment, machinery or utensils in contact with chickens shall be thoroughly cleaned and disinfected every time final depopulation is carried out and before new birds are introduced into the building.

After final depopulation of a building, all litter must be removed and an adequate amount of clean litter that conforms to paragraph 3 provided.

9. Record keeping

The owner or keeper shall maintain an accurate record in respect of each building in which chickens are kept of—

(*a*) the number of chickens introduced,

(*b*) the useable area,

(*c*) the hybrid or breed of the chickens,

(*d*) the number of birds found dead after each inspection, with an indication of the cause of death, if known,

(*e*) the number of birds culled after each inspection with the reasons for culling, and

(*f*) the number of chickens remaining in the flock following the removal of chickens for sale or slaughter.

The records referred to in this paragraph shall be maintained for at least 3 years and be made available for inspection on request to an authorised officer.

10. Surgical intervention

All surgical interventions which result in damage to or loss of a sensitive part of the body or alteration of bone structure carried out for other than therapeutic reasons or diagnostic purposes are prohibited.

11. Castration

Castration of chickens shall only be carried out in accordance with the direction of a registered veterinary practitioner by persons trained in techniques of castration.

12. Beak trimming

Beak trimming may only be undertaken, after all other measures to prevent feather pecking and cannibalism have failed, by trained and competent personnel and the beaks of chickens over 9 days old shall not be trimmed.

Regulation 13 (b) (ii)

Part 2

REQUIREMENTS FOR HIGHER STOCKING DENSITIES

1. The owner or keeper shall inform the Minister, at least 15 days prior to the placement of a flock on the premises, of his or her intention to use a stocking density greater than 33 kilogrammes per square metre. The information shall state the exact stocking density proposed.

2. The owner or keeper shall maintain in each house to which a higher stocking density applies documentation describing in detail the production system and, in particular, it shall include technical detail relating to the building and equipment, including-

(*a*) an accurate plan of the building including dimensions of areas occupied by chickens,

(*b*) ventilation, and, if relevant, cooling and heating system, including their location, a ventilation plan detailing target air quality parameters, such as airflow, air speed and temperature,

(*c*) feeding and watering systems and their location,

(*d*) alarm systems and backup systems in the event of failure of any automated or mechanical equipment essential for the health and well being of the chickens, and

(*e*) floor type and litter normally used.

The information maintained under this paragraph shall be kept updated and made available on request to an authorised officer.

The owner or keeper shall inform the Minister of any changes in a building, equipment or procedures used for the purposes of this Part.

3. The owner or keeper shall ensure that each building on a holding used for the purposes of this Part is equipped with ventilation and, if necessary, heating and cooling systems designed, constructed and operated in such a way that-

(*a*) the concentration of ammonia (NH^3) does not exceed 20 parts per million and the concentration of carbon dioxide (CO^2) does not exceed 3,000 parts per million measured at the level of the chickens heads,

(*b*) the inside temperature, when the outside temperature measures in the shade exceeds 30 degrees centigrade, does not exceed the outside temperature by more than 3 degrees centigrade, and

(*c*) the average relative humidity measured inside the building during 48 hours does not exceed 70% when the outside temperature is below 10 degrees centigrade.

Part 3

Regulation 13 (b) (iii)

Criteria for further increasing stocking density

1. The monitoring of the premises by the Minister over the previous two year period did not show any deficiencies with respect to the requirements of Part 3 of these Regulations.

2. Regular monitoring by the owner or keeper is carried out using codes of practice prepared in accordance with Regulation 3.

3. In at least 7 consecutive, subsequently checked flocks from a house, the cumulative daily mortality rate is less than 1% + 0.6% x the slaughter age of the flock expressed in days.

4. If no monitoring was carried out in the previous two years, at least one inspection shall be carried out to verify compliance with paragraphs 1 to 3.

5. Despite paragraph 3, the Minister may permit an increase in stocking density if the owner or keeper provides sufficient explanation for the exceptional nature of a higher daily cumulative mortality rate or to show that the cumulative daily mortality rate is caused by factors beyond the owner's or keeper's control.

Regulation 14

Part 4

TRAINING

An approved training course shall cover, at least, Community legislation concerning the protection of chickens and, in particular-

(*a*) the matters referred to in this Schedule,

(*b*) physiology, in particular drinking and feeding needs, animal behaviour and the concept of stress,

(*c*) the practical aspects of the careful handling of chickens, catching loading and transporting chickens.

(*d*) Emergency care for chickens, emergency killing and culling, and

(*e*) Preventive biosecurity measures.

Regulation 16

Schedule 4

Part 1

CONDITIONS UNDER WHICH CALVES AND PIGS SHOULD BE KEPT

1. Materials used for the construction of accommodation and in particular boxes, stalls and equipment with which calves or pigs may come into contact shall not be harmful to the calves or pigs. Those parts of the accommodation with which an animal may come into contact shall be capable of being thoroughly cleansed and disinfected and shall be thoroughly cleansed and disinfected, using an approved disinfectant to prevent cross-infection and the build-up of disease-carrying organisms.

2. Electrical circuits and equipment shall be installed in accordance with the terms of the National Rules for Electrical Installations Second Edition 1991 (ET 101/1991) or any amendment, modification or replacement to those Rules.

3. Insulation, heating and ventilation of the building shall ensure that the air circulation, dust level, temperature, relative air humidity and gas concentrations are kept within limits which are not harmful to the calves or pigs.

4. All automated or mechanical equipment essential for the health and well-being of calves or pigs shall be inspected at least once daily. Where defects are discovered, these shall be rectified immediately or as soon as reasonable. In the

meantime, all appropriate steps shall be taken to safeguard the health and well-being of the calves or pigs until the defect has been rectified, notably by using alternative methods of feeding and maintaining a satisfactory environment.

Where an artificial ventilation system is used, provision shall be made for an appropriate back-up system to guarantee sufficient air renewal to preserve the health and well-being of the calves or pigs in the event of the failure of the system, and an alarm system, independent of the mains electricity supply, shall be provided to inform the owner or person in charge of the breakdown or fire.

The alarm system shall be tested at least once a month and maintained in proper working order.

5. Calves and pigs shall not be kept permanently in darkness. To meet their behavioural and physiological needs, the accommodation shall be well lit by natural or artificial light, for at least 8 continuous hours each day. Every source of artificial light shall be mounted so as not to cause discomfort to the calves or pigs.

An adequate source of light shall be available to enable the calves or pigs to be properly inspected at any time.

6. All housed calves reared in groups or in individual pens shall be inspected by the owner or the person in charge at least twice daily. Calves kept outside, and pigs shall be inspected at least once daily.

Any calf or pig that appears to be ill or injured shall be treated appropriately without delay and veterinary advice shall be obtained as soon as possible for any calf or pig that is not responding to the care of the owner or person in charge.

Where necessary, sick or injured calves and pigs shall be isolated in adequate accommodation with dry, comfortable bedding.

A calf or pig shall be able to turn around easily unless such movement is contrary to specific advice from a registered veterinary practitioner.

7. Where tethers are used, they shall not cause injury to the calves and shall be inspected regularly and adjusted as necessary to ensure a comfortable fit.

Each tether shall be designed to avoid the risk of strangulation or injury and to allow the calf to move in accordance with paragraph 1 Part 2.

8. Housing, pens, equipment and utensils for calves and pigs shall be properly cleansed and disinfected to prevent cross-infection and the build-up of disease-carrying organisms. Faeces, urine and uneaten or spilt food shall be removed and bedding changed as often as necessary to minimize smell and avoid attracting flies or rodents.

9. Floors shall be smooth but not slippery so as to prevent injury to the calves or pigs and so designed as not to cause injury or suffering to calves or pigs standing or lying on them. Floors shall be suitable for the size and weight of the

calves or pigs and form a rigid, even and stable surface. The lying area shall be comfortable, clean, and adequately drained and shall not adversely affect the calves or pigs. Appropriate bedding shall be provided for all calves less than 2 weeks old. If bedding is provided for pigs, it shall be clean, dry and not harmful to the pigs.

10. (*a*) Feeding and watering equipment for calves and pigs shall be designed, constructed, placed and maintained so that contamination of feed and water is minimized.

(*b*) Equipment and fittings shall be designed and maintained in such a way as to minimize, as far as is practicable, the exposure of the calves or pigs to spills of feed or water, or to faeces and urine.

11. Calves and pigs shall be cared for by a sufficient number of suitably experienced personnel.

Part 2

Specific Provisions for Calves.

1. Subject to Regulation 5, the accommodation for calves shall be constructed in such way as to allow each calf to lie down, rest, stand up and groom itself without difficulty. Each calf shall have a clean place in which to rest and shall, unless isolated for veterinary reasons, be able to see other calves.

2. Calves shall not be tethered, with the exception of group-housed calves which may be tethered for periods of not more than one hour at the time of feeding milk or milk substitute.

3. All calves shall be provided with an appropriate diet adapted to their age, weight and behavioural and physiological needs, to promote good health and welfare and for this purpose the food for calves shall contain sufficient iron to ensure an average blood haemoglobin level of at least 4.5 mmol/litre and a minimum daily ration of fibrous food shall be provided for each calf over 2 weeks old, the quantity being raised from 50g to 250g per day for calves from 8 to 20 weeks old.

4. All calves shall be fed at least twice a day. Where calves are housed in groups and not fed ad libitum or by an automatic feeding system, each calf shall have access to the food at the same time as the others in the group.

5. All calves over 2 weeks of age shall have access to a sufficient quantity of fresh water or be able to satisfy their fluid intake needs by drinking other liquids. However, in hot weather conditions or for calves that are ill, fresh drinking water shall be available at all times.

6. Each calf shall receive bovine colostrum as soon as possible after it is born and, in any case, within the first 6 hours of life.

Part 3

Specific Provisions for various Categories of Pigs

Chapter I

ALL PIGS

1. Subject to Regulation 18, accommodation for pigs shall be constructed in such way as to allow each pig lie down, rest, and stand up without difficulty. Each pig shall have a clean place in which to rest and shall, unless isolated for veterinary reasons, be able to see other pigs.

Each pig shall have access to a clean lying area that is physically and thermally comfortable, adequately drained and that is of sufficient area to allow each pig lie down at the same time.

2. If pigs are kept together, measures shall be taken to prevent fighting that goes beyond normal behaviour and to investigate the causes of fighting. If possible, measures, including provision of plentiful straw or other materials, shall be put in place. Pigs which show persistent aggression towards others or are victims of aggression shall be isolated or kept separate from the group.

3. All pigs shall be provided with an appropriate diet adapted to their age, weight and behavioural and physiological needs, to promote good health and welfare.

4. All pigs shall be fed at least once a day. Where pigs are housed in groups and not fed ad libitum or by an automatic feeding system, each pig shall have access to the food at the same time as the others in the group.

5. All pigs over 2 weeks of age shall have permanent access to a sufficient quantity of fresh water.

6. In addition to measures normally taken to prevent tail-biting and other vices and in order to enable them to satisfy their behavioural needs, all pigs, taking into account environmental conditions, management systems and stocking densities, shall be able to obtain straw or any other suitable material or object.

7. Subject to Regulation 18(2), the owner or person in charge shall take all necessary measures to ensure that pigs are not subject to constant or sudden noise.

8. A pig shall have permanent access to a sufficient quantity of suitable material, such as straw, hay, wood, peat or mushroom compost to enable proper investigation and manipulation activities, that does not compromise the health of the pig.

Chapter II

BOARS

9. Subject to paragraph 10, boar pens shall be sited and constructed so as to allow the boar to turn around and to hear, smell and see other pigs, and to provide for clean resting areas. The lying area shall be dry and comfortable.

The minimum unobstructed floor area of the pen for an adult boar shall be 6 square metres.

10. If pens are used for natural service, the minimum unobstructed floor area of a pen for an adult boar shall be 10 square metres.

Chapter III

SOWS AND GILTS

11. Pregnant sows and gilts shall, if necessary, be treated against external and internal parasites. If they are placed in farrowing crates, pregnant sows and gilts shall be thoroughly cleaned.

12. Sows and gilts shall be provided with a clean, adequately drained, comfortable lying area and shall, in the week before expected farrowing, be given suitable nesting material unless this is not technically feasible due to the slurry system in use on the premises.

13. An unobstructed area behind the sow or gilt shall be available for the ease of natural or assisted farrowing.

14. Farrowing crates where sows are kept loose shall have some adequate means, such as farrowing rails, to protect the piglets.

15. Sows and gilts shall be provided with a diet that satisfies their nutritional needs and contains sufficient quantity of suitable bulky or high fibre food to satisfy their hunger and the need to chew and to ensure that they do not display signs of hunger.

Chapter IV

PIGLETS

16. Piglets shall be provided with a source of heat and a solid, dry and comfortable lying area, covered with a mat or littered with suitable material, away from the sow where all of them can rest at the same time.

17. Where a farrowing crate is used, the piglets shall have sufficient space to be able to be suckled without difficulty.

18. Tail docking or tooth clipping shall not be carried out routinely except where injuries to sows' teats or to other pigs' ears or tails have occurred.

Where tooth clipping appears necessary, this shall be carried out within seven days of birth.

19. Subject to paragraph 20, piglets shall not be weaned from the sow at less than 28 days of age unless the welfare or health of the dam or piglets would otherwise be adversely affected.

20. Despite paragraph 19, piglets, if accommodated in specialised housing that has been thoroughly cleaned and disinfected immediately before the introduction of those piglets, may be weaned from the sow at no less than 21 days of age.

21. Housing to which paragraph 20 refers shall be separate, in a manner that adequately prevents the risk or spread of disease, from housing containing sows.

Chapter V

WEANERS AND REARING PIGS

22. Pigs shall be placed in groups as soon as possible after weaning. They should be kept in stable groups with as little mixing as possible.

If pigs unfamiliar with one another are to be mixed, they shall be mixed at as early an age as possible and, preferably, within seven days of weaning.

Pigs shall be afforded adequate opportunity to escape and hide from other pigs.

23. An animal remedy shall not be administered, to facilitate mixing of pigs, other than in exceptional circumstances, under and in accordance with the written prescription of a registered veterinary practitioner; that prescription shall be retained by the owner or person in charge of the pigs and a copy shall be retained by the registered veterinary practitioner who prescribes the animal remedy.

Schedule 5

Regulation 24

Part 1

REQUIREMENTS FOR THE MOVEMENT AND LAIRAGING OF ANIMALS IN SLAUGHTERHOUSES.

I. General requirements.

1. A slaughterhouse shall have suitable equipment and facilities available for the purpose of unloading animals from means of transport.

2. Animals shall be unloaded as soon as possible after arrival. If delay is unavoidable they shall be protected from extremes of weather and provided with adequate ventilation.

3. Animals which might injure each other on account of their species, sex, age or origin shall be kept and lairaged apart from each other.

4. Animals shall be protected from adverse weather conditions. If they have been subjected to high temperature in humid weather they shall be cooled by appropriate means.

5. The condition and state of health of the animals shall be inspected at least every morning and evening.

6. Without prejudice to Chapter VI of Annex I to Directive 64/433/EEC, animals which have experienced pain or suffering during transport or upon arrival at the slaughterhouse, and unweaned animals, shall be stunned and slaughtered immediately. If this is not possible, they shall be separated and then stunned and slaughtered as soon as possible and at least within the following two hours. Animals which are unable to walk shall not be dragged to the place of slaughter, but shall be killed where they lie or, where it is possible and does not entail any unnecessary suffering, transported on a trolley or moveable platform to the place of emergency slaughter.

II. Requirements for animals delivered other than in containers.

1. Equipment for unloading animals shall have non-slip flooring and, if necessary, be provided with lateral protection. Bridges, ramps and gangways shall be fitted with sides, railings or some other means of protection to prevent animals falling off them. Exit or entry ramps shall have the minimum possible incline consistent with the animal being able to retain its footing.

2. During unloading, care shall be taken not to frighten, excite or mistreat the animals, and to ensure that they are not overturned. Animals shall not be lifted by the head, horns, ears, feet, tail or fleece in such a way as to cause them unnecessary pain or suffering. When necessary, they shall be led individually.

3. Animals shall be moved with care. Passageways shall be so constructed as to minimise the risk of injury to animals, and so arranged as to exploit their gregarious tendencies. Instruments intended for guiding animals shall be used solely for that purpose, and only for short periods. Instruments which administer electric shocks may be used only for adult bovine animals and pigs which refuse to move, provided that the shocks last no more than two seconds, are adequately spaced out and that the animals have room ahead of them in which to move. Such shocks may be applied only to the muscles of the hindquarters.

4. Animals shall not be struck on, nor shall pressure be applied to, any particularly sensitive part of the body. In particular, animals' tails shall not be crushed, twisted or broken and their eyes shall not be grasped. Blows and kicks shall not be inflicted.

5. Animals shall not be taken to the place of slaughter unless they can be slaughtered immediately. If they are not slaughtered immediately on arrival they shall be lairaged.

6. A slaughterhouse shall be equipped with a sufficient number of pens for adequate lairaging of the animals with protection from the effects of adverse weather.

7. A lairage shall have:

(*a*) floors which minimise the risk of slipping and which do not cause injury to animals in contact with them,

(*b*) adequate ventilation, taking into account the extremes of temperature and humidity which may be expected. Where mechanical means of ventilation are required, provision shall be made for emergency back-up facilities in the event of breakdown,

(*c*) artificial lighting at a level sufficient to permit inspection of all animals at any time; if necessary, adequate back-up lighting shall be available,

(*d*) where necessary, equipment for tethering animals,

(*e*) where necessary, adequate supplies of a suitable bedding material for all animals kept in the lairage overnight.

8. Where, in addition to the lairages referred to above, slaughterhouses, have field lairages without natural shelter or shade, appropriate protection from adverse weather shall be provided. Field lairages shall be maintained in such condition as to ensure that animals are not subjected to physical, chemical or other health hazards.

9. Animals which are not taken directly upon arrival to the place of slaughter shall have drinking water available to them from appropriate facilities at all times. Animals which have not been slaughtered within 12 hours of their arrival shall be fed, and shall subsequently be given moderate amounts of food at appropriate intervals.

10. Animals which are kept for 24 hours or more at a slaughterhouse shall be lairaged and, where appropriate, tethered, in such a way that they can lie down and feed without difficulty. Where animals are not tethered, food shall be provided in a way which will permit the animals to feed undisturbed.

III. Requirements for animals delivered in containers.

1. Containers in which animals are transported shall be handled with care, and shall not be thrown, dropped or knocked over. Where possible, they shall be loaded and unloaded horizontally and mechanically.

2. Animals delivered in containers with perforated or flexible bottoms shall be unloaded with particular care in order to avoid injury. Where appropriate, animals shall be unloaded from the containers individually.

3. Animals which have been transported in containers shall be slaughtered as soon as possible; otherwise they shall if necessary be watered and fed in accordance with paragraph 9 of Section II.

Part 2.

RESTRAINT OF ANIMALS BEFORE STUNNING, SLAUGHTER OR KILLING.

1. Animals shall be restrained in an appropriate manner in such a way as to spare them any avoidable pain, suffering, agitation, injury or contusions.

However, in the case of ritual slaughter, restraint of bovine animals before slaughter using a mechanical method intended to avoid any pain, suffering or agitation and any injuries or contusions to the animals is obligatory.

2. Animals' legs shall not be tied, and animals shall not be suspended before stunning or killing. However, poultry and rabbits may be suspended for slaughter provided that appropriate measures are taken to ensure that, on the point of being stunned, they are in a sufficiently relaxed state for stunning to be carried out effectively and without undue delay.

Furthermore, holding an animal in a restraint system may in no circumstances be regarded as suspension.

3. Animals which are stunned or killed by mechanical or electrical means applied to the head shall be presented in such a position that the equipment can be applied and operated easily, accurately and for the appropriate time. The Minister may, however, in the case of solipeds and cattle, authorise the use of appropriate means to restrain head movements.

4. Electrical stunning equipment shall not be used as a means of restraint or immobilisation or to make animals move.

Part 3.

STUNNING OR KILLING OF ANIMALS OTHER THAN ANIMALS REARED FOR FUR.

I. Permitted Methods.

A. Stunning.

1. Captive bolt pistol.

2. Concussion.

3. Electronarcosis.

4. Exposure to carbon dioxide.

B. Killing.

1. Free bullet pistol or rifle.

2. Electrocution.

3. Exposure to carbon dioxide.

C. The Minister may, however, authorise decapitation, dislocation of the neck and the use of a vacuum chamber as a method of killing for certain specific species, provided that Regulation 23 is complied with and that specific requirements laid down in Section III of this Part are met.

II. Specific Requirements for Stunning.

Stunning shall not be carried out unless it is possible to bleed the animals immediately afterwards.

1. Captive bolt pistol.

(*a*) Instruments shall be positioned so as to ensure that the projectile enters the cerebral cortex. In particular, it is prohibited to shoot cattle in the poll position.

Sheep and goats may be shot in the poll position if the presence of horns prevents use of the crown position. In such cases the shot shall be placed immediately behind the base of the horns and aimed towards the mouth, and bleeding shall commence within 15 seconds of shooting.

(*b*) When using a captive bolt instrument, the operator shall check to ensure that the bolt retracts to its full extent after each shot. If it does not so retract, the instrument shall not be used again until it has been repaired.

(*c*) Animals shall not be placed in stunning pens unless the operator who is to stun them is ready to do so as soon as the animal is placed in the pen. Animals shall not be placed in a head restraint until the slaughterman is ready to stun them.

2. Concussion.

(*a*) This is only permitted using a mechanically-operated instrument which administers a blow to the skull. The operator shall ensure that the instrument is applied in the proper position and that the correct strength of cartridge is used, in accordance with the manufacturer's instructions, to produce an effective stun without fracture of the skull.

(*b*) However, in the case of small batches of rabbits, where a non-mechanical blow to the skull is used, that operation shall be carried out in such a way that the animal is immediately rendered unconscious and remains so until its death and in compliance with Regulation 23.

3. Electronarcosis.

A. Electrodes.

1. Electrodes shall be so placed that they span the brain, enabling the current to pass through it. Appropriate measures shall also be taken to ensure that there is good electrical contact, in particular by removing excess wool or wetting skin.

2. Where animals are stunned individually, the apparatus shall:

(*a*) incorporate a device which measures the impedance of the load and prevents operation of the apparatus if the minimum required current cannot be passed;

(*b*) incorporate an audible or visible device indicating the length of time of its application to an animal;

(*c*) be connected to a device indicating the voltage and the current under load, and be positioned so as to be clearly visible to the operator.

B. Waterbath stunners

1. Where waterbath stunners are used to stun poultry, the level of the water shall be adjustable in order to ensure that there is good contact with the bird's head.

The strength and duration of the current used in this case will be determined by an authorised officer so as to ensure that the animal is immediately rendered unconscious and remains so until death.

2. Where poultry are stunned in groups in a waterbath, a voltage sufficient to produce a current strong enough to ensure that every bird is stunned shall be maintained.

3. Appropriate measures shall be taken to ensure that the current passes properly, in particular, by the use of good electrical contacts and by wetting the shackle-to-leg contact.

4. Waterbaths for poultry shall be adequate in size and depth for the type of bird being slaughtered, and shall not overflow at the entrance. The electrode which is immersed in the water shall extend the length of the waterbath.

5. If necessary, manual back-up shall be available.

C. Exposure to carbon dioxide.

1. The concentration of carbon dioxide for stunning pigs shall be at least 70% by volume.

2. The chamber in which pigs are exposed to the gas, and the equipment used for conveying the pigs through it, shall be so designed, constructed and maintained as to avoid injury to the pigs and compression of the chest and enable

them to remain upright until they lose consciousness. Adequate lighting shall be provided in the conveying mechanism and the chamber to allow pigs to see other pigs or their surroundings.

3. The chamber shall be fitted with devices for measuring the gas concentration at the point of maximum exposure and for giving a clearly visible and audible warning if the concentration of carbon dioxide falls below the required level.

4. Pigs shall be placed in pens or containers in which they can see each other and conveyed into the gas chamber within 30 seconds from their entry into the installation. They shall be conveyed as rapidly as possible from the entrance to the point of maximum concentration of the gas and shall be exposed to it for long enough to ensure that they remain unconscious until they have been killed.

5. The Minister may, on application, and subject to such conditions as he or she may specify, authorise the stunning of poultry by exposure to carbon dioxide or a mixture of other gases or refuse an application.

III. Specific Requirements for Killing.

1. Free bullet pistol or rifle.

These methods, which may be used to kill various species, in particular large farmed game and deer, are subject to authorisation by the Minister, who shall be satisfied, in particular, that these methods are used by duly qualified staff and are in compliance with Regulation 23.

2. Decapitation and dislocation of the neck.

These methods, which are to be used only for killing poultry, are subject to authorisation by the Minister, who shall be satisfied, in particular, that these methods are used by duly qualified staff and are in compliance with Regulation 23.

3. Electrocution and carbon dioxide.

The Minister may authorise the killing of various species by these methods provided that, in addition to Regulation 23, the specific provisions laid down in paragraphs 3 and 4 of Section II are complied with. The Minister may, to ensure the effectiveness of these methods, lay down the strength and duration of the current used and the concentration and length of exposure to carbon dioxide.

4. Vacuum chamber.

This method, which is to be used only for the killing without bleeding of certain animals for consumption belonging to farmed game species (quail, partridge and pheasant), is subject to authorisation by the Minister. To obtain authorisation the owner or person in charge of the animals shall ensure, in addition to compliance with Regulation 23, that:

(*a*) the animals are placed in an airtight chamber in which a vacuum is swiftly achieved by means of a powerful electric pump,

(*b*) the vacuum is maintained until the animals are dead,

(*c*) the animals are held in groups in transport containers which can be placed in the vacuum chamber, which is designed for that purpose.

Part 4.

BLEEDING OF ANIMALS.

1. For animals which have been stunned, bleeding shall be started as soon as possible after stunning and be carried out in such a way as to bring about rapid, profuse and complete bleeding. In any event, the bleeding shall be carried out before the animal regains consciousness.

2. All animals which have been stunned shall be bled by incising at least one of the carotid arteries or the vessels from which they arise.

After incision of the blood vessels, no further dressing procedures nor any electrical stimulation may be performed on the animals before the bleeding has ended.

3. Where one person is responsible for the stunning, shackling, hoisting and bleeding of animals, that person shall carry out those operations consecutively on one animal before carrying them out on another animal.

4. Manual back-up shall be available where poultry is bled by means of automatic neck-cutters so that, in the event of a breakdown, birds may be slaughtered immediately.

Part 5

KILLING METHODS FOR DISEASE CONTROL.

Permitted Methods.

1. Any method permitted under Part 3 that causes certain death.

2. Injection of an overdose of a drug with anaesthetic properties if the carcase is to be disposed of in accordance with the Animal By-products Regulation within the meaning of the European Communities (Transmissable Spongiform Encephalopathies and Animal By-Products) Regulations 2008 (S.I. No. 252 of 2008).

3. In addition, the Minister may, in compliance with Regulation 23, permit the use of other methods for killing conscious animals, ensuring in particular that:

(*a*) if methods are used which do not cause immediate death (for example, captive bolt shooting), appropriate measures are taken to kill the animals as soon as possible, and in any event before they regain consciousness,

(*b*) nothing more is done to the animals before it has been ascertained that they are dead.

4. Permitted methods of killing for disease control set out in this Schedule shall be carried out by or under the supervision of an authorised officer.

Part 6

METHODS OF KILLING FUR ANIMALS.

I. Permitted methods.

1. Mechanically-operated instruments which penetrate the brain.

2. Injection of an overdose of a drug with anaesthetic properties.

3. Electrocution with cardiac arrest.

4. Exposure to carbon monoxide.

5. Exposure to chloroform.

6. Exposure to carbon dioxide.

The Minister shall decide on the most appropriate method of killing for the different species concerned in compliance with Regulation 23.

II. Specific requirements.

1. Mechanically-operated instruments which penetrate the brain.

(*a*) Instruments shall be positioned so as to ensure that the projectile enters the cerebral cortex.

(*b*) This method is permitted only if it is followed by immediate bleeding.

2. Injection of an overdose of a drug with anaesthetic properties.

Only those anaesthetics, doses and applications which cause immediate loss of consciousness followed by death may be used.

3. Electrocution with cardiac arrest.

Electrodes shall be placed so that they span the brain and the heart and the minimum current level used shall lead to immediate loss of consciousness and cardiac arrest. However, for foxes, where electrodes are applied to the mouth and rectum, a current of an average value of 0.3 amps shall be applied for at least 3 seconds.

4. Exposure to carbon monoxide.

(*a*) The chamber in which the animals are exposed to the gas shall be designed, constructed and maintained in such a way as to avoid injury to the animals and allow them to be supervised.

(*b*) The animals shall be introduced into the chamber only after it has been filled with a concentration of carbon monoxide of at least 1% by volume, supplied by a source of 100% carbon monoxide.

(*c*) The gas produced by an engine specially adapted for that purpose may be used to kill mustelids and chinchillas provided that tests have shown that the gas used:

(i) has been suitably cooled,

(ii) has been sufficiently filtered, and

(iii) is free from any irritant matter or gas.

The animals cannot be placed in the chamber until the concentration of carbon monoxide has reached at least 1% by volume.

(*d*) When inhaled the gas shall first induce deep general anaesthesia and shall then cause certain death.

(*e*) The animals shall remain in the chamber until they are dead.

5. Exposure to chloroform.

Exposure to chloroform may be used to kill chinchillas provided that:

(*a*) the chamber in which the animals are exposed to the gas is designed, constructed and maintained in such a way as to avoid injury to the animals and allow them to be supervised;

(*b*) the animals are introduced into the chamber only if it contains a saturated chloroform-air compound;

(*c*) when inhaled, the gas first induces deep general anaesthesia and then causes certain death;

(*d*) the animals remain in the chamber until they are dead.

6. Exposure to carbon dioxide.

Carbon dioxide may be used to kill mustelids and chinchillas provided that-

(*a*) the chamber in which the animals are exposed to the gas is designed, constructed and maintained in such a way as to avoid injury to the animals and allow them to be supervised,

(*b*) the animals are introduced into the chamber only when the atmosphere contains the highest possible concentration of carbon dioxide supplied by a source of 100% carbon dioxide,

(*c*) when inhaled, the gas first induces deep general anaesthesia and then causes certain death, and

(*d*) the animals remain in the chamber until they are dead.

Part 7

KILLING OF SURPLUS CHICKS AND EMBRYOS IN HATCHERY WASTE.

I. Permitted methods for the killing of chicks.

1. Use of a mechanical apparatus causing rapid death.

2. Exposure to carbon dioxide.

3. However, the Minister may permit the use of other scientifically recognised killing methods provided that they comply with Regulation 5.

II. Specific requirements.

1. Use of a mechanical apparatus producing rapid death.

(*a*) The animals shall be killed by an apparatus which contains rapidly rotating mechanically operated killing blades or expanded polystyrene projections.

(*b*) The capacity of the apparatus shall be sufficient to ensure that all animals are killed immediately, even if they are handled in large numbers.

2. Exposure to carbon dioxide.

(*a*) The animals shall be placed in an atmosphere with the highest obtainable concentration of carbon dioxide, supplied by a source of 100% carbon dioxide.

(*b*) The animals shall remain in this atmosphere until they are dead.

III. Permitted method of the killing of embryos.

1. To kill any living embryos instantaneously, all hatchery waste shall be treated by the mechanical apparatus mentioned in paragraph 1 of Section II.

2. However, the Minister may permit the use of other scientifically recognised killing methods provided that they comply with Regulation 23.

Part 8

MONITORING AND FOLLOW-UP AT SLAUGHTER REGARDING CHICKENS REARED FOR MEAT PRODUCTION

1. Mortality

1.1 In the case of stocking densities higher than 33 kilogrammes per square metre, the documentation accompanying the flock shall include the daily mortality rate and cumulative daily mortality rate calculated by the owner or keeper and the hybrid or breed of the chickens.

1.2 Under the supervision of the veterinary inspector at the establishment where chickens are to be slaughtered, the data referred to at 1.1 and the number of broilers dead on arrival at the establishment shall be recorded, indicating the premises and house of origin. The veterinary inspector shall check the plausibility of data furnished under 1.1 taking into account the number of broilers slaughtered and the number dead on arrival.

2. Post mortem inspection

In the context of checks carried out under Regulation (EC) No. 854/ 2004 of the European Parliament and of the Council of 29 April 2004, the veterinary inspector at the establishment where chickens are to be slaughtered shall evaluate the results of the post mortem inspection to identify possible indications of poor welfare conditions such as abnormal levels of contact dermatitis, parasitism and systemic illness at the premises or a particular house at the premises of origin.

3. Communication of results

If the mortality rate referred to in paragraph 1 or the results of post mortem inspection referred to at paragraph 2 are consistent with poor animal welfare conditions, the veterinary inspector at the establishment where chickens are to be slaughtered shall communicate the data to the owner or keeper of the animals who shall take appropriate remedial action and make an official report.

L.S.

GIVEN under my Official Seal,
24 June 2010.

BRENDAN SMITH,
Minister for Agriculture, Fisheries and Food.

EXPLANATORY NOTE.

(This note is not part of the Instrument and does not purport to be a legal interpretation.)

These Regulations give effect to a series of European Directives concerning the protection of animals including broilers, laying hens, calves and pigs and animals being slaughtered.

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Appendix No. 17

Copy of Nitrates Directive – S.I. 113 of 2022

STATUTORY INSTRUMENTS.

S.I. No. 113 of 2022

EUROPEAN UNION (GOOD AGRICULTURAL PRACTICE FOR PROTECTION OF WATERS) REGULATIONS 2022

S.I. No. 113 of 2022

EUROPEAN UNION (GOOD AGRICULTURAL PRACTICE FOR PROTECTION OF WATERS) REGULATIONS 2022

I, DARRAGH O'BRIEN, Minister for Housing, Local Government and Heritage, in exercise of the powers conferred on me by section 3 of the European Communities Act 1972 (No. 27 of 1972) and for the purpose of giving further effect to Directive 91/676/EEC of 12 December 1991[1] , Directive 2000/60/EC of 23 October 2000[2], Directive 2003/35/EC of 26 May 2003[3], Directive 2006/118/EC of 12 December 2006[4] and Directive 2008/98/EC of 19 November 2008[5] hereby make the following regulations:

[1] O.J. No. L 375/1, 31 December 1991.
[2] O.J. No. L 327/1, 22 December 2000.
[3] O.J. No. L 156/17, 25 June 2003.
[4] O.J. No. L 372/19, 27 December 2006.
[5] O.J. No. L 312/3, 22 November 2008.

Notice of the making of this Statutory Instrument was published in "Iris Oifigiúil" of 11*th March,* 2022.

EUROPEAN UNION (GOOD AGRICULTURAL PRACTICE FOR PROTECTION OF WATERS) REGULATIONS 2022

CONTENTS

PART 1

PRELIMINARY

Citation, commencement and application

1. (*a*) These Regulations may be cited as the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022.

(*b*) These Regulations shall apply to all holdings in the State.

(*c*) These Regulations shall apply to all movements of livestock manure in the State.

(*d*) These Regulations shall come into effect on 11th March 2022.

Purpose of Regulations

2. The purpose of these Regulations is to give effect to Ireland's Nitrates Action Programme pursuant to Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural source.

Revocations

3. The European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017, the European Union (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations 2018, the European Union (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations 2020, the European Union (Good Agricultural Practice for Protection of Waters) (Amendment) (Nos. 2 and 3) Regulations 2020, and the European Union (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations 2021 are hereby revoked.

Interpretation

4. (1) In these Regulations, save where the context otherwise requires—

"Act of 1992" means the Environmental Protection Agency Act, 1992 (No. 7 of 1992);

"Agency" means the Environmental Protection Agency established under section 19 of the Act of 1992;

"agriculture" includes the breeding, keeping and sale of livestock (including cattle, horses, pigs, poultry, sheep and any creature kept for the production of food, wool, skins or fur), the making and storage of silage, the cultivation of land, and the growing of crops (including forestry and horticultural crops);

"application to land", in relation to fertiliser, means the addition of fertiliser to land whether by spreading on the surface of the land, injection into the land,

placing below the surface of the land or mixing with the surface layers of the land but does not include the direct deposition of manure to land by animals;

“aquifer” means a subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater or the abstraction of significant quantities of groundwater;

“biochemical oxygen demand” for the purposes of sub-article (2) (b) (i) means a 5 day biochemical oxygen demand test done in accordance with method ISO 5815-1:2003, International Organisation for Standardization, or any update of that method;

“chemical fertiliser” means any fertiliser that is manufactured by an industrial process;

“commonage” means a land parcel which is held by two or more persons in specified shares or jointly and originally purchased from the Irish Land Commission under the Land Purchase Acts, including land over which two or more persons have grazing rights or the right to take turf;

“dry matter” for the purposes of sub-article (2)(b)(ii) means a test for total solids done in accordance with method 2540B, Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 21st Edition, 2005, or any update of that method;

“eligible area” in relation to a holding and the grassland stocking rate, means the eligible area of the holding or the grassland as appropriate excluding areas under farm roads, paths, buildings, farmyards, woods, dense scrub, rivers, streams, ponds, lakes, sandpits, quarries, expanses of bare rock, areas of bogland not grazed, areas fenced off and not used for production, inaccessible areas and areas of forestry (including Christmas trees), or required to be totally destocked under a Commonage Framework Plan;

“farmyard manure” means a mixture of bedding material and animal excreta in solid form arising from the housing of cattle, sheep and other livestock excluding poultry;

“fertiliser” means any substance containing nitrogen or phosphorus or a nitrogen compound or phosphorus compound utilised on land to enhance growth of vegetation and may include livestock manure, the residues from fish farms and sewage sludge;

“grass” means permanent grassland or temporary grassland (temporary implying leys of less than four years);

“grazing livestock” means cattle (with the exclusion of veal calves), sheep, deer, goats and horses.

“groundwater” means all water that is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil;

“holding” means an agricultural production unit and, in relation to an occupier, means all the agricultural production units managed by that occupier;

“livestock” means all animals kept for use or profit (including cattle, horses, pigs, poultry, sheep and any creature kept for the production of food, wool, skins or fur);

"livestock manure" means waste products excreted by livestock or a mixture of litter and waste products excreted by livestock, even in processed form;

"local authority" means a city council or county council within the meaning of the Local Government Act, 2001 (No. 37 of 2001);

"local authority shared service" means common or combined services provided to more than one local authority, the provision of which (to the local authorities concerned) enables, assists or facilitates the carrying out of any administrative task or process necessary for or incidental to the performance of a function assigned under these regulations to local authorities.

"the Minister" means the Minister for Housing, Local Government and Heritage;

"the Nitrates Directive" means Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources;

"occupier", in relation to a holding, includes the owner, a lessee, any person entitled to occupy the holding or any other person having for the time being control of the holding;

"OSi" means Ordnance Survey Ireland established by Ordnance Survey Ireland Act, 2001 (No. 43 of 2001).

"organic fertiliser" means any fertiliser other than that manufactured by an industrial process and includes livestock manure, dungstead manure, farmyard manure, slurry, soiled water, silage effluent, spent mushroom compost, non-farm organic substances such as sewage sludge, industrial by-products and sludges and residues from fish farms;

"ploughing" includes ploughing and primary cultivation, excluding shallow cultivation carried out to encourage natural regeneration;

"relevant local authority" means the local authority in whose administrative area a farm holding or part of a farm holding is situated;

"river basin district" means a river basin district established by the European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003) or any amendment thereof in relation to the establishment of river basin districts;

"slurry" includes—

(*a*) excreta produced by livestock while in a building or yard, and

(*b*) a mixture of such excreta with rainwater, washings or other extraneous material or any combination of these, of a consistency that allows it to be pumped or discharged by gravity at any stage in the handling process but does not include soiled water;

"soil test" means a soil sample taken in accordance with the soil sampling procedure set out in Schedule 1 and analysed in accordance with that Schedule, at a laboratory that meets the requirements of the Minister for Agriculture, Food and the Marine for this purpose;

"soiled water" has the meaning assigned by sub-article (2);

"steep slope" means ground which has an average incline of 20% or more in the case of grassland or 15% or more in the case of other land;

"Teagasc" means the Agriculture and Food Development Authority established in September 1988 under the Agriculture (Research, Training and Advice) Act, 1988.

"tidal waters" includes the sea and any estuary up to high water mark medium tide and any enclosed dock adjoining tidal waters;

"waters" includes—

(*a*) any (or any part of any) river, stream, lake, canal, reservoir, aquifer, pond, watercourse, or other inland waters, whether natural or artificial,

(*b*) any tidal waters, and

(*c*) where the context permits, any beach, river bank and salt marsh or other area which is contiguous to anything mentioned in paragraph (a) or (b), and the channel or bed of anything mentioned in paragraph (a) which is for the time being dry, but does not include a sewer;

"watercourses" means any body of water that is marked on a modern 1:5,000 scale OSi map.

"waterlogged ground" means ground that is saturated with water such that any further addition will lead, or is likely to lead, to surface run-off;

and cognate words shall be construed accordingly.

(2) (*a*) In these Regulations "soiled water" includes, subject to this sub-article, water from concreted areas, hard standing areas, holding areas for livestock and other farmyard areas where such water is contaminated by contact with any of the following substances—

(i) livestock faeces or urine or silage effluent,
(ii) chemical fertilisers,
(iii) washings such as vegetable washings, milking parlour washings or washings from mushroom houses,
(iv) water used in washing farm equipment.

(*b*) In these Regulations, "soiled water" does not include any liquid where such liquid has either—

(i) a biochemical oxygen demand exceeding 2,500 mg per litre, or
(ii) a dry matter content exceeding 1% (10 g/L).

(*c*) For the purposes of these Regulations, soiled water which is stored together with slurry is deemed to be slurry.

(3) In these Regulations a reference to:—

(*a*) an Article, Part or Schedule which is not otherwise identified is a reference to an Article, Part or Schedule of these Regulations,

(*b*) a sub-article or paragraph which is not otherwise identified is a reference to a sub-article or paragraph of the provision in which the reference occurs, and

(*c*) a period between a specified day in a month and a specified day in another month means the period commencing on the first-mentioned day in any year and ending on the second-mentioned day which first occurs after the first-mentioned day.

(4) In these Regulations a footnote to a table in Schedule 2 shall be deemed to form part of the table.

PART 2

FARMYARD MANAGEMENT

Minimisation of soiled water

5. (1) An occupier of a holding shall take all such steps, as far as is practicable for the purposes of minimising the amount of soiled water produced on the holding.

(2) Without prejudice to the generality of sub-article (1), an occupier of a holding shall ensure, as far as is practicable, that—

(*a*) clean water from roofs and unsoiled paved areas and that flowing from higher ground on to the farmyard is diverted away from soiled yard areas and prevented from entering storage facilities for livestock manure and other organic fertilisers, soiled water, and effluents from dungsteads, farmyard manure pits, silage pits or silage clamps and

(*b*) rainwater gutters and downpipes where required for the purposes of paragraph (a) are maintained in good working condition.

(3) The spreading of soiled water to land is prohibited between the following dates:

(*a*) Between 21st December and 31st December for all milk producers from 2022,

(*b*) Between 10th December and 31st December for all milk producers from 2023,

(*c*) Between 1st December and 31st December from 2024 onwards for all milk producers with the exception of winter/liquid milk[6] producers, and

(*d*) Between 1st December and 31st December from 1st January 2025 onwards for all milk producers including winter/liquid milk[1] producers

[6] Holdings that produce milk during the winter and hold a winter/liquid milk contract with their milk processor.

Collection and holding of certain substances

6. (1) Livestock manure and other organic fertilisers, soiled water and effluents from dungsteads, farmyard manure pits, silage pits or silage clamps arising or produced in a building or yard on a holding shall, prior to its application to land or other treatment, be collected and held in a manner that prevents the run-off or seepage, directly or indirectly, into groundwaters or surface waters of such substances.

(2) The occupier of a holding shall not cause or permit the entry to waters of any of the substances specified in sub-article (1).

Provision and management of storage facilities

7. (1) Storage facilities for livestock manure and other organic fertilisers, soiled water and effluents from dungsteads, farmyard manure pits, silage pits or silage clamps shall be maintained free of structural defect and be maintained and managed in such manner as is necessary to prevent run-off or seepage, directly or indirectly, into groundwater or surface water, of such substances.

(2) Storage facilities being provided on a holding shall—

(*a*) be designed, sited, constructed, maintained and managed so as to prevent run-off or seepage, directly or indirectly, into groundwater or surface water of a substance specified in sub-article (1), and

(*b*) comply with such construction specifications for those facilities as may be approved from time to time by the Minister for Agriculture, Food and the Marine.

(3) Storage facilities other than those referred to in sub-article (2) shall be of such construction and design and shall be maintained and managed in such a manner so as to comply with the requirements of sub-article (1) and article 6(2).

(4) In this article "storage facilities" includes out-wintering pads, earthen-lined stores, integrated constructed wetlands and any other system used for the holding or treatment of livestock manure or other organic fertilisers.

General obligations as to capacity of storage facilities

8. (1) The capacity of storage facilities for livestock manure and other organic fertilisers, soiled water and effluents from dungsteads, farmyard manure pits, silage pits or silage clamps on a holding shall be adequate to provide for the storage of all such substances as are likely to require storage on the holding for such period as may be necessary as to ensure compliance with these Regulations and the avoidance of water pollution.

(2) For the purposes of sub-article (1) an occupier shall ensure to have the storage capacity likely to be required during periods of adverse weather conditions when, due to extended periods of wet weather, frozen ground or otherwise, the application to land of livestock manure or soiled water is precluded.

(3) For the purposes of Articles 8 to 14, the capacity of storage facilities on a holding shall be disregarded insofar as the occupier does not have exclusive use of those facilities.

(4) For the purposes of Articles 10 to 14 the capacity of facilities required in accordance with these Regulations for the storage of manure from livestock of the type specified in Tables 1, 2 or 3 of Schedule 2 shall be determined by reference to the criteria set out in the relevant table and the rainfall criteria set out in Table 4 of that schedule and shall include capacity for the storage for such period as may be necessary for compliance with these Regulations of rain-water, soiled water or other extraneous water which enters or is likely to enter the facilities.

(5) The occupier of a holding shall only be eligible to avail of a derogation from the limits on the amount of livestock manure to be applied as specified in Article 20 if the capacity of storage facilities for livestock manure, effluent and soiled water on the holding is in accordance with Articles 8 and 9.

(6) Subject to sub-article (7), the spreading of all slurry must be applied by:

(*a*) 8th October from 2022;

(*b*) 1st October from 2023 onwards.

(7) Notwithstanding sub-article (6), slurry may be spread between 8th and 15th October in 2022, and between 1st and 15th October from 2023 in accordance with criteria to be published by the Minister, in consultation with the Minister for Agriculture, Food and the Marine, by 1st September 2022.

Capacity of storage facilities for effluents and soiled water

9. Without prejudice to the generality of Article 8, the capacity of facilities for the storage on a holding of—

(*a*) effluent produced by ensiled forage and other crops shall equal or exceed the capacity specified in Table 5 of Schedule 2,

(*b*) soiled water shall equal or exceed the capacity required to store all soiled water likely to arise on the holding during a period of 10 days,

(*c*) soiled water being provided on a holding shall equal or exceed the capacity required to store all soiled water likely to arise on the holding during a period of 15 days, and

(*d*) From 1st December 2023, a minimum of 3 weeks' storage capacity shall be in place on the holding and from 1st December 2024, a minimum of 4 weeks' storage capacity shall be in place on the holding except for winter/liquid milk producers where this storage must be in place by 1st December 2025.

Capacity of storage facilities for pig manure

10. (1) Without prejudice to the generality of Article 8, the capacity of facilities for the storage on a holding of livestock manure produced by pigs

shall, subject to sub-article (2) and Article 14, equal or exceed the capacity required to store all such livestock manure produced on the holding during a period of 26 weeks.

(2) The period specified in Schedule 3 shall, in substitution for that prescribed by sub-article (1), apply in relation to livestock manure produced by pigs on a holding where all the following conditions are met—

(*a*) the number of pigs on the holding does not at any time exceed one hundred pigs, and

(*b*) the holding comprises a sufficient area of land for the application in accordance with these Regulations of all livestock manure produced on the holding.

Capacity of storage facilities for poultry manure

11. (1) Without prejudice to the generality of Article 8, the capacity of facilities for the storage on a holding of livestock manure produced by poultry shall, subject to sub-article (2) and Article 14, equal or exceed the capacity required to store all such livestock manure produced on the holding during a period of 26 weeks.

(2) The period specified in Schedule 3 shall, in substitution for that prescribed by sub-article (1), apply in relation to livestock manure produced by poultry on a holding where all the following conditions are met—

(*a*) tillage or grassland farming is carried out on the holding,

(*b*) the number of poultry places on the holding does not exceed 2,000 places, and

(*c*) the holding comprises a sufficient area of land for the application in accordance with these Regulations of all livestock manure produced on the holding.

Capacity of storage facilities for manure from deer, goats and sheep

12. Without prejudice to the generality of Article 8, the capacity of facilities for the storage on a holding of livestock manure produced by deer, goats and sheep shall, subject to Article 14, equal or exceed the capacity required to store all such livestock manure produced on the holding during a period of six weeks.

Capacity of storage facilities for manure from cattle

13. Without prejudice to the generality of Article 8, the capacity of facilities for the storage on a holding of livestock manure produced by cattle shall, subject to Article 14, equal or exceed the capacity required to store all such livestock manure produced on the holding during the period specified in Schedule 3.

Reduced storage capacity in certain circumstances

14. (1) The capacity of facilities for the storage of livestock manure on a holding may, to such extent as is justified in the particular circumstances of the holding, be less than the capacity specified in Article 10, 11, 12 or 13, as appropriate, in the case of a holding where—

(*a*) the occupier of the holding has a contract providing exclusive access to adequate alternative storage capacity located outside the holding,

(*b*) the occupier has a contract for access to a treatment facility for live-stock manure, or

(*c*) the occupier has a contract for the transfer of the manure to a person registered under and in accordance with the European Communities (Transmissible Spongiform Encephalopathies and Animal By-products) Regulations 2008 (S.I. No. 252 of 2008) to undertake the transport of manure.

(2) Subject to sub-article (3), the capacity of facilities for the storage of live-stock manure may be less than the capacity specified in Article 12 or 13, as appropriate, in relation to—

(*a*) deer, goats or sheep which are out-wintered at a grassland stocking rate which does not exceed 130 kg nitrogen until 31st December 2024 and 100 kg nitrogen from 1st January 2025 onwards at any time during the period specified in Schedule 4 in relation to the application of organic fertiliser other than farmyard manure, or

(*b*) livestock (other than dairy cows, deer, goats or sheep) which are out-wintered at a grassland stocking rate which does not exceed 85 kg nitrogen at any time during the period specified in Schedule 4 in relation to the application of organic fertiliser other than farmyard manure.

The requirement for full storage for those holdings stocked between 100 kg N/ha and 130 kg N/ha applies from 1st January 2025.

(3) Sub-article (2) shall apply only in relation to a holding where all the following conditions are met—

(*a*) all the lands used for out-wintering of the livestock are comprised in the holding,

(*b*) the out-wintered livestock have free access at all times to the required lands,

(*c*) the amount of manure produced on the holding does not exceed an amount containing 130 kg of nitrogen per hectare per annum until 31st December 2024 and 100 kg of nitrogen per hectare per annum from 1st January 2025 onwards,

(*d*) severe damage to the surface of the land by poaching does not occur, and

(*e*) the reduction in storage capacity is proportionate to the extent of out-wintered livestock on the holding.

(4) In this article, a grassland stocking rate of 130 kg, 100 kg or 85 kg of nitrogen, as the case may be, means the stocking of grassland on a holding at any time by such numbers and types of livestock as would in the course of a year excrete waste products containing 130 kg, 100 kg or 85 kg of nitrogen, as the case may be, per hectare of the grassland when calculated in accordance with the nutrient excretion rates for livestock specified in Table 6 of Schedule 2.

PART 3

NUTRIENT MANAGEMENT

Interpretation, commencement etc

15. (1) In this Part, "crop requirement", in relation to the application of fertilisers to promote the growth of a crop, means the amounts and types of fertilisers which are based on the relevant tables in Schedule 2 to apply to soil for the purposes of promoting the growth of the crop having regard to the foreseeable nutrient supply available to the crop from the fertilisers, the soil and from other sources.

(2) The amount of nitrogen or phosphorus specified in Table 7 or 8 of Schedule 2, as the case may be, in relation to a type of livestock manure or other substance specified in the relevant table shall for the purposes of this Part be deemed to be the amount of nitrogen or phosphorus, as the case may be, contained in that type of manure or substance except as may be otherwise specified in a certificate issued in accordance with Article 32.

(3) The amount of nitrogen or phosphorus available to a crop from a fertiliser of a type which is specified in Table 9 of Schedule 2 in the year of application of that fertiliser shall, for the purposes of this Part, be deemed to be the percentage specified in that table of the amount of nitrogen or phosphorus, as the case may be, in the fertiliser.

(4) The amount of nitrogen or phosphorus available to a crop from an organic fertiliser of a type which is not specified in Table 9 of Schedule 2 shall be deemed to be the amount specified in the table in relation to cattle manure or, where supported by the necessary analysis, the amount of nitrogen estimated on the basis of the C:N ratio of the compost in accordance with Table 9A unless a different amount has been determined in relation to that fertiliser by, or with the agreement of, the relevant local authority or the Agency, as the case may be.

(5) A reference in this Part to the "nitrogen index" or the "phosphorus index" in relation to soil is a reference to the index number assigned to the soil in accordance with Table 10 or 11 of Schedule 2, as the case may be, to indicate the level of nitrogen or phosphorus available from the soil.

(6) From 11th March 2022, on holdings with grassland stocking rates of 130 kg nitrogen per hectare from grazing livestock manure (dairy cows and other bovines two years old and over) or above prior to export of livestock

manure from the holding, a maximum crude protein content of 15% is permissible in concentrate feedstuff fed to grazing livestock on the holding between 15th April and 30th September. Records of crude protein content of concentrate feedstuff shall be kept in accordance with Article 23(1)(j).

(7) On holdings with grassland stocking rates of 170 kg nitrogen per hectare from grazing livestock manure or above prior to export of livestock manure from the holding, a liming programme shall be prepared and must establish the following:-

(*a*) A calculation of liming requirements for each parcel to achieve optimum pH;

(*b*) A lime application programme for the farm.

(8) The stocking rate allowance for commonage land shall not exceed 50 kg organic nitrogen per hectare.

(9) Chemical fertiliser shall not be spread on commonage land.

Duty of occupier in relation to nutrient management

16. (1) An occupier of a holding shall take as far as is practicable all such steps for the purposes of preventing the application to land of fertilisers in excess of crop requirement on the holding.

(2) For the purposes of the determination of the grassland stocking rate in tables 12, 13A and 13B the previous calendar year's stocking rate data shall be used.

(3) (*a*) For the purposes of this article, the phosphorus index for soil shall be deemed to be phosphorus index 3 unless a soil test indicates that a different phosphorus index is appropriate in relation to that soil subject to paragraph (e).

(b) The soil test to be taken into account for the purposes of paragraph (a) in relation to soil shall, subject to paragraph (c), be the soil test most recently taken in relation to that soil.

(*c*) Where a period of four years or more has elapsed after the taking of a soil test, the results of that test shall be disregarded for the purposes of paragraph (a) except in a case where that soil test indicates the soil to be at phosphorus index 4.

(*d*) The phosphorus fertilisation rate for soils with more than 20% organic matter shall not exceed the amounts permitted for Index 3 soils, subject to the provisions of paragraph (e).

(*e*) For the purposes of paragraph (d), soils shall be deemed to have an organic matter content of 20% as defined on a Teagasc-EPA Indicative Soils map unless otherwise determined in soil tests carried out in accordance with this article.

(*f*) From 11th March 2022 all occupiers of holdings that have a grassland stocking rate of 170 kg N/ha or above prior to export

of livestock manure, shall take soil tests and shall assume P index 4 until soil tests are taken. From 1st January 2023 all occupiers of holdings with a grassland stocking rate above 130 kg N/ha shall take soil tests and shall assume P index 4 until soil tests are taken. From 1st January 2023 all occupiers of holdings on all arable land shall take soil tests.

(4) Without prejudice to the generality of sub-article (1) and subject to sub-article (5), the amount of available nitrogen or available phosphorus applied to promote the growth of a crop specified in Table 12, 13A, 14, 15, 16, 17, 18, 19, 20 or 21 of Schedule 2 shall not exceed the amount specified in the table in relation to that crop having regard to the relevant nitrogen index or phosphorus index, as the case may be, for the soil on which the crops are to be grown. In the case of crops not identified in the tables listed above, fertilisers shall be applied in accordance with Teagasc guidance as approved by the Minister for Agriculture, Food and the Marine.

(5) Increased phosphorus build-up on grassland on farms with grassland stocking rates of 130 kg nitrogen per hectare and above shall only be permitted in accordance with the rates contained in Table 13B provided that the following conditions are met:

(*a*) Soil analysis is carried out for soil phosphorus and soil organic matter contents; Soils shall be deemed to have an organic matter content of 20% as defined on a Teagasc-EPA Indicative Soils map unless otherwise determined in soil tests carried out in accordance with this article.

(*b*) An occupier availing of the phosphorus build-up programme shall engage the services of a Department of Agriculture, Food and the Marine approved Farm Advisory System Advisor.

(*c*) A detailed farm nutrient plan for the holding shall be submitted in a format specified by the Minister for Agriculture, Food and the Marine.

(*d*) The occupier shall participate in an appropriate training programme specified by the Minister for Agriculture, Food and the Marine for the purpose of meeting the requirements of these regulations.

(6) In the case of a holding on which grazing livestock are held, the amount of available phosphorus supplied to the holding by concentrated feedstuff shall be the amount fed to such livestock in excess of 300 kg per 89 kg livestock manure nitrogen in the previous calendar year and the phosphorus content of such concentrated feedstuff shall, in the absence of a known phosphorus content or phosphorus content provided by the supplier, be deemed to be 0.5 kg phosphorus in respect of each 100 kg of such concentrated feedstuff.

(7) The nitrogen and phosphorus maximum limits in Tables 12, 13A and 13B are in addition to the nitrogen and phosphorus contained in grazing livestock manure produced on the holding.

PART 4

PREVENTION OF WATER POLLUTION FROM FERTILISERS AND CERTAIN ACTIVITIES

Distances from a water body and other issues

17. (1) Chemical fertiliser shall not be applied to land within 2m of any surface waters.

(2) Organic fertiliser or soiled water shall not be applied to land within—

(*a*) 200m of the abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 100m^3 or more of water per day or serving 500 or more persons,

(*b*) 100m of the abstraction point (other than an abstraction point specified in paragraph (a)) of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 10m^3 or more of water per day or serving 50 or more persons,

(*c*) 25m of any borehole, spring or well used for the abstraction of water for human consumption other than a borehole, spring or well specified in paragraph (a) or (b),

(*d*) 20m of a lake shoreline or a turlough likely to flood,

(*e*) 15m of exposed cavernous or karstified limestone features (such as swallow-holes and collapse features),

(*f*) subject to sub-article (12), 5m of any surface waters (other than a lake or surface waters specified at paragraph (*a*) or (*b*)), or

(*g*) the distance specified in sub-article 2(f) shall be increased to 10m for a period of two weeks preceding and two weeks following the periods specified in Schedule 4.

(3) Notwithstanding the requirements of sub-articles (2)(a), (2)(b) and (2)(c), organic fertiliser or soiled water may be applied to land within:

(*a*) 30m from the abstraction point in the case of any surface waters, bore-hole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 10m^3 or more of water per day or serving 50 or more persons, or

(*b*) 15m from the abstraction point in the case of any borehole, spring or well used for the abstraction of water for human consumption other than a borehole, spring or well specified in paragraph (*a*),

where the provisions of sub-article (4) are complied with.

(4) Organic fertiliser or soiled water may only be applied to land in accordance with sub-article (3) where a local authority or Irish Water (as the case may be) has completed a technical assessment of conditions in the vicinity

of the abstraction point, including taking into account variation in soil and subsoil conditions, the landspreading pressures in the area, the type of abstraction, available water quality evidence and the likely risk to the water supply source and the local authority, in consultation with Irish Water, where relevant, has determined that the distance does not give rise to a risk to the water supply and a potential danger to human health.

(5) A local authority may, following consultation with Irish Water, where relevant, decide to apply the landspreading restriction to the upstream catchment area and to the close proximity downstream of the abstraction point in the case of any surface waters.

(6) A local authority may, in the case of any particular abstraction point and following consultation with the Agency and, where relevant, Irish Water, specify a greater distance than that specified in sub-articles (2) or (3) where, following prior investigations by Irish Water or the local authority (as the case may be), the local authority is satisfied that such distance is appropriate for the protection of waters being abstracted at that point. The distance so specified shall be determined by the local authority using an evidence-based approach which takes into account the natural vulnerability of the waters to contamination from land spreading, the potential risk to human health arising from the landspreading activity as well as the water quality evidence, including information on water quality trends.

(7) Notwithstanding the provisions of sub-articles (2), (3) and (6), a local authority shall, following prior investigations by Irish Water or the local authority (as the case may be) and following consultation with the Agency and, where relevant, Irish Water, specify an alternative distance, including a landspreading exclusion area where necessary, in the case of a water abstraction for human consumption in a scheme supplying $10m^3$ or more of water per day, or serving 50 or more persons, within a timeframe to be agreed with the Agency and, where relevant, Irish Water, where—

(*a*) on the basis of the results of monitoring carried out for the purposes of Article 7 of the European Communities (Drinking Water) Regulations 2014 (S.I. No. 122 of 2014), the quality of water intended for human consumption does not meet the parametric values specified in Part I of the Schedule of those Regulations or the quality of water constitutes a potential danger to human health, and it appears to the local authority following consultation with the Agency and, where relevant, Irish Water, that this is due to the landspreading of organic fertilisers or soiled water in the vicinity of the abstraction point, or

(*b*) investigations undertaken by Irish Water as part of the management of a water supply scheme indicate that the landspreading activity presents a significant risk to the drinking water supply or a potential danger to human health having regard to catchment factors in the vicinity of the abstraction point including but not limited to slope, vulnerability, and hydrogeology, the scale and intensity of land spreading pressures, the type of water supply source and water quality evidence, including information on water quality trends.

(8) A distance specified by a local authority in accordance with sub-articles (3), (5), (6) and (7) may be described as a distance or distances from an abstraction point, a hydrogeological boundary or topographical feature or as an area delineated on a map or in such other way as appears appropriate to the authority.

(9) In relation to sub-articles (6) and (7), "prior investigations" means, in relation to an abstraction point, an assessment of the susceptibility of waters to contamination in the vicinity of the abstraction point having regard to—

(*a*) the direction of flow of surface water or groundwater, as the case may be,

(*b*) the slope of the land and its runoff potential,

(*c*) the natural geological and hydrogeological attributes of the area including the nature and depth of any overlying soil and subsoil and its effectiveness in preventing or reducing the entry of harmful sub-stances to water, and

(*d*) where relevant, the technical specifications set out in the document "Groundwater Protection Schemes" published in 1999 (ISBN 1-899702-22-9) or any subsequent published amendment of that document.

(10) Where a local authority specifies a distance in accordance with either of sub-articles (3), (5), (6) or (7) the authority shall, as soon as may be—

(*a*) notify the affected landowners, Irish Water, the Agency and the Department of Agriculture, Food and the Marine of the distance so specified,

(*b*) send to the Agency a summary of the report of any investigations undertaken and the reasons for specifying the alternative distance,

(*c*) make an entry in the register maintained in accordance with Article 30(6), and

(*d*) publish and maintain on the local authority website an updated schedule of setback distances specified for each drinking water supply.

(11) The Agency may issue advice or direction to Irish Water or a local authority in relation to any requirements including requirements for technical assessments and prior investigations arising under sub-articles (2), (3), (4), (5), (6), (7), (8) or (9) and Irish Water or a local authority (as the case may be) shall comply with any such advice or direction given.

(12) Notwithstanding sub-article (2)(*f*), organic fertiliser or soiled water shall not be applied to land within 10m of any surface waters where the land has an average incline greater than 10% towards the water.

(13) Where farmyard manure is held in a field prior to landspreading it shall be held in a compact heap and shall not be placed within-

(*a*) 250m of the abstraction point of any surface waters or borehole, spring or well used for the abstraction of water for human

consumption in a water scheme supplying $10m^3$ or more of water per day or serving 50 or more persons,

(*b*) 50m of any other borehole, spring or well used for the abstraction of water for human consumption other than a borehole, spring or well specified at paragraph (a),

(*c*) 20m of a lake shoreline or a turlough likely to flood,

(*d*) 50m of exposed cavernous or karstified limestone features (such as swallow-holes and collapse features),

(*e*) 20m of any surface waters (other than a lake or surface waters specified at paragraph (a)).

(14) Organic fertiliser shall not be held in a field at any time during the periods specified in Schedule 4 as applicable to that substance.

(15) Silage bales shall not be stored outside of farmyards within 20m of surface waters or a drinking water abstraction point in the absence of adequate facilities for the collection and storage of any effluent arising.

(16) No cultivation shall take place within 2m of a watercourse identified on a modern 1:5,000 scale OSi mapping or better, except in the case of grassland establishment or the sowing of grass crops.

(17) Supplementary feeding points shall not be located within 20m of waters and shall not be located on bare rock.

(18) In the case of livestock holdings with grassland stocking rates of 170 kg nitrogen per hectare from livestock manure or above prior to export of livestock manure, bovine livestock shall not be permitted to drink directly from watercourses identified on the modern 1:5,000 scale OSi mapping or better. Where bovine livestock have direct access to watercourses on the holding, a fence shall be placed at least 1.5m from the top of the riverbank or water's edge (as the case may be). It will be permissible to move livestock across a watercourse to an isolated land parcel where necessary, provided that both sides of the watercourse are fenced.

(19) In the case of holdings identified in sub-Article 18, supplementary drinking points may not be located within 20m of surface waters.

(20) There shall be no direct runoff of soiled water from farm roadways to waters. The occupier of a holding shall comply with any specification for farm roadways specified by the Minister for Agriculture, Food and the Marine pursuant to this requirement.

(21) There shall be no direct runoff of soiled waters to waters resulting from the poaching of land on the holding.

(22) For late harvested crops and late harvested spring cereal crops, a minimum buffer of 6m shall be put in place to protect any intersecting watercourses.

Requirements as to manner of application of fertilisers, soiled water etc

18. (1) (*a*) Livestock manure, other organic fertilisers, effluents, soiled water and chemical fertilisers shall be applied to land in as accurate and uniform a manner as is practically possible.

(*b*) Low emission slurry spreading equipment must be used for the application of slurry on holdings with grassland stocking rates of :

i. 170 kg nitrogen per hectare from grazing livestock manure or above prior to export of livestock manure from the holding.

ii. 150 kg nitrogen per hectare from grazing livestock manure or above prior to export of livestock manure from the holding from 1st January 2023.

iii. 130 kg nitrogen per hectare from grazing livestock manure or above prior to export of livestock manure from the holding from 1st January 2024.

iv. 100 kg nitrogen per hectare from grazing livestock manure or above prior to export of livestock manure from the holding from 1st January 2025.

v. slurry produced by pigs on any holding from 1st January 2023.

(*c*) From 1st January 2023, low emission equipment shall be used to apply livestock manure to arable land or the livestock manure shall be incorporated within 24 hours.

(2) Organic and chemical fertilisers or soiled water shall not be applied to land in any of the following circumstances—

(*a*) the land is waterlogged;

(*b*) the land is flooded or likely to flood;

(*c*) the land is snow-covered or frozen;

(*d*) heavy rain is forecast within 48 hours, or

(*e*) the ground slopes steeply and there is a risk of water pollution having regard to factors such as surface runoff pathways, the presence of land drains, the absence of hedgerows to mitigate surface flow, soil condition and ground cover.

(3) A person shall, for the purposes of sub-article (2)(d), have regard to weather forecasts issued by Met Éireann.

(4) Organic fertilisers or soiled water shall not be applied to land—

(*a*) by use of an umbilical system with an upward-facing splashplate,

(*b*) by use of a tanker with an upward-facing splashplate,

(*c*) by use of a sludge irrigator mounted on a tanker, or

(*d*) from a road or passageway adjacent to the land irrespective of whether or not the road or passageway is within or outside the curtilage of the holding.

(5) Subject to sub-article (6), soiled water shall not be applied to land—

(*a*) in quantities which exceed in any period of 42 days a total quantity of 50,000 litres per hectare, or

(*b*) by irrigation at a rate exceeding 5 mm per hour.

(6) In an area which is identified on maps compiled by the Geological Survey of Ireland as "Extreme Vulnerability Areas on Karst Limestone Aquifers", soiled water shall not be applied to land—

(*a*) in quantities which exceed in any period of 42 days a total quantity of 25,000 litres per hectare, or

(*b*) by irrigation at a rate exceeding 3 mm per hour unless the land has a consistent minimum thickness of 1m of soil and subsoil combined.

(7) For the purposes of sub-article (6), it shall be assumed until the contrary is shown that areas so identified as "Extreme Vulnerability Areas on Karst Limestone Aquifers" do not have a consistent minimum thickness of 1m of soil and subsoil combined.

Periods when application of fertilisers is prohibited

19. (1) Subject to this article, the application of fertiliser to land is prohibited during the periods specified in Schedule 4.

(2) Sub-article (1) shall not apply in relation to the application to land of—

(*a*) soiled water, subject to Article 5(3), or

(*b*) chemical fertilisers to meet the crop requirements of Autumn-planted cabbage or of crops grown under permanent cover, or

(*c*) fertilisers whose application rate or usage rate is less than 1kg per hectare of available nitrogen or phosphorus.

Limits on the amount of livestock manure to be applied

20. (1) The amount of livestock manure applied in any year to land on a holding, together with that deposited to land by livestock, shall not exceed an amount containing 170 kg of nitrogen per hectare. The amount considered to be applied to commonage shall not exceed 50 kg of nitrogen per hectare.

(2) For the purposes of sub-article (1), the amount of nitrogen produced by livestock and the nitrogen content of livestock manure shall be calculated in accordance with Tables 6, 7 and 8 of Schedule 2 except in the case of pig manure or poultry manure where a different amount is specified in a certificate issued in accordance with Article 32 in relation to that manure.

(3) For the purposes of sub-article (1), the area of a holding shall be deemed to be the eligible area of the holding.

Ploughing and the use of non-selective herbicides

21. (1) Where arable land is ploughed between 1st July and 30th November the necessary measures, shall be taken within 14 days of ploughing to provide for emergence of green cover. A rough surface shall be maintained prior to a crop being sown in the case of lands ploughed between 1st December and 15th January.

(2) Where grassland is ploughed between 1st July and 15th October the necessary measures shall be taken within 14 days of ploughing to provide for emergence of green cover from a sown crop.

(3) Grassland shall not be ploughed between 16th October and 30th November.

(4) (*a*) When a non-selective herbicide is applied to arable land or to grassland in the period between 1st July and 30th November the necessary measures shall be taken to provide for the emergence, within 6 weeks of the application, of green cover from a sown crop or from natural regeneration.

(*b*) When a non-selective herbicide is applied to land after 15th October, the requirement in sub-article 4 (a) shall be reduced to 75% of the relevant cereal area where a contract is in place for seed crops or crops producing grain destined for human consumption which prohibits the application of a non- selective herbicide preharvest.

(5) Where green cover is provided for in compliance with this Article, the cover shall not be removed by ploughing or by the use of a non-selective herbicide before 1st December unless a crop is sown within two weeks of its removal.

(6) In the case of land which is ploughed in the course of a ploughing competition under the auspices of the National Ploughing Association, a temporary exemption applies in the form of an extension to the time period specified in sub-article (1) or (2) for establishment of green cover after the land is ploughed.

(7) Shallow cultivation or sowing of a crop must take place within 7 days of baling of straw post harvest. Where straw is chopped shallow cultivation or sowing a crop must take place within 7 days of harvest. In all circumstances, shallow cultivation or sowing of a crop must take place within 14 days of harvesting. In certain weather conditions, the Minister, in discussion with the Minister for Agriculture, Food and the Marine, may advise when this should not apply.

PART 5

GENERAL

General duty of occupier

22. (1) An occupier of a holding shall ensure compliance with the provisions of these Regulations in relation to that holding.

(2) An occupier of a holding shall comply with any advice and/or directions which may be issued from time to time for the purposes of these Regulations by the Minister, the Minister for Agriculture, Food and the Marine or the Agency.

Keeping of records by occupier

23. (1) Records shall be maintained for each holding which shall indicate—

(*a*) total area of the holding,

(*b*) eligible area of the holding,

(*c*) cropping regimes and their individual areas,

(*d*) livestock numbers and type,

(*e*) an estimation of the annual fertiliser requirement for the holding and a copy of any Nutrient Management Plan prepared in relation to the holding,

(*f*) quantities and types of chemical fertilisers moved on to or off the holding, including opening stock, records of purchase and closing stock,

(*g*) livestock manure and other organic fertilisers moved on to or off the holding including quantities, type, dates and details of exporters and importers, as the case may be, in a format specified by the Minister for Agriculture, Food and the Marine,

(*h*) the results of any soil tests carried out in relation to the holding,

(*i*) the nature and capacity of facilities on the holding for the storage of livestock manure and other organic fertilisers, soiled water and effluents from dungsteads, farmyard manure pits, silage pits or silage clamps, including an assessment of compliance with Articles 9 to 14,

(*j*) the quantities and types of concentrated feedstuff fed to grazing live-stock on the holding, and

(*k*) the location of any abstraction point of water used for human consumption from any surface waters, borehole, spring or well.

(2) Where fertiliser is used on a holding and a certificate of the type mentioned in Article 15 or 20 was issued in relation to that fertiliser in accordance with Article 32, a copy of the certificate shall be retained and be available for inspection on the holding for a period of not less than five years from the expiry of validity of the certificate.

(3) Records shall be prepared for each calendar year by 31st March of the following year and shall be retained for a period of not less than five years.

(4) Notwithstanding sub-paragraphs (1), (2) and (3), an occupier shall, where requested by the Minister, the Minister for Agriculture, Food and the Marine, a local authority or the Agency, provide such information as is requested relating to the movement of organic fertilisers on or off the holding.

False or misleading information

24. A person shall not compile information which is false or misleading to a material extent or furnish any such information in any notice or other document for the purposes of these Regulations.

Authorised person

25. (1) In this Article, "authorised person" means—

(*a*) a person who is an authorised person for the purposes of section 28 of the Local Government (Water Pollution) Act, 1977 (No. 1 of 1977), or

(*b*) a person appointed under sub-article (11) to be an authorised person for the purposes of these Regulations.

(2) An authorised person may for any purpose connected with these Regulations—

(*a*) enter and inspect any premises for the purposes of performing a function under these Regulations or of obtaining any information which he or she may require for such purposes,

(*b*) at all reasonable times, or at any time if he or she has reasonable grounds for believing that there is or may be a risk to the environment, or that an offence under these Regulations is being or is about to be committed, arising from the carrying on of an activity at a premises, enter any premises and bring onto those premises such other persons (including a member of the Garda Síochána) or equipment as he or she may consider necessary, or

(*c*) at any time if he or she has reasonable grounds for suspecting there may be a risk to the environment, or that an offence under these Regulations is being or is about to be committed, involving the use of any vehicle halt and board the vehicle and require the driver of the vehicle to take it to a place designated by the authorised person, and such a vehicle may be detained at that place by the authorised person for such period as he or she may consider necessary.

(3) An authorised person shall not enter into a private dwelling under this article unless one of the following conditions applies—

(*a*) the entry is effected with the consent of the occupier or

(*b*) the entry is authorised by a warrant issued under sub-article (7).

(4) Whenever an authorised person enters any premises or boards any vehicle, under this article, he or she may—

(*a*) take photographs and carry out inspections, record information on data loggers, make tape, electrical, video or other recordings,

(*b*) carry out tests and make copies of documents (including records kept in electronic form) found therein and take samples,

(*c*) monitor any effluent, including trade effluent or other matter, which is contained in or discharged from a premises,

(*d*) carry out surveys, take levels, make excavations and carry out examinations of depth and nature of subsoil,

(*e*) require that the premises or vehicle or any part of the premises or anything in the premises or vehicle shall be left undisturbed for a specified period,

(*f*) require information from an occupier of the premises of any occupant of the vehicle or any person employed on the premises or any other person on the premises,

(*g*) require the production of, or inspect, records (including records held in electronic form) or documents, or take copies of or extracts from any records or documents, and

(*h*) remove and retain documents and records (including documents held in electronic form) for such period as may be reasonable for further examination, which the authorised person, having regard to all the circumstances, considers necessary for the purposes of exercising any function under these Regulations.

(5) (*a*) An authorised person who, having entered any premises or boarded any vehicle pursuant to these Regulations, considers that a risk to the environment arises from the carrying on of an activity at the premises or involving the use of the vehicle, may direct the owner or occupier of the premises or the driver of the vehicle to take such measures as are considered by that authorised person to be necessary to remove that risk.

(*b*) If the owner, occupier or driver referred to in paragraph (a) fails to comply with a direction of an authorised person under this subsection, the authorised person may do all things as are necessary to ensure that the measures required under the direction are carried out and the costs incurred by him or her in doing any such thing shall be recoverable from the owner or occupier by him or her, or the person by whom he or she was appointed.

(6) A person shall not—

(*a*) refuse to allow an authorised person to enter any premises or board any vehicle or to bring any person or equipment with him or her in the exercise of his or her powers,

(*b*) obstruct or impede an authorised person in the exercise of any of his or her powers,

(*c*) give to an authorised person information which is to his or her know-ledge false or misleading in a material respect, or

(*d*) fail or refuse to comply with any direction or requirement of an authorised person.

(7) (*a*) Where an authorised person in the exercise of his or her powers under this Article is prevented from entering any premises, or if the authorised person has reason to believe that evidence related to a suspected offence under these Regulations may be present in any premises and that the evidence may be removed therefrom or destroyed, or if the authorised person has reason to believe that there is a significant immediate risk to the environment, the authorised person or the person by whom he or she was appointed may apply to the District Court for a warrant under this Article authorising the entry by the authorised person onto or into the premises.

(*b*) If, on application being made to the District Court under this Article, the District Court is satisfied, on the sworn information of the authorised person that he or she has been prevented from entering a premises, the Court may issue a warrant authorising that person, accompanied, if the Court deems it appropriate by another authorised person or a member of the Garda Síochána, as may be specified in the warrant, at any time or times within one month from the date of the issue of the warrant, on production if so requested of the warrant, to enter, if need be by force, the premises concerned and exercise the powers referred to in sub-article (4) or (5).

(8) An authorised person may, in the exercise of any power conferred on him or her by these Regulations involving the bringing of any vehicle to any place, or where he or she anticipates any obstruction in the exercise of any other power conferred on him or her by these Regulations, request a member of the Garda Síochána to assist him or her in the exercise of such a power and any member of the Garda Síochána to whom he or she makes such a request shall comply with this request.

(9) Any certificate or other evidence given, or to be given, in respect of any test, examination or analysis of any sample shall, in relation to that sample, be evidence, without further proof, of the result of the test, examination or analysis unless the contrary is shown.

(10) When exercising any power conferred on him or her by these Regulations an authorised person shall, if requested by any person affected, produce a certificate or other evidence of his or her appointment as an authorised person.

(11) A person may be appointed as an authorised person for the purposes of these Regulations by the Minister, the Minister for Agriculture, Food and the Marine or the Agency.

(12) In this article "premises" includes land whether or not there are any structures on the land.

Offences and related matters

26. (1) A person who contravenes a provision of Parts 2 to 5 and Schedule 5 of these Regulations, excluding Article 17(5), (6), (7), (10) and (11), is guilty of an offence and shall be liable—

(*a*) on summary conviction to a Class A fine or to imprisonment for a term not exceeding 3 months or both or,

(*b*) on conviction on indictment to a fine not exceeding €500,000 or to imprisonment for a term not exceeding one year or to both such fine and such imprisonment.

(2) Where an offence under these Regulations has been committed by a body corporate and it is proved to have been so committed with the consent or connivance of or to be attributable to any neglect on the part of any person who, when the offence was committed, was a director, manager, secretary or other officer of the body corporate, or a person purporting to act in any such capacity, that person, as well as the body corporate, is guilty of an offence and liable to be proceeded against and punished as if guilty of the first-mentioned offence.

(3) Where the affairs of a body corporate or unincorporated body are managed by its members, sub-article (2) shall apply to the acts and defaults of a member in connection with the functions of management as if such a member were a director or manager of the body.

(4) A prosecution for a summary offence under these Regulations may be taken by a local authority or the Agency.

(5) A prosecution for a summary offence may be taken by a local authority whether or not the offence is committed in the functional area of the authority.

(6) Where a court imposes a fine or affirms or varies a fine imposed by another court for an offence under these Regulations, prosecuted by the Agency or a local authority, it shall, on the application of the Agency or local authority concerned (made before the time of such imposition, affirmation or variation), provide by order for the payment of the amount of the fine to the Agency or local authority, as the case may be, and such payment may be enforced by the Agency or local authority, as the case may be, as if it were due to it on foot of a decree or order made by the court in civil proceedings.

(7) Where a person is convicted of an offence under these Regulations the court shall, unless it is satisfied that there are special and substantial reasons for not so doing, order that person to pay to the Agency or local authority concerned the costs and expenses, measured by the court, reasonably incurred by the Agency or local authority in relation to the investigation, detection and prosecution of the offence, including costs incurred in the taking of samples, the carrying out of tests, examinations and analyses and in respect of the remuneration and other expenses of employees, consultants and advisers.

(8) (*a*) Where a local authority has reason to believe that an offence has been or is being committed in relation to a holding the authority may by notice require the person who appears to the authority to be the occupier to provide such information as is specified in the notice in relation to the alleged offence and it shall be the duty of that person to provide such information within the time frame specified in the notice insofar as is known to him or her.

(*b*) A notice issued in accordance with paragraph (a) shall set out the provisions of Articles 22(1) and 24 and of sub-article (1).

(9) Where a local authority considers that an offence under these Regulations has been or is being committed in relation to a holding the authority shall take such enforcement measures as are warranted by the circumstances and as are necessary to ensure satisfactory compliance with these Regulations and which, save in the case of a trivial or insignificant offence or specific mitigating circumstances, shall include prosecution for the alleged offence.

(10) (*a*) Where on application by motion by the Agency or a local authority to the District Court, Circuit Court or the High Court, the court hearing the application is satisfied that a person has failed or is failing to comply with a provision of Parts 2 to 5 of these Regulations, the court may by order—

(i) direct the person to comply with the provisions,

(ii) make such other provision, including provision in relation to the payment of costs, as the court considers appropriate, and

(iii) make such interim or interlocutory order as it considers appropriate.

(*b*) An application for an order under this Article may be made whether or not there has been a prosecution for an offence under these Regulations in relation to the relevant failure of compliance and shall not prejudice the initiation of a prosecution for an offence under these Regulations in relation to the failure of compliance.

(11) The powers, duties and functions assigned to a local authority or the Agency by this Article are additional to, and not in substitution for, the powers, duties and functions assigned by the Local Government (Water Pollution) Acts 1977 and 1990 or any other statute.

(12) A local authority shall maintain a register of inspections undertaken of farm holdings and information received for the purposes of Article 26(8) and shall keep updated a record of all enforcement measures undertaken in accordance with the requirements of Article 26(9) and Article 29(6).

PART 6

FUNCTIONS OF PUBLIC AUTHORITIES

Minister for Agriculture, Food and the Marine

27. (1) The Minister for Agriculture, Food and the Marine shall carry out, or cause to be carried out, such monitoring and evaluation programmes in relation to farm practices as may be necessary to determine the effectiveness of measures being taken in accordance with these Regulations.

(2) The Minister for Agriculture, Food and the Marine shall, in relation to each year, make the overall results of monitoring and evaluations carried out in accordance with sub-article (1) available to the Agency, to the Minister and, on request, to a local authority.

(3) The Minister for Agriculture, Food and the Marine shall prepare and keep updated a register of all holdings and shall, on request, make a copy of the register available to the Minister, the Agency or a local authority.

(4) The Minister for Agriculture, Food and the Marine shall make available to the Minister, a local authority or the Agency a report of an inspection or inspections carried out for the purposes of these Regulations or upon written request other information in relation to any holding or holdings as the case may be where such transfer of data is necessary for the purposes of ensuring compliance with these Regulations.

(5) The Minister for Agriculture, Food and the Marine shall make available, upon written request, information in relation to any holding or holdings, as the case may be, where such transfer of data is necessary for the purposes of carrying out any functions set out in these regulations, including for the purpose of promoting compliance with these Regulations. Such information may be requested by the following:-

(*a*) the Minister,

(*b*) an individual local authority,

(*c*) a representative local authority under a local authority shared service established for the purpose of carrying out functions set out in these regulations including for the purpose of promoting compliance with these Regulations,

(*d*) Teagasc for the purpose of promoting compliance with these Regulations,

(*e*) the Agency.

(6) The Minister for Agriculture, Food and the Marine shall ensure compliance with the Data Sharing and Governance Act, No. 5 of 2019 in making available any information under sub-article (5) above.

Making and review of action programme by the Minister

28. (1) The Minister shall, following consultation with the Minister for Agriculture, Food and the Marine and other interested parties in accordance with this Article, prepare and publish not later than 31st December 2025 and every four years thereafter, a programme of measures (hereafter in this Article referred to as "an action programme") for the protection of waters against pollution from agriculture. An interim review of this action programme shall be undertaken by the Minister starting within the second year of the programme.

(2) An action programme required by sub-article (1) shall include all such measures as are necessary for the purposes of Article 5 of the Nitrates Directive and shall contain a review of the action programme most recently made for those purposes and of such additional measures and reinforced actions as may have been taken.

(3) The Minister shall ensure that all interested parties are given early and effective opportunities to participate in the preparation, review and revision of an action programme required by this Article and for this purpose shall—

(*a*) inform interested parties by public notices or other appropriate means including electronic media, in relation to any proposals for the preparation, review or revision of an action programme,

(*b*) make available to interested parties information in relation to the proposals referred to in paragraph (*a*) including information about the right to participate in decision-making in relation to those proposals,

(*c*) provide an opportunity for comment by interested parties before any decision is made on the establishment, review or revision of an action programme,

(*d*) in making any such decision, take due account of the comments made by interested parties and the results of the public participation, and

(*e*) having examined any comments made by interested parties, make reasonable efforts to inform those parties of the decisions taken and the reasons and considerations on which those decisions are based, including information on the public participation process.

(4) The Minister shall ensure that such reasonable time is allowed as is sufficient to enable interested parties to participate effectively.

(5) Where the Minister publishes any information in accordance with this Article, the Minister shall—

(*a*) do so in such manner as the Minister considers appropriate for the purpose of bringing that information to the attention of the public, and

(*b*) make copies of that information accessible to interested parties free of charge through a website or otherwise.

(6) The Minister shall specify by way of public notice on a website or otherwise the detailed arrangements made to enable public participation in the preparation, review or revision of an action programme, including—

(*a*) the address to which comments in relation to those proposals may be submitted, and

(*b*) the date by which such comments should be received.

(7) In this Article "interested parties" includes persons who—

(*a*) are carrying on any business which relies upon the water environment or which is affected, or likely to be affected, by the action programme, or

(*b*) are carrying on any activities which have or are likely to have an impact on water status, or

(*c*) have an interest in the protection of the water environment whether as users of the water environment or otherwise.

Agency

29. (1) The Agency shall prepare at four-yearly intervals a report in accordance with Article 10 of the Nitrates Directive and shall submit such report to the Minister.

(2) The Agency shall undertake a review of progress made in implementing these Regulations and shall submit a report to the Minister by 30th June 2025 and every four years thereafter with the results of that review and with recommendations as to such additional measures, if any, as appear to be necessary to prevent and reduce water pollution from agricultural sources.

(3) In preparing the reports required under sub-articles (1) and (2) the Agency shall consult with the Department of Agriculture, Food and the Marine and the co-ordinating local authority in each river basin district, and such other persons as it considers appropriate.

(4) The Department of Agriculture, Food and the Marine, the relevant local authorities and Irish Water shall provide the Agency with such information appropriate to their functions as may be requested by the Agency for the purposes of these Regulations.

(5) Each monitoring programme prepared by the Agency for the purposes of Article 10 of European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003) shall include provision for such monitoring as is necessary for the purposes of these Regulations.

(6) The Agency shall make recommendations and shall, where considered necessary, give directions to each local authority in relation to the monitoring and inspections to be carried out, or other measures to be taken, by the authority for the purposes of these Regulations. The Agency may revise such recommendations and directions at such times thereafter as the Agency considers appropriate.

(7) The powers, duties and functions assigned to the Agency by these Regulations are additional to, and not in substitution for, the powers, duties and

functions assigned to the Agency by section 63 of the Environmental Protection Agency Act, 1992 (No. 7 of 1992) or any other statute.

Local authorities

30. (1) A local authority shall carry out, or cause to be carried out, such monitoring of surface waters and groundwater at selected measuring points within its functional area as makes it possible to establish the extent of pollution in the waters from agricultural sources and to determine trends in the occurrence and extent of such pollution.

(2) A local authority shall carry out or cause to be carried out such inspections of farm holdings as is necessary for the purposes of these Regulations and shall aim to co-ordinate its inspection activities with inspections carried out by other public authorities.

(3) For the purposes of sub-article (2) a local authority shall aim to develop co-ordination arrangements with other public authorities with a view to promoting consistency of approach in inspection procedures and administrative efficiencies between public authorities and to avoid any unnecessary duplication of administrative procedures and shall have regard to any inspection protocol which may be developed by the Minister, following consultation with the Minister for Agriculture, Food and the Marine.

(4) A local authority shall, in the exercise of its functions for the purposes of these Regulations—

(*a*) consult to such extent as it considers appropriate with the Minister, the Minister for Agriculture, Food and the Marine, the Agency, Irish Water and such other persons as it considers appropriate, and

(*b*) have full regard to any recommendations made, and comply with any direction given, to the authority by the Agency in accordance with Article 29.

(5) A local authority shall follow any protocol established by the Minister for furnishing a report of an inspection or inspections to the Department of Agriculture, Food and the Marine and such other persons as it considers appropriate for the purposes of these Regulations where non-compliance has been detected.

(6) A local authority shall maintain a register of all prior investigations carried out by the local authority itself or by Irish Water within its jurisdiction, and distances specified, for the purposes of Article 17.

Compliance with Data Protection Acts

31. The provision of information by a local authority, the Agency or the Minister for Agriculture, Food and the Marine in accordance with Article 27, 29 or 30 of these Regulations shall not be a breach of the Data Protection Acts, 1988, 2003 and 2018.

Certificate in relation to nutrient content of fertiliser

32. (1) A certificate of the type specified in Article 15 or 20 may be issued by a competent authority where the authority is satisfied that the nutrient content of the fertiliser in question has been assessed on the basis of appropriate methodologies based on net farm balance and is as specified in the certificate.

(2) A certificate issued under this Article shall be valid for such period, not exceeding twelve months, as shall be specified in the certificate.

(3) In this Article "competent authority" means—

(*a*) the Agency in relation to fertiliser arising in an activity in relation to which there is in force a licence under Part IV of the Act of 1992, and

(*b*) the Minister for Agriculture, Food and the Marine in relation to any other fertiliser.

(4) Notice of the methodologies used for the purposes of sub-article (1) shall be notified to the European Commission by the competent authority.

Exemption for exceptional circumstances for research

33. (1) A temporary exemption from a requirement of these Regulations may be granted to a person by the Agency or the Minister for Agriculture, Food and the Marine in the case of exceptional circumstances relating to research.

(2) A temporary exemption for the purposes of sub-article (1) shall be granted by way of certificate issued to the person carrying out the research by the Agency or the Minister for Agriculture, Food and the Marine and shall be subject to such conditions, if any, as are specified in the certificate.

(3) A certificate issued for the purposes of this Article shall specify the nature, extent and duration of the exemption to which the certificate relates and a copy of the certificate shall be sent as soon as may be to the relevant local authority.

SCHEDULE 1

SOIL TEST

A soil test refers to the results of an analysis of a soil sample carried out by a soil-testing laboratory that meets the requirements of the Minister for Agriculture, Food and the Marine for this purpose.

The analysis for phosphorus and, where appropriate, organic matter content and soil pH, and the taking of soil samples shall be carried out in accordance with the procedures below.

Analysis for Phosphorus

The Morgan's extractable P test as detailed below shall be used to determine the Soil P Index. A review of this soil test methodology for phosphorus availability will be undertaken for the mid-term review of this programme.

Preparation of soil sample

The soil shall be dried at 40°C for at least 24 hours (longer if necessary to ensure complete drying) in a forced draught oven with moisture extraction facilities. It shall then be sieved through a 2 mm mesh screen to remove stones and plant debris. After thorough mixing, it shall be sub-divided to obtain a representative sample. Where large samples are received at the laboratory, the entire sample shall be dried and sieved prior to sub-sampling for analysis.

Morgan's extracting solution

Constituents:— 1,400 ml of 40% NaOH in approximately 15 litres of water. Add 1,440 ml of glacial acetic acid. Make up to 20 litres with water and adjust pH to 4.8. The pH of the solution must be checked regularly and adjusted as necessary before use. A volume ratio of one part sieved soil to five parts of solution must be used, e.g. 6 ml of the prepared soil sample is extracted with a 30 ml volume of Morgan's extracting solution. The sample shall be shaken for 30 minutes to get a suitable mix and permit intended reaction, after which it is filtered through a No. 2 Whatman filter paper into vials for analysis. The filtered extract shall be analysed using standard laboratory techniques.

Results shall be reported in mg per litre.

Analysis of organic matter

Organic matter content shall be determined by loss on ignition.

Place a quantity of the prepared soil sample in an oven for 16 hours at 105°C. Remove and cool in a desiccator. Put approximately 4g of this soil into a pre-weighed crucible and determine the weight of the soil (initial weight). Place in a muffle furnace at 500°C for 16 hours for ashing. Remove the crucible, cool in a desiccator and determine the weight of the ash (final weight).

The organic matter of the soil is the difference in weight between the initial and final weights expressed as a percentage of the initial weight.

Analysis of soil pH

Soil pH shall be determined by measuring pH in a soil:water suspension of 1:2 ratio. Place 10 ml of dried sieved soil and 20 mls of deionised water into a suitable container. Mix thoroughly and allow to stand for at least 10 minutes. Stir for 30 seconds, and allow to settle immediately before recording the pH on a meter calibrated using buffer solutions of pH 4.0 and 7.0

Soil Sampling Procedure

The soil sample shall be taken in accordance with the procedure as specified below:

(*a*) The sampling area shall not exceed 4 hectares. Exceptionally, where soil types and cropping of lands were similar during the previous five years, a sample area of up to 5 hectares shall be deemed acceptable.

(*b*) Separate samples shall be taken from areas that are different in soil type, previous cropping history, slope, drainage or persistent poor yields.

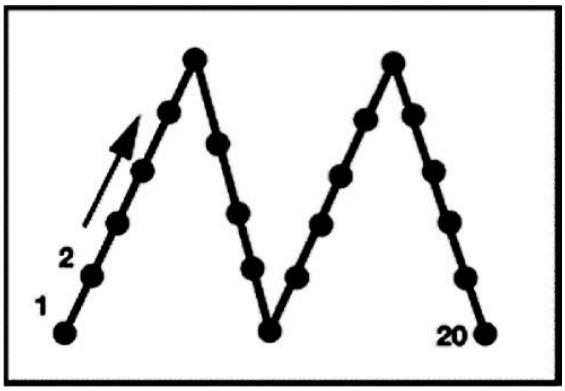
(*c*) Any unusual spots such as old fences, ditches, drinking troughs, dung or urine patches or where fertiliser or lime has been heaped or spilled shall be avoided.

(*d*) A field shall not be sampled for phosphorus until 3 months after the last application of any fertiliser containing this nutrient (chemical or organic).

(*e*) The sampling pattern shown in the figure below shall be followed. A soil core shall be taken to the full 100 mm depth. 20 cores shall be taken from the sampling area and placed in the soil container to make up the sample. Ensure the container is full of soil.

(*f*) The field and sample numbers shall be written/attached onto the soil container.

Figure 1: Sampling pattern



SCHEDULE 2

Article 8

CRITERIA AS TO STORAGE CAPACITY AND NUTRIENT MANAGEMENT

Table 1 Slurry storage capacity required for sows and pigs

Unit type	m^3/week[1]				
Water:meal ratio changing for finishers only	2.0:1	2.5:1	3.0:1	3.5:1	4.0:1
Breeding unit (per sow place)	-	-	-	-	0.174
Integrated unit (per sow place)	0.312	0.355	0.398	0.441	0.483
Finishing unit (per pig)	0.024	0.031	0.039	0.046	0.053

[1]An additional 200mm freeboard must be provided in all covered tanks and 300mm freeboard in all uncovered tanks. Allowance must also be made for net rainfall during the specified storage period for uncovered tanks.

Table 2 Slurry storage capacity required for cattle, sheep and poultry

Livestock type	m^3/week[1]
Dairy cow	0.33
Suckler cow	0.29
Cattle > 2 years	0.26
Cattle (18-24 months old)	0.26
Cattle (12-18 months old)	0.15
Cattle (6-12 months old)	0.15
Cattle (0-6 months old)	0.08
Lowland ewe	0.03
Mountain ewe	0.02
Lamb-finishing	0.01
Poultry — layers per 1000 birds (30% DM)	0.81

[1]An additional 200mm freeboard must be provided in all covered tanks and 300mm freeboard in all uncovered tanks. Allowance must also be made for net rainfall during the specified storage period for uncovered tanks.

Table 3 Storage capacity required for dungstead manure

Livestock type	Solid fraction (m^3/week)	Seepage fraction (m^3 /week)[1]
Dairy cow	0.28	0.04
Suckler cow	0.25	0.03
Cattle > 2 years	0.23	0.02
Cattle (18-24 months old)	0.23	0.02
Cattle (12-18 months old)	0.13	0.01
Cattle (6-12 months old)	0.13	0.01
Cattle (0-6 months old)	0.07	0.01

[1]Allowance must also be made for net rainfall during the specified storage period for uncovered tanks.

Table 4 Average net rainfall during the specified storage period

County	Millimetres per week
Carlow	24
Cavan	27
Clare	32
Cork	37
Donegal	38
Dublin	17
Galway	34
Kerry	45
Kildare	18
Kilkenny	23
Laois	22
Leitrim	33
Limerick	26
Longford	23
Louth	20
Mayo	40
Meath	19
Monaghan	23
Offaly	20
Roscommon	26
Sligo	32
Tipperary	27
Waterford	31
Westmeath	21
Wexford	25
Wicklow	33

Article 9

Table 5 Storage capacity required for effluent produced by ensiled forage

Crop	Minimum storage requirement	(m^3/100 tonnes)
	Short Term Storage[1]	Full Storage
Grass	7	21
Arable silage	7	21
Maize	4	10
Sugar beet tops	15	50

[1]Only permitted where a vacuum tanker or an irrigation system is available on the holding.

Article 14 and 20

Table 6 Annual nutrient excretion rates for livestock

Livestock type	Total Nitrogen	Total Phosphorus
	kg/year	kg/year
Dairy cow[7] (2022 only)	89	13
Dairy cow band 1[8] (from 2023)	80	12
Dairy cow band 2[9] (from 2023)	92	13.6
Dairy cow band 3[10] (from 2023)	106	15.8
Suckler cow	65	10
Cattle (0-1 year old)	24	3
Cattle (1-2 years old)	57	8
Cattle > 2 years	65	10
Mountain ewe & lambs	7	1
Lowland ewe & lambs	13	2
Mountain hogget	4	0.6
Lowland hogget	6	1
Goat	9	1
Horse (>3 years old)	50	9
Horse (2-3 years old)	44	8
Horse (1-2 years old)	36	6
Horse foal (< 1 year old)	25	3
Donkey/small pony	30	5
Deer (red) 6 months — 2 years	13	2

[7] In 2022 the N excretion rate for the dairy cow is 89 kg N/ha and from 2023 onwards the N excretion rate will be determined by the milk yield per annum (for the 3 preceding years) as explained in footnote 8, 9 and 10

[8] <4,500 kg milk yield per annum

[9] 4,501 – 6,500 kg milk yield per annum

[10] >6,500 kg milk yield per annum

Deer (red) > 2 years	25	4
Deer (fallow) 6 months — 2 years	7	1
Deer (fallow) > 2 years	13	2
Deer (sika) 6 months — 2 years	6	1
Deer (sika) > 2 years	10	2
Breeding unit (per sow place)	35	8
Integrated unit (per sow place)	87	17
Finishing unit (per pig place)	9.2	1.7
Laying hen per bird place	0.56	0.12
Broiler per bird place	0.24	0.09
Turkey per bird place	1	0.4

Article 15 and 20

Table 7 Amount of nutrient contained in $1m^3$ of slurry

Livestock type	Total Nitrogen (kg)	Total Phosphorus (kg)
Cattle	2.4	0.8
Pig	4.2	0.8
Sheep	10.2	1.5
Poultry — layers 30% DM	13.7	2.9

For the purposes of calculation, assume that 1 m^3 = 1,000 litres = 1 tonne = 1000 kg.

Table 8 Amount of nutrients contained in 1 tonne of organic fertilisers other than slurry

Livestock type		Total Nitrogen (kg)	Total Phosphorus (kg)
Poultry manure	broilers/deep litter	28.0	6.0
	layers 55% dry matter	23.0	5.5
	turkeys	28.0	13.8
Dungstead manure (cattle)		3.5	0.9
Farmyard manure		4.5	1.2
Spent mushroom compost		8	1.5
Sewage sludge		Total nitrogen and total phosphorus content per tonne shall be declared by the supplier in accordance with the Waste Management (Use of Sewage Sludge in Agriculture) Regulations,1998 to 2001 and any subsequent amendments thereto and this must be submitted to the local authority.	
Dairy processing residues and other products not listed above		Total nitrogen and total phosphorus content per tonne based on certified analysis shall be provided by the supplier.	

Article 15

Table 9 Nutrient availability in fertilisers

Fertiliser	Availability (%)		
	Nitrogen	Phosphorus	
		Soil Index 1& 2	Soil Index 3 & 4
Chemical	100	100	100
Pig and poultry manure	50	50	100
Farmyard manure	30	50	100
Spent mushroom compost	20	50	100
Cattle and other livestock manure (including that produced on the holding)	40	50	100

Table 9A Nutrient availability in compost

Compost C:N ratio[1]	N availability (%)
<10	25
12.5	17.5
15.0	10
17.5	5.5
>20	0.0

[1]The determination of the C:N ratio shall be based on a methodology agreed with the Agency or the Minister for Agriculture, Food and the Marine

Table 10 Determining nitrogen index for tillage crops

Tillage crops that follow permanent pasture			
Nitrogen Index			
Index 1	Index 2	Index 3	Index 4
The 5th tillage crop following permanent pasture. For subsequent tillage crops use the continuous tillage table.	The 3rd or 4th tillage crop following permanent pasture. If original permanent pasture was cut only, use index 1.	The 1st or 2nd tillage crop following permanent pasture (see also Index 4). If original permanent pasture was cut only, use index 2.	The 1st or 2nd tillage crop following very good permanent pasture which was grazed only.
Continuous tillage: — crops that follow short leys (1-4 years) or tillage crops			
Previous crop			
Index 1	Index 2	Index 3	Index 4
Cereals Maize	Sugar beet Fodder beet Potatoes Mangels Kale Oil seed rape, Peas, Beans		
	Leys (1-4 years) grazed or cut and grazed		
	Swedes removed	Swedes grazed in situ	
Vegetables receiving less than 200 kg/ha nitrogen	Vegetables receiving more than 200 kg/ha nitrogen		

Table 11 Phosphorus index system

Soil phosphorus index	Soil phosphorus ranges (mg/l)	
	Grassland	Other crops
1	0.0-3.0	0.0-3.0
2	3.1-5.0	3.1-6.0
3	5.1-8.0	6.1-10.0
4	> 8.0	>10.0

Table 12 Annual maximum fertilisation rates of nitrogen on grassland

Grassland stocking rate[1]	Available Nitrogen[2]
(kg/ha/year)	(kg/ha)
≤130	114
131-170	185
Grassland stocking rate greater than 170 kg/ha/year[3, 4]	
171-210	254
211-250	225
>250	225[5]

[1]Total annual nitrogen (kg) excreted by grazing livestock averaged over the eligible grassland area (ha) (grazing and silage area). Stocking rate refers to grassland area only.

[2]The maximum nitrogen fertilisation of grassland shall not exceed that specified for stocking rates less than or equal to 170 kg/ha/year unless a minimum of 5% of the eligible area of the holding is used to grow crops other than grass or a derogation applies in respect of the holding. Where a derogation applies on the holding derogation rates apply based on stocking rate of the holding. For a new derogation applicant they may apply the derogation rate of 225 kg/ha for the 1st year only and from year 2 onwards must use rates as per stocking rate on the holding.

[3]This table does not imply any departure from Article 20(1) which prohibits the application to land on a holding of livestock manure in amounts which exceed 170 kg nitrogen per hectare per year, including that deposited by the animals themselves (or 250 kg in the case of a holding to which a derogation has been granted, in accordance with the Nitrates Directive).

[4] these fertilisation rates are only applicable where the fertiliser type specified by the Minister for Agriculture, Food and the Marine is used.

[5]The application of nitrogen from livestock manure (including that deposited by the animals themselves) to the eligible grassland area shall not exceed 250 kg nitrogen per hectare per year.

Table 13A Annual maximum fertilisation rates of phosphorus on grassland

Grassland stocking rate[1] (kg/ha/year)	Phosphorus Index			
	1	2	3	4
	Available Phosphorus (kg/ha) [2,3,6]			
<85	27	17	7	0
86-130	30	20	10	0
131-170	33	23	13	0
Grassland stocking rate greater than 170 kg/ha/year[4,5]				
171-210	36	26	16	0
211-250	39	29	19	0
>250	39	29	19	0

[1]Total annual nitrogen (kg) excreted by grazing livestock averaged over the eligible grassland area (grazing and silage area). Stocking rate refers to grassland area only.
[2]The fertilisation rates for soils which have more than 20% organic matter shall not exceed the amounts permitted for Index 3 soils, subject to the provisions in Article 16(3)(*f*).
[3]Manure produced by grazing livestock on a holding may be applied to Index 4 soils on that holding in a situation where there is a surplus of such manure remaining after the phosphorus fertilisation needs of all crops on soils at phosphorus indices 1, 2 or 3 on the holding have been met by the use only of such manure produced on the holding.
[4]The maximum phosphorus fertilisation of grassland shall not exceed that specified for stocking rates less than or equal to 170 kg/ha/year unless a minimum of 5% of the eligible area of the holding is used to grow crops other than grass or a derogation applies in respect of the holding.
[5]This table does not imply any departure from Article 20(1) which prohibits the application to land on a holding of livestock manure in amounts which exceed 170 kg Nitrogen per hectare per year, including that deposited by the animals themselves (or 250 kg in the case of a holding to which a derogation has been granted in accordance with the Nitrates Directive).
[6]An additional 15 kg of phosphorus per hectare may be applied on soils at phosphorus indices 1, 2, or 3 for each hectare of pasture establishment undertaken.

Table 13B Annual maximum fertilisation rates of phosphorus on grassland adopting increased P build-up application rates

Grassland stocking rate[1] (kg/ha/year)	Phosphorus Index			
	1	2	3	4
	Available Phosphorus (kg/ha) [2,3,6]			
131-170	63	43	13	0
Grassland stocking rate greater than 170 kg/ha/year[4,5]				
171-210	66	46	16	0
211-250	69	49	19	0
>250	69	49	19	0

[1]Total annual nitrogen (kg) excreted by grazing livestock averaged over the eligible grassland area (grazing and silage area). Stocking rate refers to grassland area only.
[2]The fertilisation rates for soils which have more than 20% organic matter shall not exceed the amounts permitted for Index 3 soils, subject to the provisions in Article 16(3)(*f*)..
[3]Manure produced by grazing livestock on a holding may be applied to Index 4 soils on that holding in a situation where there is a surplus of such manure remaining after the phosphorus fertilisation needs of all crops on soils at phosphorus indices 1, 2 or 3 on the holding have been met by the use only of such manure produced on the holding.
[4]The maximum phosphorus fertilisation of grassland shall not exceed that specified for stocking rates less than or equal to 170 kg/ha/year unless a minimum of 5% of the eligible area of the holding is used to grow crops other than grass or a derogation applies in respect of the holding.
[5]This table does not imply any departure from Article 20(1) which prohibits the application to land on a holding of livestock manure in amounts which exceed 170 kg Nitrogen per hectare per year, including that deposited by the animals themselves (or 250 kg in the case of a holding to which a derogation has been granted in accordance with the Nitrates Directive).
[6]An additional 15 kg of phosphorus per hectare may be applied on soils at phosphorus indices 1, 2, or 3 for each hectare of pasture establishment undertaken.

Table 14 Annual maximum fertilisation rates of available nitrogen on grassland (cut only, no grazing livestock on holding)

	Available nitrogen (kg/ha)
1st cut	112
Subsequent cuts	90
Hay	72

Table 15 Annual maximum fertilisation rates of phosphorus on grassland cut only

Phosphorus Index				
	1	2	3	4
	Available Phosphorus (kg/ha)[1,2,3]			
First cut	40	30	20	0
Subsequent cuts	10	10	10	0

[1]The fertilisation rates for soils which have more than 20% organic matter shall not exceed the amounts permitted for Index 3 soils, subject to the provisions in Article 16(3)(*f*).
[2] The fertilisation rates apply to grassland where there is no grazing livestock on the holding.
[3]The fertilisation rates in this table apply to those areas of farms where hay or silage is produced for sale off the holding on farms stocked <85 kg grassland stocking rate.

Table 16 Maximum fertilisation rates of nitrogen on tillage crops

Crop	Nitrogen Index			
	1	2	3	4
	Available Nitrogen (kg/ha)			
Winter Wheat [1,2]	210	180	120	80
Spring Wheat [1,2]	160	130	95	60
Winter Barley [1]	180	155	120	80
Spring Barley [1,3]	135	100	75	40
Winter Oats[1]	145	120	85	45
Spring Oats[1]	110	90	60	30
Sugar Beet	195	155	120	80
Fodder Beet	195	155	120	80
Potatoes: Main Crop, >120 days[4]	250	190	170	140
Potatoes: Maincrop/seed, 90-120 days[4]	270	230	210	180
Potatoes: Early, 60-90 days[4]	210	170	150	120
Potatoes: Salad, <60 days[4]	140	120	100	60
Maize	180	140	110	75
Field Peas/Beans	0	0	0	0
Oil Seed Rape	225	180	160	140
Linseed	75	50	35	20
Swedes/Turnips	90	70	40	20
Kale	150	130	100	70
Forage Rape	130	120	110	90

[1]Where proof of higher yields is available, an additional 20 kg N/ha may be applied for each additional tonne above the following yields:
Winter Wheat — 9.0 tonnes/ha Spring Wheat — 7.5 tonnes/ha
Winter Barley — 8.5 tonnes/ha Spring Barley — 6.5 tonnes/ha
Winter Oats — 7.5 tonnes/ha Spring Oats — 6.5 tonnes/ha
The higher yields shall be based on the best yield achieved in any of the three previous harvests, at 20% moisture content.
[2]Where milling wheat is grown under a contract to a purchaser of milling wheat, an extra 30 kg N/ha may be applied.
[3]Where malting barley is grown under a contract to a purchaser of malting barley, an extra 20 kg N/ha may be applied where it is shown on the basis of agronomic advice that additional nitrogen is needed to address a proven low protein content in the grain.
[4]Length of growing season

Table 17 Maximum fertilisation rates of phosphorus on tillage crops

Crop	Phosphorus Index			
	1	2	3	4
	Available Phosphorus (kg/ha)[1]			
Winter Wheat [2,3,5]	45	35	25	0
Spring Wheat [2,3]	45	35	25	0
Winter Barley [2,3,5]	45	35	25	0
Spring Barley [2,3]	45	35	25	0
Winter Oats [2,3,5]	45	35	25	0
Spring Oats [2,3]	45	35	25	0
Sugar Beet	70	55	40	20
Fodder Beet	70	55	40	20
Potatoes: Main Crop	125	100	75	50
Potatoes: Early	125	115	100	50
Potatoes: Seed/Salad	125	115	100	85
Maize	70	50	40	20[4]
Field Peas	40	25	20	0
Field Beans	50	40	20	0
Oil Seed Rape	55	45	35	0
Linseed	35	30	20	0
Swedes/Turnips	70	60	40	40
Kale	60	50	30	0
Forage Rape	40	30	20	0

[1]The fertilisation rates for soils which have more than 20% organic matter shall not exceed the amounts permitted for Index 3 soils.

[2]Where proof of higher yields is available, an additional 3.8 kg P/ha may be applied on soils at phosphorus 1, 2, or 3 for each additional tonne above a yield of 6.5 tonnes/ha. The higher yields shall be based on the best yield achieved in any of the three previous harvests, at 20% moisture content.

[3]Where pH is greater than or equal to 7, 20 kg P/ha may be applied on soils at phosphorus index 4.

[4]Must be incorporated prior to or during sowing.

[5] For winter cereals on soils of P index 1 and 2, 20 kg of the maximum P fertilisation rate may be applied up to 31st October, which must be incorporated prior to or during sowing.

Table 18 Maximum fertilisation rates of nitrogen on vegetable crops

Crop	Nitrogen Index				Maximum additional supplementation (Top dressing)
	1	2	3	4	
	Available Nitrogen (kg/ha)				
Asparagus (Establishment)	140	115	95	70	
Asparagus (After harvest)	0	0	0	0	70
Broad Beans	0	0	0	0	
French Beans	90	85	75	70	
Beetroot	140	125	105	90	
Brussels Sprouts	120	115	105	100	180
Spring Cabbage	50	35	15	0	250
Other Cabbage	150	135	115	100	100
Broccoli	120	115	100	90	120
Cauliflower (Winter and Spring)	75	50	25	0	150
Cauliflower (Summer and Autumn)	120	85	65	40	120
Carrots	90	70	40	0	
Celery	120	85	65	50	180
Courgettes	140	125	105	90	
Leeks	150	130	100	80	150
Lettuce	100	90	80	70	50
Onions	70	60	50	40	70
Scallions	90	80	70	60	60
Parsley	100	80	60	40	150
Parsnip	100	85	70	50	70
Peas (Market)	0	0	0	0	
Rhubarb	100	90	80	70	200
Spinach	140	125	105	90	100
Swede (Horticultural)	70	45	25	20	30
Swede (Transplanted crops)	90	60	30	0	

Table 19 Maximum fertilisation rates of phosphorus on vegetable crops

Crop	Phosphorus Index			
	1	2	3	4
	Available Phosphorus (kg/ha)[1]			
Asparagus (Establishment)	65	45	35	20
Asparagus (After harvest)	27	22	15	10
Broad Beans	65	45	35	20
French Beans	65	45	35	20
Beetroot	65	45	35	20
Brussels Sprouts	65	45	35	20
Spring Cabbage	65	45	35	20
Other Cabbage	65	45	35	20
Broccoli	65	45	35	20
Cauliflower (Winter and Spring)	65	45	35	20
Cauliflower (Summer and Autumn)	65	45	35	20
Carrots	65	45	35	20
Celery	88	65	55	28
Courgettes	65	45	35	20
Leeks	65	45	35	20
Lettuce	80	60	40	20
Onions	65	45	35	20
Scallions	65	45	35	20
Parsley	65	45	35	20
Parsnip	65	45	35	20
Peas (Market)	65	45	35	20
Rhubarb	65	45	35	20
Spinach	65	45	35	20
Swede (Horticultural)	70	60	45	35
Swede (Transplanted crops)	70	60	45	35

[1]The fertilisation rates for soils which have more than 20% organic matter shall not exceed the amounts permitted for Index 3 soils.

Table 20 Annual maximum fertilisation rates of nitrogen on fruit/soft fruit crops

	Available Nitrogen (kg/ha)
Apples (Dessert)	125
Apples (Culinary)	125
Pears	50
Cherries	70
Plums	70
Blackcurrants	80
Gooseberries	40
Raspberries	60
Strawberries	50
Redcurrants	60
Loganberries	50
Blackberries	50

Table 21 Annual maximum fertilisation rates of phosphorus on fruit/soft fruit crops

	Phosphorus Index			
	1	2	3	4
	Available Phosphorus (kg/ha)[1]			
Apples (Dessert)	25	16	12	8
Apples(Culinary)	20	12	10	8
Pears	16	8	4	0
Cherries	16	8	4	0
Plums	16	8	4	0
Blackcurrants	20	16	12	8
Gooseberries	20	16	12	8
Raspberries	20	16	12	8
Strawberries	16	8	4	0
Redcurrants	20	16	12	8
Loganberries	20	16	12	8
Blackberries	20	16	12	8

[1]The fertilisation rates for soils which have more than 20% organic matter shall not exceed the amounts permitted for Index 3 soils.

SCHEDULE 3

Articles 10, 11, 13 and 16

STORAGE PERIODS FOR LIVESTOCK MANURE

1. The storage period specified for the purposes of Articles 10(2), 11(2), 13 and 16(5)(*b*) is—

(a) 16 weeks in relation to holdings in counties Carlow, Cork, Dublin, Kildare, Kilkenny, Laois, Offaly, Tipperary, Waterford, Wexford and Wicklow;

(b) 18 weeks in relation to holdings in counties Clare, Galway, Kerry, Limerick, Longford, Louth, Mayo, Meath, Roscommon, Sligo and Westmeath;

(c) 20 weeks in relation to holdings in counties Donegal and Leitrim, and

(d) 22 weeks in relation to holdings in counties Cavan and Monaghan.

1. Where 20% or more of a holding lies within one or more counties of higher storage requirement as specified in paragraph 1, the holding shall be deemed for the purposes of this Schedule to lie wholly within the county in relation to which the longest storage period is specified.

SCHEDULE 4

Articles 14, 17 and 19

PERIODS WHEN APPLICATION OF FERTILISERS TO LAND IS PROHIBITED

1.In counties Carlow, Cork, Dublin, Kildare, Kilkenny, Laois, Offaly, Tipperary, Waterford, Wexford and Wicklow, the period during which the application of fertilisers to land is prohibited in the period from—

(a) 15th September to 26th January in the case of the application of chemical fertiliser and not withstanding sub-paragraph (4)

(b) 8th October[11] to 12th January in the case of the application of organic fertiliser (other than farmyard manure) and not withstanding sub-paragraph (5)

(c) 1st November to 12th January in the case of the application of farmyard manure.

[11] From 1st January 2023 the date for beginning of prohibited period will be 1st October

2. In counties Clare, Galway, Kerry, Limerick, Longford, Louth, Mayo, Meath, Roscommon, Sligo and Westmeath, the period during which the application of fertilisers to land is prohibited is the period from—

(a) 15th September to 29th January in the case of the application of chemical fertiliser and not withstanding sub paragraph (4)
(b) 8th October[6] to 15th January in the case of the application of organic fertiliser (other than farmyard manure) and not withstanding sub-paragraph (5)
(c) 1st November to 15th January in the case of the application of farmyard manure.

3. In counties Cavan, Donegal, Leitrim and Monaghan, the period during which the application of fertilisers to land is prohibited is the period from—

(a) 15th September to 14th February in the case of the application of chemical fertiliser and not withstanding sub-paragraph (4)
(b) 8th October[6] to 31st January in the case of the application of organic fertiliser (other than farmyard manure) and not withstanding sub-paragraph (5)
(c) 1st November to 31st January in the case of the application of farmyard manure.

4. In relation to the prohibited periods for spreading chemical fertiliser, the Minister shall by 1st September 2022, following consultation with the Minister for Agriculture, Food and the Marine, publish criteria for the application of slurry from the 15th January. The spreading of all chemical fertiliser shall be in accordance with these criteria from the 15th January.

5. In relation to the commencement of the closed period for slurry application, the Minister shall by 1st September 2022, following consultation with the Minister for Agriculture, Food and the Marine, publish criteria for the application of slurry from 1st October to the 15th October. The spreading of all slurry shall be in accordance with these criteria from the 8th October to the 15th October 2022 and from 1st October to the 15th October in subsequent years.

L.S.

GIVEN under my Official Seal,
9 March, 2022.

DARRAGH O'BRIEN,
Minister for Housing, Local Government and Heritage.

EXPLANATORY NOTE

(*This note is not part of the Instrument and does not purport to be a legal interpretation*)

These Regulations, which give effect to Ireland's Fifth Nitrates Action Programme, provide statutory support for good agricultural practice to protect waters against pollution from agricultural sources and include measures such as

- periods when land application of fertilisers is prohibited
- limits on the land application of fertilisers
- storage requirements for livestock manure, and
- monitoring of the effectiveness of the measures in terms of agricultural practice and impact on water quality.

The Regulations give further effect to several European Directives including Directives in relation to protection of waters against pollution from agricultural sources ("the Nitrates Directive"), dangerous substances in water, waste management, protection of groundwater, public participation in policy development and water policy (the Water Framework Directive).

The Regulations revoke the European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2017 and other subsequent amending regulations.

BAILE ÁTHA CLIATH
ARNA FHOILSIÚ AG OIFIG AN tSOLÁTHAIR
Le ceannach díreach ó
FOILSEACHÁIN RIALTAIS,
BÓTHAR BHAILE UÍ BHEOLÁIN,
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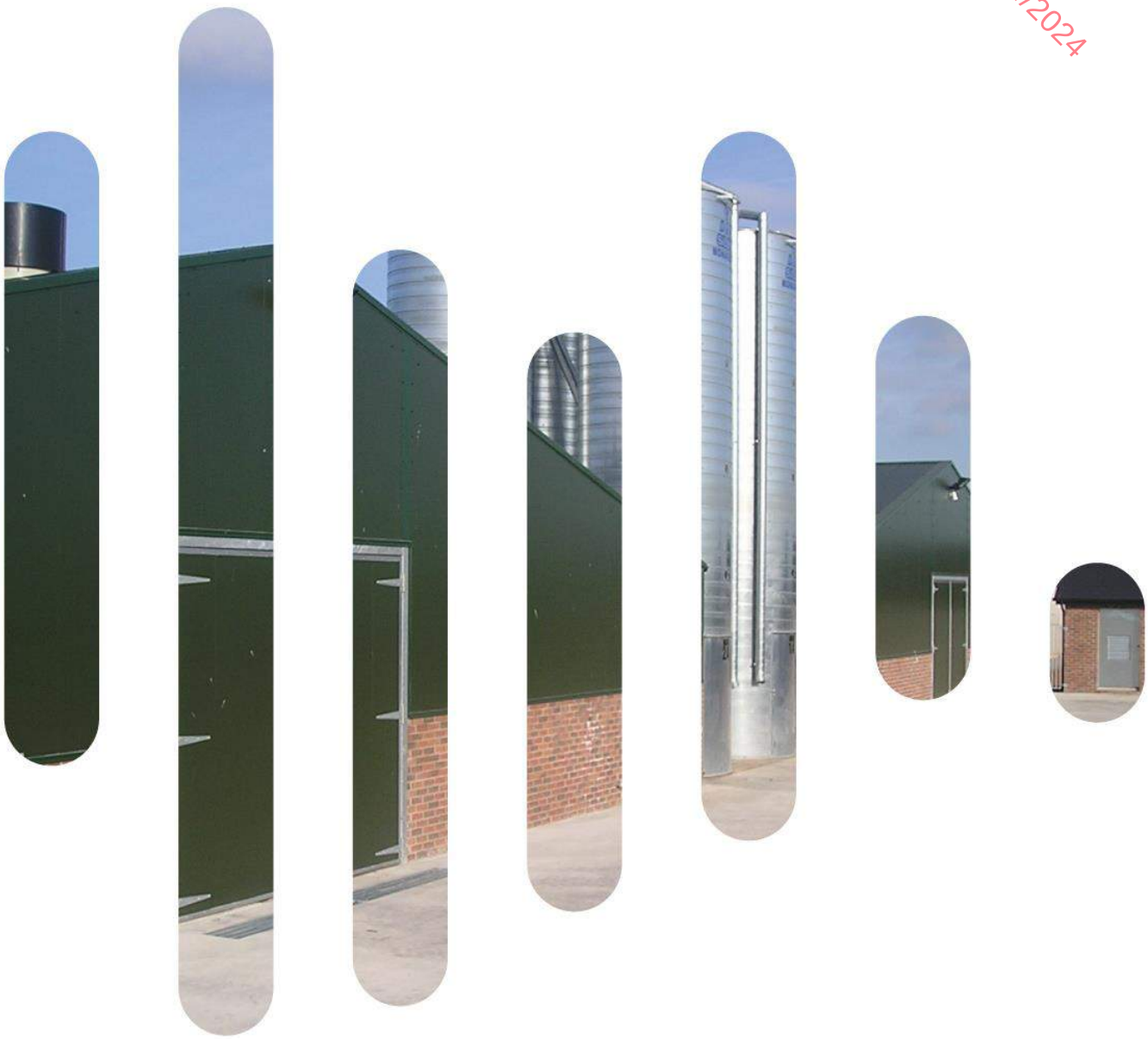
Appendix No. 18

Air Quality Impact Assessment

IRWIN CARR CONSULTING



AMMONIA IMPACT ASSESSMENT
CRAYVALL POULTRY

Rp 001 2023083 (Crayvall Poultry)
8 August 2023

PROJECT: AIR QUALITY IMPACT ASSESSMENT

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1 INTRODUCTION

Irwin Carr Ltd have been commissioned to undertake air quality dispersion modelling for a proposed poultry shed at Carrickbaggot, Grangebellew, Co. Louth.

At present there is an existing poultry shed on the site, housing 60,000 free range layer birds with 2 adjacent manure stores. On completion, the proposed shed will have the provision for 1 x mechanically ventilated poultry shed, housing a maximum of 64,000 layer birds, with 1 adjacent manure store.

The purpose of this report is to quantify the odour, ammonia and nitrogen levels at the residential and ecologically sensitive areas in the vicinity of the poultry farm. This report shall also assess the potential impact of both PM_{10} and $PM_{2.5}$. This assessment has taken account of the Report Requirements detailed in the EPA Guidance AG4[1] and the most recently published EPA Guidance[2] (May 2021).

The predicted impact can then be compared to an appropriate criterion and graphically illustrated in the form of 'contours of equal concentration' or isopleths which are superimposed on base maps.

[1] Air Dispersion Modelling from Industrial Installations Guidance Note (AG4), Environmental Protection Agency Office of Environmental Enforcement (OEE) December 2019

[2] *Licence Application Guidance. Assessment of the Impact of Ammonia and Nitrogen on Natura 2000 sites from Intensive Agriculture Installations. EPA. Version 1.0. May 2021.*

2 ASSESSMENT CRITERIA

The proposed target levels and method of assessment is described in this section.

2.1 Ambient Air Quality Standards

Standards for air pollution are concentrations over a given time period that are considered to be acceptable in the light of what is scientifically known about the effects of each pollutant on health and on the environment. They can also be used as a benchmark to see if air pollution is getting better or worse.

An exceedance of a standard is a period of time (which is defined in each standard) where the concentration is higher than that set down by the standard. In order to make useful comparisons between pollutants, for which the standard may be expressed in terms of different averaging times, the number of days on which an exceedance has been recorded is often reported.

An objective is the target date on which exceedances of a standard must not exceed a specified number.

The European Union (EU) has introduced several measures to address the issue of air quality management, since the initial Framework Directive on ambient air quality assessment and management (Council Directive 96/62/EC). The aim is to protect human health and ecosystems from negative impacts.

The current guidelines are the Clean Air for Europe (CAFÉ) Directive (2008/50/EC) which replaced the previous Air Framework Directive (1996/30/EC) and its daughter directives. The air quality standards currently applicable in Ireland are the EU ambient standards, which are presented in Table 1 below. These limits were transposed into Irish law by the S.I. No.180 of 2011, Air Quality Standards (AQS) Regulations 2011.

Table 1: Summary of objectives of the Air Quality Strategy

Pollutant	Directive / Regulation	Limit Type	Value
Particulate Matter (as PM_{10})	2008/50/EC and SI180 of 2011	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50 µg/m^3 PM_{10}
		Annual limit for protection of human health	30 µg/m^3 PM_{10}
PM2.5	2008/50/EC and SI180 of 2011	Annual limit for protection of human health	25 µg/m^3 $PM_{2.5}$

The standards for air pollution set out in Table 1 above are concentrations over a given time period that are considered to be acceptable in the light of what is scientifically known about the effects of each pollutant on health and on the environment. They can also be used as a benchmark to determine if air pollution is getting better or worse.

An exceedance of a standard is a period of time (which is defined in each standard) where the concentration is higher than that set down by the standard. In order to make useful comparisons between pollutants, for which the standard may be expressed in terms of different averaging times, the number of days on which an exceedance has been recorded is often reported.

An objective is the target date on which exceedances of a standard must not exceed a specified number.

2.2 Odour

The Environmental Protection Agency provide guidelines for dispersion modelling as well as identifying target odour levels at the nearest sensitive locations in the vicinity of operations such as proposed pig and poultry sites.

A summary of the indicative criterion of the UK Guidance, which has been adapted for Irish EPA[3] use, is provided in Table 2 below, which shows how different types of processes are categorised and the appropriate odour benchmark values.

Table 2: Odour Benchmark levels

Relative Offensiveness of odour	Benchmark level (ou/s)
Most Offensive Odours • Processes involving decaying animals or fish • Processes involving septic effluent or sludge • Biological landfill odours	1.5
Moderately Offensive Odours • Intensive livestock rearing • Fat frying (food processing) • Sugar beet processing • Well aerated green waste composting	3.0
Less offensive Odours • Brewery • Confectionery • Coffee roasting • Bakery	6.0

Generally, odour concentrations should be below C98, 1-Hour $6ou_E/m^3$ in order to prevent complaints arising from existing intensive pig facilities in Ireland.

For the purposes of assessing odorous emissions from the proposed extension to the intensive livestock rearing facility, and in the interests of conservatism, the odour target value of C98, 1-Hour ≤3 ou/m^3 will be adopted at the nearest sensitive receptor.

To put these guidelines into context, an odour threshold of $1ou/m^3$ is the level at which an odour is detectable by 50% of screened panellists. The recognition threshold is about 5 times this concentration i.e. $5ou/m^3$. Furthermore, odour concentration of between 5 and 10 ou/m^3 above background will give rise to a faint odour and concentrations greater than $10ou/m^3$ constitutes a distinct odour and are likely to give rise to nuisance complaints.

Odour assessments are commonly compared to the 98th percentile of hourly averages. For a typical meteorological year the dispersion model predicts 8,760 hourly concentrations for each receptor location. The 98th percentile is part of the statistical distribution, where 98% of the results fall below this value and 2% of the results fall above this value.

3 Environmental Protection Agency Office of Environmental Enforcement (OEE). Odour Emissions Guidance Note (Air guidance Note AG9). September 2019. EPA- Johnstown Castle Estate Wexford, Ireland. Page 29.

2.3 Ammonia

The proposed target levels and method of assessment is described in this section.

There are limitations on emissions of ammonia from such installations for the protection of vegetation. They are referenced from *Cape, J.N.; van der Eerden, L.J.; Sheppard, L.J.; Leith, I.D.; Sutton, M.A.. 2009. Evidence for changing the critical level for ammonia. Environmental Pollution, 157 (3). 1033-1037.*

Where the limits are applied to general vegetation such as herbaceous species or forest trees the limit is set at 3 ± 1 µg/m^3 of ammonia (ie. 2-4 µg/m^3) as a long-term (several year) concentration.

For particularly sensitive plants such as lichens and bryophytes, the limit of 1 µg/m^3 is applied to ammonia as a long-term (several year) concentration.

Table 3 shows the target levels for the protection of vegetation.

Table 3: Ammonia limit values

Pollutant	Reason	Guideline Value	Measured as
Ammonia	Protection of Vegetation	1-3 µg/m^3	Annual Mean

It should be noted that this assessment has only taken account of the dry deposition of ammonia, as it is not expected that wet deposition will have a significant effect in the vicinity of the site. This is supported by a Guidance Note published by Natural Resources Wales[4]:

- 'Wet deposition of ammonia is not significant compared to dry deposition close to the source. It is recommended that wet deposition of ammonia emitted at the poultry or pig farm is not considered in the assessment'.

While not applicable to sites under consideration by the EPA, this guidance note is supported by a number of other published reports, namely:

- SCAIL- Agriculture Update[5]: 'Wet deposition of ammonia has been ignored due to the dominance of local ammonia dry deposition'.
- UNECE[6]: This report details why wet deposition is not likely to have a contribution close to the source:

  "At short distances from the source the NH_3 plume has usually not reached the clouds and for that reason in-cloud scavenging of the NH_3 originating from the source will not occur".

  "Within 0.5 – 1km from a source the contribution of the source to wet deposition of NH_x is much less than the contribution to dry deposition. This is caused by the fact that the plume has not been mixed up at this distance and the NH_3 concentration at ground level is relatively high.

  Wet deposition is determined by the average concentration over the whole plume height and not by the much higher ground-level concentration. Due to its limited importance at the very local scale wet deposition is not taken into account in most local models: Danish OML-DEP (Olesen, 1995), the UK LADD (Dragosits et al., 2002), French FIDES (Loubet et al., 2001) and MODDAAS (Loubet et al., 2006)".

Given the information detailed above, and the fact that wet deposition has limited importance at a local level, it has not been included as part of this assessment.

[4] *Natural Resources Wales. Guidance Note- Modelling the concentration and deposition of ammonia emitted from intensive farming. Ref Number: GN036.*

[5] *SCAIL- Agriculture Update. Sniffer ER26: Final Report, March/ 2014. Page 18.*

[6] *UNECE Expert Workshop on Ammonia. Ammonia deposition near hot spots: Processes, models and monitoring methods. Background document for working group 3, Edinburgh 4-6 December 2006.*

2.4 Nitrogen Deposition

Critical load values for nutrient nitrogen deposition are provided by the United Nations Economic Commission for Europe (UNECE) as a range (e.g. 10-20 kg N/ha/yr for dry heaths). This table provides indicative values within the critical load range, by habitat type, for use in detailed impact assessments in Ireland.

Table 4: Critical Load Range for atmospheric Nitrogen

Habitat type (EUNIS code)	Critical load (CL) range (kgN/ha/yr)	Value to use at screening stage (kgN/ha/yr)	Recommended value to use at detailed assessment stage (kgN/ha/yr)
Marine habitats			
Mid-upper saltmarshes (A2.53)	20-30	20	20
Pioneer & low-mid saltmarshes (A2.54 and A2.55)	20-30	30	30
Coastal habitats			
Shifting coastal dunes (B1.3)	10 to 20	10	10
Coastal stable dune grasslands (grey dunes) (B1.4)	8 to 15	8	Acid dunes = 8 Calcareous dunes = 10
Coastal dune heaths (B1.5)	10 to 20	10	10
Moist to wet dune slacks (B1.8)	10 to 20	10	Low base availability = 10 High base availability = 15
Inland surface waters			
Softwater lakes (permanent oligotrophic waters) (C1.1)	3 to 10	Seek site specific advice	
Dune slack pools (permanent oligotrophic waters) (C1.16)	10 to 20	10	10
Permanent dystrophic lakes, ponds and pools (C1.4)	3 to 10	Seek site specific advice	
Mire, bog and fen habitats			
Raised & blanket bogs (D1)	5 to 10	5	Apply guidance
Valley mires, poor fens and transition mires (D2)	10 to 15	10	10
Rich fens (D4.1)	15 to 30	15	15
Montane rich fens (D4.2)	15 to 25	15	15
Grasslands and tall forb habitats			
Sub-atlantic semi-dry calcareous grassland (E1.26)	15 to 25	15	15
Non-Mediterranean dry acid and neutral closed grassland (E1.7)	10 to 15	10	10

Inland dune pioneer grasslands (E1.94) Inland dune siliceous grassland (E1.95)	8 to 15	8	Acid dunes = 8 Calcareous dunes = 10
Low and medium altitude hay meadows (E2.2)	20 to 30	20	20
Mountain hay meadows (E2.3)	10 to 20	10	10
Moist & wet oligotrophic grasslands:			
Molinia caerulea meadows (E3.51)	15 to 25	15	15
Heath (Juncus) meadows & humid (Nardus Stricta) swards (E3.52)	10 to 20	10	10
Moss & lichen dominated mountain summits (E4.2)	5 to 10	5	7
Alpine and subalpine acid grasslands (E4.3) Alpine and subalpine calcareous grasslands (E4.4)	5 to 10	5	5
Heathland, scrub & tundra			
Arctic, alpine and subalpine scrub habitats (F2)	5 to 15	5	5
Northern wet heaths (F4.11) Dry heaths (F4.2)	10 to 20	10	10
Forest habitats (general)			
Use if not one of specific forests in section below			
Broadleaved woodland (G1)	10 to 20	10	10
Coniferous woodland (G3)	5 to 15	5	10 (Use 5 if lichens/free-living algae important features of the site).
Forest habitats (specific)			
Fagus woodland (beech) (G1.6)	10 to 20	10	15
Acidophilous Quercus-dominated woodland (oak) (G1.8)	10 to 15	10	10
Meso- and eutrophic Quercus woodland (G1.A)	15 to 20	15	15
Pinus sylvestris woodland south of the taiga (G3.4)	5 to 15	5	12
Coniferous woodland (G3)	5 to 15	5	10 (Use 5 if lichens/free-living algae important features of the site).

3 BASELINE AIR QUALITY

The Air Framework Directive deals with each EU member state in terms of "Zones" and "Agglomerations". These air quality zones have been declared for air quality management and assessment purposes. As part of the EU Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined for Ireland.

Zone A: Dublin Conurbation

Zone B: Cork Conurbation

Zone C: Other cities and large towns comprising Limerick, Galway, Waterford, Drogheda, Dundalk, Bray, Navan, Ennis, Tralee, Kilkenny, Carlow, Naas, Sligo, Newbridge, Mullingar, Wexford, Letterkenny, Athlone, Celbridge, Clonmel, Balbriggan, Greystones, Leixlip and Portlaoise

Zone D: Rural Ireland, i.e. the remainder of the country excluding Zones A, B and C

The subject site is in Zone D, Rural Ireland. Background sources of pollutants within the vicinity of the study site most likely include residential solid fuel emissions, which are a more significant source that traffic emissions.

3.1 Existing Air Quality

Environmental Protection Agency (EPA) mobile and fixed monitoring units monitor air quality at locations within Zone D. The typical baseline air quality data outlined below in Table 5 is based on a review of the Air Quality Monitoring Report 2020 (EPA, 2021[7]).

[7] *Air Quality in Ireland 2020. Key Indicators of Ambient Air Quality. Environmental Protection Agency (EPA). 2021*

Table 5: Typical Air Quality Monitoring Data Representative of EPA Zone D Monitoring Sites

Pollutant	Zone D Monitoring Stations	EPA Baseline Monitoring Data Annual Mean 2020 (µg/m³)	Average (µg/m³)	Relevant Limit Value
PM_{10}	Tipperary Town	12	**11.2**	PM_{10} annual mean limit for the protection of human health = 40 µg/m³
	Carrick-on-shannon	10		
	Enniscorthy	15		
	Birr	10		
	Askeaton	7		
	Macroom	15		
	Castlebar	14		
	Cobh	13		
	Claremorris	10		
	Kilkitt	8		
	Cavan	9		
	Roscommon Town	11		
$PM_{2.5}$	Tipperary Town	8	**7.8**	$PM_{2.5}$ annual mean limit for the protection of human health = 25 µg/m³
	Carrick-on-shannon	7		
	Mallow	10		
	Enniscorthy	12		
	Birr	6		
	Askeaton	4		
	Macroom	11		
	Longford	9		
	Cobh	8		
	Claremorris	5		
	Cavan	6		
	Roscommon Town	7		

4 AERMOD DISPERSION MODELLING DATA

The inputs for the dispersion modelling assessment are described in detail in this Section. The site layout, including the nearest residential properties, is shown in Appendix A.

4.1 AERMOD Dispersion Modelling Package Description

The AMS.EPA Regulatory Model (AERMOD) is the current US EPA regulatory model used to predict pollutant concentrations from a wide range of sources that are present at typical industrial facilities.

The model accepts hourly meteorological data to define the conditions for plume rise, transport, diffusion and deposition. It estimates the concentration or deposition value for each source and receptor combination for each hour of input meteorology and calculates user-selected short term averages. The model also takes into account the local terrain surrounding the facility. Since most air quality standards are stipulated as averages or percentiles, AERMOD allows further analysis of the results for comparison purposes.

Percentile analysis for emissions is calculated for the maximum averages using the AERMOD-percent post-processing utility. This utility calculates the maximum concentration of a pollutant from all receptors at a specific percentile, for a specific period. Employing the percentile facilitates the omission of unusual short-term meteorological events that may cause elevated pollutant concentrations and hence a more accurate representation of the likely average pollutant concentrations over an averaging period.

The following information was input into the model for the prediction of maximum ground level ambient ammonia concentrations from the poultry farm.

4.2 Input Parameters

The site layout map, building plans and elevations were used as a template for all sources, relevant structures and the boundary of the facility. The AERMOD package uses the steady state Gaussian plume equation for a continuous elevated point or line source.

Table 6 below gives general details of the proposed poultry sheds.

Table 6: Dimensions of proposed and existing Poultry Sheds

	Shed 1 (Existing)	Shed 2 (Proposed)
Dimensions of House	166.9m x 32.2m x 7.0m	160.6m x 32.2m x 7.0m
No. of birds per Shed	60,000	64,000
Efflux temperature	20 °C	20 °C
Emissions	Mechanically Ventilated	Mechanically Ventilated

4.2.1 EMISSIONS

The rate of production of an emission, such as ammonia, is best quantified as an emission rate. The emission factors for ammonia levels are provided in the BREF Reference Document[8].

To find the emission from the houses, it was necessary to calculate the concentrations within the existing and proposed buildings. Table 7 below shows the ammonia level within the existing and proposed buildings on the site.

The existing and proposed shed as part of this application will utilise the system 'Litter- based with aviaries, veranda and free range with non-ventilated belts', which has an associated ammonia emission factor of 0.08kg/yr/bird.

Table 7: Concentrations per Building

House No.	No. of Animals per house	Odour Emission Factor (ou/s per animal)	Total Odour Emission Rate (ou/s per house)	Ammonia Emission Factor (kg/yr per animal)	Total Ammonia Emission Rate (g/s per house)
1	60,000	0.32	19,200	0.08*	0.152
2	64,000	0.32	20,840	0.08	0.162

**This emission factor is also detailed in the SCAIL Sniffer report and is applicable for free range aviary systems.*

A total of 124,000 birds were included as part of this assessment. It should be noted that this is the total number of birds that will be housed in the sheds at the start of the batch, whereas this assessment represents the shed conditions at the end of the batch, as requested by the EPA. It is expected that the total stock numbers, and associated predicted ammonia impacts, are overestimated by approx. 3-4%.

The emission factors for PM_{10} are provided by the SCAIL Agriculture Report in relation to broilers. Various sources suggest that the $PM_{2.5}$ contributes up to 10% of the PM_{10} level[9][10][11].

Table 8 below details the PM_{10} emissions from the sheds.

Table 8: PM_{10} Emissions per Building

House No.	Birds per house	PM_{10} Emission Factor (kg/yr per bird)	Total PM_{10} Emissions (kg/yr per house)	Total PM_{10} Emissions (g/s per house)
1	60,000	0.03	1,800	0.152
2	64,000	0.03	1,920	0.061

For the purposes of the modelling process, the emission rate per house was divided by the number of emissions points to obtain the emission value for each source.

Table 9 below shows the emission rates coming out of emission points.

[8] *Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry or Pigs. Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control). JRC Science for Policy Report. 2017. Table 4.56*

[9] *PM_{10}, $PM_{2.5}$ and $PM_{1.0}$ – Emissions from industrial plants – Results from measurement programmes in Germany*

[10] *Dunlop M., Z. D. Ristovski, E. Gallagher, G. Parcsi, R.L. Modini, V. Agranovski and R.M. Stuetz. 2013. Odour, dust and non-methane volatile organic-compound emissions from tunnel-ventilated layer-chicken sheds: a case study of two farms. Animal Production Science. 53:1309-1318*

[11] *Quantification of Particulate Emissions from Broiler Houses in the Southeastern United States, Robert Burns et al Iowa State University 2008*

Table 9: Emission Rates for each stack

House No.	No of Fans (and type)	Odour per fan (ou/s)	Ammonia per fan (g/s)	PM_{10} per fan (g/s)	$PM_{2.5}$ per fan (g/s)
1	12 x EM50	1,227.2	0.0097	0.0036	0.00036
	8 x EM36	559.3	0.0044	0.0017	0.00017
2	8 x EM50	2560	0.0203	0.0076	0.00076

4.2.2 STACK EMISSIONS VELOCITY

The applicant has confirmed the type of fans proposed on the shed and has also provided a technical specification which details information relevant to the chosen fan types.

Table 10 below shows the ventilation rates for the chosen fan types.

Table 10: Ventilation Rates for fan

Fan Type	Stack Diameter (m)	Cross Sectional Area (m^2)	Exit Velocity (m/s)	Volume Flow (m^3/s)	Volume Flow (m^3/hr)
EM50	1.38	1.495	5.71	8.53	30,720
EM36	1.09	0.933	4.17	3.89	14,000

Technical specifications for the fans detailed in the Table above are included in Appendix D.

4.2.3 STORAGE OF POULTRY MANURE

The storage capacity of each of the existing manure stores was confirmed as 550m³ (total capacity of 1,100m³). The storage capacity of the proposed manure store was confirmed as 1100m³ (total capacity of 2,200m³ when considered alongside the existing two manure stores). In order to ensure a worst-case scenario, it was assumed that the stores were full at all times.

In relation to the odour emissions from the proposed store, a document entitled "Odour emissions from livestock production facilities" Valli et al, is deemed as providing appropriate odour emissions for poultry litter in ou_E/s/tonne. In relation to drier manure, which is applicable for this site, the odour emissions were provided as 90ou_E/s/t for the summer cycle and 12ou_E/s/t during the winter.

To ensure a worst case scenario, the higher factor applicable to the summer months of 90ou_E/s/t was used as the emission factor for the whole 12-month period.

Table 11 below shows the total odour level within the manure stores, assuming that the store will be emptied every 3 to 4 weeks.

Table 11: Odour Concentrations from Manure Stores

Building	Manure per Shed (tonnes)	Manure Produced per Week (tonnes)	Manure Produced per 4x Weeks (tonnes)	Odour Emission Factor (ou_E/s per tonne fresh manure)	Total Odour Emission Rate (ou_E/s from store)
Manure Store 1 & 2	550	9.2	36.7	90	3,300
Manure Store 3	1,100	18.3	73.3	90	6,600

Table 12 below shows the total ammonia produced by the manure in the sheds.

Table 12: Ammonia Concentrations from Manure Stores

Building	Amount Manure per Shed (tonnes)	Ammonia Emission Factor (kg NH_3/ tonne fresh manure)	Total Ammonia Emission Rate (kg/yr)	Total Ammonia Emission Rate (g/s)
Manure Store 1 & 2	550	2.38	1,309	0.0415
Manure Store 3	1,100	2.38	2,618	0.0830

In order to reflect the emissions in the AERMOD model, it was assumed that the manure was stored evenly over the area of the store, as AERMOD requires area emission sources to be input in g/s-m².

The emission rate per m² is detailed in the Table below.

Table 13: Manure Store Emissions

Building	Total Ammonia Emission Rate (g/s)	Area of Shed (m²)	Total Ammonia Emission Rate (g/s-m²)*
Manure Store 1 & 2	0.0415	214.2	**0.00019**
Manure Store 3	0.0830	428.4	**0.00019**

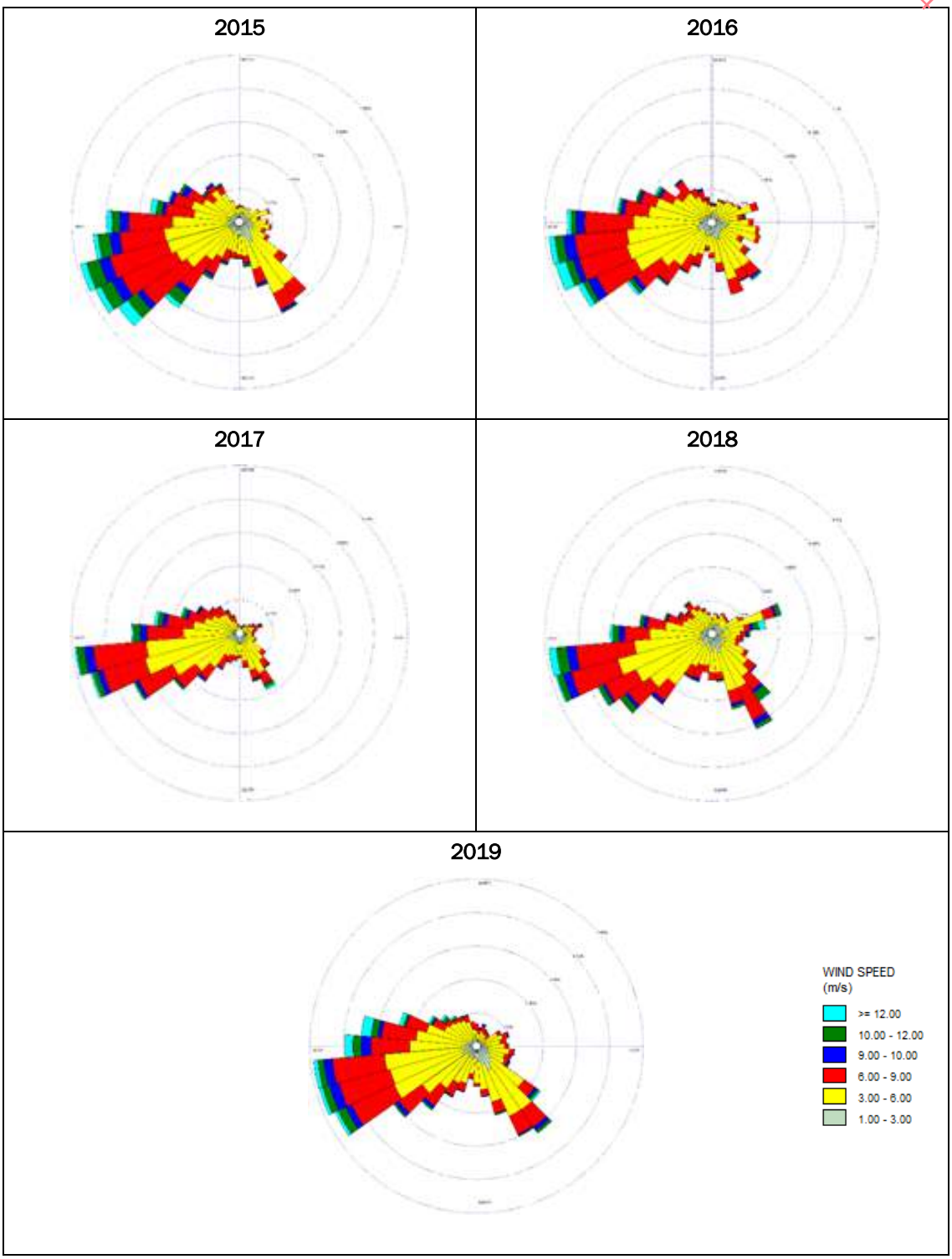
**This is the emission rate input for each of the 3x manure stores. This emission rate is reflective of the maximum capacity of manure spread evenly over the total area of each store.*

4.3 Meteorological Data

Five years of hourly sequential meteorological data (2015 – 2019) was used for the AERMOD dispersion modelling assessment. Dublin Airport has been selected as the most appropriate weather station for the installation, which is located within 10km of the coast.

This allowed for the determination of the predicted overall average impact of emissions from the facility. The windrose data for each individual year is presented in Figure 1 below.

Figure 1: Annual Windrose Data- Dublin Airport



4.4 Building Downwash

When one or more buildings in the vicinity of a point source interrupt wind flow, an area of turbulence known as a building wake is created. Pollutants emitted from a relatively low level can be caught in this turbulence, affecting their dispersion. This phenomenon is called building downwash. In order to conduct an analysis of downwash effects of the point sources created to mimic the release of odorous air from the poultry farm, the dimensions (including heights) of the proposed poultry sheds and any other existing buildings on-site was obtained from drawings.

4.5 Digital Terrain Data

AERMOD contains a terrain data pre-processor called AERMAP. Receptor and source elevation data from AERMAP output is formatted for direct insertion into an AERMOD control file. The elevation data are used by AERMOD when calculating air pollutant concentrations.

Regulatory dispersion models applicable for simple to complex terrain situations require information about the surrounding terrain. With the assumption that terrain will affect air quality concentrations at individual receptors, AERMAP first determines the base elevation at each receptor and source. For complex terrain situations, AERMOD captures the essential physics of dispersion in complex terrain and therefore needs elevation data that convey the features of the surrounding terrain. In response to this need, AERMAP searches for the terrain height and location that has the greatest influence on dispersion for each individual receptor. This height is the referred to as the hill height scale. Both the base elevation and hill height scale data are produced by AERMAP as a file or files which can be directly inserted into an AERMOD input control file.

5 RESULTS

There are eleven residential dwellings in the immediate vicinity of the poultry sheds. A brief description of each location is provided below, as addresses of the nearby properties could not be confirmed.

Table 14: Nearest Residential Properties

Location	Description	Co-ordinates		Approx. distance to nearest shed (m)*
1	Property to the North	310116	285804	960
2	Property to the North	310235	285731	880
3	Property to the North	310373	285734	890
4	Property to the East	311065	285080	745
5	Property to the SE	310968	284648	640
6	Property to the SE	310968	284351	770
7	Property to the South	310013	284038	790
8	Property to the West	309442	285063	760
9	Property to the West	309410	285241	855
10	Property to the West	309484	285442	910
11	Property to the NW	309835	285784	1000

**It should be noted that all distances detailed in the Table above are approximate and are provided for information purposes only. The grid co-ordinates provided were input into the model, and the source locations are provided in Appendix B. These distances have no bearing on the AERMOD model, and the only input from Table 14 is the actual grid co-ordinates.*

While the property addresses could not be identified, the exact co-ordinates used in the modelling process are provided in the Table above, and all of the properties are shown in the figure in Appendix A.

5.1 Odour

Odour modelling was carried out for each individual year with the results at the nearest sensitive locations presented in Table 15, with the results graphically presented in Appendix C. All results are the odour concentration in (ou/m^3).

Table 15: 98th Percentile of the max 1-hr odour levels at nearest residential properties

Location	2015	2016	2017	2018	2019	Average
1	1.02	1.16	1.20	1.13	1.26	**1.15**
2	1.06	1.08	1.03	1.26	1.19	**1.12**
3	0.84	0.85	0.85	1.03	0.97	**0.91**
4	0.71	0.95	0.92	0.81	0.74	**0.83**
5	0.72	0.86	0.74	0.53	0.77	**0.72**
6	0.34	0.45	0.40	0.30	0.33	**0.36**
7	0.10	0.15	0.06	0.17	0.13	**0.12**
8	0.75	1.19	0.51	0.70	0.64	**0.76**
9	0.94	1.43	0.63	0.96	0.77	**0.95**
10	0.92	0.93	0.63	1.14	0.88	**0.90**
11	1.65	1.40	1.30	1.75	1.77	**1.57**

6 AMMONIA

The ammonia levels were assessed in areas of specific interest in relation to vegetation.

It is noted within Section 3.2.3 of the Environment, Heritage and Local Government Guidance document[12] that as part of the screening for an appropriate assessment, Natura 2000 sites within a distance of 15km from plans should be assessed, however for projects this distance could be much less than 15km.

As this application is considered a project (as defined by Section 5.3 of the Guidance document) and given the nature, size and location of the project, only sites within approx. 7.5km have been included. Furthermore, this detailed modelling is not considered to be screening and therefore the distance utilised in this report is less than that included in the Guidance.

All areas within approximately 7.5km of the site were searched on the EPA website for the four types of designated areas listed below:

- **Special Areas of Conservation (SAC)**

  These areas are given special protection under the European Union's Habitats Directive to protect some of the most seriously threatened habitats and species across Europe.

- **Special Protection Areas (SPA)**

  Areas designated under the European Commission on the conservation of wild birds (the Birds Directive). All EU member states are required to identify internationally important areas for breeding, over-wintering and migrating birds and designate them as SPA's.

There were five designated sites located within approx. 7.5km of the poultry sheds which are shown in Table 16 below. The closest location of each site to the proposed facility were obtained from SCAIL.

Table 16: Designated areas in vicinity of the proposed site

Location	Description	Designation	Approx. distance to shed (km)*	ING Grid Co-ordinates	
12	Dundalk Bay	SAC	7.8	310127	293062
13	Dundalk Bay	SPA	7.8	310162	293043
14	Clogher Head	SAC	6.6	316399	283546
15	Boyne Coast and Estuary	SAC	7.4	315562	280342
16	North- West Irish Sea	SPA	4.4	314670	285494

**It should be noted that all distances detailed in the Table above are approximate and are provided for information purposes only. The grid co-ordinates provided were input into the model, and the source locations are provided in Appendix B. These distances have no bearing on the AERMOD model, and the only input from Table 16 is the actual grid co-ordinates.*

There are four additional Natura 2000 sites located up to 15km from the site which are detailed in the Table below. It should be noted that these sites would only be required at the screening stage of an assessment for 'plans' rather than 'projects', but they have been included in the detailed assessment for this project in the interests of clarity.

[12] *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Environment, Heritage and Local Government. 10 December 2009.*

Table 17: Designated areas located up to 15km from proposed site.

Description	Designation	Approx. distance to shed (km)	ING Grid Co-ordinates	
River Boyne And River Blackwater	SAC	9.4	311027	275893
River Boyne and River Blackwater	SPA	10.5	305001	275986
Stabannan-Braganstown	SPA	10.8	302326	292904
River Nanny Estuary and Shore	SPA	14.4	316248	272337

Given that the predicted levels of ammonia and nitrogen are expected to be negligible at distances greater than 7.5km from the site, no assessment for ammonia or nitrogen was undertaken at the site detailed above.

Ammonia modelling was carried out for the sites located within 7.5km for each individual year, with the results at the nearest identified locations presented in Table 18 below. All results are the Ammonia concentration in µg/m^3.

6.1 Predicted Impacts

The predicted impacts and results included in this Section take account of the inputs detailed in Section 4.2 above.

Table 18: Annual Average Ammonia Concentrations at Identified locations

Location	2015	2016	2017	2018	2019	Average
12	0.020	0.015	0.017	0.021	0.020	**0.019**
13	0.020	0.015	0.017	0.021	0.020	**0.019**
14	0.019	0.029	0.024	0.018	0.020	**0.022**
15	0.014	0.016	0.014	0.011	0.011	**0.013**
16	0.046	0.058	0.062	0.050	0.050	**0.053**

All of the predicted Ground Level Concentrations of ammonia detailed in the Tables above are significantly below the limit values as provided in Table 3 in relation to the protection of vegetation.

The background ammonia level is provided in the SCAIL website which is based on a 3-year average. The grid references provided in Table 16 were searched, with the background ammonia level given in the Table below.

Table 19 below compares the highest annual average predicted levels at the designated areas where:

- The Process contribution (PC), the maximum modelled concentration of the substance due to process emissions alone.
- Predicted Environmental Concentration (PEC) – that is, the maximum modelled concentration (of ammonia) due to process emissions combined with estimated baseline concentrations.
- PC and PEC as a percentage of the objective or guideline.

For the assessment of annual mean concentrations the annual mean contribution of the process can be added to the annual mean estimate for background.

Table 19: Ammonia concentrations at designated ecologically sensitive locations.

	Location	Guideline (µg/m^{-3})	Background (µg/m^{-3})	Highest PC (µg/m^{-3})	PEC (µg/m^{-3})	PC/ Guideline level (%)	PEC/ Guideline level (%)
12	Dundalk Bay	3	2.51	0.021	2.531	**0.70**	84
13	Dundalk Bay	3	2.51	0.021	2.531	**0.70**	84
14	Clogher Head	1	2.2	0.029	2.229	**2.90**	223
15	Boyne Coast and Estuary	1	2.12	0.016	2.136	**1.60**	214
16	North-West Irish Sea	3	2.34	0.062	2.402	**2.07**	80

**It should be noted that the maximum PC of 2.9% at Location 14 is based on the worst case process contribution over the 5-year period. It can be seen from Table 18 that the average impact of the sheds is 0.022 µg/m^3 which represents a PC of approx. 2%.*

The ammonia concentrations at the sites are dominated by the background concentrations, which are approximately 80 – 223% of the air quality guideline for ammonia.

It can be seen from the Table above that the guideline level (critical level) of ammonia is not exceeded at Locations 12, 13 and 16.

At Locations 14 and 15, where the Critical Level of ammonia is exceeded, the PC of the existing and proposed site is <4%, and as a result considered insignificant for the purposes of this assessment.

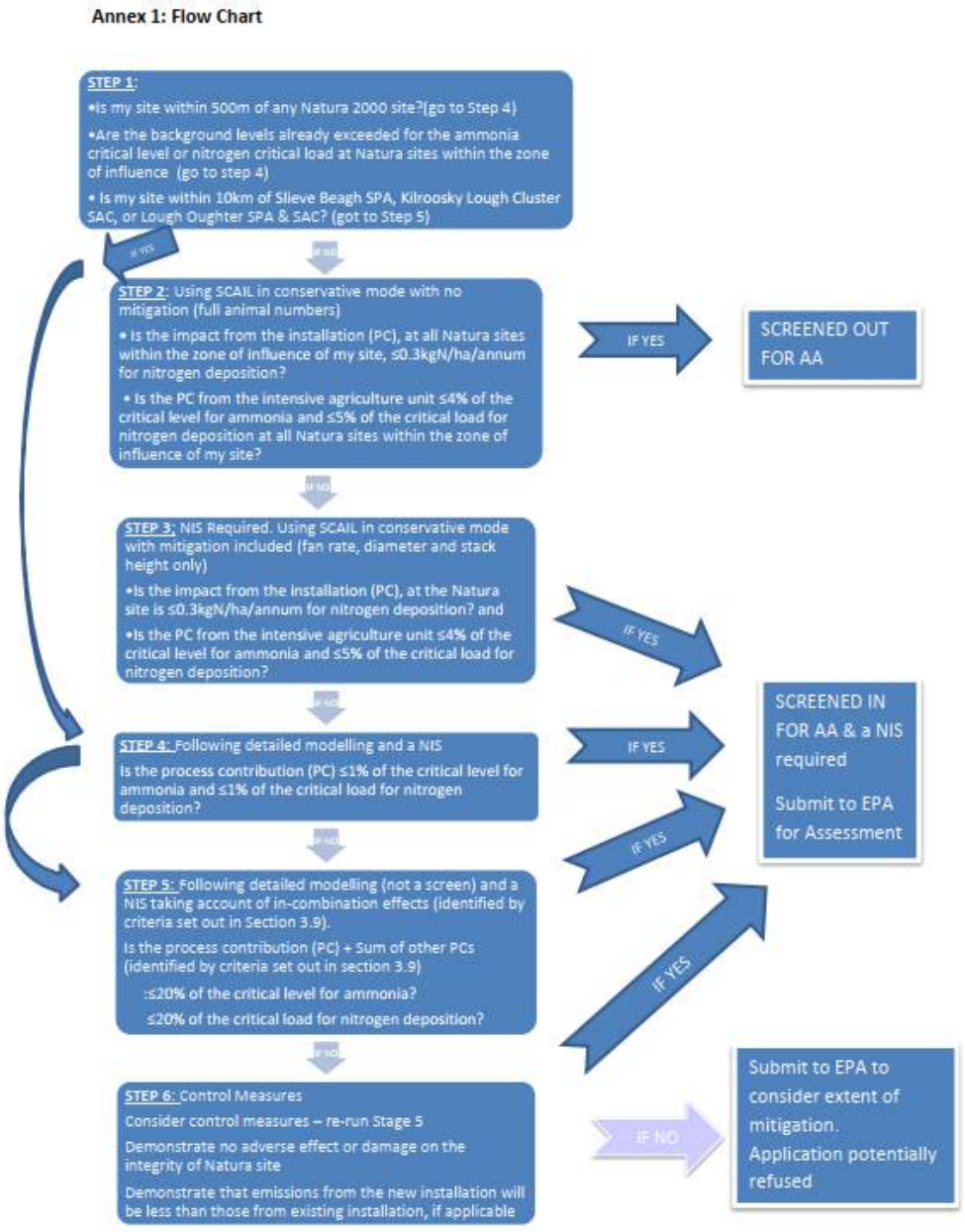
7 CUMULATIVE ASSESSMENT

Within the EPA Guidance[13], specific information is provided in relation to the consideration of Cumulative Impact Assessments. Section 3.2 notes that,

> *'As a first step the applicant/licensee should confirm the background ammonia concentrations and nitrogen deposition levels at the sensitive receptor and indicate whether there is already an exceedance of the ammonia critical level or nitrogen critical load.*
>
> *Where background levels are already exceeded at sensitive receptors, detailed modelling of emissions, including in-combination effects, a Natura Impact Statement (NIS) and additional mitigation measures are likely to be required. This is dependent on the sensitivity of the habitat at the Natura impacted area'.*

Annex 1 of the document shows a flowchart for undertaking a cumulative impact assessment of a nearby industrial installation, which is shown below:

Figure 2: Flowchart for undertaking a Cumulative Assessment of a nearby Industrial Installation.



[13] *Licence Application Guidance. Assessment of the Impact of Ammonia and Nitrogen on Natura 2000 sites from Intensive Agriculture Installations. Environmental Protection Agency (EPA). Version 1.0, May 2021.*

The following points detail whether or not a cumulative assessment is necessary as part of this assessment.

- It is noted that Step 1 of the flowchart states "Are the background levels already exceeded for the ammonia critical level or nitrogen critical load at Natura sites within the zone of influence? (Go to step 4)

  It can be seen from Table 19 above that the background is exceeded at two of the Natura 2000 sites (Clogher Head SAC and Boyne Coast & Estuary SAC), and therefore the assessment continues to Step 4:

- 'Following detailed modelling and a NIS, is the process contribution (PC) ≤1% of the critical level for ammonia and ≤1% of the critical load for nitrogen deposition?

  It can be seen from Table 19 that the total ammonia at both of these Locations is over 1% and as a result, a cumulative assessment may be required at these locations.

In order to carry out a cumulative assessment it was necessary to identify any nearby installations that also have the potential to contribute a significant ammonia impact. There were no such sites in the vicinity of the sites and as such, a cumulative/ in-combination assessment is not required for this application.

8 NITROGEN DEPOSITION

The Critical Load specifies the annual amount of ammonia that can be deposited for a given area per year. Below this level, sensitive habitat should not be affected.

The dry deposition flux (µg/m^{2}/s of ammonia) was calculated using AQTAG06[14] where the predicted ground level of ammonia (in µg/m^{3}) was multiplied by the relevant deposition velocity.

The dry deposition was then multiplied by the conversion factor provided in the guidance to convert to the levels of kgN/ha/yr. The conversion factors are provided in Table 8.1 and 8.2 of the AQTAG06 as presented in the Table 18 below.

Table 20: Conversion Factors

Pollutant	NH_3 Deposition Velocity (m/s)	Conversion Factor
NH_3 to N	0.02 (short vegetation)	260

Table 21 below converts the highest Process Contribution in µg/m^{-3} to kg.N/ha/yr, using the conversion factors detailed in Table 20 above.

Table 21: Conversion of Highest NH_3 Results (Worst Case)

Location	Pollutant	Highest PC (µg/m^{-3})	NH_3 Deposition Velocity (m/s)	Conversion Factor	Highest PC (kg.N/ha/yr)
12	NH_3 to N	0.021	0.02 (short vegetation)	260	0.11
13		0.021			0.11
14		0.029			0.15
15		0.016			0.08
16		0.062			0.32

Using similar methodology to the ammonia assessment in Section 6 above the PC and PEC can be seen in Table 22 below.

Table 22: Nitrogen concentration at designated ecologically sensitive locations

	Location	Guideline (kg N/ha/yr)	Background (kg N/ha/yr)	Highest PC (kg.N/ha/yr)	PEC (kg N/ha/yr)	PC/ Guideline level (%)	PEC/ Guideline level (%)
12	Dundalk Bay SAC	10	6.63	0.11	6.74	1.09	67
13	Dundalk Bay SPA	10	6.63	0.11	6.74	1.09	67
14	Clogher Head SAC	10	6.83	0.15	6.98	1.51	70
15	Boyne Coast and Estuary SAC	10	4.9	0.08	4.98	0.83	50
16	North- West Irish Sea SPA	20	6.83	0.32	7.15	3.22	72

It can be seen from Table 22 that there are no exceedances of the nitrogen concentrations at each of the sites, and as a result, the predicted impact would be considered deminimus for the purposes of the Nitrogen assessment.

[14] Technical Guidance on Detailed Modelling Approach for an Appropriate Assessment for Emissions to Air, AQTAG06

9 PM_{10}

PM_{10} modelling was carried out for each individual year with the results at the nearest sensitive locations presented in Table 23 below. All results are the concentration in µg/m³.

Table 23: Annual Average PM_{10} concentrations at nearest residential locations

	2015	2016	2017	2018	2019	Average
1	0.17	0.17	0.18	0.18	0.19	**0.18**
2	0.19	0.17	0.18	0.20	0.20	**0.19**
3	0.16	0.15	0.16	0.18	0.16	**0.16**
4	0.17	0.20	0.23	0.18	0.18	**0.19**
5	0.13	0.14	0.14	0.10	0.13	**0.13**
6	0.07	0.08	0.08	0.06	0.07	**0.07**
7	0.04	0.04	0.02	0.05	0.04	**0.04**
8	0.14	0.19	0.10	0.15	0.12	**0.14**
9	0.16	0.21	0.12	0.17	0.14	**0.16**
10	0.20	0.20	0.16	0.21	0.20	**0.19**
11	0.24	0.21	0.21	0.26	0.26	**0.24**
Limit	**40**	**40**	**40**	**40**	**40**	**40**

The predicted pollutant PM_{10} level concentrations in each year, as well as the 5-year average are significantly below the limit values.

Table 24 below details the 90.4% of the max 24-hour PM_{10} concentrations at each of the sensitive receptors for the MET Data 2015 – 2019.

Table 24: Short Term PM_{10} concentrations at nearest residential locations

	90.4% of Max 24-Hour
1	0.56
2	0.54
3	0.44
4	0.49
5	0.42
6	0.24
7	0.10
8	0.51
9	0.55
10	0.71
11	0.74
Limit	**50**

10 CONCLUSIONS

An air quality impact assessment has been undertaken for a proposed poultry shed at Carrickbaggot, Grangebellew, Co. Louth.

Modelling has been undertaken to determine the impact associated with the existing and proposed shed assuming the maximum capacity of the sheds (60,000 birds in the existing shed and 64,000 in the proposed shed), the lowest possible temperature of the birds during a crop cycle (20^{0}C) and an average fan capacity of the proposed stacks.

It is expected that the typical operation of the site will result in lower predicted ammonia and nitrogen impacts at the closest sensitive receptors than the worst case results presented in this report.

The predicted results of the ammonia modelling process show that the limits for the protection of vegetation are not exceeded at the designated habitats within the vicinity of the poultry farm. Thus, any areas of ecological interest will not be adversely affected from the ammonia emissions for the operation of the farm.

Table 25 below details the maximum impact at the closest receptors for ammonia and nitrogen.

Table 25: Maximum predicted impact at closest sensitive receptors

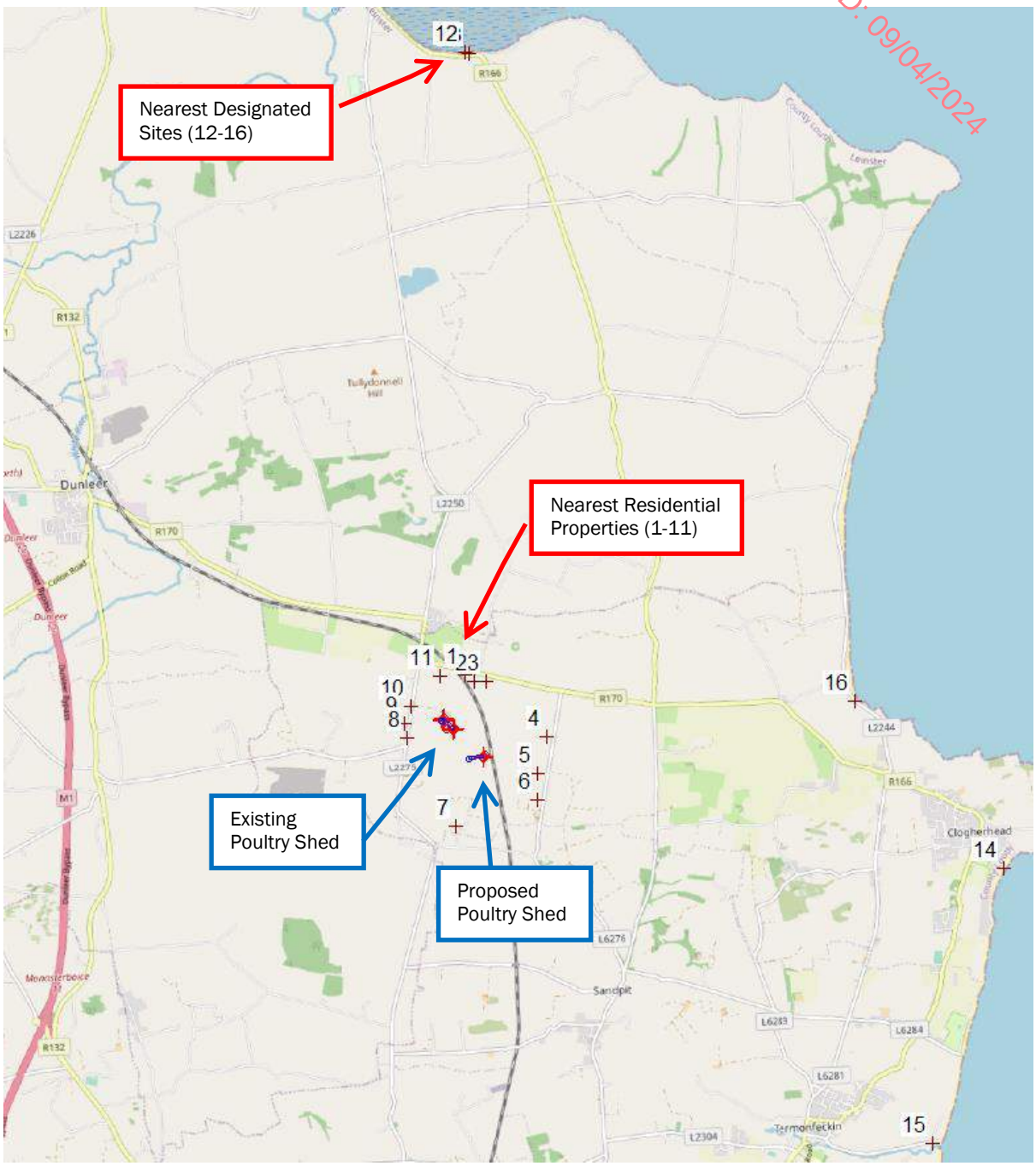
Receptor	Pollutant	Limit Type	Units	Limit Value	Baseline	Max Level	PEC	PC of limit (%)	PEC of Limit (%)
11	Odour	98th Percentile of Max 1-Hour	ou_E/m^3	3	N/A	1.77	1.77	**59**	59
14	Ammonia	Annual Average	$\mu g/m^3$	1	2.2	0.029	2.229	**2.90**	223
16	Nitrogen	Annual Average	kg.N/ha/yr	20	6.83	0.32	7.15	**3.22**	72
11	PM_{10}	90.4% of max 24-hr	$\mu g/m^3$	50	22.8	0.7	23.5	**1.5**	47.1
		Annual Avg	$\mu g/m^3$	40	11.4	0.3	11.7	**0.7**	29.2
11	$PM_{2.5}$	Annual Avg	$\mu g/m^3$	25	6.5	0.03	6.5	**0.1**	26.1

It can be seen from the Table above and as discussed in detail in this assessment, the predicted impact of each pollutant is within the appropriate limit/ threshold level.

Appendix C indicates the predicted dispersion of the ammonia plume for 2019 at the site.

APPENDIX A SITE LAYOUT

Figure 3: Proposed Site Layout & Nearest Sites.



**Exact co-ordinates of the closest designated sites were obtained from SCAIL and are detailed in Table 9 above.*

APPENDIX B SOURCE AND RECEPTOR LOCATIONS

The information below details the AERMOD model inputs, specifically in relation to source locations, building inputs and grid receptor inputs.

Table 26: Building Location

Building Number	Irish Grid Co-ordinates (SW Corner)
1	309852 285269
2	310172 284821

Table 27: Poultry Shed Source Locations

Building Number	Section	Fan Type	Source	Approx. Irish Grid Co-ordinates (to the nearest 1m)	
1	1	EM50	1	309876	285278
			2	309883	285285
			3	309885	285287
		EM36	1	309877	285280
			2	309882	285285
	2	EM50	1	309896	285299
			2	309889	285292
			3	309887	285290
		EM36	1	309894	285297
			2	309889	285292
	3	EM50	1	309996	285162
			2	310003	285169
			3	310005	285171
		EM36	1	309997	285163
			2	310042	285169
	4	EM50	1	310016	285182
			2	310009	285176
			3	310007	285173
		EM36	1	310014	285181
			2	310009	285176
2	1	EM50	1	310331	284858
			2	310331	284850
			3	310332	284842
			4	310332	284834
			5	310331	284858
			6	310331	284850
			7	310332	284842
			8	310332	284834

It should be noted that the existing building is split into 4 x identical sections, each with the same number and layout of fans (3 x EM50 and 2 x EM36 gable fans). A total of 20 x horizontal fans were

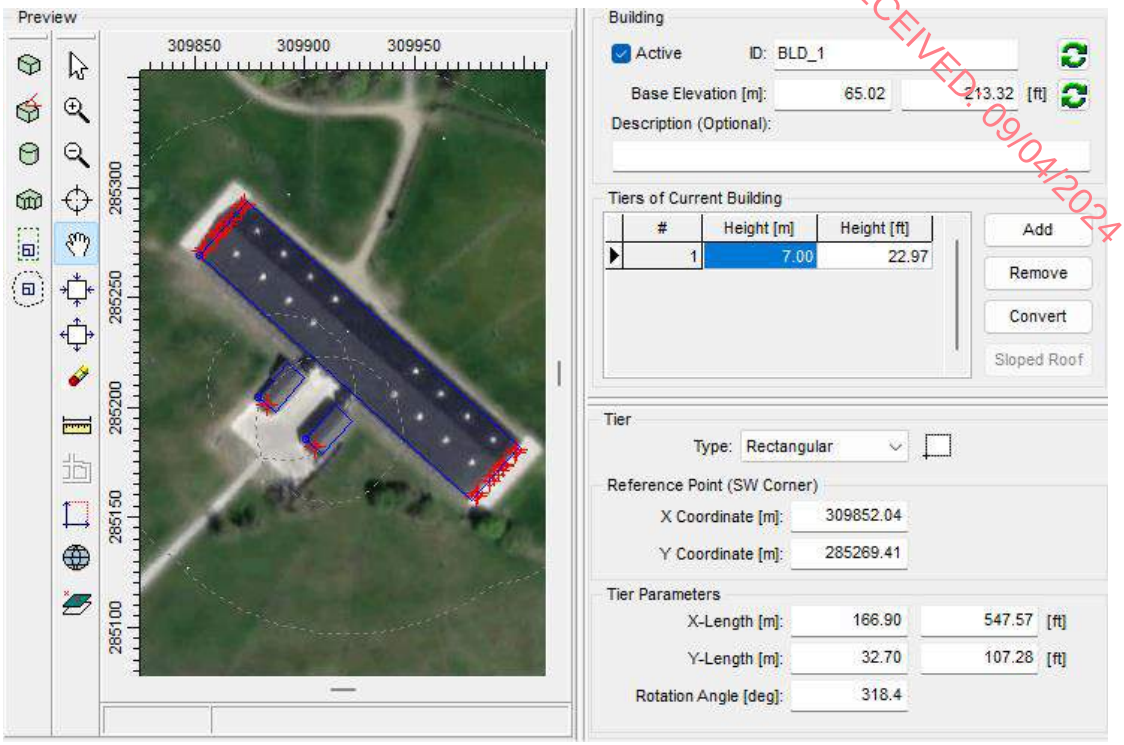
input into the AERMOD model to represent these fans. There will be 15,000 birds in each section, and the model has taken account of all 60,000 proposed birds.

For the proposed shed, a total of 8 x EM50 horizontal fans were input into the AERMOD model to represent these fans. The model has taken account of all 64,000 proposed birds.

Table 28: Manure Store Locations

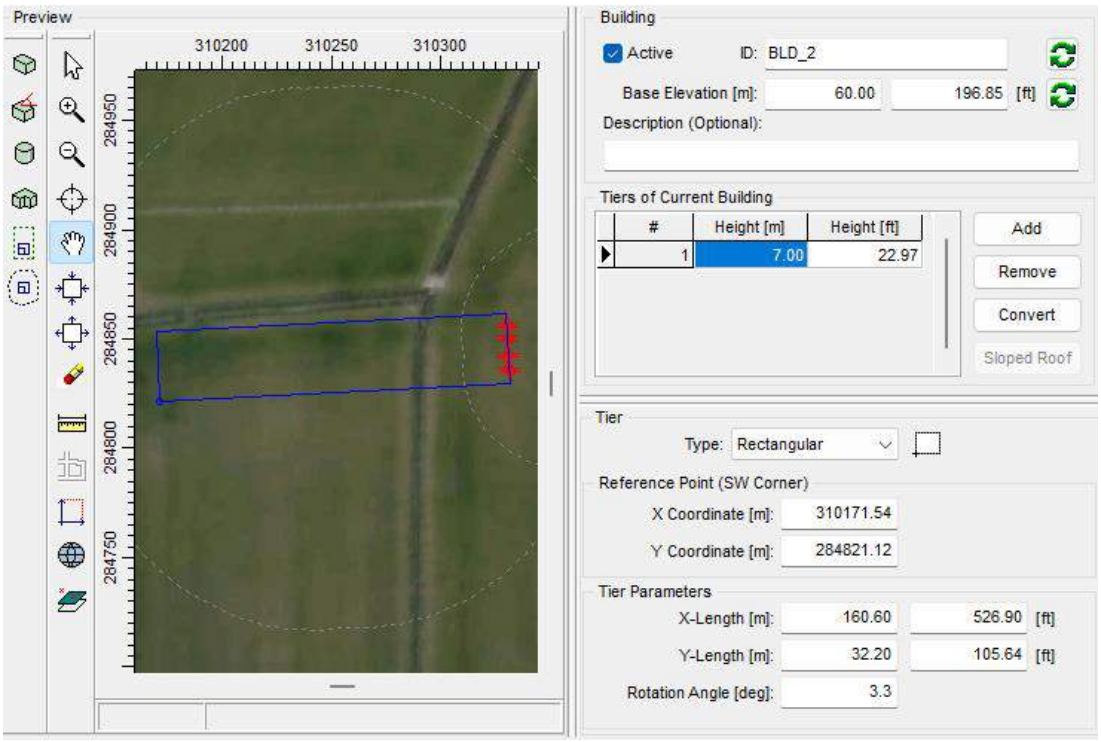
Building	Area Source Dimensions	Total Area (m^2)	Approx. Irish Grid Co-ordinates (Southern point of Area Source)	
Manure Store 1	20.4m x 10.5m	214.2	309892	285220
Manure Store 2	20.4m x 10.5m	214.2	309914	285201
Manure Store 3	40.8m x 10.5m	428.4	310357	284964

Figure 4: Existing Building Inputs



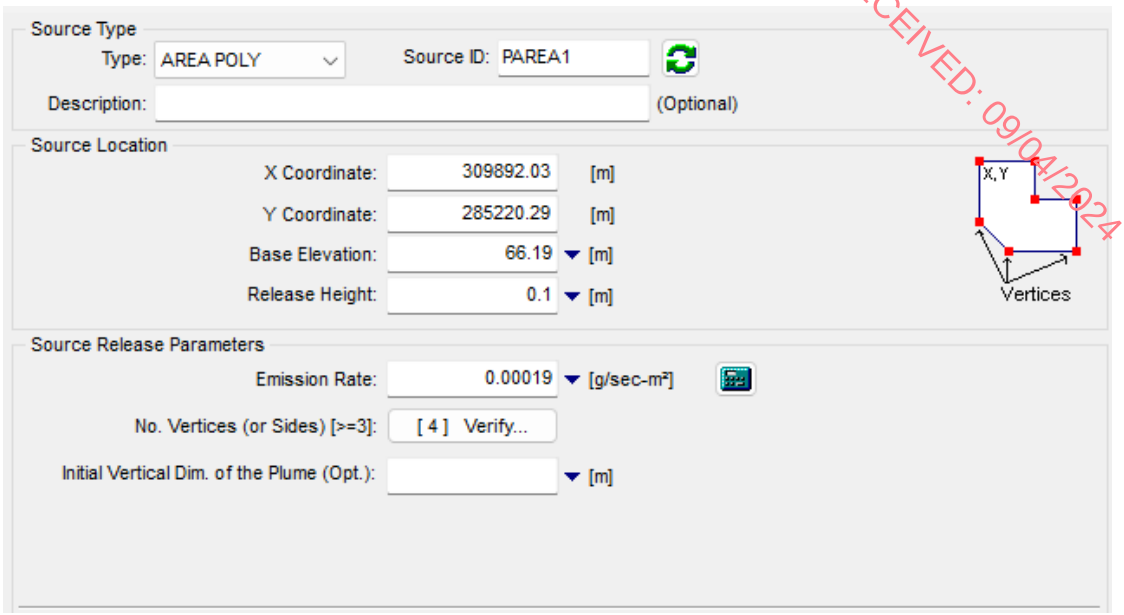
It can be seen from the Figure above that the building location input in the model reflects a rotation angle of 318.4 degrees.

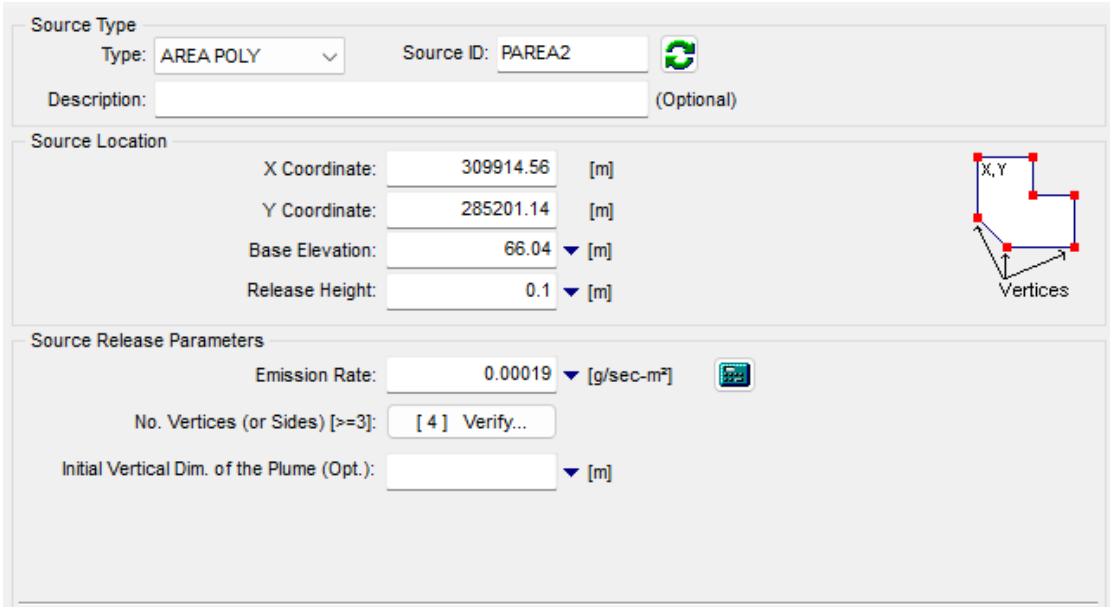
Figure 5: Proposed Building Inputs



It can be seen from the Figure above that the building location input in the model reflects a rotation angle of 3.3 degrees.

Figure 6: Manure Store Inputs





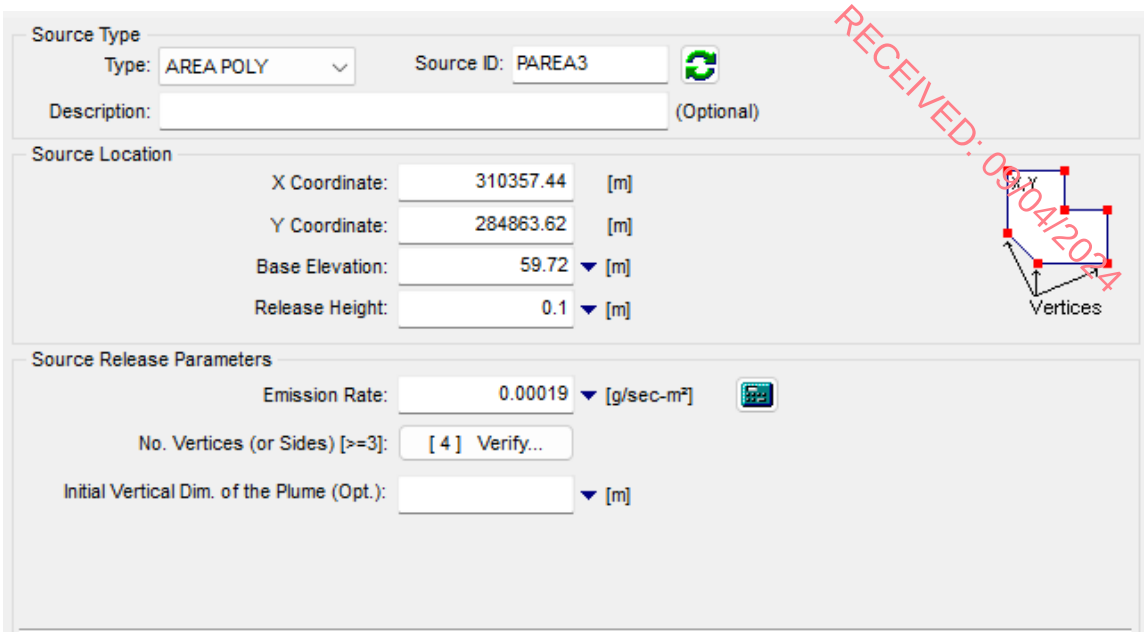


Figure 7: Details of Uniform Cartesian Grid Receptors – Odour & PM_{10}

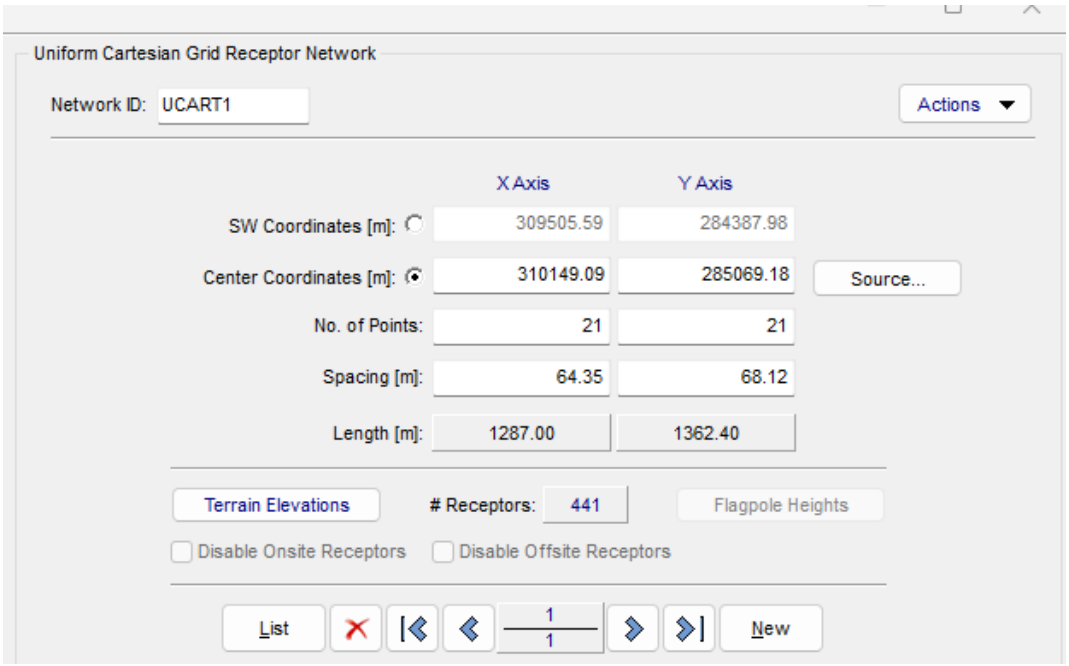
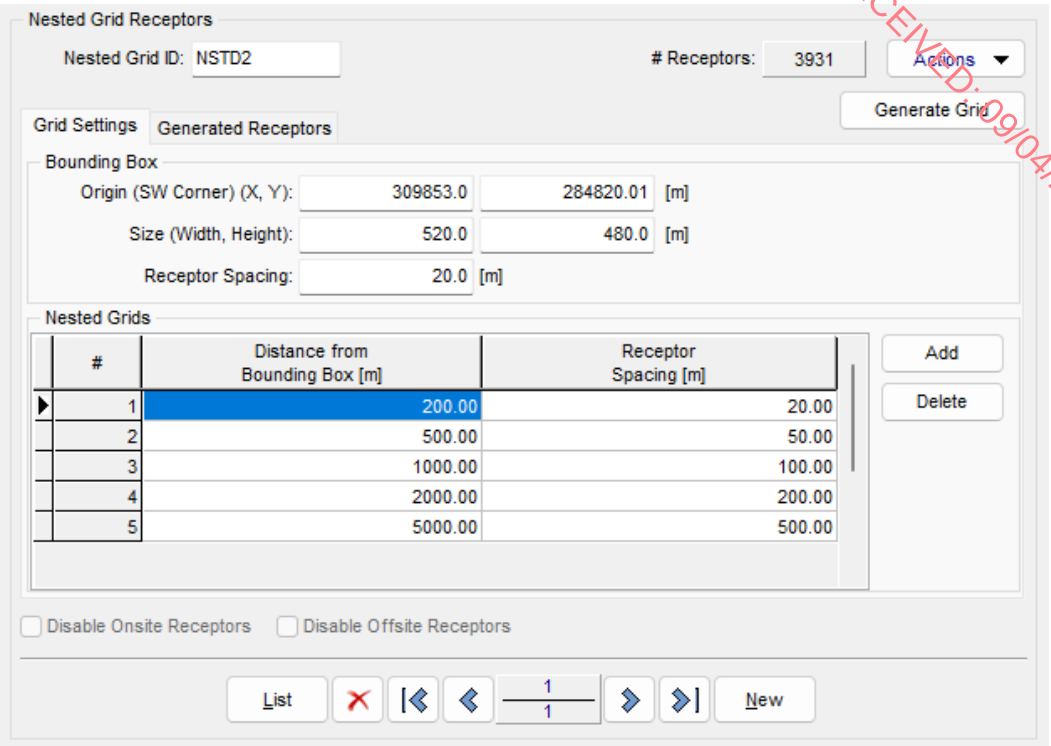


Figure 8: Details of Nested Grid Receptor– Ammonia



The Figures above detail the inputs of the Nested grid receptor that was used to show the expected ammonia contour/ plume in the vicinity of the proposed site.

APPENDIX C MODELLING RESULTS

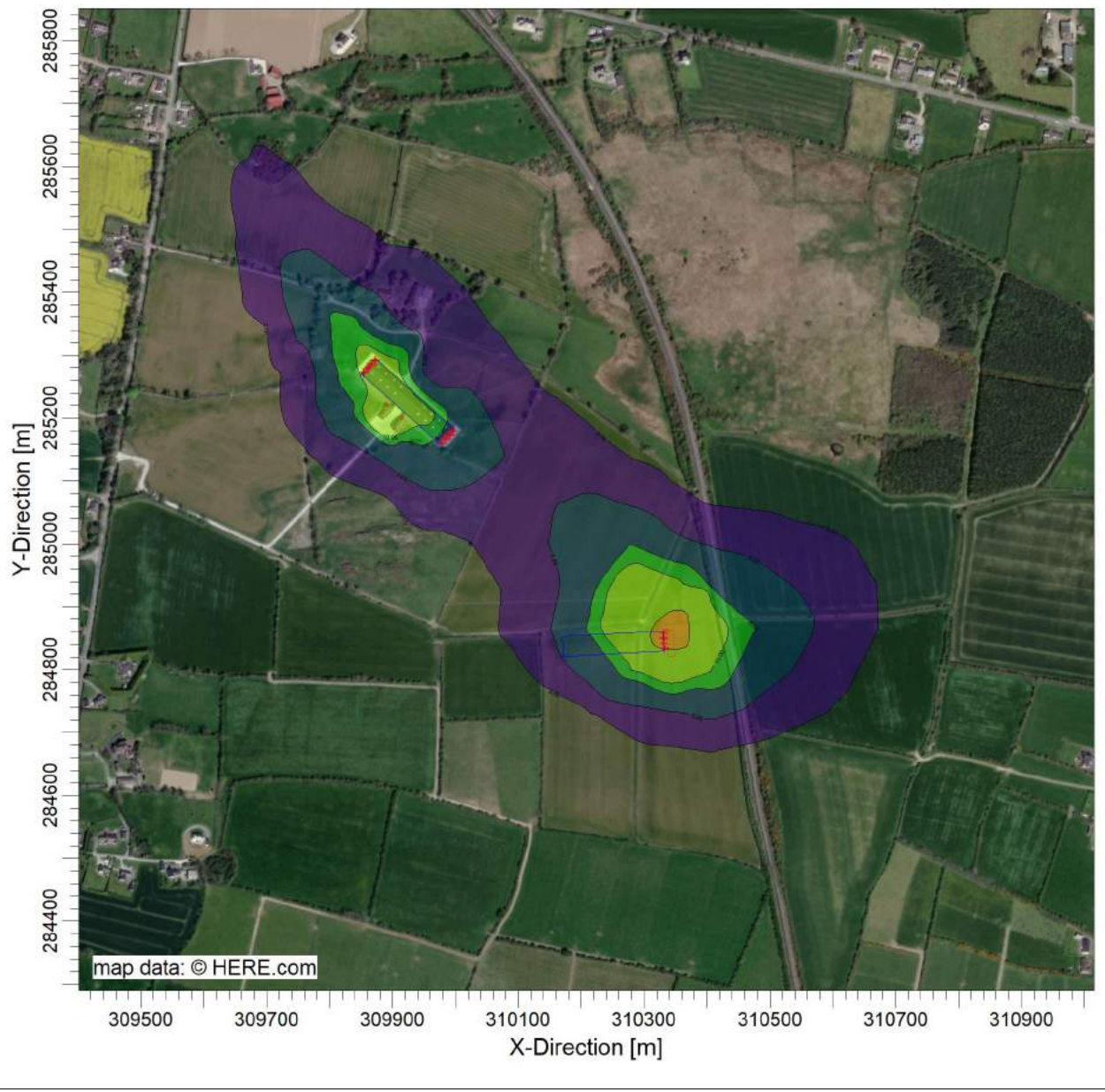
The ammonia plume below shows the annual average ammonia impact in the vicinity of the site. It should be noted that the outermost contour (0.058µg/m^3) corresponds to a nitrogen deposition of 0.3kg.N/ha/yr, which is considered deminimus for the purposes of a Nitrogen assessment.

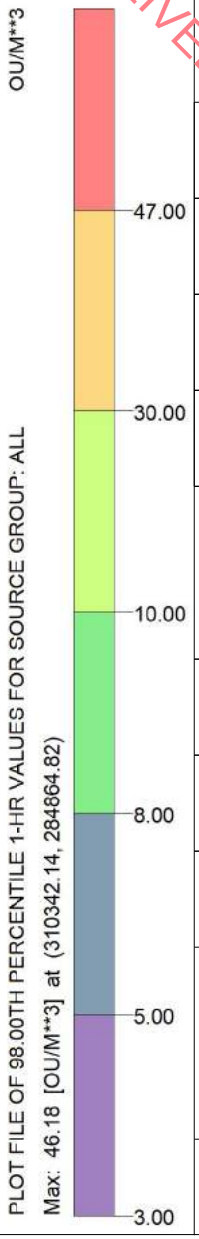
There are no sensitive habitats located within this area (the 0.058µg/µm^3 contour line) that would be subject to a nitrogen deposition that is considered 'significant' (0.3kg.N/ha/yr).

PROJECT TITLE:

Crayvall Poultry

98th Percentile of Max 1-Hour Ground Level Odour Concentration (ou/m3) (2019)





COMMENTS:

SOURCES:
31

RECEPTORS:
452

OUTPUT TYPE:
Concentration

MAX:
46.18 OU/M3**

MODELER:
Mark Burke

DATE:
11/05/2023

SCALE: 1:10,633

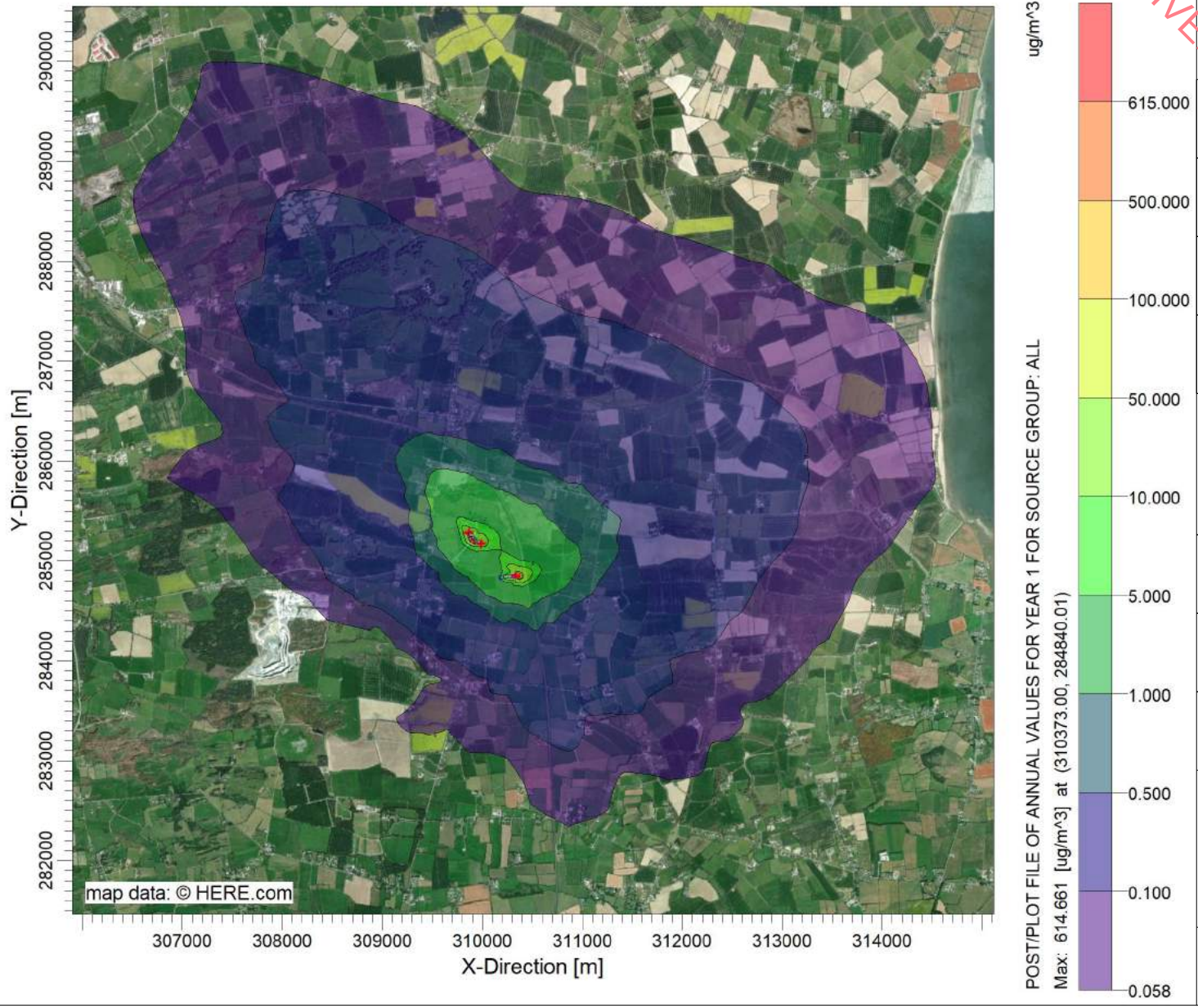
0 0.3 km

PROJECT NO.:
2023083

PROJECT TITLE:

Crayvall Poultry

Annual Average Ground Level Ammonia Concentration (ug/m3) (2019)



COMMENTS:

Predicted Impact from Existing and Proposed Sheds and Manure Stores.
Outermost contour (0.058ug/m3) is equivalent to the deminimus Nitrogen level of 0.3kg.N/ha/yr

SOURCES:

31

RECEPTORS:

3935

OUTPUT TYPE:

Concentration

MAX:

614.661 ug/m^3

MODELER:

Mark Burke

DATE:

16/05/2023

SCALE: 1:61,873

0 2 km

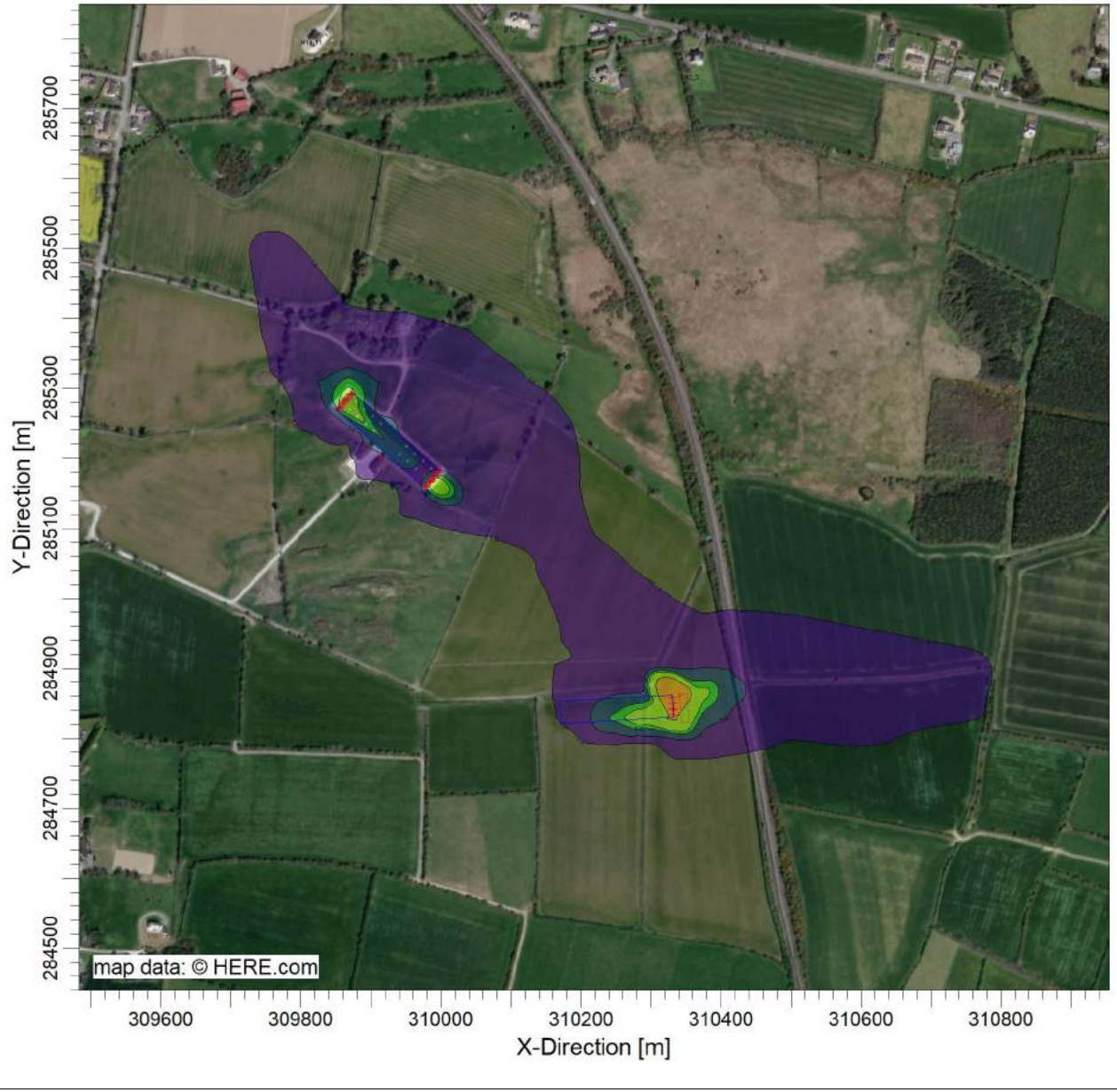
PROJECT NO.:

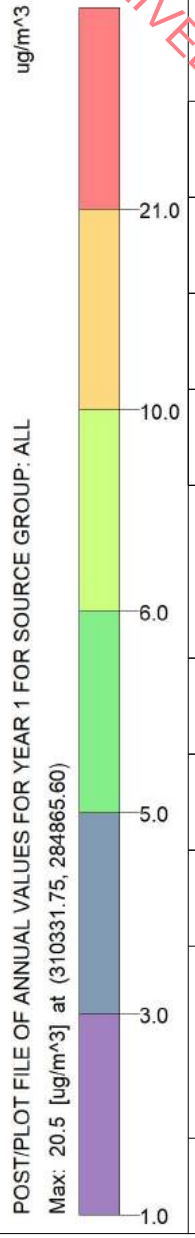
2023083

PROJECT TITLE:

Crayvall Poultry

Annual Average Ground Level PM10 Concentration (ug/m3) (2019)





COMMENTS:

SOURCES:
31

RECEPTORS:
452

OUTPUT TYPE:
Concentration

MAX:
20.5 ug/m^3

MODELER:
Mark Burke

DATE:
11/05/2023

SCALE: 1:9,593

0 0.3 km

PROJECT NO.:
2023083

APPENDIX D TECHNICAL SPECIFICATION

PRODUCT SHEET

Munters

Munters EM 50-52

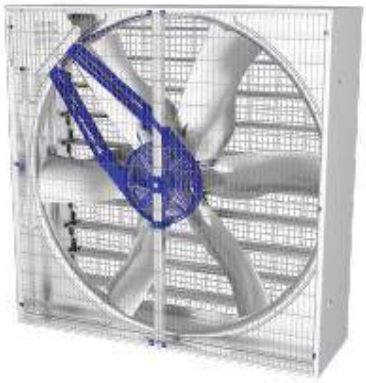
Air extraction fans

The EM Series, the most well-known box fan family designed and produced by Munters, since the 1980s has delivered excellent performance in any livestock farming (broiler, layer, swine, dairy) and greenhouse application.

Features

- Superior durability with Munters Protect coating, 3 years warranty against corrosion
- Reliable, proven in the market for 40 years
- Light and air draft reduction, when shutter is closed
- Energy efficient solution
- Suited for tunnel ventilation

EM50 front view



EM52 rear view

Munters EM 50-52 are the ideal exhaust fans whenever extra high airflow capacity is required, even in high static pressure environments, thanks to their unique propeller shape that ensures full efficiency and reliability.

Munters EM Series features extra strength against corrosion with housing, conveyor and shutter in Munters Protect coated steel. For highly corrosive applications, the EMX50 version is featuring elements in stainless steel in addition to the Munters Protect.

The belt drive system enables low speed, to reduce energy consumption and noise, as well as to assure comfortable environment for animals and operators.

The patented centrifugal system provides an energy efficient solution and powerful springs keep shutters tightly closed when the fan is not turned on, avoiding air leakage and blocking light.

Munters EM 50-52 undergo strict quality control and performances are validated by tests carried out in BESS Lab at the Agricultural Engineering Department of University of Illinois (USA).

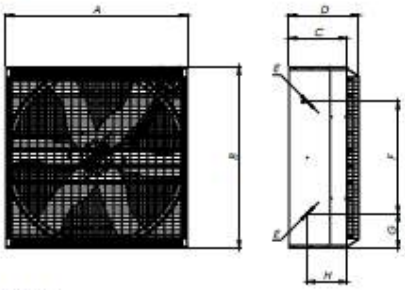
As market leader in ventilation solutions for more than 60 years, Munters guarantees quality and is ISO 9001 certified.

munters.com

Munters EM 50-52

Air extraction fans

Dimensions



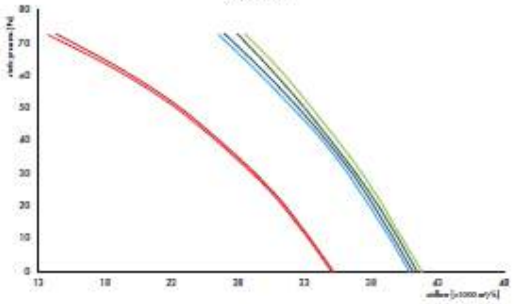
	EM/EMX50	EM52
A	1380 mm	1425 mm
B	1380 mm	1425 mm
C	450 mm	455 mm
D	540 mm	545 mm
E	M8	M8
F	830 mm	830 mm
G	275 mm	298 mm
H	308 mm	310 mm

Technical specifications

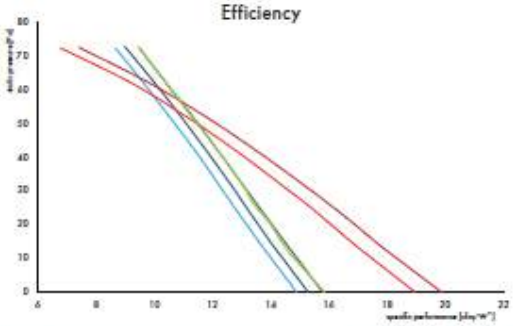
		EM/EMX50		EM52
Nominal power	Hp	1.0	1.5	2.0
Propeller diameter	mm [inch]	1270 [50]		1334 [52]
Number of blades/material		6/Munters Protect		6/Munters Protect
Number of shutter blades		10		10
Transmission		Belt drive		Belt drive
Weight of fully equipped fan	kg	84	86	90
Max power consumption/max current[1]	W/A	1150/2.1	1810/3.3	1770/3.5
Max operating temperature	°C [°F]	50 [122]		50 [122]
Max operating pressure	Pa	50		100
Motor insulation grade/protective class		F/IP55		F/IP55
Noise level[2]	Db(a)	67.6	70.4	70.3

[1]50 Hz 400 V specification, 60 Hz available upon request, [2]Noise measure made according to ISO 3744

Airflow



Efficiency



	Motor 1.0 Hp		Motor 1.5 Hp		Motor 2.0 Hp	
	IE3	IE1	IE3	IE1	IE3	IE1
EM/EMX50						
EM52						

Airflow and efficiency data measured at standard conditions (20°; 1013 hPa). *1 cfm/W = 1.7 m³/hW

Load capacity

	EM/EMX50		EM52	
	Unassembled	Assembled	Unassembled	Assembled
20' Container	170 (120[1])	24	120	24
40' Container	-	49	-	49
40' HC Container	300	57	300	57
Truck	328	65	328	64

Pyramidal mesh for installation below 2.7 m available upon request. [1]With CE plastic protection

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FS_EM50_52_202203_EN

PRODUCT SHEET

Munters

Munters EM 30-36 and ED 24

Air extraction fans

EM 30-36 and ED 24 are among the most well-known exhaust box fans designed and produced by Munters, able to combine high airflow capacity with reliability in any livestock farming (broiler, layer, swine, dairy) and greenhouse application.

Features

- Superior durability with Munters Protect coating, 3 years warranty against corrosion
- Reliable and robust, proven in the market
- High airflow capacity
- Energy efficient solution
- Suited for minimum and tunnel ventilation

EM36 front view

Munters EM 30-36 and ED 24 are the ideal exhaust fans whenever a high and stable airflow is required, even in high static pressure environments. They feature the housing, conveyor and shutters made in Munters Protect coated steel for extra strength and resistance against corrosion.

The belt drive system of EM 30-36 enables low speed propeller, which results in reduced energy consumption and noise level, assuring a comfortable environment for both animals and operators. On the other hand, ED 24 is characterized by direct drive motor that provides a high and steady airflow, while making maintenance easier.

The patented centrifugal system provides an energy efficient solution and powerful springs keep shutters tightly closed when the fan is not turned on, avoiding air leakage and blocking light.

As market leader in ventilation solutions for more than 60 years, Munters guarantees quality and is ISO 9001 certified.

ED24 rear view

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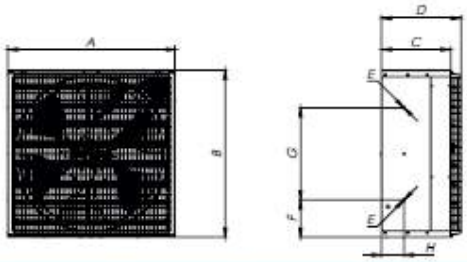
Munters EM 30-36 and ED 24

Air extraction fans

Dimensions

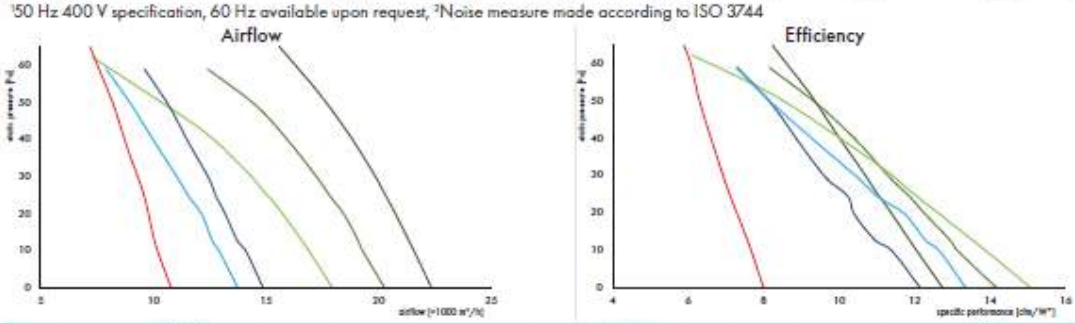


	A	B	C	D	E	F	G	H
EM30	950 mm	950 mm	450 mm	540 mm	M8	240 mm	475 mm	154 mm
EM36	1090 mm	1090 mm	450 mm	520 mm	M8	245 mm	600 mm	145 mm
ED24	750 mm	750 mm	510 mm	640 mm	-	-	-	-

Technical specifications

		EM30		EM36			ED24
Nominal power	Hp	0.5	0.75	0.5	0.75	1	0.5
Propeller diameter	mm [inch]	770 [30]		915 [36]			660 [24]
Number of blades/material		6/Munters Protect		6/Munters Protect			6/Munters Protect
Number of shutter blades		7		8			5
Transmission		Belt drive		Belt drive			Direct
Weight of fully equipped fan	kg	55	56	64	65	67	51
Max power consumption/max current[1]	W/A	570/1.1	870/1.6	570/1.1	870/1.6	1150/2.1	790/1.4
Max operating temperature	°C [°F]	50 [122]			50 [122]		50 [122]
Max operating pressure	Pa	50			50		50
Motor insulation grade/protective class		F/IP55			F/IP55		F/IP55
Noise level[2]	Db(a)	63.4	66.9	62.1	63.9	68.4	69.5

[1]50 Hz 400 V specification, 60 Hz available upon request, [2]Noise measure made according to ISO 3744



EM30		EM36			ED24
Hp 0.5	Hp 0.75	Hp 0.5	Hp 0.75	Hp 1	Hp 0.5

Airflow and efficiency data measured at standard conditions (20°; 1013 hPa). *1 cfm/W = 1.7 m³/hW

Load capacity

	EM36		EM30	ED24
	Unassembled	Assembled	Assembled	Assembled
20' Container	170 (130[1])	50	60	55
40' Container	-	104	120	115
40' HC Container	300	104	120	115
Truck	360	120	140	170

Pyramidal mesh for installation below 2.7 m available upon request. [1]With CE plastic protection

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FS_EM30_36_ED24_202107_EN

Appendix No. 19

Construction Waste Management Plan

CLW Environmental Planners Ltd.

The Mews,
23 Farnham Street,
Cavan,
Co. Cavan

Phone: 049-4371447/9
Fax: 049-4371451
E-mail: info@clw.ie

Construction Waste Management Plan

For

Proposed Development
Of 1 No. Poultry House and associated works

At

Carrickbaggot,
Grangebellew,
Co. Louth.

16th August 2023

Applicant:

Crayvall Egg production Ltd.,
Belview Road,
Carstown,
Drogheda,
Co. Louth.

Proposed Development:

Construction of 1 no. poultry house together with all ancillary structures and site works associated with the above development at

Location:

Carrickbaggot,
Grangebellew,
Co. Louth.

Background:

The following Construction and Demolition (C&D) Waste Management Plan has been completed in accordance with the Department of Environment, Heritage and Local Government, Best Practice Guidelines on the preparation of Waste Management Plans for Construction and Demolition Projects, July 2006.

1. Introduction:

The management of C&D waste on this site should reflect the waste management hierarchy, with waste prevention and minimisation being the first priority succeeded by reuse and recycling. The subsequent use of recycled materials in reconstruction works also reduces the quantities of waste which ultimately needs to be consigned to landfill sites.

In this phase of the development, the proposed development has been subdivided into 2 areas of work for the purposes of this plan;

1. Site Development
2. Construction of 1 no. poultry houses and associated works.

2. Waste Management Objectives

- ***Prevention of Waste:***

The primary effort therefore should be to engage in waste prevention and reduce the amount of waste generated in the first place i.e. minimise the resources needed to do the job. Prevention is financially advantageous as it reduces the purchase of construction materials and reduces the need to remove wastes from the site.

The prevention of waste can be minimized by;

- Renovating existing buildings where appropriate.
- Re-using materials where appropriate.
- Re-cycling wastes where appropriate.
- Waste disposal as a last resort.

- ***Renovation:*** which retains and repairs existing structural and decorative elements, with the introduction only where necessary of new items, contributes greatly to a reduction in C&D waste arising. ***As this is an application for a proposed new build, renovation of existing buildings is not applicable to this site.***

- ***Reuse of Waste:***

  Material that is generated should be reused on site or salvaged for subsequent reuse to the greatest extent possible and disposal should only be considered as a last resort. Initiatives should be put in place to maximise the efficient use/reuse of materials. Innovative initiatives to avoid the need for disposal should be investigated.

- ***Recycling of Waste:***

In relation to the small volume of waste which cannot be used on site there are a number of established markets available for the beneficial use of this C&D waste:

- waste timber can be recycled as shuttering or hoarding, or sent for reprocessing as medium density fibreboard;

- waste concrete can be utilised as fill material for roads or in the manufacture of new concrete when arising at source; and

- in addition, the technology for the segregation and recovery of stone, for example, is well established, readily accessible and there is a large reuse market for aggregates as fill for roads and other construction projects. Bitmac and Asphalt can also be recycled in roads projects.

3. Overall Management of C&D Waste on the Farm:

As this is a typical agricultural development, there are no waste streams with the potential for significant adverse environmental impact. The site owner/appointed contractor, is/will be experienced at carrying out similar development projects on this, or other farms, and will be responsible for the management of C & D waste from this farm. All external contractors to be used will be experienced with regard to poultry farm developments.

4. Demolition Plan:

Not Applicable as no Demolition Proposed

5. Site - Development Plan:

The proposed development is to be completed on a greenfield area. This will involve excavating the site of the proposed developments to facilitate site leveling requirements and the construction of soiled water storage tanks. This will involve the excavation of a certain amount of spoil. This material will be used to level low-lying parts of the site with any remaining soil banked around the boundary of the site. In the interim, all excavated soil will be stored on the site well removed from drainage ditches.

6. Construction Plan:

It is important to emphasise the potential for certain purchasing procedures to contribute to a reduction in excessive material wastage on site. Examples include:

- ordering materials on an "as needed" basis to prevent oversupply;
- purchasing coverings, panelling or other materials in shape, dimensions and form that minimises the creation of excessive scrap waste on site;
- ensuring correct storage and handling of construction materials to minimise generation of damaged materials/waste
- ensuring correct sequencing of operations.

The proposed development of a regular shaped building, similar, and in some cases identical construction methods to that previously completed on other similar poultry farms, will minimise the amount of waste material on the site. A significant amount of materials can be manufactured to the required size off site. In order to minimize wastage and other adverse impacts;

- where possible all concrete and aggregates will be ordered and supplied to exactly meet requirements.
- The proposed steel superstructure for the buildings will be made to order off site, and will only require erection on site, thus eliminating any waste.
- The roofing timbers can be ordered to size thus eliminating the need for cutting and wastage.
- All internal fixtures and fittings will be made to order off site and delivered to the site for installation.
- Any wastes that may arise on site will be appropriately stored, recycled where possible with any remaining wastes disposed of as previously outlined.

Construction waste Types, Costs and projected disposal/recovery routes:

➢ Metal and Electrical	-	To be removed, segregated and stored for re-use on the farm or recycling – Oxigen Environmental (Or other approved contractor) – **NWCPO-08-01106-06**
➢ Fluorescent Tubes	-	N/A
Insulation/Timber	-	Excess to be removed off-site by Oxigen Environmental (Or other approved contractor) – **NWCPO-08-01106-06**
➢		
➢ General Waste`	-	To be removed offsite by Oxigen Waste – Oxigen Environmental (Or other approved contractor) – **NWCPO-08-01106-06**

Given the pre-fabricated nature of the development i.e. steel cut and measured off site, timber cut off-site to pre determined lengths, etc. there will be minimal waste streams generated on-site. Skips/trailers will be provided on-site for waste collection and based on previous experience with similar developments it is envisaged that total waste arisings consisting of packaging, offcuts, etc. will equate to 5 – 7.5 tonnes. All of this material is to be sent to Oxigen Waste or other approved contractor.

Waste Disposal cost estimate €2500 - €3000

➢ Soil/Stone	-	To be used as infill / landscaping material as part of proposed site works.

As all soil/stone is to be used on-site there is no associated waste disposal cost.

7. Waste Audit

As a result of the prefabrication of a significant portion of the development (incl. steel portal frame, etc., off-site and the modular nature of construction (i.e. pre fabricated wall panels, and equipment), the sources of waste on-site have been limited and are mainly attributable to packaging, and minor off-cuts (steel, insulation, timber, etc.), and are not capable of being reduced further.

The remaining wastes produced are not hazardous, dangerous and/or do not have significant potential for causing pollution. In addition they are not suitable for re-use on site and are destined for Oxigen (Or other approved waste contractor) for further segregation and recycling, as the volumes to be generated make on-site separation impractical as it would increase transport and costs associated with transporting partially filled receptacles.

All waste removed off-site will, be tracked/recorded and documented.

8. Conclusion:

Due to the nature of the proposed development, i.e. agricultural, there are no areas of significant concern with regard to the proposed development.

The volume of waste emanating from the proposed works will be minimized by optimizing the construction process and pre-fabricating a significant proportion of the houses off-site, with minimal wastes arising on-site.

The operator/construction contractor is greatly experienced at overseeing similar developments on this, and other poultry farms and will be in charge of the management of the construction waste management plan.

Appropriate ***records*** are to be maintained of all materials sent off site for recycling/disposal.

Date: 16/08/2023

Appendix No. 20

Sub Soil & Hydrological Assessment & Surface Water Management Assessment

Crayvall Egg Production Ltd

Proposed Poultry Layer House, General Purpose Store & Associated Site Works

Sub-Soil & Hydrological Assessment & Stormwater Management Assessment

March 2024

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Sub-Soil & Hydrological Assessment & Surface Water Management Assessment

Client: Crayvall Egg Production Ltd

Location: Carrickbaggot, Grangebellew, Co Louth

Date: 07th March 2024

Document Control

PROJECT NUMBER: IE2888		DOCUMENT REF: IE2888_Report_6092			
4.0	ISSUE-01	JMC	PMS	JK	22-03-2024
3.0	DRAFT-03	JMC	PMS	JK	19-03-2024
2.0	DRAFT-02	JMC	PMS	JK	12-03-2024
1.0	DRAFT-01	JMC	PMS		08-03-2024
Revision	Purpose Description	Originated	Checked	Reviewed	Date

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IE2888-006-A (Proposed Culvert 1 - Sections)
IE2888-007-A (Proposed Entrance Culvert – Layout Plan)
IE2888-008-A (Proposed Entrance Culvert - Sections)
IE2888-009-A (Proposed Channel Diversion – Layout Plan)
IE2888-0010-A (Proposed Channel Diversion – Sections)
IE2888-011-A (Stormwater Management – Alternative Option)
IE2888-012-A (Proposed Channel Diversion – Alternative Option)

Appendix B.
Trial Pit Logs

Appendix C.
Trial Pit Photographs

Appendix D.
Micro Drainage Output

Appendix E.
Hydraflow Output

1. Introduction

IE Consulting was requested by CLW Environmental Planners, on behalf of Crayvall Egg Production Ltd, to undertake an investigation into the subsoil infiltration characteristics, design a suitable stormwater management system and to undertake a hydrological assessment in support of a planning application for a proposed development at Carrickbaggot, Grangebellew, Co Louth. The location of the proposed development site is shown on *Drawing Number IE2888-001-A, Appendix A*.

The development as proposed comprises the construction of 1 no. Poultry Layer House and 1 no. Manure/General Purpose House, together with all ancillary structures (to include 3 no. meal storage bin(s) and soiled water tank), and all associated site works (to include upgraded farm laneway), associated with the proposed development.

The development as proposed was subject to a previous planning application (Planning Reference 23/60288) which was submitted for planning on 17th August 2023. This application was not approved by Louth County Council and no Request for Further Information was issued in respect of this application. With respect to stormwater management and related hydrological issues, Louth County Council Infrastructure Department did issue a four point memo which detailed specific additional information to be requested in the event that a Request for Further Information did issue in respect to previous Planning Reference 23/60288. A copy of the four points of this memo are duplicated below:

1. The applicant has indicated all roof water and uncontaminated storm water from the hard standing areas will discharge to the existing/ proposed storm water emission points, and from there to ground/surface water but has not submitted any details of pipes sizes and run-off storage calculations in accordance with BS365 SUDs requirements for Soakway Designs. The applicant shall undertake soil permeability testing to determine the infiltration characteristics of the site and design the proposed soakaways taking account of the soil permeability test results. The soakaways calculations shall include for all impermeable areas including driveway(s). The applicant shall submit photographic evidence of soak pits undertaken within the development site showing local site landmarks.

2. Applicant should submit full details of attenuation proposals in respect of discharge of runoff to stream. It is Council policy to attenuate runoff such that that post development runoff should not exceed pre-development runoff. Constructed storage shall be provided for storms up to 25 year return period such that runoff shall not exceed pre-development levels. The development

shall provide for the containment of storms up to 100 year return period within the development (road flooding etc) without leading to runoff over and above pre development levels to the stream.

These calculations must include the following:

a) Predevelopment overland flow routes

b) Post Development overland flow routes and shall demonstrate any flooding in storm events shall be stored within the boundaries of the site.

c) All proposed pipe sizes

3. The applicant has proposed building over an existing open ditch to the East of the site, from reading contours this varies by 12m from the highest point over the length of the field to the lowest point at crossover and this is not acceptable and must submit for approval a revised proposal for diversion and piping of the stream around the proposed structure of the development and for the proposed culverting of same to accommodate the proposed turning areas.

4. The applicant has indicated provision of an access road crossing over an existing watercourse at entrance to the proposed site. Full design details for this crossing shall be submitted and shall clearly demonstrate no reduction in channel width or flow restriction to the watercourse either upstream or downstream of the access road crossing.

The development as proposed, and which is the subject of this current planning application, is exactly the same location, layout, form and scale as the previous application, therefore the four points listed above are applicable with respect to this current planning application.

The details presented herein are specifically presented in response to the four points listed above and in support of this current planning application.

Site assessment and investigation works was undertaken by a hydrological engineer from IE Consulting on 16th February 2024.

Quoted ground levels or estimated water levels relate to Ordnance Datum (Malin) unless stated otherwise.

2. Background Information

The proposed development site is located at Carrickbaggot, Grangebellew, Co Louth, the site is bounded to the north, east and south by family owned agricultural land and to the west by third party agricultural land. The total area of the proposed development site is approximately 1.52 hectares.

The proposed development site slopes moderately in a southern to northern direction at an average gradient of approximately 1.98% (1 in 51). Existing ground elevations within the main area of proposed development site range from approximately 61.615m OD (Malin) in the southern area of the site to 59.921m OD (Malin) in the northern area of the site.

The EPA online subsoils map viewer indicates that the site is entirely underlain by Clayey Sandstone/Shale Till and Variable Lacustrine Sediments. The subsoils map for the general area of the site is illustrated on *Drawing No. IE2888-002-A, Appendix A*.

The Teagasc Soils Mapping was also consulted via the GSI online map viewer. This indicates that the soils characteristics at the site comprise of Surface Water Gleys, **poorly drained mineral (mainly acidic).**

3. Sub-Soil Hydrological Assessment

3.1. Infiltration Capacity of Subsoils

For a soil to be suitable to accept enhanced infiltration it must be permeable and unsaturated. It must also be of sufficient thickness and extent to disperse the water effectively.

The capacity of a soil to permit the infiltration of water can be assessed by establishing its infiltration co-efficient, which is the discharge infiltrating into the soil divided by the area of infiltration. The infiltration co-efficient of a soil is related to its permeability, and will be high for coarse grained soils such as sands and gravels, and low for fine soils such as silts and clays. The infiltration co-efficient can vary by a factor of as much as 3 depending on the time of year.

Water entering an infiltration system is temporarily stored. Eventually it soaks through the infiltration surface and percolates through the soil. Around a working infiltration system, a bulb of saturation develops and the water flows through the soil under the influence of the hydraulic pressure gradient. As water seeps away from the infiltration surface the flow area expands outwards and saturated conditions can no longer be maintained, the water continues to percolate through the soil as unsaturated flow, driven by capillary action and gravity.

Once the infiltration system is empty the bulb of saturation will dissipate and the soil moisture will return towards ambient conditions.

3.2. Site Determination of the Infiltration Coefficient

The only reliable method of determining the infiltration co-efficient for a particular site is to carry out an infiltration test on-site. For this particular investigation 2 no. infiltration tests were attempted. Infiltration testing was undertaken on the 16th of February 2024. The weather on that day is described as overcast, patchy drizzle with a gentle breeze.

2 no. trial pits (TP-01 & TP-02) were excavated at the locations illustrated in *Drawing No. IE2888-003-A, Appendix*. The stratum at each trial pit was logged in accordance with BS5930.

Logs for each trial pit are presented in *Appendix B*.

Photographic images of each of the trial pits is presented in *Appendix C*.

Following excavation and logging the pits were filled with water and tested in accordance with the procedure listed in *CIRIA Report 156 – 'Infiltration Drainage – Manual of Good Practice'* and *'BRE Digest 365'.* The infiltration tests were undertaken within the natural, undistributed sub-soil material.

Once testing was completed, the pits were filled in, with the natural top soil layer placed back level with the surrounding ground.

3.3. Results & Analysis of Infiltration Testing

The soil infiltration co-efficient 'q' is given by Equation 1, outlined below.

$$q = V_{p75-25} / a_{p50} \times t_{p75-25}$$

Equation 1 – Soil Infiltration Coefficient Equation

Where,

Vp75-25 = the storage volume of the pit between 75% and 25% of the effective water test depth.

ap50 = the area of the base and sides of the pit at 50% of the effective water test depth.

tp75-25 = the average time taken for the pit to empty from 75% to 25% of the effective water test depth.

3.3.1. TP-01 Infiltration Test

The superficial deposits encountered in TP-01 were stiff, brown, blue/grey, clayey Till with occasional angular cobbles/boulders. Due to the high clay till content of the subsoil material at TP01, infiltration of water and water level drop within the trial pit was not recorded or observed a sufficient rate to enable an infiltration co-efficient to be determined.

Therefore it is deemed that the subsoil conditions at this location are not suitable for the provision of a stormwater infiltration system or soakaway system.

3.3.2. TP-02 Infiltration Test

The superficial deposits encountered in TP-02 were stiff to firm, brown, blue/grey, clayey Till with occasional angular cobbles/boulders. Due to the high clay till content of the subsoil material at TP-02, infiltration of water and water level drop within the trial pit was not recorded or observed a sufficient rate to enable an infiltration co-efficient to be determined.

Therefore it is deemed that the subsoil conditions at this location are not suitable for the provision of a stormwater infiltration system or soakaway system.

4. Stormwater Drainage Design Strategy

As presented in *Section 3* above, the on-site infiltration testing indicates that the subsoil conditions at the location of the proposed development site are not suitable for the provision of a stormwater infiltration system or soakaway system.

As presented in the subsequent section below, it is therefore proposed that stormwater runoff from the development as proposed is discharged to a suitable stormwater attenuation system followed by discharge to an adjacent existing watercourse channel at pre-development green-field runoff rates.

4.1. Stormwater Runoff

Hard standing and paved areas have been divided into three categories of surface areas which can drain into the proposed stormwater drainage system. The following runoff co-efficents have been applied to hard standing and paved areas:

- Roof Areas – 0.90
- External Yard Hardstanding Areas – 0.85
- External Gravel Areas – 0.25

4.2. Stormwater Attenuation

4.2.1. Required Attenuation Volume

The Greater Dublin Strategic Drainage Study (GDSDS) recommends that stormwater runoff from a development site should be attenuated to the Greenfield Runoff rate for the site or at a rate of 2l/s/ha, whichever is greater.

The contributing catchment area of the site is 1.52ha. In accordance with the GDSDS the attenuated discharge rate would be as follows:

- Qbar = 1.52 x 2l/s/ha = 3.04 l/s

The Greenfield Runoff Rate for the site has been calculated using the method described in the Institute of Hydrology (IH) Report 124 (1994). The Greater Dublin Strategic Drainage Study (GDSDS) states that this method only applies to catchments of 50 hectares or greater:

The GDSDS states that for simplicity it is proposed that the IH Report 124 method is applied to all catchment sizes by applying it to a 50ha site and linearly interpolating the result for smaller areas.

The IH Report 124 is published by the Institute of Hydrology and the following regression equation was derived to calculate the Greenfield Runoff Rate also known as the mean annual flood (Qbar m^3/s).

- Qbar = 0.00108 x Area$^{0.89}$ x SAAR$^{1.17}$ x SOIL$^{2.17}$

Where:

AREA = contributing catchment area = 1.52Ha

SAAR = 836.91mm (from Met Éireann data)

SOIL = A number depending on the soil type and relating to the winter rain acceptance potential of the soils in the catchment. Values for SOIL are obtained from *Figure 1* below, which is replicated from map I. 4.18 (I) in the FSR.

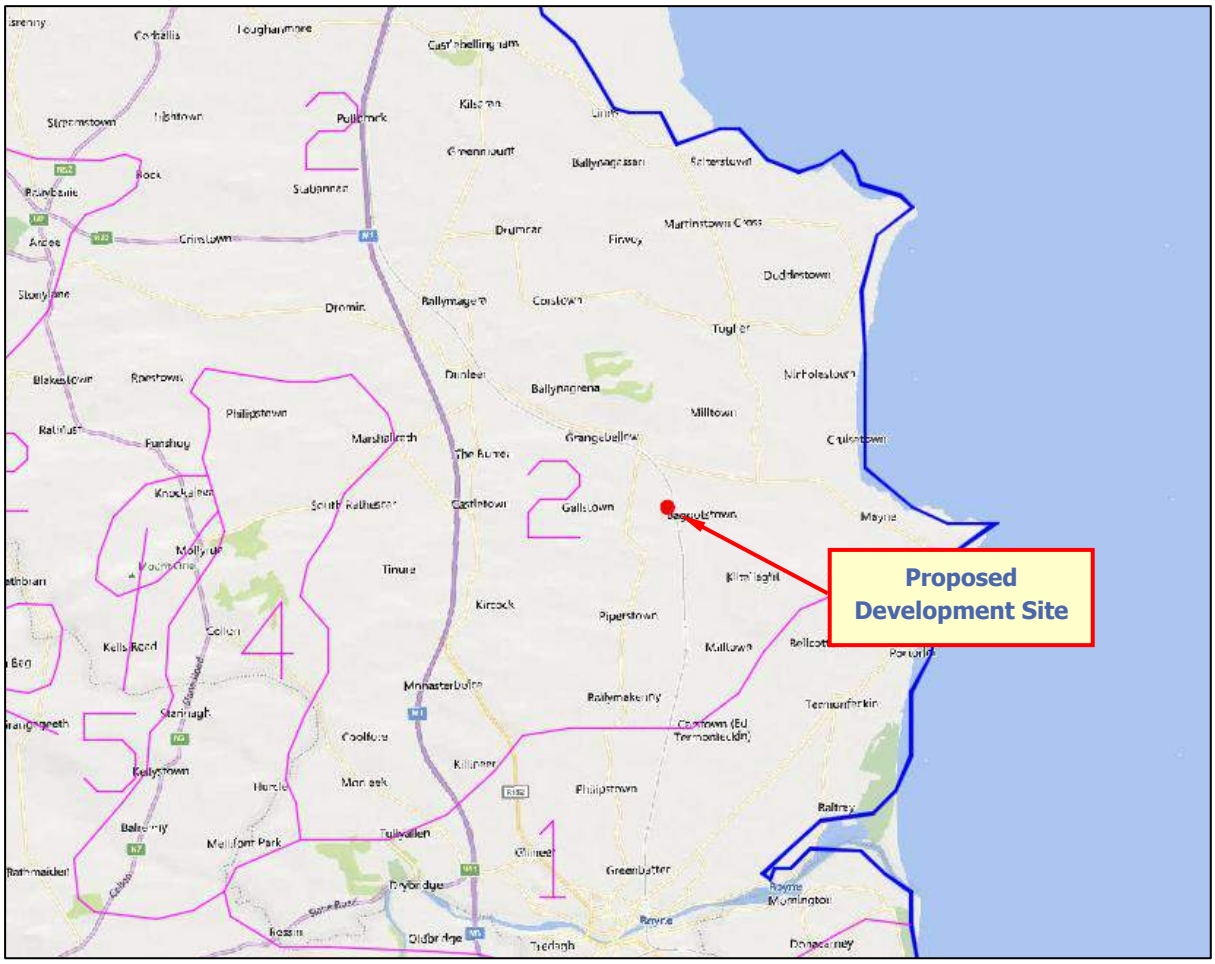

Figure 1 - Winter Rainfall Acceptance Potential

From *Figure 1* above (not to scale) the contributing catchment area comprises of 100% SOIL Type 2.

Therefore:

- SOIL = 0.15(S1) + 0.3(S2) + 0.40(S3) + 0.45(S4) + 0.5(S5)
- SOIL = 0.15(0) + 0.3(1) + 0.40(0) + 0.45(0) + 0.5(0)
- SOIL = 0.30

- Qbar = 0.00108 x Area$^{0.89}$ x SAAR$^{1.17}$ x SOIL$^{2.17}$
- Qbar = 0.00108 x 0.5$^{0.89}$ x 836.91$^{1.17}$ x 0.3$^{2.17}$ = 0.112 m^3/s [For a 50Ha Site]

Using Linear Interpolation

- Qbar = (Qbar /0.5km^2) x Actual Contributing Catchment Area:
- Qbar = (0.112/50 ha) x 1.52ha = 0.0034 m^3/s = 3.4 l/s

The calculated Qbar Greenfield Runoff rate for the site is greater than that of the value using a rate of 2l/s/ha, therefore the following Qbar shall be utilised:

- Qbar = 3.4/s

The required stormwater attenuation volume for the development has been assessed using the Micro-Drainage software package in consideration of a 1% AEP+CC (1 in 100 year + 20% climate change) winter profile and summer profile rainfall event and in consideration of storm durations 15 minutes – 10080 minutes.

The Micro-Drainage Summary output calculations are presented in *Appendix D*.

As illustrate on the Micro-Drainage summary output calculation the critical storm profile and storm duration is the winter profile of 960 minutes duration, resulting in a required stormwater attenuation volume of 437m^3.

4.2.2. Proposed Attenuation System

In consideration of the rural setting of the proposed development site, it is proposed that stormwater attenuation for the development as proposed shall be provided via a stormwater swale system and incorporating an appropriate flow restriction device.

As illustrated on *Drawing Number IE2888-004-A, Appendix A*, it is proposed to provide an approximate 84m long swale system located to the north of the proposed Poultry Layer House and Manure/General Purpose House. The swale shall be constructed to provide a minimum stormwater storage volume of 437m^3, equating to the 1% AEP+CC (1 in 100 year + climate change) stormwater runoff volume. Stormwater runoff from roof and hardstanding areas shall discharge to the swale via traditional drainage infrastructure (pipe, manholes, gullies,etc.).

The swale system shall incorporate a outfall manhole which shall be fitted with an appropriate flow restriction device ('Hydrobrake' or similar) which shall limit discharge to the maximum permitted Greenfield Runoff rate of 3.4 l/s. Attenuated discharge from the swale system shall be to an existing watercourse channel at the location illustrated on *Drawing Number IE2888-004-A, Appendix A*.

A number of small check dams shall be constructed within the channel of the swale in order to regulate flow conveyance through the swale. The swale shall be grassed over its full extent in order to enable filtration and polishing of stormwater runoff from the proposed development.

Alternatively, and as illustrated on *Drawing Number IE2888-011-A, Appendix A,* a standard below ground stormwater attenuation tank or cellular attenuation system may be used in lieu of a stormwater attenuation swale system. Where a below ground stormwater attenuation tank is utilised this should ideally be of reinforced pre-cast concrete construction and be fitted with a suitable flow control system at the outlet limiting flow to a maximum of 3.4 l/s and have a minimum free storage volume of 437m^3. Where a cellular attenuation system is used this should be capable of withstanding typical agricultural vehicle structural loadings and should be provided with an outlet manhole be fitted with a suitable flow control system at the outlet limiting flow to a maximum of 3.4 l/s and have a minimum free storage volume of 437m^3.

5. Existing & Proposed Watercourse Channel & Culverts

As illustrated in *Figure 2* below there are a number of existing watercourse and drainage channels and existing culverts at and in the vicinity of the proposed development.

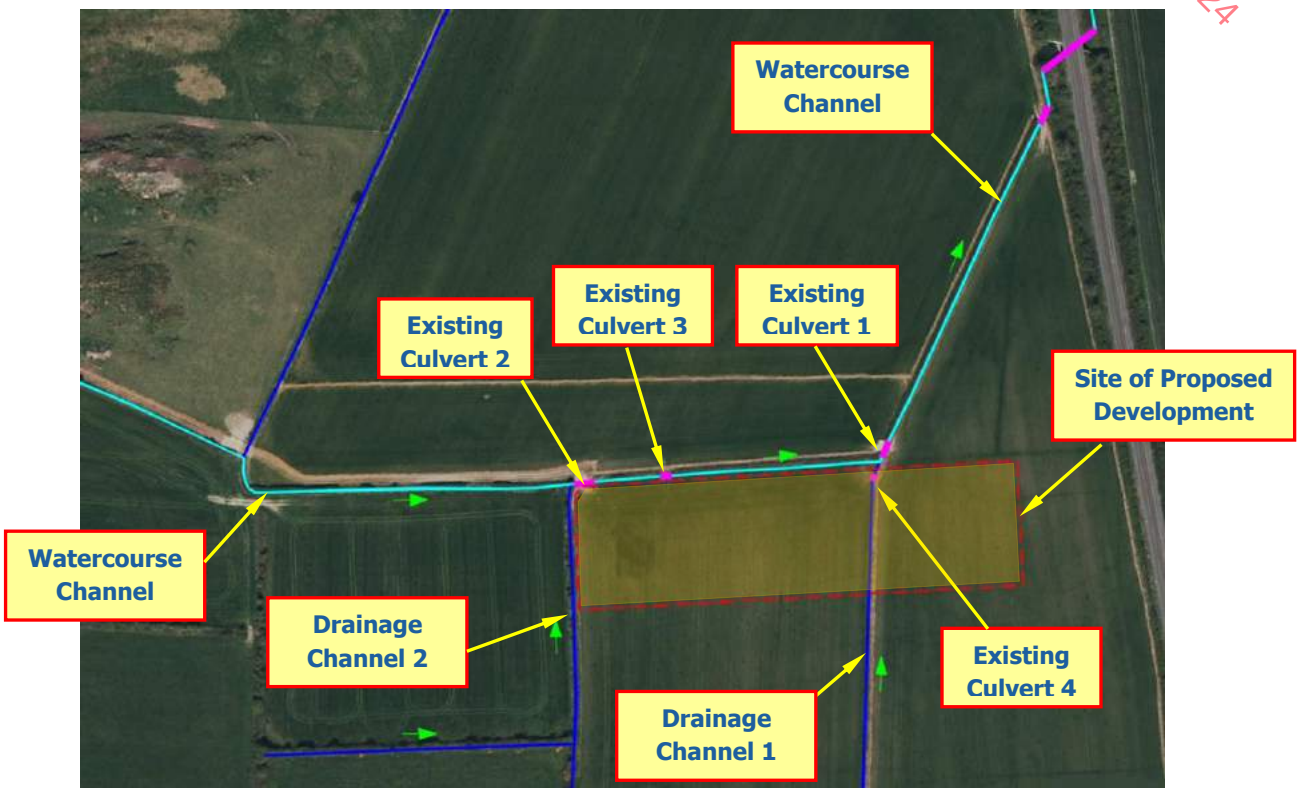

Figure 2 – Existing Watercourse Channels & Culverts

In order to accommodate the development it is proposed to remove 'existing culvert 3' and 'existing culvert 4 and partially divert 'drainage channel 1'. 'Existing culvert 3 formed part of an access point to agricultural lands to the north which is no longer utilised. 'Existing culvert 4' and part of 'drainage channel 1' falls with the area of the site of the proposed development.

The access road to the site of the proposed development shall partially cross over the watercourse at and in the vicinity of the 'existing culvert 2', therefore this existing culvert may need to be removed and upgraded.

'Existing culvert 1' is located on the watercourse channel immediately downstream of the proposed development. This existing culvert has been assessed for possible upgrading.

In order to ensure that the culvert upgrade and channel diversion works listed above do not present a potential fluvial flood risk to the development as proposed, or elsewhere, a hydrological assessment and hydraulic analysis of the Watercourse Channel and Drainage Channel 1 has been undertake as presented below.

5.1. Watercourse Channel & Drainage Channel 1 Catchment Delineation

As illustrated in *Figure 3* below, for the purposes of this hydrological assessment and hydraulic analysis the Watercourse Channel and Drainage 1 catchments have been delineated on a sub-catchment basis utilising a digital terrain model (DTM) generated from LiDAR data.

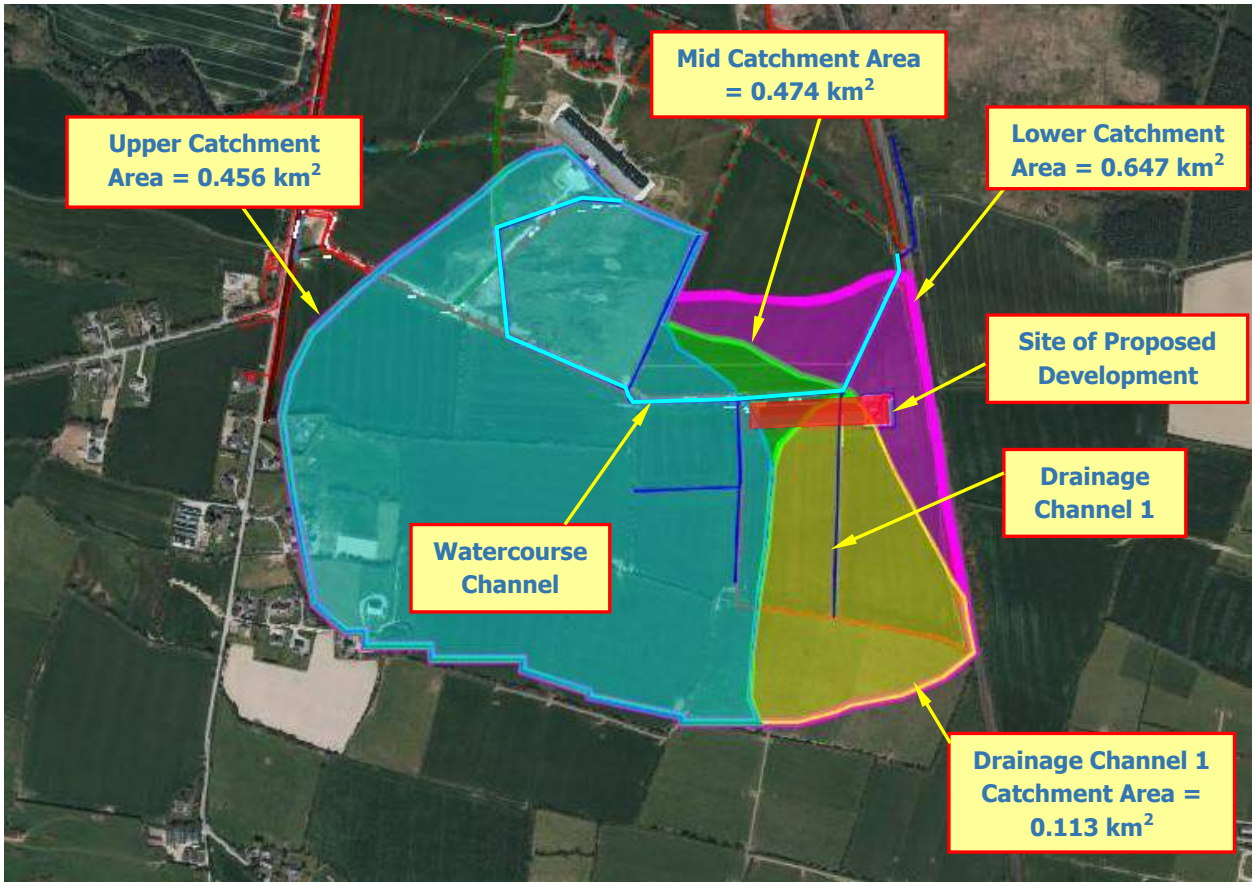

Figure 3 – Watercourse Catchment Areas

The 'Upper Catchment' is the catchment area of the 'Watercourse Channel' to the location of 'existing culvert 2' and has a catchment area of approximately 0.456 Km^2.

The 'Mid Catchment' is the catchment area of the 'Watercourse Channel' to the location of 'existing culvert 1' and has a catchment area of approximately 0.474 Km^2.

The 'Lower Catchment' is the catchment area of the 'Watercourse Channel' to a point downstream of the site of the proposed development and has a catchment area of approximately 0.647 Km^2.

'Drainage Channel 1' has a catchment area of approximately 0.113 Km^2.

5.2. Peak Flow Estimation –Mean Annual Flood Method for Small Catchments

In consideration of the small catchment areas illustrated in *Figure 3* above, the FSU portal software is not considered appropriate to estimate the median or mean flood volumes in the 'Watercourse Channel' and 'Drainage Channel 1'. The mean annual flood , Q_{BAR} *(m³/s)*, is therefore estimated by utilising any of the two multiple parameter regression equations detailed in the Flood Studies Report (FSR) and Flood Studies Supplementary Reports (FSSR) and the Institute of Hydrology Report (IH) No. 124 'Flood Estimation for Small Catchments' regression equation. These equations are listed below:-

$Qbar\ Rural = 0.00066 \times Area^{0.92} \times SAAR^{1.22} \times SOIL^{2.0}$ *EQN 1.5 (FSSR)*

$Qbar\ Rural = 0.0288 \times Area^{0.90} \times RSMD^{1.23} \times SOIL^{1.77} \times STMFRQ^{0.23}$ *EQN 1.6 (FSR)*

$Qbar\ Rural = 0.00108 \times Area^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$ *EQN 7.1 (IH124)*

where,

AREA = **Catchment Area**

Upper Catchment Area = 0.456 Km²

Mid Catchment Area = 0.474 Km²

Lower Area = 0.647 Km²

Drainage Channel 1 Catchment Area = 0.113 Km²

SAAR = Standard Annual Average Rainfall

SAAR = 836.91 mm (from Met Éireann data)

STMFRQ = the stream frequency of the **Upper Catchment Area**, which is equal to the number of channel junctions within the catchment divided by the catchment area. STMFRQ = (J/ A) = 4/0.456

STMFRQ = 8.772

STMFRQ = the stream frequency of the **Mid Catchment Area**, which is equal to the number of channel junctions within the catchment divided by the catchment area. STMFRQ = (J/ A) = 4/0.474

STMFRQ = 8.439

STMFRQ = the stream frequency of the **Lower Catchment Area**, which is equal to the number of channel junctions within the catchment divided by the catchment area. STMFRQ = (J/ A) = 5/0.647

STMFRQ = 7.728

STMFRQ = the stream frequency of the **Drainage Channel 1 Catchment Area**, which is equal to the number of channel junctions within the catchment divided by the catchment area. STMFRQ = (J/ A) = 1/0.113

STMFRQ = 8.849

RSMD = the 5 year, 1 day rainfall excess (mm) for the catchment and is estimated using the following equation or can be directly derived from *Figure 4* below:

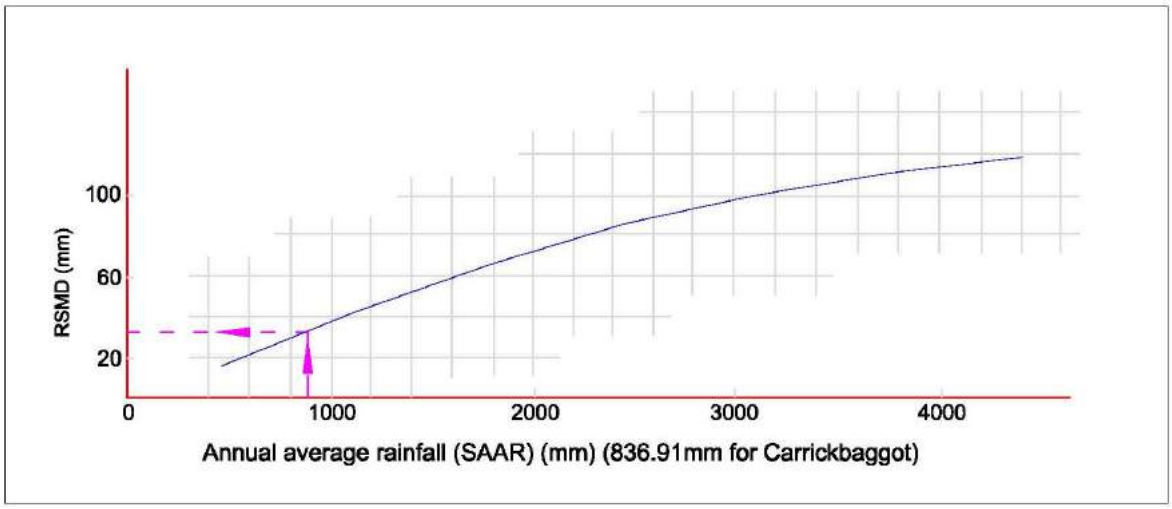

Figure 4 – Plot of 5 year, 1 day rainfall excess, RSMD, against mean annual rainfall, SAAR (Watercourses)

RSMD = 31.74, for SAAR value of 836.91mm taken from Met Éireann data

SOIL = A number depending on the soil type and relating to the winter rain acceptance potential of the soils in the catchment. Values for SOIL are obtained from *Figure 5* and *Figure 6* below, which are replicated from map I. 4.18 (I) in the FSR.

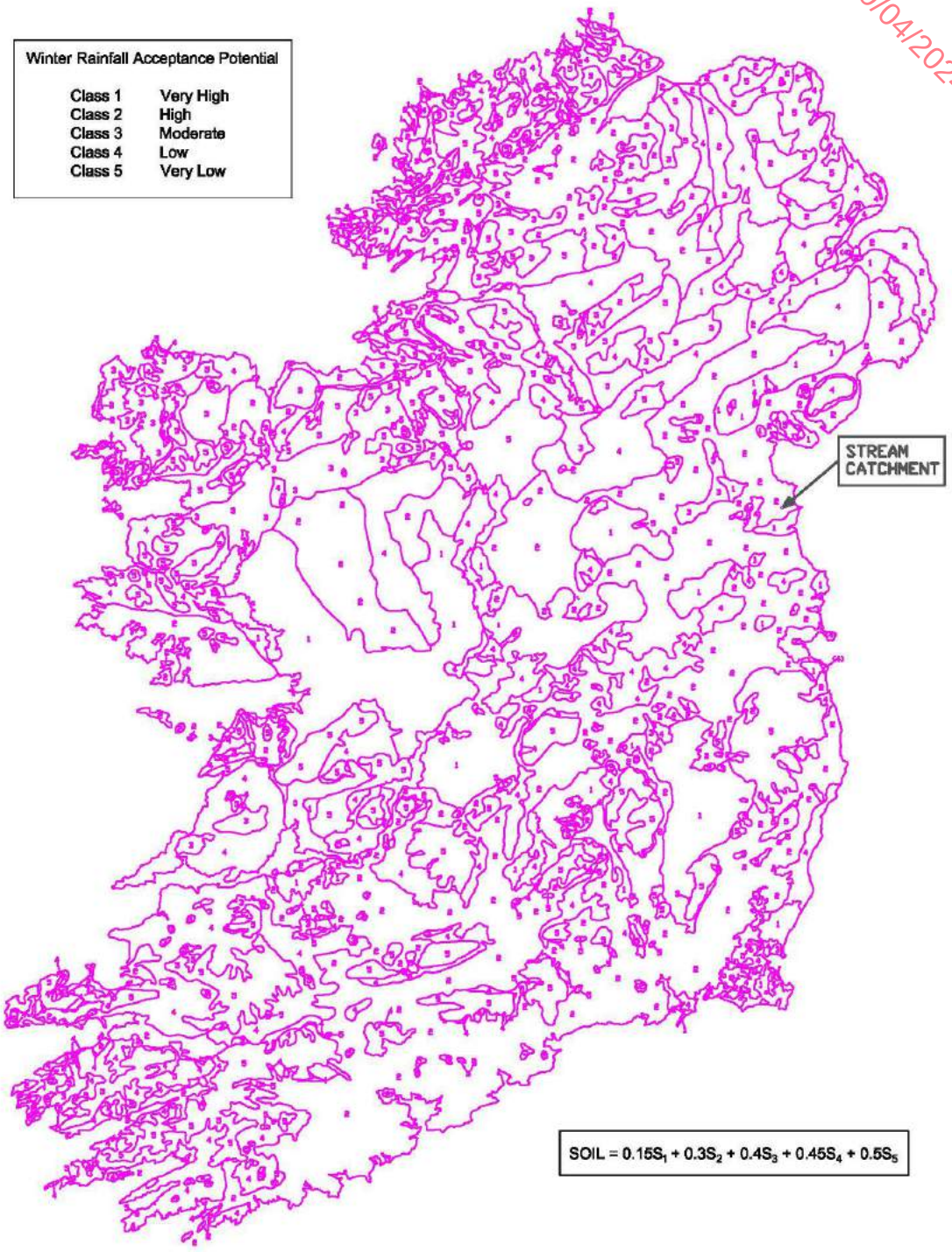

Figure 5 - Winter Rainfall Acceptance Potential

Figure 6 - Winter Rainfall Acceptance Potential

Therefore:

SOIL = 0.15(S1) + 0.3(S2) + 0.40(S3) + 0.45(S4) + 0.5(S5)

Watercourse Channel & Drainage Channel 1 Catchment Areas

From *Figures 5 & 6* (not to scale) the stream catchment areas assessed, comprise of 100% Soil Type 2.

SOIL = 0.15(S1) + 0.3(S2) + 0.40(S3) + 0.45(S4) + 0.5(S5)

SOIL = 0.15(0) + 0.3(1) + 0.4(0) + 0.45() + 0.5(0) $\Rightarrow$ **SOIL = 0.3**

Therefore;

Upper Catchment Area

Qbar Rural = $0.00066 \times Area^{0.92} \times SAAR^{1.22} \times SOIL^{2.0}$ EQN 1.5 (FSSR)

$\Rightarrow 0.00066 \times 0.456^{0.92} \times 836.91^{1.22} \times 0.3^{2.0}$

$\Rightarrow$ **Q_{BAR} = 0.106 m^3/s**

Qbar Rural = $0.0288 \times Area^{0.90} \times RSMD^{1.23} \times SOIL^{1.77} \times STMFRQ^{0.23}$ EQN 1.6 (FSR)

$\Rightarrow 0.0288 \times 0.456^{0.90} \times 31.74^{1.23} \times 0.3^{1.77} \times 8.772^{0.23}$

$\Rightarrow$ **Q_{BAR} = 0.195 m^3/s**

Qbar Rural = $0.00108 \times Area^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$ EQN 7.1 (IH124)

$\Rightarrow 0.00108 \times 0.456^{0.89} \times 836.91^{1.17} \times 0.3^{2.17}$

$\Rightarrow$ **Q_{BAR} = 0.103 m^3/s**

Mid Catchment Area

Qbar Rural = $0.00066 \times Area^{0.92} \times SAAR^{1.22} \times SOIL^{2.0}$ EQN 1.5 (FSSR)

$\Rightarrow 0.00066 \times 0.474^{0.92} \times 836.91^{1.22} \times 0.3^{2.0}$

$\Rightarrow$ **Q_{BAR} = 0.110 m^3/s**

Qbar Rural = $0.0288 \times Area^{0.90} \times RSMD^{1.23} \times SOIL^{1.77} \times STMFRQ^{0.23}$ EQN 1.6 (FSR)

$\Rightarrow 0.0288 \times 0.474^{0.90} \times 31.74^{1.23} \times 0.3^{1.77} \times 8.439^{0.23}$

$\Rightarrow$ **Q_{BAR} = 0.201 m^3/s**

Qbar Rural = $0.00108 \times Area^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$ EQN 7.1 (IH124)

$\Rightarrow 0.00108 \times 0.474^{0.89} \times 836.91^{1.17} \times 0.3^{2.17}$

$\Rightarrow$ **Q_{BAR} = 0.107 m^3/s**

Lower Catchment Area

Qbar Rural = $0.00066 \times Area^{0.92} \times SAAR^{1.22} \times SOIL^{2.0}$ EQN 1.5(FSSR)

$\Rightarrow 0.00066 \times 0.647^{0.92} \times 836.91^{1.22} \times 0.3^{2.0}$

$\Rightarrow$ **Q_{BAR} = <u>0.146 m^3/s</u>**

Qbar Rural = $0.0288 \times Area^{0.90} \times RSMD^{1.23} \times SOIL^{1.77} \times STMFRQ^{0.23}$ EQN 1.6 (FSR)

$\Rightarrow 0.0288 \times 0.647^{0.90} \times 31.74^{1.23} \times 0.3^{1.77} \times 7.728^{0.23}$

$\Rightarrow$ **Q_{BAR} = <u>0.260 m^3/s</u>**

Qbar Rural = $0.00108 \times Area^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$ EQN 7.1 (IH124)

$\Rightarrow 0.00108 \times 0.647^{0.89} \times 836.91^{1.17} \times 0.3^{2.17}$

$\Rightarrow$ **Q_{BAR} = <u>0.141 m^3/s</u>**

Drainage Channel 1 Catchment Area

Qbar Rural = $0.00066 \times Area^{0.92} \times SAAR^{1.22} \times SOIL^{2.0}$ EQN 1.5(FSSR)

$\Rightarrow 0.00066 \times 0.113^{0.92} \times 836.91^{1.22} \times 0.3^{2.0}$

$\Rightarrow$ **Q_{BAR} = <u>0.029 m^3/s</u>**

Qbar Rural = $0.0288 \times Area^{0.90} \times RSMD^{1.23} \times SOIL^{1.77} \times STMFRQ^{0.23}$ EQN 1.6 (FSR)

$\Rightarrow 0.0288 \times 0.113^{0.90} \times 31.74^{1.23} \times 0.3^{1.77} \times 8.849^{0.23}$

$\Rightarrow$ **Q_{BAR} = <u>0.056 m^3/s</u>**

Qbar Rural = $0.00108 \times Area^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$ EQN 7.1 (IH124)

$\Rightarrow 0.00108 \times 0.113^{0.89} \times 836.91^{1.17} \times 0.3^{2.17}$

$\Rightarrow$ **Q_{BAR} = <u>0.030 m^3/s</u>**

For the purposes of this hydrological assessment and hydraulic analysis, the more conservative Q_{BAR} estimate of derived utilising the FSR 4 parameter regression equation (EQN 1.6 (FSR)) is utilised.

The FRS regression equation has a standard factorial error of 1.53, therefore;

Upper Catchment Area **Q_{BAR} rural** estimate = 0.195 m^3/s x 1.53 = **0.298 m^3/s**

Mid Catchment Area **Q_{BAR} rural** estimate = 0.201 m^3/s x 1.53 = **0.308 m^3/s**

Lower Catchment Area **Q_{BAR} rural** estimate = 0.260 m^3/s x 1.53 = **0.398 m^3/s**

Drainage Channel 1 Catchment Area **Q_{BAR} rural** estimate = 0.056 m^3/s x 1.53 = **0.086 m^3/s**

5.3. Estimated Flows for Different Return Periods

The return period flows 'Q_T' are estimated using the index flood method and multiplying the annual maximum flow by the appropriate growth factor 'X_T' using the FSR (1975) national growth curve for Ireland, as shown in *Figure 7* below: -

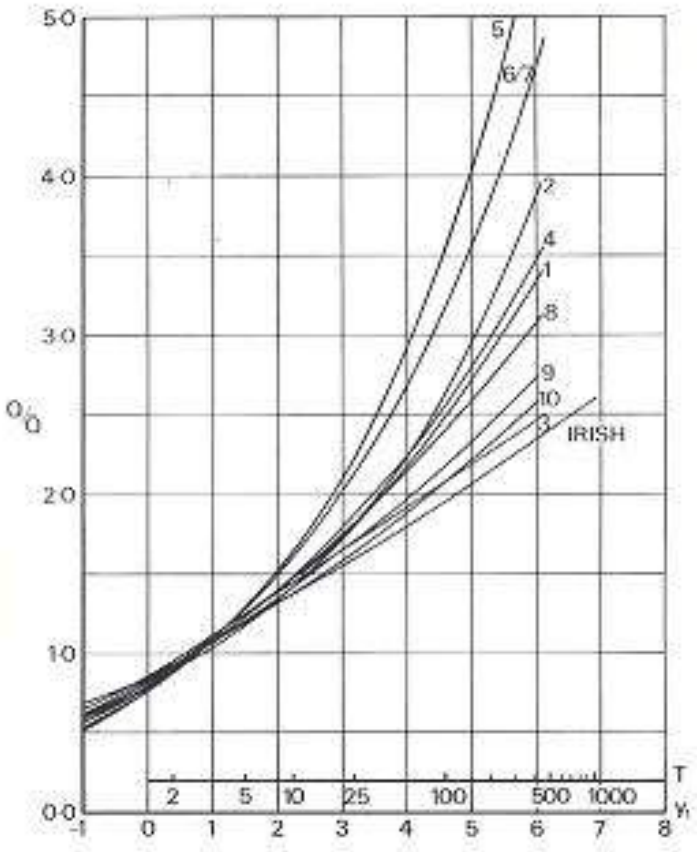

Figure 7 – Regional Growth Factors

For flood return periods 1 in 2 year, 1 in 50 year, 1 in 100 year and 1 in 1000 year the growth factors determined from *Figure 7* are listed in *Table 1* below: -

Flood Return Period (Yrs)	2	50	100
Growth Curve Factor (Q_T/Q_{BAR})	0.95	1.77	1.96

Table 1 - Growth Factors Applied to Irish Catchments for Q_{BAR} Discharge Prediction

Table 2 below lists the estimated peak flood flow in the watercourse for each catchment at the point of interest for different return periods: -

	Flood Return Period (Yrs)		
	2	50	100
Upper Catchment (m^3/s)	0.283	0.527	0.584
Mid Catchment (m^3/s)	0.293	0.545	0.604
Lower Catchment (m^3/s)	0.378	0.704	0.780
Drainage Channel 1 Catchment (m^3/s)	0.082	0.152	0.168

Table 2 –Estimated Peak Flows in the Watercourses for Different Return Periods

The hydraulic analysis is undertaken in consideration of the 1% AEP (1 in 100 year) return period.

Therefore:

Upper Catchment Area

Q_{100} = 0.584 m^3/s

Mid Catchment Area

Q_{100} = 0.604 m³/s

Lower Catchment Area

Q_{100} = 0.780 m³/s

Drainage Channel 1 Catchment Area

Q_{100} = 0.168 m³/s

5.3.1. Climate Change

It is generally acknowledged that future climate change will cumulate in decreases in summer rainfall amounts and increases in winter rainfall amounts. The levels or percentages of increase or decrease are still subjective and dependant on future studies and analysis.

The recently published Greater Dublin Strategic Drainage Study (GDSDS) suggests that by the year 2100 summer rainfall depths will have decreased by 35-45%, with a corresponding increase in winter rainfall depths by 20%. The suggested increase in winter rainfall depth will inevitability result in higher catchment run-off and therefore greater flood peaks.

It is therefore prudent to include a climate change factor in any estimation of flood peak volumes. In this instance a 20% increase in estimated flood peaks is provided for in this assessment. Therefore, the predicted 1% AEP (1 in 100-year) stream channel flood flow is increased to reflect the climate change factor.

The estimated 1% AEP (1 in 100 year) flood flows for the watercourses along the reaches under consideration are therefore:-

Upper Catchment Area

Q_{100} = 0.584 m³/s

$\Rightarrow Q_{100+cc}$ = 0.584 x 1.20 = 0.701 m^3/s

Mid Catchment Area

Q_{100} = 0.604 m³/s

$\Rightarrow Q_{100+cc}$ = 0.604 x 1.20 = 0.722 m^3/s

Lower Catchment Area

Q_{100} = 0.780 m^3/s

$\Rightarrow Q_{100+cc}$ = 0.780 x 1.20 = 0.936 m^3/s

Drainage Channel 1 Catchment Area

Q_{100} = 0.168 m^3/s

$\Rightarrow Q_{100+cc}$ = 0.168 x 1.20 = 0.201 m^3/s

5.4. Hydraulic Analysis of Watercourse Channel & Drainage Channel 1

The hydraulic conveyance capacity of the 'Watercourse Channel' and 'Drainage Channel 1' was analysed in consideration of the 1% AEP+CC (1 in 100 year + climate change) volumes presented in *Section 5.3.1* above.

As illustrated in *Figure 8* below, the a cross-sectional and geometric survey of the 'Watercourse Channel' and 'Drainage Channel 1' was undertaken at selection cross-sectional locations S1-S8.

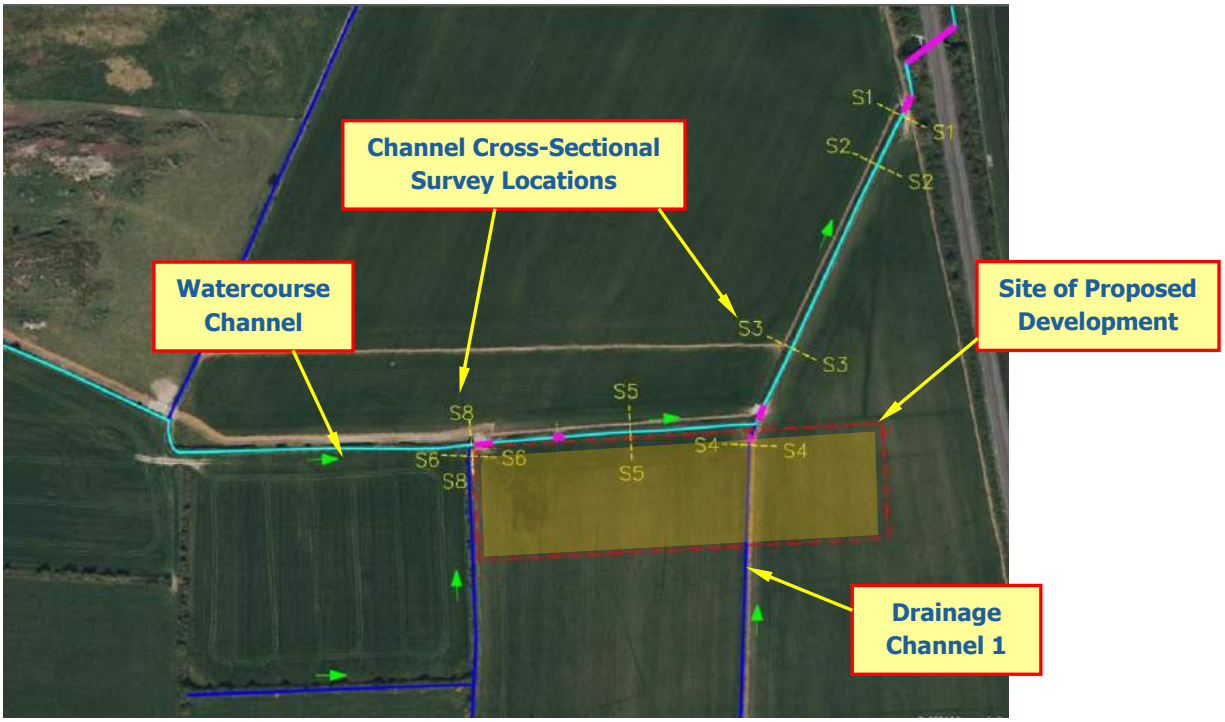

Figure 8 – Cross-Sectional Survey Locations

The hydraulic conveyance capacity of the 'Watercourse Channel' and 'Drainage Channel 1' was assessed at each of the surveyed cross-sectional locations. The hydraulic capacity was assessed the Autodesk Civil 3D Design software Hydraflow package which utilises Manning's equation and which can be expressed as the following:

$$H_f = Q^2n^2 / A^2R^{4/3}$$

Where:

Q = Flow Capacity of Channel

A = Minimum Cross Sectional Area of Channel

R = Hydraulic Radius = Area / Wetted Perimeter

S_o = Slope of bed of channel between subsequent cross-sections

n = Manning's Roughness Coefficient for the channel.

The choice of Manning's Roughness Coefficient has a significant effect on the overall hydraulic capacity of a watercourse channel. *Table 3* below lists recommended Manning's Roughness Coefficients for varying channel vegetation growth situations.

Type of Channel and Description	*Minimum*	*Normal*	*Maximum*
	Recommended Manning's 'n'		
A. Natural Streams			
1. Main Channels			
a. Clean, straight, full, no rifts or deep pools	0.025	0.030	0.033
b. Same as above, but more stones and weeds	0.030	0.035	0.040
c. Clean, winding, some pools and shoals	0.033	0.040	0.045
d. Same as above, but some weeds and stones	0.035	0.045	0.050
e. Same as above, lower stages, more ineffective slopes and sections, overgrowth, brush, weeds	0.040	0.048	0.055
f. Same as "d" but more stones	0.045	0.050	0.060
g. Sluggish reaches, weedy, brush	0.050	0.070	0.080
h. Very weedy reaches, deep pools, or floodways	0.070	0.100	0.150

Table 3 - Manning's 'n' Roughness Coefficients

For purposes of this assessment and analysis, the Manning's 'n' value utilised varies between 0.050 - 0.1 based on the typical open channel watercourse characteristics as illustrated in *Figures 9-12* below.

Figure 9 – Watercourse Channel Upper Section

Figure 10 – Watercourse Channel Mid Section

Figure 11 – Watercourse Channel Lower Section

Figure 12 - Drainage Channel 1

The Manning's 'n' values of between 0.05-0.1 and the generalised longitudinal slope between surveyed cross sections of 0.33-2.17% was inputted into the Hydraflow software package along with the surveyed channel geometric profile.

The output of the Hydraflow channel hydraulic analysis is illustrated in *Figures 13-20* below. A full set of results from the Hydraflow assessment is included in *Appendix E*.

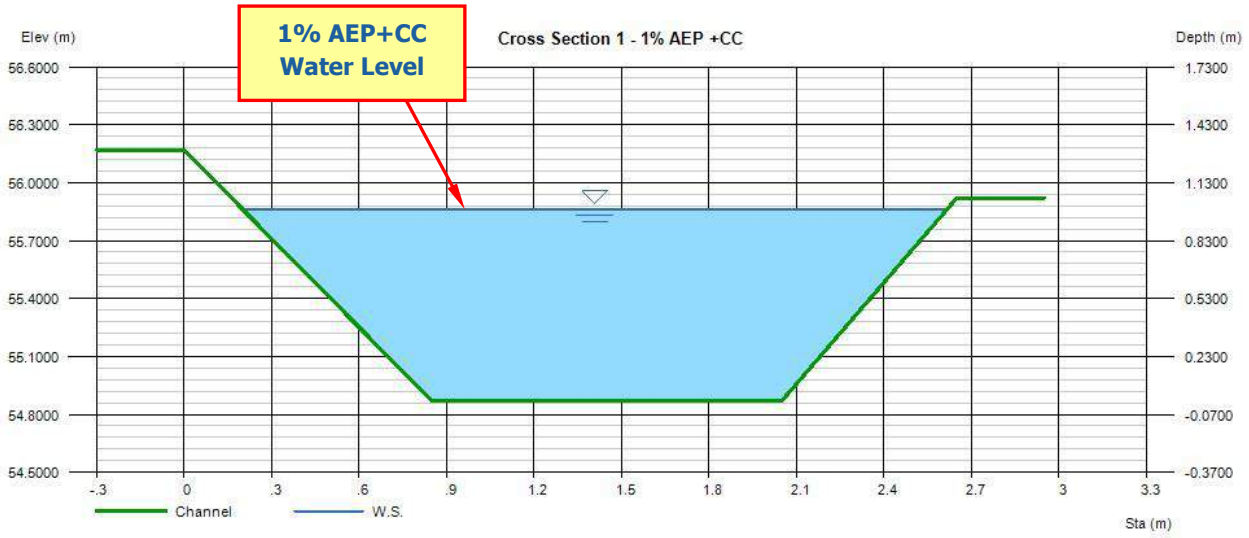

Figure 13 – Watercourse Channel – Section 1

Figure 13 above indicates that the 'Watercourse Channel' at Section 1 has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.936m^3/s and that surcharging of the channel or out of channel flow is not predicted to occur.

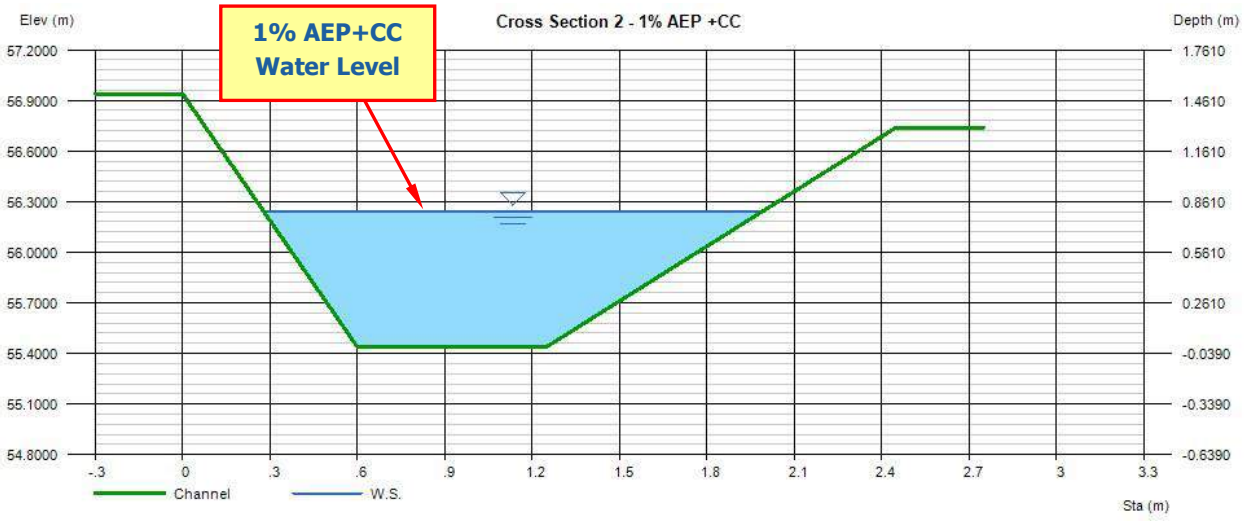

Figure 14 – Watercourse Channel – Section 2

Figure 14 above indicates that the 'Watercourse Channel' at Section 2 has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.936m^3/s and that surcharging of the channel or out of channel flow is not predicted to occur.

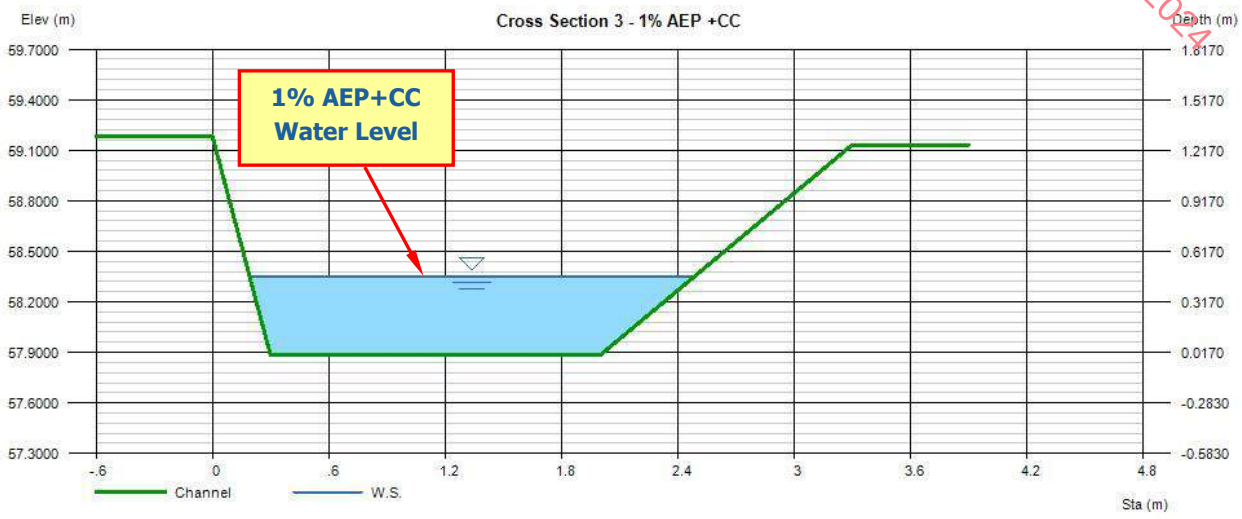

Figure 15 – Watercourse Channel – Section 3

Figure 15 above indicates that the 'Watercourse Channel' at Section 3 has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.936m^3/s and that surcharging of the channel or out of channel flow is not predicted to occur.

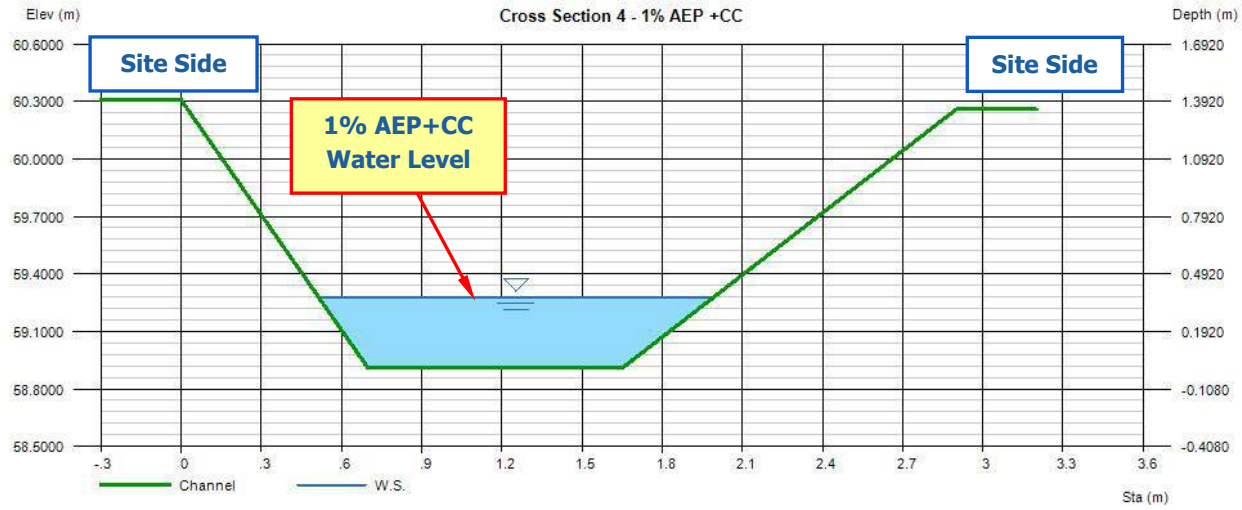

Figure 16 – Drainage Channel 1 – Section 4

Figure 16 above indicates that 'Drainage Channel 1' at Section 4 has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.201m^3/s and that surcharging of the channel or out of channel flow is not predicted to occur.

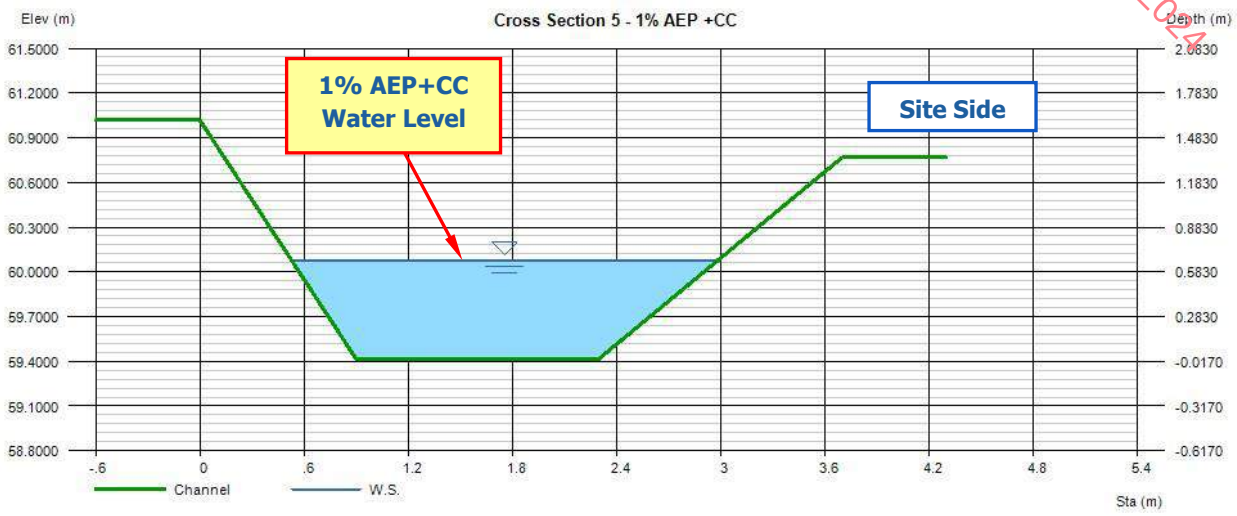

Figure 17 – Watercourse Channel – Section 5

Figure 17 above indicates that the 'Watercourse Channel' at Section 5 has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.722m^3/s and that surcharging of the channel or out of channel flow is not predicted to occur.

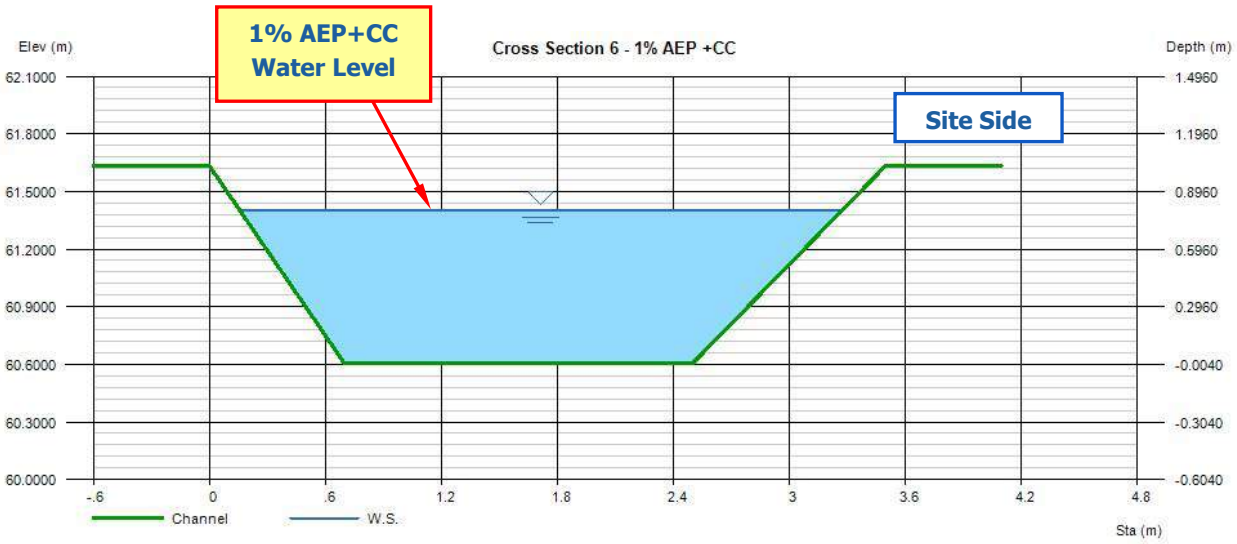

Figure 18 – Section 6 – 1% AEP +CC

Figure 18 above indicates that the 'Watercourse Channel' at Section 6 has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.722m^3/s and that surcharging of the channel or out of channel flow is not predicted to occur.

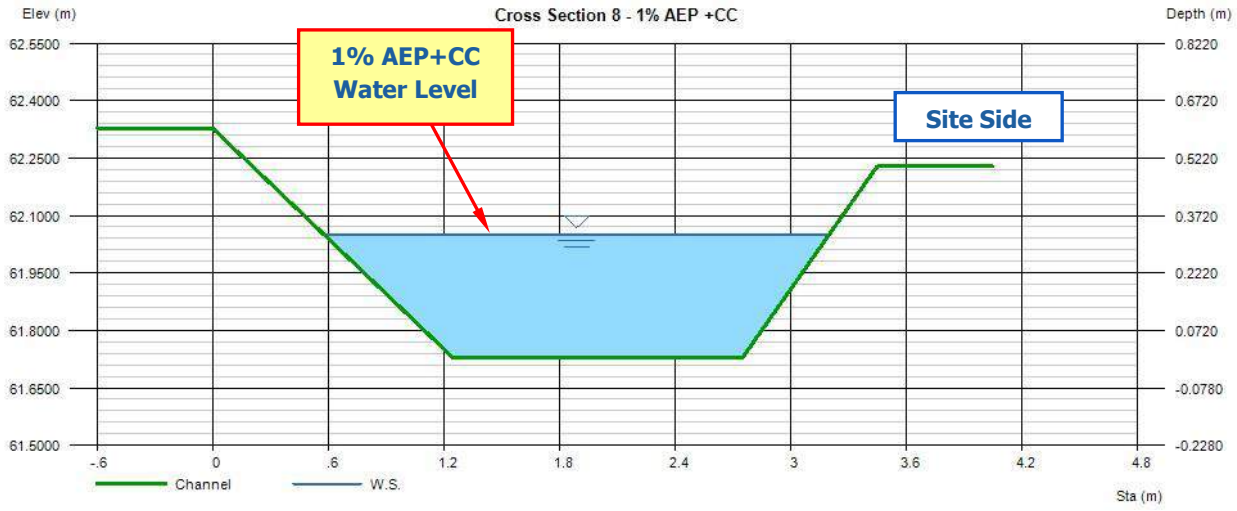

Figure 19 – Section 8 – 1% AEP +CC

Figure 19 above indicates that the 'Watercourse Channel' at Section 8 has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.722m^3/s and that surcharging of the channel or out of channel flow is not predicted to occur.

5.5. Hydraulic Analysis of Existing Culverts

As illustrated in *Figure 20* below the access road / entrance to the site of the proposed development shall partially cross over the watercourse at and in the vicinity of the 'existing culvert 2', therefore this existing culvert may need to be removed and upgraded.

'Existing culvert 1' is located on the watercourse channel immediately downstream of the proposed development. This existing culvert has been assessed for possible upgrading.

Figure 20 – Existing Culvert 1 & Culvert 2

Existing Culvert 1

As illustrated in Figure 21 below, 'existing culvert 1' is a 300m diameter MDPE pipe that conveys the 'Watercourse Channel' beneath an existing agricultural access point.

The hydraulic capacity of 'existing culvert 1' was assessed using the Autodesk Civil 3D Design software Hydraflow package.

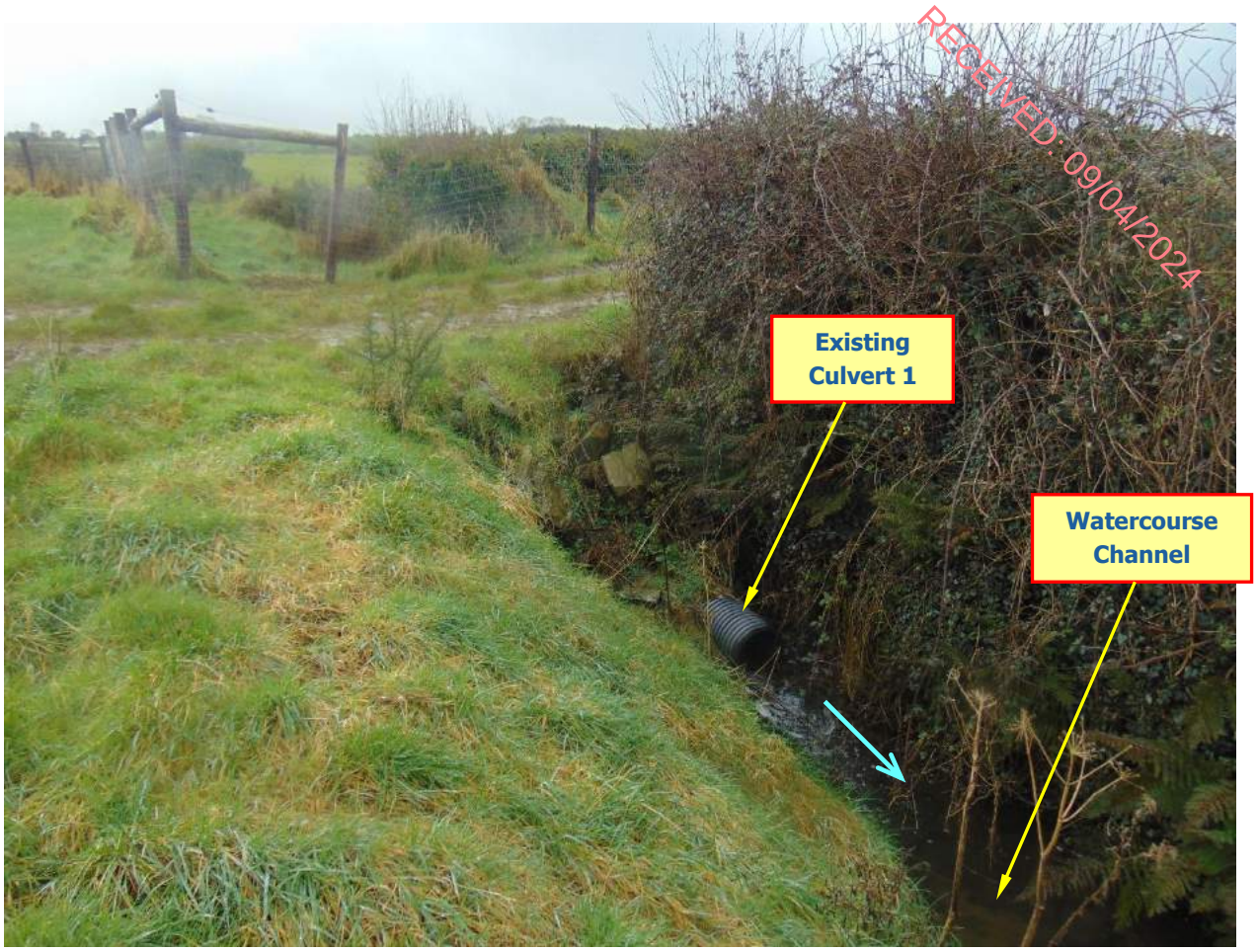

Figure 21 – Existing Culvert 1

The predictive 1% AEP + CC (1 in 100 year + climate change) flow volume of 0.722m^3/s was used as the critical flow parameter in the Hydraflow Model assessment.

The model analysis is represented by a longitudinal water surface profile through the culvert. *Figure 22* below illustrates the Hydraflow Model output for the culvert. A full set of results from the Hydraflow assessment is included in *Appendix E*.

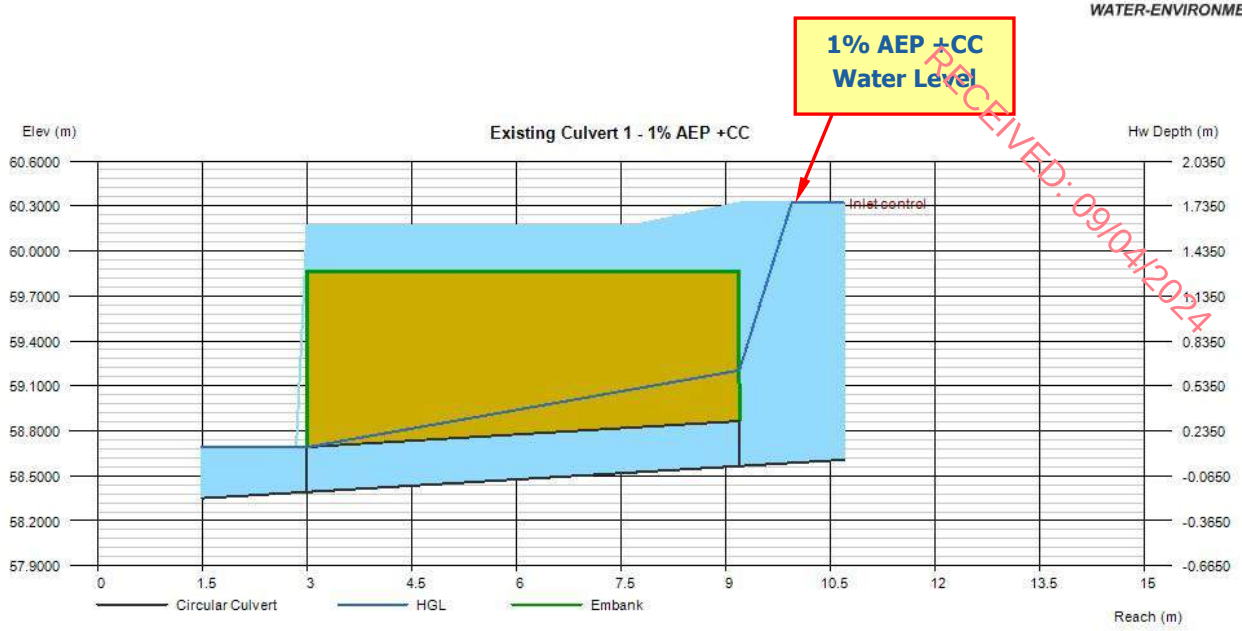

Figure 22 – Existing Culvert 1 – Hydraulic Assessment

The output from the Hydraflow Model indicates that 'existing culvert 1' does not have sufficient hydraulic capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and that culvert surcharging and overtopping is predicted to occur.

Existing Culvert 2

As illustrated in *Figure 23* below, 'existing culvert 2' is a 300m diameter MDPE pipe that conveys the 'Watercourse Channel' beneath an existing agricultural access point.

The hydraulic capacity of 'existing culvert 2' was assessed using the Autodesk Civil 3D Design software Hydraflow package.

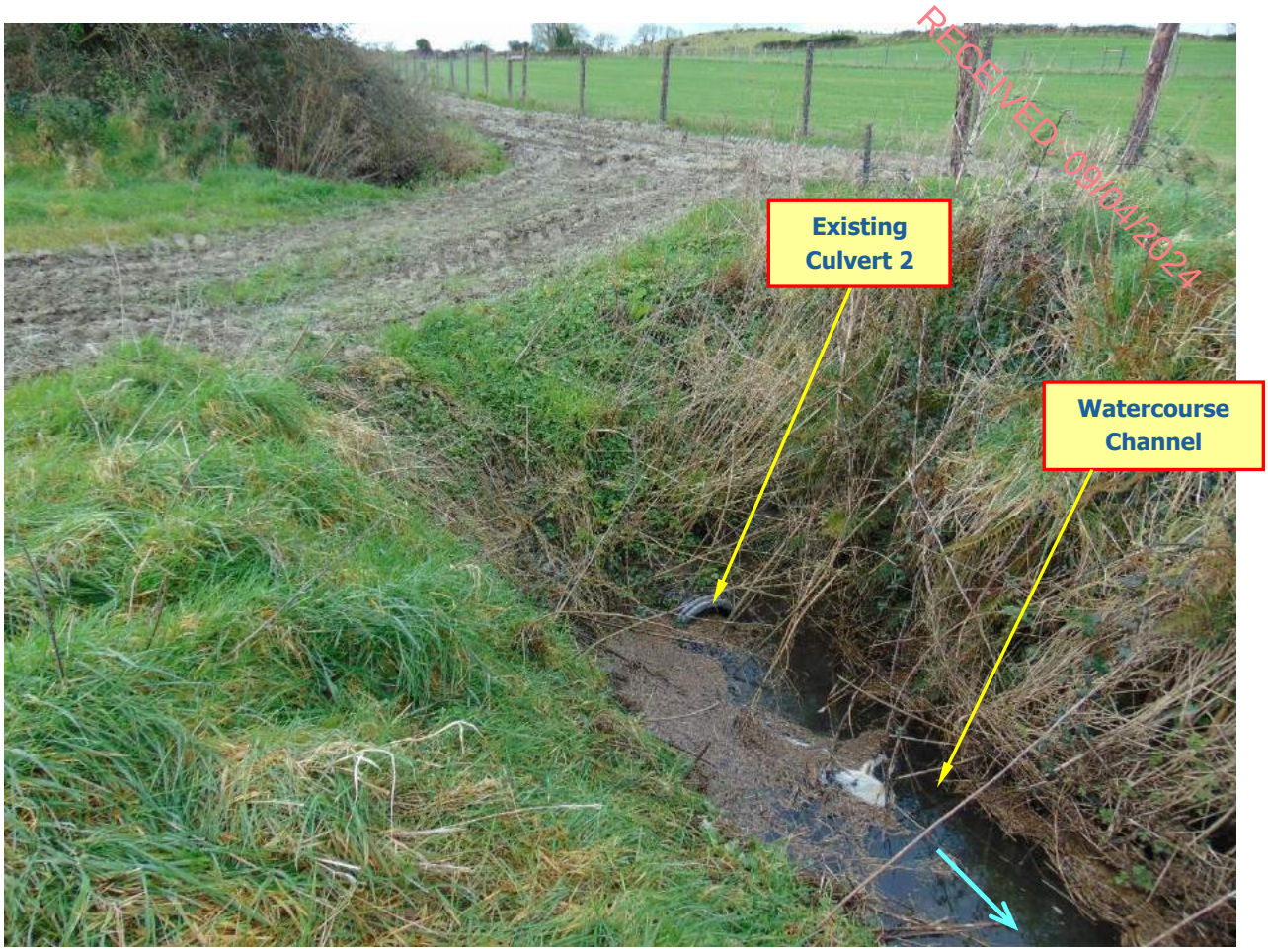

Figure 23 – Existing Culvert 2

The predictive 1% AEP + CC (1 in 100 year + climate change) flow volume of 0.722m^3/s was used as the critical flow parameter in the Hydraflow Model assessment.

The model analysis is represented by a longitudinal water surface profile through the culvert. *Figure 24* below illustrates the Hydraflow Model output for the culvert. A full set of results from the Hydraflow assessment is included in *Appendix E*.

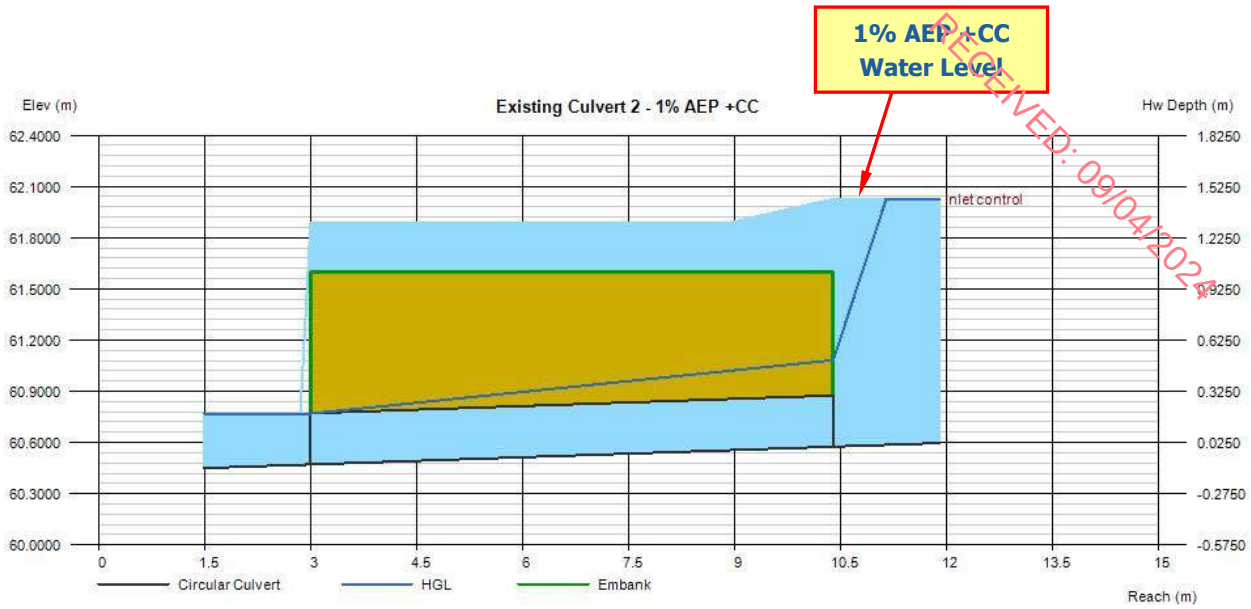

Figure 24 – Existing Culvert 2 – Hydraulic Assessment

The output from the Hydraflow Model indicates that 'existing culvert 2' does not have sufficient hydraulic capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and that culvert surcharging and overtopping is predicted to occur.

6. Discussion

The hydraulic analysis of the 'Watercourse Channel' and 'Drainage Channel 1' presented in *Section 5.4* above indicates that these watercourses have adequate capacity to convey the predictive 1% AEP+CC (1 in 100 year + climate change) flow volume and surcharging of the channel or out of channel flow is not predicted to occur.

The hydraulic analysis of 'existing culvert 1' and 'existing culvert 2' indicates that these culverts do not have sufficient hydraulic capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and that culvert surcharging and overtopping is predicted to occur.

The access road/entrance to the site of the proposed development shall partially cross over the watercourse at and in the vicinity of the 'existing culvert 2', therefore this existing culvert will need to be removed and upgraded.

'Existing culvert 1' is located on the watercourse channel immediately downstream of the proposed development. The insufficient hydraulic capacity of this culvert presents a potential fluvial flood risk to the development as proposed, therefore it is recommended that this culvert be removed and upgraded.

As illustrated in *Figure 2* above, part of 'drainage channel 1' falls with the area of the site of the proposed development. In order to accommodate the development it is proposed to partially divert 'drainage channel 1'.

Section 7 below presents details of the proposed culvert arrangement at the location of the proposed access road/entrance to the development and presents details of the recommended upgrade of 'existing culvert 1'.

Section 8 below presented details of the proposed partial diversion of 'drainage channel 1'.

7. Proposed Culverts

In order to comply with the OPW Guidance document *"Construction, Replacement or Alteration of Bridges and Culverts"*, the proposed culvert at the development access road/entrance and upgrade of 'existing culvert 1' must be capable of conveying the 1% AEP+CC (1 in 100 year + climate change) flow volume while also providing a minimum 0.3m freeboard between the 1% AEP + CC (1 in 100 year + climate change) water level in the watercourse and the soffit level of the culvert

The above hydraulic assessment was re-run in consideration of culverts of differing sizes and geometries in order to determine a culvert of suitable geometric profile and to provide for a minimum of 0.3m freeboard and to facilitate construction of suitable access/entrance arrangement to the proposed development site. The hydraulic capacity check of the proposed culverts was assessed using the Autodesk Civil 3D Design software Hydraflow package.

Upgrade of Existing Culvert 1

The hydraulic analysis indicates that a box culvert of geometric profile 1.8m wide x 0.8m high x 6.2m long, has adequate capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume.

As illustrated in *Figure 25* below, the proposed upgraded culvert provides a freeboard of 0.416m in consideration of the 1% AEP + CC (1 in 100 year + climate change) flow volume.

A full set of results of the Hydraflow assessment for upgraded culvert 1 is included in *Appendix E*.

Preliminary details of the proposed upgraded culvert 1 are presented on *Drawing No. IE2888-005-A* and *Drainage No. IE2888-006-A, Appendix A*.

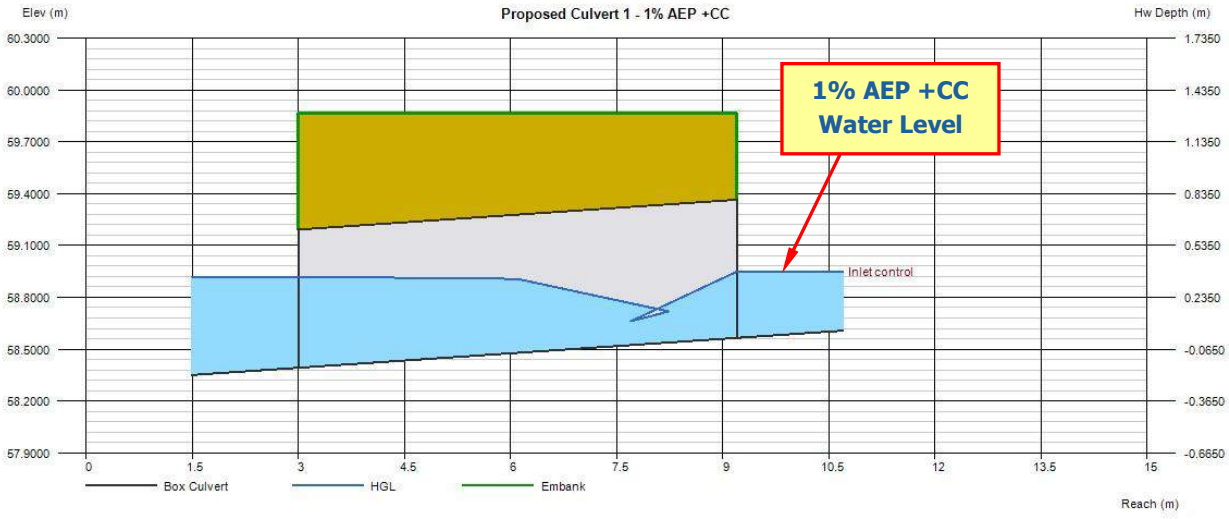

Figure 25 – Proposed Upgraded Culvert 1

Access Road/Entrance Culvert

The hydraulic analysis indicates that a box culvert of geometric profile 1.8m wide x 0.8m high x 13.8m long, has adequate capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume.

As illustrated in *Figure 26* below, the proposed upgraded culvert provides a freeboard of 0.317m in consideration of the 1% AEP + CC (1 in 100 year + climate change) flow volume.

A full set of results of the Hydraflow assessment for the proposed access road/entrance is included in *Appendix E*.

Preliminary details of the proposed upgraded culvert 1 are presented on *Drawing No. IE2888-007-A* and *Drawing No. IE2888-008-A, Appendix A*.

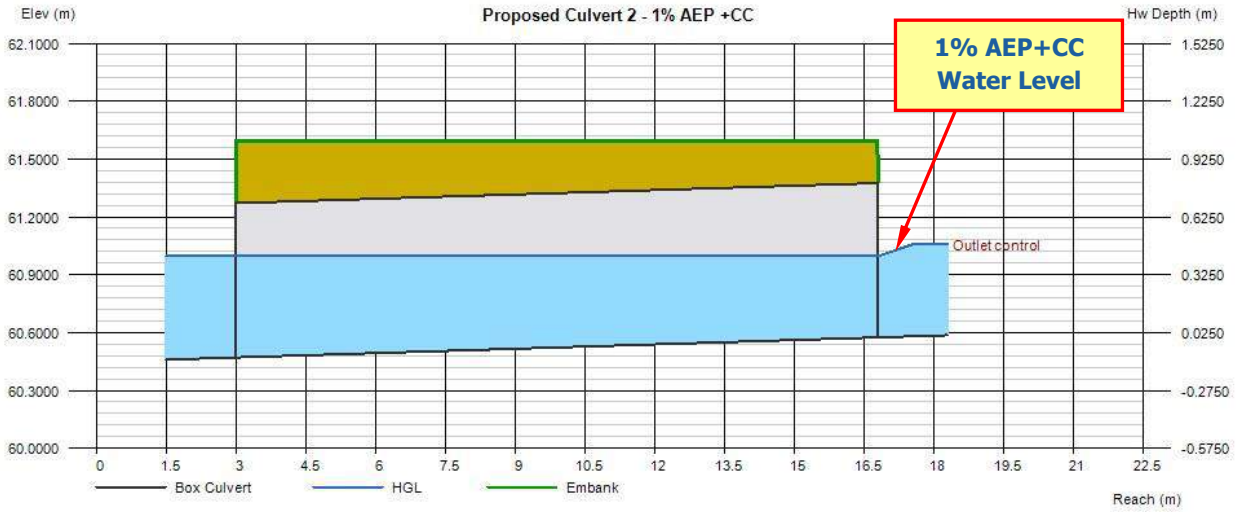

Figure 26 – Proposed Access Road/Entrance Culvert

8. Drainage Channel 1 Partial Diversion

As illustrated in *Figure 2* above, part of 'drainage channel 1' falls with the area of the site of the proposed development. In order to accommodate the development it is proposed to partially divert 'drainage channel 1'.

Figure 27 below illustrates the extent of the proposed 'drainage channel 1' diversion.

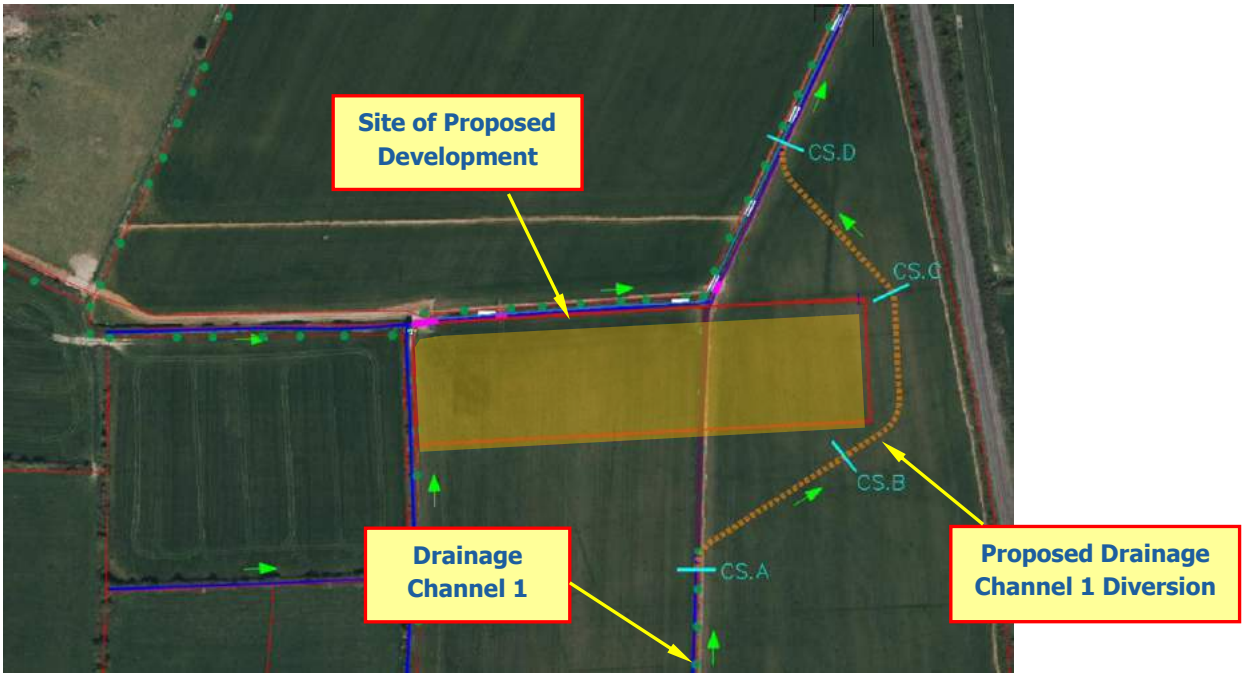

Figure 27 – Proposed Drainage Channel 1 Diversion

Preliminary details of the proposed partial diversion of 'drainage channel 1' are presented *Drawing No. IE2888-009-A* and *Drawing No. IE2888-010-A, Appendix A.*

It is proposed that the divert drainage channel 1 be constructed to the typical geometric profile as illustrated in *Figure 28* below.

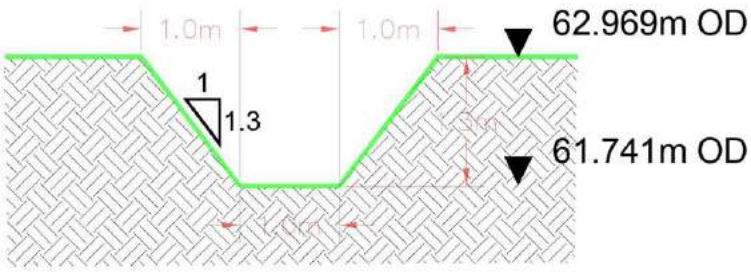

Figure 28 – Typical Geometric Profile of Diverted Drainage Channel 1

Utilising the Hydraflow software package, and as illustrated in *Figure 29* below, a hydraulic analysis was undertaken in order to assess the ability of the proposed diverted drainage channel to convey the predictive 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.201m^3/s in 'existing drainage channel 1'. A full set of results from the Hydraflow assessment is included in *Appendix E*.

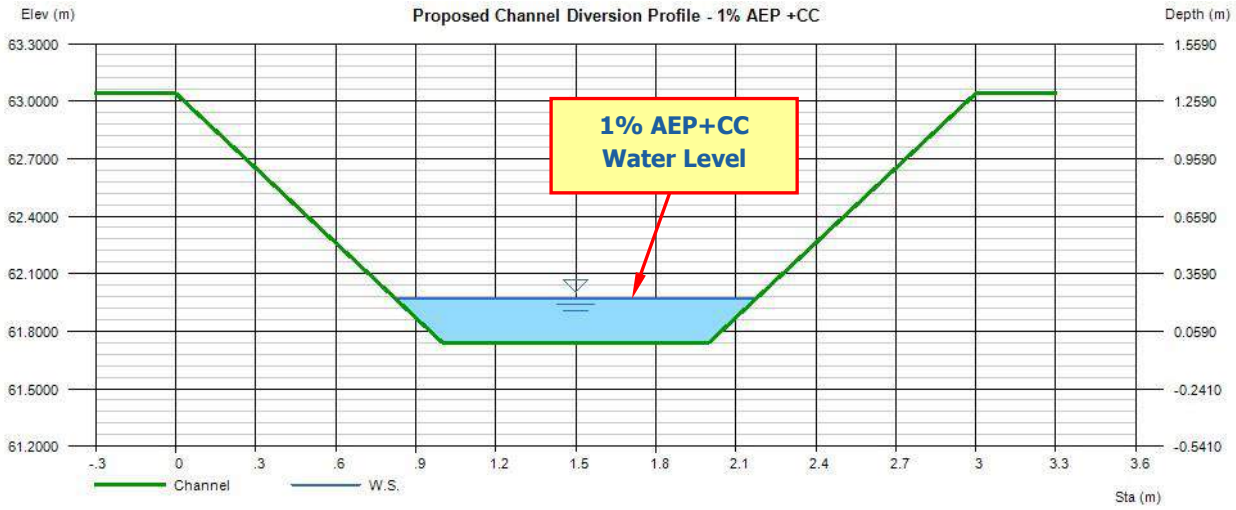

Figure 29 – Proposed Channel Diversion Geometry– 1 in 100 Year +CC

Figure 29 above indicates that the proposed diversion of 'drainage channel 1' has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.201m^3/s and that surcharging of the channel or out of channel flow is not predicted to occur.

Alternatively, and as illustrated on *Drawing Number IE2888-012-A, Appendix A*, the partial diversion of 'drainage channel 1' may be culverted instead of providing an open channel watercourse as presented above. If the partial diversion is culverted it is recommended that a minimum 0.9m diameter culvert be utilised for this purpose. In this regard, and as illustrated in *Figure 30* below, a Hydraflow hydraulic analysis was undertaken in consideration of utilising a 0.9m culvert and in consideration of the the predictive 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.201m^3/s in 'existing drainage channel 1. A full set of results from the Hydraflow assessment is included in *Appendix E*.

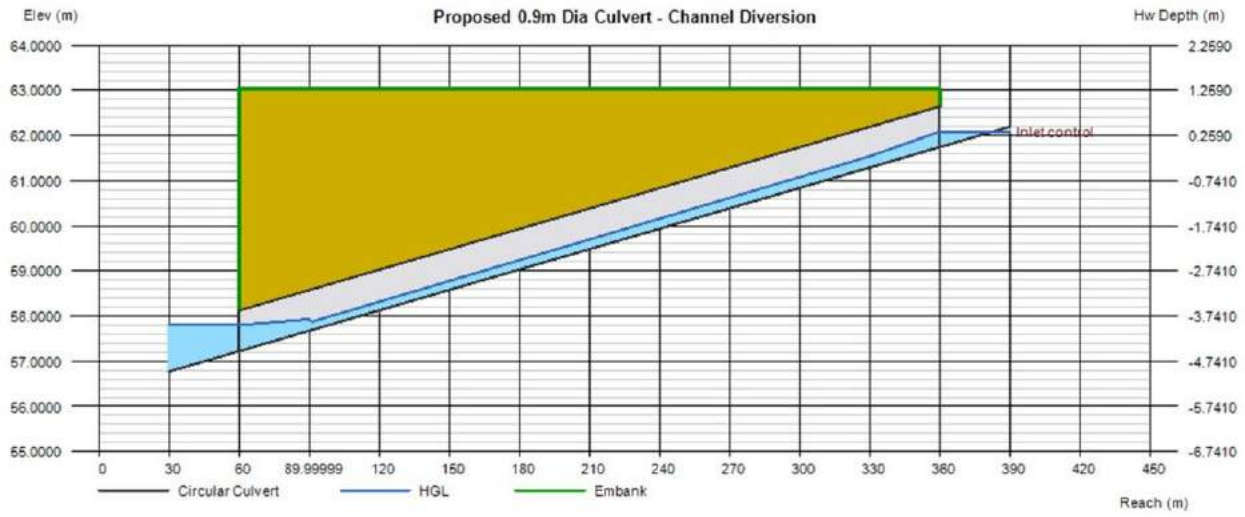

Figure 30 – Proposed Drainage Channel 1 Diversion – 0.9m Dia Culvert – 1 in 100 Year +CC

Figure 30 above indicates that the proposed diversion of 'drainage channel 1' utilising a 0.9m diameter culvert has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) flow volume of 0.201m^3/s with an adequate freeboard and that surcharging or overtopping of the culvert is not predicted to occur.

9. Summary Conclusions

In consideration of the findings of this assessment and analysis the following conclusions are made with respect to the development as proposed:

- The site sub-soil assessment and infiltration testing has determined that the subsoil conditions at this location are not suitable for the provision of a stormwater infiltration system or soakaway system.
- It is therefore proposed that stormwater management and attenuation for the development as proposed shall be provided via a stormwater swale system and incorporating an appropriate flow restriction device.
- Alternatively, a below ground tank or cellular system may be utilised for stormwater attenuation purposes.
- The hydraulic analysis of the 'Watercourse Channel' and 'Drainage Channel 1' indicates that these watercourses have adequate capacity to convey the predictive 1% AEP+CC (1 in 100 year + climate change) flow volume and surcharging of the channel or out of channel flow is not predicted to occur.
- The hydraulic analysis of 'existing culvert 1' and 'existing culvert 2' indicates that these culverts do not have sufficient hydraulic capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and that culvert surcharging and overtopping is predicted to occur.
- The access road/entrance to the site of the proposed development shall partially cross over the watercourse at and in the vicinity of the 'existing culvert 2', therefore this existing culvert will need to be removed and upgraded.
- It is proposed to provide a new box culvert of geometric profile 1.8m wide x 0.8m high x 13.8m at the site access road/entrance. This culvert has adequate capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and provides adequate freeboard.
- 'Existing culvert 1' is located on the watercourse channel immediately downstream of the proposed development. The insufficient hydraulic capacity of this culvert presents a potential fluvial flood risk to the development as proposed, therefore it is recommended that this culvert be removed and upgraded.
- It is proposed to replace 'existing culvert 1' with a new box culvert of geometric profile 1.8m wide x 0.8m high x 6.2m long. This has adequate capacity to convey the 1% AEP + CC (1 in 100 year + climate change) flow volume and provides adequate freeboard.
- Part of 'drainage channel 1' falls with the area of the site of the proposed development. In order to accommodate the development it is proposed to partially divert 'drainage channel 1'.

- The proposed diversion of 'drainage channel 1' has adequate hydraulic capacity to convey the 1% AEP+CC (1 in 100 year + climate change) and surcharging of the channel or out of channel flow is not predicted to occur.
- Alternatively, a 0.9m diameter culvert may utilised for the proposed partial diversion of 'drainage channel 1'.
- In summary, the proposed stormwater management system, culvert upgrading works and drainage channel diversion works presented in this study report and not expected to result in an adverse impact to the existing hydrological regime of the area and are therefore considered appropriate from a hydrological perspective.

Appendices

Appendix A. Drawings

Drawing Number IE2888-001-A	Site Location Map
Drawing Number IE2888-002-A	(Sub-soil Map)
Drawing Number IE2888-003-A	(Trial Pit Map)
Drawing Number IE2888-004-A	(Stormwater Management)
Drawing Number IE2888-005-A	Proposed Upgraded Culvert 1
Drawing Number IE2888-006-A	Upgraded Culvert 1 Sections
Drawing Number IE2888-007-A	Proposed Entrance Culvert
Drawing Number IE2888-008-A	Entrance Culvert Sections
Drawing Number IE2888-009-A	Proposed Channel Diversion
Drawing Number IE2888-010-A	Channel Diversion Sections
Drawing Number IE2888-011-A Alternative Option	Stormwater Management –
Drawing Number IE2888-012-A Alternative Option	Channel Diversion –

IE Consulting Innovation Centre, Green Road, Carlow, R93 W248.
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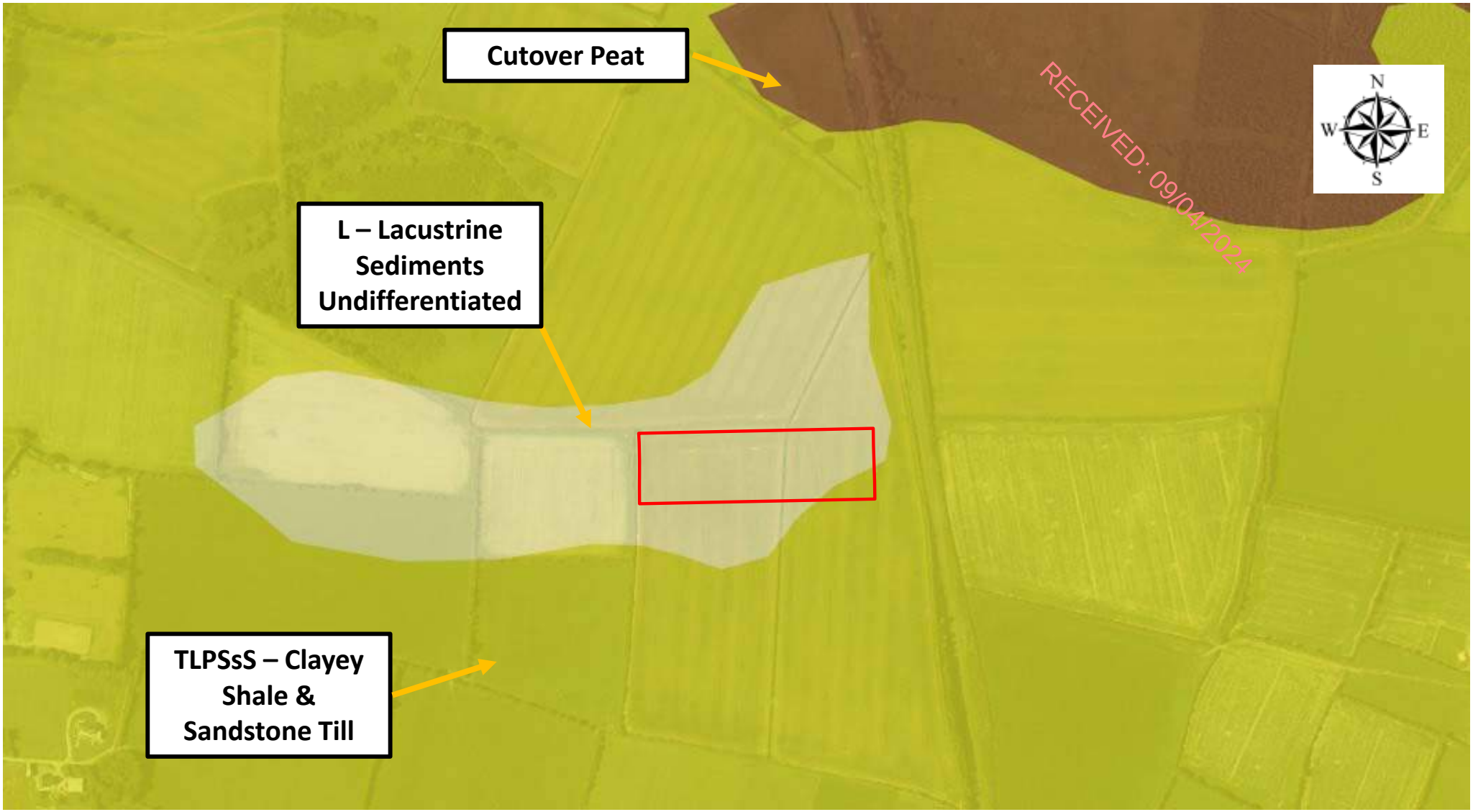
Project Title:	FLOOD RISK ASSESSMENT
Project Address:	CARRICKBAGGOT, GRANGEBELLEW, CO.LOUTH
Client:	CRAYVALL EGG PRODUCTION LTD
Drg. Title:	SITE LOCATION MAP

Dwg.Scale:	Date:	Dwg.No:	Job No:	Revision:	Dwg.By:
1:50,000	15/03/24	IE2888-001	IE2888	A	JMC



Site Outline

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Project Title: Subsoil Hydrological Assessment

Project Address: Carrickbaggot, Grangebellew, Co. Louth

Client: Crayvall Egg Production Ltd

Drawing: Subsoil Mapping – Carrickbaggot Co Louth

Drg. Scale:	Date:	Dwg No:	Job No:	Revision:	Dwg. By:
NTS	11-03-24	Map-002	IE2888	A	JMC

LEGEND

- SITE BOUNDARY
- TRIAL PIT LOCATION

rev.	date	amendment	drn	ckd
A	11.03.24	PLANNING	JMC	PMS

PROPOSED DEVELOPMENT @
CARRICKBAGGOT, GRANGEBELLEW, CO. LOUTH

HYDROLOGICAL ASSESSMENT

TRIAL PIT LOCATIONS

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CARLOW OFFICE:
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CARLOW, R93 W248

NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY, BT35 6PH

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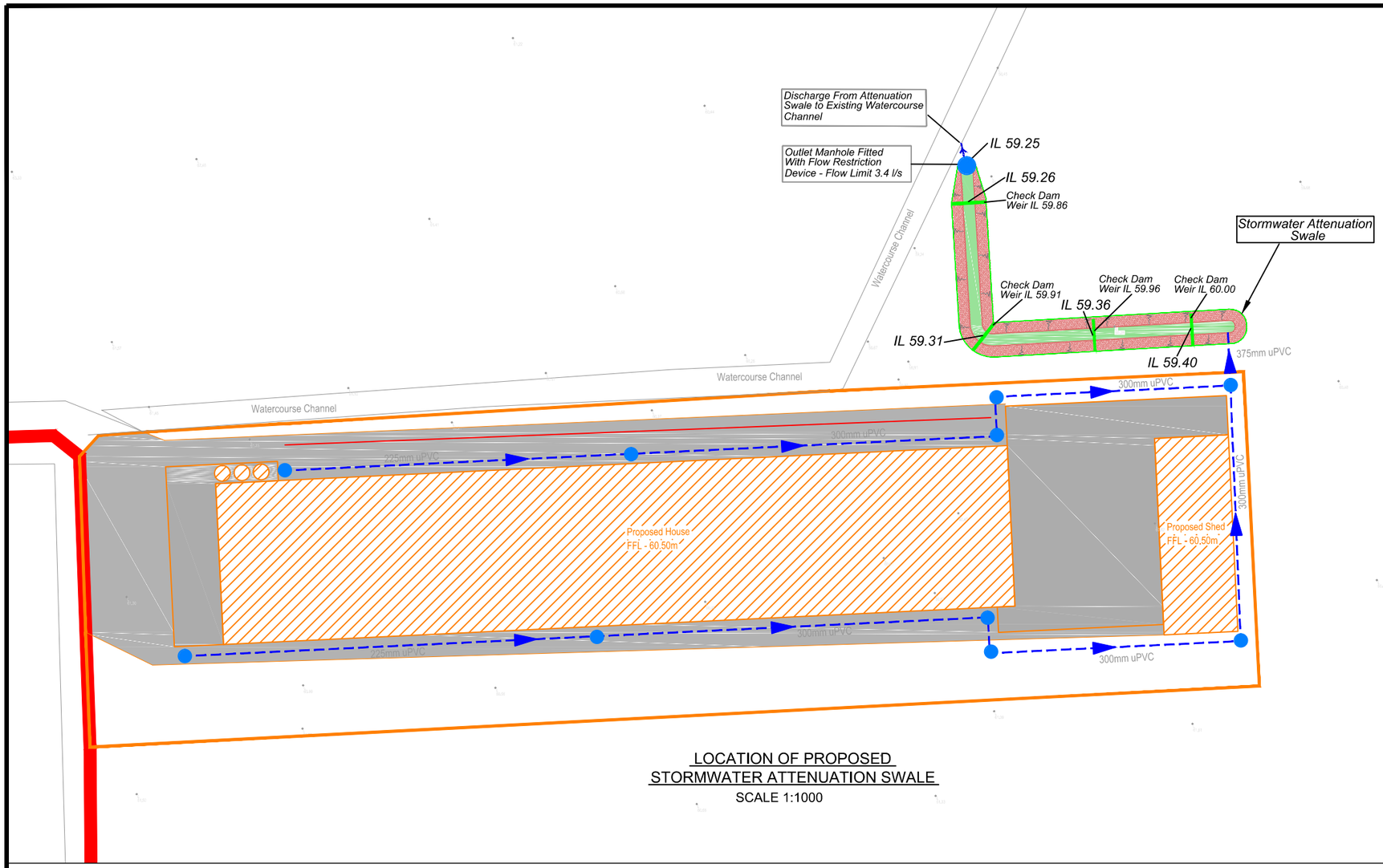

LOCATION OF PROPOSED
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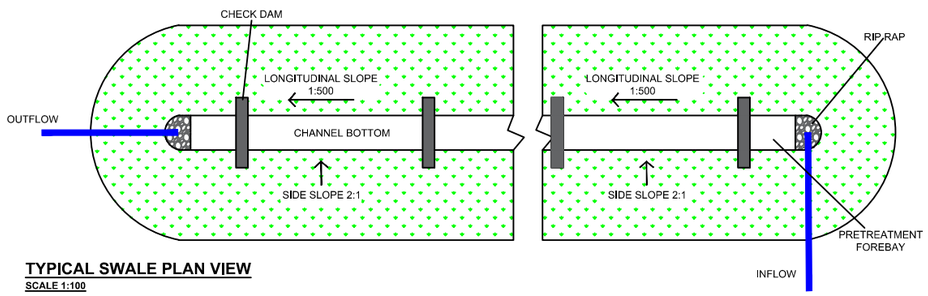
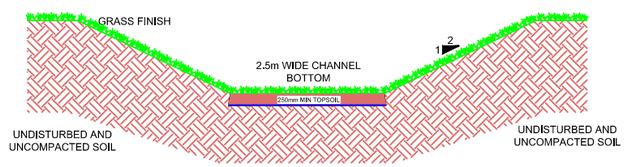


TYPICAL SWALE PLAN VIEW
SCALE 1:100



TYPICAL SWALE CROSS-SECTION
SCALE 1:100

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LEGEND

- SITE BOUNDARY
- PROPOSED ROOF AREA
- PROPOSED HARDSTANDING AREA
- PROPOSED GRAVEL AREA

– ELEVATIONS ARE TO ORDNANCE DATUM [MALIN]
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– PLANNING PURPOSES ONLY
– DO NOT SCALE FROM THE DRAWING

rev.	date	amendment	drn	ckd
A	05.03.24	PLANNING	LMc	PMS

PROPOSED DEVELOPMENT SITE AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

PROPOSED STORM WATER
ATTENUATION SWALE

DRAINAGE MANAGEMENT
LAYOUT PLAN

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NEWRY OFFICE:
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NEWRY, BT35 6PH

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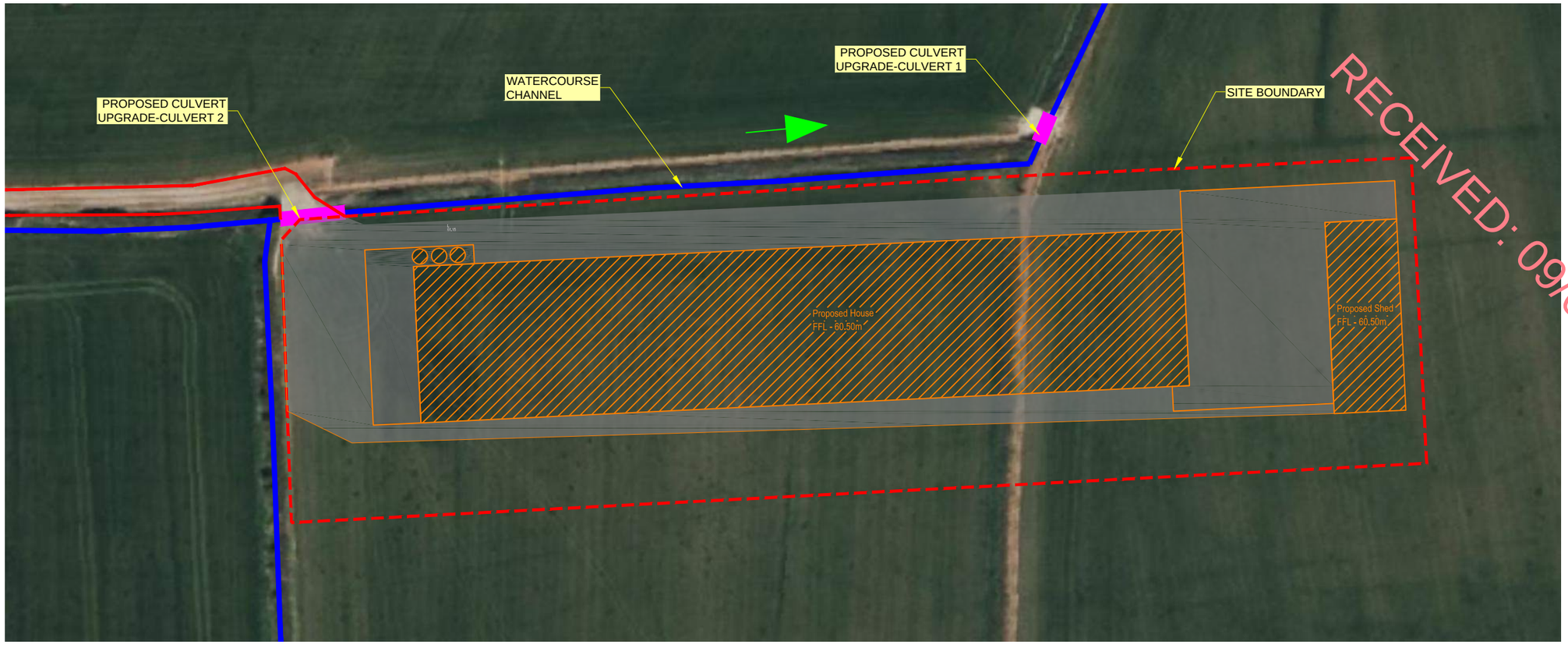

LOCATION PLAN
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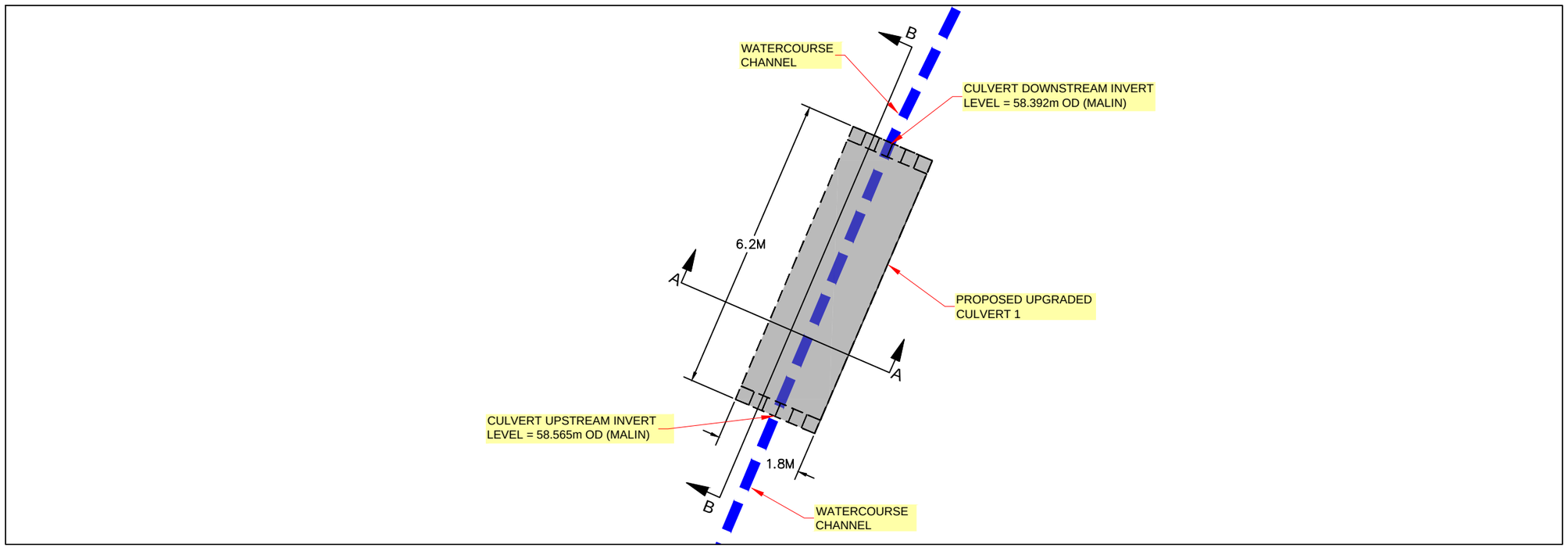

LAYOUT PLAN-CULVERT 1
SCALE 1:150

RECEIVED: 09/04/2024

LEGEND

NOTES:

FOR CROSS-SECTIONS A-A & B-B SEE DRAWING NO. IE2888-006-A

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A	11.03.24	PLANNING	JMC	PMS

PROPOSED DEVELOPMENT SITE AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

HYDROLOGICAL ASSESSMENT

PROPOSED UPGRADED CULVERT 1
PLAN VIEW

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NEWRY, BT35 6PH

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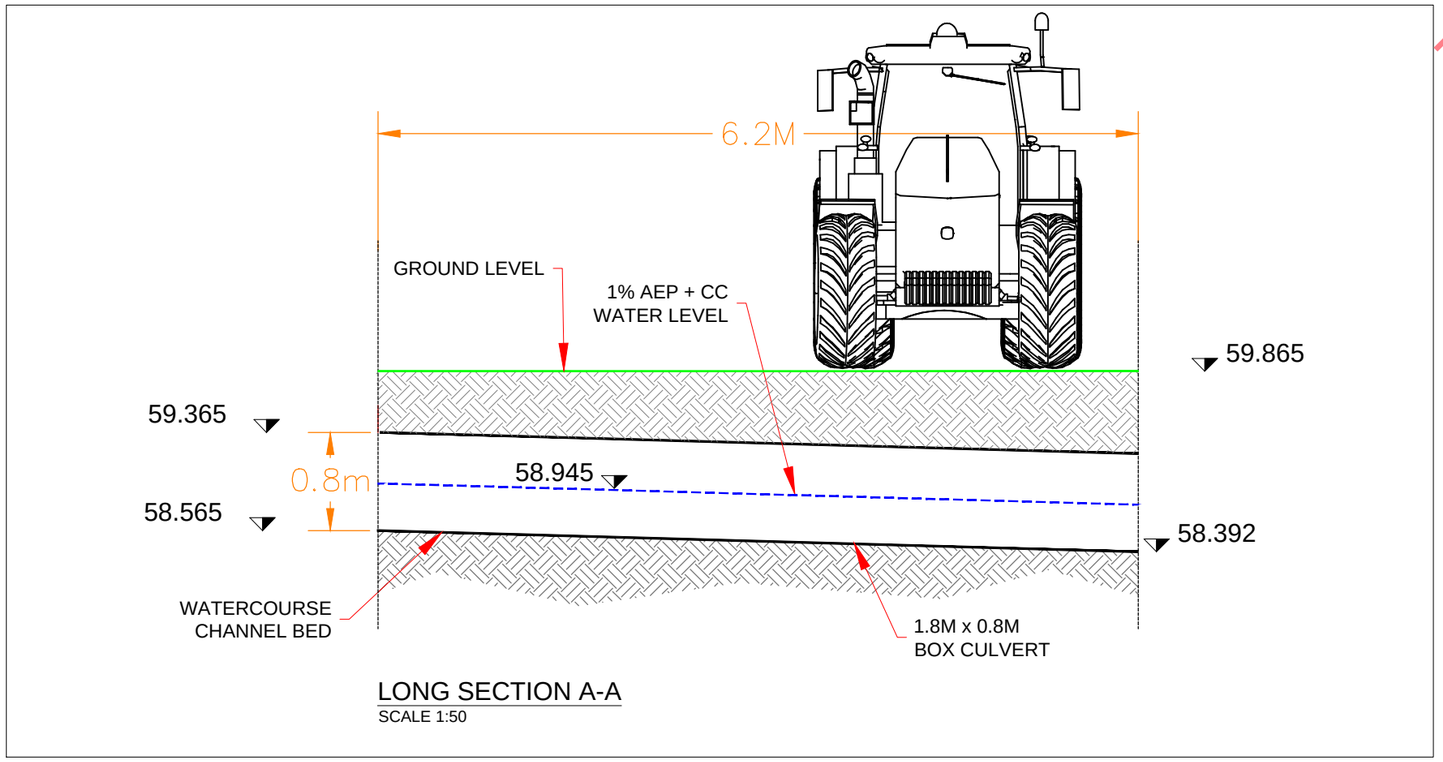

LONG SECTION A-A
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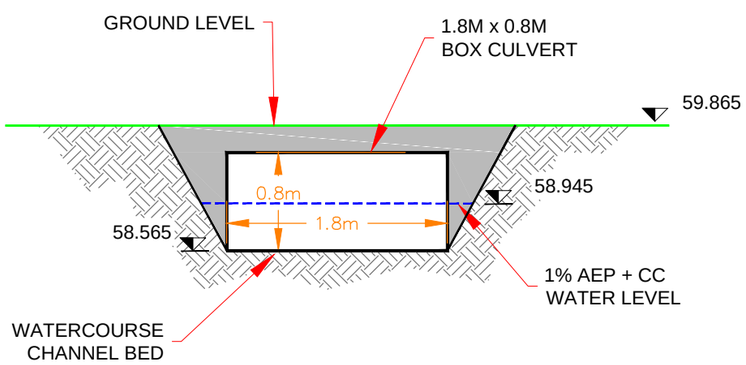

CROSS SECTION B-B
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LEGEND

- ELEVATIONS ARE TO ORDNANCE DATUM [MALIN]
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- PLANNING PURPOSES ONLY
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A	11.03.24	PLANNING	JMC	PMS

PROPOSED DEVELOPMENT AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

HYDROLOGICAL ASSESSMENT

PROPOSED UPGRADED CULVERT 1
SECTION DRAWINGS

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INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248
NEWRY OFFICE:
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WIN BUSINESS PARK
NEWRY, BT35 6PH

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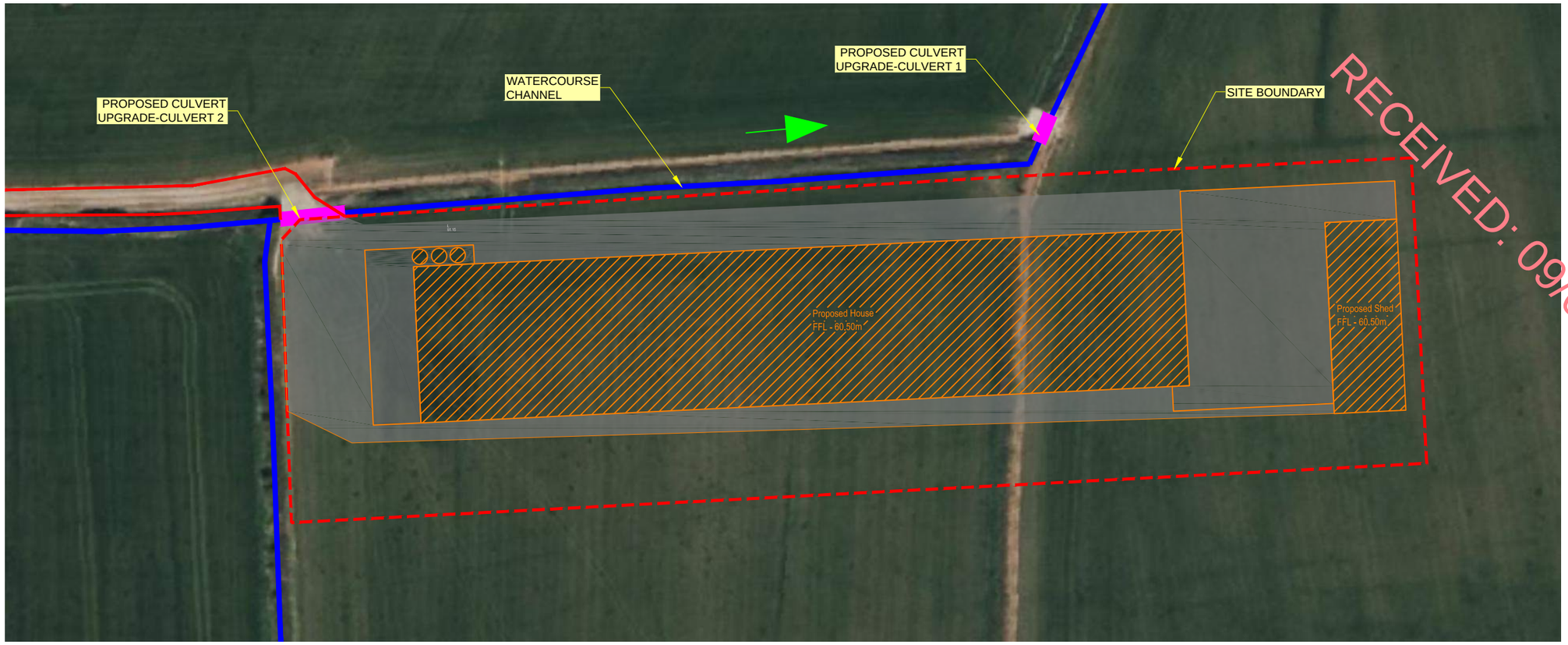

LOCATION PLAN
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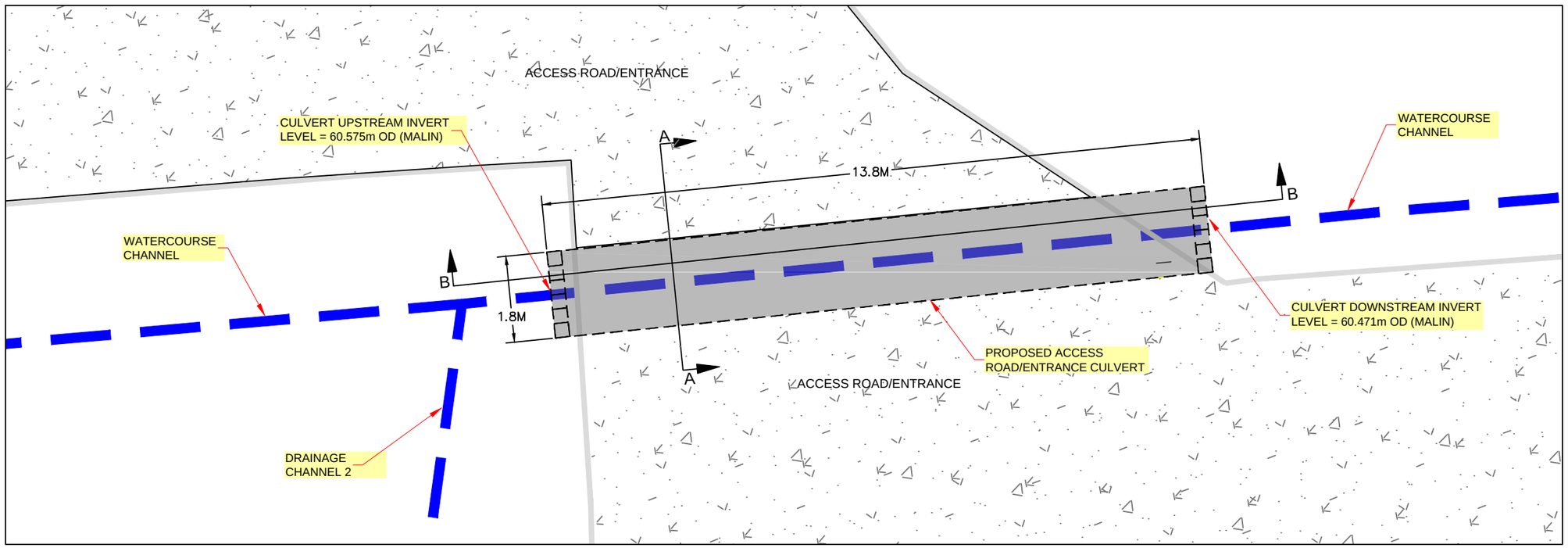

LAYOUT PLAN-ACCESS ROAD/ENTRANCE CULVERT
SCALE 1:150

LEGEND

NOTES:

FOR CROSS-SECTIONS A-A & B-B SEE DRAWING NO. IE2888-008-A

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A	11.03.24	PLANNING	JMC	PMS

PROPOSED DEVELOPMENT SITE AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

HYDROLOGICAL ASSESSMENT

PROPOSED ACCESS ROAD/ENTRANCE
CULVERT
PLAN VIEW

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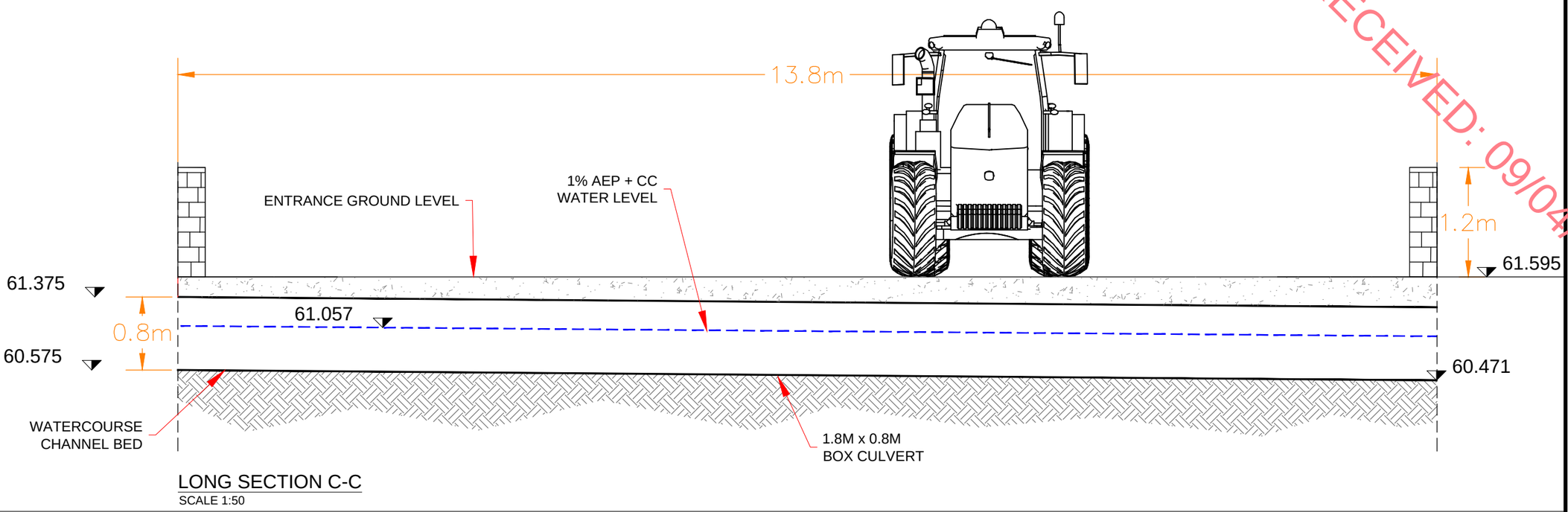

LONG SECTION C-C
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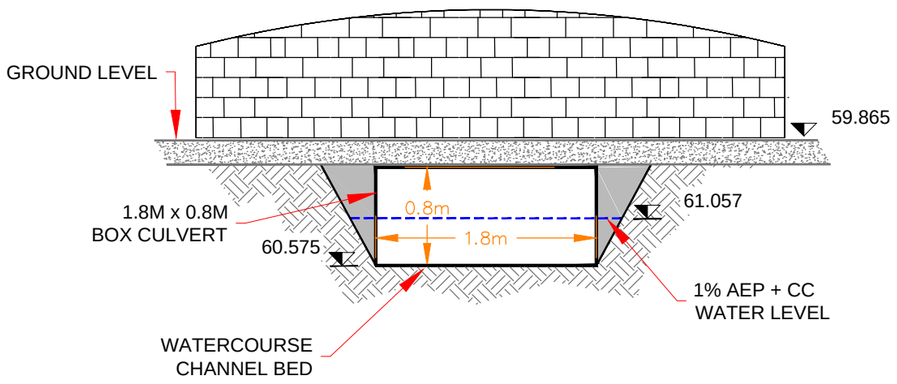

CROSS SECTION D-D
SCALE 1:50

LEGEND

- ELEVATIONS ARE TO ORDINANCE DATUM [MALIN]
- NOT TO BE USED FOR CONSTRUCTION PURPOSES
- PLANNING PURPOSES ONLY
- DO NOT SCALE FROM THE DRAWING

rev.	date	amendment	drn	ckd
A	11.03.24	PLANNING	JMC	PMS

PROPOSED DEVELOPMENT AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

HYDROLOGICAL ASSESSMENT

PROPOSED ACCESS ROAD/ENTRANCE
CULVERT
SECTION DRAWINGS

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL
CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248
NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY, BT35 6PH

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drawing status: PLANNING		datum: MALIN	
		drawn: JMC	
drawing no. IE2888-008	rev A	checked: PMS	
		approved: PMS	
		date: 11.03.2024	

RECEIVED: 09/04/2024

LEGEND

- WATERCOURSE
- STREAM CROSS SECTION
- CHANNEL DIVERSION
- CHANNEL DIVERSION CROSS SECTION

– ELEVATIONS ARE TO ORDINANCE DATUM [MALIN]
– NOT TO BE USED FOR CONSTRUCTION PURPOSES
– PLANNING PURPOSES ONLY
– DO NOT SCALE FROM THE DRAWING

rev.	date	amendment	drn	ckd
A	07.03.24	INFORMATION	JMC	PMS

PROPOSED DEVELOPMENT SITE AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

DRAINAGE CHANNEL 1 DIVERSION

PLAN VIEW

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248

NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY, BT35 6PH

file location: N:\IE2888\DRAWINGS		scale: NTS	A3
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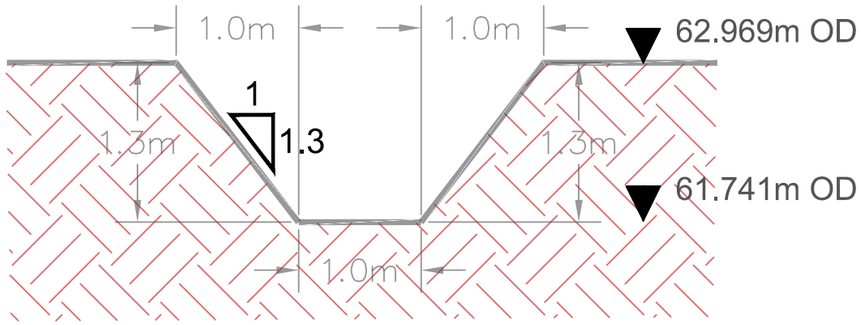
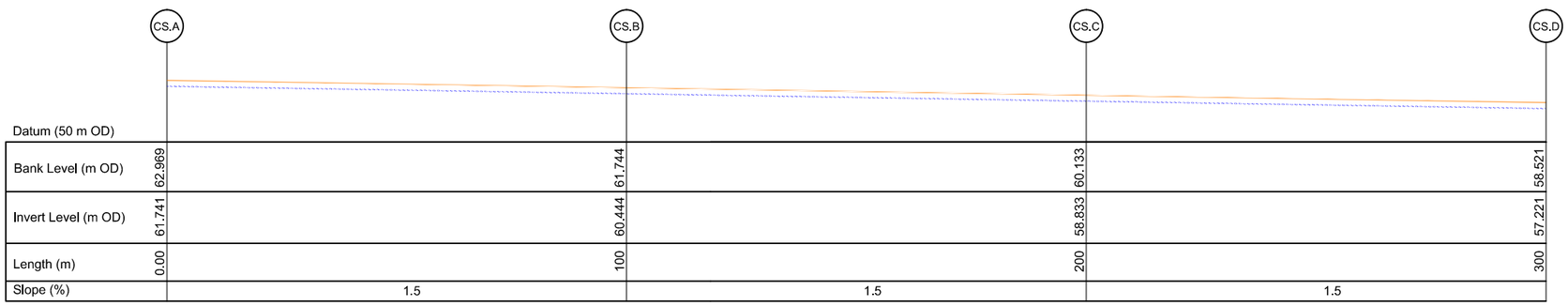
		approved: PMS	
		date: 07.03.2024	



TYPICAL CHANNEL [CS.A]

SCALE 1:50



LONGITUDINAL SECTION [PROPOSED CHANNEL DIVERSION

SCALE 1:1250

RECEIVED: 09/04/2024

LEGEND

BANK LEVEL

CHANNEL INVERT LEVEL

DIMENSIONS IN METRES

– ELEVATIONS ARE TO ORDINANCE DATUM [MALIN]
– NOT TO BE USED FOR CONSTRUCTION PURPOSES
– PLANNING PURPOSES ONLY
– DO NOT SCALE FROM THE DRAWING

rev.	date	amendment	drn	ckd
A	07.03.24	INFORMATION	JMC	PMS

PROPOSED DEVELOPMENT SITE AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

CHANNEL DIVERSION

SECTION DETAILS

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL
CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248
NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY, BT35 6PH

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		date: 07.03.2024	

Appendix B.

Trial Pit Logs

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

TP-01

Trial Pit Log

Sheet 1 of 2

Method:	Date:	Site:
Excavator	16/02/2024	Carrickbaggot, Grangebellew, Co Louth

Diameter mm:	Coordinates:		Client:
N/A	ITM 710297, 784904		Crayvall Egg Production Ltd.

Samples	Strata	Depth mbgl	Description of Strata	Legend
			Brown, soft, sandy, silty TOP SOIL	Top Soil
		-0.2 m		Brown Clay
			Brown, sandy, clayey, Till occasional cobbles and boulders	Blue/Grey Clay
		-1.0 m		
			Blue/Grey, sandy, clayey, Till occasional cobbles and boulders	
		-1.60 m		
			Pit end @ 1.6 mbgl	

Pit wall stability – Fair
No evidence of contamination
Infiltration Test completed in pit on 16/02/2024

Logged By:	Excavated Depth Depth:	Job No.:
JMC	Approx 1.6 mbgl	IE2888

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

TP-02

Trial Pit Log

Sheet 2 of 2

Method:	Date:	Site:
Excavator	16/02/2024	Carrickbaggot, Grangebellew, Co Louth

Diameter mm:	Coordinates:		Client:
N/A	ITM 710303, 784966		Crayvall Egg Production Ltd.

Samples	Strata	Depth mbgl	Description of Strata	Legend
			Brown, soft, sandy, silty TOP SOIL	Top Soil
		-0.2 m		Brown Clay
		-1.0 m	Brown, sandy, clayey, Till occasional cobbles and boulders	Blue/Grey Clay
		-2.0 m	Blue/Grey, sandy, clayey, Till occasional cobbles and boulders	
		-2.30 m	Pit end @ 2.3 mbgl	

Pit wall stability – Fair
No evidence of contamination
Ingress of groundwater encountered @ 2.2m depth
Infiltration Test completed in pit on 16/02/2024

Logged By:	Excavated Depth Depth:	Job No.:
JMC	Approx 2.3 mbgl	IE2888

Appendix C.

Trial Pit Photographs

TP-01

TP-02

Appendix D.

Micro Drainage Output

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 1154 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	59.730	0.480	0.0	3.0	0.0	3.0	111.0	O K
30 min Summer	59.839	0.589	0.0	3.0	0.0	3.0	150.8	O K
60 min Summer	59.938	0.688	0.0	3.0	0.0	3.0	190.5	O K
120 min Summer	60.030	0.780	0.0	3.0	0.0	3.0	230.2	O K
180 min Summer	60.078	0.828	0.0	3.0	0.0	3.0	252.2	O K
240 min Summer	60.109	0.859	0.0	3.1	0.0	3.1	266.5	O K
360 min Summer	60.143	0.893	0.0	3.1	0.0	3.1	283.2	O K
480 min Summer	60.159	0.909	0.0	3.1	0.0	3.1	290.9	O K
600 min Summer	60.164	0.914	0.0	3.1	0.0	3.1	293.4	O K
720 min Summer	60.162	0.912	0.0	3.1	0.0	3.1	292.5	O K
960 min Summer	60.153	0.903	0.0	3.1	0.0	3.1	287.8	O K
1440 min Summer	60.138	0.888	0.0	3.1	0.0	3.1	280.7	O K
2160 min Summer	60.117	0.867	0.0	3.1	0.0	3.1	270.7	O K
2880 min Summer	60.093	0.843	0.0	3.1	0.0	3.1	259.0	O K
4320 min Summer	60.037	0.787	0.0	3.0	0.0	3.0	233.2	O K
5760 min Summer	59.976	0.726	0.0	3.0	0.0	3.0	206.3	O K
7200 min Summer	59.914	0.664	0.0	3.0	0.0	3.0	180.4	O K
8640 min Summer	59.852	0.602	0.0	3.0	0.0	3.0	155.9	O K
10080 min Summer	59.792	0.542	0.0	3.0	0.0	3.0	133.0	O K
15 min Winter	59.836	0.586	0.0	3.0	0.0	3.0	149.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
15 min Summer	86.185	0.0	115.4	0.0	26
30 min Summer	58.857	0.0	157.6	0.0	41
60 min Summer	37.800	0.0	202.4	0.0	70
120 min Summer	23.578	0.0	252.6	0.0	128
180 min Summer	17.744	0.0	284.9	0.0	188
240 min Summer	14.470	0.0	309.8	0.0	246
360 min Summer	10.825	0.0	347.6	0.0	364
480 min Summer	8.799	0.0	377.1	0.0	484
600 min Summer	7.488	0.0	401.0	0.0	602
720 min Summer	6.561	0.0	421.6	0.0	720
960 min Summer	5.324	0.0	456.2	0.0	832
1440 min Summer	3.963	0.0	482.2	0.0	1088
2160 min Summer	2.950	0.0	568.4	0.0	1496
2880 min Summer	2.392	0.0	614.7	0.0	1908
4320 min Summer	1.777	0.0	684.8	0.0	2732
5760 min Summer	1.438	0.0	739.2	0.0	3536
7200 min Summer	1.220	0.0	783.5	0.0	4328
8640 min Summer	1.066	0.0	822.5	0.0	5112
10080 min Summer	0.951	0.0	855.5	0.0	5864
15 min Winter	86.185	0.0	153.8	0.0	26

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	59.968	0.718	0.0	3.0	0.0	3.0	203.2	O K
60 min Winter	60.090	0.840	0.0	3.1	0.0	3.1	257.9	O K
120 min Winter	60.206	0.956	0.0	3.2	0.0	3.2	314.4	Surcharged
180 min Winter	60.269	1.019	0.0	3.3	0.0	3.3	347.3	Surcharged
240 min Winter	60.311	1.061	0.0	3.3	0.0	3.3	369.9	Surcharged
360 min Winter	60.364	1.114	0.0	3.4	0.0	3.4	399.0	Surcharged
480 min Winter	60.394	1.144	0.0	3.4	0.0	3.4	416.3	Surcharged
600 min Winter	60.413	1.163	0.0	3.4	0.0	3.4	426.9	Surcharged
720 min Winter	60.423	1.173	0.0	3.4	0.0	3.4	433.0	Surcharged
960 min Winter	60.430	1.180	0.0	3.4	0.0	3.4	436.7	Surcharged
1440 min Winter	60.411	1.161	0.0	3.4	0.0	3.4	426.1	Surcharged
2160 min Winter	60.382	1.132	0.0	3.4	0.0	3.4	409.0	Surcharged
2880 min Winter	60.351	1.101	0.0	3.3	0.0	3.3	391.8	Surcharged
4320 min Winter	60.275	1.025	0.0	3.3	0.0	3.3	350.4	Surcharged
5760 min Winter	60.191	0.941	0.0	3.2	0.0	3.2	306.8	Surcharged
7200 min Winter	60.105	0.855	0.0	3.1	0.0	3.1	264.8	O K
8640 min Winter	60.019	0.769	0.0	3.0	0.0	3.0	225.2	O K
10080 min Winter	59.933	0.683	0.0	3.0	0.0	3.0	188.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
30 min Winter	58.857	0.0	210.0	0.0	41
60 min Winter	37.800	0.0	269.8	0.0	70
120 min Winter	23.578	0.0	336.6	0.0	128
180 min Winter	17.744	0.0	380.2	0.0	186
240 min Winter	14.470	0.0	413.1	0.0	244
360 min Winter	10.825	0.0	463.8	0.0	360
480 min Winter	8.799	0.0	502.5	0.0	474
600 min Winter	7.488	0.0	510.2	0.0	588
720 min Winter	6.561	0.0	512.8	0.0	702
960 min Winter	5.324	0.0	520.6	0.0	922
1440 min Winter	3.963	0.0	528.2	0.0	1316
2160 min Winter	2.950	0.0	758.4	0.0	1652
2880 min Winter	2.392	0.0	819.9	0.0	2112
4320 min Winter	1.777	0.0	913.5	0.0	3028
5760 min Winter	1.438	0.0	985.9	0.0	3912
7200 min Winter	1.220	0.0	1045.3	0.0	4752
8640 min Winter	1.066	0.0	1096.1	0.0	5544
10080 min Winter	0.951	0.0	1141.0	0.0	6360

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	1.000
M5-60 (mm)	16.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.714

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.238	4	8	0.238	8	12	0.238

Model Details

Storage is Online Cover Level (m) 60.480

Swale Structure

Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	85.0
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.0
Safety Factor	2.0	Slope (1:X)	500.0
Porosity	1.00	Cap Volume Depth (m)	0.000
Invert Level (m)	59.250	Cap Infiltration Depth (m)	0.000
Base Width (m)	2.5		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0080-3400-1500-3400
Design Head (m)	1.500
Design Flow (l/s)	3.4
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	80
Invert Level (m)	58.900
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	3.4
Flush-Flo™	0.352	3.0
Kick-Flo®	0.720	2.4
Mean Flow over Head Range	-	2.8

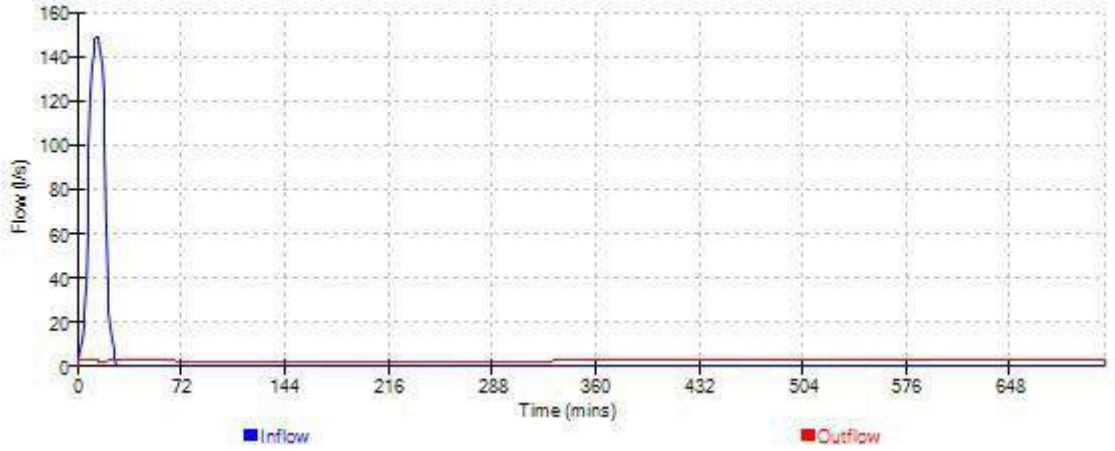
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

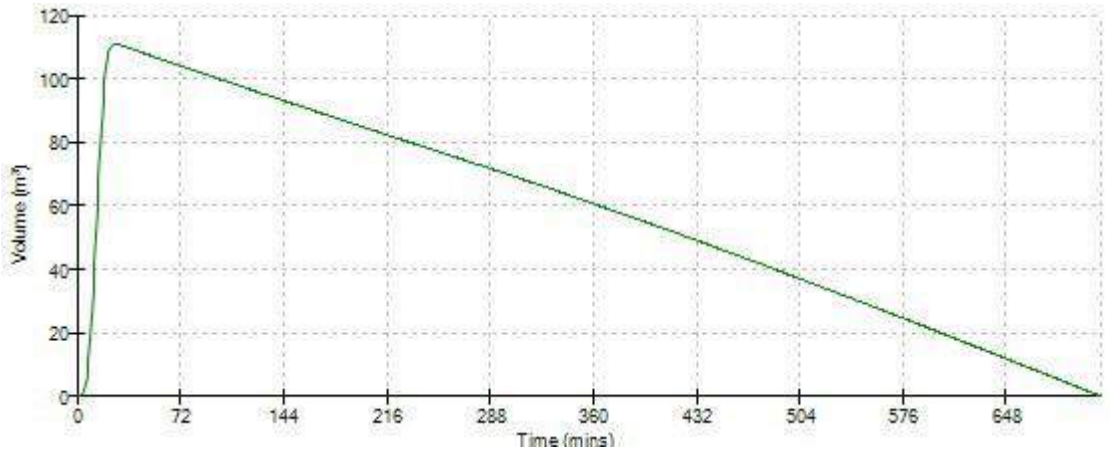
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.3	1.200	3.1	3.000	4.7	7.000	7.0
0.200	2.9	1.400	3.3	3.500	5.0	7.500	7.2
0.300	3.0	1.600	3.5	4.000	5.4	8.000	7.4
0.400	3.0	1.800	3.7	4.500	5.7	8.500	7.7
0.500	3.0	2.000	3.9	5.000	6.0	9.000	7.9
0.600	2.8	2.200	4.1	5.500	6.2	9.500	8.1
0.800	2.5	2.400	4.2	6.000	6.5		
1.000	2.8	2.600	4.4	6.500	6.7		

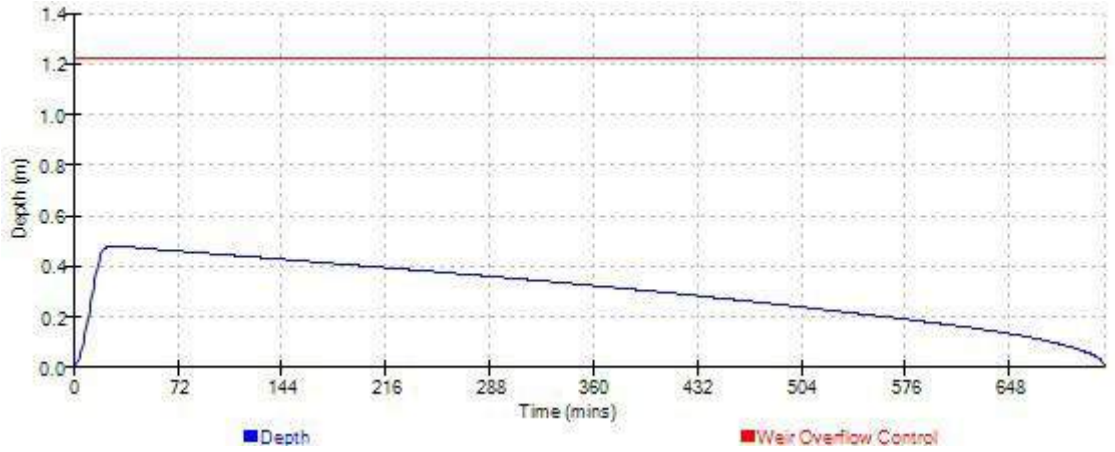
Weir Overflow Control

Discharge Coef 0.544 Width (m) 1.000 Invert Level (m) 60.470

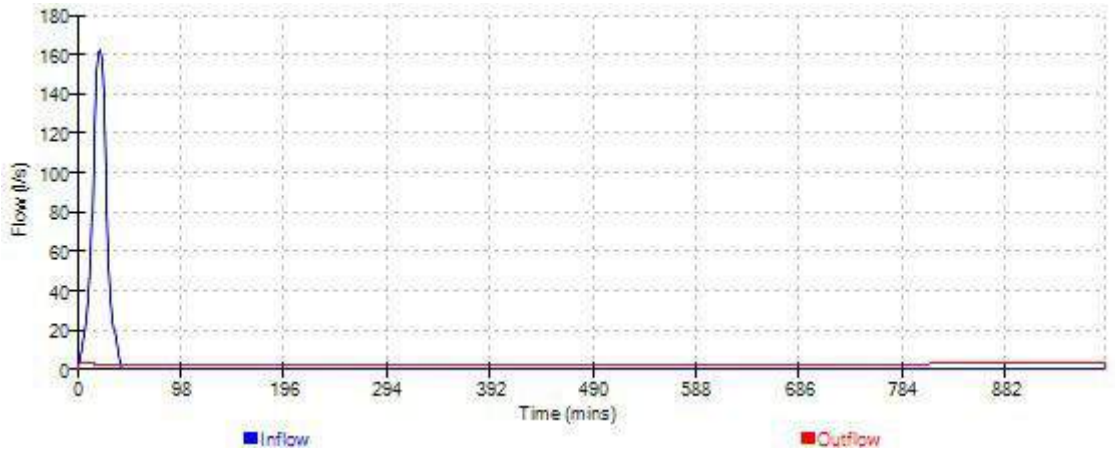
Event: 15 min Summer

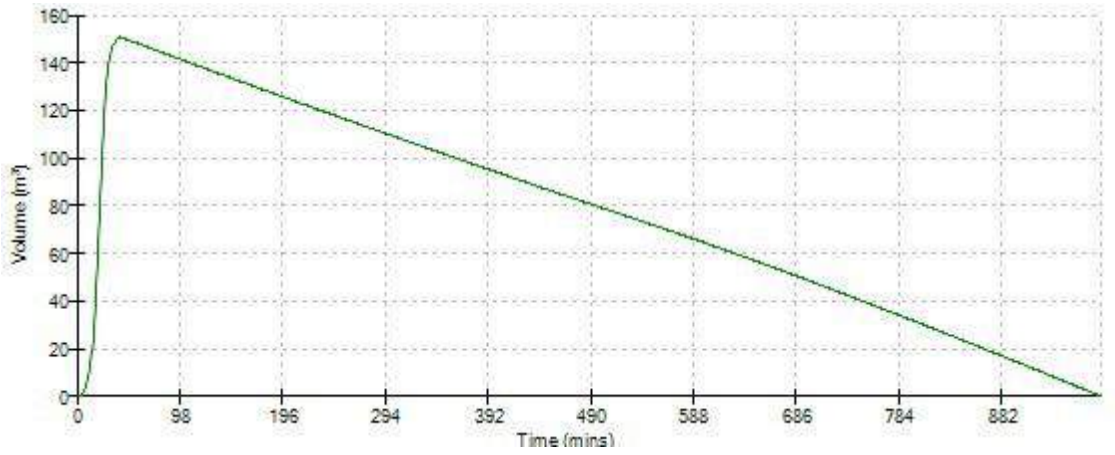


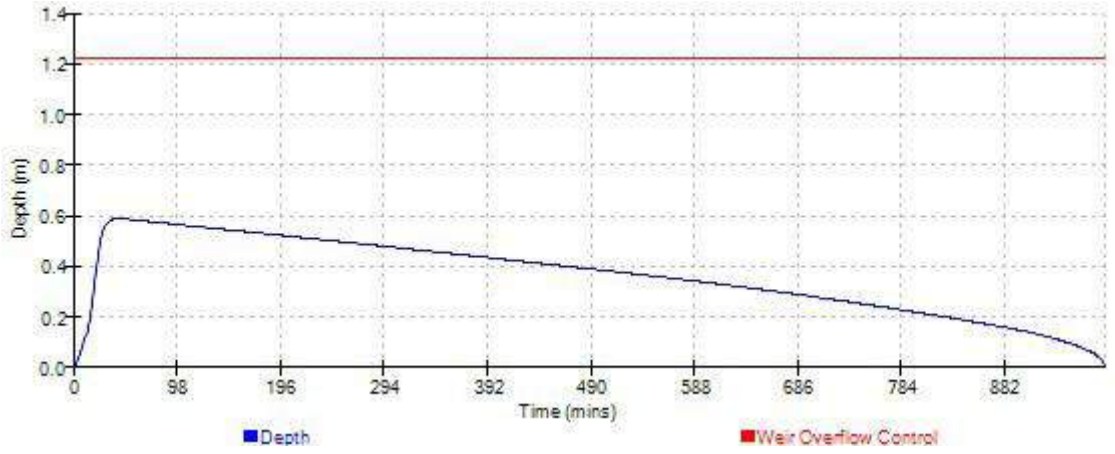




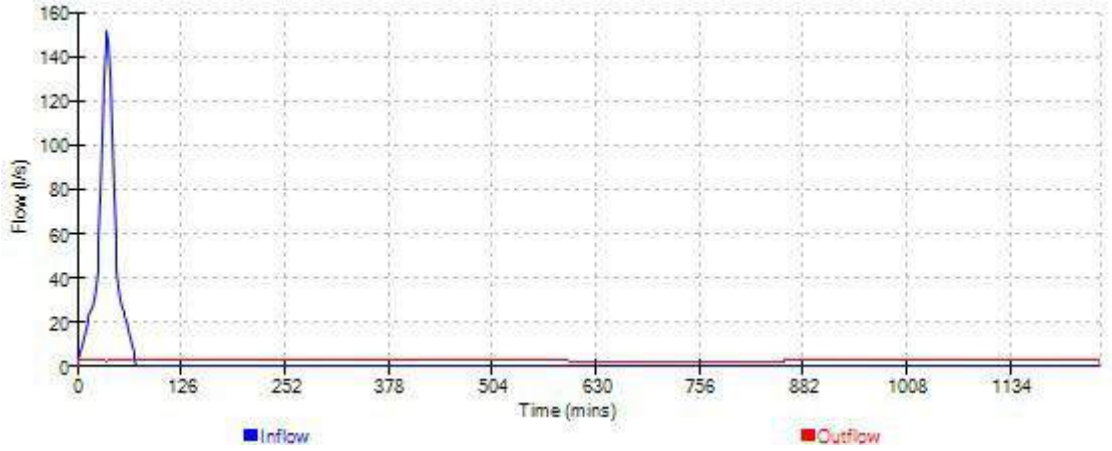
Event: 30 min Summer

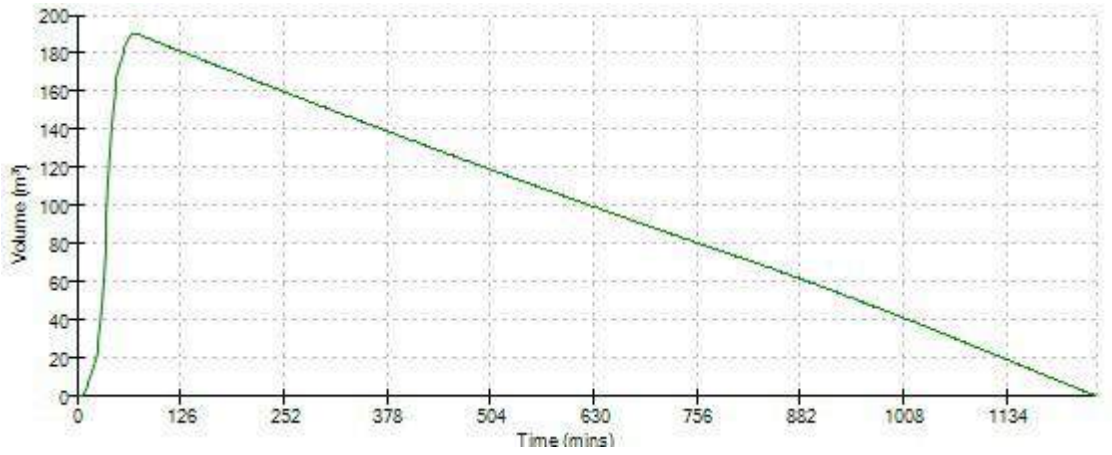


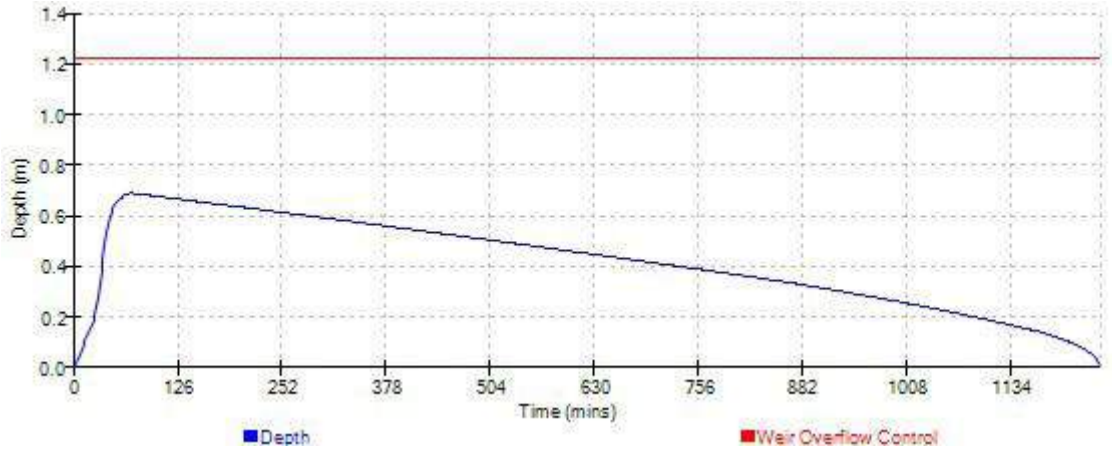




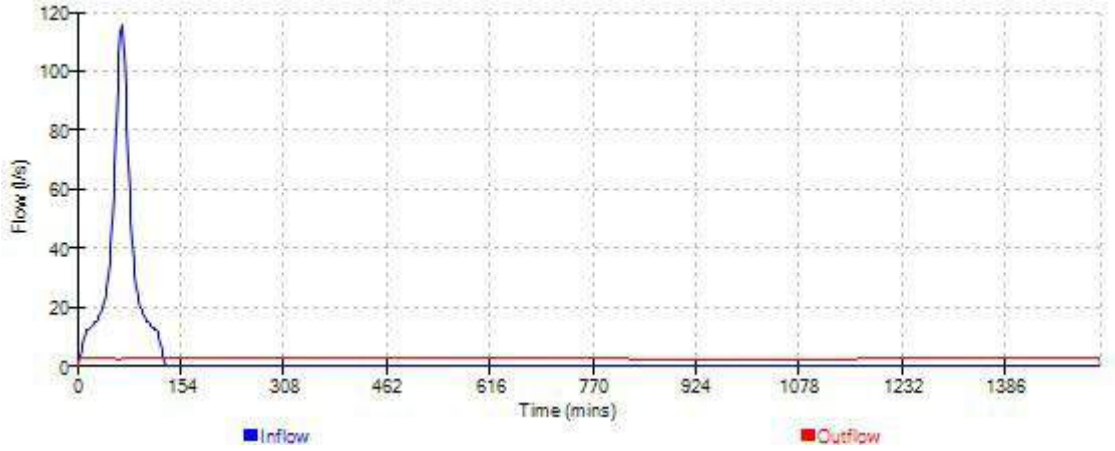
Event: 60 min Summer

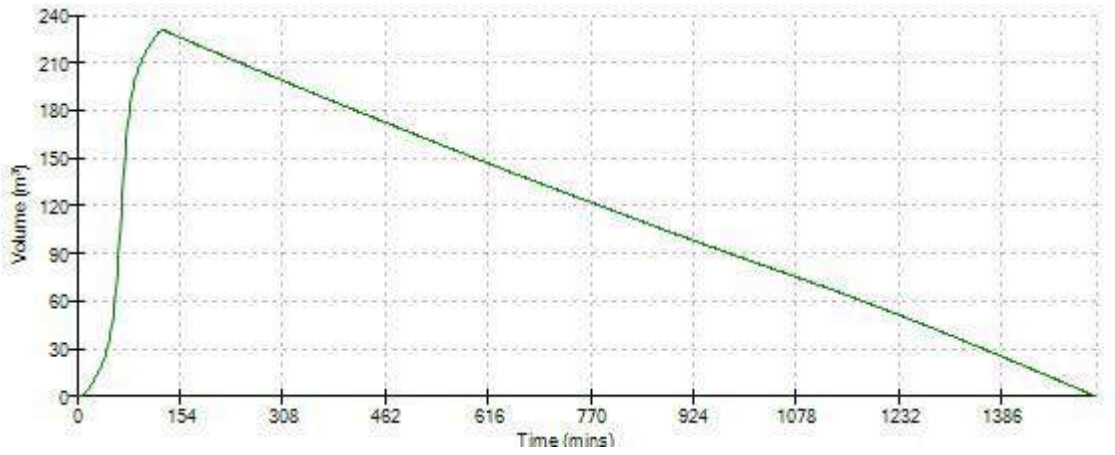


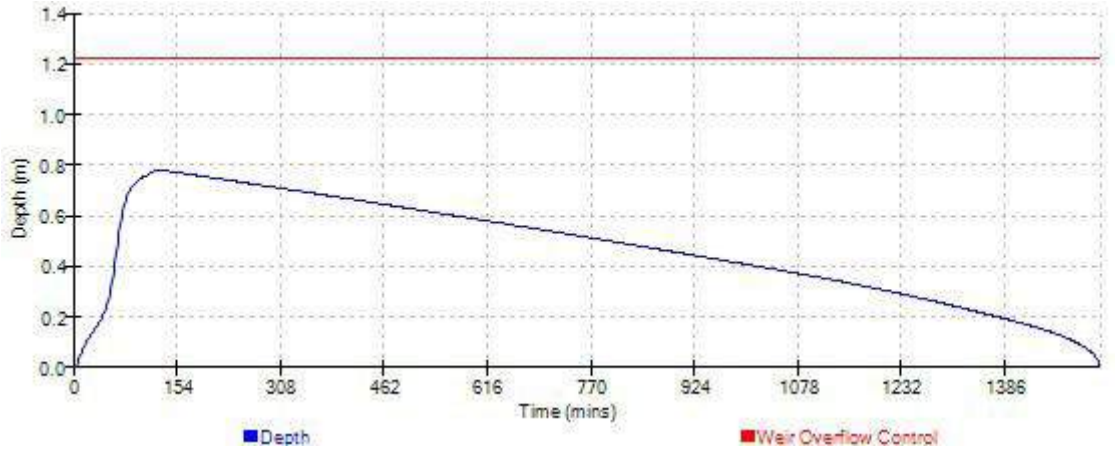




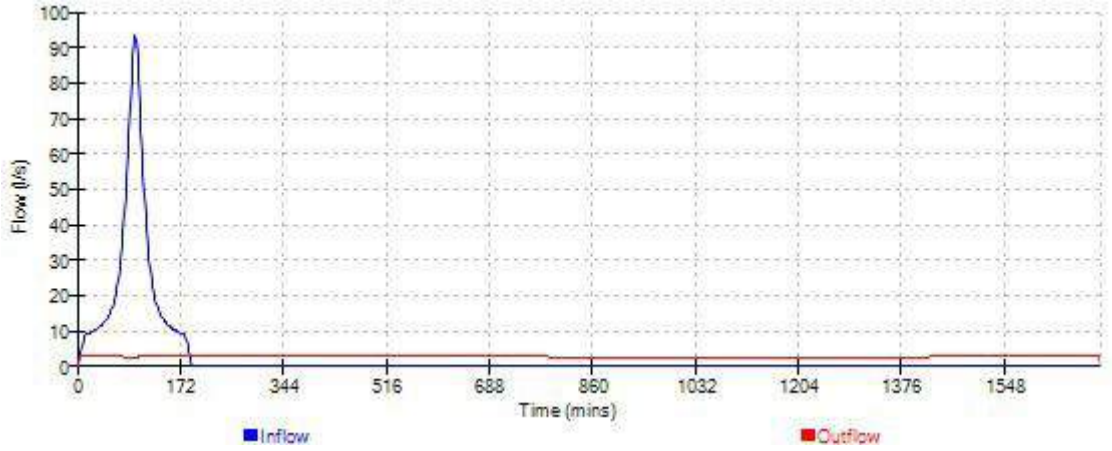
Event: 120 min Summer

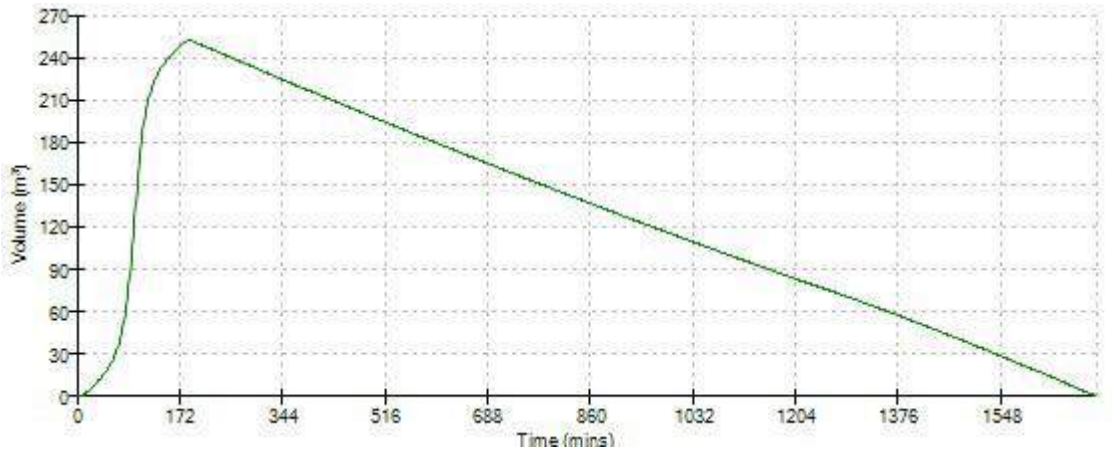


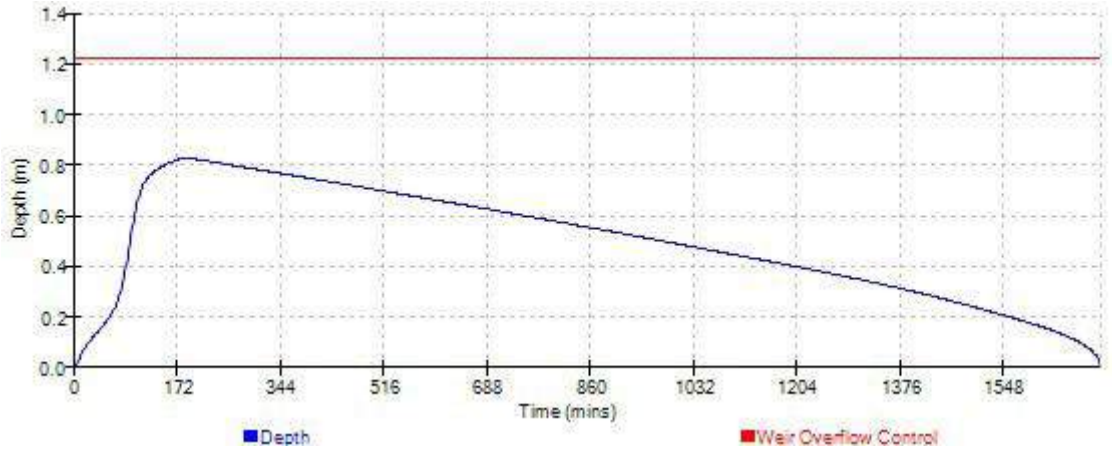




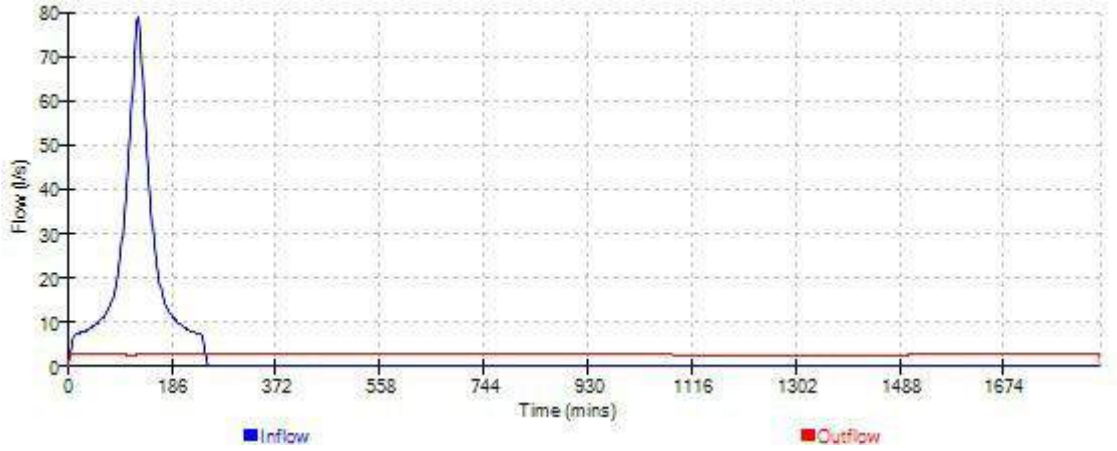
Event: 180 min Summer

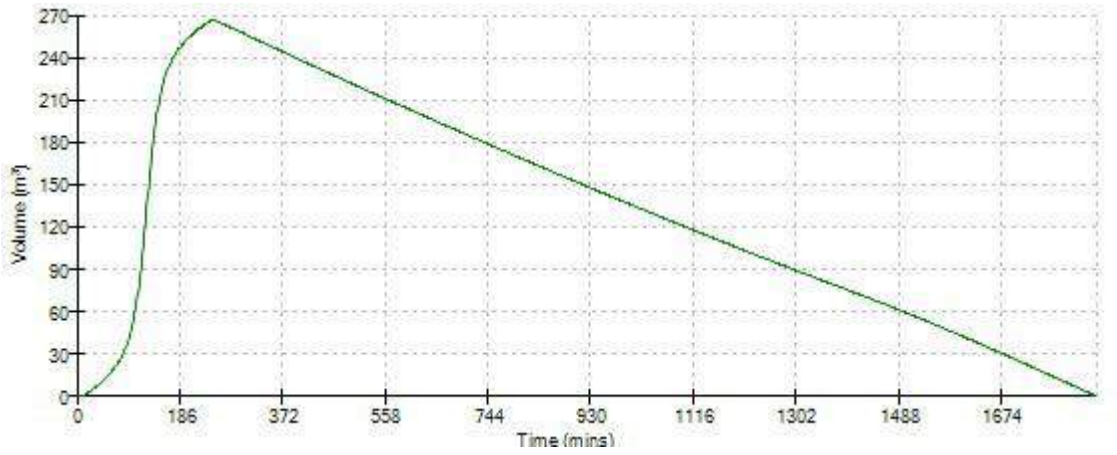


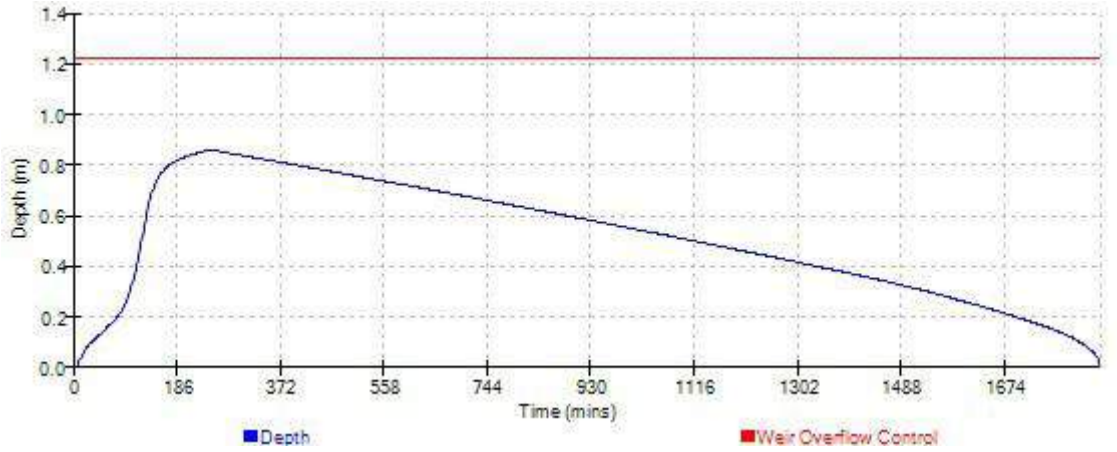




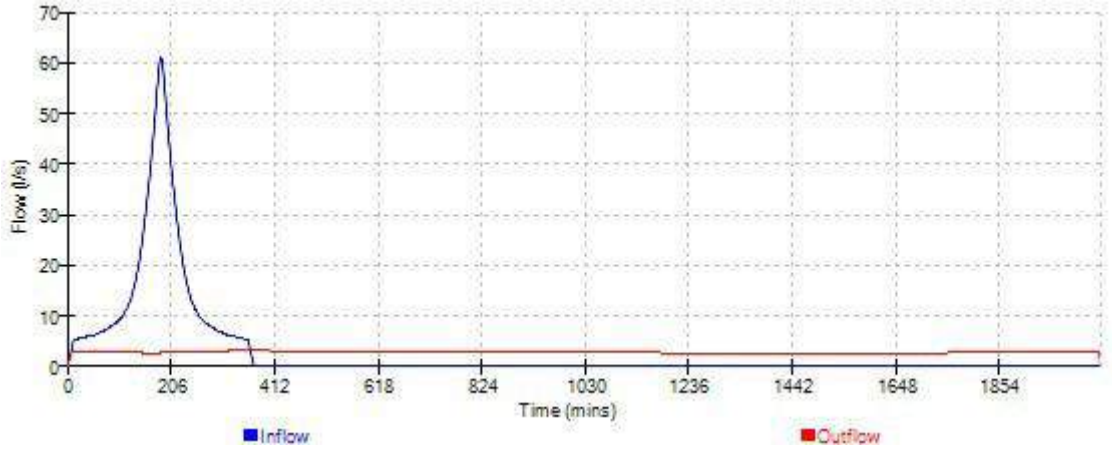
Event: 240 min Summer

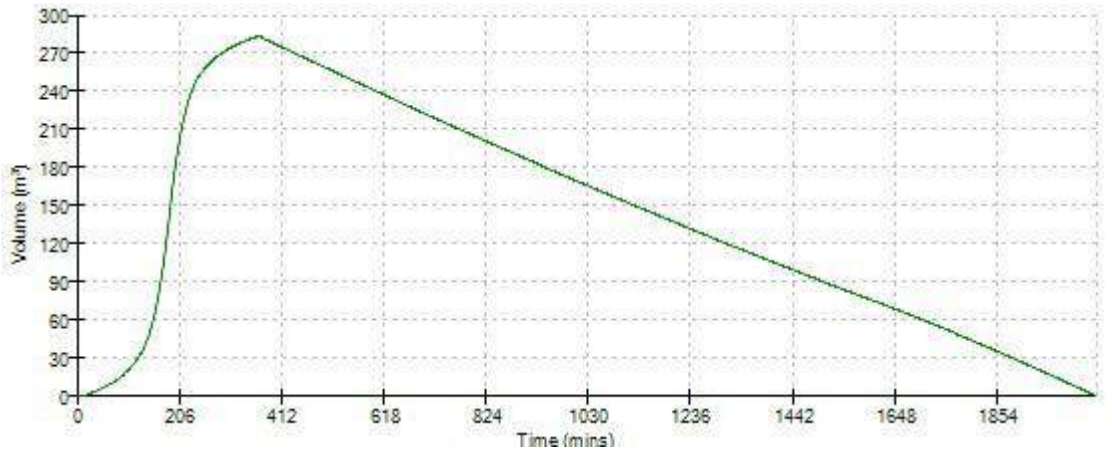


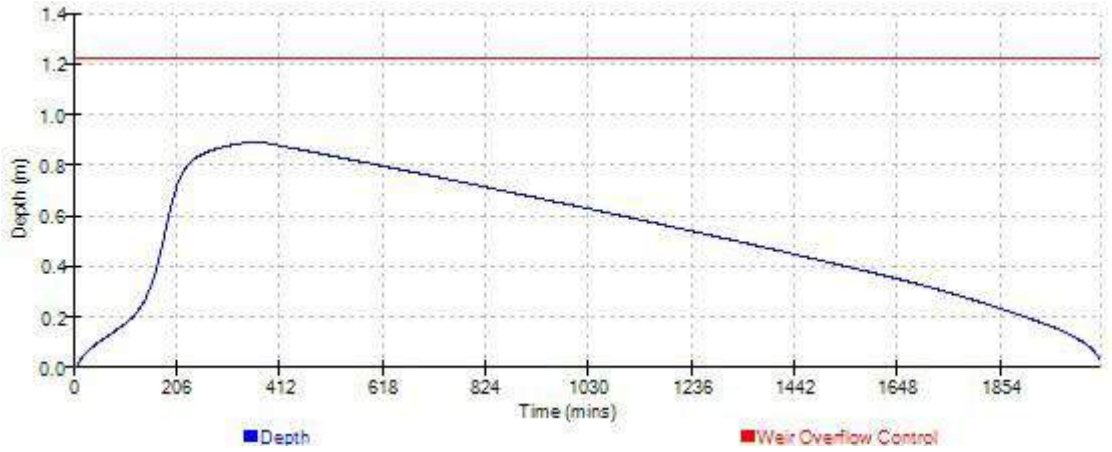




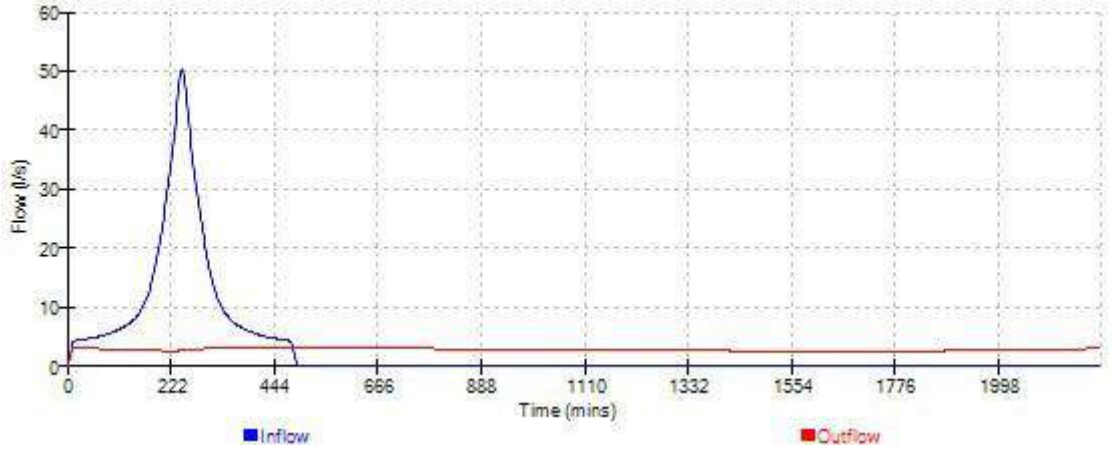
Event: 360 min Summer

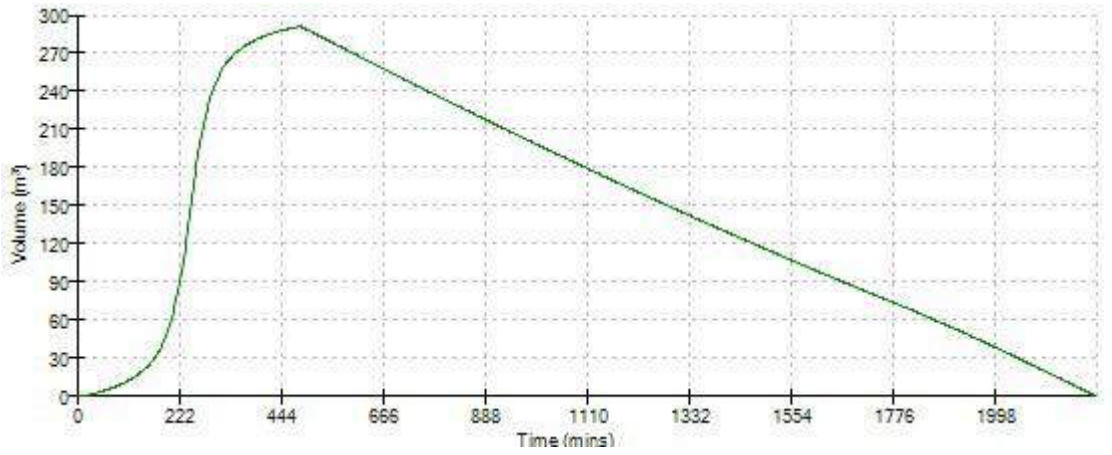


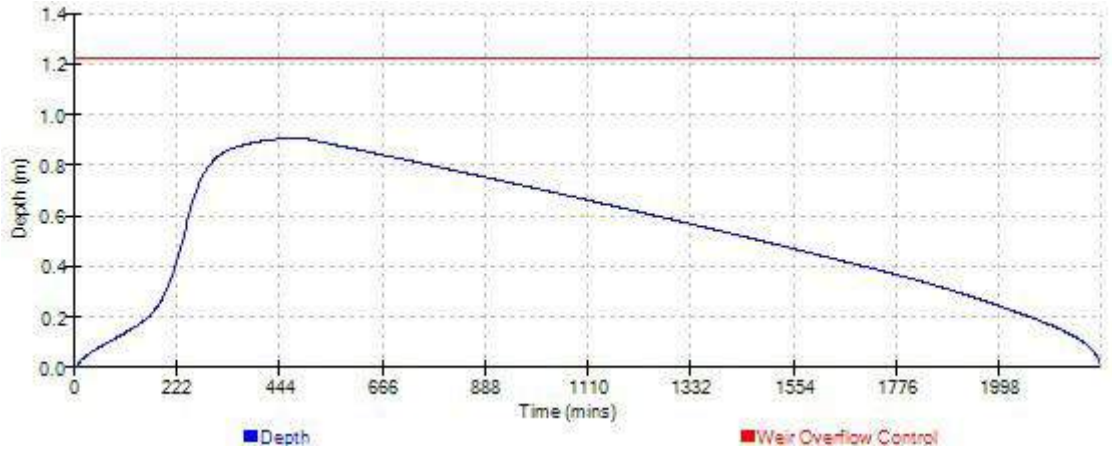




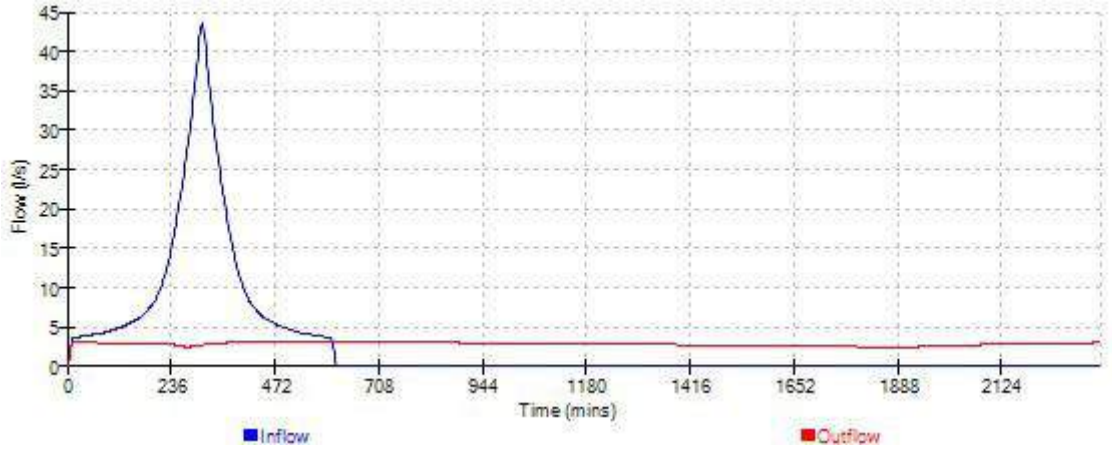
Event: 480 min Summer

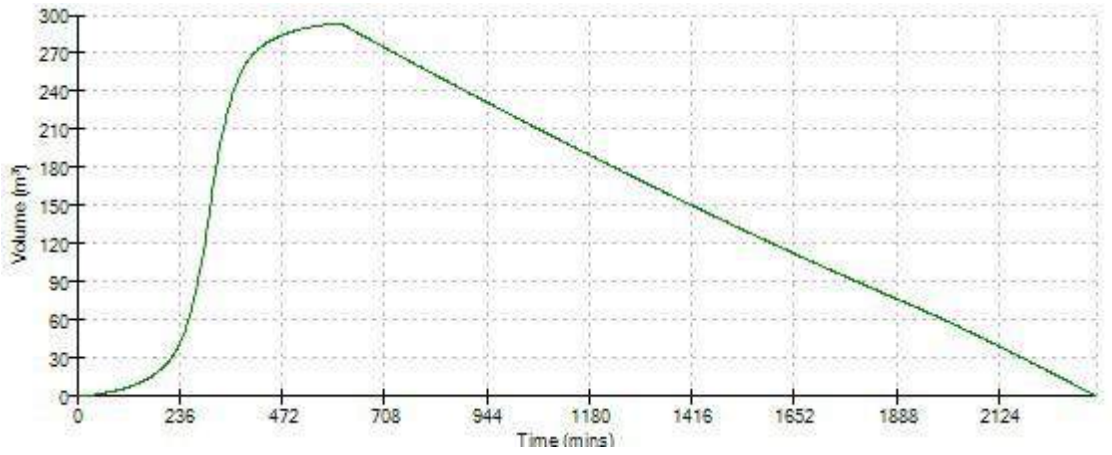


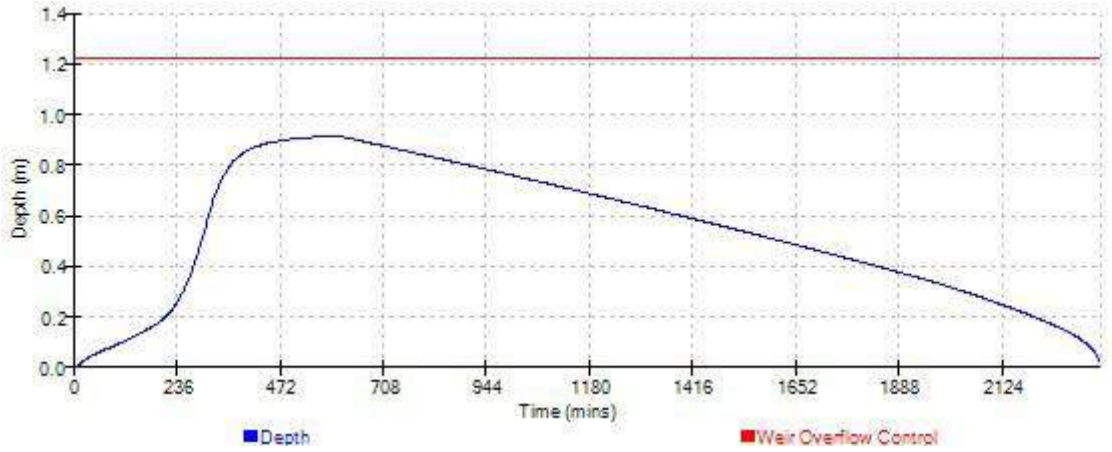




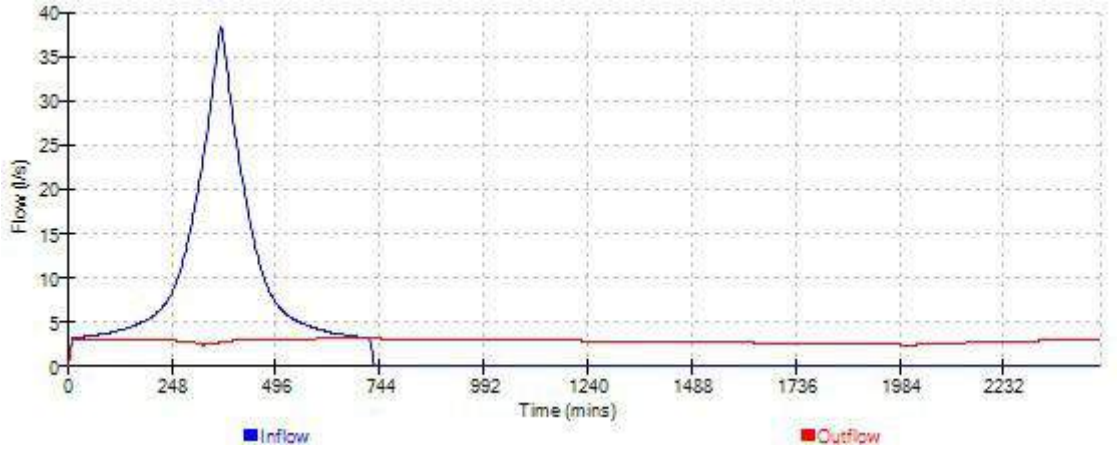
Event: 600 min Summer

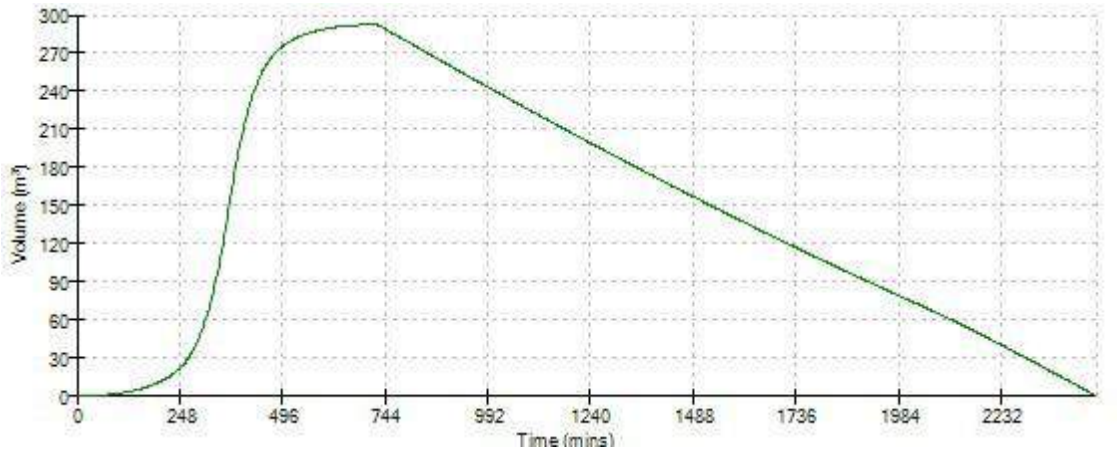


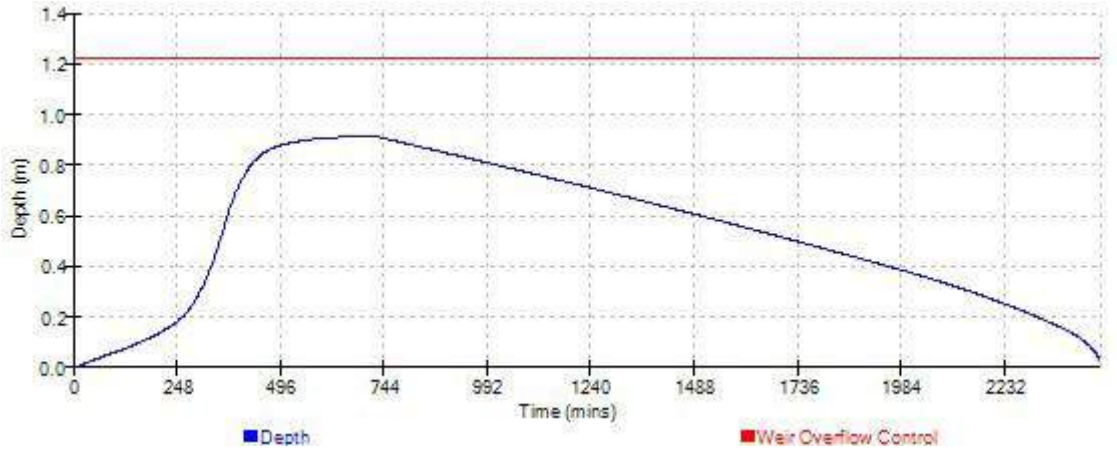




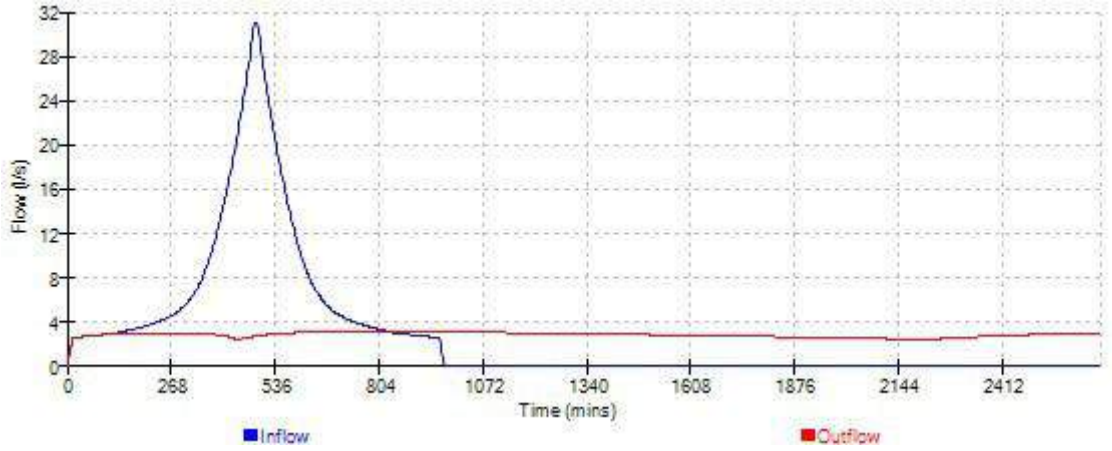
Event: 720 min Summer

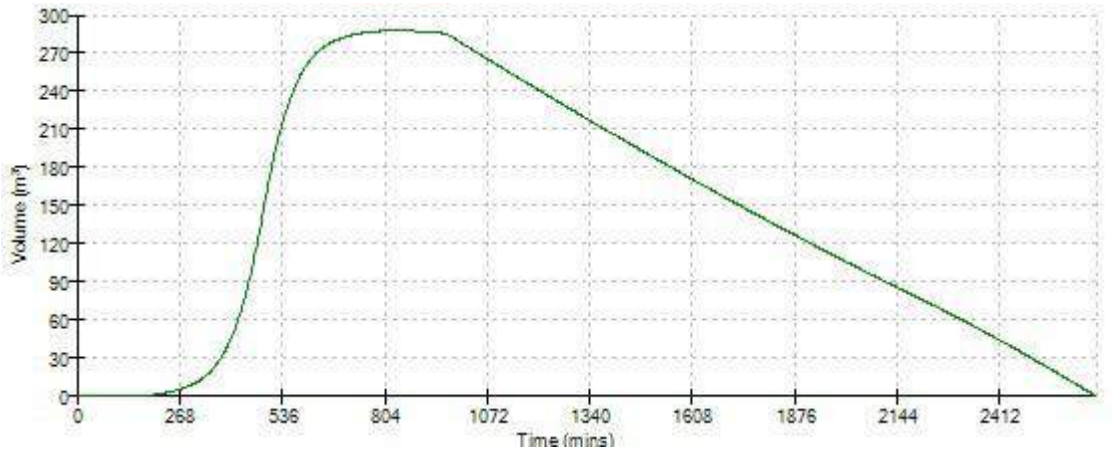


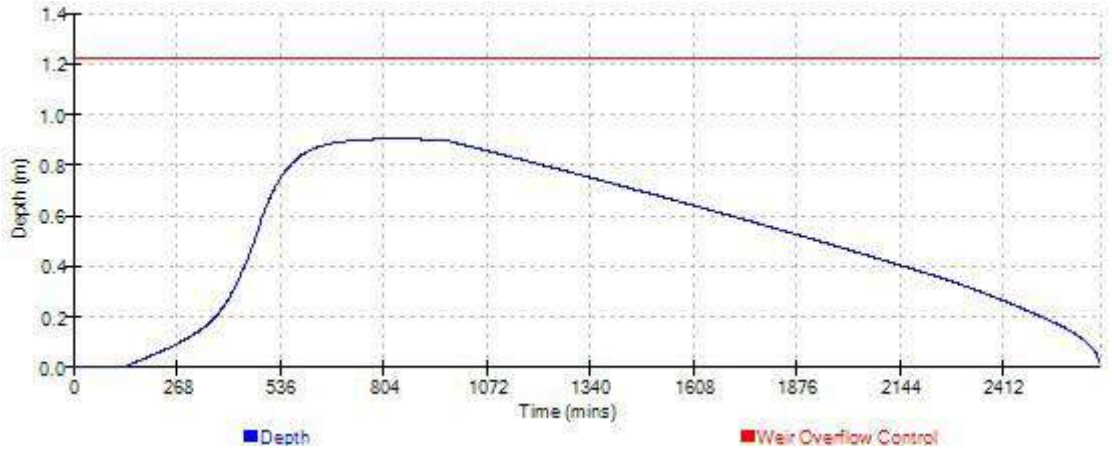




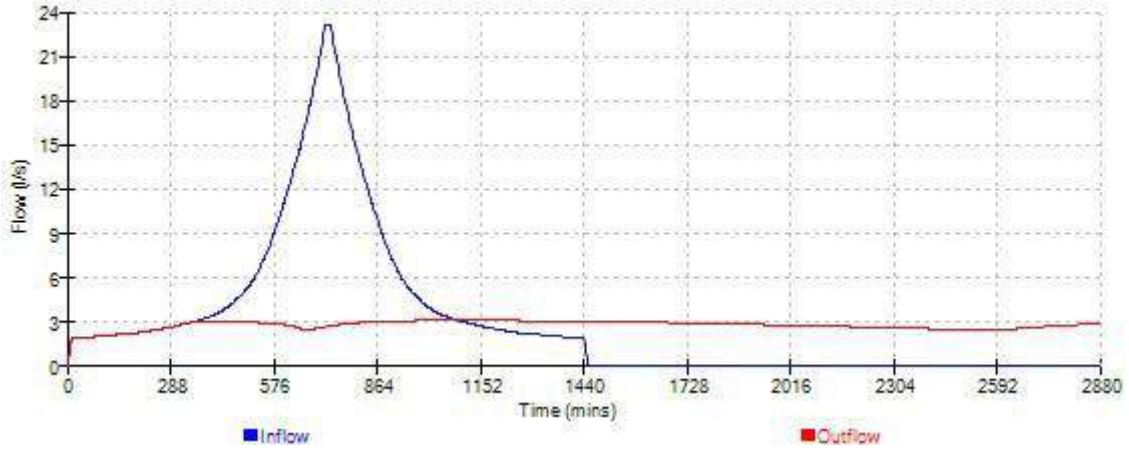
Event: 960 min Summer

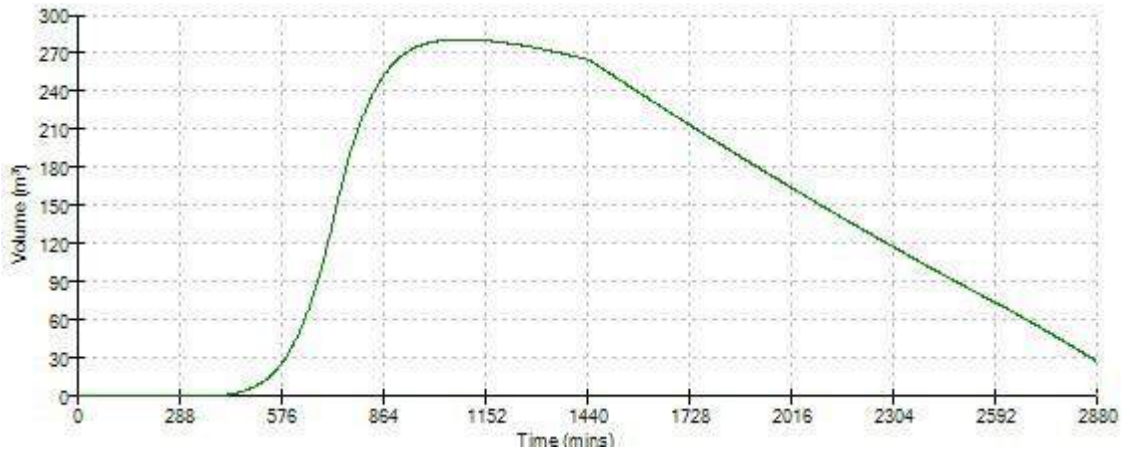




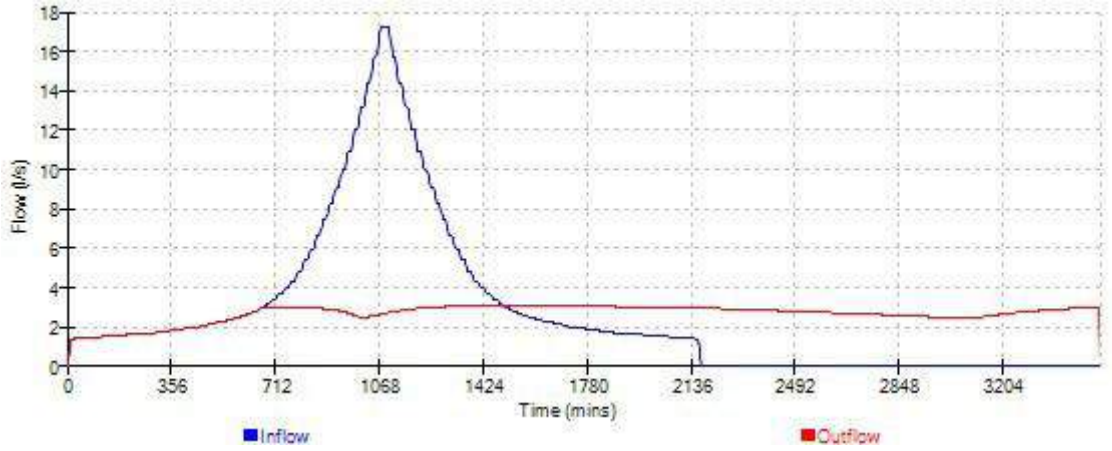


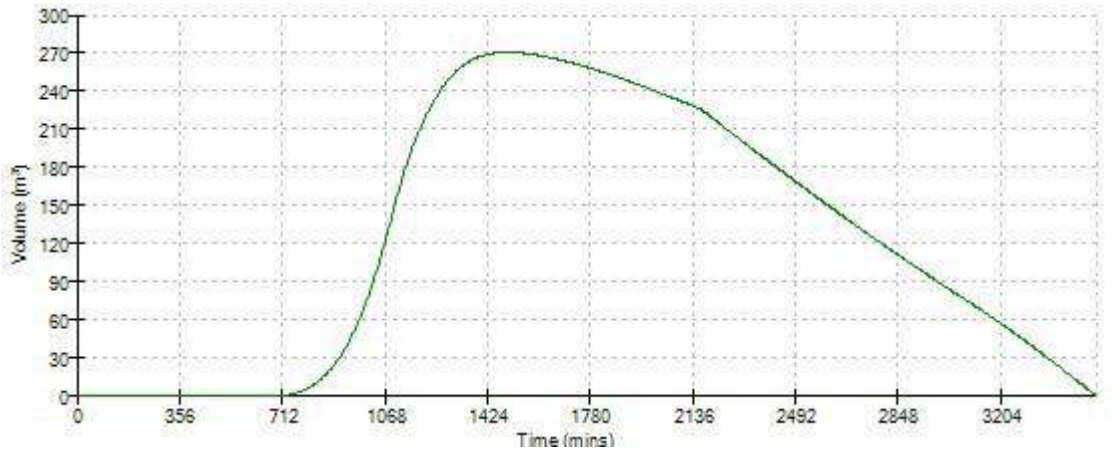
Event: 1440 min Summer

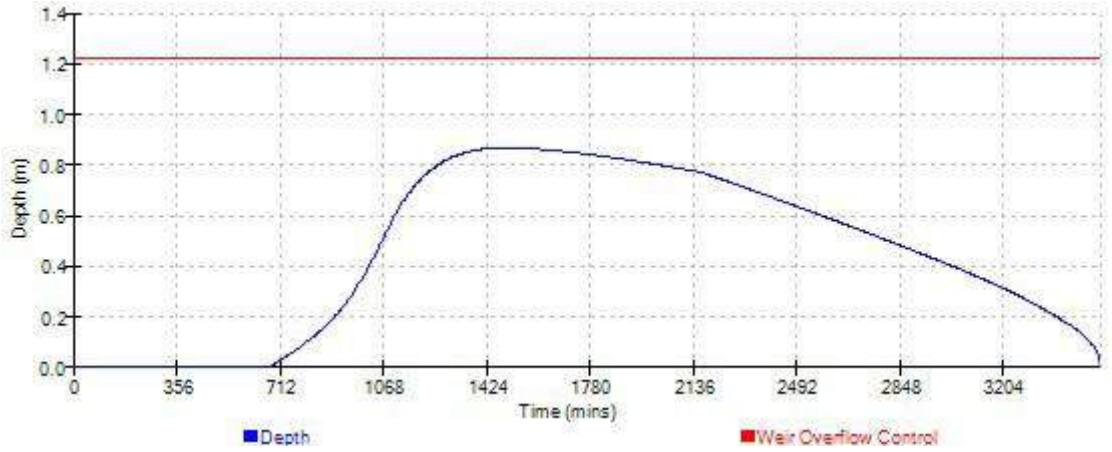




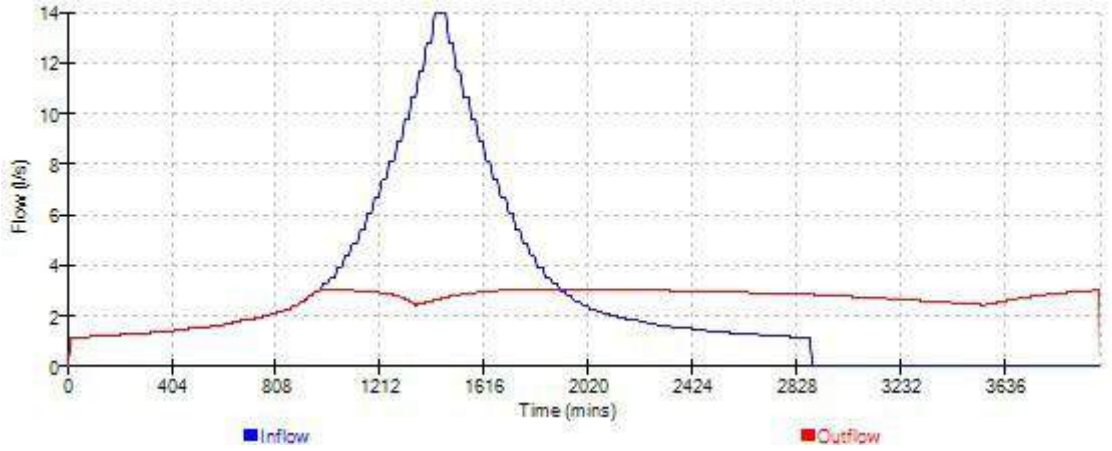
Event: 2160 min Summer

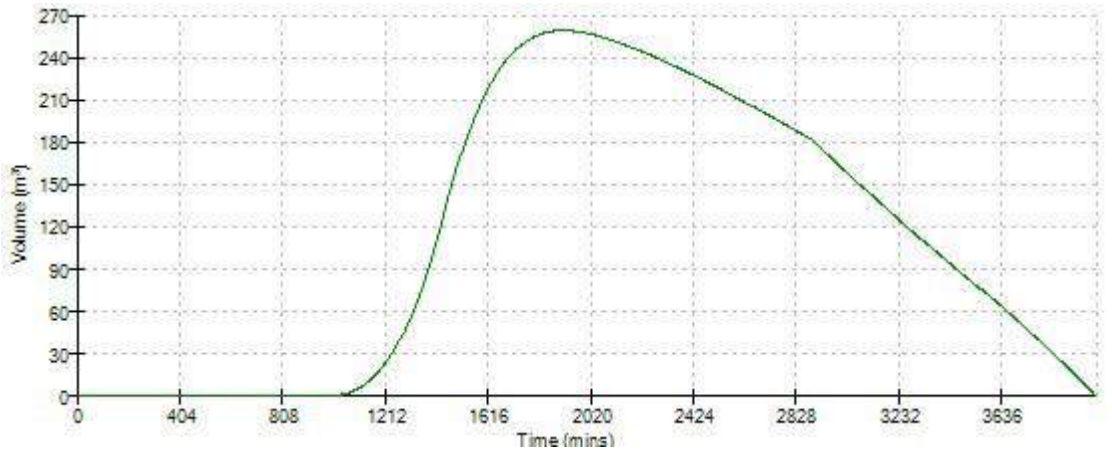


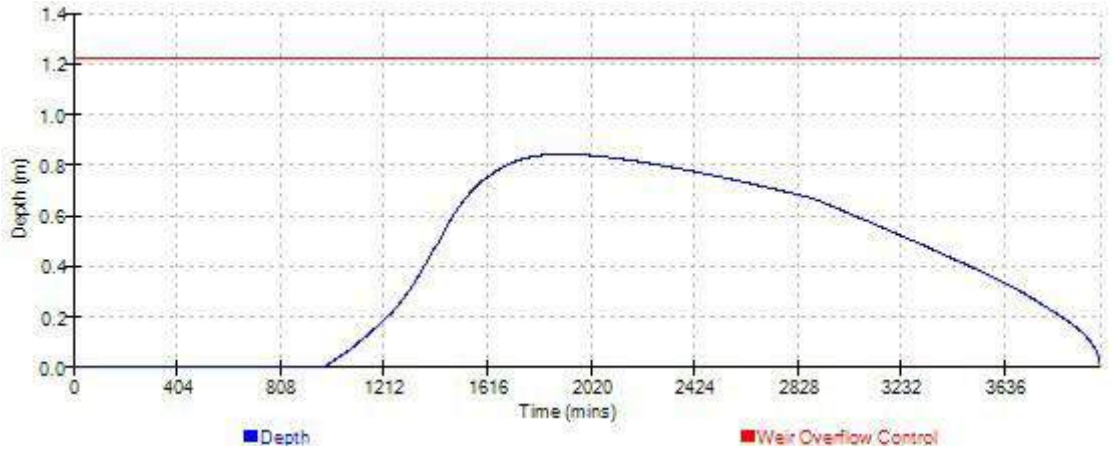




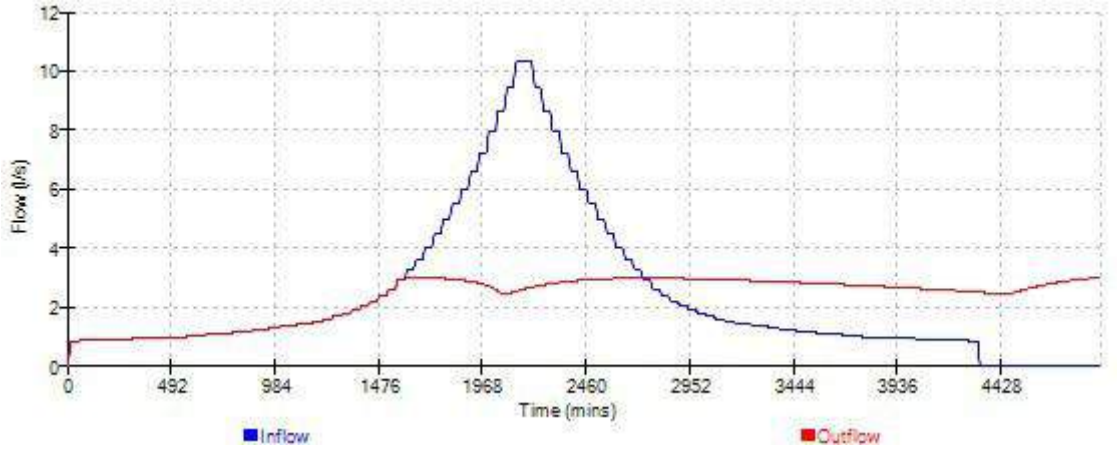
Event: 2880 min Summer

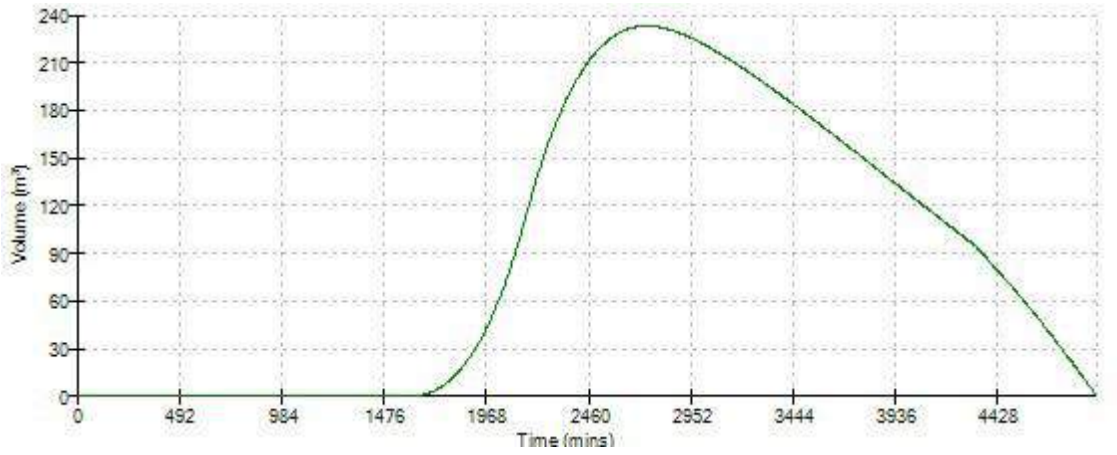


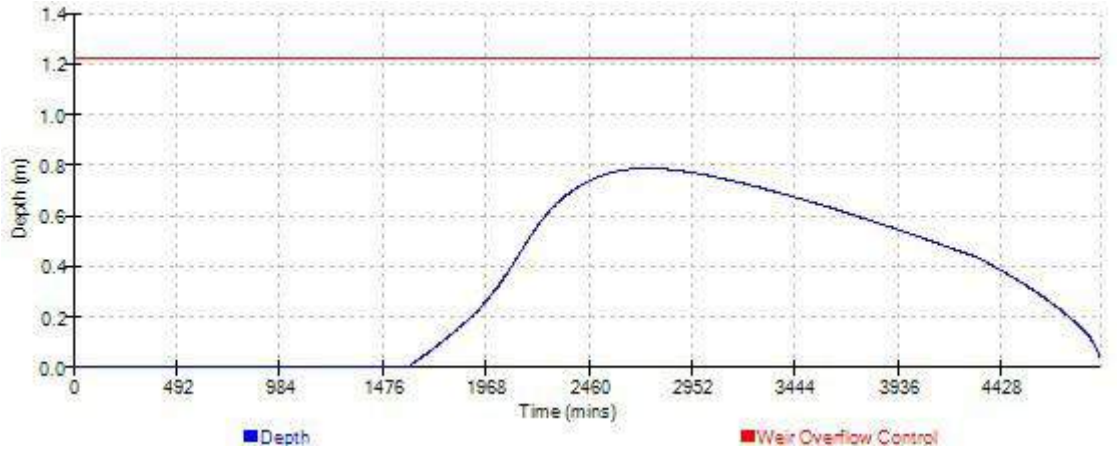




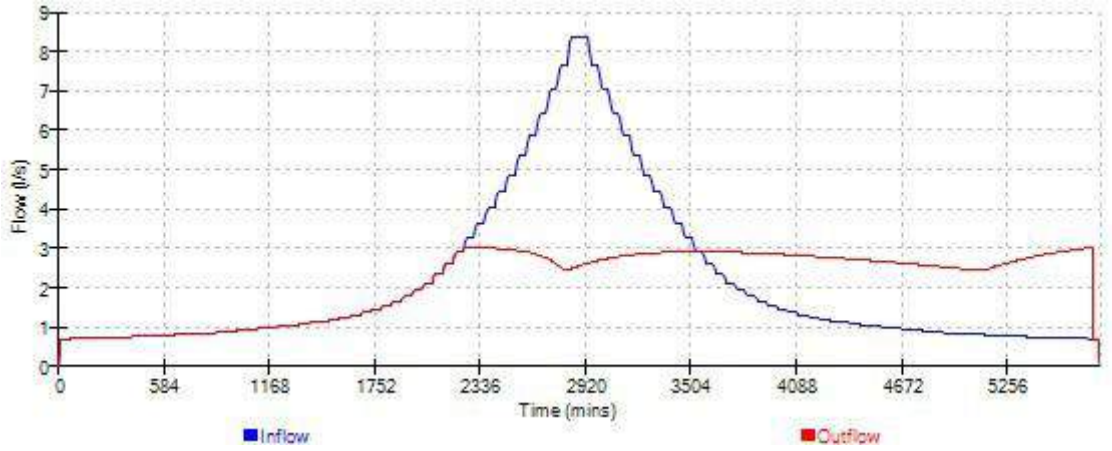
Event: 4320 min Summer

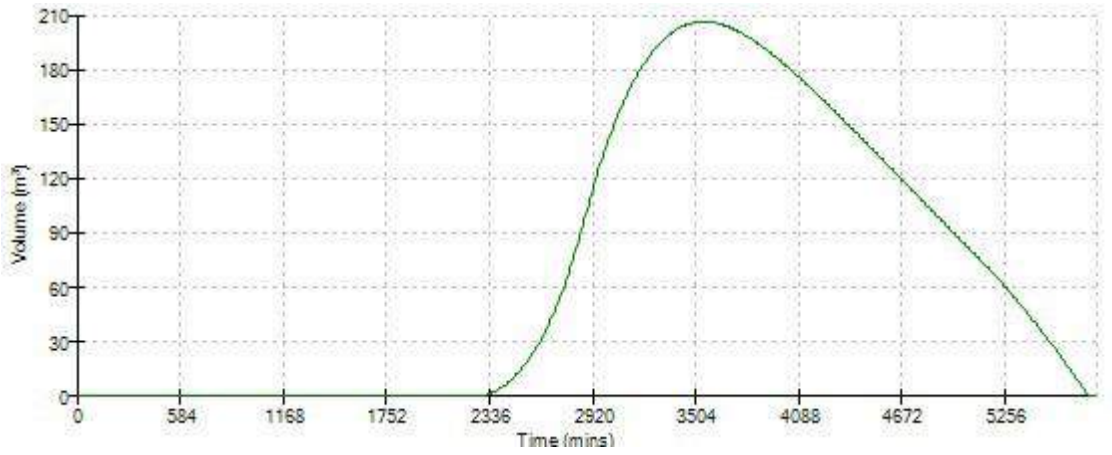


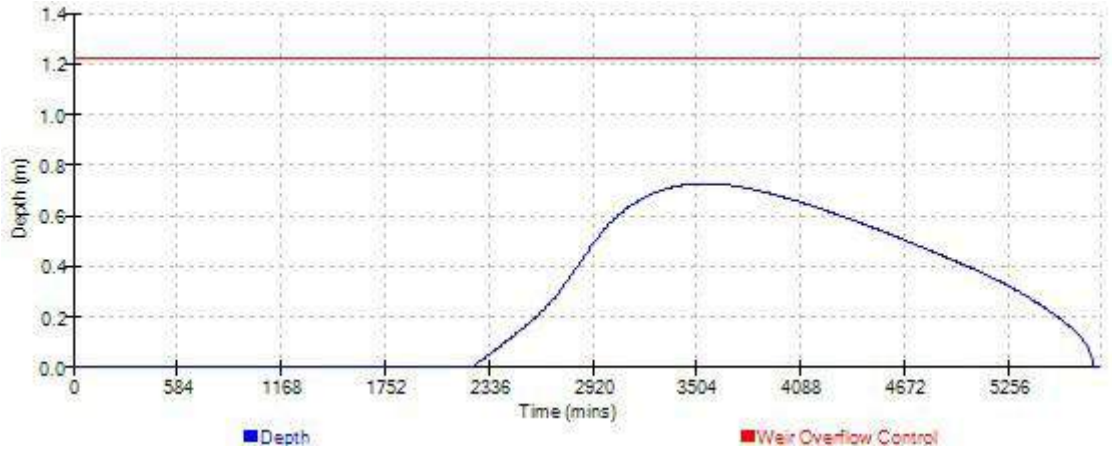




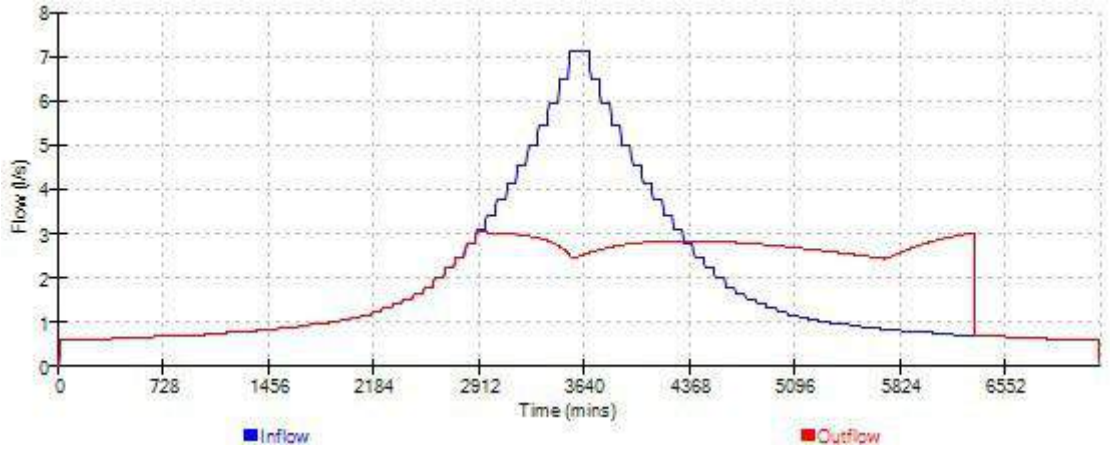
Event: 5760 min Summer

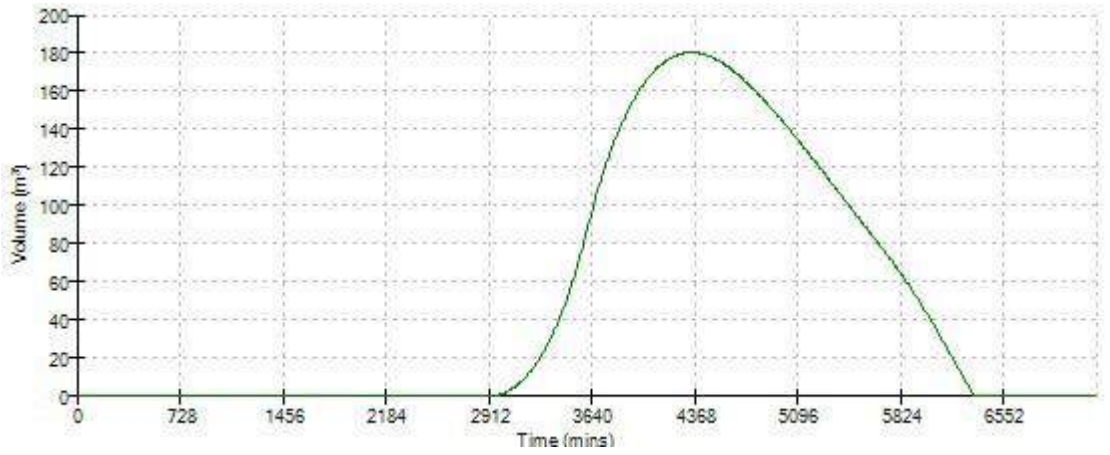


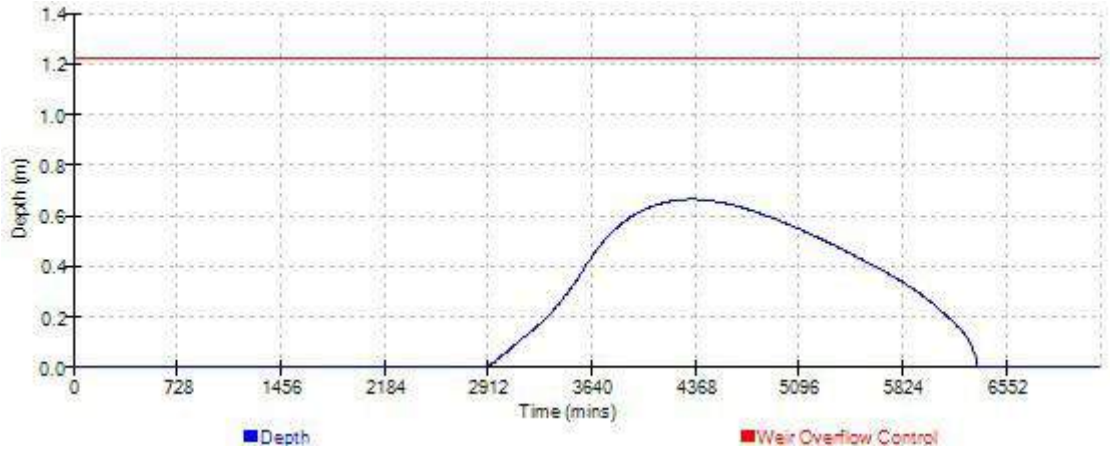




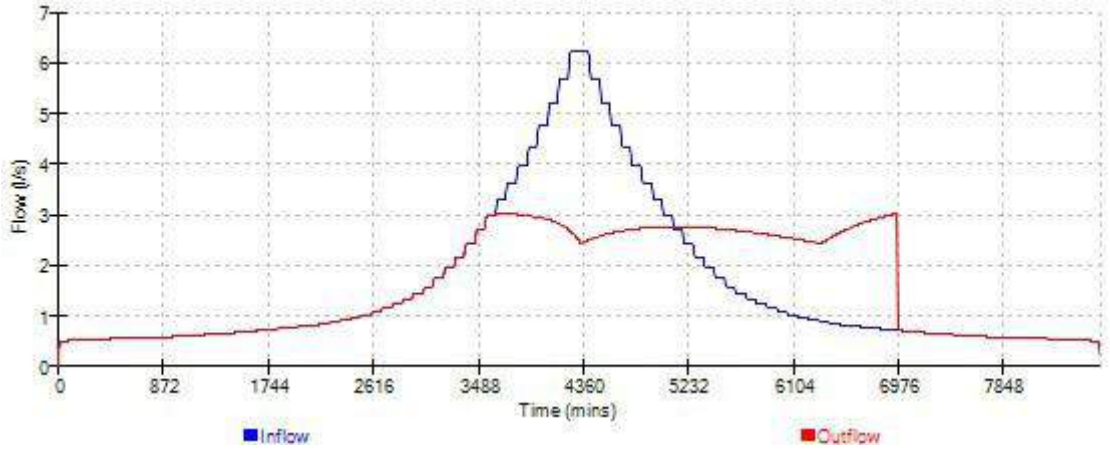
Event: 7200 min Summer

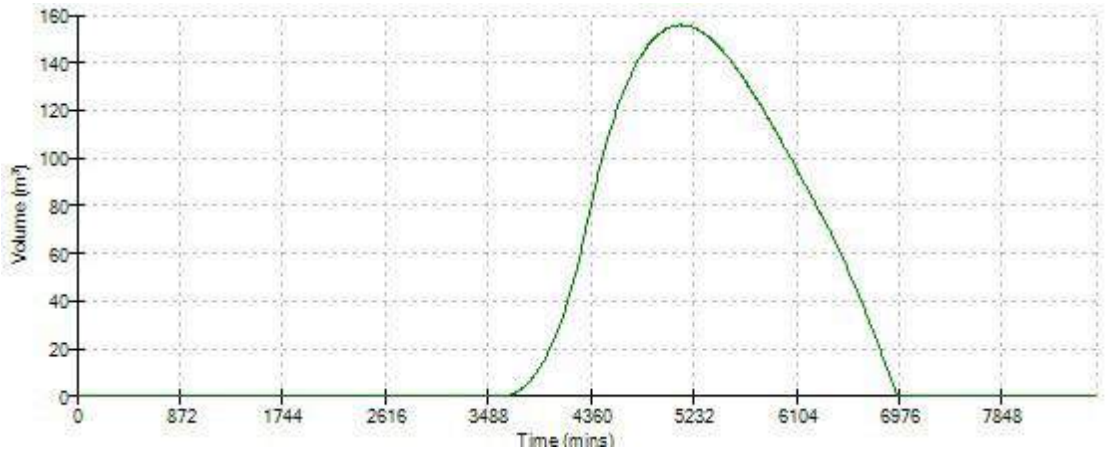


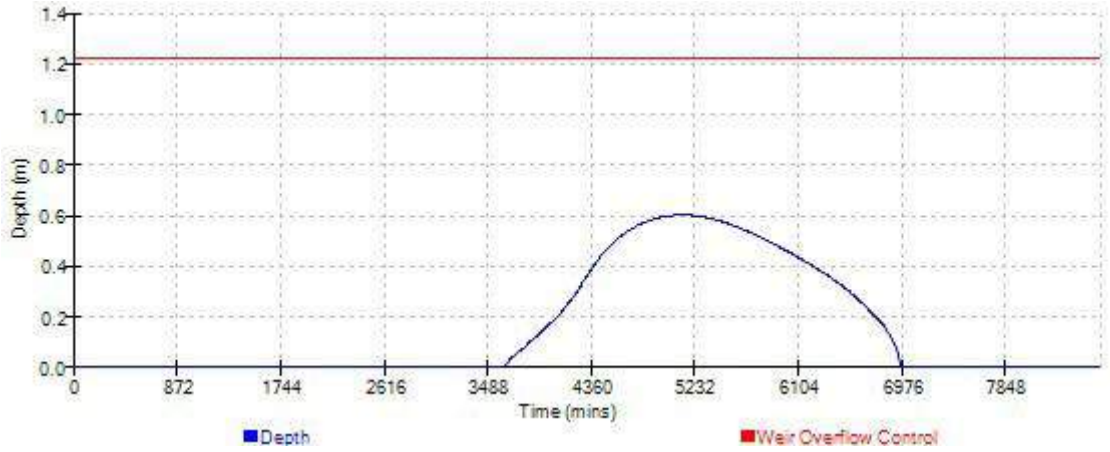




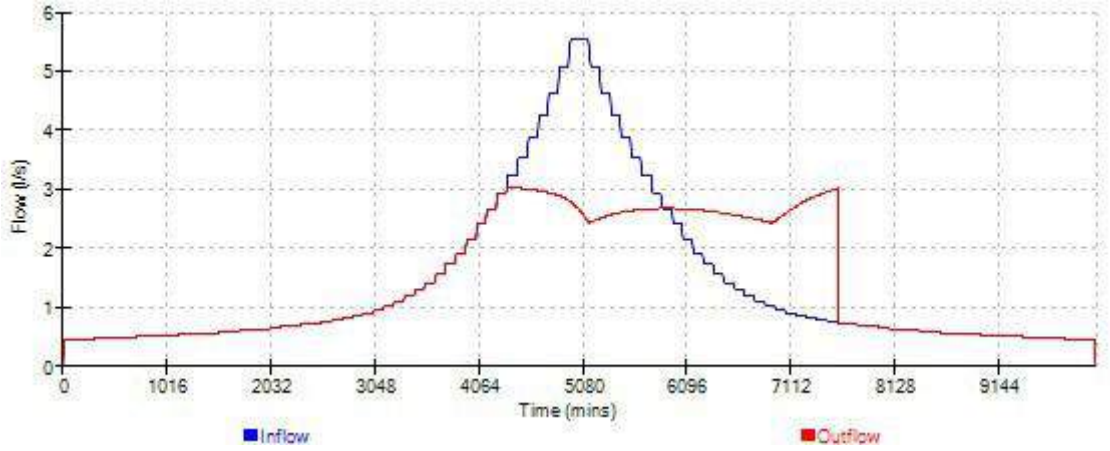
Event: 8640 min Summer

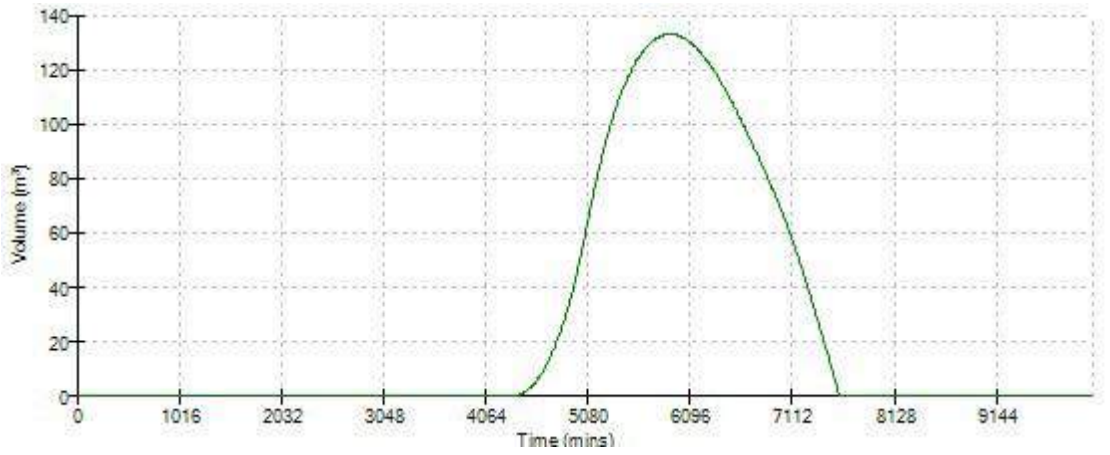


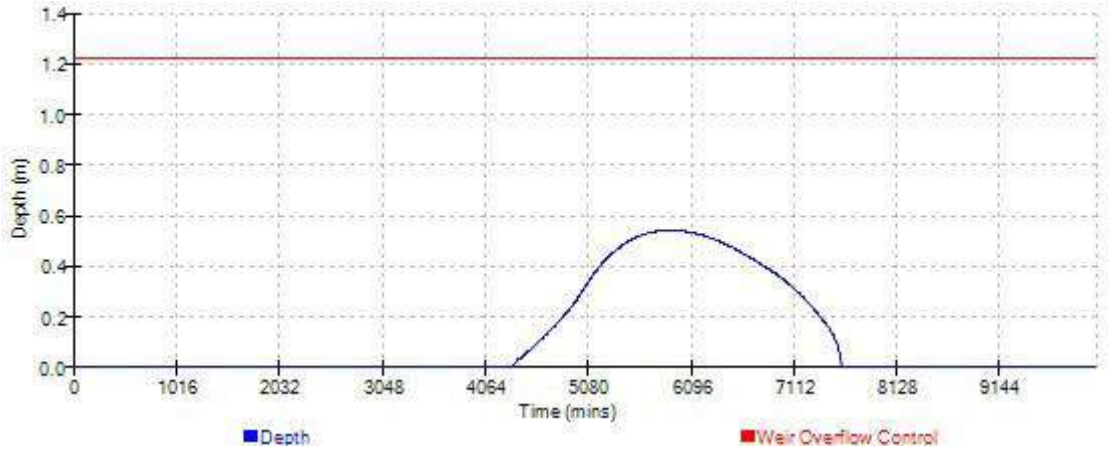




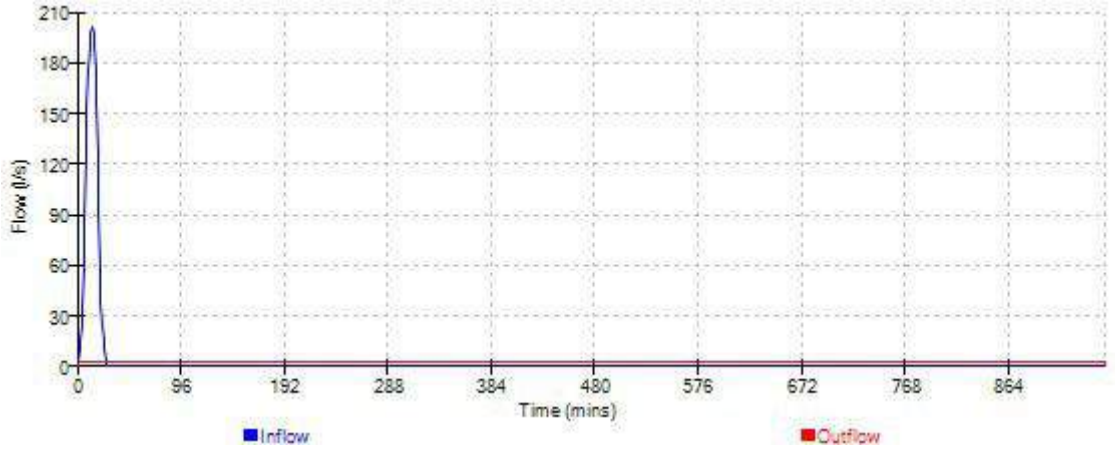
Event: 10080 min Summer

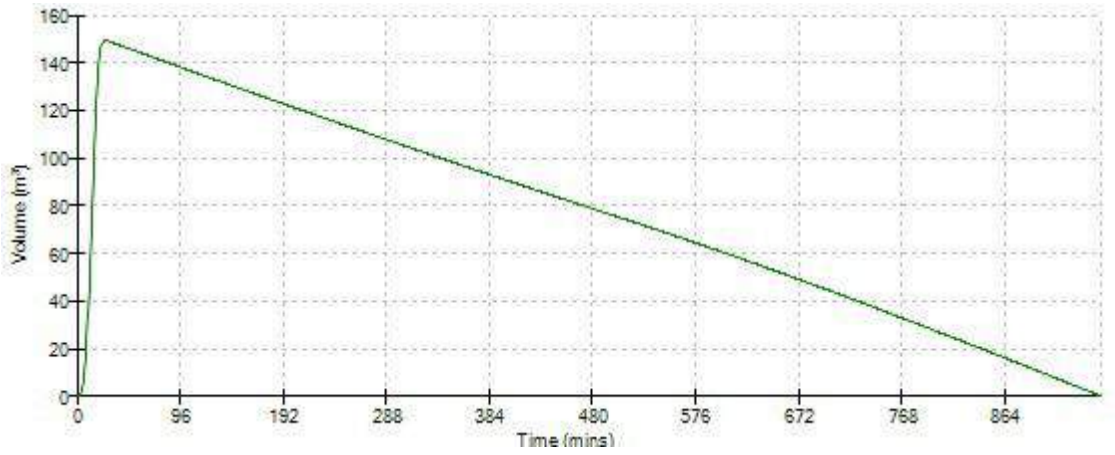


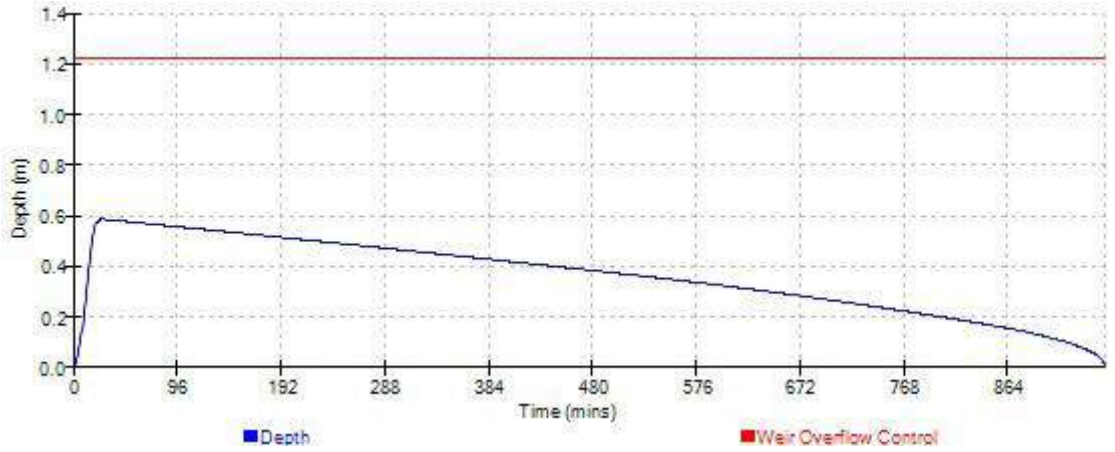




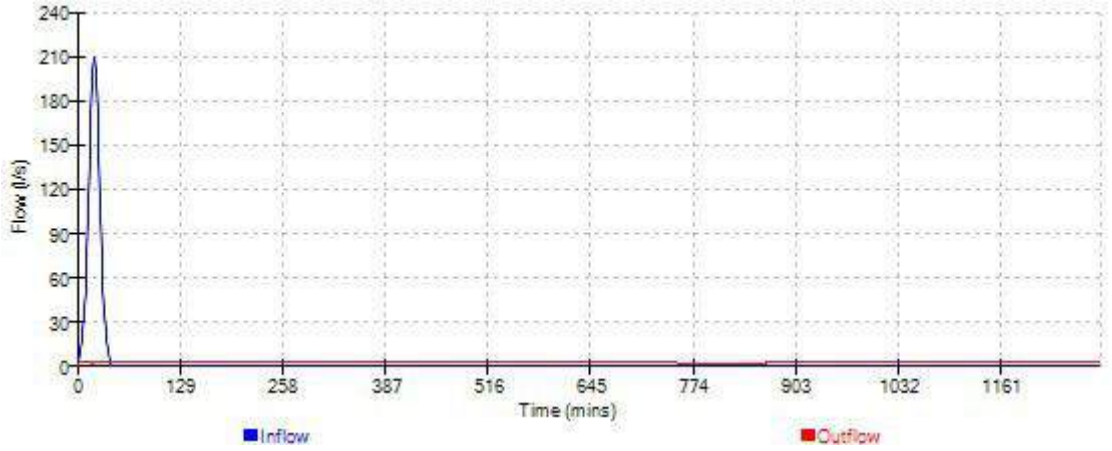
Event: 15 min Winter

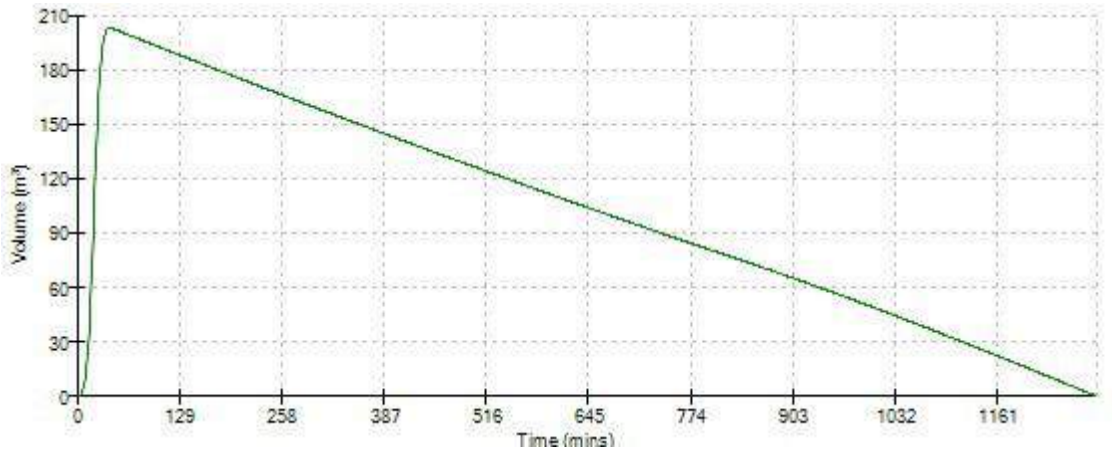


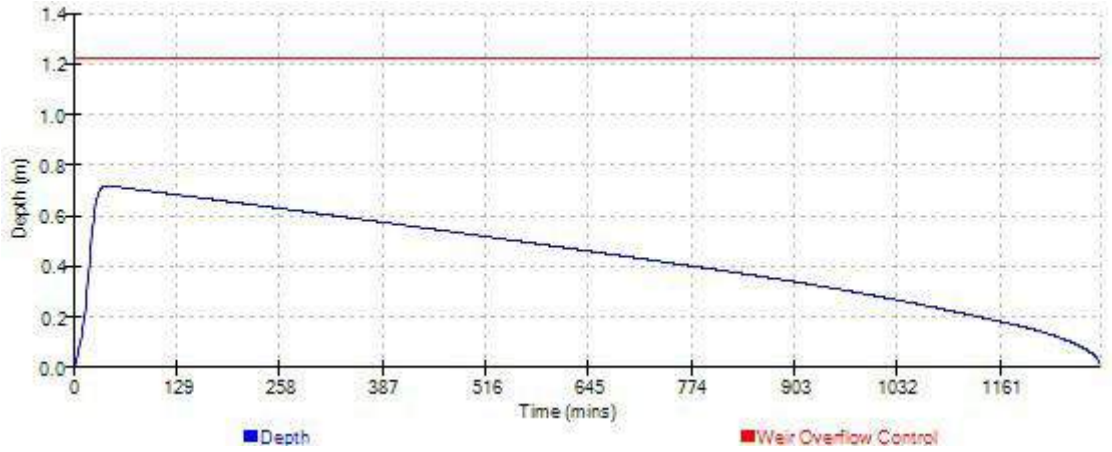




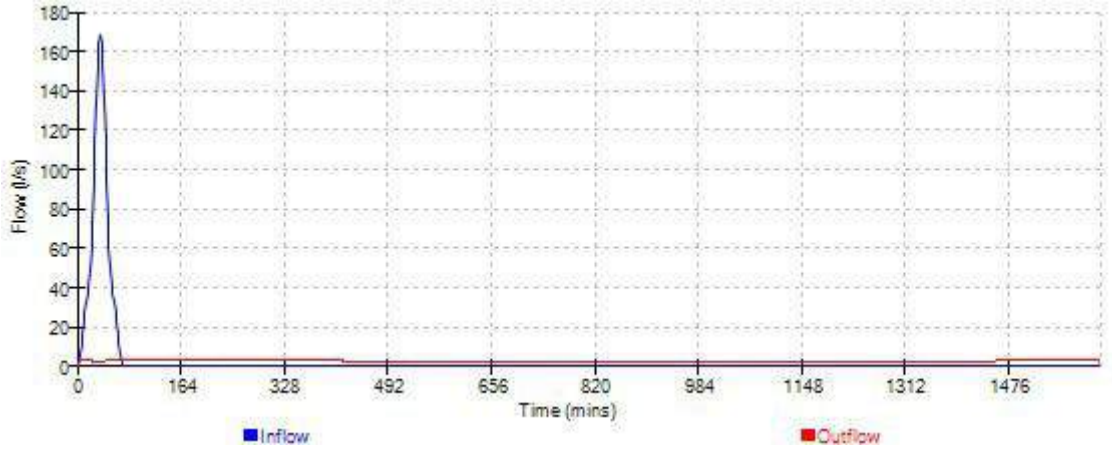
Event: 30 min Winter

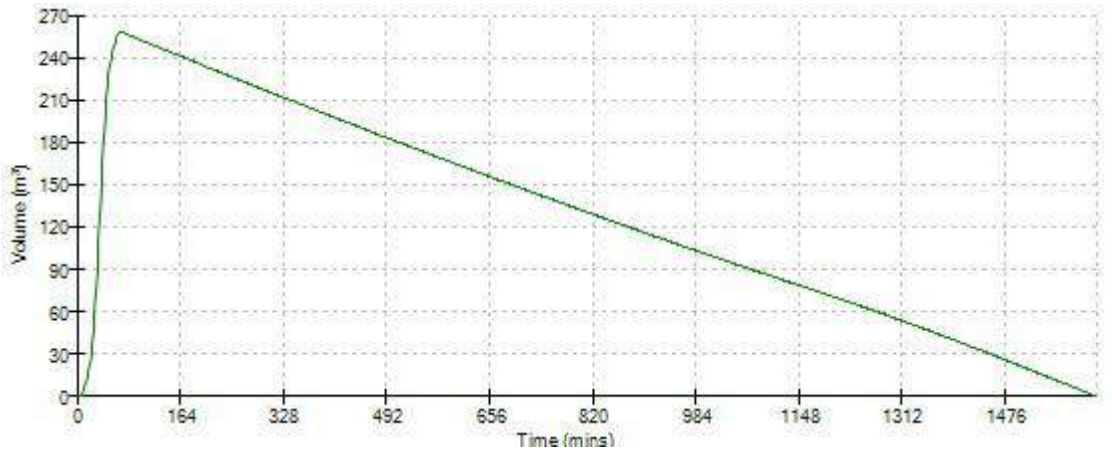


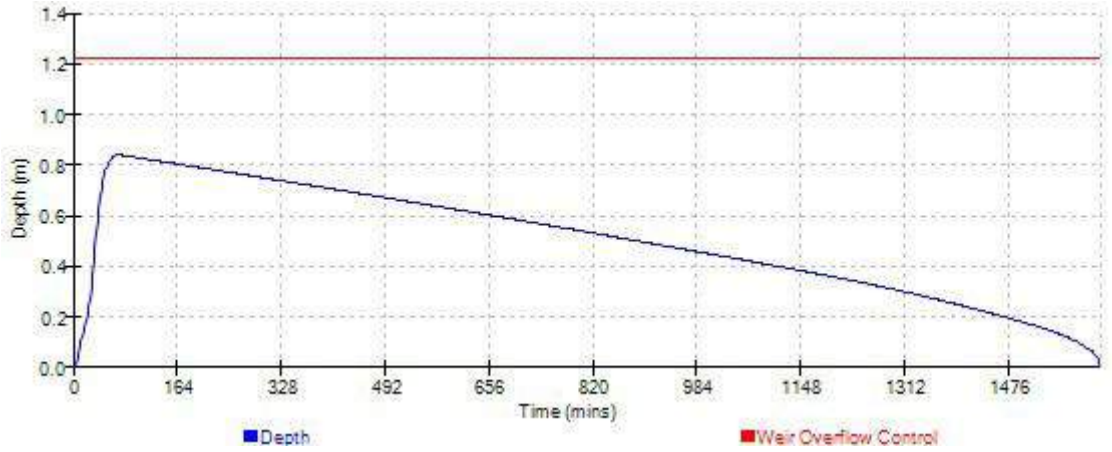




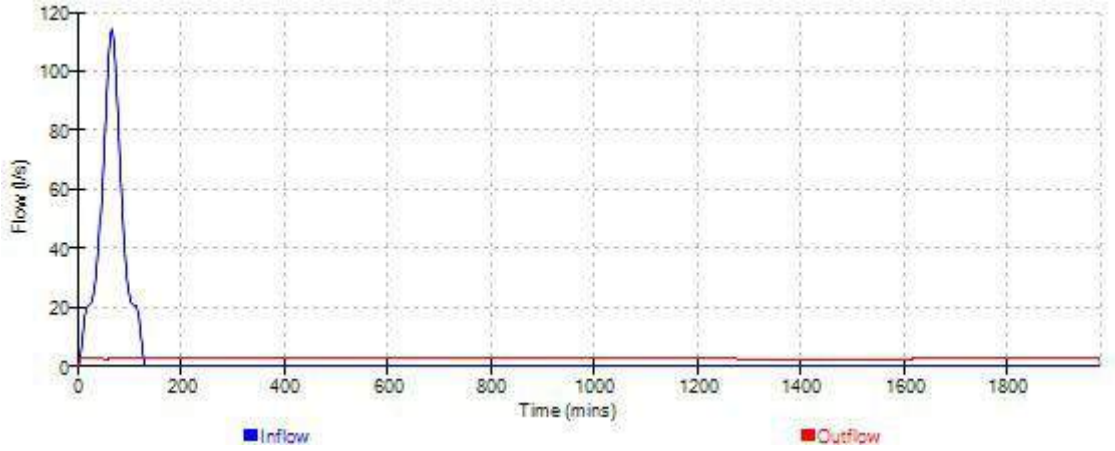
Event: 60 min Winter

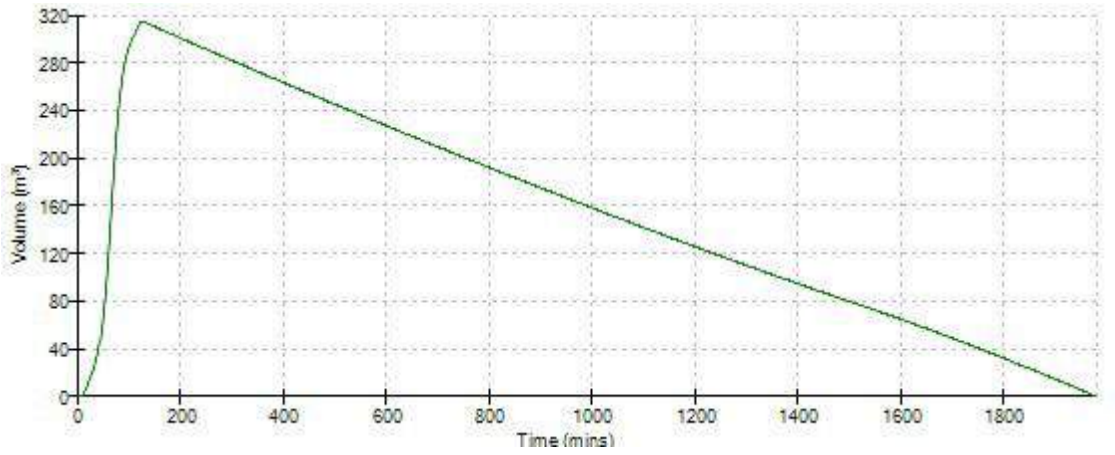


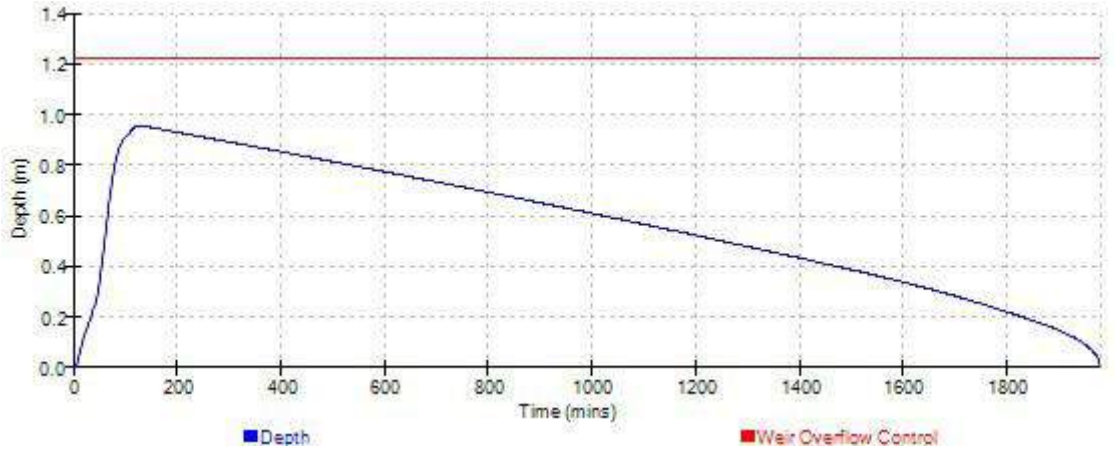




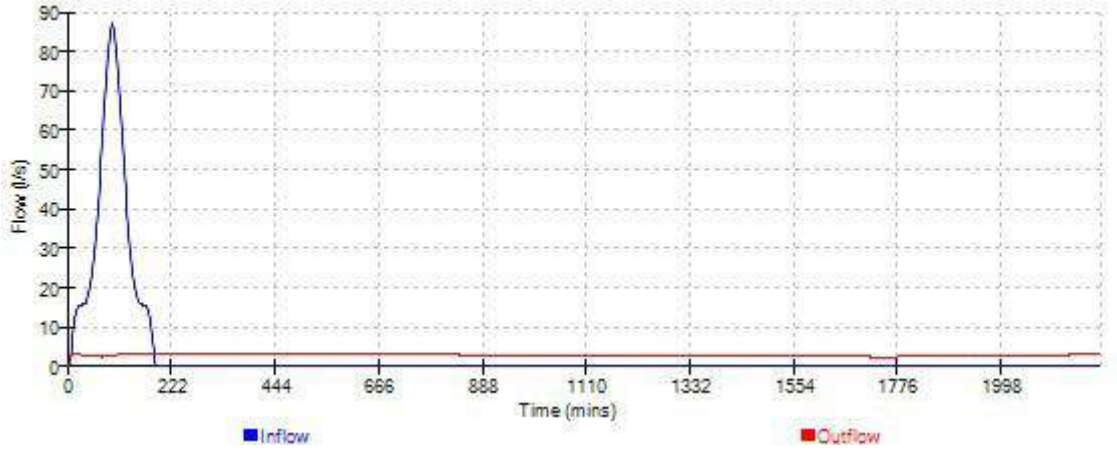
Event: 120 min Winter

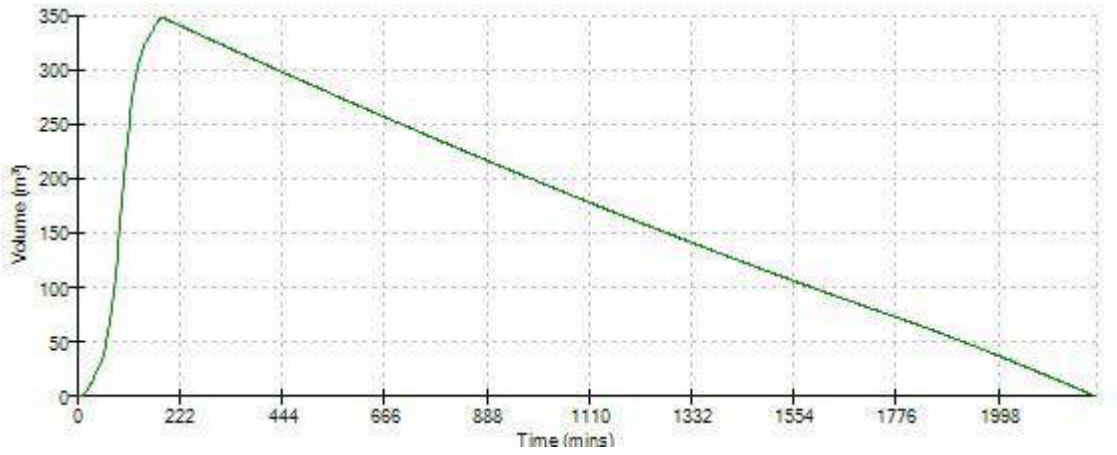


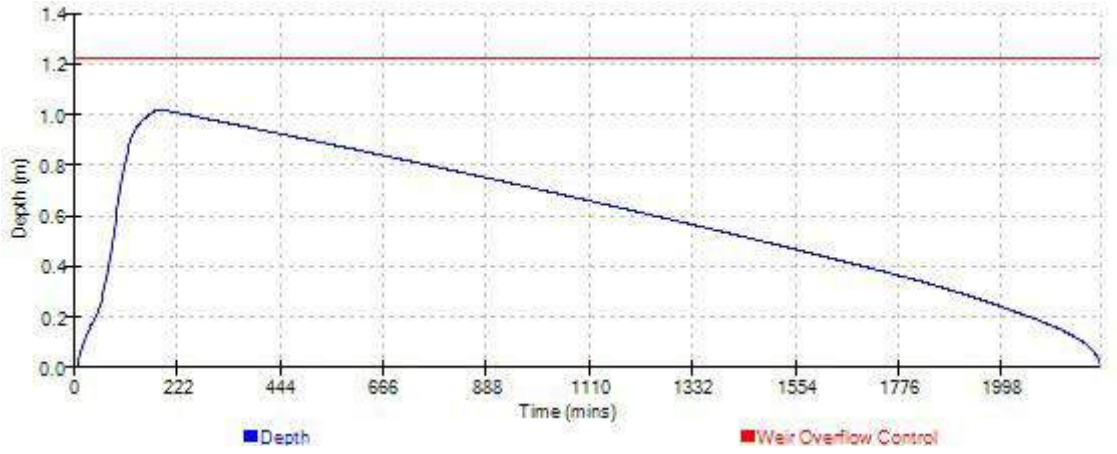




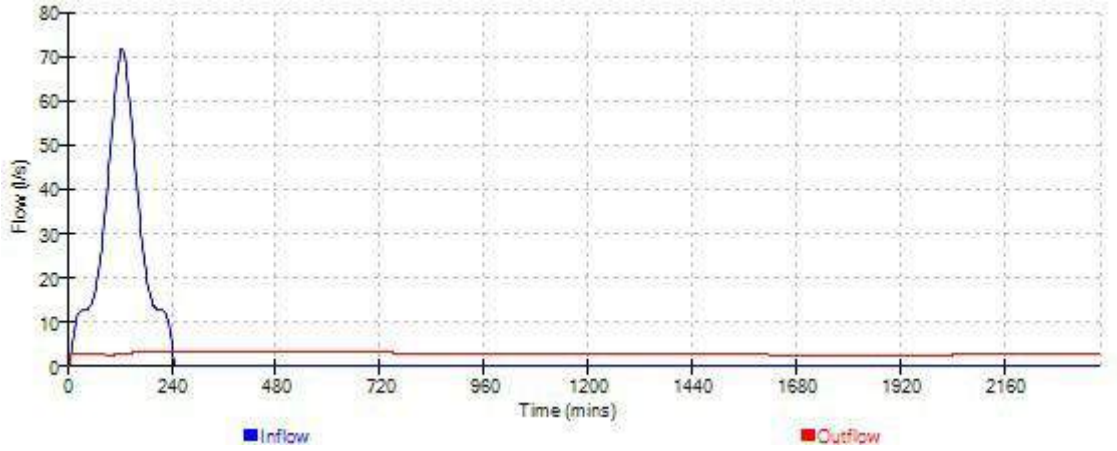
Event: 180 min Winter

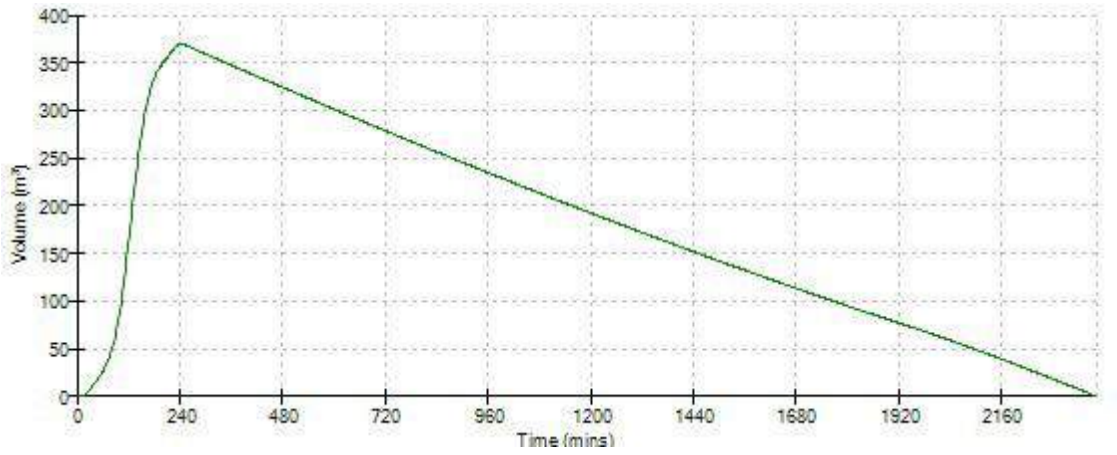


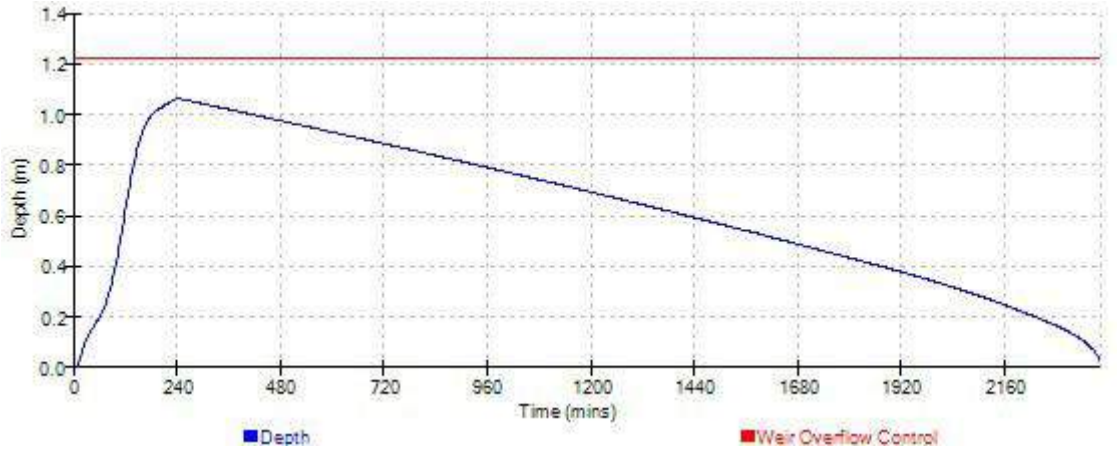




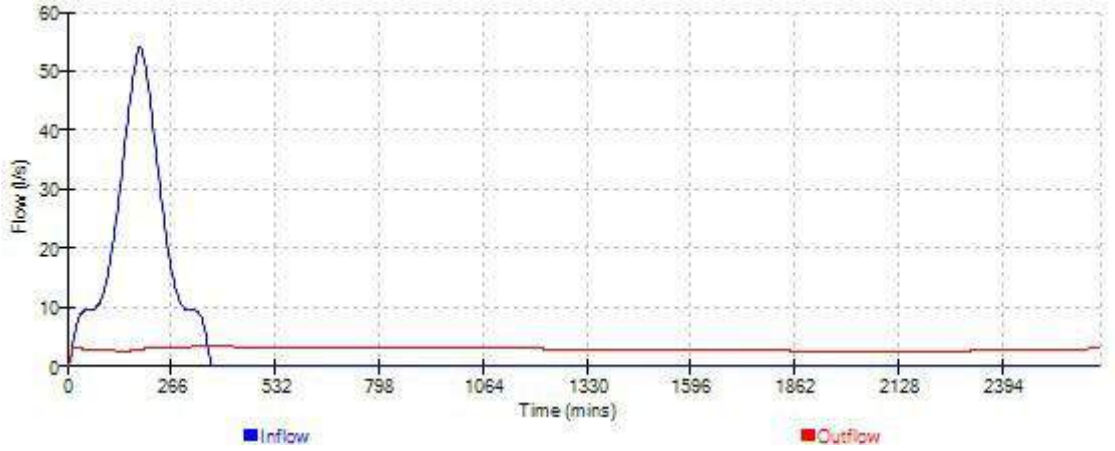
Event: 240 min Winter

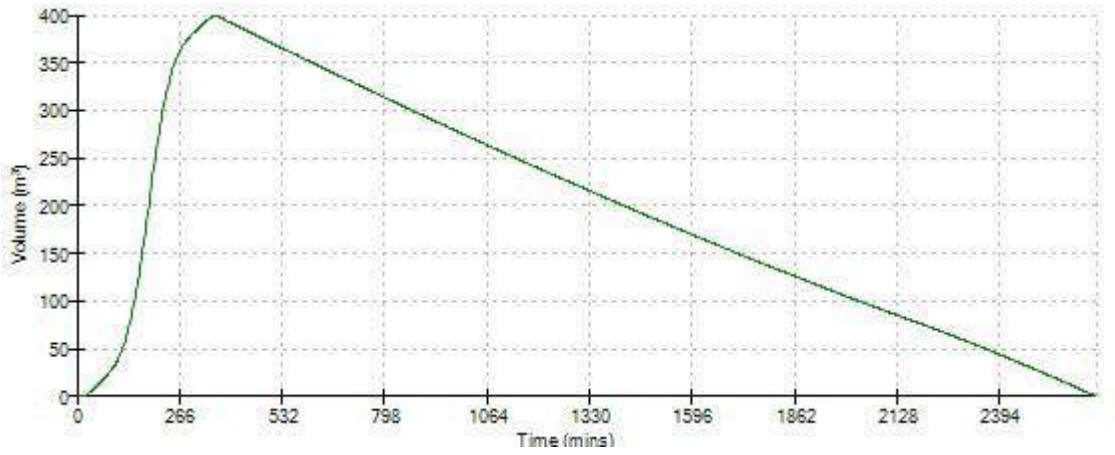


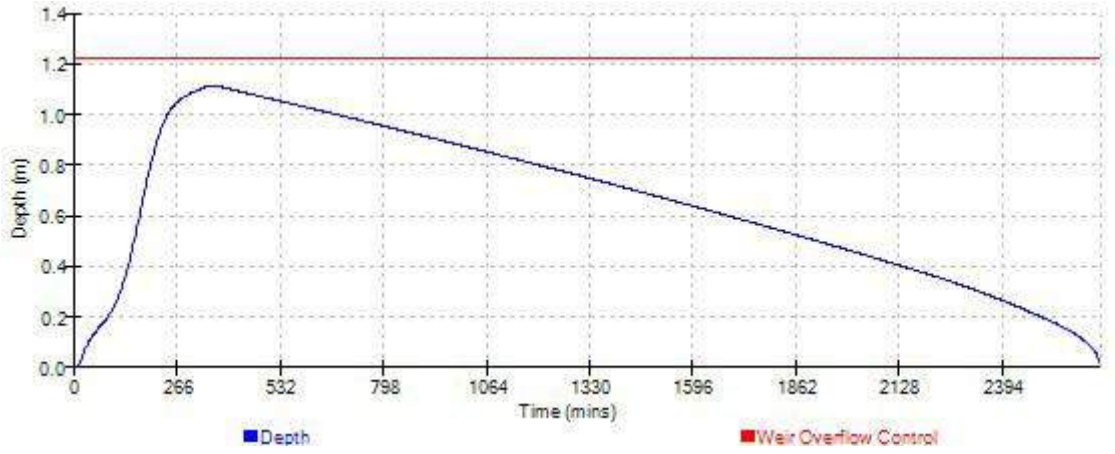




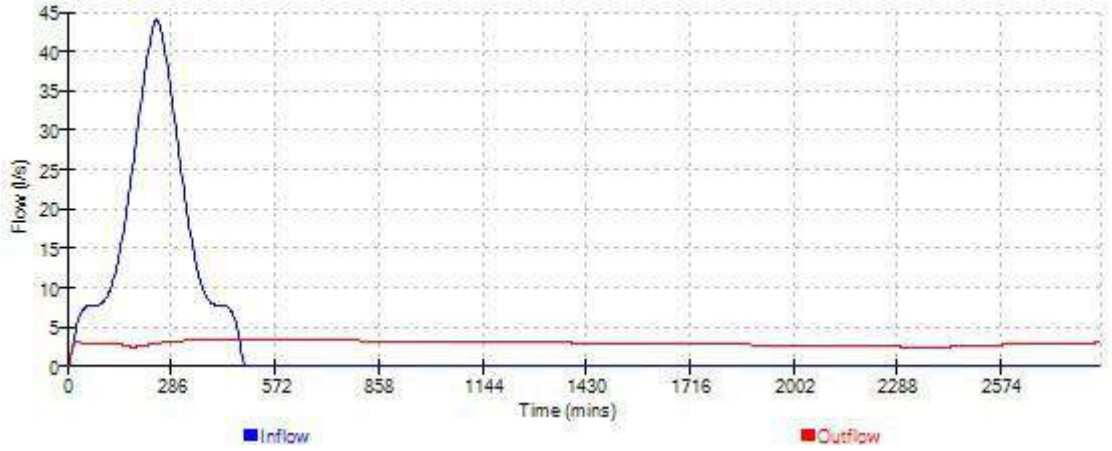
Event: 360 min Winter

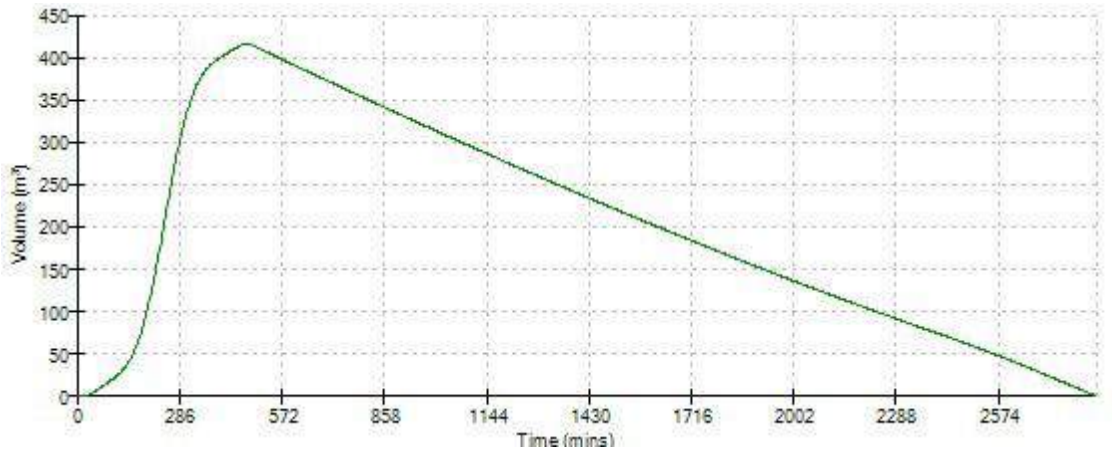


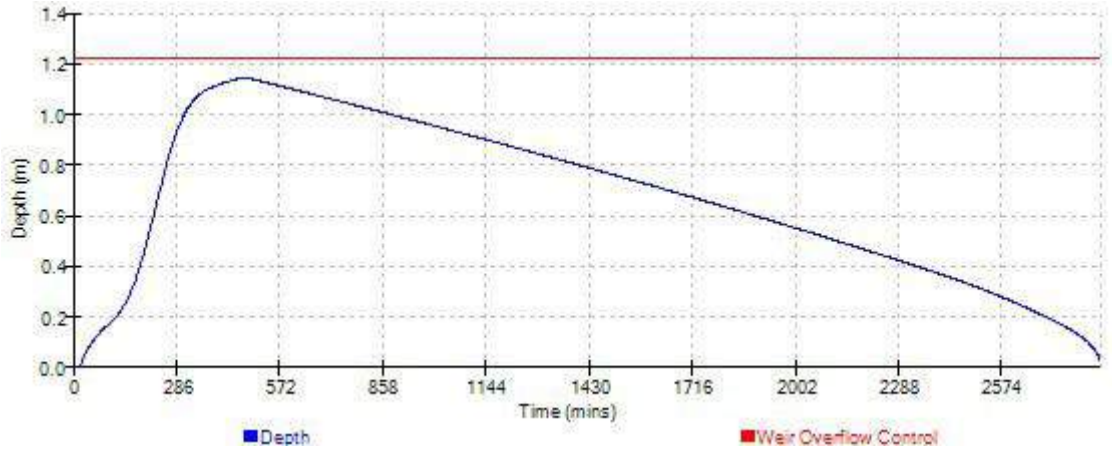




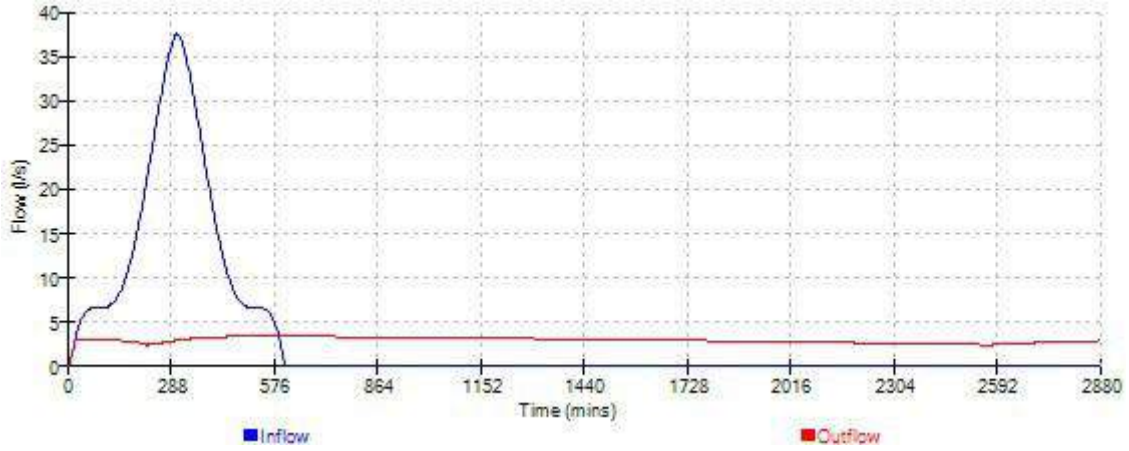
Event: 480 min Winter

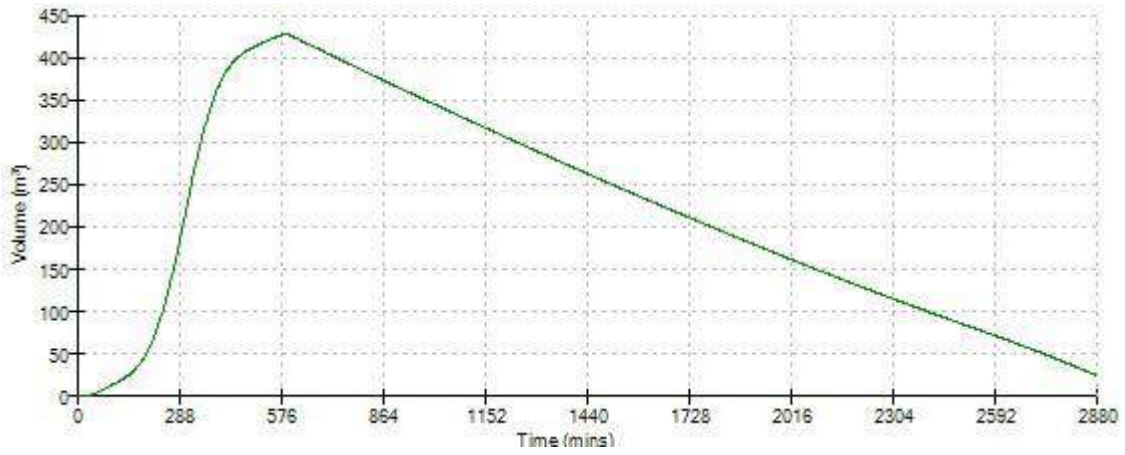


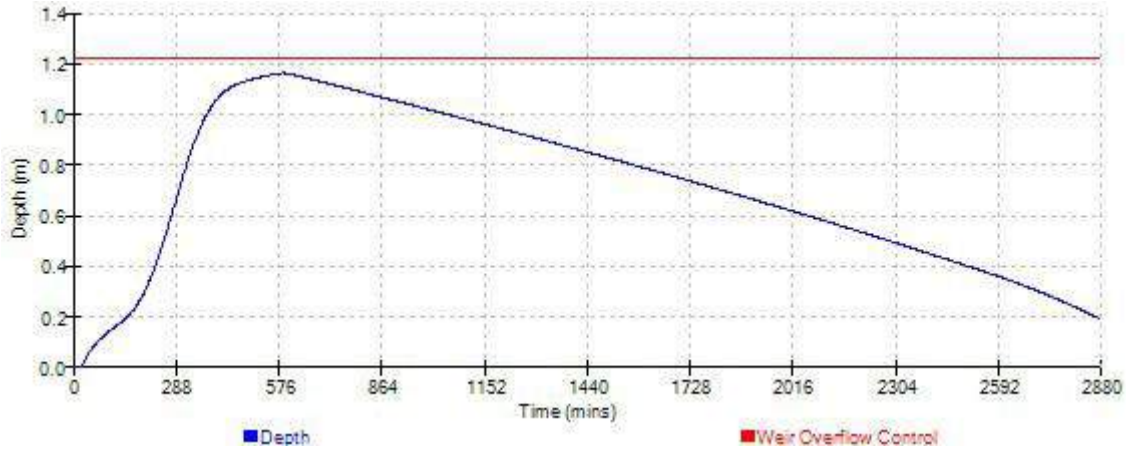




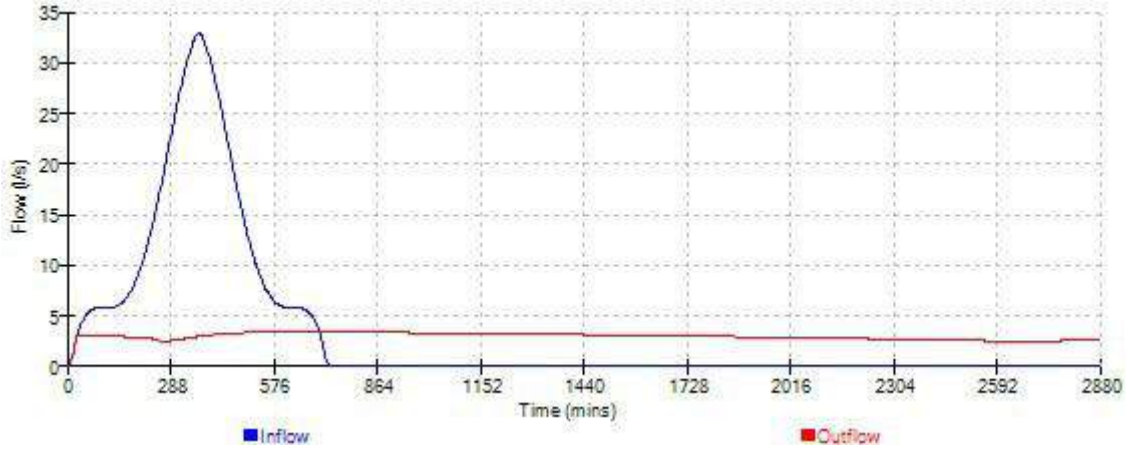
Event: 600 min Winter

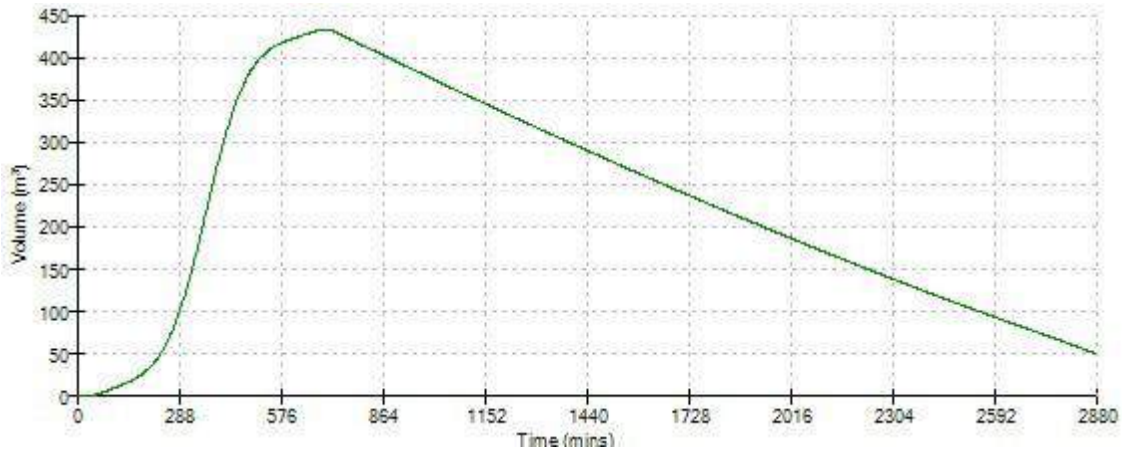


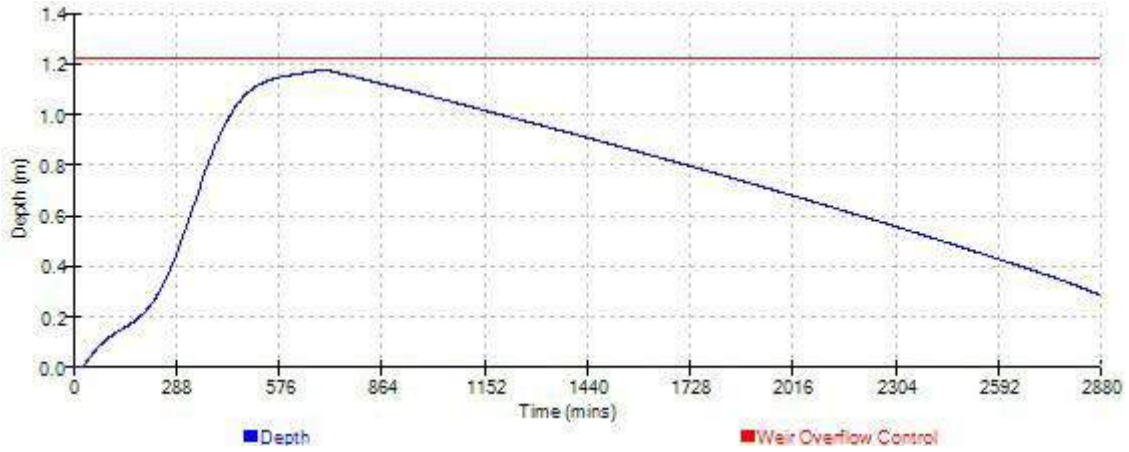




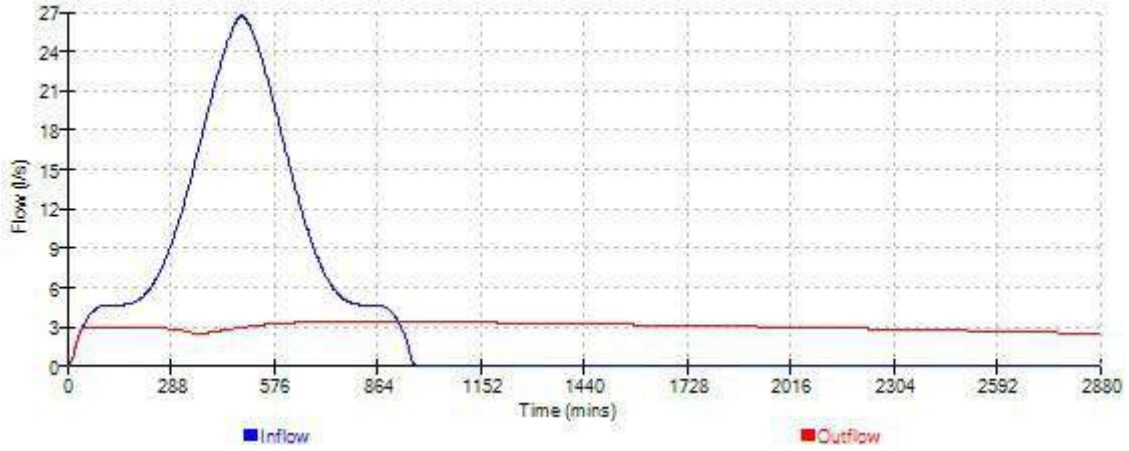
Event: 720 min Winter

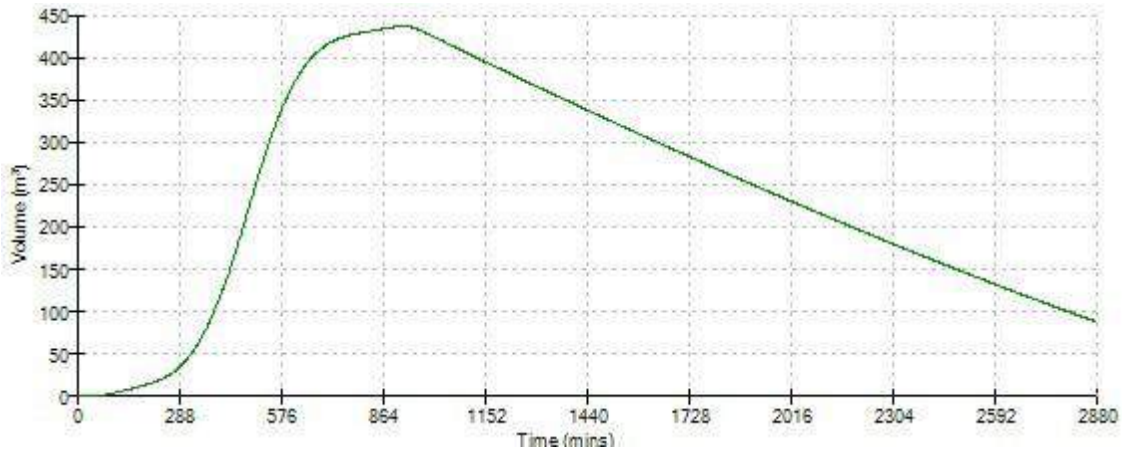




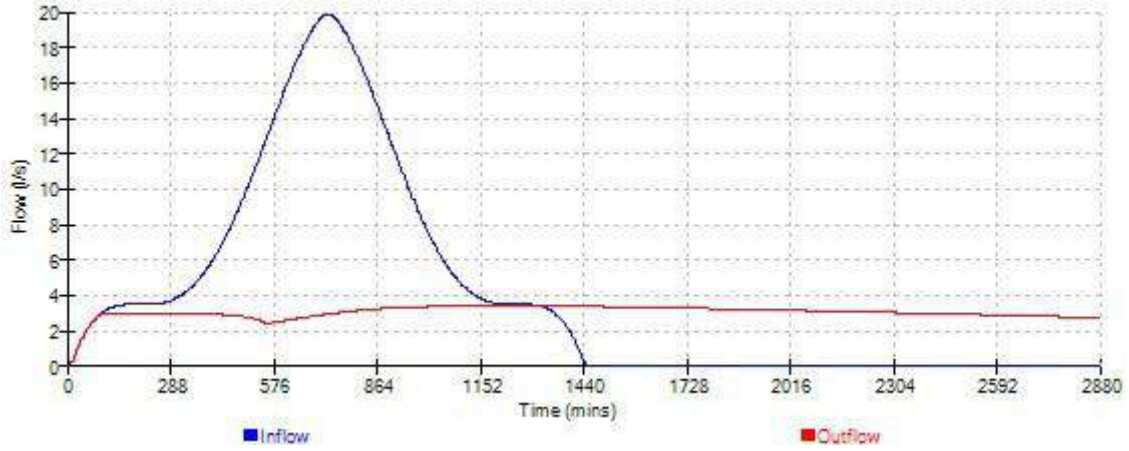


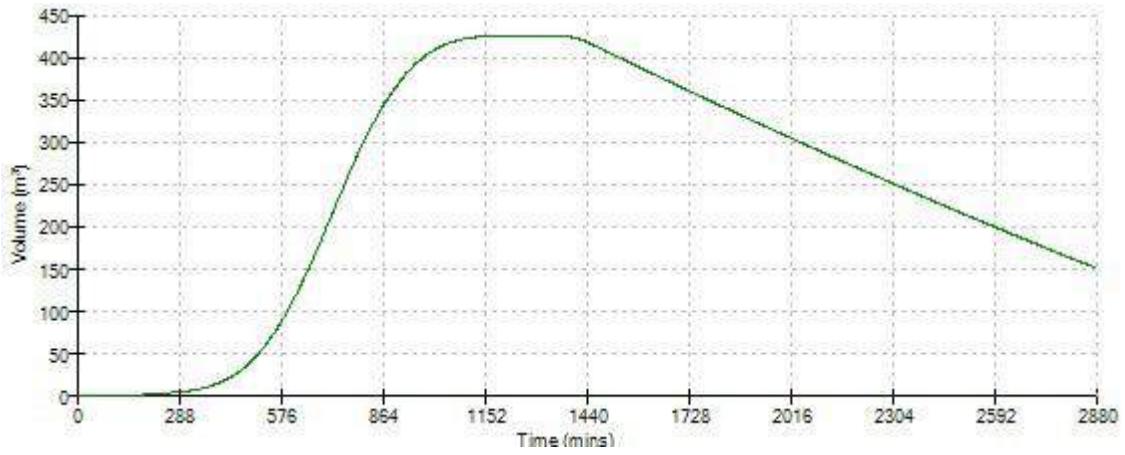
Event: 960 min Winter



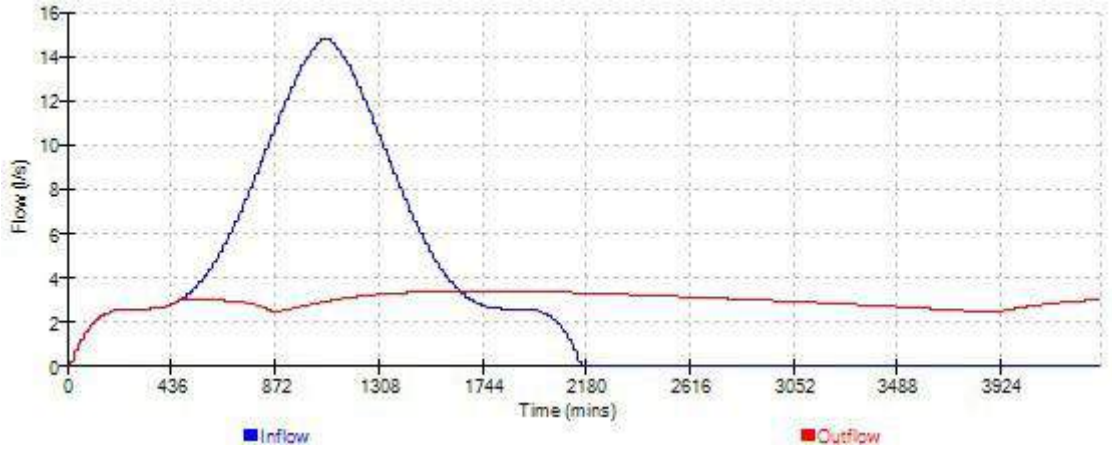


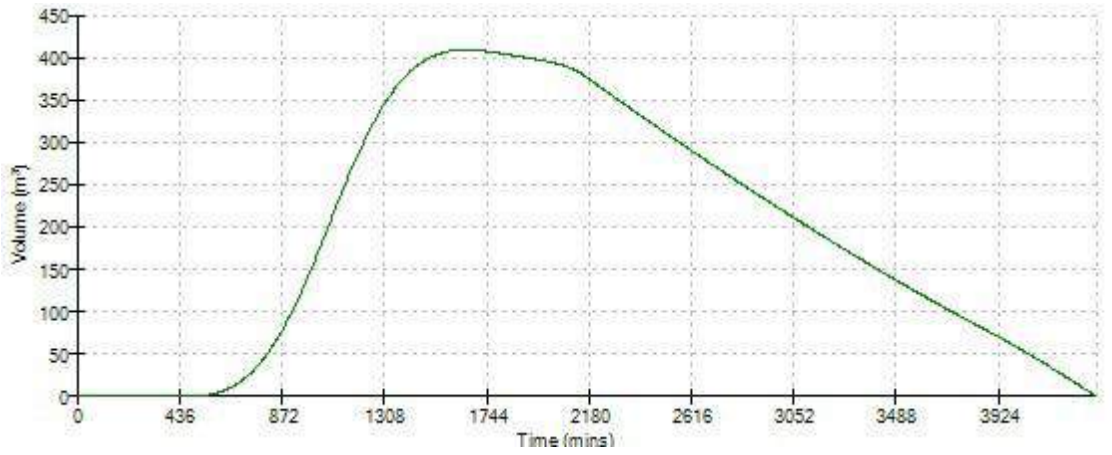
Event: 1440 min Winter



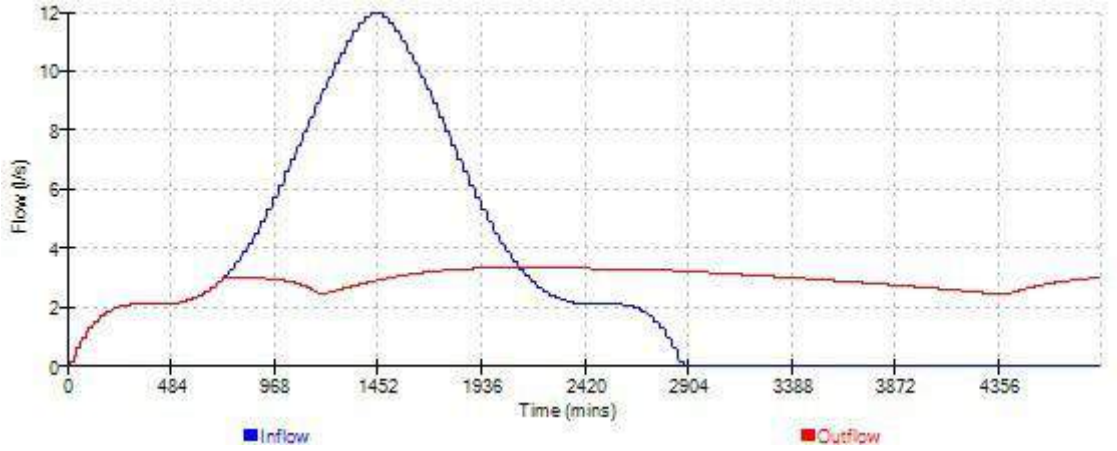


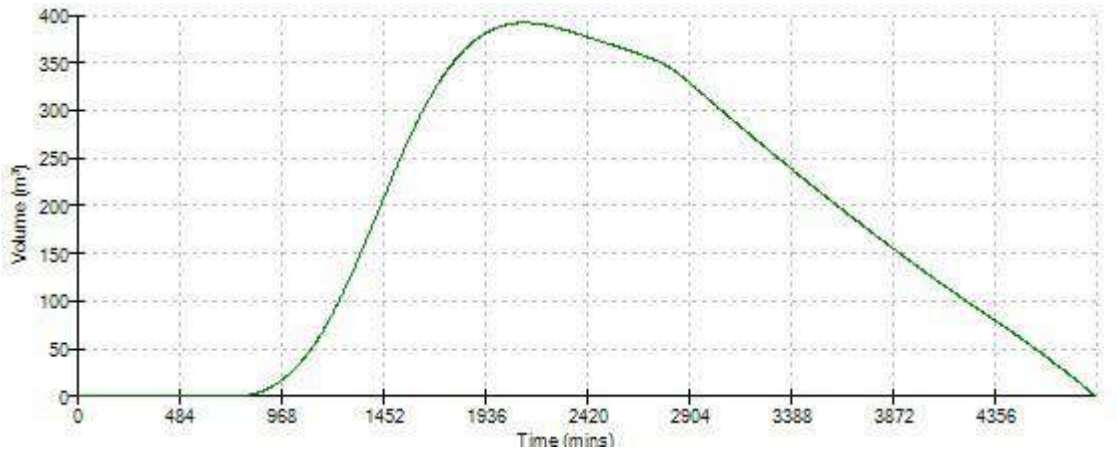
Event: 2160 min Winter

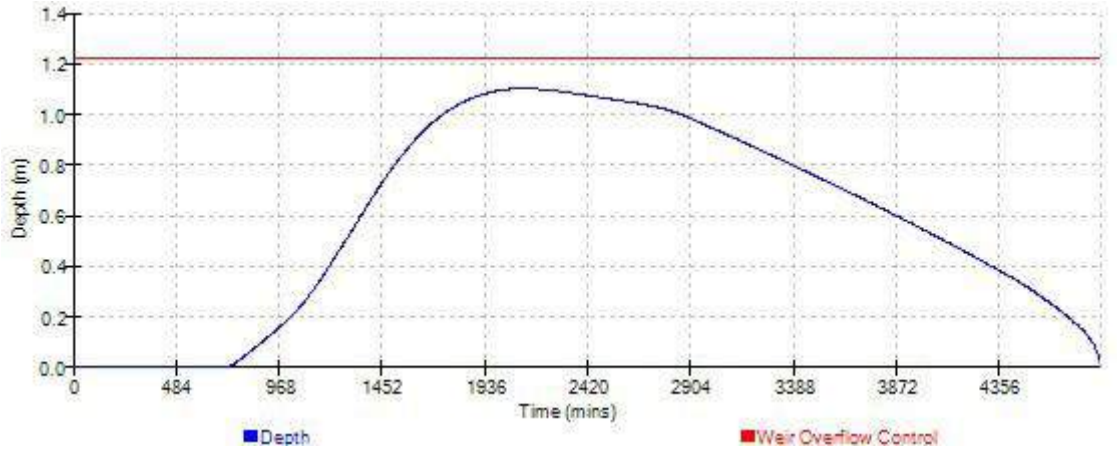




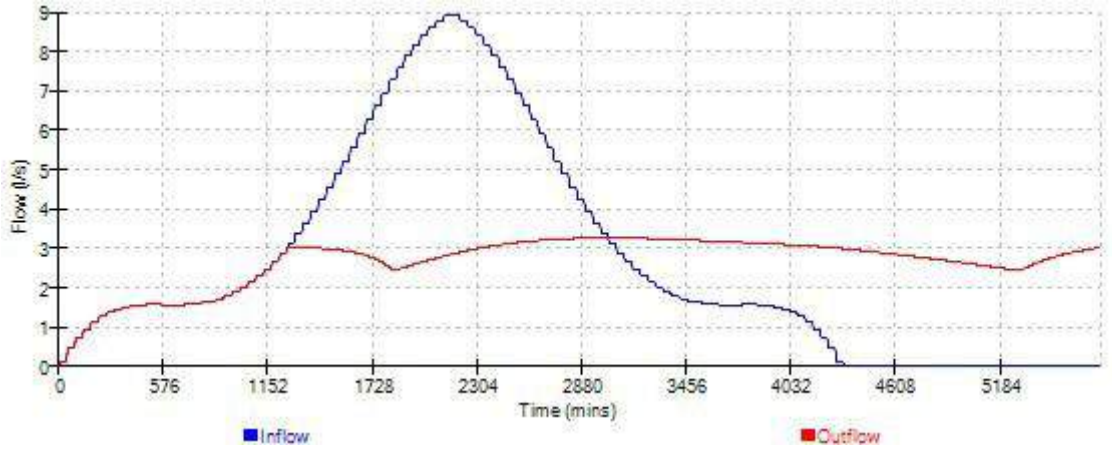
Event: 2880 min Winter

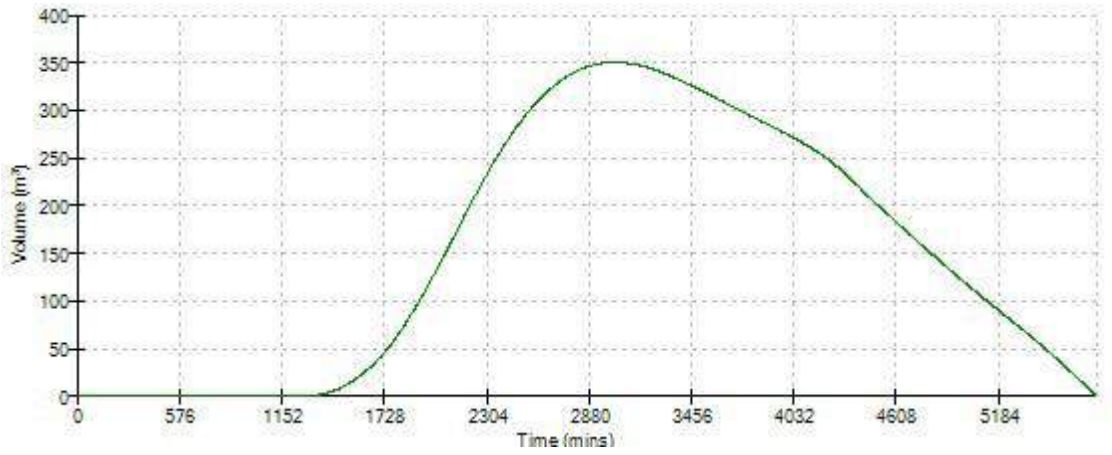


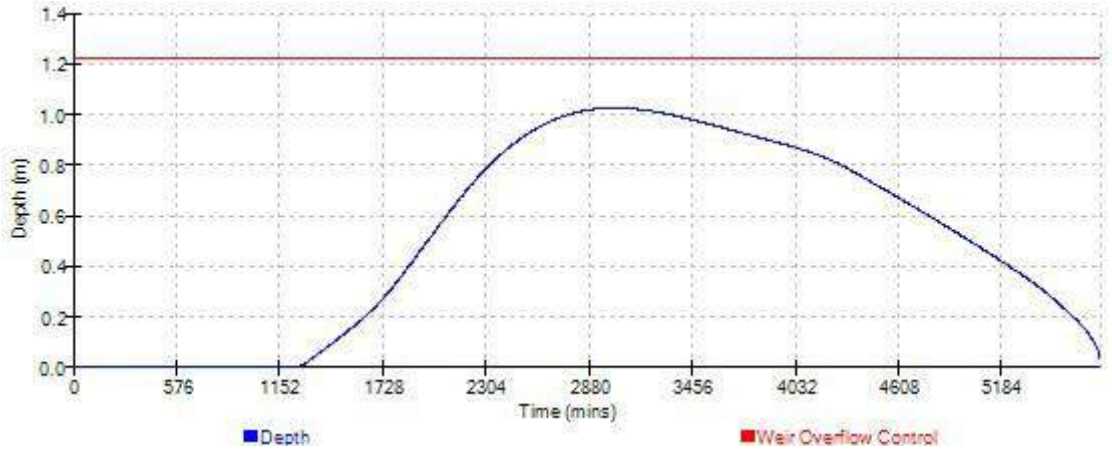




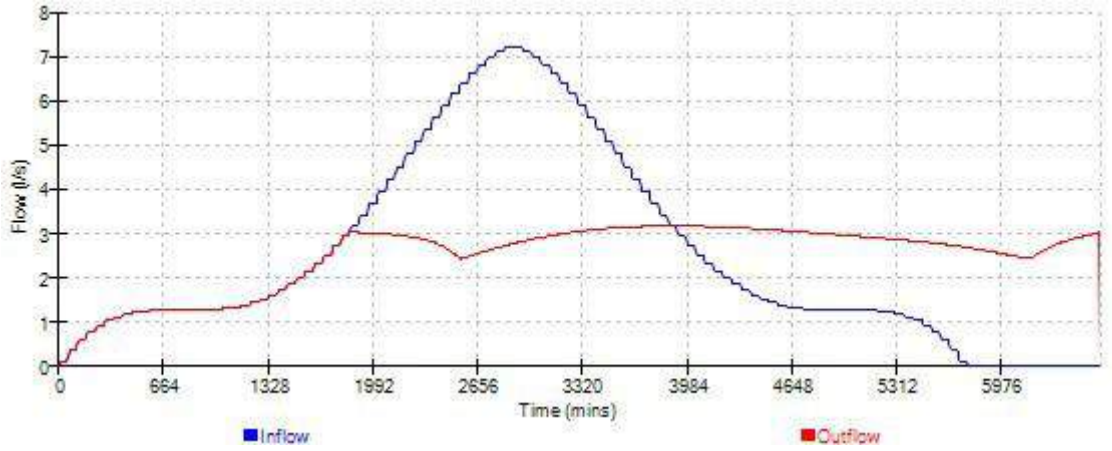
Event: 4320 min Winter

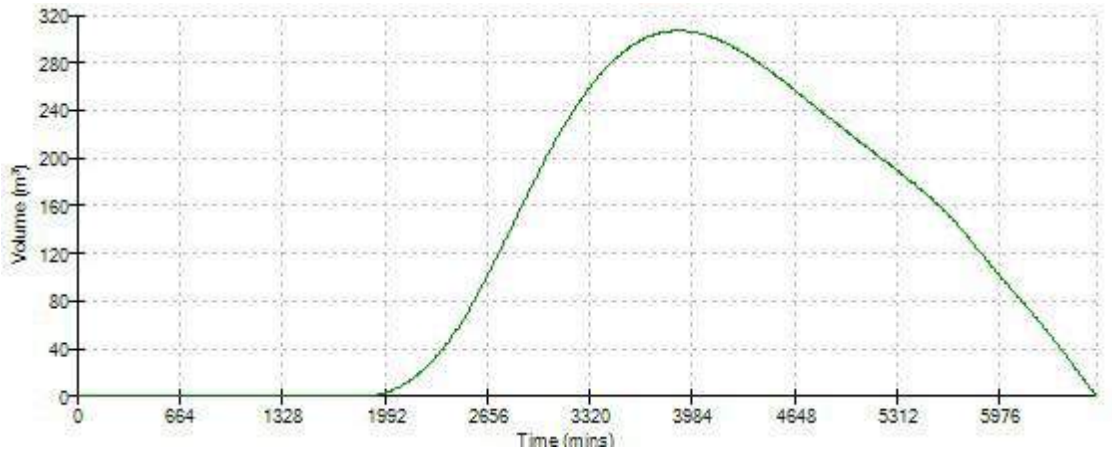


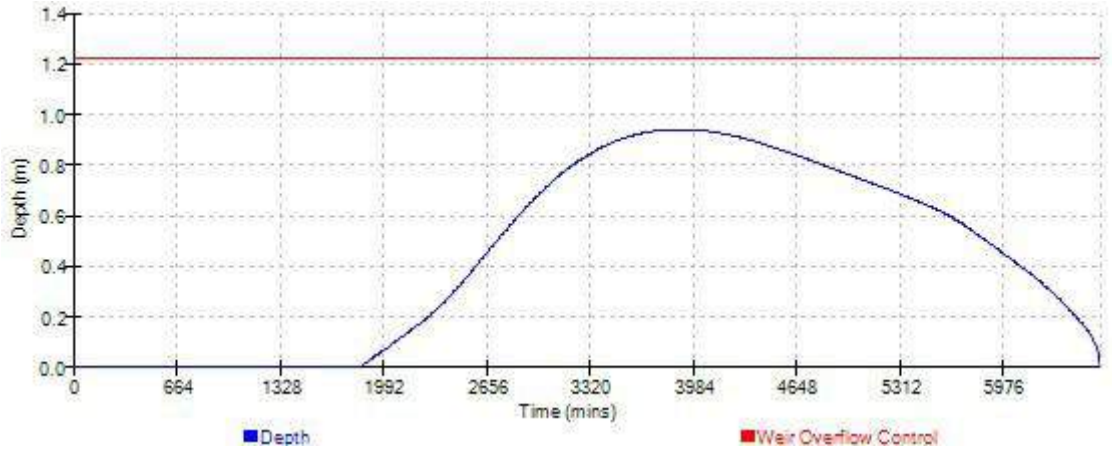




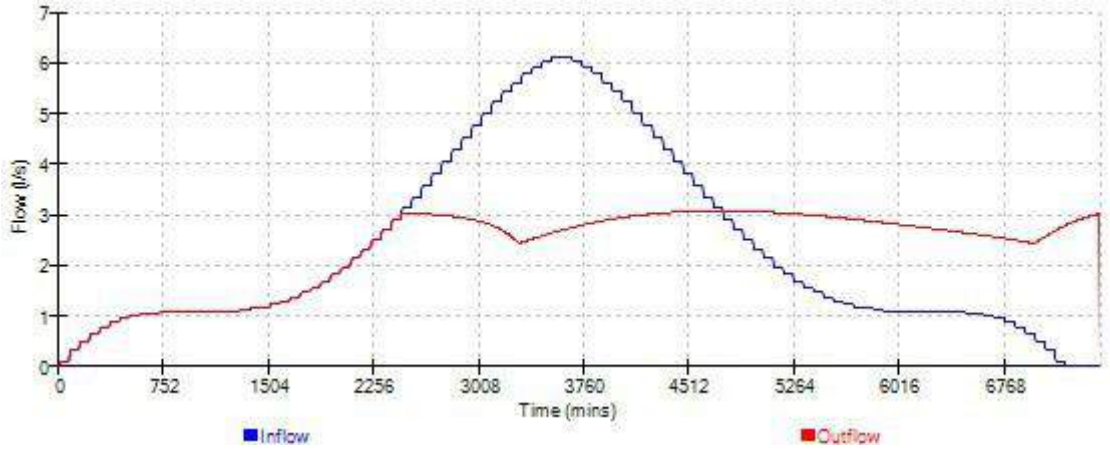
Event: 5760 min Winter

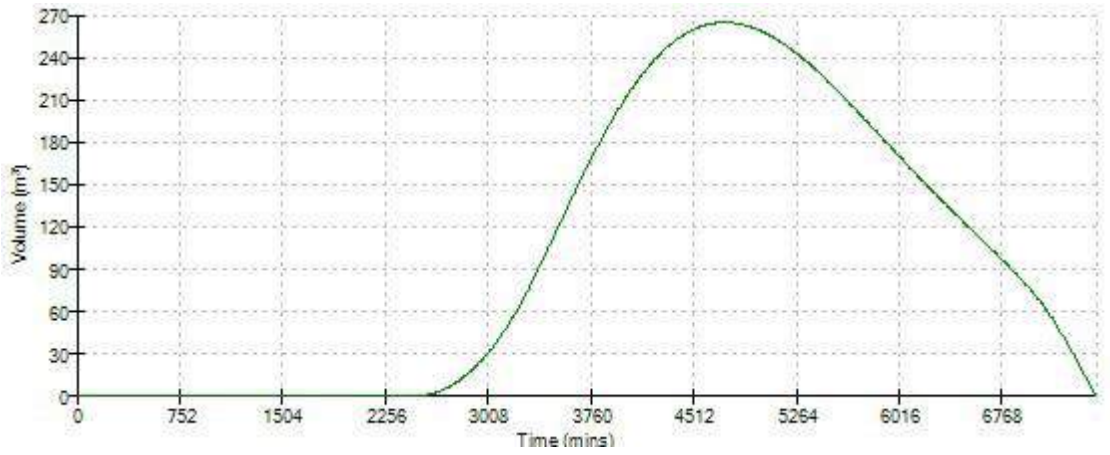


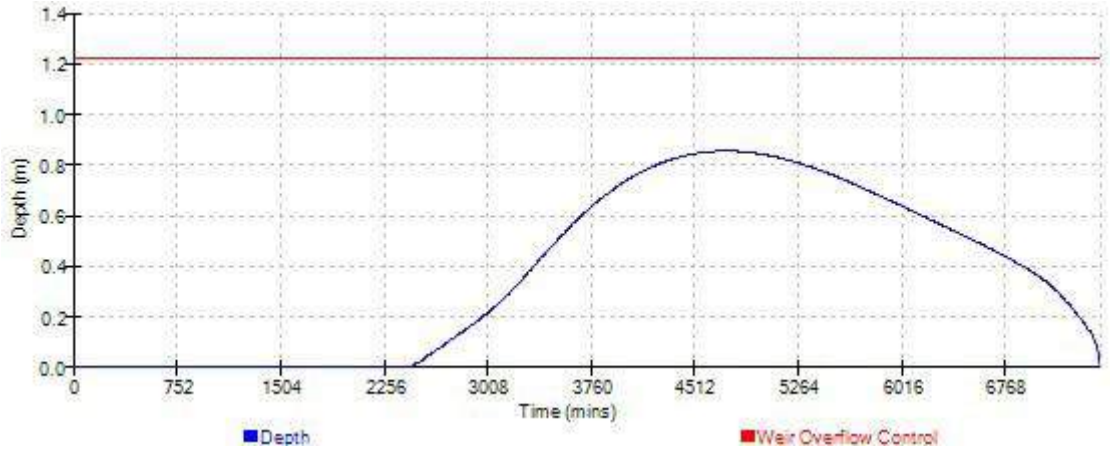




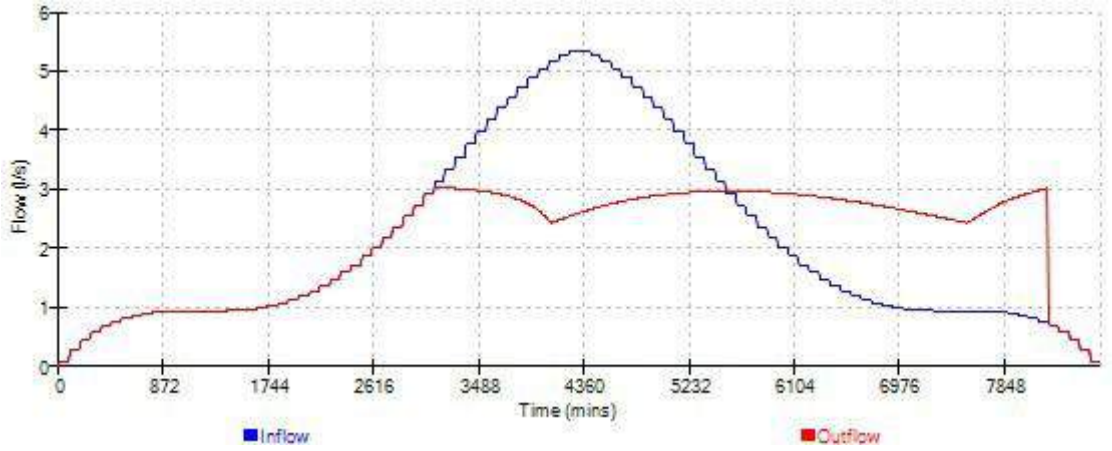
Event: 7200 min Winter

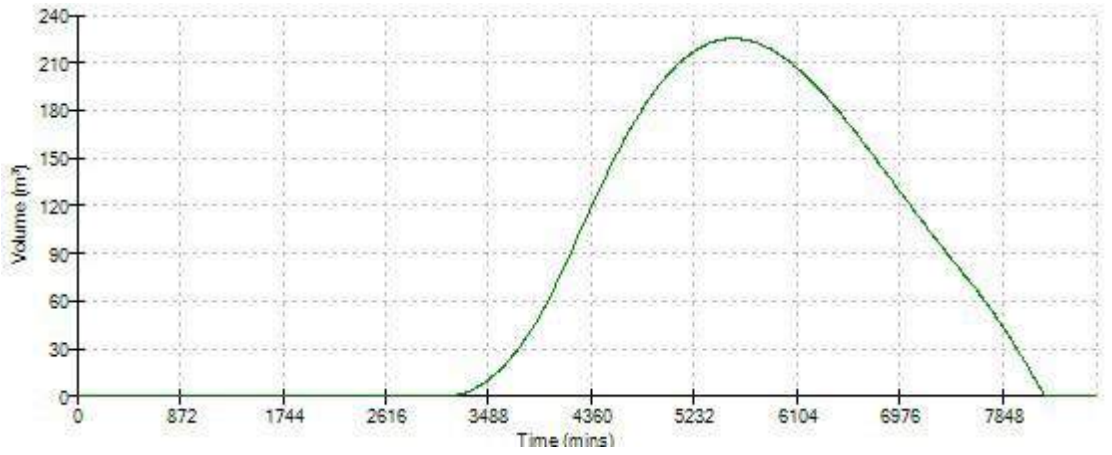


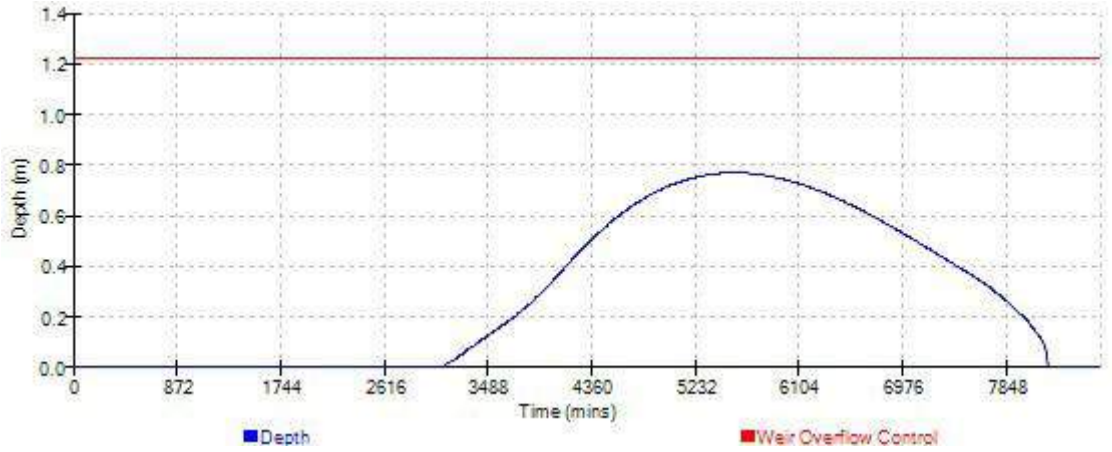




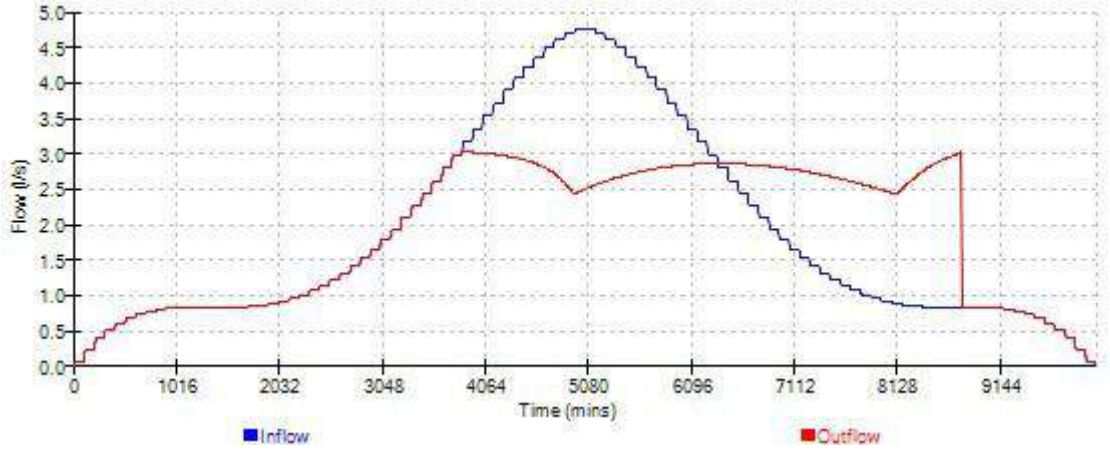
Event: 8640 min Winter

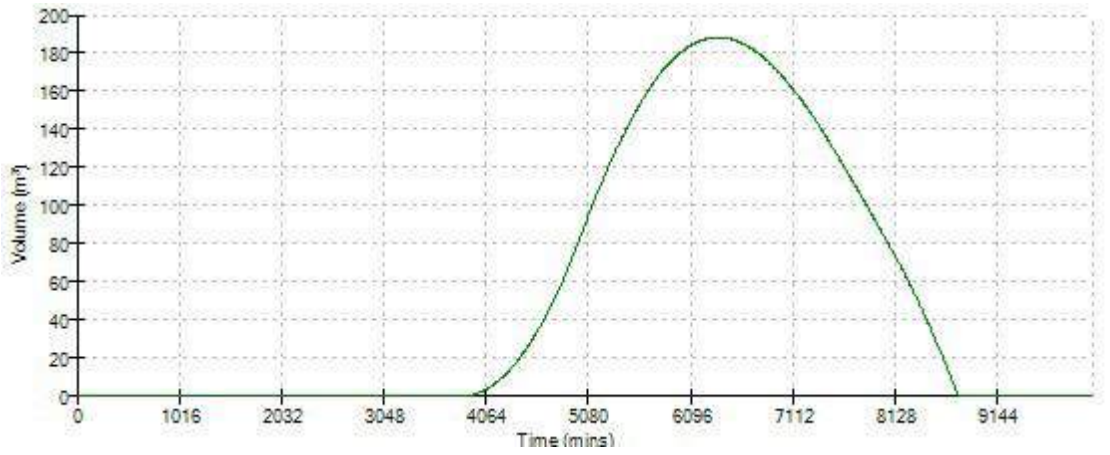


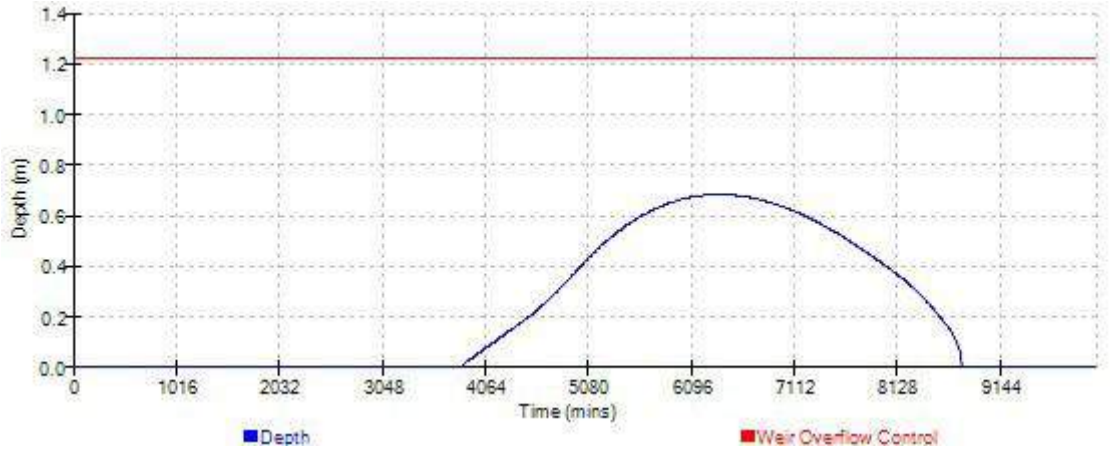




Event: 10080 min Winter







Appendix E.

Hydraflow Output

Channel Report

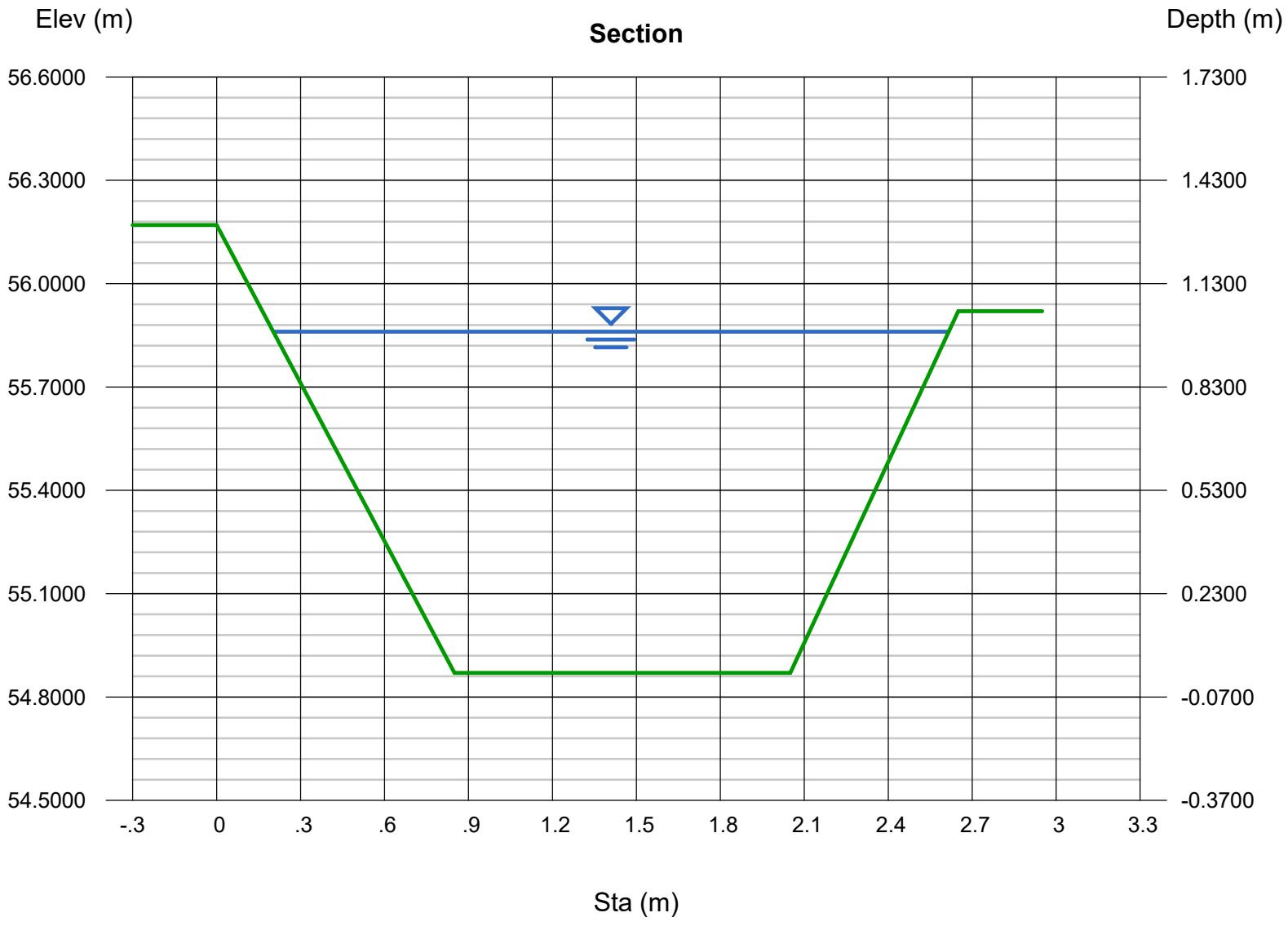
Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Cross Section 1 - 1% AEP +CC

User-defined		Highlighted	
Invert Elev (m)	= 54.8700	Depth (m)	= 0.9906
Slope (%)	= 0.3300	Q (cms)	= 0.9360
N-Value	= 0.070	Area (sqm)	= 1.7899
		Velocity (m/s)	= 0.5229
Calculations		Wetted Perim (m)	= 3.5245
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.3719
Known Q (cms)	= 0.9360	Top Width (m)	= 2.4138
		EGL (m)	= 1.0045

(Sta, El, n)-(Sta, El, n)...

(0.0000, 56.1700)-(0.8500, 54.8700, 0.070)-(2.0500, 54.8700, 0.070)-(2.6500, 55.9200, 0.070)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Cross Section 2 - 1% AEP +CC

User-defined

Invert Elev (m)	= 55.4390
Slope (%)	= 1.8600
N-Value	= 0.070

Calculations

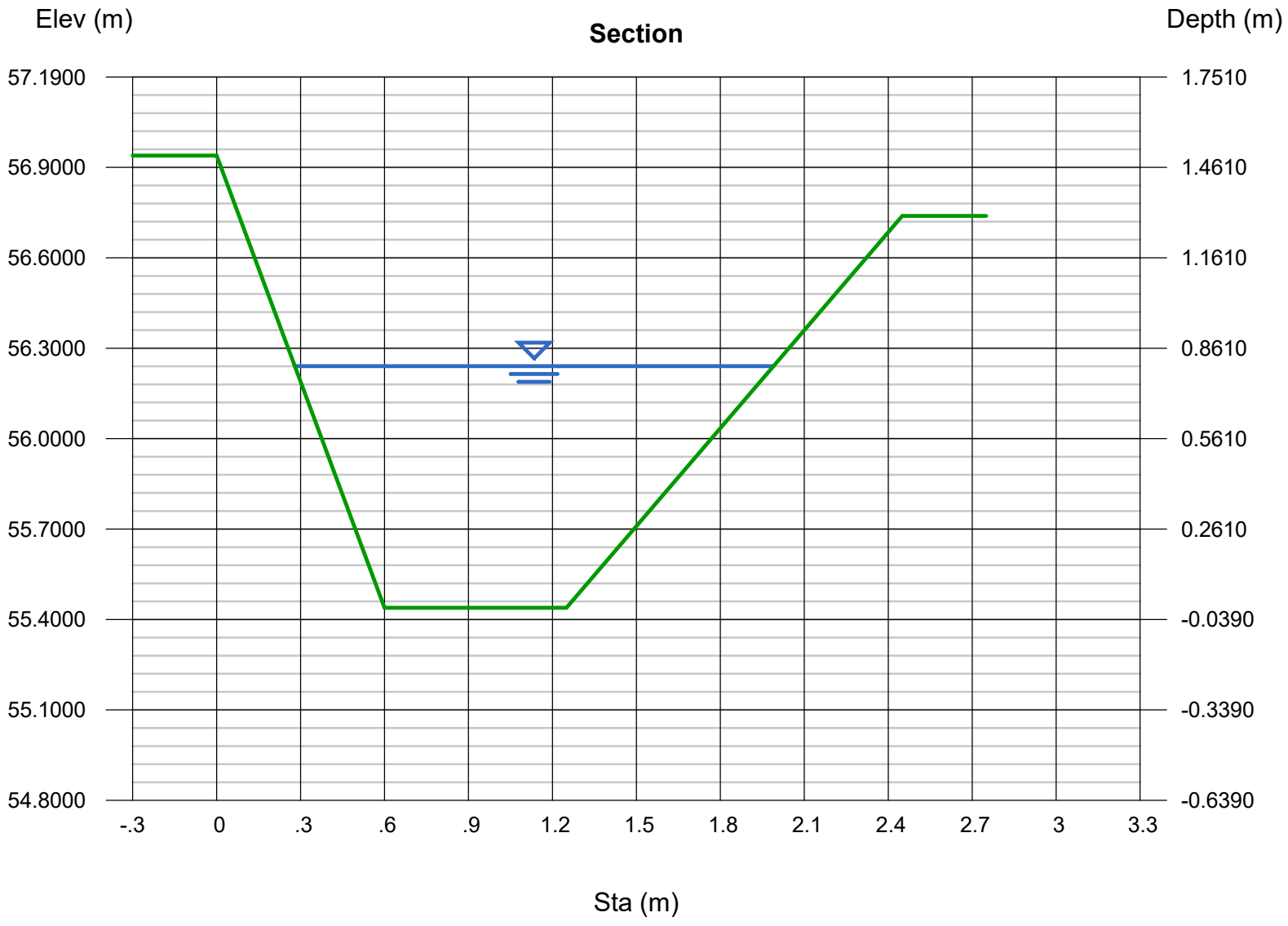
Compute by:	Known Q
Known Q (cms)	= 0.9360

Highlighted

Depth (m)	= 0.8016
Q (cms)	= 0.9360
Area (sqm)	= 0.9462
Velocity (m/s)	= 0.9893
Wetted Perim (m)	= 2.6043
Crit Depth, Yc (m)	= 0.4999
Top Width (m)	= 1.7106
EGL (m)	= 0.8515

(Sta, El, n)-(Sta, El, n)...

(0.0000, 56.9390)-(0.6000, 55.4390, 0.070)-(1.2500, 55.4390, 0.070)-(2.4500, 56.7390, 0.070)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Cross Section 3 - 1% AEP +CC

User-defined

Invert Elev (m)	= 57.8830
Slope (%)	= 2.1700
N-Value	= 0.070

Calculations

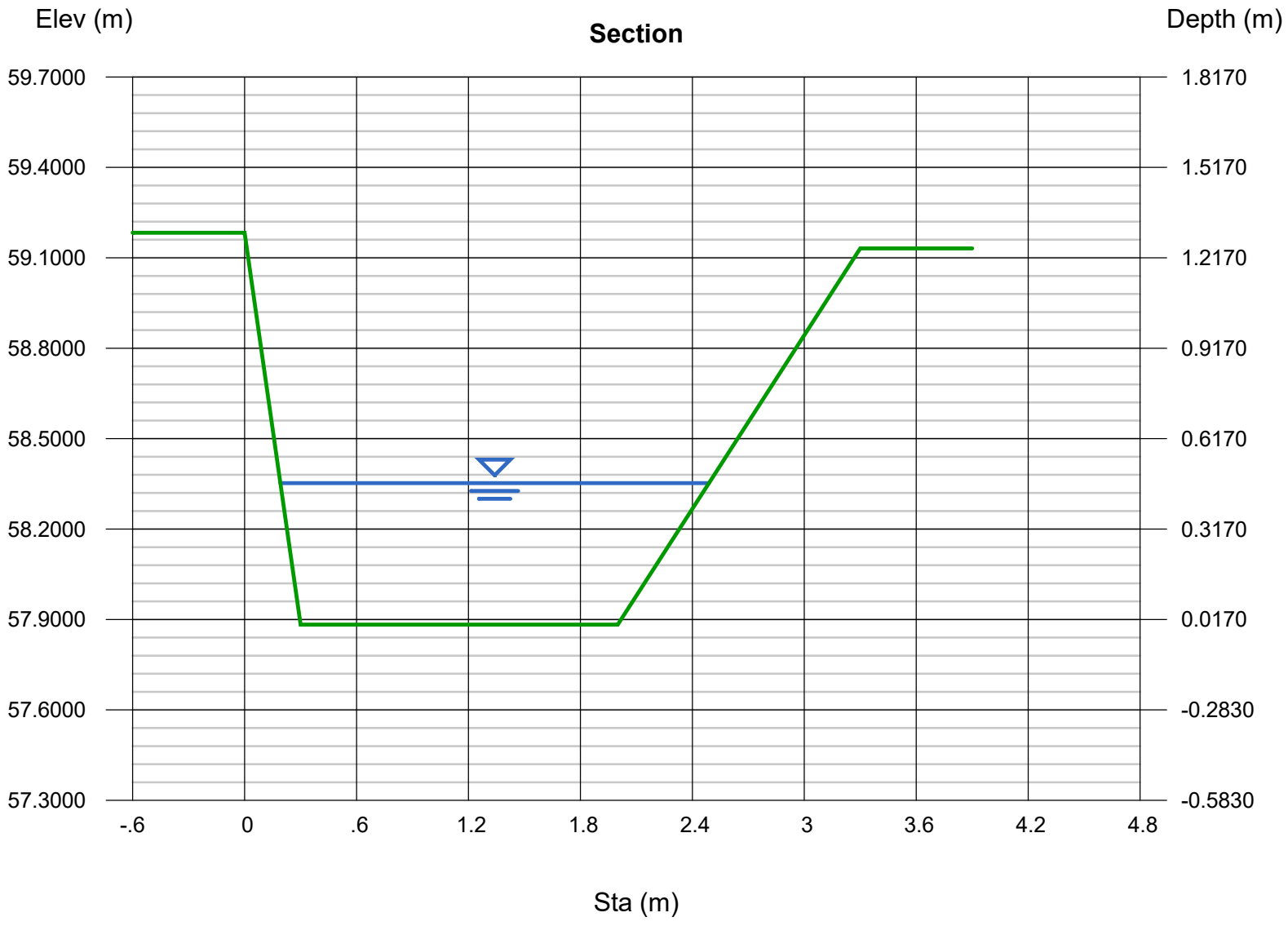
Compute by:	Known Q
Known Q (cms)	= 0.9360

Highlighted

Depth (m)	= 0.4694
Q (cms)	= 0.9360
Area (sqm)	= 0.9381
Velocity (m/s)	= 0.9977
Wetted Perim (m)	= 2.8595
Crit Depth, Yc (m)	= 0.3048
Top Width (m)	= 2.2973
EGL (m)	= 0.5202

(Sta, El, n)-(Sta, El, n)...

(0.0000, 59.1830)-(0.3000, 57.8830, 0.070)-(2.0000, 57.8830, 0.070)-(3.3000, 59.1310, 0.070)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Cross Section 4 - 1% AEP +CC

User-defined

Invert Elev (m)	= 58.9080
Slope (%)	= 0.6800
N-Value	= 0.070

Calculations

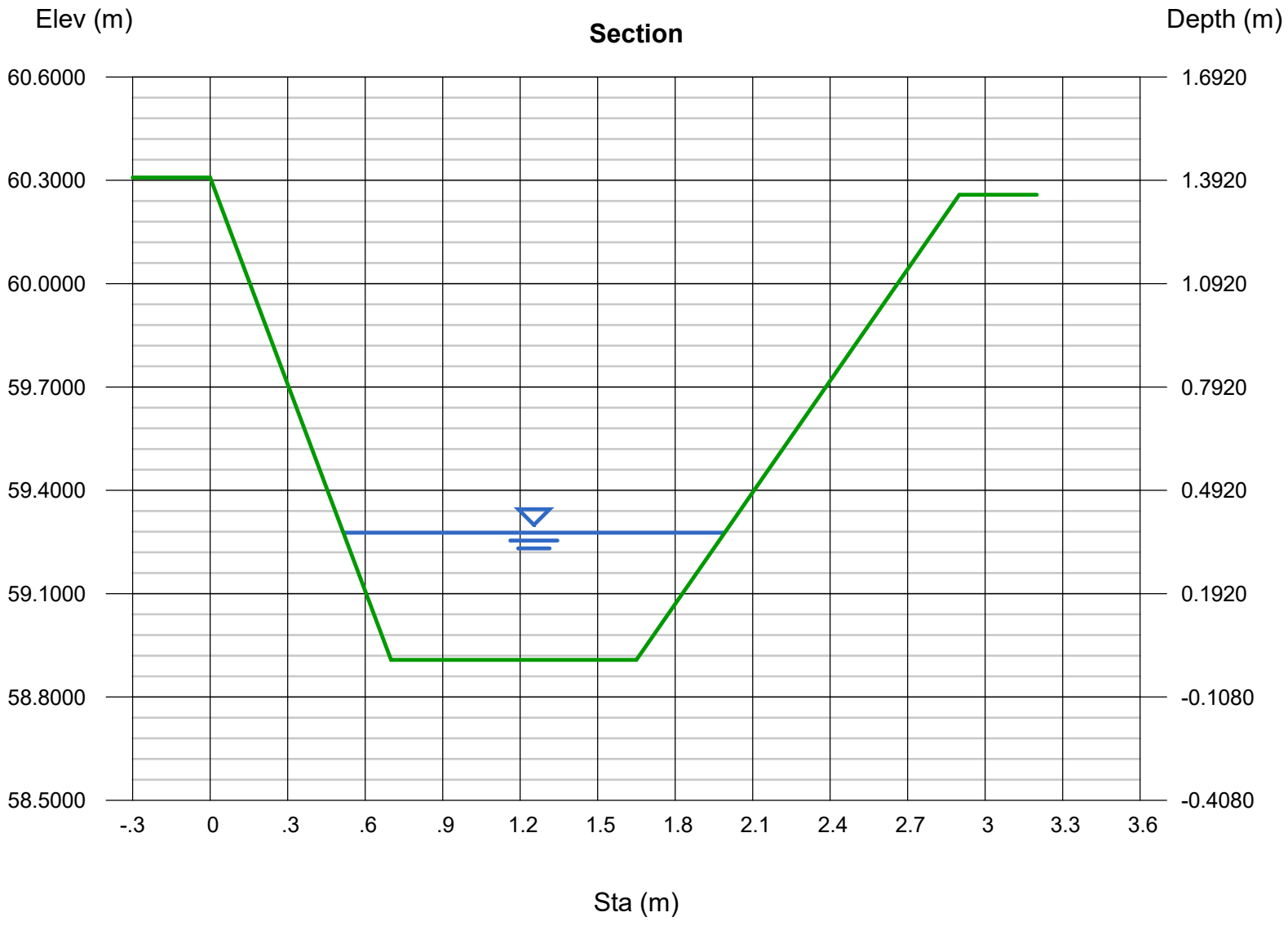
Compute by:	Known Q
Known Q (cms)	= 0.2010

Highlighted

Depth (m)	= 0.3688
Q (cms)	= 0.201
Area (sqm)	= 0.4473
Velocity (m/s)	= 0.4493
Wetted Perim (m)	= 1.8650
Crit Depth, Yc (m)	= 0.1615
Top Width (m)	= 1.4759
EGL (m)	= 0.3791

(Sta, El, n)-(Sta, El, n)...

(0.0000, 60.3080)-(0.7000, 58.9080, 0.070)-(1.6500, 58.9080, 0.070)-(2.9000, 60.2580, 0.070)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Cross Section 5 - 1% AEP +CC

User-defined

Invert Elev (m)	= 59.4170
Slope (%)	= 1.0800
N-Value	= 0.100

Calculations

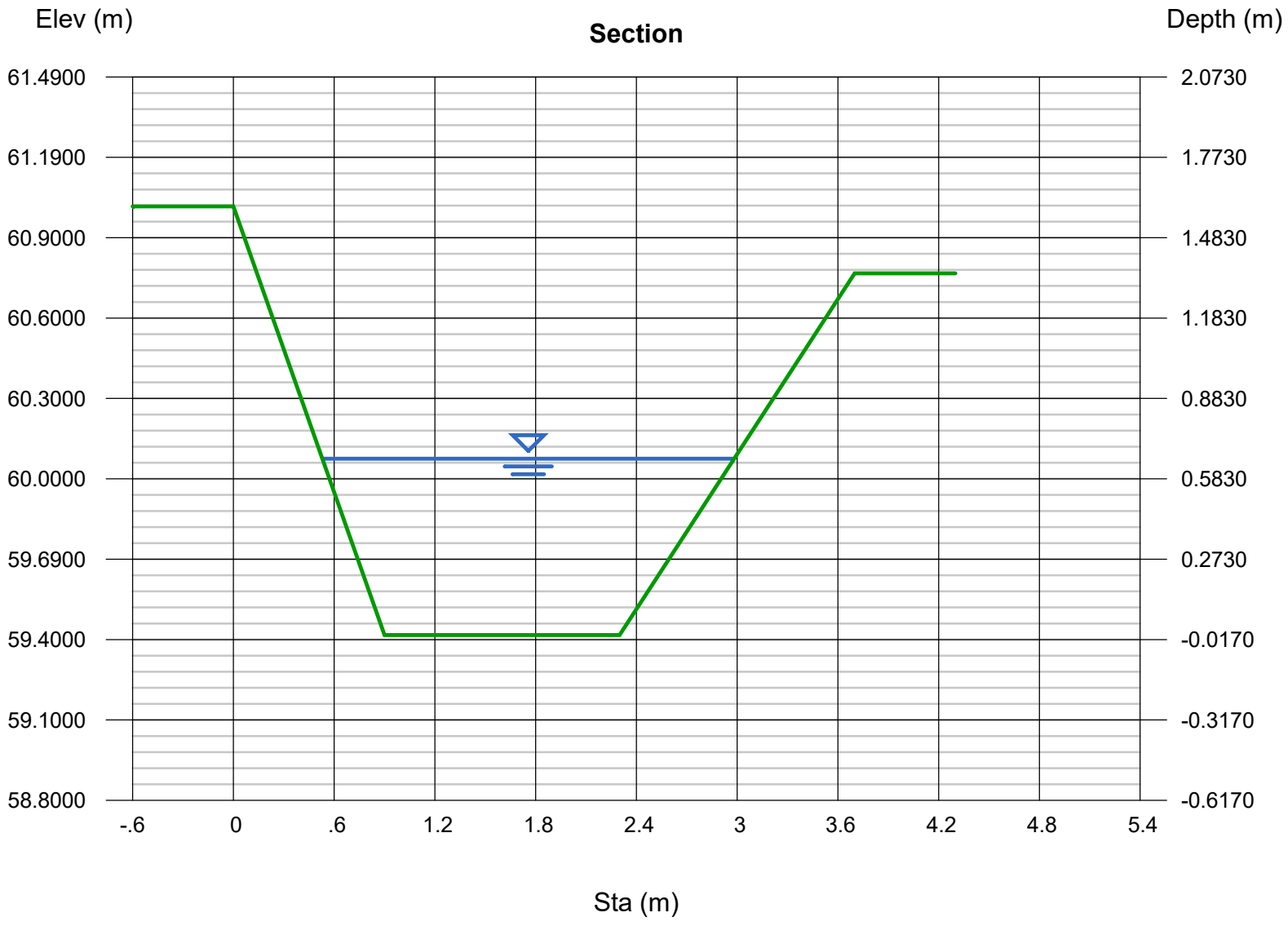
Compute by:	Known Q
Known Q (cms)	= 0.7220

Highlighted

Depth (m)	= 0.6584
Q (cms)	= 0.7220
Area (sqm)	= 1.2684
Velocity (m/s)	= 0.5692
Wetted Perim (m)	= 3.1039
Crit Depth, Yc (m)	= 0.2865
Top Width (m)	= 2.4531
EGL (m)	= 0.6749

(Sta, El, n)-(Sta, El, n)...

(0.0000, 61.0170)-(0.9000, 59.4170, 0.100)-(2.3000, 59.4170, 0.100)-(3.7000, 60.7670, 0.100)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Cross Section 6 - 1% AEP +CC

User-defined

Invert Elev (m)	= 60.6040
Slope (%)	= 0.3400
N-Value	= 0.100

Calculations

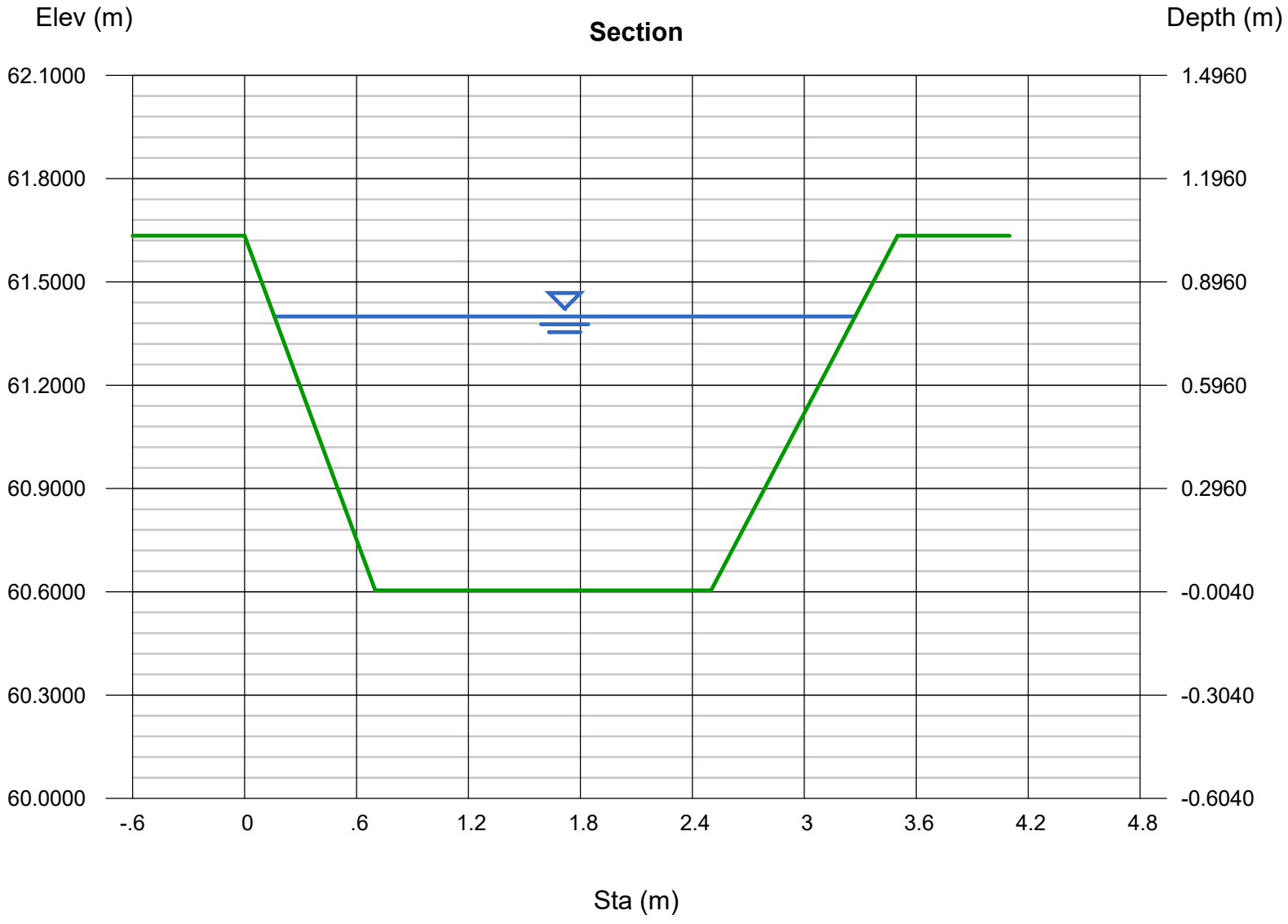
Compute by:	Known Q
Known Q (cms)	= 0.7220

Highlighted

Depth (m)	= 0.7955
Q (cms)	= 0.7220
Area (sqm)	= 1.9542
Velocity (m/s)	= 0.3695
Wetted Perim (m)	= 3.8706
Crit Depth, Yc (m)	= 0.2469
Top Width (m)	= 3.1130
EGL (m)	= 0.8025

(Sta, El, n)-(Sta, El, n)...

(0.0000, 61.6340)-(0.7000, 60.6040, 0.100)-(2.5000, 60.6040, 0.100)-(3.5000, 61.6340, 0.100)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Cross Section 8 - 1% AEP +CC

User-defined

Invert Elev (m)	= 61.7280
Slope (%)	= 1.8400
N-Value	= 0.100

Calculations

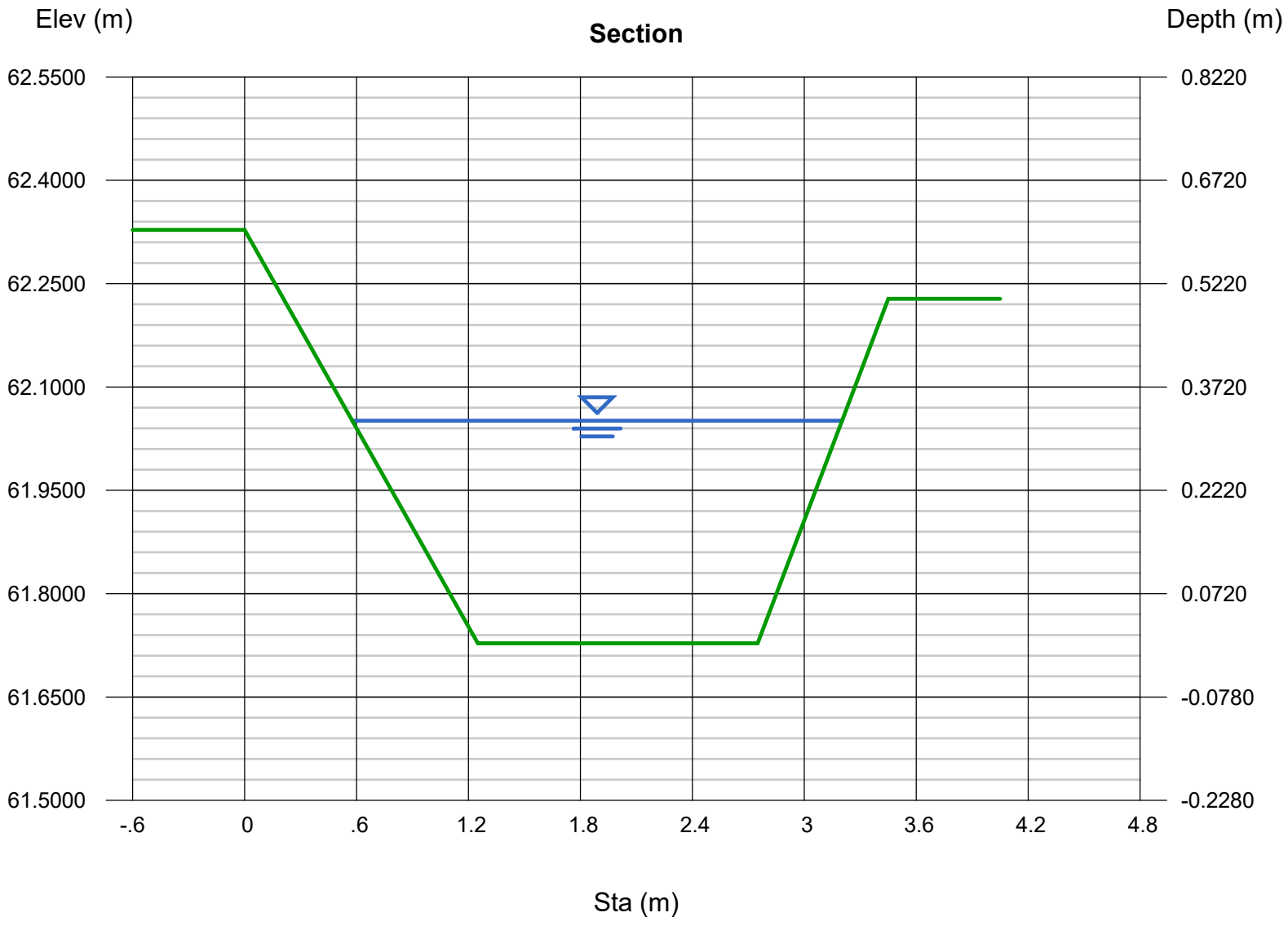
Compute by:	Known Q
Known Q (cms)	= 0.3460

Highlighted

Depth (m)	= 0.3231
Q (cms)	= 0.3460
Area (sqm)	= 0.6664
Velocity (m/s)	= 0.5192
Wetted Perim (m)	= 2.8025
Crit Depth, Yc (m)	= 0.1646
Top Width (m)	= 2.6254
EGL (m)	= 0.3368

(Sta, El, n)-(Sta, El, n)...

(0.0000, 62.3280)-(1.2500, 61.7280, 0.100)-(2.7500, 61.7280, 0.100)-(3.4500, 62.2280, 0.100)



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Existing Culvert 1 - 1% AEP +CC

Invert Elev Dn (m)	=	58.3920
Pipe Length (m)	=	6.2000
Slope (%)	=	2.7903
Invert Elev Up (m)	=	58.5650
Rise (mm)	=	300.0
Shape	=	Circular
Span (mm)	=	300.0
No. Barrels	=	1
n-Value	=	0.015
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

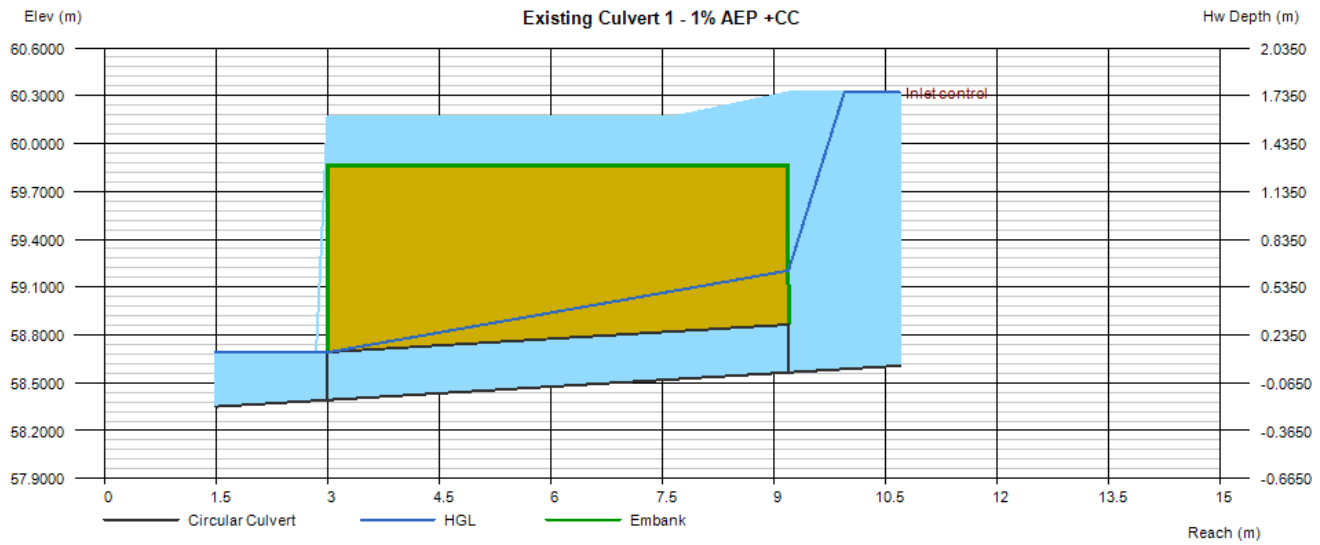
Top Elevation (m)	=	59.8650
Top Width (m)	=	6.1900
Crest Width (m)	=	1.0000

Calculations

Qmin (cms)	=	0.7720
Qmax (cms)	=	0.7720
Tailwater Elev (m)	=	(dc+D)/2

Highlighted

Qtotal (cms)	=	0.7720
Qpipe (cms)	=	0.2442
Qovertop (cms)	=	0.5278
Veloc Dn (m/s)	=	3.4567
Veloc Up (m/s)	=	3.4548
HGL Dn (m)	=	58.6906
HGL Up (m)	=	59.2033
Hw Elev (m)	=	60.3203
Hw/D (m)	=	5.8510
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Mar 13 2024

Proposed Culvert 1 - 1% AEP +CC

Invert Elev Dn (m)	=	58.3920
Pipe Length (m)	=	6.2000
Slope (%)	=	2.7903
Invert Elev Up (m)	=	58.5650
Rise (mm)	=	800.0
Shape	=	Box
Span (mm)	=	1800.0
No. Barrels	=	1
n-Value	=	0.015
Culvert Type	=	Rectagular Concrete
Culvert Entrance	=	Tapered inlet throat
Coeff. K,M,c,Y,k	=	0.475, 0.667, 0.0179, 0.97, 0.2

Embankment

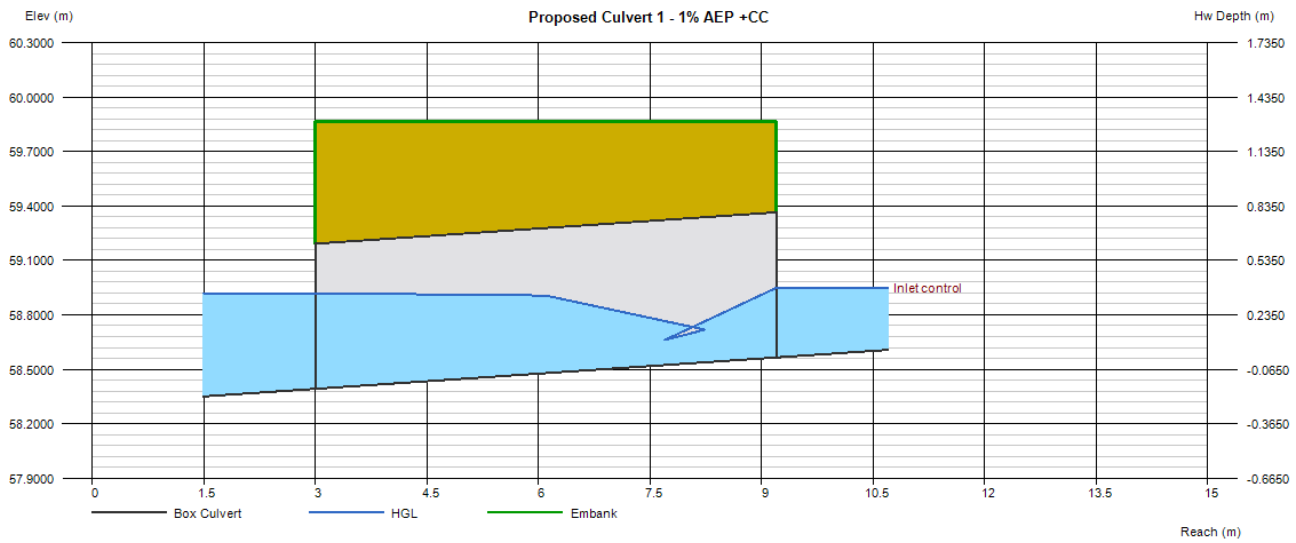
Top Elevation (m)	=	59.8650
Top Width (m)	=	6.1900
Crest Width (m)	=	1.0000

Calculations

Qmin (cms)	=	0.7220
Qmax (cms)	=	0.7220
Tailwater Elev (m)	=	(dc+D)/2

Highlighted

Qtotal (cms)	=	0.7220
Qpipe (cms)	=	0.7220
Qovertop (cms)	=	0.0000
Veloc Dn (m/s)	=	0.7610
Veloc Up (m/s)	=	1.5781
HGL Dn (m)	=	58.9191
HGL Up (m)	=	58.8192
Hw Elev (m)	=	58.9489
Hw/D (m)	=	0.4799
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Proposed Culvert 2 - 1% AEP +CC

Invert Elev Dn (m)	=	60.4710
Pipe Length (m)	=	13.8000
Slope (%)	=	0.7536
Invert Elev Up (m)	=	60.5750
Rise (mm)	=	800.0
Shape	=	Box
Span (mm)	=	1800.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls
Culvert Entrance	=	30D to 75D wingwall flares
Coeff. K,M,c,Y,k	=	0.026, 1, 0.0347, 0.81, 0.4

Embankment

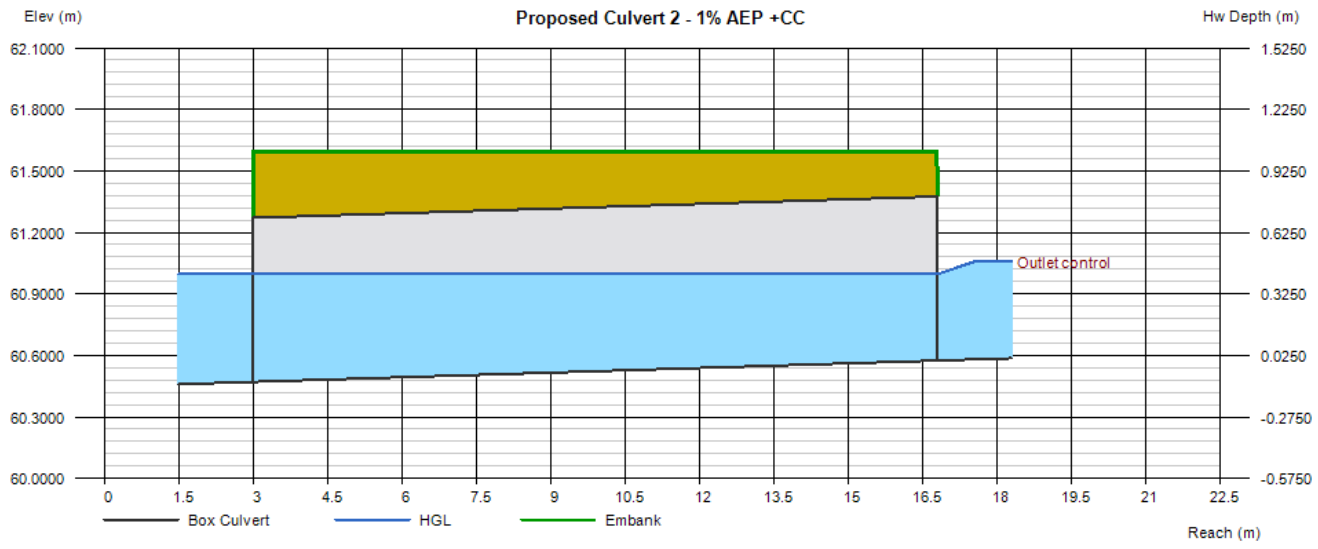
Top Elevation (m)	=	61.5950
Top Width (m)	=	13.7900
Crest Width (m)	=	1.0000

Calculations

Qmin (cms)	=	0.7030
Qmax (cms)	=	0.7030
Tailwater Elev (m)	=	(dc+D)/2

Highlighted

Qtotal (cms)	=	0.7030
Qpipe (cms)	=	0.7030
Qovertop (cms)	=	0.0000
Veloc Dn (m/s)	=	0.7441
Veloc Up (m/s)	=	0.9273
HGL Dn (m)	=	60.9959
HGL Up (m)	=	60.9962
Hw Elev (m)	=	61.0576
Hw/D (m)	=	0.6032
Flow Regime	=	Outlet Control



Channel Report

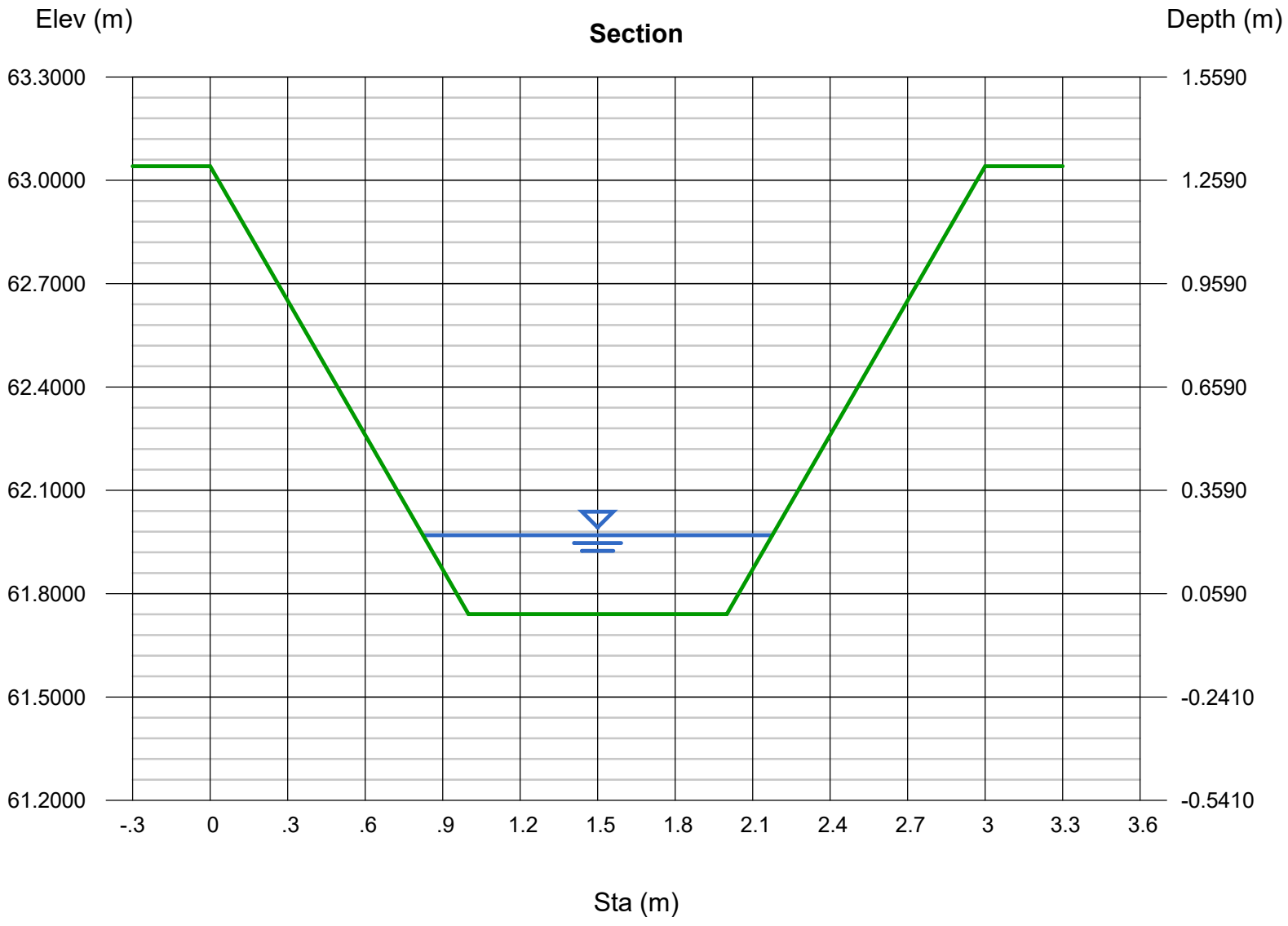
Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Mar 11 2024

Proposed Channel Diversion Profile - 1% AEP +CC

User-defined		Highlighted	
Invert Elev (m)	= 61.7410	Depth (m)	= 0.2286
Slope (%)	= 1.5000	Q (cms)	= 0.201
N-Value	= 0.050	Area (sqm)	= 0.2688
		Velocity (m/s)	= 0.7478
Calculations		Wetted Perim (m)	= 1.5768
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.1554
Known Q (cms)	= 0.2010	Top Width (m)	= 1.3517
		EGL (m)	= 0.2571

(Sta, El, n)-(Sta, El, n)...

(0.0000, 63.0410)-(1.0000, 61.7410, 0.050)-(2.0000, 61.7410, 0.050)-(3.0000, 63.0410, 0.050)



Culvert Report

Proposed 0.9m Dia Culvert - Channel Diversion

Invert Elev Dn (m)	=	57.2210
Pipe Length (m)	=	300.0000
Slope (%)	=	1.5067
Invert Elev Up (m)	=	61.7410
Rise (mm)	=	900.0
Shape	=	Circular
Span (mm)	=	900.0
No. Barrels	=	1
n-Value	=	0.015
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Groove end projecting (C)
Coeff. K,M,c,Y,k	=	0.0045, 2, 0.0317, 0.69, 0.2

Embankment

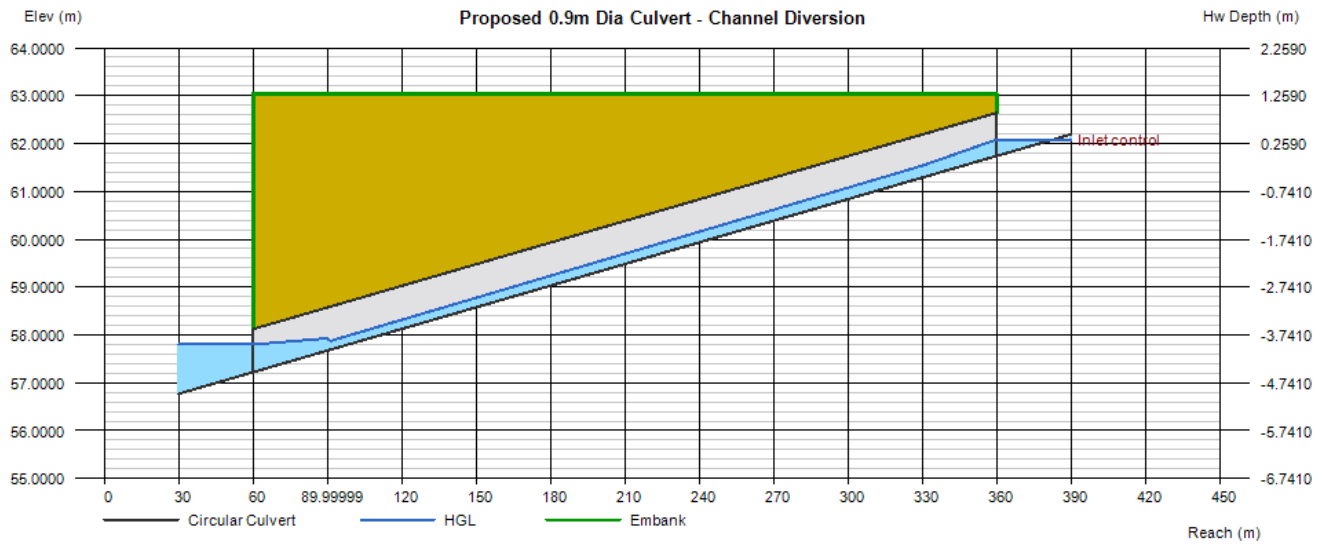
Top Elevation (m)	=	63.0410
Top Width (m)	=	299.9900
Crest Width (m)	=	1.0000

Calculations

Qmin (cms)	=	0.2010
Qmax (cms)	=	0.2010
Tailwater Elev (m)	=	(dc+D)/2

Highlighted

Qtotal (cms)	=	0.2010
Qpipe (cms)	=	0.2010
Qovertop (cms)	=	0.0000
Veloc Dn (m/s)	=	0.4654
Veloc Up (m/s)	=	1.3457
HGL Dn (m)	=	57.7992
HGL Up (m)	=	61.9974
Hw Elev (m)	=	62.0844
Hw/D (m)	=	0.3816
Flow Regime	=	Inlet Control



LEGEND

- WATERCOURSE
- STREAM CROSS SECTION
- CHANNEL DIVERSION
- CHANNEL DIVERSION CROSS SECTION

– ELEVATIONS ARE TO ORDINANCE DATUM [MALIN]
– NOT TO BE USED FOR CONSTRUCTION PURPOSES
– PLANNING PURPOSES ONLY
– DO NOT SCALE FROM THE DRAWING

rev.	date	amendment	drn	ckd
A	22.03.24	INFORMATION	JMC	PMS

PROPOSED DEVELOPMENT SITE AT CARRICKBAGGOT, GRANGEBELLEW, CO. LOUTH

DRAINAGE CHANNEL 1 DIVERSION ALTERNATIVE CULVERT OPTION

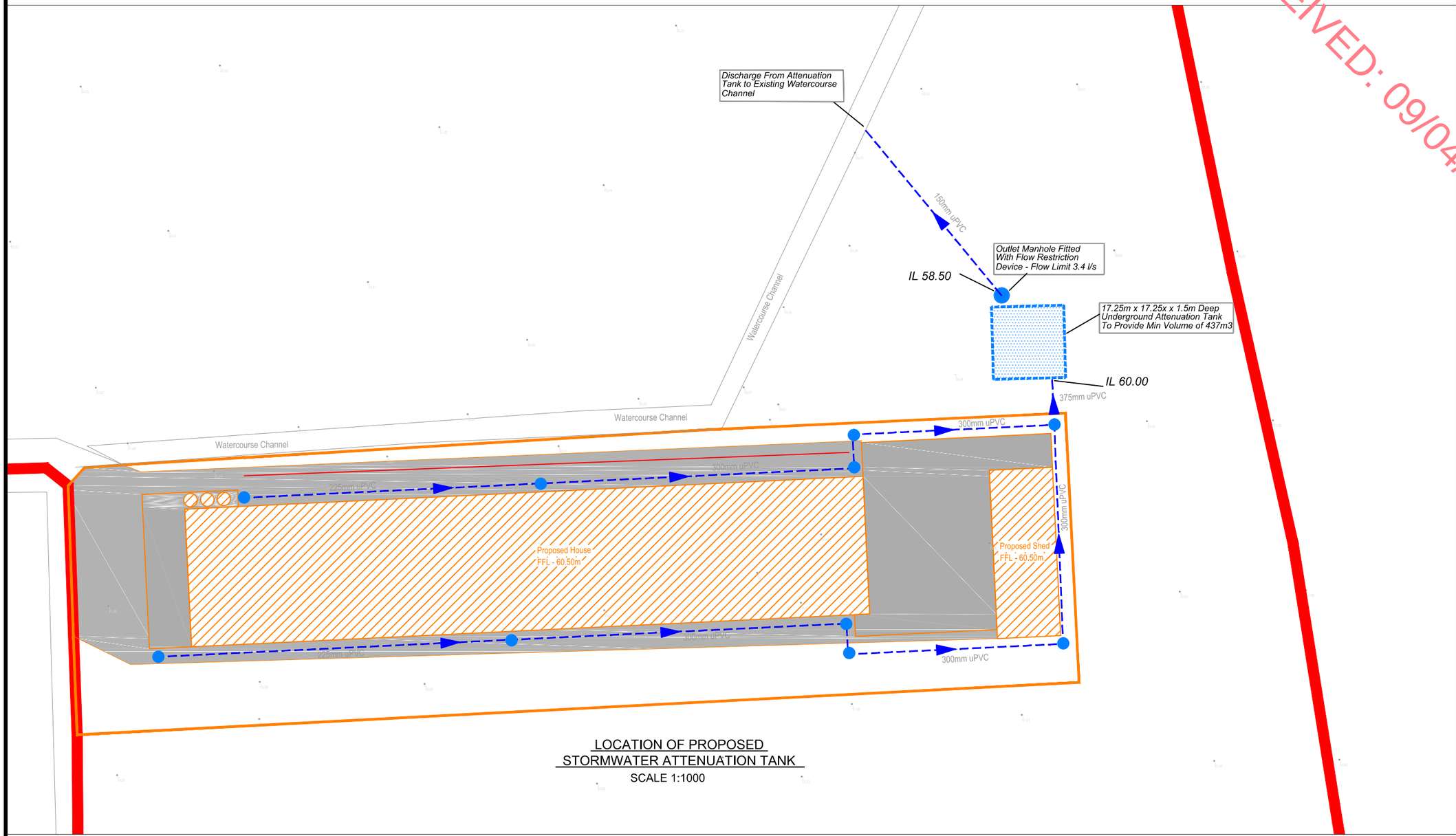
PLAN VIEW

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248

NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY, BT35 6PH

file location: N:\IE2888\DRAWINGS		scale: NTS	A3
drawing status: INFORMATION		datum: MALIN	
		drawn: JMC	
drawing no. IE2888-012	rev A	checked: PMS	
		approved: PMS	
		date: 22.03.2024	



LOCATION OF PROPOSED
STORMWATER ATTENUATION TANK
SCALE 1:1000

LEGEND

- SITE BOUNDARY
- PROPOSED ROOF AREA
- PROPOSED HARDSTANDING AREA
- PROPOSED GRAVEL AREA

– ELEVATIONS ARE TO ORDNANCE DATUM [MALIN]
– NOT TO BE USED FOR CONSTRUCTION PURPOSES
– PLANNING PURPOSES ONLY
– DO NOT SCALE FROM THE DRAWING

rev.	date	amendment	drn	ckd
A	22.03.24	PLANNING	LMc	PMS

PROPOSED DEVELOPMENT SITE AT
CARRICKBAGGOT, GRANGEBELLEW,
CO. LOUTH

PROPOSED ALTERNATIVE STORM WATER
ATTENUATION TANK

DRAINAGE MANAGEMENT
LAYOUT PLAN

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW, R93 W248

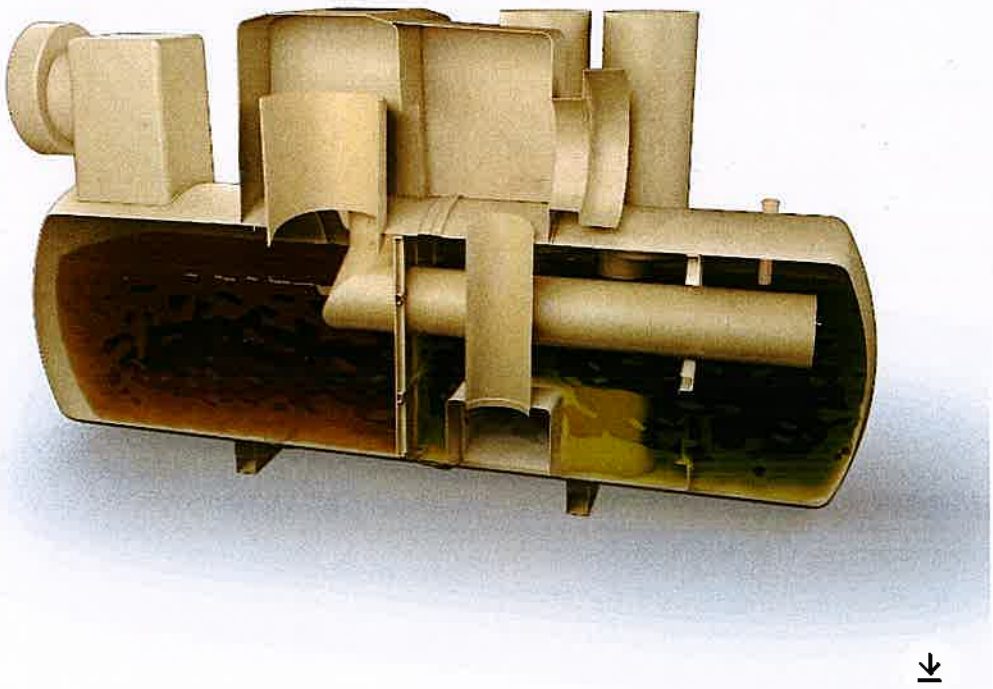
NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY, BT35 6PH

file location: N:\IE2888\DRAWINGS		scale: 1/1000 @ A3	
drawing status: PLANNING		datum: MALIN	
		drawn: LMc	
drawing no. IE2888-011	rev A	checked: JMc	
		approved: PMS	
		date: 22.03.2024	

Appendix No. 21

By-Pass Separator Details

FUEL AND OIL SEPARATORS



Bypass separators are used when it is considered an acceptable risk to not provide full treatment for very high flows, such as, where the risk of a large spillage and heavy rainfall occurring at the same time is small. Typical applications include surface car parks, roadways and lightly contaminated commercial areas.

Product Highlights

- Engineered to achieve a concentration of less than 5mg per litre
- Treats the 'first flush', which is approximately 10% of the peak flow
- Can be maintained from ground level
- Light and easy to install, saving you time and money
- Free site visit to help select the model to meet your needs - email klargesterinfo-web@kingspan.com

+ MORE

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Discover More

Talk to Us

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Service & Maintenance Enquiry

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Services
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Sustainability
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Kingspan Insulation
Kingspan Insulated Panels
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Kingspan Protective Packaging
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Website Privacy Notice

CHANGE COUNTRY

Kingspan — Ireland

NS PLASTIC BYPASS SEPARATORS - DECLARATION OF PERFORMANCE

kingspan-klargester-nsbp-003-006-dop-en-oct2021-v1

1.Unique identification code of the product-type:

Separator Systems for Light Liquids, Plastic Construction
NSBP003, NSBP004 & NSBP006

2. Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4) of the CPR:

Serial Number/Works Order Number printed on the Product Information Label & affixed to product

3. Intended use/es of the product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

To be used for Collection & Separation of Light Liquids from Wastewater by means of gravity and/or coalescence

4. Manufacturer name, registered trade name or registered trade mark and contact address as required under Article 11(5):

Kingspan Water & Energy Ltd
College Rd North
Aston Clinton, Aylesbury, Buckinghamshire
HP22 5EW

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2):

N/A

6. System/s of assessment and verification of constancy of performance (AVCP) of the product as set out in CPR, Annex V:

4

7. In case of the declaration of performance concerning a construction product covered by a harmonised standard:

EN:858-1:2002

Notified body/ bodies:

Notified Body No: 1739 + PIA Prüfinstitut für Abwassertechnik GmbH

Document date:	Document version no:	ECN no:
12/10/2021	V1.	1587

Kingspan

8. Declared performance/s:

Essential characteristics		Performance			Harmonised technical specification
Crushing Resistance (vertical load test)		Pass (also wet conditions)			EN:858-1:2002
Structural Behaviour		Pass			
Reaction to fire		Class E			
Water Tightness (water test)		Pass			
Material Durability		MFR (190/2,16) = 3.0± 1g/10 min (ISO 1133)			
		Density ≥ 930 kg/m³ (ISO 1872)			
		Yield Stress ≥ 19 Mpa (ISO 527-2)			
		Pressure A1 = 1 (EN1778)			
		Pressure A2K = 1 (EN1778)			
Treatment Efficiency	Sample	Specified Maximum Light Liquid (mg/l)	Actual Light Liquid (mg/l)		
	1	≤10	0.37	Pass	
	2	≤10	0.22	Pass	
	3	≤10	0.35	Pass	
	4	≤10	0.23	Pass	
	5	≤10	0.35	Pass	
	Average	≤5	0.30	Pass	
Electrical Consumption		n/a			

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

David Anderson – Water Business Unit Director

At Portadown on 22 September 2021

Kingspan.

NS GRP BYPASS SEPARATORS - DECLARATION OF PERFORMANCE

kingspan-klargester-nsbe-010-125-dop-en-oct2021-v1

1.Unique identification code of the product-type:

Separator Systems for Light Liquids, GRP Construction
NSBE010 to NSBE125

2. Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4) of the CPR:

Serial Number/Works Order Number printed on the Product Information Label & affixed to product

3. Intended use/es of the product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

To be used for Collection & Separation of Light Liquids from Wastewater by means of gravity and/or coalescence

4. Manufacturer name, registered trade name or registered trade mark and contact address as required under Article 11(5):

Kingspan Water & Energy Ltd
College Rd North
Aston Clinton, Aylesbury, Buckinghamshire
HP22 5EW

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2):

N/A

6. System/s of assessment and verification of constancy of performance (AVCP) of the product as set out in CPR, Annex V:

4

7. In case of the declaration of performance concerning a construction product covered by a harmonised standard:

EN:858-1:2002

Notified body/ bodies:

Notified Body No: 1739 + PIA Prüfinstitut für Abwassertechnik GmbH

Document date:	Document version no:	ECN no:
12/10/2021	V1.	1587

Kingspan

8. Declared performance/s:

Essential characteristics		Performance			Harmonised technical specification
Crushing Resistance (vertical load test)		Pass (also wet conditions)			EN:858-1:2002
Structural Behaviour		Pass			
Reaction to fire		Class E			
Water Tightness (water test)		Pass			
Material Durability		Creep Factor amaterial = 0,48 (average value)			
		Ageing Factor (β) = 0,46 (average value)			
Treatment Efficiency	Sample	Specified Maximum Light Liquid (mg/l)	Actual Light Liquid (mg/l)		
	1	≤10	<0.2	Pass	
	2	≤10	<0.2	Pass	
	3	≤10	<0.2	Pass	
	4	≤10	<0.2	Pass	
	5	≤10	<0.2	Pass	
	Average	≤5	<0.2	Pass	
Electrical Consumption		n/a			

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

David Anderson – Water Business Unit Director

At Portadown on 22 September 2021

Kingspan.