LIMERICK CITY & COUNTY COUNCIL

PLANNING AND DEVELOPMENT ACTS, 2000 (AS AMENDED)

NOTIFICATION OF GRANT OF PERMISSION

Patrick O'Connell
C/O Corroville Designs,
Kantoher Business Park,
Killeedy, Ballagh,
Co. Limerick.

PLANNING REGISTER NUMBER: 18/25

APPLICATION RECEIPT DATE: 16/01/2018

Permission for the construction of two no. poultry houses and all associated site works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application at Ahawilk, Feohanagh, Castlemahon, Co. Limerick.

Further to the Order dated: 10/09/2018

A PERMISSION has been granted for the development described above subject to the 12 condition(s) set out on the Schedule which accompanied the Notification of the Council's Decision dated 10/09/2018.

Signed on behalf of the said Council _____

Heather Supple
(for) A/Senior Planner
Planning & Environmental Services
18/10/2018

Please note that the provisions of Planning & Development Act 2000 (as amended) limits the duration of this planning permission to a period of five years from the date hereof.

LIMERICK CITY & COUNTY COUNCIL

PLANNING AND DEVELOPMENT ACTS 2000 (AS AMENDED)

NOTIFICATION OF DECISION TO GRANT

Patrick O'Connell
C/O Corroville Designs,
Kantoher Business Park,
Killeedy. Ballagh.
Co. Limerick.

Planning Register Number:	18/25
Valid Application Received:	16/01/2018
Further Information Received Date:	17/07/2018

In pursuance of the powers conferred upon them by the above-mentioned Act, Limerick City & County Council has by Order dated **10/09/2018** decided for the reason set out in the First Schedule hereto, to GRANT **PERMISSION** for development of land in accordance with the documents submitted namely:-**the construction of two no. poultry houses and all associated site works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application at Ahawilk, Feohanagh, Castlemahon, Co. Limerick.** subject to the 12 condition(s) and the reasons for the imposition of the said condition(s) as set out in the Second Schedule.

Signed on behalf of said Council

Heather Supple
for DIRECTOR OF SERVICES
LIMERICK CITY & COUNTY COUNCIL

Date: **10/09/2018**

Under Article 20 of the Planning & Development Regulations 2001 (as amended) the applicant shall remove the site notice in respect of the application following notification of the Planning Authority's decision.

In deciding the planning application, the Planning Authority, in accordance with Section 34(3) of the Planning & Development Act 2000 (as amended) has had regard to submissions/observations received (if any) in accordance with the Planning & Development Regulations 2001 (as amended).

In accordance with Article 31(i) of the Planning & Development Regulations 2001 (as amended), if there is no appeal to An Bord Pleanála a grant of permission shall be issued as soon as may be but not earlier than 3 working days after the expiration of the period for making of an appeal (see footnote).
THIS NOTICE IS NOT A GRANT OF PERMISSION AND WORK SHOULD NOT COMMENCE UNTIL PLANNING PERMISSION IS GRANTED.

NOTE:
An appeal against a decision of a planning authority under the provisions of the Planning & Development Act 2000 (as amended) may be made to An Bord Pleanála at any time before the expiration of the appropriate period and on payment of the appropriate fee, by an applicant for permission or any person who made submissions or observations in writing in relation to the planning application. An appeal by a person who made submissions or observations must be accompanied by the acknowledgement of receipt of the submissions or observations from the planning authority. Any such appeal must be made in writing and received by the Board within 4 weeks beginning on the date of the making of the decision by the

planning authority. The appeal must be fully complete from the start otherwise it will be invalid. It is very important to note that any appeal referrals under the Planning & Development Acts 2000(as amended) which are not accompanied by the correct fee will be invalid.

/P.T.O.

The scale of fees payable to An Bord Pleanála in respect of appeals is set out hereunder:

Case Type	Appeal received on or after 5th September 2011
Planning Acts	
a. Application for strategic infrastructure development or a request to alter the terms of such development already permitted or approved.	€100,000
b. Appeal against a decision of a planning authority on a planning application relating to commercial development, made by the person by whom the planning application was made, where the application included retention of development.	€4,500 or €9,000 if *EIS or **NIS involved
c. Appeal against a decision of a planning authority on a planning application relating to commercial development, made by the person by whom the planning application was made, other than an appeal mentioned at (b).	€1,500 or €3,000 if *EIS or **NIS involved
d. Appeal against a decision of a planning authority on a planning application made by the person by whom the planning application was made, where the application relates to retention of development, other than an appeal mentioned at (b) or (c) (non-commercial development).	€660
e. 1st party appeal solely against contribution condition(s) – (2000 Act Section 48 or 49).	€220
f. Appeal other than an appeal mentioned at (b), (c), (d) or (h)	€220
g. Application for leave to appeal.	€110
h. Appeal following a grant of leave to appeal.	€110
i. Referral.	€220
j. Reduced fee (payable by specified bodies).	€110
k. Submissions or observations (by observer) on strategic infrastructure development applications, appeals and referrals.	€50
l. Request from a party for an oral hearing.	€50
*EIS - Environmental Impact Statement **NIS - Natura Impact Statement	

Submissions or observations on appeals made by third parties must be received by the Board within 4 weeks from the receipt of the appeal by the Board and the fee in this case is €50. Development consisting of the provision of two or more dwellings is classed as commercial development for the purposes of an appeal.

Should you wish to make an appeal, the following documents are available on www.pleanala.ie

- A Planning Appeal Form/Checklist and
- A Guide to making a Planning Appeal.

Appeals should be addressed to An Bord Pleanála, 64 Marlborough Street, Dublin 1.

PLANNING REGISTER REFERENCE NUMBER: 18/25

FIRST SCHEDULE

Having regard to the nature of the proposed development, it is considered that subject to compliance with the conditions as set out in the Second Schedule, the proposed development would be in accordance with the proper planning and sustainable development of the area.

SECOND SCHEDULE

1. The development shall be carried out in accordance with the plans and particulars lodged with the application, as amended by the further plans and particulars submitted on the 16th day of January 2018 and on the 17th day of July 2018, except as may otherwise be required in order to comply with the following conditions.

   Reason - In order to clarify the development to which this permission applies.

2. The finished floor level (FFL) of the proposed poultry house shall be 79.3 metres in relation to the existing ground levels indicated on the site layout plan drawing number C-001 submitted on the 16th day of January 2018.

   Reason – In the interest of visual amenity and integrating the development into the landscape.

3. Prior to commencement of development a waste management plan shall be submitted for the written agreement of the Planning Authority to provide for the recovery/disposal of all wastes arising from the construction of a new poultry house and all associated site works.

   Reason: In the interest of proper planning and sustainable development.

4. All construction works shall be carried out in accordance to the relevant Department of Agriculture, Food & Marine building specifications.

   Reason: In the interests of proper planning and sustainable development of the area.

5. Roof covering/sidings shall be a dark colour PVC coated steel or shall be painted in a dark colour e.g. dark green, dark grey, dark brown, dark red. The material finish and colour to be submitted for the written agreement of the Planning Authority prior to the commencement of development.

   Reason - In the interest of visual amenity. In the interest of proper planning and sustainable development and to assist in assimilating the development into the rural landscape.

6. Prior to the commencement of development a vermin control plan shall be submitted to and agreed with the planning authority in writing. The plan shall include external (site boundaries) and internal site baiting plan with mapped locations. Bait take activity shall be monitored and managed and records of all bait monitoring/activity records shall be maintained for inspection purposes.

   Reason - In the interest of public health and amenity.

7. Cleaning of the poultry units and removal of spent litter shall not occur during the hours 1900-0800 Monday to Friday or at any time during Saturday, Sunday or Public Holiday.

   Reason - In the interest of public health and amenity.

8. The Applicant shall develop and submit for the written agreement of the Planning Authority a Constructional and Environmental Management Plan (CEMP) prior to the commencement of construction. The CEMP shall be fully implemented, and ensure that all work practices operate to standard operating procedures. The CEMP to include all mitigation measures as outlined in the EIAR as submitted on 17/07/18.

   Reason: In the interest of proper planning and orderly development.

9. All mitigation measures as outlined in the EIAR as submitted on 17/07/18 shall be implemented in full.

   Reason: To protect the environment and in the interest of proper planning and orderly development.

10. Archaeological monitoring by a qualified archaeologist shall be in place for all ground disturbance associated with the development. The name of the archaeologist shall be submitted to the Planning Authority four weeks in advance of the commencement of any site works. Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The Department of Culture. Heritage & the Gaeltacht and the Planning Authority Archaeologist shall be informed. The developer shall be prepared to be advised by the Department of Culture, Heritage & the Gaeltacht with regard to any necessary mitigating action and shall facilitate the archaeologist in recording any material found. On completion, an archaeological report detailing the works shall be submitted to the Planning Authority and the Department of Culture, Heritage & the Gaeltacht.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.

11. A letter confirming Walsh Mushrooms/ Custom Compost shall take all the litter produced on site, noting the expected tonnage per annum (referenced as up to 896 tonnes) shall be submitted to the Planning Authority within one month of the notification of grant of permission.

Reason: In the interest of proper planning and sustainable development.

12. In relation to separation distances under *S. 123 – Minimum Specification for Bovine Livestock Units and Reinforced Tanks* – the Applicant shall submit a letter to the Planning Authority within one month of the notification of grant of permission addressing separation distances.

Reason: In the interest of proper planning and sustainable development.

Limerick City & County Council

PLANNING AND DEVELOPMENT ACT 2000 (as amended)

Acting Senior Planner Limerick City & County Council Order No: P.D. 932/2018

Reference Number:	18/25
Name of Applicant:	Patrick O'Connell
Address:	C/O Corroville Designs, Kantoher Business Park, Killeedy, Ballagh, Co. Limerick.
Nature of Application	PERMISSION for the construction of two no. poultry houses and all associated site works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application.
Location of Development:	Ahawilk, Feohanagh, Castlemahon, Co. Limerick.
Recommendation of A/S.E.P.	PERMISSION BE GRANTED for the above mentioned development subject to the 12 condition(s) set out in the Second Schedule hereto.

ORDER:

Whereas by Chief Executive's Order No. CE/2018/101 dated 1st July, 2018, Conn Murray, Chief Executive of Limerick City & County Council, did, pursuant to the powers conferred on him by Section 154 of the Local Government Act, 2001, (as amended by the Local Government Reform Act 2014) delegate unto Stephane Duclot, with effect from the 1st July, 2018, the functions within the meaning of the Local Government Act, 2001 as set out therein.

NOW THEREFORE pursuant to the delegation of the functions aforesaid, I, Stephane Duclot, Acting Senior Planner, Limerick City & County Council, hereby decide, pursuant to the provisions of the Planning & Development Act 2000 (as amended) and the Planning & Development Regulations 2001 (as amended), for the reason set out in the First Schedule attached hereto, to **GRANT PERMISSION** for the above development in accordance with documents submitted, subject to the 12 condition(s) set out in the Second Schedule attached hereto.

Notification of decision to grant to issue forthwith and notification of the grant of PERMISSION to issue as soon as may be but not earlier than 3 working days after the expiration of the period for making of an appeal.

ACTING SENIOR PLANNER
PLANNING & ENVIRONMENTAL SERVICES
DATED THIS 10/09/2018

Ddn

Planning Report
Limerick City & County Council

File No: 18/25
Applicant: Patrick O'Connell
Location: Ahawilk, Feohanagh, Castlemahon, Co. Limerick
Dev. Description: PERMISSION for the construction of two no. poultry houses and all associated site works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application

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Site notice & date of site inspection:
Site visited on 13/02/18 by L. Ruttle. Site notice in place and legible.

Description of existing and proposed development and site analysis:
The site is located in the townland of Ahawilk, Feohanagh approx. 1.8km west of Feohanagh. The site is accessed via long farm passageway to local road L1311 with a speed limit of 80pkm/h. The site has an area of 0.8 hectares with two existing poultry houses on site of GFA 3,389m² and an adjacent dairy farm complex. There is a dwelling in close proximity to farm. The site is flat in nature. Permission is sought to construct 2 no. poultry houses with a GFA 4,120m². To houses will hold 36,000 broilers, bringing to 76,000 birds in total over the 4 houses, with seven flocks per annum. Site owned by the Applicant.
If granted the site will require an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application.

Photographs:

Planning history:

Current:

16/1180: Withdrawn application by Patrick O'Connell for the construction of a two poultry houses and associated works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application.

15/209: Conditional permission to Patrick O'Connell for the construction of an easyfeed slatted cubicle house extension, re-roofing of an existing cubicle house, the construction of a calf house/calving pens and the extension of a steel slurry tower and compacted earthen bund/lagoon.

09/770: Conditional permission to Patrick O'Connell for the construction of a storey and a half style dwelling house, detached domestic garage, front boundary entrance walls, proprietary effluent treatment system and percolation area with all associated site works.

05/324: Conditional permission to Patrick O'Connell for the construction of steel slurry tower, silage base, soiled water tank, also the conversion and extension of an easyfeed silage layout to an easyfeed slatted cubicle house and calving boxes.

97/495: Conditional permission to Pat O'Connell for erection of poultry house.
86/26135: Conditional permission to Patrick O'Connell for the erection of extension to house.

Adjacent:
None.

Pre-planning:
None.

Habitats directive project screening assessment:

Construction Phase: Extension of existing poultry house and the construction of poultry house, soiled water tank and associated site works Are effects significant? No Are substantial works required: No Are effects significant? No Operating phase effects: Are effects significant? No	Ex-situ effects: Are effects significant? No Run-off: Are effects significant? No Abstraction: Are effects significant? NA Displacement: Are effects significant? NA

Identification of Natura 2000 sites which may be impacted by the proposed development:

1	**Impacts on designated rivers, streams, lakes and fresh water dependant habitats and species e.g. bogs or otters -see abstraction/run off etc above.**	*Is the development in the relevant catchment of or immediately up/downstream of a watercourse that has been designated as a Natura 2000 site?* Name of site:	No
2	**Impacts on terrestrial habitats and species-see area and disturbance/displacement effects above.**	***Is the development within 1km of a SAC site with terrestrial based habitats or species?*** Name of site:	No
3	**Impacts on designated marine habitats and species.**	***Is the development located within marine or intertidal areas or within 5 km of a SAC site whose qualifying habitats or species include the following habitats: Salmonid, Lamprey Mudflats, sandflats, saltmarsh, shingle, reefs, sea cliffs***	No

		Name of site:	
4	**Impacts on birds in SPAs**	*Is the development within 1km of a Special Protection Area* Name of site: Stacks' to Mullaghareirks, West Limerick Hills and Mount Eagle SPA	No – within 4.5km of SPA
5	**Cumulative effects**	Would consideration of a number of significant projects nearby such as forested areas, quarries, wind energy together with the proposed development significantly increase the impacts listed above:	No – existing established poultry farm use on site

Conclusion:
An Appropriate Assessment (screening report) was provided with the application, as the site is within 4.5km of the Stacks' to Mullaghareirks, West Limerick Hills and Mount Eagle SPA and is within 10km of the lower River Shannon SAC and the Blackwater SAC. The report concludes that the site has a low species diversity and has a low ecological significance and the loss of the improved grassland will have minimal impact.
Overall it is considered that the development as proposed should not exercise a significant effect on the conservation status of any SAC or SPA in the area.

Summary of relevant planning matters:
Limerick County Development Plan 2010-2016
Objective ED 018: Agricultural developments.
Policy 10.8.1 Intensive pig and poultry units.

Services:
Connection to group water scheme ad private well.

Submissions/objections:
a) Internal Submissions
Environment: Report received. Re. above I had a look at EIS which was submitted by Mr. O' Connell's Agent (Trevor Montgomery). The size of this document is such that much of the detail is lost in the text and this makes it difficult to capture the relevant points. However, I advise the following:
a) The points made in the HSE report (16/02/2018 - Joe Brennan & Andrew Curtin) are well-made and the Applicant should be asked to address same.
b) The Applicant should be asked to re-locate the site for the proposed development such that the nearest domestic residence is a minimum 400m from the site.
c) I note that Custom Compost (letter dated July 7 2017 from Joe Kenny, Production Director) will *"remove up to 7 batches of poultry litter per year with up to 1600 tonnes based on expansion plans"*. Please request calculations for total litter production from 112,000 broilers per annum and confirmation that Custom Compost will take all the litter produced.

d) Where it is intended to landspread poultry litter a comprehensive Nutrient Management Plan (which demonstrates full compliance with the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017) shall be submitted. Such plan to be prepared by a suitably qualified Agriculturalist.
e) The Applicant should be asked to show the location of the proposed effluent collection tank (I did not note this on the drawings). Ask for calculations for total effluent generated and confirm net tank capacity. Show flowpaths for all effluents arising.
NOTE - Department of Agriculture Food and Marine Building Specification S.123 - *Minimum Specification for Bovine Livestock Units and Reinforced Tanks* - Section 5, 5.1 sets out minimum separation distances for the siting of effluent tanks. Where it is proposed to site a tank within the specified distances a report from a suitably qualified Hydrogeologist shall be submitted to the Council for consideration.
f) The Applicant shall be requested to submit construction details for on-site wells and provide details of any treatments / disinfection to which the water may be subjected.
g) The Applicant shall provide documentary evidence that the water supply is of potable quality in accordance with EU Drinking Water Regulations S.I. No. 122 of 2014.
h) The Applicant shall clarify if any of the neighbouring properties has a private water source and the distances of same from proposed development shall be shown.
i) Discharge points for clean water arising from proposed buildings shall be identified on a map.

Environment: Report received. The noise section of the EIS has focused on demonstrating that the proposed development will meet noise criteria that is generally set by the EPA for licenced premises.
Recommendation
The applicant should be requested to submit the following further information:
An assessment of the potential impact of noise on sensitive receptors should be carried out in accordance with BS 4142:2014 Methods for rating and assessing industrial and commercial sound. The assessment of ambient noise should include all sources of noise from the operation of the proposed and existing development, including plant equipment (ventilation/fans). This work should be carried out by a suitably qualified acoustic engineer.

Roads: Report received. Roads observations -:
1. Sightlines from the existing Vehicular Access
i. The Applicant has not shown sightlines from the existing vehicular access. Sightlines to the south are severely impeded by the hedgerow of a neighbouring property. We would require written agreement from the owner of the adjoining property to alter the hedgerow that is impeding sightlines.
ii. Consequently the Applicant is requested to submit the following-
a. Submit in plan form and to scale that you can achieve sightlines and confirm the method proposed to achieve sightlines stated taking into account that the existing sightlines are currently impeded.
b. Submit in plan form and to scale that you can achieve minimum stopping sight distances.
iii. We require a revised Site Layout Plan clearly addressing the issue above for Limerick City & County Council's approval. FOR FI
2. Surface Water Disposal
i. A Surface Water Disposal Plan should be provided showing the existing and proposed and should include gully, manhole and outfall locations.
ii. The Applicant shall provide supporting calculations that to demonstrate that there is adequate capacity in the stream/dyke to take the surface water disposal.
iii. A longitudinal section should be provided and should include pipe diameter, pipe length, pipe gradient, manhole invert/cover levels.
iv. All surface water run-off from the public road which flows into the site shall continue to be accommodated within the site unless alternative arrangements acceptable to Limerick City & County Council are carried out. Full details of any such alternative arrangements shall be submitted to the Planning Authority and agreed prior to commencement of development.

v. All surface water run-off from the development shall be disposed of appropriately. No such surface water shall be allowed discharge onto adjoining properties or onto the public road. FOR FI

Archaeology: Report received. I have read the document submitted as part of the planning application. Section D, which has the heading 'Architectural, Archaeological & Cultural Heritage, is not fit for purpose. It is derivative, its references throughout the text are out of date and there are repetitive errors. Section 14.2.2 Field Inspection is not attributed to a professional archaeologist and therefore the conclusions cannot be accepted. Page 51 contains the sentence: 'The existing site and proposed site of the new poultry houses has been surveyed by Montgomery EHS and there is no evidence of any archaeological features' in the absence of a professional archaeologist I would contend that Montgomery EHS is not competent to make such a judgement. There follows: 'The site of the proposed poultry houses will be extracted into too made ground conditions suitable for construction works [sic]. These works will be conduct to ensure if any archaeological sites/finds are made the appropriate authorities will be notified prior to any additional works commencing.' [sic]. The remainder of the report is rife with contradictions.

There are no Recorded Monuments within the curtilage or the immediate vicinity of the site. The development, however, is large in scale and located in green field. There is a possibility of disturbing previously unknown archaeological material/artefacts. In this instance, it is a policy of Limerick County Council to require archaeological monitoring of all ground disturbance associated with the development (10.10.2 paragraph 3 County Development Plan 2010-2016).

If the development is allowed to proceed then the following condition should apply:

Archaeological monitoring by a qualified archaeologist shall be in place for all ground disturbance associated with the development. The name of the archaeologist shall be submitted to the Planning Authority four weeks in advance of the commencement of any site works. Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The Department of the Arts, Heritage, Regional, Rural and Gaeltacht Affairs and the Planning Authority Archaeologist shall be informed. The developer shall be prepared to be advised by the Department of the Arts Heritage, Regional, Rural and Gaeltacht Affairs with regard to any necessary mitigating action and shall facilitate the archaeologist in recording any material found. On completion, an archaeological report detailing the works shall be submitted to the Planning Authority and the Department of the Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

b) External Submissions

HSE: Report received.

farm dwelling house. The public road is a distance of 3.5km west of the proposed location while the nearest neighbouring private dwelling is located within 250m from the proposed development. It is also proposed to construct a sealed water holding tank of 90m³ capacity located at the side of proposed poultry house.

Clarification is sought from this office in relation to the following:

1. **Air Quality and Climate**
   There exists some confusion in relation to distances outlined in the EIS as it is stated that the nearest dwelling house is that of Mr O'Connor which the document states is "*153m north from the site*". There is no dwelling house at this location. The nearest dwelling house, apart from the dwelling house on site, is the farmhouse and farm buildings (currently under construction) which are 260m south-west of the proposed location. Best available technology (BAT) for intensive poultry rearing specifies that farms should not be located within 400m of domestic residences. There are four private domestic dwellings within 400m of the proposed site.

   The Air Quality and Climate Section of the EIS describes the issues generally associated with poultry breeding and describes the Site Location with regard to nearby villages and towns. However, there are no specifics mentioned vis à vis distances to nearest sensitive receptors (in this case closest dwelling houses) and no baseline or projected air quality figures have been provided. The EIS states that "***Bergerhoff Gauges would be the recommended standard method meeting TA Luft (1986) requirements***" but "No monitoring was conducted... as it would be considered that ***there is minor risk of deposited dust level exceeding TA Luft levels***". The report is based on the declaration that no complaints have been received by the Applicant and that an Odour Management Plan has been included.

   The Air Quality and Climate chapter deals only with dust and odour and does not give any mention to emission content. The EPA provides a tool designed to calculate Intensive Agriculture Emissions including from the broiler industry and the gases calculated are Ammonia, methane and N_2O (Nitrous Oxide). If permission is granted the capacity of this farm will be 112,000 birds yet no mention of the tool has been made in either the **Air Quality and Climate** chapter or in the **Climate** chapter.

2. **Aquatic Environment**
   The site is located equidistant between two tributaries of the River Deel the Bundoe and Ballinrea rivers. The EIS outlines that the '*surface water drains northerly joining the Killaigh River to the west and the River Deel to the north of the proposed site*'. I understand that the site is drained by ditches which run to the east to the Bederisha River, a river which has been recorded as having Poor Bio-Status in the Water Framework River Body Status report 2010 – 2015. The river approximately 450m to the west is the Bundoe River which has Good Bio-Status under the aforementioned report. The applicant shall identify and determine the proper drainage channels and the mitigation measures to be taken in the event of contamination of surface water in the drains serving the site.

3. **Groundwater**
   The planning application document notes that there will be both a public water supply and private well water supply serving the proposed development. In a previous planning application at this site (15/209) it was noted that that proposed development would be served by a private well. There are no maps identifying the presence of a well water supply on site. Maps are presented with the EIS but no indication of the nearby wells has been detailed. The applicant shall be requested to submit a plan identifying location of the on-site well and neighbouring wells. Treatment details if any of the well water supply should be made known to the planning authority. If the well water supply is to be used for drinking or food preparation purposes it should be tested to ensure it meets the requirements of the S.I. No. 122/2014 European Union (Drinking Water) Regulations 2014.

4. **Odour Management Plan:**
   The plan names a person other than the applicant, a Mr Nash, as the person responsible for "***implementing good housekeeping***" as well as having other similar duties. The applicant shall identify the correct person with responsibilities in the Odour Management Plan.

Department of Culture, Heritage and the Gaeltacht: Report received.

The Department recommends that the planning authority is to ensure spreading of manure etc. on the lands does not have potential for a significant effect on any designated nature conservation site.

c) Objections

None.

d) Submissions from Elected Representatives

None.

Part V:

N/A.

Summary of key planning issues and assessment:

EIAR:

Under the Planning and Development Regulations 2001, Schedule 5, Part 1 (17)
Installations for the intensive rearing of poultry or pigs with more than-

(a) 85,000 places for broilers, 60,000 places for hens.
(b) 3,000 places for production pigs (over 30 kilograms).
(c) 900 places for sows.

Under the Planning and Development Regulations 2001, Schedule 5, Part 2 (1)(e)(i)
Installations for the intensive rearing of poultry or pigs with more than-

(e) (i) Installations for intensive rearing of poultry not included in Part 1 of this Schedule which would have more than 40,000 places for poultry.

An Environmental Impact Statement (EIS) has been submitted as part of the application. Under Directive 2014/52/EU of the European Parliament and the of the Council of 16th April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment an EIS has been replaced with an Environmental Impact Assessment Report (EIAR).
The Directive was transposed to Irish legislation on the 16th of May 2017. All planning applications requiring environmental impact assessment must be accompanied by an EIAR.
The numbers of birds existing and proposed differ in the EIS and other documents submitted.

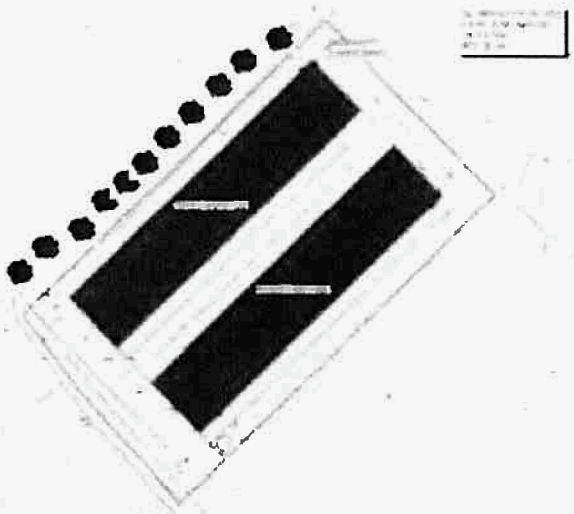
Design:

Agricultural buildings and associated works (walls, fences, gates, entrances, yards, etc.) while accepting the need to be functional are required to be sympathetic to their surroundings in scale, materials and finishes. Buildings should relate to the landscape and should avoid breaking the skyline.
Traditionally this was achieved by having the roof darker than the walls. Appropriate roof colours are dark grey, dark reddish brown or a very dark green. The grouping of agricultural buildings will be encouraged and use of existing landscaping in order to reduce their overall impact in the interests of visual amenity.
Some agricultural developments are exempt from planning control. However, no new building or structure on a farm is exempt from planning permission unless it has adequate provision for the collection, storage and disposal of effluent produced from agricultural developments. Developers are required to adhere to the Department of Agriculture Guideline entitled 'Guidelines and Recommendations on the Control of Pollution from Farmyard Wastes' and the following Slurry Storage and Slurry disposal/ recycling requirements.

- *All effluent storage tanks should be constructed to Department of Agriculture and Food Specification.*
- *The capacities of all slurry, effluent and soiled water tanks and all other tanks for pollutants shall comply with the current Department of Agriculture Guidelines and any subsequent documents/ guidelines.*

The applicant may be required to demonstrate that sufficient lands of suitable nutrient status are available within a reasonable distance for the disposal/ recycling of organic waste from a proposed agricultural development.

Front and rear elevations of proposed



Site layout

Design is in keeping with the existing houses in terms of scale, form and material finishes proposed, and is sited within an existing poultry complex. FFL of existing and proposed poultry houses is 79.3m. Building shall be 97.5m in length.

Location:
The proposed location is within an existing poultry farm complex, and directly adjacent (to the west) of an existing poultry house.
Map indicating third party dwellings submitted. Best Available Techniques (BAT) for intensive poultry rearing recommends that developments should generally not be located within 400 metres of domestic residences. The Applicant shall be requested to provide site layout map with exact distances of proposed development to family dwelling(s) and nearest third party dwellings to the site. Revision of location directly to the east of the existing houses will be requested.

Access:
The site is accessed from local road L1311. Details in respect of sightline and surface water disposal are required.

Landscaping/ screening:
No landscaping plan was submitted.

Archaeology:

No archaeology noted on site as per EIS. Monitoring to be conditioned if granted.

Well and water supply:
Details in respect of on site, any third party wells within vicinity of development and private water source for both dwellings are sought.

Renewable energy technology:
Houses are currently heated by LPG.

Pest control:
No bait management plan submitted.

Noise:
Further details in respect of noise and mitigation required in revised EIAR and clarification sought in respect of exact distance of third party dwellings to site.

Odour:
Details in respect of odour and mitigation shall be dealt with in revised EIAR.

Litter management:
Letter from Custom Composting clarifying ability to remove all litter per annum is sought.
Calculation for existing and proposed litter is sought.

I recommend Further Information be sought for:

1. An Environmental Impact Statement (EIS) has been submitted as part of the application. Under Directive 2014/52/EU of the European Parliament and the of the Council of 16th April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, the preparation of an EIS has been replaced with an Environmental Impact Assessment Report (EIAR). The Directive was transposed to Irish legislation on the 16th of May 2017. All planning applications after the 16th of May 2017 requiring environmental impact assessment must be accompanied by an EIAR. Please address, taking into consideration the changes to the EIAR structure, format and content. The planning application cannot be fully assessed until the EIAR is submitted.
Please refer to the EPA *Guidelines on the information to be contained in Environmental Impact Assessment Report*, draft, August 2017.

2. The Applicant has not shown sightlines from the existing vehicular access. Sightlines to the south are severely impeded by the hedgerow of a neighbouring property.
(a). Please provide the written agreement of owner of the adjoining property to alter the hedgerow which is impeding sightlines.
(b). Submit in plan form and to scale that you can achieve sightlines and confirm the method proposed to achieve sightlines stated taking into account that the existing sightlines are currently impeded.
(c). Submit in plan form and to scale that you can achieve minimum stopping sight distances.

3(a). A surface water disposal plan should be provided showing the existing and proposed and should include gully, manhole and outfall locations.
(b). Please provide supporting calculations to demonstrate that there is adequate capacity in the stream/dyke to take the surface water disposal.

(c). A longitudinal section to be provided and should include pipe diameter, pipe length, pipe gradient, manhole invert/cover levels.

4. The Applicant is asked to clarify the existing and proposed bird numbers, as discrepancies exist in EIS and other documents submitted (page 1 & 5 refers).

5. The Applicant shall confirm the occupants of the dwelling adjacent to the farm, if it not occupied by him, he shall submit a letter of consent from the owner/ occupant in respect of the proposed development.

6(a). It would appear that the site is located within 260m of third party dwellings (south west), with approx. four dwellings within 400m. It is noted that Best Available Techniques (BAT) for intensive poultry rearing recommends that developments should generally not be located within 400 metres of domestic residences. The Applicant shall be requested to provide a revised site layout map with exact distances outlined of proposed development to all nearest third party dwellings and Applicants family dwellings(s).
(b). The Applicant is requested to re-locate the site for the proposed development to the east of the existing houses such that the nearest domestic residence is a minimum 400m from the site.
(c). The Applicant shall submit a revised site layout plan with site contours.

7. The Applicant shall provide baseline and projected air quality monitoring in the updated EIAR, from the nearest sensitive receptors. Please address.

8. Due to the proposed expansion of the poultry farm to 4 houses, the Applicant shall deal with emission content in the updated EIAR. Please refer to EPA tool to calculate intensive agriculture emissions for the existing and proposed development.

9. The site is in close proximity to two tributaries of the River Deel – Bunoke and Ballinska rivers. The Applicant shall provide details of proper drainage channels and the mitigation measures to be taken in the event of a contamination of surface water in the drains serving the site.

10(a). Letter from Custom Compost notes the removal of up to 7 batches of poultry litter per year with up to 1,600 tonnes based on expansion plans. Please provide calculations for total litter production from 112,000 broilers per annum and confirmation that Custom Compost will take all the litter produced.
(b). Where it is intended to landspread poultry litter a comprehensive Nutrient Management Plan (which demonstrates full compliance with the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017) shall be submitted. Such plan to be prepared by a suitably qualified Agriculturalist.

11(a). The Applicant shall show the location of the proposed effluent collection tank on revised site layout plan.
(b). Provide calculations for total effluent generated and confirm net tank capacity.
(c). Show flowpaths for all effluents arising.

Note: Department of Agriculture Food and Marine Building Specification S.123 - *Minimum Specification for Bovine Livestock Units and Reinforced Tanks* - Section 5, 5.1 sets out minimum separation distances for the siting of effluent tanks. Where it is proposed to site a tank within the specified distances a report from a suitably qualified Hydrogeologist shall be submitted to the Council for consideration.

12(a). The Applicant shall submit construction details for on-site wells and provide details of any treatments / disinfection to which the water may be subjected.
(b). The Applicant shall provide documentary evidence that the water supply is of potable quality in accordance with EU Drinking Water Regulations S.I. No. 122 of 2014.
(c). The Applicant shall clarify if any of the neighbouring properties has a private water source and the distances of same from proposed development shall be shown on a site layout plan.
(d). Discharge points for clean water arising from proposed buildings shall be identified on a map.
(e). Confirm if the dwelling adjacent is served by a group water scheme, if so, please give name.

13. The Applicant is requested to provide an assessment of the potential impact of noise on sensitive receptors, carried out in accordance with BS 4142:2014 Methods for rating and assessing industrial and commercial sound. The assessment of ambient noise should include all sources of noise from the operation of the proposed and existing development, including plant equipment (ventilation/fans). This work should be carried out by a suitably qualified acoustic engineer. Please address.

14. Please submit bait management plan.

15. The Applicant identifies Mr. Nash as being responsible for implementing good housekeeping in respect of odour management. Please clarify.

16. Please clarify exact dimensions of houses, drawings indicate length of 97.5m and EIS indicates length of 102m.

Assistant Planner	**Lisa Ruttle**	**Date: 7th March 2018**
Signature:		
Senior Executive Planner		

In response to the further information request on the 8th of March 2018 the following has been received:

1. Letter from Applicants agent with enclosures.

Assessment where Further Information submitted:
Point 1: EIAR submitted.
Environmental considerations:
The following documents accompany the planning application:
Environmental Impact Assessment Report (EIAR).
A Non-technical summary was not attached.

The following is a summary of the EIAR, which was submitted and considered as part of the planning application:
The EIAR is set out as follows:

1. Introduction

Chapter 1 sets out a general introduction to the information typically contained in the EIAR, and a short section on policy and site description.

Requirement for an EIAR:
EIAR required as site to increase to over 40,000 birds.
The Applicant noted that the new directive had not been transposed to Irish law at time of writing, however, the revised EIAR takes account of it.

2. The Environmental Impact Assessment Report

Description

This chapter sets out the general guidance for preparation of an EIAR, methodology used, project team and the chapters.

Planning Authority comments

Contents of chapter 2 noted.

3. Description of the existing development

Description

This chapter describes the site, use of natural resourses, hours of operation of existing poultry houses (2 no.), infrastructure – drainage, foul, waste, emissions, monitoring, pest control, wash water and landspreading.

Planning Authority comments

Contents of chapter 3 noted.

4. Description of the proposed development

This chapter describes the propsoed development in terms of sze, drainage, foundation, housing and roofing materials, undergound wash tank, feed silo per house, heating via LPG, water feeeding for birds and timescale to construct.

Planning Authority comments

Contents of chapter 4 noted.

5. Consideration of alternatives

This chapter considers four alternative scenarios in short paragraphs, with conclusion confirming the scenario as proposed in the planning application.

Planning Authority comments

Contents of chapter 5 noted.

6. Biodiversity (Terrestrial Ecology)

This chapter presents the biodiversity of the site, as gathered by desktop study and field study, methodology used. Bird and mammal species survey was conducted (tables attached), improved grassland and hawthorn species hedgerows are the dominant features on site. The site does not lie within any designated sites. Proposed mitigation measures, enhancement measures and residual and cumulative impacts are noted in this chapter.

Planning Authority comments

Contents of chapter 6 noted.

7. Land (Soils, geology & hydrogeology)

This chapter notes the land of the site, with a description of the methodology and existing conditions of the topography and climate, geology, soils and hydrogeology. An assessment of impacts is considered in the construction and operational phases of the development as proposed. A number of mitigation measures during construction period are proposed.

Planning Authority comments

Contents of chapter 7 noted.

8. Noise and vibration

This chapter outlines methodology, baseline survey with results set out in tables attached. The EIAR notes that noise levels were within the EPA typically IPPC licence guidance limits. Noise levels during day-time and night-time at 3 locations set out in table 6.2 and 8.7. No mitigation measures are set out.

Planning Authority comments

Contents of chapter 8 noted.

9. Air quality & odour

This chapter assesses impact on local air quality from construction and operation, including residual and cumulative impacts. An air quality modelling survey was undertaken to evaluate the potential impacts of emissions identified, using the SCAIL calculation. The assessment criteria and existing environment are described. 5 locations are assessed with the predicted odour below 3.06 ouE/m³ at all, detailed in table 9.2 and 9.3. Mitigation measures are set out, with no residual impacts predicted.

Planning Authority comments

Contents of chapter 9 noted.

10. Cultural Heritage

This chapter notes the archaeological, architectural and cultural heritage resources within and in close proximity to the site. Methodology and baseline of existing is set out. No evidence of archaeology on site. Standard archaeological monitoring of new site will occur. No protected structures or buildings listed in the NIAH on site.

Planning Authority comments

Contents of chapter 10 noted.

11. Population & human health

This chapter assesses the impacts of the proposed development on population and human health and describes the population of the county and receiving environment. No mitigation measures required for noise, traffic and visual amenity due to siting from the public road and other dwellings. Mitigation measures noted for air quality, odour and dust, as already set out.

Planning Authority comments

Contents of chapter 11 noted.

12. Water (Hydrology)

This chapter details the impact to water, with methodology, baseline description and existing conditions set out. No flood risk identified for site. Mitigation measures are identified at construction and operational phase to minimise impacts to hydrology.

Planning Authority comments

Contents of chapter 12 noted.

13. Material assets

Chapter 13 looks at material assets in close proximity to the site including air, water, minerals, agricultural lands and soils, transportation infrastructure and major utilities. The chapter concludes that there is no predictive adverse impact of the proposed development on surrounding material assets.

Planning Authority comments

Contents of chapter 13 noted.

14. Interactions

This chapter looks at possible interactions and relationships of a number of subject areas, already dealt with in the report. Noise and human health, air quality, human health and biodiversity and noise and biodiversity were dealt with. No interactions with negative impacts were noted.

Planning Authority comments

Contents of chapter 14 noted.

The EIAR presents the outcome of the Environmental Impact Assessment, which found no significant impacts arising as a result of the development of a further 2 poultry houses at the site. With the proposed mitigation measures in place, the potential negative impacts of the proposed development on the local human environment, either alone, or in combination with other plans and projects, are not expected to have significant effects on the local population or on human health. Relevant significant cumulative impacts were considered throughout the EIAR. No significant impact from the proposed development, either individually, or in combination with the existing poultry facility were identified.

Point 2: Roads observations -: Sightlines from the existing Vehicular Access

i. We stated in our further information request that the Applicant has not shown sightlines from the existing vehicular access. Sightlines to the south are severely impeded by the hedgerow of a

neighbouring property. We would require written agreement from the owner of the adjoining property to alter the hedgerow that is impeding sightlines.
ii. Consequently the Applicant is requested to submit the following-
a. Submit in plan form and to scale that you can achieve sightlines and confirm the method proposed to achieve sightlines stated taking into account that the existing sightlines are currently impeded.
b. Submit in plan form and to scale that you can achieve minimum stopping sight distances.
iii. We require a revised Site Layout Plan clearly addressing the issue above for Limerick City & County Council's approval.
The Applicants response is as follows:
'We proposed to cut back the hedgerow on both sides of the roads existing the site to improve visibility. As the road is two car widths but there is a good slight line in either direction'.
We are not satisfied with the Applicants response to Item 2 of the FI request. The Applicant should be asked to address this again. FOR FI
Time limit, clarification cannot be requested in this instance. Existing entrance to poultry farm, acceptable.
Point 3: Drawings as submitted are acceptable.
Environment report received: Number of points dealt with below.
I had a look at F.I. submission from Mr. Montgomery (received 16 July 2018) in relation to above. Below are comments on responses, which are relevant to me and refer to our F.I. dated 8th March 2018:
Point 4: Bird numbers post-development = 112,000 (response is satisfactory). 40,000 birds in current house, increasing to 36,000 birds per house in two houses.
Point 5: Response is satisfactory. Dwelling on-site is the family home. Acceptable.
Point 6: I would disagree that I "discussed" the matter with Mr. Montgomery. He informed me that the proposed location is "compliant with best practice for site hygiene". However, I spoke with Simon Jennings about the matter and he is of the opinion that if a "sensitive receptor" (in this case a dwelling house) is more than 200m from a poultry unit this should not give rise to noise nuisance. Further, the fact that there are existing poultry units on site and no previous noise complaints have been received in the past would suggest that noise will not be an issue. I have asked Simon to comment on the noise survey previously submitted.
With regard to odour – the dwellings to the West and South West of the proposed development are up-wind of the development and again – given that there have been no previous complaints – it is considered that the proposal will not pose an odour nuisance. See point 8 below re. SCAIL.
In view of the above there is no firm basis for the requirement to re-locate the development site such that the nearest domestic residence is a minimum 400m away.
Point 7: (Air Quality Monitoring) – Mr. Montgomery assessed the proposal in relation to the National Air Quality Standards using SCAIL modelling. He concluded that : *Re. PM10 "It is predicted that the proposal will not significantly impact on the health of the local community or surrounding environment.* In relation to Odour he concludes that "*the changes in emissions will not be significant and odours are unlikely to be detected beyond the plant boundary*".
Comment – Response appears to be satisfactory. As the facility will require EPA licensing they will impose conditions if they are deemed necessary.
Point 8: See point 7 above.
Point 9: As all poultry litter will be removed off site and out of the county there is unlikely to be contamination of waters provided land spreading of effluent arising from cleaning out of houses is carried out in accordance with the requirements set out in the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017. Under point 11, Mr. Montgomery states that this will be the case.
Point 10: Calculations have been provided. I didn't see a letter on file from Custom Compost stating that they will take all the poultry litter produced but Mr. Montgomery states that this will be the case. Letter requested by clarification.

Point 11: Re. separation distances under *S. 123 – Minimum Specification for Bovine Livestock Units and Reinforced Tanks* – the issue of separation distances hasn't been addressed. Address by condition.
Point 12: Refer response to Water Services.
One on-site well serves the adjacent family home. Construction details and evidence that water supply is of potable quality was not submitted. Nearby properties are served by the Killeedy Group Water Scheme. Time limit, clarification cannot be requested in this instance.
Surface water to drain to nearby ditch. Acceptable.
Point 13: Environment report received: The site is approximately 300 metres from the nearest noise sensitive receptors. The noise assessment has not been carried out strictly in accordance with BS 4142 e.g. a logging period of 30 minute for LAeq and LA90 for day-time and night-time are not in accordance with the standard (1 hour for day-time, 5 minutes night-time), ambient noise monitoring was carried out but no there was no background monitoring, the results of any assessment of particular characteristics of noise from the proposed development (e.g. tones) are not included and there is no estimate of the predicted specific and rating noise levels at the nearest noise sensitive receptors. In relation to the information that has been submitted. Activities on the poultry site were not audible during the ambient monitoring at approximately 10:30-11:00 am, 15th November 2017, at Site 2 (property to the NW of the site) apart from one truck movement and the LA90,30min was 40 dBA with LAeq 41 dBA i.e. suggesting a steady noise. The noise levels are indicative of a rural environment. The specific noise level of the existing poultry facility at Site 2 will be less than 40 dBA given that it was not audible.
I predict that the increase of the specific noise level at Site 2 by the proposed extension will be approximately 5 dB, assuming the infrastructure would increase by approximately three-fold, with the number of birds increasing from 40,000 to 112,000 (3 dB when doubling the noise source and approximately 5 dB when tripling a noise source). The specific noise level will be below 45 dBA given that the existing is below 40 dBA. There is also unlikely to be a tonal component to the specific noise from the facility at 300 metres separation distance. Consequently, I would believe that the rating level will be at worst less than 5 dBA above background noise levels which would indicate that there would unlikely be an adverse impact from the proposed development. There is no objection in relation to noise in the granting of any permission. Acceptable.
Point 14: Dept. of Agriculture guidance for bait management plan submitted. Acceptable.
Point 15: Satisfactorily addressed.
Point 16: Satisfactorily addressed. Houses are 97.5m x 21m. Acceptable.

NOTE - The enterprise exceeds 40,000 no. broilers and is therefore subject to the requirement for an I.P.P.C. licence from the E.P.A. As a consequence, the Planning Authority cannot put environmental conditions on the permission.

Contributions:
Limerick City & County Council Development Contribution Scheme 2017-2021.
Not applicable, agricultural development is exempt.

Recommendation:

I recommend that planning permission be granted subject to conditions:

First Schedule

Having regard to the nature of the proposed development, it is considered that subject to compliance with the conditions as set out in the Second Schedule, the proposed development would be in accordance with the proper planning and sustainable development of the area.

Second Schedule

1. Std. insert 1 16/01/18 and 17/07/18.
2. Std. insert 67(b) *(replace house with poultry house)* insert: 79.3m on 16/01/18. C-001 16/01/18 LR
3. Prior to commencement of development a waste management plan shall be submitted for the written agreement of the Planning Authority to provide for the recovery/disposal of all wastes arising from the construction of a new poultry house and all associated site works.
   Reason: In the interest of proper planning and sustainable development.
4. All construction works shall be carried out in accordance to the relevant Department of Agriculture, Food & Marine building specifications.
   Reason: In the interests of proper planning and sustainable development of the area.
5. Std. insert 168 - The material finish and colour to be submitted for the written agreement of the Planning Authority prior to the commencement of development.
   Reason: In the interest of proper planning and sustainable development and to assist in assimilating the development into the rural landscape.
6. Std. insert 176. The plan shall include external (site boundaries) and internal site baiting plan with mapped locations. Bait take activity shall be monitored and managed and records of all bait monitoring/activity records shall be maintained for inspection purposes.
7. Std. insert 177.
8. The Applicant shall develop and submit for the written agreement of the Planning Authority a Constructional and Environmental Management Plan (CEMP) prior to the commencement of construction. The CEMP shall be fully implemented, and ensure that all work practices operate to standard operating procedures. The CEMP to include all mitigation measures as outlined in the EIAR as submitted on 17/07/18.
   Reason: In the interest of proper planning and orderly development.
9. All mitigation measures as outlined in the EIAR as submitted on 17/07/18 shall be implemented in full.
   Reason: To protect the environment and in the interest of proper planning and orderly development.
10. Archaeological monitoring by a qualified archaeologist shall be in place for all ground disturbance associated with the development. The name of the archaeologist shall be submitted to the Planning Authority four weeks in advance of the commencement of any site works. Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The Department of Culture, Heritage & the Gaeltacht and the Planning Authority Archaeologist shall be informed. The developer shall be prepared to be advised by the Department of Culture, Heritage & the Gaeltacht with regard to any necessary mitigating action and shall facilitate the archaeologist in recording any material found. On completion, an archaeological report detailing the works shall be submitted to the Planning Authority and the Department of Culture, Heritage & the Gaeltacht.
    Reason: In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.
11. A letter confirming Walsh Mushrooms/ Custom Compost shall take all the litter produced on site, noting the expected tonnage per annum (referenced as up to 896 tonnes) shall be submitted to the Planning Authority within one month of the notification of grant of permission.
    Reason: In the interest of proper planning and sustainable development.
12. In relation to separation distances under *S. 123 – Minimum Specification for Bovine Livestock Units and Reinforced Tanks* – the Applicant shall submit a letter to the Planning Authority within one month of the notification of grant of permission addressing separation distances.
    Reason: In the interest of proper planning and sustainable development.

Note: No effluent arising from the development shall be spread on lands in County Limerick without the prior written agreement of the Planning Authority.

Note: The enterprise exceeds 40,000 no. broilers and is therefore subject to the requirement for an I.P.P.C. licence from the E.P.A.

Note: Dedicated chapter to collate all 'mitigation and monitoring measures' and 'residual impacts' is to be outlined within the EIAR. The EIAR is to be accompanied by a Non-Technical Summary at all times.

Assistant Planner	**Lisa Ruttle**	**Date: 10th September 2018**
Signature:	Lisa Ruttle	
Senior Executive Planner		

For Office Use Only

Section 47 Y/N

Part V Y/N

Please prepare Managers Order for my signature Y/N

AISP

Stephen Scully

10/9/18

18/26

Planning Report
Limerick City & County Council

File No: 18/25
Applicant: Patrick O'Connell
Location: Ahawilk, Feohanagh, Castlemahon, Co. Limerick

Dev. Description: PERMISSION for the construction of two no. poultry houses and all associated site works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application

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Report: Report necessitated under the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environment Impact Assessment. March 2013 – Appendix to the Planner's Report for File Ref. No. P18/25.

Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environment Impact Assessment, March 2013.

Chapter 4 Procedural Issues

4.1 The EIA Directive requires that EIA be carried out in an open and transparent manner with the public and bodies with specific environmental responsibility being given an opportunity to comment and participate in the process of assessment (Article 6 of the Directive). The public concerned and persons with sufficient interest must also be given an opportunity to challenge the substantive and procedural legality of the final decision. (Article 11 of the Directive).

Planning Officer Comment:
Section 4.1 was complied with throughout the planning process relating to File Ref. No. P18/25. Public consultation was carried out and is set out in Section 3.1 Public Consultation, EIS.

4.2 In order to comply with the requirements of section 171A and section 172 and the requirements of Articles 6 and 11 of the EIA Directive, it is essential that an assessment of the environmental effects of relevant projects is carried out by the competent authority and that the assessment is clearly documented with a "paper trail" being available for public scrutiny and to facilitate and defend any legal challenge. To facilitate ease of communication etc., the 'paper trail' should also be in electronic format.

Planning Officer Comment:
Section 4.2 was complied with throughout the planning process relating to File Ref. No. 18/25. The necessary 'paper trail' exists on the public planning file and Planners Report.

4.3 In the case of applications being considered by a planning authority, internal planning authority reports (water services, environment, roads, etc.) on the proposed development should contain comments on the relevant information and assessment contained in the EIAR e.g. reports from the water services/environment section should comment on relevant issues relating to water quality. The main report on the planning application which would generally be prepared by the planner in the planning section/department (the planner's report) should co-ordinate the reports from various

sections within the planning authority and should contain a section clearly identified as an "Environmental Impact Assessment Report" - this section of the planner's report will hereafter be referred to as "the EIAR". That is, "the EIAR" is a section or chapter of the planner's report, which section or chapter should be headed "Environmental Impact Assessment Report". (Chapter 6 of the Development Management Guidelines for planning authorities (June 2007) contains detailed advice in relation to planners' reports). In the case of an application being dealt with by the Board, an EIAR should similarly be contained in the Inspector's Report unless a separate report is prepared on the EIA.

Planning Officer Comment:
Section 4.3 was complied with throughout the planning process relating to File Ref. No. P18/25. The EIA Report is set out in the original Planner's Report and is headed "The following is a summary of the EIAR which was submitted and considered as part of the planning application."

4.4 The EIA Directive and the Planning Act require that an assessment be carried out by the competent authority, i.e. the planning authority or the Board. It is, accordingly, necessary that the decision-maker in the planning authority (i.e. the manager or person to whom the decision-making power has been delegated) or in the Board, as appropriate, carries out an assessment. Therefore, the decision-maker must indicate in a written statement that he or she has read the EIA Report referred to above and/or any other report, which the decision-maker relies on in carrying out the assessment and either has accepted the conclusions of the planner/Board's Inspector, in whole or in part or has not accepted such conclusions. Where the decision-maker does not accept some or all of the conclusions drawn by the planner/Inspector in the EIA Report, he or she must in the written statement give reasons as to why he or she does not accept the conclusions in question. This written statement should be independent of the decision of the decision-maker as to whether to grant or refuse permission for the development. An example of a decision-maker's written statement, which may be appropriately adapted, is set out in Appendix 5.

Planning Officer Comment:
Please see attached EIA Report.

Lisa Ruttle
A/ Assistant Planner
Signed: Lisa Ruttle

Stephane Duclot
A/ Senior Planner
Signed:

10/9/18

18/25

Planning Report
Limerick City & County Council

File No: 18/25
Applicant: Patrick O'Connell
Location: Ahawilk, Feohanagh, Castlemahon, Co. Limerick
Dev. Description: PERMISSION for the construction of two no. poultry houses and all associated site works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application

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It is noted that the environmental impact assessment carried out by the Planners and reported on in the reports dated 07/02/2018 and the 24/05/2018 has been carried out giving full consideration to the environmental impact assessment report (EIAR) submitted with the Further Information submission for the application, all submissions and observations validly made in relation to the environmental effects of the development (and the views provided by the Planning Service of Northern Ireland – under section 174 of the Planning and Development Act 2000, as amended).

It is considered that the reports dated 07/02/2018 and the 24/05/2018 contain a fair and reasonable assessment of the likely significant effects of the development on the environment. Having regard to the character of the landscape in the area, the previous use on site it is considered that subject to conditions the proposal is acceptable.

In accordance with the EIS Guidelines for Planning Authorities and An Bord Pleanala on carrying out Environmental Impact Assessment dated December 2013, Stephane Duclot, Senior Planner, Limerick City & County Council has read the section of the Planners' Report titled "Environmental Impact Assessment Report" on the above application and has accepted the conclusions of the Planners.

Signed: _____ 10/9/18

Stephane Duclot
Senior Planner
Limerick City and County Council

18/25

Dated 10 **day of September 2018**

Compliance

PLANNING REF: 18/25

APPLICATION: PERMISSION for the construction of two no. poultry houses and all associated site works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environmental Impact Statement (EIS) has been submitted as part of the planning application

LOCATION: Ahawilk, Feohanagh, Castlemahon, Co. Limerick.

08-05-2018

MEHS
ENVIRONMENT, HEALTH & SAFETY

Patrick O'Connell, Ahawilk, Feohanagh, Castlemahon, Co. Limerick

Planning Department
Limerick City & County Council
County Hall
Dooradoyle,
Co Limerick

Kantoher Business Park
Killeedy, Ballagh,
Co Limerick

Mob 087 2390421
Email: trevor@mehs.ie

Ref: Patrick O'Connell, Ahawilk, Feohanagh, Castlemahon, Co. Limerick **REF: 18/25**

Dear Sir / Madam,

Thanks, you for the request for further information

Point 1 **Environmental Impact Assessment Report**

An Environmental Impact Assessment Report is attached in Attachment 1

Point 2 **Sightlines**

We proposed to cut back the hedgerow on both side of the roads exiting the site to improve visibility. As the road is two car widths but there is a good slight line in either directions.

See attachment 2

Point 3 **Surface Water**

See attachment 3

Point 4 **Bird Numbers**

The existing poultry farm has the capacity of 40,000 birds and the proposed houses are 36,000 each brining the capacity of the poultry farm to 112,000 birds

Point 5 **Occupancy**

The dwelling on the farm on-site is occupied by the O'Connell family

Limerick City & County Council
Planning and Environmental Services
16 JUL 2018

Point 6 **400 meters to closest dwelling**

As discussed with Aidan Lenard of the Environmental Department, the location of the poultry houses is recommended by Western Brand. Patrick O'Connell has been a supplier with Western Brand for over 20 years and they have recommended the proposed layout to be compliant with best practice for site hygiene.

Point 7 **Ambient Air**

See section 9 of the EIAR in Attachment 1

Point 8 **Emissions from the Site**

We used the SCAIL online software to estimate emissions from the site, which is attached in the EIAR

Point 9 **Surface water contamination**

This is covered within the EIAR

Point 10 **Poultry Litter**

All Poultry manure will be exported to Walshe Mushroom / Custom Composting in the short term we would envisage that within the next 3 to 5 years with the development of Renewable Heating Incentive (RHI) all poultry houses with greater than 100,000 birds will use combustion system to heat the poultry houses and thereby avoiding the need to export poultry litter.

The volume of poultry litter generated is typically 5 kg / bird place / year for 112,000 birds the volume would be 560 tonnes of poultry litter but experience from poultry farmers in Ireland is the figure is close to 8 kgs / bird / year, which would produce 896 tonnes. Source of the calculations table 3.38 from the 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) produced by the European IPPC Bureau

Poultry litter will not be land spread from Patrick O'Connell farm

Table 3.38: Composition and production of manure from different poultry species and manure management in France

Animal production	Type of manure	Manure produced			Cycles per year	Animal density (initial)	Nutrient content in the manure (kg/tonne)				
		kg/bird place per year (1)	kg/m² per year	DM (%)	No	animal per m²	N	P_2O_5	K_2O	CaO	MgO
Laying hens	Wet droppings	NI	NI	25	1	NI	15	14	12	40.5	3
	Pre-dried droppings on belt	30–40	NI	40	1	NI	22	20	12	50	4.8
	Dried droppings in deep pit	15–17	NI	80	1	NI	30	40	28	60	8
	Dried droppings under shed	15–17	NI	80	1	NI	40	40	28	60	8
	Slurry	70	NI	10	1	NI	6.8	9.5	5.5	16.2	1.2
	Aviary	NI	NI	33–44	1	NI	15–28	10–12	7–8	NI	2–3
Ducks	Slurry	82	NI	10–15	4.9	14.5	5.9	5.9	4.1	6	1
Standard broilers	Solid manure from housing	5	120	75	6.15	22	29	25	20	14.5	3.7
	Solid manure after storage	5	120	75	6.15	22	22	23	18	11	2.8
Heavy broilers	Solid manure from housing	12–14	130–150	70	3.25	11	20	18	15	10	2.5
	Solid manure after storage	12–14	130–150	70	3.25	11	15	17	14	7.5	1.9
Turkeys	Solid manure from housing	19–22	150–170	65	2.6	7.8	27	27	20	23.5	3.7
	Solid manure after storage	19–22	150–170	65	2.6	7.8	21	25	18	18.2	2.8
Guinea fowl	Solid manure from housing	7–8	110–130	70	3.63	16.3	32	25	20	18	2

(1) Values calculated on the basis of the reported data.

NB: NI = no information provided.

Source: [258, France 2010] [328, CORPEN 2006] [434, ITAVI 2001]

Point 11 Wash Water Tank

The Proposed tank including drawing is attached (attachment 4)

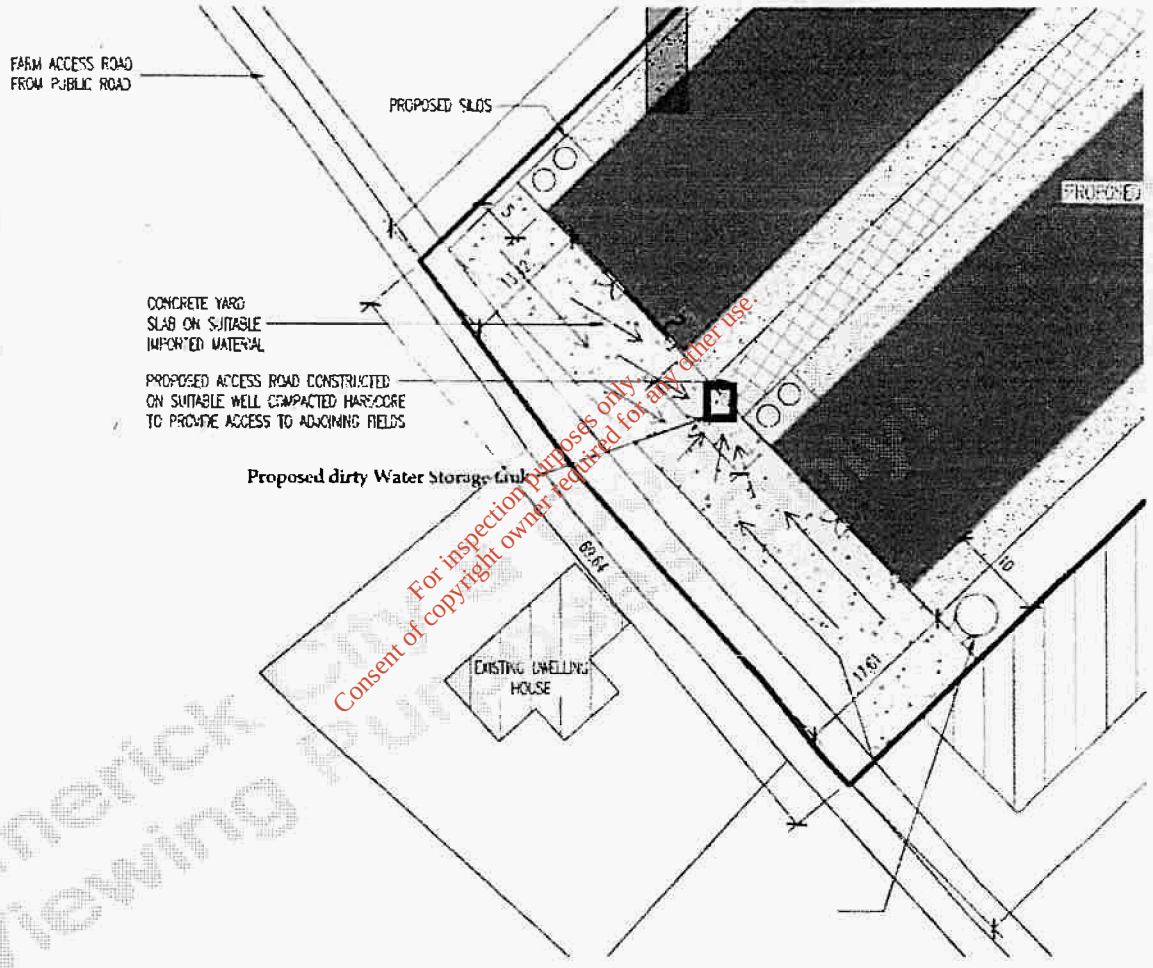
All land spreading of wash water will be conducted in compliance with the EU (Good Agricultural Practice for the Protection of Water) Regulation 2014. The land spreading of wash water and runoff from the concrete area will be completed when weather conditions allow and the farms slatted unit can provide addition capacity if required.

As the requirement for 15 days' storage we have proposed a wash water tanks is 150 m3 with a normal freeboard of 200 mm would reduce the capacity of the tank to 130 m3. Following previous discussions with the Environment Section the weekly rainfall of 26 mm per week hence for 15-day return period the rainfall would be 55.8 mm. The yard of the proposed poultry house is proposed to be 1050 m2. Hence 55.8 mm of rainfall would result in 58.6 m3 of water entering the wash water tanks.
Area of concrete yard in front of the proposed poultry houses is 1050 m2

Volume of rainfall 55.8 mm over 15 days
Volume of rainfall required for storage 58.6 m^3
Volume of water from washing out the proposed poultry houses is 12 m^3
Total storage required is 70.6 m3

All land spreading of wash water will be conducted in compliance with the EU (Good Agricultural Practice for the Protection of Water) Regulation 2014.

All the concrete yards will slope into underground tank with a concrete kerbing around the tank as shown below



Point 12 Wash Water & Potable water

The poultry houses are cleaned by removing all the litter, then power washing the house to a clean finish. The poultry house is then allowed to dry for 2 to 6 hours and the disinfectant is applied with a knapsack sprayer, then after contact time is risen and the house allowed to dry before fresh litter is spread. The disinfectant recommended by the dept of agri, poultry processors and bord bia is Jeyes Fluid at a concentration of 50 ppm. The disinfectant water volume is typically 50 litres at a concentration of 50 ppm which uses 0.6 litres per cleanout.

See attachment with SDS and Dept of Agri

See well water analysis attachment 5

Dwelling 1 to 4 is connected to the local water scheme and dwelling 5 has a well and is connected to the local water scheme.

Surface water from the existing and proposed poultry houses will discharged to a drainage ditch

The area is served by the Killeedy Group Water Scheme but the dwelling is served by the on-site well

Point 13 Noise Assessment

See attached noise Assessment (attachment 6)

Point 14 Bait Management

The site uses Storm secure is a potent anti-coagulant rodenticide effective against all species of rats and mice, including those resistant to other products.
Storm will kill rats and mice following a single feed but death occurs after several days, therefore bait shyness and the need for pre-baiting are avoided. Storm is ready to use and should not be diluted by the addition of other foodstuffs.
See attached Procedure, Dept of Agri info and SDS (Attachment 7)

Point 15 Clarification

This is a mistake and should state Mr O'Connell

Point 16 House dimensions

The proposed houses are 97.5 m x 21m

Point 17 Architectural

This has been updated in the EAIR

Please contact me if you require further information on the matter.

Yours sincerely

Trevor Montgomery, Post Grad Dip, BSc, Dip Mgmt., Dip Poll Ass & C,
Cert Envn Mont, Cert HSWW
Environmental and Health & Safety Consultant.

Limerick City & County Council
16 JUL 2018
Planning and Environmental Services

Attachment 1

MEHS

ENVIRONMENT, HEALTH & SAFETY

Patrick O'Connell,
AHAWILK, FEOHANAGH, CASTLEMAHON CO LIMERICK

Environmental Impact Assessment Report

May 2018

Control Sheet

Document Title:	Volume I: Environmental Impact Assessment Report Ahawilk, Feohanagh, Castlemahon Co Limerick	Document No.	MEHS 18-22

Rev	Description	Originator	Reviewer	Change	Date
01	Draft	T M	M M	Review	03 May 18
02	Review	M M	T M	Review	12 May 18
03	Final	T M	M M	Final	25 May 18

Environmental Impact Assessment Report

Contents

1 Introduction

1.1 Introduction

MEHS has been appointed by Patrick O'Connell to prepare an Environmental Impact Assessment Report (EIAR) and Appropriate Assessment Natura Impact Statement (AA NIS) in support of a planning application and IED Application to the EPA for his existing poultry growing facility at Ahawilk, Feohanagh, Castlemahon Co Limerick. The planning application relates to the construction of two poultry houses and associated works.

1.2 Background

The Patrick O'Connell facility will requires an planning permissions and IED license as the site will expand to above 40,000 birds.

The E.I.S. forms part of a planning application to Limerick City & County Council on behalf of Patrick O'Connell, Ahawilk, Feohanagh, Castlemahon Co Limerick seeking planning permission for the construction of two poultry houses, soiled water tank and associated site works at Ahawilk, Feohanagh, Castlemahon Co Limerick.

The existing poultry houses have the capacity of 40,000 birds and the proposed addition of 2 new 36,000 bird houses. The proposed site capacity will now be 112,000 for the production of chicken for human consumption in welfare friendly system. Total site capacity upon completion of the proposed development will be 112,000 birds from 40,000 birds. The proposed house and extended poultry house are to be constructed in accordance with, and to comply with, S.I. No. 14 of 2008 EUROPEAN COMMUNITIES (WELFARE OF FARMED ANIMALS) REGULATIONS 2008. The proposed development will be constructed on the existing site, at Grid Reference R 29124 29065 (O. S. Map no.64).

The applicant, Patrick O'Connell currently operates and manages an existing poultry operation comprises of two poultry houses which have a capacity of 40,000. The site currently operates as a broiler operation with 40,000 between the two existing houses. There is 1 person employed directly at this site with additional jobs in the areas of transport, feed, hatchery, etc. indirectly employed. The operation of the proposed development as with the existing operation will be carried out in a welfare compliant environment. The increased capacity at Patrick O'Connell poultry growing operation will help meet the growth in the poultry sector. All birds produced on this site will be sent to the one of the chicken processing plants in Ireland which is:

- Carton Bros, Shercock, Co Cavan
- Western Brand, Ballyhaunis, Co. Mayo
- Shannonvale Foods, Clonakilty, Co Cork

At a conference in November 2010 Dermot Ryan, Deputy Chief Inspector at the Department of Agriculture, Fisheries and Food drew attention to the Department's recently launched Food Harvest 2020 report and the particular provisions of this initiative that "will be significant to the development of the poultry and egg sector over the coming decade." He highlighted the

importance of research into "new technologies aimed at improving production efficiencies as well as further development of innovative and value-added output as crucial to competitiveness and future growth."

Speaking at the event Aidan Cotter, Chief Executive, Bord Bia commented "The poultry and egg sector remains a valuable and integral part of the Irish agricultural economy, with output at farm level estimated at €150 million in 2009 (€120 million from poultry meat and €30 million from eggs). The sector is a significant employer in rural Ireland with over 6,000 people employed in poultry processing and egg packing and up to a further 900 farms involved in the production of poultry and eggs."

Ireland has one of the highest levels of poultry meat consumption within the EU, with in excess of 30kg per capita consumed and this volume is increasing with annual chicken sales up by 5% over the past year. However, one of the greatest issues for the poultry meat sector is the level of imports which continue to exert downward pressure on the market and the indigenous Irish poultry industry.

The increase in the capacity at Patrick O'Connell's poultry growing facility will help meet the growth in the sector description of the development.

1.3 Site and Surrounding Lands Description

The total area of the site, incorporating existing and proposed areas is 1.8 Hectares with the proposed area being 0.8 hectares. The proposed poultry houses are to be situated alongside the existing houses and approximately 100m from the road along the site's boundary.

The location of the proposed development at Patrick O'Connell's poultry growing operations is at Ahawilk, Feohanagh, Castlemahon Co Limerick.

The site is located 8.5 km to the south of Newcastle West, Co Limerick, approximately 45km southwest of Limerick City. The village of Feohanagh is located to the east, approximately 1.8 km from the proposed development. The townland of Balliniska is situated north of Ahawilk to the east the townland of Ahawilk and Iniskeen, to the west of the site is Moanroe Beg, Moanroe More and Raheenagh and to the south is Gorteen and Killoorha.

The nearest dwelling houses is the Patrick O'Connell at a distance of approximately 80 to the north west from the site. The next dwelling house is approximately 280 m from the site. The area is extremely rural and not highly populated. The site of the proposed house is currently used for silage cutting

The site boundary is marked by a combination of hedgerows and fencing. The existing poultry growing facility is situated on flat ground and is largely screened from views from all directions due to the trees characteristic and of the topography. However every effort would be made by the developer to further obscure the poultry growing facility from the surrounding areas, if necessary, by planting further hedgerow, with native trees and shrubs.

The proposed poultry houses will have a capacity of approximately 34,000 birds each and the house dimensions would be 100 m x 21m. The existing poultry

houses have a capacity of approximately 23,000 and 17,000 birds each and the house dimensions are 80 m x 20m The maximum height of the proposed house would be approximately 5.5 meters to apex. The proposed soiled water tank will be located to the front of the proposed poultry house and will have a capacity of approximately 150m3.

The existing entrance located at the eastern boundary would facilitate the proposed and existing house, as indicated in the Site Layout Plan (Figure 5).

1.4 Planning and Consents History

This planning application seeks to receive planning permissions for 2 poultry houses and associated works

1.4.1 Recent Planning Applications

File Number	Development Description
16/1180	the construction of 2 no. poultry houses and all associated site works. The development requires an EPA Industrial Emissions License (formerly Integrated Pollution Prevention and Control License). An Environment Impact Statement (EIS) has been submitted as part of the planning application
15/209	The construction of an easyfeed slatted cubicle house extension, re-roofing of an existing cubicle house, the construction of a calf house/calving pens and the extension of a steel slurry tower and compacted earthen bund/lagoon
05/324	Construction of steel slurry tower, silage base, soiled water tank, also the conversion and extension of an easyfeed silage layout to an easyfeed slatted cubicle house and calving boxes
97/495	Erection of poultry house
86/26135	Erection of extension to house

To ensure a comprehensive assessment was completed which included all existing, permitted and proposed developments at the Patrick O'Connell facility, these developments have been assessed as existing and operational structures and have formed part of the baseline assessments completed to inform this EIAR.

1.5 Regulatory Requirement for an EIAR

Patrick O'Connell will be applying to the EPA for an Industrial Emissions Directive Licence and the current planning permission for two proposed poultry houses.

1.6 Directive EIA 2014/52/EU

This EIAR has been produced following the deadline of 16lh May 2017 by which Directive EIA 2014/52/EU was to be transposed into Irish law. On 15lh May 2017, the Department of Housing, Planning, Community and Local Government issued Circular Letter PL 1/2017 providing advice on the administrative provisions in advance of the transposition of the Directive into Irish Law. As the Directive was not transposed into Irish Law by this date, the circular stated the following:

"In respect of applications for planning permission or other development consent received on or after 16 May 2017 falling within the scope of Directive 2011/92/EU, or within the scope of Directive 2014/52/EU, competent authorities are advised to consider applying the requirements of Directive 2014/52/EU by way of administrative provisions in advance of the transposition of Directive 2014/52/EU into Irish law."

At the time of writing this EIAR, the Directive had not been transposed into Irish Law and the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended) had not been amended to reflect the EU Directive. To ensure this EIAR complies with Directive 2014/52/EU, the amendments required by the 2014 Directive have been incorporated into this document.

1.7 Consultation and Scoping for the EIAR

Consultation is a practice that is carried out to ensure that all relevant issues are addressed in the EIAR. The consultation process for the current facility involved the distribution of a formal Scoping Consultation Document to a number of Consultees asking them for a written opinion on the proposed content of the EIAR. The following bodies were consulted in late 2017:

- Limerick City and County Council;
- Environmental Protection Agency;
- National Parks and Wildlife Service (NPWS).

2 The Environmental Impact Assessment Report

2.1 The Environmental Impact Assessment Report

The EIAR is a legal document and has been developed in line with requirements of national and international legislation, including the amendments to Environmental Impact Assessment stated within EIA Directive 2014/52/EU. This section outlines the primary sections of this document.

2.2 General Guidance

This EIAR has been prepared in accordance with requirements of the *Planning and Development Act 2000 and the Planning and Development Regulations 2001 (as amended)*. Consideration has also been given to the requirements outlined in the Directive 2014/52/EU on the effects of certain public and private projects on the environment, which provides amendments to the previous Directive 2011/92/EU. Subsequently consideration has been given to the circular letter issued by the Department of Housing, Planning, Community and Local Government *(Ref No. PL 1/2017)* on the 15th May outlining the requirements of the amended Directive as discussed above in section 1.6.

The EIAR has also been prepared in accordance with the following EPA documents and relevant best practice guidelines:

- "Advice notes on current practice in the preparation of Environmental Impact Statements" (2003); and
- "Advice Notes for Preparing Environmental Impact Statements" draft (2015)
- "Revised guidelines on the information to be contained in Environmental Impact Statements,(draft September 2015).

"Guidelines for Planning Authorities and An Bord Pleanala Carrying out Environmental Impact Assessment" Department of the Environment, Community and Local Government (2013).
Where a specialist chapter incorporates additional best practice or guidance documents these are outlined within the relevant section's methodology.

2.3 Structure of the EIAR

This EIAR is accompanied by an NIS and a Non-Technical Summary (NTS) of the EIAR. These documents are separate from this EIAR but form part of the overall impact statement. The structure of this EIAR adopts a sequence as follows:

- General Description of the EIAR and how it relates to the development;
- Description of the Development;

- Alternatives considered;
- Impacts – incorporating baseline data and specialist findings;
- Interactions.

With respect to the assessment of various environmental factors potentially impacted on by the proposed development, reference is made to Annex IV, Section 4 of the 2014 Directive in which the EIAR will contain:

'A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.'

The interactions between each of the relevant factors has also been assessed.

Regarding potential impacts on the environment, vulnerability of the project to 'major accidents and/or natural disasters (such as flooding, sea level rise, or earthquakes)' has also been considered as per the 2014 Directive. Potential impacts associated with such events are discussed under each relevant chapter e.g. the vulnerability of the project to flooding is assessed under Chapter 13 – Water (Hydrology) of this EIAR.

In the description of the impacts of the activity the following attributes of the receiving environment and their interactions are described:

- Biodiversity - Terrestrial Ecology;
- Biodiversity - Aquatic Ecology;
- Land (Soils, Geology, & Hydrogeology);
- Noise and Vibration;
- Air Quality and Odour;
- Cultural Heritage;
- Population and Human Health.
- Water (Hydrology);
- Material Assets, and
- Interactions between the Factors.

2.4 Methodology

2.4.1 Assessment of the Effects – Evaluation Criteria

The assessment of effects has been undertaken in accordance with best practice, legislation and guidance notes. The significance criteria as set out in the EPA Guidelines (2002, 2003 and 2015 (Draft)) and listed in Table 2.1 below have been followed throughout this EIAR unless otherwise stated in the methodology for each chapter and/or specialist reports.

Table 2.1: EIAR Assessment Criteria

Significance Level	Criteria
Profound	An impact which obliterates sensitive characteristics
Significant	An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Moderate	An impact that alters the character of the environment in a manner that is consistent with existing and emerging trends.
Slight	An impact, which causes noticeable changes in the character of the environment without affecting its sensitivities.
Imperceptible	An impact capable of measurement but without noticeable consequences.

As per the EPA Guidelines, impacts are considered as being negative, neutral or positive in nature. Impacts are also considered as being direct, indirect and/or cumulative, as appropriate. Duration of impact is considered as being:

- Temporary (up to one year);
- Short-term (from 1 to 7 years);
- Medium-term (7 to 15 years);
- Long-term (from 15 to 60 years); or
- Permanent (in excess of 60 years).

2.5 Project Team

This EIAR has been prepared by an MEHS EIA Project Manager assisted by a team of qualified and experienced environmental specialists ('competent experts').

The EIAR has been prepared utilising both desk-based information including the previous planning applications, site reports and other third party inspections undertaken as required by Limerick City and County Council, Bord Bia and other regimes for the facility, and also site based assessments to fully understand the existing baseline situation at the Patrick O'Connell facility and surrounds.

2.6 Guide to the Document

The document has been structured to facilitate a clear presentation of the proposed development, the potential impacts on the environment and the measures to mitigate these. Accordingly, the remainder of the document is set out as follows:

Chapter Three - Description of the Existing Development

Describes the existing processes and infrastructure at the Patrick O'Connell facility.

Chapter Four - Description of the Proposed Development

Provides a detailed description of the proposed developments being put forward by Patrick O'Connell facility.

Chapter Five – Alternatives Considered

It is a statutory requirement that a detailed evaluation of alternatives is undertaken within the EIA process. This chapter looks at 'reasonable alternatives studied by the developer' including potential alternative processes, movement of the development elsewhere and a do-nothing scenario and discusses the main reasons for the chosen option as required under the 2014 EIA Directive 2014/52/EU.

Chapters 6 to 13 – Impact Assessments

Chapters 6 to 14 comprise a number of detailed technical assessments of the proposed development to ensure all potential impacts of the proposed development on the environment are addressed, including:

- Biodiversity - Terrestrial Ecology Assessment;
- Biodiversity - Aquatic Ecology and Appropriate Assessment;

- Land (Soils, Geology and Hydrogeology);
- Noise and Vibration;
- Air Quality and Odour;
- Cultural Heritage,
- Population and Human Health;
- Water (Hydrology); and
- Material Assets.

Chapter 14 – Interactions between the Factors

Chapter 14 assesses the interactions between the aspects of the environment likely to be significantly affected by the proposed development.

3 Chapter Three – Description of the Existing Development

3.1 Introduction

The total area of the site, incorporating existing and proposed areas is 1.8 Hectares with the proposed area being 0.8 hectares. The proposed poultry houses are to be situated alongside the existing houses and approximately 100m from the road along the site's boundary.

The proposed site at, Ahawilk, Feohanagh, Castlemahon Co Limerick is located within the town land of Ahawilk, approximately 8 km south east of the town of Newcastle west as shown on Figure 1.0.

The proposed development will be constructed on the existing site, at grid reference R 29124 29065 (O. S. Map no.64). The poultry facility is situated west of the regional road (R522) and which connects to the N21 to the north. The proposed house would lie approximately 100 m from the local road (L1311).

The site is located in a rural farmland area. The nearest dwelling house is that of family of Patrick O'Connell at a distance of approximately 80 metres west from the site. The area is rural and with a low density population. The site of the proposed poultry house is currently used for silage cutting.

The site boundary is marked by a combination of hedgerows and fencing. The existing poultry growing facility is situated on flat ground and is largely screened from views from all directions due to the trees characteristic and of the topography. However every effort would be made by the developer to further obscure the poultry growing facility from the surrounding areas, if necessary, by planting further hedgerow, with native trees and shrubs.

3.2 Use of Natural Resources - Water and Power Supply

Water serving the Patrick O'Connell facility is supplied primarily from groundwater sources on site and the secondry public water supply. Patrick O'Connell facility has a single well, located within the existing site boundary. The well is not impacted by the proposed development and will continue to be used as a ground water source throughout the operational phase of the proposed poultry house.

In 2017 Patrick O'Connell facility utilized the following of energy streams:

- Electricity consumption 22,800 KWHrs;
- LPG:3480 Litres.

The proposed developments discussed below in Chapter 4 will increase the power or water requirements at the Patrick O'Connell facility.

3.3 Hours of Operation & seasons of operation

The Patrick O'Connell facility operates 365 days a year with typically 6 or 7 batches of poultry. The activity between batches is low with delivery of feed and LPG the only activity.

3.4 Input Raw Materials

The raw material for the facility is predominately litter, feed and LPG, which is supplied by dedicated suppliers. The birds after the 7 week batch are collected in specialized trailers and transported to the poultry processers. Additionally, the site requires:

- Small volumes of chemicals for cleaning;

Waste arising from the development is predominately liquids generated during the cleaning of the houses following emptying of the houses. The liquid collected from this process are land spread in accordance with Nitrate regulations and in compliance with restrictions set by the EPA and Limerick City & County Council.

3.5 Drainage Infrastructure

Surface water drainage at the Patrick O'Connell facility is directed to the surface water tank. Clean water from the roofs are directed to surface water

The existing surface water management regime on the facility comprises the collection of any potential contaminated surface water run-off via paved surfaces and its diversion into the storm water tanks.

3.6 Foul Waste Water

Waste water emissions from the existing Patrick O'Connell facility comprise of domestic sewage.

The domestic effluent is treated in the system associated of the O'Connell domestic dwelling

3.7 Waste

The main type of non-hazardous waste produced on the Patrick O'Connell facility is Poultry Litter, fallen birds and a small volume of domestic waste.
The non- hazardous waste that is removed from the site goes to a segregation station where further segregation and recycling take place.

Landspreading of poultry litter will not occur and the litter will be used in the mushrooms composting process.

3.8 Environmental Management and Emissions

Patrick O'Connell facility will operate as part of the proposed IED an Environmental Management System (EMS) covering the following:

- Identification of key environmental impacts of the operational activities;
- The setting of objectives and targets and a programme of improvements;
- Regular monitoring of environmental performance;
- Regular auditing both by internal and external groups;
- Establishment of operational controls to prevent and minimise significant impacts;
- Regular reporting of environmental performance;
- Monitoring and control systems reviewed and amended;
- Environmental procedures including incident reporting, complaints, and emergency procedures established;
- Provision of environmental awareness training and,
- Operation of preventative maintenance programmes.

3.9 Monitoring

The site has a number of requirements in relation to Bord Bia certification for example litter disposal, fuel deliveries, litter supply and other consumables.

3.9.1 Water Quality Monitoring

Under Bord Bia and good agricultural practice the surface drains around the site are inspected on a regular basis.

3.9.2 Monitoring of Air Emissions

The site has emissions from the heating system and the storage of the birds and litter in the sites.

An assessment of potential air quality and odour impacts which includes existing emissions to air from the existing Patrick O'Connell facility within the baseline assessment is provided in **Chapter 9: Air Quality and Odour.**

3.9.3 Noise Monitoring

Patrick O'Connell facility has no noise monitoring but noise monitoring has been conducted as part of the proposal, according to the Agency's "*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities*", *NG4, 2016 and ISO 1996 "Description and measurement of environmental noise*". Ambient noise was measured at 4 no. noise monitoring locations, which includes a number of noise sensitive locations/receptors and site boundary locations. The location of noise monitoring points are shown on **Figures 9.1**

Noise monitoring conducted in late 2017 concluded that some exceedances did occur at select noise monitoring locations for both daytime and night-time ELVs.

An assessment of noise emissions on site, the control of noise on site and a detailed assessment of noise emissions in relation to the proposed development is provided below in **Chapter 9 Noise and Vibration.**

3.9.4 Pest Control

The site now employs an external contracted under the service agreement to provide pest control and monitoring of Patrick O'Connell facility. The site is audited quarterly by field biologist to log pest levels, monitor the effectiveness of controls onsite and identify any performance issues in relation to the pest management system at both sites. Pest management training is also provided to staff.

At the Patrick O'Connell facility, 45 external rat and mice traps are checked, monitored and re-laid on a monthly basis.

3.9.5 Wash Water and Landspreading

The wash water and contaminated storm water from the facility is collected and landspread.

Land parcels or sections of land parcels containing the following constraints to the spreading of sludge are avoided by Patrick O'Connell to screen out and minimise the potential environmental impacts of land spreading in such areas:

- Waterlogged land;
- Land which floods or is likely to flood;
- Frozen or Snow covered land;
- Steeply sloping ground, (ie; gradients greater than 115);
- Exposed bedrock;
- Fields that have been piped or mole drained where soil is cracked down to the drains or backfill;
- Fields that have been piped or mole drained in the previous 12 months, and
- Free-draining areas where the water table is within 1 m of the surface at the time of application.

The following buffer zones (listed in Table 3.8) in which no spreading occurs are implemented during land spreading at all suitable landbanks to avoid potential environmental impacts:

Table 3.1: Landspreading Buffer zones implemented at landbanks

Waterbody/Feature	Buffer Zone (m)
Extraction point of water supply providing 100m³ or more of water per day, or serving 500 or more people.	200
Extraction point of water supply providing 10m³ or more of water per day, or serving 50 or more people.	100
Extraction point of any other water supply for human consumption and all wells.	25
Lake shoreline or main river channel	20
Any other watercourse	10
Sensitive Buildings (e.g. schools, Hospitals)	200
Dwelling Houses	100
Public buildings or amenity areas.	50
Public Roads	10

In order to conform to the relevant legislation and to minimise the risk to pollution associated with the land spreading of organic fertilizer, the following conditions are met:

- Organic fertiliser will be applied to land in as accurate and uniform a manner as possible, using spreading machinery correctly calibrated and in good condition.
- The organic fertiliser will only be applied using low trajectory spreaders, band spreader or injection methods. Spray drift must be avoided and so the use of machinery with upward facing splash plate is not permitted.
- Organic fertiliser cannot be spread during the periods outlined in Schedule 4 of the Good Agricultural Practice for Protection of Waters 2010 including amendments S.I. 125 of 2011 & S.I. No 134 of 2014 or when heavy rain is forecast within the next 48 hours.
- Land spreading will be carried out as early as possible in the growing season, or to coincide with the growth patterns of a particular crop. This will maximise the uptake of nutrients by crops and thereby decrease the risk of pollution.
- The quantity of organic matter applied to land will not exceed the nitrogen and phosphorus requirements of the crop, or those detailed in the Nutrient Management Plan. The amount of organic matter applied to land, together with that deposited by livestock, cannot exceed an amount equaling 170 Kgs per hectare per annum.
- Spreading will not be undertaken on lands delineated as Source Protection Areas where areas of extreme vulnerability classification are determined within the Outer Source Protection Area. Areas of high,

moderate, or low vulnerability within the Outer Source protection area are subject to organic loading rates, as specified in the GSI Response Matrix for land spreading of Organic waste.

4 Chapter Four – Description of the Proposed Development

4.1 Introduction

The proposed poultry houses will have a capacity of approximately 36,000 birds each and the house dimensions would be 100 m x 21m. The existing poultry houses have a capacity of approximately 23,000 and 17,000 birds each and the house dimensions are 80 m x 20m The maximum height of the proposed house would be approximately 5.5 meters to apex. The proposed soiled water tank will be located to the front of the proposed poultry house and will have a capacity of approximately 150m3.

The existing entrance located at the southern boundary would facilitate the proposed and existing house, as indicated in the Site Layout Plan (Figure 5).

Drainage:
Uncontaminated yard and roof runoff are diverted via the surface water gullies to a drain and piped into the site drainage ditch and the same will apply to the new house.

Foundation:
The proposed poultry house, as with existing house, would be constructed on an impermeable concrete foundation, to be laid by the developer or a hired subcontractor. This phase would take approximately six to seven days.

Housing:
The housing will be installed by an approved contractor and will consist of a concrete base of approx. 400 mm with a 1 meter concrete wall, on which the prefabricated timber housing will be secured. The structure is insulated with 4" fibreglass wool. See Figures 5 and 6 for a description of the location of proposed housing.

Roofing:
The roofing will be an insulated timber construction, with an outer aluminium surface.

Wash Tanks:
The proposed wash tank of 150m3 capacity will be situated underground and adjacent to the proposed house and constructed of reinforced concrete. The volume of wash water generated would be approximately 6 to 8m3 per batch.

The tank construction will conform to the Department of Agriculture, Food and Forestry's Specification No. 123 "Minimum Specification Slatted Livestock Units: Reinforced Concrete Tanks" DAFF, 1994.

Feed Silo:
On completion of construction works a feed silo of approximately 7.6m high and 3.0m diameter will be installed and will be placed adjacent to the new house.

Heating:
Gas heating will be installed in the proposed poultry house.

Feeding / Drinking Apparatus:
An auger style feeding system and nipple-type drinkers will be installed in each unit.

Timescale:
The construction works are expected to occur over duration of approximately one month. The extra traffic and noise generated will be temporary.

5 Chapter Five– Consideration of Alternatives

5.1 Introduction

The Planning and Development Regulations 2001-2015 as amended, specifies the information to be contained within an 'EIS', now known as an EIAR. Schedule 6 1(d) specifies that an 'EIS' shall include "*An outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice taking into account the effects on the environment.*" The 2014 EIA Directive 2014/51/EU (Article 5 paragraph 1d) also outlines the requirement for "*A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;* This chapter will review the potential options assessed and highlight the preferential option being proposed by Patrick O'Connell facility which will result in the least environmental impact.

5.1.1 Competent Expertise

The consideration of Alternatives Chapter was completed by Trevor Montgomery of Montgomery EHS. Trevor possesses a BSc (hons) form IT Sligo specialising in Environmental Science and also an Post Graduate Diploma in Environmental Protection from IT Sligo.

Trevor has worked as an environmental and safety consultant since 2010 and has produced numerous alternatives assessments, socio economic assessment and human health assessments for a diverse range of developments such as wind farms, landfill, waste sites and wastewater plants throughout Ireland, and the United Kingdom.

5.2 Guidance on Assessing Alternatives

Guidance documents produced by the Agency[1] [2] and at EC[3] level provide direction in interpreting the requirements for the evaluation of alternatives. The EU EIA Guidelines on scoping refer to four components in the consideration of alternatives and these include:

- Alternative Locations
  Some locations have more inherent environmental problems than others. Such sites can usually be avoided in favour of sites which have fewer constraints and more capacity to sustainably assimilate the project. It can be useful to ensure that a range of options that may reasonably be expected to be considered are included in the evaluation.

[1] Guidelines on the Information to be Contained in Environmental Impact Statements, Environmental Protection Agency, 2002
[2] Revised Guidelines on the Information to be contained in Environmental Impact Statements, Environmental Protection Agency, Draft 2015
[3] Guidance on EIA Scoping, European Commission, 2001

- Alternative Layouts
  Alternative layouts can often be devised to consider how different elements of a proposal can be arranged on a site, typically with different environmental, as well as design, implications.

- Alternative Designs
  Most problems will be capable of being resolved by a number of design solutions by varying key aspects such as the shape of buildings or the location of facilities. Where designers are briefed at an early stage on environmental factors, these can usually be considered during the design development process, along with other design parameters.

- Alternative Processes
  Within each design solution there can be a number of different options as to how the processes or activities of the project can be carried out. These can include such aspects as management of process that affect the volumes and characteristics of emissions, residues, traffic and the use of natural resources.

The Guidelines also state that alternatives are essentially different ways in which the developer, or in this case the operator of an existing activity, can feasibly meet the project objectives. Generally, the EU Guidelines seem to envisage that alternatives are identified and reviewed at the outset of the project while mitigation measures can also play a role in the process in terms of alternatives considered.

The draft EPA guidelines produced in 2015 state that the presentation and consideration of the various reasonable alternatives investigated by the applicant is an important requirement of the EIA process. Such considerations will indicate the primary reasons for selecting the project that is being submitted for consent.

The EPA 2002 Guidelines on EIA (pg. 12) state that "*the consideration of alternative routes, sites, alignments, layouts, processes, designs or strategies, is the single most effective means of avoiding environmental impacts.*" However, they also note that it is important from the outset to acknowledge the existence of difficulties and limitations when considering alternatives. The EPA continues to discuss these difficulties and limitations at some length and these are summarised below:

- The EPA is only concerned with projects. Many projects arise on account of plans, strategies and policies which have previously been decided upon in some instances. Neither the applicant nor the competent authority can be realistically expected to examine options which have already been previously determined by a higher authority.

- It is important to acknowledge that other non-environmental factors may have equal or overriding importance to the developer, e.g. project economics, land availability, engineering feasibility, planning considerations.

- The consideration of alternatives also needs to be set within the parameters of the availability of land or the need for the project to accommodate demands or opportunities which are site specific. Such considerations should be on the basis of alternatives within a site, e.g. design, layout.

The EPA Guidelines note that alternatives often arise as a result of consultation processes.

5.3 Reasonable Relevant Alternatives Assessed

As per Article 5(1) of the 2014 directive this section includes 'a description of the reasonable alternatives studied by the developer, which are relevant to the project and it's specific characteristics and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment'. There are four main reasonable relevant alternatives and a preferential option that are therefore reviewed in this Chapter to comply with the EPA Guidance produced in 2002 and 2015 and the requirements of the 2014 Directive:

- Do Nothing Scenario – where the facility does not seek the necessary planning permissions to enable KIIL to meet the requirements of the Surface Water Regulations (S.I. 272 of 2009);
- Alternative Location where the facility develops another site;
- Alternative Layout and Design;
- Alternative processes – Changing the processing methods on site;
- Preferential Option: Planning and EIA for the Existing Facility.

A review of each of these alternatives is discussed below.

5.3.1 Do Nothing Scenario

This section of the EIAR outlines '*the likely evolution of the current state of the environment without implementation of the project (baseline scenario)*'(paragraph 31, Directive 2014/52/EU). The Do-Nothing Scenario would result in no poultry houses will be constructed.

5.3.2 Alternative Location

To comply with the EIA regulations and EPA Guidelines, Patrick O'Connell considered the option of alternative sites for the proposed developments, but due to the scope of the proposals involving an extension to the existing poultry site. An alternative site would not be a feasible option as the site is the only land owned by Patrick O'Connell.

5.3.3 Alternative Layout and Design

The layout and design of the proposed development has been informed by the identification and assessment of onsite and surrounding environmental constraints.

Whilst alternative locations for the poultry houses were investigated, from a feasibility and operational perspective, it was necessary to locate the new poultry houses in close proximity to the existing poultry houses to utilise existing infrastructure should as tractor and bowser, LPG tanks, close proximity to O'Connell domestic dwelling as the poultry house treatment required to be checked daily.

5.4 Conclusions

The proposed development is therefore the most appropriate option for the long-term operations of Patrick O'Connell facility but will also result in the least impact on environmental receptors such as ecology, water quality and the amenity of local residents such as those living in the areas surrounding the poultry houses.

6 Chapter 6 – Biodiversity (Terrestrial Ecology)

6.1 Introduction

This Chapter presents the factual biodiversity and terrestrial ecology information gathered during the desk study and field study as a description of the existing environment at the Patrick O'Connell facility, proposed poultry houses location. 'Biological diversity' or biodiversity is, according to the UN Convention on Biological Diversity (BCD) defined as being the *'variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.'*

Article 3 of the EIA Directive 2014/52/EU states that the environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

(b) biodiversity, with particular attention to species and habitats protected under Directive 32/43/EEC and Directive 2009/147/EC.

The potential impacts (direct, indirect and cumulative) of the proposed development and operational Patrick O'Connell facility on biodiversity including terrestrial ecology present within the site and surroundings are qualitatively assessed in this section. Mitigation measures to be implemented in the construction and operational phases are proposed to minimize identified impacts on terrestrial ecology.

The potential impacts of the proposed development and the existing operational facility on the Natura 2000 network of sites (European sites known as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are assessed in a standalone Appropriate Assessment Screening Report which accompanies the application.

6.1.1 Competent Expertise

This Chapter of the EIAR was prepared by Miriam Montgomery, Ecologist with Montgomery EHS. Miriam (BSc Environmental Science & technology. Miriam has been working in the area of nature conservation and ecological impact assessment for the past eighteen years. Projects that he has been involved in include Montgomery EHS; evaluation of proposed designated sites; restoration and management of peatland habitats; baseline ecological surveys and impact assessments of various development proposals including road, quarries, wind-farms, waste facilities, and residential developments; during and post-construction, ecological monitoring.

6.1.2 Project Description

A detailed description of the proposed project including site layouts is presented in Chapter 4 of the EIAR. In summary, Patrick O'Connell intend to apply for planning permission two poultry houses.

6.1.3 Study Area

The Patrick O'Connell facility occurs in Ahawilk, Feohanagh, Castlemahon Co Limerick . The operational facility occurs surrounded by agricultural land

The proposed poultry houses development occurs within an area of improved agricultural grassland mosaic immediately south of the existing poultry facility. The poultry facility is primarily surrounded by agricultural lands, and the existing poultry facility to the north.

The O'Connell site and the proposed developments associated with the planning application are located outside and removed from any site designated for nature conservation. The nearest site designated for nature conservation is the Stack's to Mullagharirks SPA (NPWS Site Code; 002088) located approximately 4.5 km west of the poultry facility. The Lower River Shannon cSAC occurs approximately 6.8 km north east of the proposed facility. The Blackwater River (Cork/Waterford) SAC is located 7.6 km to the south of the site.

6.2 Methodology

Data required to carry out the assessment was collected through a combination of a desktop review and field surveys as described further below.

Statutory Context

This appraisal has consideration to the following legislation:

- Consolidated EIA Directive 2011/92/EU;
- Wildlife Acts 1976-2012;
- The Habitats Directive 92/43/EEC;
- The Birds Directive 2009/147/EC;
- The European Communities (Birds and Natural Habitats) Regulations 2011 [S.I. No. 411 of 2011];
- European Communities (Environmental Impact Assessment) (Agriculture) Regulations 2011 [S.I. No. 456 of 2011];
- European Union (Environmental Impact Assessment and Habitats) Regulations 2011 [S.I. No. 473 of 2011];
- European Union (Environmental Impact Assessment and Habitats) Regulations 2012 [S.I. No. 246 of 2012]; and
- Flora (Protection) Order, 2015.

In addition, in considering the ecological impacts of the proposed development regard was made to the following guidance and information documents:

- CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. *(Chartered Institute of Ecology and Environmental Management)*;
- DAHG (2011). *Irelands National Biodiversity Plan: Actions for Biodiversity 2011 – 2016*;
- EPA (2002). *Guidelines on the information to be contained in*

Environmental Impact Statements;

- EPA (2003). *Advice notes on current practice (in the preparation of Environmental Impact Statements);*
- Fossitt (2000). *A Guide to Habitats in Ireland;*
- Smith *et al.* (2011). *Best Practice Guidance for Habitat Survey and Mapping in Ireland.*
- NRA (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes (Revision 2).

6.3.1 Desktop review

A desktop review was carried out to identify features of ecological importance within the development site, the Patrick O'Connell facility, and surrounding region. Literature sources consulted are included in the text and listed in the references section of the report. A review of designated sites was carried out as part of the desktop study using data available from the National Parks and Wildlife Service (NPWS).

6.3.2 Field Surveys

A multidisciplinary walkover survey of the Patrick O'Connell facility at Ahawilk, Feohanagh, Castlemahon Co Limerick was undertaken on the 17th November 2017

The survey were undertaken to assess the habitats, vegetation, birds, and mammals in proximity to the proposed developments and operational Patrick O'Connell facility at Ahawilk.

Target notes were taken relating to habitats, species, and landuse encountered during the survey including notes on dominant vegetation, qualitative assessment of plant species diversity, vegetation structure, topography, drainage, disturbance, and management. The habitats encountered on site were classified in accordance with Fossitt (2000). These methods that were followed during the habitat survey and subsequent mapping followed best practice guidance as outlined by Smith *et al.* (2011).

The survey included recording any problematic invasive species in proximity to the development site.

Bird species encountered (seen and heard) during the survey were recorded. The abundance of each species and behaviour was also noted. An assessment was made of the sites' potential to support bird species of conservation importance that may not have been recorded due to seasonal constraints.

All mammals recorded during the site visits were noted. The sites were also assessed for any evidence of mammal activity. Signs and tracks of mammals are the best way of assessing a site without conducting night surveys. All signs and tracks (Bang and Dahlstrom 2004) were assessed as they were encountered in the field. Suitable mammal habitat within and surrounding the proposed development area was surveyed for the presence of protected mammals.

6.3.3 Evaluation of ecological significance

The impact significance is a combined function of the value of the affected feature (its ecological importance), the type of impact and the magnitude of the impact. It is necessary to identify the value of ecological features within the study area in order to evaluate the magnitude and significance of possible impacts.

The method of evaluating ecological significance used in this study is based on guidelines issued by IEEM (2016) and the NRA (2009). The results of the habitat and fauna surveys were evaluated to determine the significance of identified ecological features located in the study area on an importance scale ranging from international - national - county - local. The local scale is approximately equivalent to one 10km square but can be operationally defined to reflect the character of the area of interest. Because most sites will fall within the local importance scale, this is sub-divided into local importance (high value) and local importance (low value).

In addition to these criteria, the evaluation also considers other factors such as potential ecological value, secondary supporting values where habitats may perform a secondary ecological function, and social values of an ecological feature such as educational, recreational, and economic value.

6.3.4 Assessment of impacts and impact significance

The assessment of impacts is based on guidance offered by the Chartered Institute of Environmental and Ecological Management (CIEEM 2016) with reference to national guidance in NRA (2009), the EPA (2002), and Gittings (1998). Impacts are discussed and assessed in relation to impact type (positive, neutral or negative), character and sensitivity of the affected feature, magnitude, duration, timing and frequency. In assessing the magnitude and significance of impacts it is important to consider the value of the affected feature.

6.3.5 Survey constraints and limitations

The field surveys were undertaken during the sub-optimal winter season. The identification of vegetative species was compromised owing to the timing of field surveys.

6.4 Baseline Description of Existing Conditions

6.4.1 Designated sites

The Patrick O'Connell facility and associated works do not lie within any sites designated or under consideration for designation for nature conservation. The nearest site designated for nature conservation is the Stack to Mullagharirks SPA located approximately 4.5 km west of the Patrick O'Connell facility. The location of the Patrick O'Connell facility and associated developments in relation to designated sites are presented in **Figure 6.1**.

Natural Heritage Areas (NHAs) are sites of national importance due to the presence of species and habitats that are recognised as being important on a national level and are afforded protection under the Wildlife Act 2000 (as amended). The nearest NHA to the Patrick O'Connell facility and associated works is the Lough Gay Bog located ca 6.2 km south-west of the Patrick O'Connell site at its nearest point.

Special Areas of Conservation (SACs) are sites of international importance due to the presence of listed habitats or species that are of European importance. The nearest site SAC is the Blackwater River (Cork / Waterford) cSAC (NPWS Site Code: 002170) which is located ca 7.6 km south of the Patrick O'Connell site at its nearest point. The cSAC occurs within a different water catchment (Blackwater Munster) than the proposed development (Shannon Estuary South) and therefore no pathway for potential impacts exists.

Ireland is required under the terms of the EU Birds Directive (2009/147/EC) to designate Special Protection Areas (SPAs) for the protection of endangered species of wild birds. Sites are selected based on one or more of the following features:

- Presence of listed rare and vulnerable species (Annex I Birds Directive);
- Regularly occurring migratory species, such as ducks, geese, and waders; and
- Wetlands, especially those of international importance, which attract large numbers of migratory birds each year.

The nearest SPA to the proposed development, the Stack to Mullagharirks SPA occurs ca 4.5 km south of the Patrick O'Connell site at its nearest point. The SPA is well removed from the proposed developments (ca 4.5 km south), and is no longer considered in this assessment as it is considered that there is no potential for impacts on the conservation value of the site.

Table 6.1: Designated sites within 10 km or downstream of the Patrick O'Connell facility site and associated upgrade works.

Name	Site Code	Key Features of the Site
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	4161	Designated for the protection of the Hen Harrier, (*Circus cyaneus*) which is listed on Annex 1 of the Birds Directive (79/409/EEC). The pSPA includes conifer plantations, heath and bog and rough grassland. Intensively managed agricultural land, houses and farm buildings are generally excluded
Lower River Shannon SAC	2165	A very large site which stretches along the Shannon Estuary from Killaloe to Loop Head/Kerry Head. It includes the freshwater stretches of the Feale catchments as well as the Feale and Shannon estuaries. The site contains several habitats listed on Annex I of the EU Habitats Directive such as lagoons, alluvial woodlands and floating river vegetation. It also contains several species listed on Annex II of the same directive such as otters and freshwater pearl mussels. In addition, it contains several plant species which are listed in the Irish Red Data Book, several of which are also protected under the Flora(Protection) Order 1999, including Triangular Club Rush, Meadow Barley and Hairy Violet.
Lough Gay Bog	2454	Lough Gay Bog NHA is an upland blanket bog located 6 km west of Broadford in the townland of Glenduff, Co. Limerick. The site occurs on peat of over 2 m in depth and includes both areas of intact bog and cutover areas adjacent to Lough Gay. The vegetation consists of Ling Heather (Calluna vulgaris), Hare's-tail cottongrass (Eriophorum vaginatum) and Bog Asphodel (Narthecium ossifragum) with Deergrass (Scirpus cespitosus) and lichens (Cladonia spp.). There is a good cover of heather up to 25 cm high, as little domestic grazing occurs. The substrate is soft and wet underfoot with 50% cover of bog mosses (Sphagnum capillifolium and S subnitens). Lough Gay is a deep oligotrophic lake and is fringed with Bottle Sedge (Carex rostrata). Bilberry (Vaccinium myrtillus) occurs on flushed areas beside the lake. The site supports the Irish Red Data Book species Red Grouse and Hen Harri

Blackwater River SAC	2170	The River Blackwater is one of Ireland's largest rivers, extending some 160km from source to sea and draining in excess of 3,000km2. The river rises in the mountains of east Co. Kerry, traversing much of Co. Cork and west Co. Waterford, before entering the Celtic Sea at Youghal Bay, Co. Cork. The Upper Blackwater catchment occupies the northern parts of the Barony of Duhallow, in North Cork. The catchment consists of six sub-catchments, the Owenanare, the Dalua, the Glenlara, the Owenkeal, the Brogeen and the Allow. The River Blackwater and its tributaries are classed as Special Areas of Conservation (SAC) due to presence of many species and habitats of European importance. The River Allow and its tributaries are of particular importance as it provides habitat for a number of EU Habitats Directive Annex II listed species, the Freshwater Pearl Mussel (Margaritifera margaritifera), Salmon (Salmo salar) and Otter (Lutra lutra), and the EU Birds Directive Annex I listed species, the Kingfisher (Alcedo atthis). The River Allow rises on the eastern flanks of the Mullaghareirk Mountains, flowing in an easterly direction for twelve kilometres before turning south at Freemount, where it continues through the town of Kanturk. In Kanturk town the Brogeen and Dalua rivers meet the River Allow. The River Allow eventually empties into the River Blackwater some 5km south of the town near the village of Banteer. The Allow River is included in the Blackwater River SAC which has been designated partly on the basis of the presence of pearl mussel

6.4.2 Habitats and vegetation

Habitats that occur within and surrounding the Patrick O'Connell site and associated upgrade works are described in the following paragraphs. Habitats are classified according to Fossitt (2000).

6.4.3 Buildings and Artificial Surfaces (BL3)

The site has some areas of Buildings and Artificial Surfaces are which is hard standing areas and Artificial. Buildings and artificial surfaces are not of ecological importance.

6.4.4 Improved Grassland GA1

Improved grassland is the predominant habitat on site found on most the site. Some small areas of improved grassland are dominated by perennial rye grass and dock species. Perennial rye grass is a species of improved pastures. This area of improved grassland was dominated with some broad-leaved dock.

Table 6.1 Plant species present are as follows

Common Name	Scientific Name
Perennial rye grass	Lolium perenne
Broad leaved dock	Rumex obtusifolius
Red Clover	Trifolium pretense
White clover	Trifolium repens
Meadow Buttercup	Ranunculus acris
Dandelion	Taraxacum agg.
Daisy	Bellis perennis
Soft rush	Juncus effuses

6.4.5 Hedgerow WL1

Roadside hedgerow comprised largely of low earthen bank with the dominating species being Hawthorn (Crataegus monogynus and bramble. A section with a stonewall feature occurs lined with tree species such as Norway spruce, Field maple and Fuchsia.

Roadside hedgerows along southern and western site boundaries support primarily Bramble (Rubus fruticosus), Bracken (Pteridium aquilinum), Male Fern, Creeping Thistle (Cirsium arvense), Rosebay Willowherb (Chamerion angustifolium), Purple loosestrife (Lythrum salicaria), Common Cleavers (Galium aparine) and Honey suckle (Lonicera periclymenum) as climbers,. The trees occurring included Grey Willow (Salix cinera), Hawthorn (Crataegus monogynus), Ash (Fraxinus excelsior) Scots pine (Pinus sylvestris L.), and Sycamore (Acer pseudoplatanus)

Internal field boundaries within the site are scrub dominated with bracken, and bramble occurring with trees Hawthorn, Ash (Fraxinus excelsior), Rowan (Sorbus aucuparia) present. Foxglove (Digitalis purpurea) and Lords-and-Ladies (Arum maculatum) are also present as an understory.

Table 6.2 Hedgerow plants

Common Name	Scientific Name
Bramble	Rubus fruticosus agg.
Hard fern	Blechnum spicant
Broad Buckler fern	Dryopteris dilatata
Bracken	Pteridium aquilinum
Moss sp.	Sphagnum sp.
Perennial Rye grass	Lolium perenne
Soft rush	Juncus effusus
Nettle	Urtica dioica
Clover sp.	Trifolium sp.
Creeping Buttercup	Ranunculus repens

Primrose	Primula vulgaris
Foxglove	Digitalis purpurea

Invasive Alien Species

No problematic invasive alien species were recorded during the field survey at the Patrick O'Connell site,

6.4.6 Birds

Bird species recorded within and in close proximity to the Patrick O'Connell site and associated developments are presented in Table 6.1.2 below. Birds recorded within the footprint of the Patrick O'Connell site are all common and widespread.

Birds recorded within the site include blackbird, blue tit, chaffinch, jackdaw, mallard, and rook. Eight snipe were flushed from the improved grassland in the field next to the proposed poultry houses. No birds of conservation concern were recorded within the site. No evidence of barn owl activity was recorded with the site.

Table 6.1.2: Conservation status of bird species recorded during field visits.

Common Name	Latin Name	BoCCI / Annex I	Patrick O'Connell
Blackbird	*Turdus merula*	Green	✓
Blue Tit	*Parus caeruleus*	Green	✓
Chaffinch	*Fringilla coelebs*	Green	✓
Goldcrest	*Regulus regulus*	Amber	✓
Jackdaw	*Corvus monedula*	Green	✓
Mallard	*Anas platyrhynchos*	Green	✓
Pied Wagtail	*Motacilla alba yarrellii*	Green	✓
Robin	*Erithacus rubecula*	Amber	✓
Rook	*Corvus frugilegus*	Green	✓
Snipe	*Gallinago gallinago*	Amber	✓
Starling	*Sturnus vulgaris*	Amber	✓
Wren	*Troglodytes troglodytes*	Green	✓

6.4.7 Mammals

This section reviews the value of the Patrick O'Connell site and associated development areas for terrestrial mammal species. During the field surveys rabbits were the only mammals observed. Mammal species of conservation concern (rare or protected) that have been recorded from the 10 km grid squares (R52) of the proposed development based on records held by the National Biodiversity Data Centre (NBDC 2017) and the National Parks and Wildlife Service (NPWS) are presented in Table 6.1.4 below. These species are likely to be recorded from suitable habitat in the vicinity of the development site.

No evidence of protected mammal activity was recorded within or in close proximity to the Patrick O'Connell site. The barn and other farm buildings in the farm provides suitable bat roost potential, no developments are proposed in proximity to these buildings.

Table 6.1.4: Mammals of conservation concern present in the 10km square (R52) of the Patrick O'Connell facility, and potential occurrence on site. (Source: National Biodiversity Data Centre 2017).

Species	Protected Status	Potential occurrence within proposed development
Wood Mouse	Wildlife Act (as amended)	Likely, woodmice are highly adaptable and occur in a wide variety of habitat types including hedgerows and grasslands.
Sika Deer	Invasive species Wildlife Act	Unlikely, no suitable habitat for this species occurs within the site.
Fallow Deer	Invasive species Wildlife Act	Unlikely, no suitable habitat for this species occurs within the site.
West European Hedgeho	Wildlife Act (as amended)	Likely, typically associated with hedgerow and grassland habitats.
Irish Hare	Wildlife Act (as amended) HD Annex V	Probable, likely to occur amongst suitable habitat in proximity to site.
Eurasian Badger	Wildlife Act (as amended)	the habitats on the site were surveyed for badger but no setts or other evidence of badger were found.

Species	Protected	Potential occurrence within proposed development
Daubenton's Bat	HD Annex IV Wildlife Act (as amended)	Probable, known to roost in trees along watercourses. This species is synonymous with water and forages / commutes over watercourses.
Leislers Bat	HD Annex IV Wildlife Act (as	Possible, likely to occur amongst suitable habitat in the surroundings.
Pipistrelle Bat species	HD Annex IV Wildlife Act (as amended)	Likely, pipistrelle bats are the most common bat species in the region and are associated with a wide range of habitats, including those that occur in proximity to the Patrick O'Connell site.
Soprano Pipistrelle	HD Annex IV Wildlife Act (as amended)	Likely, this is the most common bat species in Ireland and is associated with a wide range of habitats, including those that occur in proximity to the site.
European Rabbit	Invasive Speci	Confirmed, rabbits sightings were recorded within improved pasture in proximity to the proposed development.
Eurasian Red Squirrel	Wildlife Act (as amended)	Unlikely, as the species is restricted to woodland areas, therefore there is an absence of suitable habitat within the proposed development.
Red Fox	Wildlife Act (as amended)	Likely, foxes utilise a variety of habitats for foraging and may utilise the habitats within the proposed development site.
Brown Rat	Invasive	Likely, potentially in association with farmland habitats.
Eurasian Pygmy Shrew	Wildlife Act (as amended)	Likely, this species is likely to utilise hedgerow and rough grassland habitats along in proximity to the Glen River.

6.5 Results of Assessment (Evaluation of receiving environment)

6.5.1 Designated sites

The River Blackwater (Cork/Waterford) cSAC is the only designated site within a 10 km radius of the Patrick O'Connell site and proposed poultry houses, and occurs within a different river catchment to these developments. The Lower River Shannon cSAC occurs some 6.8 km downstream from the proposed development location. The Lower River Shannon cSAC is of international importance.

6.5.2 Habitats and Flora

The ecological value of those habitat types that occur within the proposed site for the poultry houses are presented in Table 6.1.7. The majority of habitats that occur are heavily modified agricultural land (GA1).

Table 6.1.7: Summary evaluation of the habitats that occur along the proposed poultry houses within the Limerick County Area.

Habitat Type	Ecological Evaluation
Improved agricultural grassland (GA1)	This is the most dominant habitat type along the proposed development. The habitat is heavily modified. Low ecological value
Recolonising bare ground (ED3)	This habitat occurs within the site, comprising recently ploughed agricultural land. The habitat may potentially provide foraging opportunities for common passerine birds. Low ecological value
Hedgerows (WL1) /	The site has hedgerows to the south and west of the proposed site. The hedgerow provides connectivity to the surrounding environment and may potentially be of value to commuting / foraging bat species. Local importance, higher value

6.5.3 Fauna

Based on the habitats present and the land-use in the Patrick O'Connell site and the surroundings of associated proposed developments, it is considered that the majority of habitats in proximity to the site and proposed developments are of no significant value to faunal species of conservation concern.

6.6 Assessment of Impacts (Construction and Operational)

6.6.1 Designated sites

The Patrick O'Connell site are well removed from sites designated for nature conservation, the nearest site, Stacks to Mullagharirks SPA and Blackwater River (Cork / Waterford) cSAC, occurring ca 4.5 and 7.6 km respectively. Considering the nature of the proposal, methods incorporated into the design of the proposal, and the distance of the proposed development to the SPA / cSAC, significant adverse impacts on the SPA / cSAC are not foreseen.

An Appropriate Assessment Screening Report has been prepared to address any potential significant effects on European sites (SPAs and SACs) and is provided as part of the planning. The conclusion of the screening report is that the development poses no significant ecological risk to Natura 2000 [European] sites.

6.6.2 Habitats and Flora

The proposed poultry houses occurs on habitats as described above. The footprint of the proposed poultry houses will cause the direct loss of habitat where new poultry houses and associated infrastructure are to be developed. The affected habitats include improved grassland and a hedgerow that occurs along the boundary of the site.

The extent of improved grassland that will suffer permanent habitat loss is estimated to be 0.8 ha. Based on the presence of similar habitat in the surroundings, the loss of this habitat is unlikely to have any significant effect on the distribution of wetland flora and fauna in the local area. Based on its restricted extent, past disturbance and its location directly adjacent to the operating farm and poultry houses, the habitat is deemed to be of low value to fauna species of conservation concern in the area. The permanent loss of this habitat represents a minor local impact.

6.6.3 Fauna

The operational activities associated with the existing poultry site that may potentially lead to adverse impacts on faunal species include noise, vibration, and artificial lighting. The site and associated farm has been in operation at this location since the 1990's and has undergone multiple upgrade and expansion works since its development. It is considered that the local fauna community have become accustomed to those potential impacts listed above.

The proposed poultry houses development is likely to cause local disturbance to wildlife in the area due to noise, movement, and vibration associated with construction activities. Considering the land use (intensive agriculture) along the site, it is considered that faunal species within the surrounding environs have become accustomed to background levels of noise and activities associated with intensive agricultural management.

The majority of habitats that occur in the footprint of the proposed poultry houses are confirmed to be of low value to fauna and therefore significant displacement impacts from this area are not foreseen.

6.7 Proposed Mitigation and Enhancement Measures

This section sets out the mitigation which will be implemented to mitigate the potential biodiversity impacts of the proposed development as identified above. The following measures are proposed in order to avoid, minimise or remedy potential adverse impacts associated with the construction phase of the proposed development.

The key approach for minimising risks such as disturbance to wildlife is the appointment of an appropriately experienced project supervisor on site during construction to advise on the detailed implementation of the design approach and ecological mitigation as detailed in the EIAR

The role of the project supervisor will include:

- Monitoring habitats and species during the course of construction works and effectiveness of mitigation;
- Provision of advice to minimise potential disturbance to wildlife;
- Provide recommendations on appropriate responses / actions to site specific issues (e.g. identification of previously unrecorded breeding sites during construction works); and
- Liaison with NPWS, IFI and other prescribed authorities, when required.

Protection of breeding birds

Where feasible, the removal of woody vegetation shall take place outside the bird breeding season (March – September) in order to minimise the potential impacts on nests and birds. If it is not possible to fell hedgerow (woody vegetation) outside the bird breeding season then a suitably qualified ecologist will be required to check the affected hedgerow to confirm the absence of breeding birds before work can proceed.

Protection of protected mammals

Pre-construction mammal surveys will be undertaken prior to the commencement of site clearance works to check for the presence of protected mammals. Pre-construction mammal surveys shall focus on suitable habitat.

General Mitigation Measures

- Detailed Construction and Environmental Management Plan (CEMPs) will be prepared and will be implemented prior to the commencement of construction. All mitigation measures relating to ecology have been incorporated into the CEMPs.
- Hedgerows, treelines, and other semi-natural habitats that occur in close proximity to proposed works will be protected from accidental damage.

- During construction, all site works (including machinery movements, storage of excavated material etc.) will be confined as far as possible to the development footprint.
- The spread and introduction of invasive species and noxious weeds will be avoided by adopting appropriate mitigation measures as per guidance issued by the NRA (2010). These measures are detailed in the CEMP. Any invasive plant material noted on site will be removed off site and disposed of at appropriate licensed waste disposal facility. Any invasive species found to occur within 15m of working areas will require a specialist method statement for its eradication to avoid the spread of invasive species, this will ensure compliance with the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I. No. 477 of 2011]. The presence of non-native species and requirement for actions will be confirmed by the Ecological Clerk of Works.
- Excavated soils will be reused onsite where possible for landscaping so as to minimise off site impacts.

6.8 Residual Impacts

Assuming the full implementation of mitigation measures outlined above the following residual impacts will apply.

- Minor short-term disturbance to fauna (bats, birds, and waterbirds) within and surrounding the site is likely during the construction phase of the poultry house. Considering the short-term nature of the impact and the various mitigation measures outlined above, such impacts will not be significant.
- Permanent loss of habitat (hedgerow and grassland) within the footprint of the proposed development will occur. Considering the relatively low ecological importance of these habitats, the impact is deemed to be of low significance.
- Hedgerow removal if necessary will be reinstated following the construction phase. Hedgerow removal will lead to temporary habitat fragmentation.

No operational phase impacts of significance are foreseen in relation to the poultry house. As discussed above, it is deemed that resident faunal species have become accustomed to potential adverse impacts from the operational existing poultry house.

6.9 Cumulative Impacts

The two-proposed poultry houses and the existing poultry houses are considered in this application. A review of planning applications in proximity to the proposed development was undertaken to assess the possibility of in-combination effects arising from a culmination of impacts from the site and their site environs. Considering the nature of the project together with the type and extent of habitat that will be affected it is predicted that, subject to the above mitigation being implemented, there will be no significant adverse direct, indirect, or cumulative impacts on the flora and fauna of the site and its surroundings from the development of the proposed project.

6.10Summary and Conclusions

The potential impacts on terrestrial ecology associated with the operation of the Patrick O'Connell proposed development has been undertaken.

Potential disturbance to resident fauna of conservation concern during construction has been identified as the main impact associated with the proposed work. Various controls and measures are outlined in the report aimed at mitigating the identified potential impacts.

Assuming the full implementation of mitigation measures it is predicted that the residual adverse impacts of the proposed development on ecological receptors identified within the study area will not be significant.

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7 Chapter 7 – Land (Soils, Geology & Hydrogeology)

7.1 Introduction

The impact of the proposed works to the proposed poultry houses as well as the potential impacts associated the ongoing activities at the poultry facility with respect to, land soils, geology, hydrogeology is assessed in this section.

7.1.1 Competent Expertise

Montgomery EHS were commissioned to undertake an assessment of the potential imacts associated with the activites and proposed developments previously outlined, on the geological and hydrogeological characteristics of the site and surrounding environs. The assessment was led by Trevor Montgomery B.Sc who received an Honours B.Sc degree in Environmental Science and Technology. Trevor is experienced in undertaking environmental impact assessment and the preparation of EIA reports particularly in the areas of geology, hydrology and hydrogeology. Throughout his career Trevor has successfully completed numerous EIAs across a range of industries including the dairy sector, pharmaceutical and chemical manufacturing and high-tech industries.

7.2 Study Assessment and Methodology

The assessment included both a desk-based study which involved reviewing available geological and hydrogeological information held by publicly available online resources on the site and surrounding lands and a number of site visits.

The following sources were reviewed:

- Inland Fisheries Ireland (IFI) – "Guidelines on Protection of Fisheries during construction works in and adjacent to waters" (2016).
- Construction Industry Research and Information Association (CIRIA) – "Control of water pollution from linear construction projects" (2006).
- Met Éireann Meteorological Database (www.met.ie)
- Ordnance Survey Ireland Map Viewer (www.osi.ie)
- Geological Survey Ireland Spatial Data Viewer (www.gsi.ie)
- Teagasc online soil / subsoil maps (http://gis.teagasc.ie/soils/map.php)
- Water Framework Directive – WaterMaps Map Viewer(www.wfdireland.ie)
- Environmental Protection Agency (EPA) Envision public viewer (www.epa.ie)
- National Parks and Wildlife Services Map viewer (www.npws.ie)
- Geotechnical Investigation Reports (GH/Rp/P16128 F01 and GH/Rp/P16128 F02)

7.3 Baseline Description and Existing Conditions

The receiving environment is sub-divided into relevant sections concerning geology, soils, hydrogeology, and land as the characteristics, though linked, have different risks from development.

7.3.1 Topography and Climate

The Ahawilk site is located off a regional road the R515 Broadford to Dromcolligher (National Grid Reference: 34919 21201). The majority of the poultry houses at the Patrick O'Connell is covered in hardstanding with 'green' areas comprising landscape typical of agricultural land. Specific geological and/or hydrological features located within the site are discussed further in sections below. The topography across the Ahawilk site is sloping site.

The Patrick O'Connell site covers an area of 37 Hectares (ha) with elevations at the site varying significantly throughout the site at approximately 130 to 160 mOD.

The SAAR (Standard Average Annual Rainfall 1981 - 2010) recorded at Charleville Golf Club (c.3.0 km south east of the Kilmallock Road facility, the closest rainfall station to the site with long term SAAR data, is 981mm (www.met.ie). The average potential evapotranspiration (PE) at Shannon Airport is taken to be 482.5mm (www.met.ie). The actual evapotranspiration (AE) is calculated to be 486mm (95% PE). Using the above figures the effective rainfall (ER) for the area is calculated to be (ER = SAAR – AE) 495mm.

7.3.2 Geology

The Geological Survey of Ireland (GSI) indicates that the bedrock underlying the Kilmallock Road processing facility is Dinantian Upper Impure Limestone/ Undifferentiated Visean limestone with the majority of Ahawilk underlain by Namurian shales/ cherty mudstone of the Clare Shale formation. The GSI also indicates that the bedrock underlying the site is Dinantian Upper Impure Limestone sub-group Visean Limestone/ undifferentiated limestone. Bedrock geology varies along the proposed development with portions of the proposed building passing through areas underlain by massive unbedded lime-mudstone or Dinantion pure unbedded limestone (Waulsortion Limestone) and dark muddy limestone or dinantian lower impure limestone, shale (Ballysteen Formation).

Regional geology is illustrated in **Figure 7.1.**

7.3.3 Soils

The GSI classify the soil underlying the site as being predominately well drained mineral derived mainly from non-calcareous parent materials, within the acid brown earth/brown podzolics soils group. The parent material/subsoil is described as being tills derived chiefly from Devonian sandstones.

The predominant soils underlying the development are described by the GSI as deep well drained mineral (Mainly acidic) (AminDW) derived mainly from non-calcareous parent material. They are in the great soil groups of Acid Brown Earths and Brown Podzolics. The GSI identifies the soil types along the proposed route as varying from undifferentiated lake sediments (L), to sandstone till derived from Devonian sandstones (TDS) and undifferentiated alluvium deposits (A) as shown in **Figure 7.2.**

7.3.4 Hydrogeology

The Dinantian Pure Unbedded Limestones are reported (GSI, 1998) to be extensively karstified and dolomitised. In the Newcastle West area karstification is reported to occur to depths up of 800 metres. Dolomitisatio*n is a process by which circulating groundwater replaces calcium with magnesium and results in an increased porosity and permeability of the host rock. The Dinantian Pure Unbedded Limestones Formation in the Ahawilk area is classified by the GSI as a low importance important karstified aquifer.

Vulnerability Rating	Hydrogeological Conditions				
	Subsoil Permeability (Type) and Thickness			Unsaturated Zone	Karst Features
	High permeability (sand/gravel)	Moderate permeability (e.g. Sandy subsoil)	Low permeability (e.g. Clayey subsoil, clay, peat)	(Sand/gravel aquifers only)	(<30 m radius)
Extreme (E)	0 - 3.0m	0 - 3.0m	0 - 3.0m	0 - 3.0m	-
High (H)	>3.0m	3.0 - 10.0m	3.0 - 5.0m	>3.0m	N/A
Moderate (M)	N/A	>10.0m	5.0 - 10.0m	N/A	N/A
Low (L)	N/A	N/A	>10.0m	N/A	N/A

Notes: (1) N/A = not applicable.
(2) Precise permeability values cannot be given at present.
(3) Release point of contaminants is assumed to be 1-2 m below ground surface.

Water levels in the Dinantian Pure Unbedded Limestones are generally shallow at less than 15metres. Groundwater fluctuations between summer and winter are typical

The hydrochemistry of groundwater beneath the site is dominated by the presence of limestone in both the bedrock and subsoils and is hard, calcium bicarbonate type water.

The site groundwater well is shown in Figure 7.5, usage is not recorded. The well is 85 meters deep and good productivity and quality.

7.4 Assessment of Impacts of the Proposed Development

7.4.1 Construction Phase

The potential impacts of the proposed poultry house on surface and ground water are outlined below:

- Contamination of groundwater and surface watercourses through the ingress of untreated effluent, chemicals and construction materials.
- Alteration of water table levels
- Flooding/erosion of watercourses

The construction phase of the proposed poultry houses will involve the excavation of soils for foundation construction to provide a base for new wash

water tank infrastructure and the concrete bases for the proposed poultry houses.

Excavation Works

Excavations will involve removal of overburden to facilitate the installation of building foundations, drainage and services, together with creating level areas for access tracks / pathways. The depth of excavations will be in the range of 1.0– 4.5 m below the existing surface. The excavation for the wash water tank will result in surplus spoil material being generated. It will be necessary to store surplus material until such time as it can be used for landscaping or reinstatement. Excavation works and movement of soil materials have the potential to adversely affect the stability of local surface geology. Subsequently the installation of plant items or other structures on unstable ground can exacerbate potential geohazards. As discussed, the ground conditions within the proposed development area are regarded as having good stability, comprising generally firm to stiff clay with cobbles and boulders.

Appropriate mitigation measures regarding excavation works are outlined in Section 7.5 below.

Runoff and Drainage to Surface watercourses

The subsoil has been classified as well drained acid mineral and this combined with a very level site reduces suspended solids entering any surface water course, as rainfall will percolate downwards through the sub soils.

Alteration in land drainage patterns may give rise to increases in the rate at which surface water runoff enters water courses. This is particularly the case during short or extended periods of high rainfall. Arising from increased rates of runoff, the potential effects include localised flooding whereby the watercourse is unable to accommodate the additional inflow of runoff. In addition, increased rates of inflow may give rise to accelerated erosion along the sides and base of the channel into which the runoff discharges, due to higher flow velocities.

An existing drainage network emerges within the development whereby runoff drains relatively freely to the land drain to the north west by overland flow, gully flow paths and diffuse flow paths.

Oils, Lubricants and Construction Materials

The construction and operation of the proposed development involves the use of a range of materials and fluids. These include fuels and lubricants used for construction machinery, which if spilled, has the potential to give rise to contamination of surface and ground waters.

The issue of accidental spillage of hydrocarbons such as diesel and lubrication oil during refuelling of plant machinery is a potential risk during the construction phase. Mitigation measures regarding the handling of potentially environmentally hazardous substances such as oils and lubricants are outlined in Section 7.5 below.

7.4.2 Operational Phase

With respect to land, soils, geology and hydrogeology there is no anticipated impacts on the existing environment arising from developments at the Ahawilk. There are no direct discharges to soils or groundwater during the operation of the facility. The vast majority of the site in which process activities take place is located on made ground and hard standing. Site infrastructure includedes sufficient site drainage to divert and control any potential spills or leaks which may otherwise enter soils or groundwater.

As discussed Ahawilk site currently utilised 1 no. abstraction well for the provision cleaning and drinking water on the farm, poultry house, milking facility and the domestic dwelling. The proposed development as outlined previously in the EIAR will not result in an increase in water demand and as such will not adversely impact on groundwater supply, quality for either the facility or any potential users in the vicinity.

From the assessing the environmental factors and charactersitcs of the site and surrounding environs it is not anticipated that the site is at risk of any natural disasters or Is likely to be vulnerabile to any environmental incidents following construction which would subsequently result in further incident causing any negative impact on the environment, with respect to soils and geology. Geotechnical investigation concluded that with respect to stability the ground conditions are suitable for development and the site is not at risk from landslides or

7.5 Mitigation Measures

7.5.1 Construction Phase

As with any engineering project of this nature it is vital to ensure that prior to works commencing on site, adequate mitigation measures are put in place. All such mitigation measures will be detailed within a Construction Environmental Management Plan (CEMP) produced by the Contractor covering the action required to complete the project in a safe secure manner with respect to the environment. The Project/Site manager, who represents the Contractor is responsible for enforcing the technical and contractual requirements of the project.

Pre-emptive Site Drainage Management (Weather)

As per the CEMP prepared for the development of the proposed poultry house the works programme for the initial construction stage of the development will take account of weather forecasts, and predicted rainfall in particular. Large excavations and movements of subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.

It is recommended to suspend works if forecasting suggests either of the following is likely to occur:

- >10 mm/hr (i.e. high intensity local rainfall events); or
- >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or,
- > half monthly average rainfall in any 7 days.

Prior to works being suspended the following control measures will be completed:

- Secure all open excavations to prevent ingress of rainwater/runoff;
- Provide temporary or emergency drainage in the form of diversion channels to prevent back-up of surface runoff; and,
- Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded.

Excavation Works

It is noted that topsoils and subsoils must be stored separately. Excavated material may be temporarily stored adjacent to works but must be stored in an environmentally safe manner (e.g. covered with 1000-gauge polythene) and located at least 20m from existing watercourses. Any excess materials will be disposed of to a licensed disposal facility. At locations where excavated materials are stored, drains will surround and intercept surface run-off from materials mounds and distribute this water to controlled drainage system in place, as outlined below.

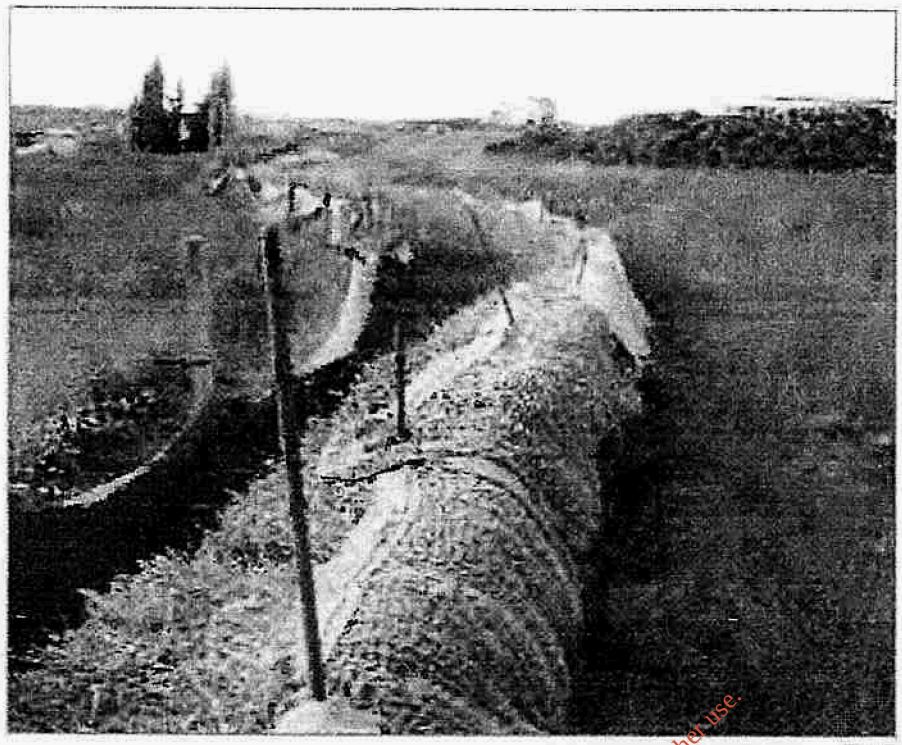
All excavated material will be visually assessed for evidence of possible contamination such as staining or strong odours. Should any there be any evidence samples of the excavated materials will be analysed for the presence of possible contaminants in order to ensure historical pollution of the soil has not occurred. Should the soil be identified as being contaminated it will be disposed of an appropriate waste contractor.

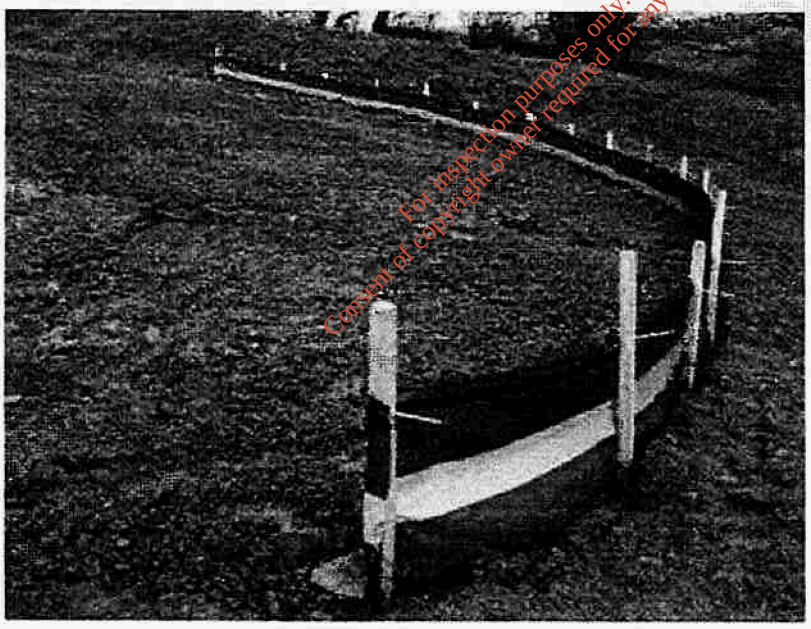
Where possible, any landscaping that is required in areas around proposed poultry houses will use topsoil removed from the site during the construction phase. This will be allowed to re-vegetate naturally on completion of the backfilling or if required by re-seeding with an appropriate seed mix.

With respect to soil stability best practice will be employed to ensure minimal risk of negatively altering soil stability within the locality.

Site Drainage Management

To prevent pollution of the stream and ensure runoff from construction areas does not flow directly into surface watercourses onsite, a series of diversion drains will be used and the washwater tank will be the first construction installation and all contaminated water will be stored in the tank.





Photos 8.1 & 8.2 examples of filter system to reduce solids from surface run off

Environmental Monitoring

During the construction of the proposed poultry houses the project supervisor will be employed who will make at least weekly site visits for the duration of the construction works, and more frequently at start-up and during critical construction events such as concrete pours and instream works. The project supervisor will be the primary person involved in the developer's monitoring role, this role will include the following actions.

- Inspection of surface water treatment measures including wheel wash facilities, designated chute washing out facilities, attenuation ponds & their release systems, and other attenuation and control features such as silt traps etc. on a daily basis at start-up and during critical construction events such as concrete pours, and on a weekly basis at other times;

- Monitoring of stockpiles on a weekly basis;

- Daily visual inspection of the watercourses in proximity to the work at start-up and during critical construction events such as concrete pours;

- The Contractor's monitoring results will be audited on a weekly basis to ensure their implementation onsite;

- Monitoring habitats and species during the course of construction works and effectiveness of mitigation;

- Provision of advice to minimise potential disturbance to wildlife;

- Provide recommendations on appropriate responses / actions to site specific issues (e.g. identification of previously unrecorded breeding sites during construction works); and

- Liaison with NPWS, IFI and other prescribed authorities, when required.

The site contractor assigned to the development of the poultry houses will appoint a designated person to undertake monitoring/inspections as required, on a regular basis and will include the following:

- Daily inspection of surface water discharge
- Condition of public road
- Daily inspection daily of stockpiles;
- Daily Inspection of the watercourses in proximity to the works;
- Reporting of any pollution incidents

Surface water quality monitoring will be carried out concurrently on a weekly basis along with mandatory visual inspections on a daily basis. Monitoring will include visual inspections and field hydrochemical analysis for pH, suspended solids and turbidity. Surface water samples will also be obtained and analysed by an accredited environmental laboratory. The visual inspections will be conducted on a daily basis and hydrochemical monitoring will be carried out on an on-going basis for a period to be agreed with Limerick City & County Council.

Oils, Lubricants and Construction Materials

A purpose designed, removable, drip tray will be provided beneath connection points to catch any residual oil during filling and disconnection of the flexible tanker hose. The drip tray will be regularly emptied and disposed of off-site by a specialist licensed contractor.

Although anticipated to be used in small quantities, all oils and fuel required for the project must be stored in a bunded area with provisions of adequate spill retention capacity (a minimum of 110% tank capacity where applicable).

All tanks on site will be properly labelled showing their contents and capacities. The bunds and tanks facilities will be checked on a regular basis to ensure any leaks or drips are fixed to prevent loss and pollution. Drainage from bunded areas will be diverted for collection and safe disposal. Spill kits will be retained on site to ensure that any spillages or leakages are dealt with immediately. Material safety data sheets will be maintained and located on site in the event that a spillage occurs.

It will be ensured that refuelling only takes place within a designated refuelling area. It will be ensured that this refuelling area is located away from any existing open drains or gulleys.

7.5.2 Operational Phase

The site is currently not licensed by the Environmental Protection Agency, EPA but an application will be submitted and final ELV's to be adopted will be subject to their assessment and agreement.

Patrick O'Connell will monitor the treatment system performance internally to ensure that it is working effectively and will also monitor the quality of the final discharge on a continuous basis.

Operational Impacts as a result of the landspreading of wash water within the agricultural landbanks are deemed as negligible subject to the identification and avoidance of ecological constraints prior to spreading and the implementation of the proposed mitigation measures outlined above in Section 3.15.

With regards to impacts on hydrogeology it is not anitciapted that water requirements and subsequent demand on groundwater will increase as a result of the proposed developments and there will be no alteration to the existing regime.

7.6 Summary and Conclusion

Mitigation measures have been proposed to ensure protection of the geological and hydrogeological environment during both the construction and operation stage.

It is considered that impacts on the geological and hydrogeological environs during both the construction and operational phases of the development will be insignificant. Mitigation measures are proposed to ensure minimal disturbance to the surrounding landscape and to prevent any degradation to groundwater underlying the sites. Any potential impact on land use will be minor and short-term in nature, and is limited to the construction phase of the proposed development.

The main impacts associated with the construction phase of the development will be to the potential degradation to surface water quality on nearby watercourses.

With the implementation of appropriate mitigation measures as outlined above the predicted impact associated with the proposed development and facility is considered to be a neutral and imperceptible impact, that is an impact which does not affect the quality of the environment and which is capable of measurement but without noticeable consequences.

8 Chapter 8 Noise and Vibration

8.1 Introduction

This chapter presents the noise and vibration impact assessment of changes to the Patrick O'Connell poultry operation comprising:

- Construction of two poultry houses and soil water tank

Key issues to be addressed in this chapter include identification and assessment of potential noise and vibration impacts arising from the operational phase of the above developments on nearby Noise Sensitive Locations (NSLs).

8.1.1 Competent Expertise

This chapter has been prepared by Trevor Montgomery whose qualifications include BSc In Environmental Science and Technology and Post Graduate Diploma In Environmental Protection. Trevor is the managing director of MEHS and has over 19 years of experience providing environmental consultancy and environmental assessment services to business, industry and public sectors. Trevor has experience in, but not limted to the areas of; noise and vibration impact assessment, building acoustics (design and standard assessment), environmental noise prediction modelling and occupational noise assessment.

8.2 Consultation

Consultation was conducted for the overall EIAR. No additional, separate consultation was conducted by the noise and vibration specialist as part of this assessment.

8.3 Methodology

8.3.1 Characterisation of the Receiving Environment

The receiving ambient noise environment has been characterised by both a desk-based review of past monitoring data completed as part of the requirements of the EPA for the IE licence application and by additional monitoring carried out in 2016 at the boundaries of the poultry facility.

8.3.2 Desk-based Studies

A baseline noise survey was conducted as part of this noise assessment at locations adjacent to the proposed extension and its nearest noise sensitive locations. The survey was carried out on the 15th of November 2017 and measurements were made over intervals of 30 minutes during the day and night which coincided with the removal of the broilers from the existing poultry houses. Noise measurements were made at the locations described in Table 9.1. These locations are also shown in Figure 8.1.

Table 8.1: Description of Noise Monitoring Locations during Baseline Survey

Map Reference	Description
1	At Site Entrance.
2	Residence to the North West of the proposed site
3	Residence to the South of the entrance of the poultry site

8.3.3 Field Survey, October 2017

The noise climate in the vicinity of the existing site is relatively low. The operation of the existing poultry operation involves site transport traffic (cars, delivery and collection trucks), feed and water system, etc., which at present do not contribute to any significant noise levels at the nearest noise sensitive locations surrounding the site.

Noise levels measured at noise sensitive locations to the site, located within along the road leading to the site. The movement of vehicles along the road were the main noise contributors within this area.

The baseline survey carried out as part of this EIAR assessment has indicated that noise levels are within the EPA typically IPPC Licence guidance levels of 55dB LAeq for noise during the daytime and 45dB LAeq during the night time period at noise sensitive properties. The results of the baseline noise survey are summarised in Table 8.2.

The monitoring on the day was during the emptying of poultry house no.1 and the 2 trucks and catchers arrived at 6.30 am. The process of catching, putting all the broilers in the crates and loading the racks on the trucks where completed by 12.30 pm. The night time monitoring had no vehicle movements on the poultry farm.

The measurement methodology followed in 2016 was in accordance with the recommendations of the following:

- International Standards Organisation Document: ISO 1996 Acoustics – Description, Measurement and Assessment of Environmental Noise, Part 1, Basic Quantities and Assessment Procedures (2003) and Part 2 Determination of Environmental Noise Levels (2007),
- The EPA Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities, (NG4), revised January 2016, and,
- BS4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound.

Additional ambient noise monitoring was undertaken at the locations as described in Table 9.1 below and illustrated on **Figure 8.1**. The numbering used reflects a continuation of the boundary points monitored as part of the annual survey. The locations were chosen to be representative proxy locations for nearby NSLs as indicated on **Figure 8.1.**

Ambient monitoring was conducted at boundary locations during the day, evening and night time periods for approx. 30 minute events. The meter was set to log LAeq, LA90, LA10, LAmax and LAmin over 100 milli-second intervals to assist in later post processing and analysis.

Survey personnel noted all primary noise sources contributing to the ambient sound environment. The noise meter was attended at all times. Detailed field notes were recorded during the survey.

The separate source measurements were conducted over 5 minute intervals.

Overall weather conditions prevailing during the survey were suitable for noise monitoring. The weather was very calm during all monitoring events with no rain or wind although slight breezes were recorded (1 - 2 m/sec) at Location 3 during the day.

Sound measurement was carried out using two Type 1 Sound Level Meters and associated hardware (calibrators and tripods) and software. The meters were placed in open areas, >3.5m from reflecting surfaces and a minimum of 1.2m above ground level. The meters were calibrated before, during and after use. The observed drift was <0.2 dB. The sound levels were measured using the A-weighted network, and a fast sampling interval. Un-weighted 1/3 octave spectra were logged throughout. Wind speed was measured using a portable anemometer.

The Acoustic Calibrators were calibrated to published data as described and recommended by IEC standard Electroacoustics – Sound Calibrators IEC 60942:2003, IEC 90942:1997, BS EN 60942:1998 and BS EN 60942:2003.

8.3.4 Prediction of Impacts Point Sources

Noise levels at the nearest NSLs are normally predicted in accordance with the guidance set out in ISO 9613-2 - Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation and where sound power levels are known. Potential sources at the Patrick O'Connell poultry operation are internal with no expected changes to the external ambient noise environment. Sound power levels and sound pressure levels at known distances were provided by the poultry house providers.

Construction & Traffic Related Noise

Temporary impacts associated with the construction phase and long-term potential traffic noise effects are dealt with where necessary under planning permission conditions and were therefore assessed by the local authorities.

Additionally, NG4 specifically states that *"the guidance does not relate to construction and/or off-site transportation noise. For any construction related noise, this process is generally covered by the conditions of the planning permission and it does not relate to the licensable activity on site."*

This EIAR is prepared in support of a licence review for submission to the EPA and therefore this chapter is concerned with long term operational impacts only.

8.3.5 Criteria for Assessment of Noise Impact and Determination of Significance

The following criteria have been used where appropriate to assess noise impacts and effects described in this report:

Table 8.4 Criteria for Noise Impact Assessment

Criteria for Extent of Noise Impact (dB)	Noise Impact Magnitude	Magnitude Rating
>10	Severe	Very high
5 to 10	Substantial	High
3 to 5	Moderate	Medium
1 to 3	Slight	Low
<1	No impact	Very Low

above table describes the noise impact i.e. the change in noise levels before and after implementation of a proposed development. The table does not however describe whether the change in noise levels is significant. Relying solely on change in noise level is not appropriate because it risks ignoring the context of the noise change. The actual effect on NSLs and hence significance takes account of other relevant factors such as time of day, averaging periods, nature of source, frequency spectra, frequency of occurrence and absolute level. The linking of magnitude of impact to effects and significance is described in Table 8.5 below. The above assessment procedure is in line with recently published methodologies set out in BS4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound and Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Noise Impact Assessment, 2014.

Table 8.5 Significance of Effects

Impact Magnitude	Receptor Perception	Significance
Negligible	No discernible effect	Not significant
Slight	Non-intrusive	Less likely to be significant ↓
Moderate	Intrusive	
Substantial	Disruptive	More likely to be significant
Severe	Physically harmful (e.g. sleep disturbance, cardio-vascular effects)	Always significant

8.3.6 Definitions

The following definitions apply in this chapter:

L_{Aeq} is the A – weighted equivalent continuous sound level – the sound level of a steady sound having the same energy as a fluctuating sound over a specified measurement period;

L_{A10} is the A-weighted noise level which is exceeded for 10% of the specified measurement period. This gives an indication of the upper limit of fluctuating noise such as that from road traffic;

L_{A90} is the A-weighted noise level exceeded for 90% of the measurement period and is useful in providing an indication of the background noise level experienced over the measurement period;

L_{AFmax} is the maximum A-weighted noise level measured during a cycle with a fast time weighting, and,

L_{AFmin} is the minimum A-weighted noise level measured during a cycle with a fast time weighting.

$L_{Ar,T}$ The Rated Noise Level is equal to the L_{Aeq} during a specified time interval (T), plus specified adjustments for tonal character and/or impulsiveness of the sound.
The "A" suffix denotes sound levels that have been "A-weighted" in order to account for the non-linear nature of human hearing to sounds of different frequencies.

Lw Sound power is the sound energy radiated in all directions by a source. Total sound power in watts is equal to the intensity in watts/m^2 multiplied by the area in m^2.

Tonal sounds are defined as sounds which cover a range of only a few Hz which contains a clearly audible tone, i.e. distinguishable, discrete or continuous noise (whine, hiss, screech, or hum etc.) are referred to as being 'tonal'.

A simplified objective method for determining if tones are present is set out in Annex D of ISO 1996-2:2007(E) Acoustics – Description, measurement and assessment of environmental noise, Part 2: Determination of environmental noise levels.

According to the simplified method, an audible tone is normally defined as being greater than or equal to the following values in both adjacent one third octave bands:

- 15dB in low frequency one third octave bands (25Hz to 125Hz);
- 8dB in middle frequency bands (160Hz to 400Hz), and;
- 5dB in high frequency bands (500Hz to 10,000Hz).

1/3 Octave Analysis is defined as frequency analysis of sound such that the

frequency spectrum is subdivided into narrower bands of one–third of an octave each in order to objectively determine if a sound is tonal or not. The simplified method has been applied in this report.

All sound levels in this report are expressed in terms of decibels (dB) relative to $2x10^{-5}$ Pa.

8.4 Baseline Description of Existing Conditions

8.4.1 Locational Context

The existing operation is located in the townland of Ahawilk approx. 3.5 km north from the village of Broadford. The overall operation covers an area of 1 Hectares (ha). The two poultry house run east to west direction. The busy regional route the R522 from Newcastle west to dromcolligher lies approximately 1.5 m to the east from the main entrance. The area is characterised by individual detached dwellings located along, and set back from, local roads. The site location is essentially rural in nature.

The operation is located at an elevation of approx. 75 m OD. The nearest NSLs to the east are located at a similar elevation while the nearest NSL is located at an elevation of 72 m OD. NSLs further east are located at an elevation of 70 m OD.

8.4.2 On-site Activity/Primary Noise Sources

The main built footprint provides poultry rearing operation and comprises a two poultry houses and a feed system. Typical sound sources include fans on top of building 2 and motors associated with the above units.

8.5 Results of Assessment

The operation and noise controls implemented and the Patrick O'Connell operation is complying with licence limits.

Overall, the existing and typical licence limits set for reviewed or new facilities are currently complied with at the operation site.

Table 8.6: Existing Noise Levels Measured During EIS Baseline Survey – Day Time

Table 6.2: 2016 Noise Levels Measured During EIS Baseline Survey

Location	Time	L_{Aeq}	L_{A10}	L_{A90}	Survey Description	Notes
1	11.31	40.7	43.6	39.3	Measurement taken at entrance to site	Vehicles audible from distance. Activity on poultry farm just audible, sound of fork truck
2	10.28	41.2	42.8	40.1	Measurement taken at road side	Vehicles audible from distance. Noise from first truck leaving the poultry house
3	09.41	40.2	41.1	39.5	Measurement taken at road side	Vehicles audible from distance. Activity on poultry farm just audible, sound of fork truck

Table 8.7: Existing Noise Levels Measured During EIS Baseline Survey – Night-time

Location	Time	L_{Aeq}	L_{A10}	L_{A90}	Survey Description	Notes
1	00.42	32.8	35.1	31.7	Measurement taken at boundary of residence	Vehicles audible from distance from R515
2	00.08	31.9	33.5	30.3	Measurement taken at road side	Vehicles audible from distance.
3	01.25	32.5	33.8	31.2	Measurement taken at entrance to site	Vehicles audible from distance.

8.6 Assessment of Impacts

The design of the two poultry building, there will be a number of new noise sources associated with the proposed buildings feed systems, fans, birds in the buildings.

The proposal is expected to comply with the typical limits and conditions as set out in Section 8.4.3 of this chapter with precautionary mitigation measures as discussed in Section 8.7 below.

8.7 Proposed Mitigation and Enhancement Measures (if applicable)

No specific mitigation measures are proposed for the poultry houses

In the long term, regular preventative maintenance shall be completed to ensure that source noise levels are minimised and that tonal noise is not subsequently introduced by faulty motors.

Noise sources, both existing and new, will be regularly evaluated and reviewed internally to ensure noise is prevented and minimised where possible. Measures taken will be considered where technically, economically and socially advantageous.

8.8 Residual Impacts

As mitigation measures are precautionary, the residual impacts and effects are as described under Section 8.6.

8.9 Cumulative Impacts

The proposals will not result in any significant change to the existing soundscape. Accordingly, there are no cumulative impacts to consider.

8.10Summary & Conclusions

This noise impact assessment has been completed through site survey at the existing poultry operation, and assessment of noise impacts and effects in accordance with recognised standards and guidance.

The ambient noise environment in the vicinity of the existing poultry operation is characterised mainly by extraneous sources including traffic on the R515 and intermittent flow on the local road network. The R515 traffic related sound also becomes more intermittent and un- steady as the night time period progresses thus leading to lower background levels at night. The existing poultry operation is generally considered to be inaudible at the nearest NSLs

The proposed poultry house are expected to be impact neutral and will therefore not affect NSLs in the vicinity of the operation.

8.11 References

BS5228 Part 1: 2009 +A1:2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites.

BS4142:2014 - Methods for Rating and Assessing Industrial and Commercial Sound.

'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)' as published by the Environmental Protection Agency, revised January 2016.

9 Chapter 9 –Air Quality and Odour

9.1 Introduction

The objective of this Chapter is to assess the impact on local air quality resulting from the operation of the poultry operation site in terms of emissions from the buildings. The potential impact of odours and dust from the proposed poultry buildings and measures to control and reduce odorous emissions from the operation is also assessed in this Chapter.

A detailed air quality modelling study was undertaken to evaluate the potential impacts of these emissions. The modelling exercise was conducted using the SCAIL calculation. The following sections provide details of the assessment methodology, existing air emissions, air quality and odour impacts along with mitigation measures. The predicted impacts resulting from the modelling study for the poultry houses was assessed with regard to the 2011 National Air Quality Standards (NAQS)(1). The predicted odour concentrations due to potential emissions from the Poultry buildings were compared to ambient guide-values for preventing an odour nuisance within the local community.

9.1.1 Competent Expertise

This chapter of the EIAR was prepared by Trevor Montgomery include BSc In Environmental Science and Technology and Post Graduate Diploma In Environmental Protection.

9.2 Methodology

9.2.1 Data Sources

The assessment of impacts involved a desk study and site visit to identify the activities associated with the poultry operation that could significantly affect local air quality.

9.2.2 Air Quality and Odour Modelling Assessment

SCAIL - Simple Calculation of Atmospheric Impact Limits was used to conduct the assessment

9.2.3 Assessment Criteria

Odours

The perception of odour at some point downwind of an emission source depends on the type of odour compound and the air concentrations of the odorous gas. The measure used to quantify odour nuisance potential is the odour concentration, expressed in European odour units per cubic metre (ouE/m^3). An odour concentration of 1 ouE/m^3 is the level at which there is a 50% probability that, under laboratory conditions using a panel of qualified observers, an odour may be detected. At levels below 1 ouE/m^3 the concentration of the gaseous compound causing the odour in the air will be less than the odour detection level and so although the odorous gas is still present in the air no odour will be experienced.

The intensity of an odour ranges from 1 ouE/m^3 = odour detection, 2= faint odour with the intensity increasing up to 5 ouE/m^3 where the odour is easily identifiable, with higher levels of 10-20 ouE/m^3 likely to result in nuisance complaints by the local community depending on the frequency of the odour occurrence. The level at which the strength of the odour causes a community nuisance also depends on the locality. For example, in areas where agricultural activities are common a higher tolerance of odours may exist compared to residents in a suburban environment well away from farmland activities. Since the duration of the odour at a particular location also determines whether or not a nuisance situation may occur an averaging time of 15-30 minutes is commonly used as a basis for the minimum time period when a complaint may be reported.

An odour concentration of greater than 5 ouE/m^3 has been widely used as a criteria for determining possible nuisance complaints, typically as a predicted hourly average 98 percentile limit value. This predicted odour concentration has been adopted in the past as an acceptable approach in Ireland and the U.K.

Ambient odour limits recommended in a report by the EPA[4] for pig production units give a limit value of 3 ouE/m^3 as a 98 percentile of predicted hourly concentrations, with a target value of 1.5 ouE/m^3. A predicted odour concentration of 1.5 ouE/m^3,

expressed as a 98 percentile of hourly values, is recommended by the Environment Agency in the U.K.[5] for sources with a potential for highly offensive odours, including organic waste treatment and landfills.

9.3 Existing Environment

Site Location

The Patrick O'Connell operation is located in the townland of Ahawilk and 1.5 km west of the R522. The terrain is generally sloping in a northerly direction. Within the surrounding area, the land-use is mixed including housing along the R522 and the local road to the operation. There are no significant atmospheric emissions from industrial activities within the immediate area. Emissions from trucks and other vehicles travelling along the R522 associated with the facility along with exhausts from other local traffic will contribute to background levels of NO_x and PM_{10} in the locality.

The nearest house to the plant boundary is situated on land neighbouring the east just over 280 m away and other three houses with 400 meters

Odour survey

The character and strength of odour emissions from each plant component was estimated from the results of the walk-over sniff test survey carried out during the site visits undertaken in October 2016 and February 2017. This survey was carried out within the poultry operation, including at ground level and on top of poultry house in accordance with the EPA Guidance Note AG5[6].

Within the poultry houses a ammonia odour is detectable but this was not detectable outside or around the neighboring properties.

EPA Licence Requirements

The EPA IE license which has been applied for will state something like the following:

"No emissions, including odours, 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".

9.4 Characteristics of Emissions

9.4.1 Existing Developments

The rate of odorous emissions from a poultry operations was calculated using the SCAIL - Simple Calculation of Atmospheric Impact Limits for the 4 nearest residential dwellings. There has never been an odour compliant from the site.

The five receptors are shown in Figure 9.1

9.4.2 Proposed Development

The proposal is to construct two new poultry houses and these houses will have 10 roof fans.

9.5 Impact of Emissions

Annual PM10

The predicted annual average PM_{10} concentrations due to the operation of the poultry buildings. PM_{10} emissions from the 4 poultry buildings are predicted to contribute to a maximum of 6.15 µg/m³, or 15.4% of the NAQS value of 40 µg/m³.

A summary of the maximum predicted values at the nearest houses, are given in Table 9.1 and 9.12. The percentage compliance of both the short-term and long-term NAQS are included in column 5. Both the PC and PEC annual levels at these houses are within <4µg/m³ of the maximum annual value predicted beyond the boundary. At the terraced houses near the South West corner, predicted long-term PC and PEC values are 1-2 µg/m³ and 11-12 µg/m³ respectively.

Table 9.1: Summary of maximum prediction PM10 concentrations beyond the boundary

Pollutant	Modelled Period	NAQS(i) (µg/m³)	Predicted PC (PEC) Max Conc. (µg/m³)	Max Conc. as % of NAQS(i)
PM_{10}	Annual	Average – 40	6.03	15.4%

Note: (i) Air Quality Standards Regulations (SI: No 180 of 2011)

Table 9.2: Summary of maximum PM10 predicted concentrations at the nearest house or sensitive receptor

Pollutant	Modelled Period	NAQS(i) (µg/m³)	Predicted PC (PEC) Max Conc. (µg/m3)	Max Conc. as % of NAQS(i)
PM_{10}	Annual	Average - 40		
Dwelling 1	Annual	Average - 40	5.67	14.2
Dwelling 2	Annual	Average - 40	5.71	14.3
Dwelling 3	Annual	Average - 40	5.72	14.3
Dwelling 4	Annual	Average - 40	5.74	14.4
Dwelling 5	Annual	Average - 40	6.03	15.1

Note: (i) Air Quality Standards Regulations (SI: No 180 of 2011)

9.5.1 Odour

The results of the odour impact modelling study are shown as ground level short-term odour concentration plots for the proposed development.

The results of the odour modelling study based on the proposed layout is shown in Table 9.3,

Table 9.3: Summary of maximum Odour predicted concentrations at the nearest house or sensitive receptor

Pollutant	Modelled Period	Predicted odour Max Conc. (Ou/m3)
Dwelling 1	Annual	1.89
Dwelling 2	Annual	2.04
Dwelling 3	Annual	2.04
Dwelling 4	Annual	2.13
Dwelling 5	Annual	3.06

which gives the maximum short-term ground level odour concentrations that are predicted as the max hourly value.

The pattern of odour levels indicates that the maximum level at the nearest houses to the east of the proposed poultry houses will be below 5 ouE/m^3. In other words, the odour impact model predicts that odour levels are substantially below the odour detection level for 98 percent of the time at the nearest houses to the poultry operation.

9.6 Mitigation Measures

- Efficient management of each boiler plant and regular maintenance programmes will be carried out to ensure high performance standards of each plant and NO_x emissions comply with the IEL limit values.
- The emissions of particulates from the 4 poultry houses will be monitored by check the fans and the vents.

9.7 Residual Impacts

There is no significant change in atmospheric emissions at the Patrick O'Connell Poultry operation resulting from the proposed development and the air quality impact modelling demonstrates compliance with both the short-term and long-term NAQS. No residual impacts are predicted.

9.8 Conclusion

An air quality impact study of the emissions from the proposed development of two poultry houses was undertaken to predict ground level concentrations in the locality and assess percentage compliance with National Air Quality Standards values.

The results of the modelling study demonstrate that the predicted concentrations within the locality for PM_{10} comply with the Air Quality Standards annual average limit values specified in the 2011 Regulations. Overall, the assessment of air quality impacts demonstrates that no significant impact on the health of the local community or surrounding environment is predicted.

An odour modelling study was undertaken to assess the potential impact of odorous emissions from the planned design and operation of the upgraded plant within the local community. The results of this study indicates that based on existing and future planned operation of the poultry operation, the change in emissions will not be significant and odours are unlikely to be detected beyond the plant boundary. The predicted odour concentrations are below the recommended guideline odour exposure limit value for emissions from a poultry site to prevent a potential odour nuisance at the nearest houses.

9.9 References

(1) National Air Quality Standards, Air Quality Standards Regulations, 2011, Stationary Office, Dublin

(2) CERC, 2016, ADMS5, Atmospheric Dispersion Modelling System, User Guide, Cambridge

(3) Environmental Protection Agency, 2010, Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)

(4) Environmental Protection Agency, 2001, Odour Impact and Odour Emission Control Measures for Intensive Agriculture ER No 14, EPA Wexford

(5) Environment Agency, 2009, Technical Guidance Note H4 – Odour Management Draft: EA, UK

(6) Environmental Protection Agency, 2010, Odour Impact Assessment Guidance for EPA Licensed Sites, Guidance Note 5 (AG5)

10 Chapter 10 – Cultural Heritage

10.1 Introduction

This chapter assesses the archaeological, architectural and cultural heritage resource of the Patrick O'Connell proposed poultry operation. It sets out the methodology, a baseline of the receiving environment as well as an assessment of the impact of the proposal. Mitigation is proposed for components of the proposal involving construction/excavation works.

10.2 Methodology

The following methodology was used in compiling this section of the EIAR:

- A desktop study using published archaeological and historical studies and cartographic source;
- Site walkovers undertaken in September 2016 and February 2017, and
- A review of the Sites and Monuments Record (SMR), the Record of Monuments and Places (RMP) for relevant areas of County Limerick.

10.3 Baseline Description of Existing Environment

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. The proposed poultry farm site is not located near, and/or likely to impact on any monuments or sites of archaeological interest as identified in the Sites and Monuments Database of the Archaeological Inventory of Ireland.

An assessment of the impact on architectural, archaeological and cultural heritage was undertaken by Montgomery EHS to assess the impact of an extension to the existing poultry operation at Patrick O'Connell's proposed poultry growing operation. This chapter outlines issues with respect to the proposed development on the receiving archaeological, architectural heritage and cultural heritage environment and proposes ameliorative measures to safeguard any monuments, features or finds of antiquity.

The proposed two poultry growing houses are located on a green field site to the north of the existing poultry house, and are located in the townland of Ahawilk.
It should be noted that the information provided above is a very brief synopsis of the cultural heritage of the environs of the site.

Townland boundaries
Townlands are a unique feature in the Irish landscape. They are one of the oldest land divisions in the country, and their origins are undoubtedly of great antiquity, most certainly pre-Norman. The townland boundaries within the study area

include:

Ahawilk borders the following townlands:

- Balliniska boundary which takes the form of the River Deel
- Ahawilk townland boundary which is defined by hedgerow
- Iniskeen boundary is located to the south east by a l hedgerow
- Killoorha townland boundary by a Hedgerow
- Gorteen is located to the South West and the boundary is a hedgerow
- Raheenagh is located to the West of Ahawilk and the boundary is a hedgerow
- Moanroe More townland boundary by a Hedgerow
- Moanroe Beg townland boundary by a Hedgerow and the Killilagh River

10.4 Results of the Assessment

There are no recorded archaeological site within the proposed or existing site

10.5 Assessment of impacts

The EIAR is completed to support an application for a licence review at the proposed poultry buildings at Ahawilk.

There is no likely direct impact on any known monument of historic or archaeological significance from the proposed works. The possibility of impact on previously unknown sites always exists where groundworks take place. For much of its length the proposed development will follow the course of a pre-existing farm road therefore the likelihood of impacts on buried archaeological features is somewhat reduced.

The possibility is always present that unrecorded archaeological finds or features may be encountered when excavating beneath the ground surface.

10.6 Proposed Mitigation

With regard to the proposed works at the site there is no specific reason to suspect that the ground where the new extension is proposed contains material of archaeological significance. The low-lying ground, subject to periodic flooding in the past, was never favoured for settlement or habitation. In this case there is no compelling reason why archaeological mitigation should be necessary.

In the event of a significant find, the monitoring archaeologist may request, a temporary re-deployment of the machines. A defined period of time for archaeological excavation will be agreed between the archaeologist and developer/contractor. A method statement for the excavation must be submitted to the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs before the excavation proceeds.

10.7 Residual Impacts

There are no residual impacts from any element of the proposal

10.8 Cumulative Impacts

There are no cumulative impacts from any element of the proposal

10.9 Summary and Conclusions

The site of the proposed development contains no Recorded Monuments (RMP), with one in the wider vicinity (Figure 10.1) The site contains no building listed in the *National Inventory of Architectural Heritage* (NIAH).
There are no potential impacts on the archaeological, architectural or cultural heritage resource of the site likely to arise from the current proposal

11 Chapter 11 – Population and Human Health

11.1 Introduction

The aim of this chapter is to assess the positive and negative impacts of the proposed development on population and human health with respect to the socio- economic effects and potential adverse effects on human beings arising from environmental impacts Human beings comprise one of the most important elements in the environment. In carrying out any development, one of the principal concerns is that human beings should experience no reduction in the quality of life as a consequence of the construction and occupational phases of a development.

Publications and other data sources that guided the preparation of this chapter are listed hereunder:

- The Central Statistics Office – data from the 2011 Census; (detailed Census 2016 data was not available at the time of chapter production);
- Limerick County County Development Plan, 2011 - 2016;

11.2 Receiving Environment

11.2.1 Population and Settlement Structure

At the time of undertaking this assessment, the detailed results of the annual 2016 census were just made available for inclusion.

The results of Census 2016 indicate that the population of County Limerick had grown to 195,175 persons. Excluding the city, the population of Cork Limerick was 100,983, an increase of 3,366 persons compared with the Census 2011 population figures. There was a large raise in the population of the city over the same period.

The population of County Limerick is spread across an extensive range of settlements comprising:

- 6 'main towns';
- 240 villages and smaller settlements; and
- The rural areas.

The main towns and city environs (urbanised areas) together account for 62% of the population of the county in 2016.

11.3 Characteristics and Impacts of the Proposed Development Local Economy and Employment

The poultry industry is a long term and steady in the west limerick area
There are approximately 269,133 hectares of agricultural land in Limerick of which 228,074 hectares or 84% is pasture. According to the Census of Agriculture (2000) the average farm size for Limerick is approximately 23.6 hectares, approximately 1.2 hectares bigger than the national average. There are 6,194 farms in Limerick and 37% of them are involved in specialist dairying and 52% of them involved in specialist beef farming.

11.4 Impacts on Human Health

11.4.1 Noise

The noise assessment completed as part of this EIAR discussed in detail in **Chapter 8** above concluded that the proposed changes at the site will not give rise to significant adverse noise related effects on nearby noise sensitive locations provided that the proposed mitigation measures are implemented.

11.4.2 Air Quality, Odour and Dust

A detailed air quality assessment was undertaken to determine the impact on local air quality resulting from the operation of the poultry operation in terms of emissions and the planned extension. The potential impact of odours and PM10

The results of the modelling study demonstrated that the predicted concentrations within the locality for PM_{10} (Particulates) comply with the Air Quality Standards. Overall, the assessment of air quality impacts demonstrated that no significant impact on the health of the local community or surrounding environment is predicted.

An odour modelling study was undertaken to assess the potential impact of odorous emissions from the planned design and operation of the expanded operation within the local community. The results of this study indicated that based on existing and future planned operation, the change in emissions will not be significant and odours are unlikely to be detected beyond the plant boundary. The predicted odour concentrations are below the recommende guideline odour exposure limit value for emissions from a poultry operation to prevent a potential odour nuisance at the nearest houses.

The assessment of air quality impacts demonstrated that no significant impact on the health of the local community or surrounding environment is predicted.

11.4.3 Traffic

The proposed developments will not alter existing traffic levels in the form of deliveries or employee related trips or the timing of such movements.

11.4.4 Visual Amenity

Developments have the potential to impact on the amenity of local residents due to adverse impacts on local views and visual amenity.

The size and scale of the proposed developments and the location of the proposals within existing operational industrial sites ensures that there will not be adverse impacts on the visual amenity of local residents

The level and scale of physical development being proposed will blend into an existing visual background of the poultry operation.

11.5 Major Accidents and Incidents

Regarding potential impacts on the environment, vulnerability of the project to 'major accidents and/or natural disasters (such as flooding, sea level rise, or earthquakes)' has also been considered as per the 2014 Directive. Potential impacts associated with such events are discussed under each relevant chapter e.g. the vulnerability of the project to flooding is assessed in detail under Chapter 12 – Water (Hydrology) of this EIAR. Potential effects deriving from vulnerability of the project to risk of major accidents and/or disasters are also discussed below.

11.5.1 Accidents and Incidents

At present site does not fall under the criteria of the Seveso III Directive or the subsequent regulations implementing the directive, the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (the 'COMAH Regulations'). Therefore, it is deemed that due to the nature of processes carried out within the facility, the materials stored and quantities, in the event of a major accident or disaster the site and activities that take place within do not pose a major risk to the environment.

With respect to effects on land, soils and water arising from accidents, the primary potential impact on these factors arises from potential accidental spills and leaks occurring primarily during the construction phase of the proposed development

During construction of the development there is a potential risk of localised accidental pollution from spillage or leakage of temporary oils stored on site, oils and fuels from construction machinery or site vehicles and run-off from concrete and cement pouring. Pollution events on soils and water have the potential to present secondary impacts on aspects of biodiversity through either contamination of terrestrial and aquatic environments and habitats. The implementation of adequate mitigation measures and site management as outlined in Chapters 5, 6, 8, 12

11.6 Mitigation Measures and/or Factors

11.6.1 Noise

No specific mitigation measures are proposed for the extension to the site.

In the long term, regular preventative maintenance will be completed to ensure that source noise levels are minimised and that tonal noise is not subsequently introduced

by faulty motors.

Noise sources, both existing and new, will be regularly evaluated and reviewed internally to ensure noise is prevented and minimised where possible. Measures taken will be considered where technically, economically and socially advantageous.

11.6.2 Air Quality, Odour and Dust

Additional mitigation measures to control and reduce potential sources of malodours are proposed in the odour management plan.

11.6.3 Traffic

The proposed development will result in no change to existing traffic volumes or traffic movements. Traffic related impacts on human healthare concluded to be negligible and as a result no mitigation measures are proposed.

11.6.4 Visual Amenity

As discussed above, the proposed development will not impact on the visual amenity of local residents due the location and scale of the proposed developments and the existing natural screening surrounding the site. As a result no mitigation measures are proposed.

11.7 Summary and Conclusions

The primary aspects of the development and environmental factors that can have the potential impact on the populations and human health are discussed above. It is concluded that with the implementation of suitable mitigation measures where required as discussed above there will be no adverse impact on human health. Any potential impacts are deemed to be imperceptible and neutral.

12 Chapter 12 – Water (Hydrology)

12.1 Introduction

The impact of the proposed upgrade works to the proposed poultry site as well as the potential impacts associated the ongoing activities at the poultry site with respect to water is assessed in this section.

12.1.1 Competent Expertise

MEHS were commissioned to undertake an assessment of the potential imacts associated with the activites and proposed developments previously outlined, on the hydrological characteristics of the site and surrounding environs.

12.2 Study Assessment and Methodology

The assessment included both a desk-based study which involved reviewing available geological and hydrogeological information held by publicly available online resources on the site and surrounding lands and a number of site visits.

The following sources were reviewed:

- Inland Fisheries Ireland (IFI) – "Guidelines on Protection of Fisheries during construction works in and adjacent to waters" (2016).
- Construction Industry Research and Information Association (CIRIA) – "Control of water pollution from linear construction projects" (2006).
- Met Éireann Meteorological Database (www.met.ie)
- Ordnance Survey Ireland Map Viewer (www.osi.ie)
- Geological Survey Ireland Spatial Data Viewer (www.gsi.ie)
- Teagasc online soil / subsoil maps (http://gis.teagasc.ie/soils/map.php)
- Water Framework Directive – Water Maps Map Viewer (www.wfdireland.ie)
- Environmental Protection Agency (EPA) Envision public viewer (www.epa.ie)
- National Parks and Wildlife Services Map viewer (www.npws.ie)
- Flood Risk Assessment Reports
- Surface Water Impact Assessment Report

12.3 Baseline Description and Existing Conditions

The receiving environment is sub-divided into relevant sections concerning hydrology.

12.3.1 Topography and Climate

The natural topography of the site ranges from 140 to 148 meters. The topography of the land is sloping to the south towards the R515. The proposed poultry houses will lower than the existing poultry houses. The site is located on along a local road off the R515 (National Grid Reference: 34919 21201). The majority of the processing areas at the Kilmallock

The SAAR (Standard Average Annual Rainfall 1981 - 2010) recorded at Charleville Golf Club (c.10.0 km east of the site), the closest rainfall station to the site with long term SAAR data, is 981mm (www.met.ie). The average potential evapotranspiration (PE) at Cork Airport is taken to be 482.5mm (www.met.ie). The actual evapotranspiration (AE) is calculated to be 486mm (95% PE). Using the above figures the effective rainfall (ER) for the area is calculated to be (ER = SAAR – AE) 495mm.

12.3.2 Regional and Local Hydrology

The soils in the area occur on sloping relief at elevations varying from 100 to 240 meters. They are mainly associated on the landscape with the Elton Series and to a lesser degree with the Patrickswell and Rathcannon Series. They occur throughout the limestone plain but mainly north of the terminal moraine of the Weichsel glaciation between Dromcolliher and Newcastle West.

These poorly drained soils, of clay loam to clay texture and of high to very high base status, have been classified as podzolic Gleys. The profile is characterised by a dark-brown surface horizon overlying horizons that are gleyed and that display drab greyish colours and abundant mottling; the mottles increase in size and contrast with depth where they tend to mask the greyish background colours. These horizons overlie a thick strongly gleyed textural B horizon which merges with the parent material at approximately 60 inches deep. Structure is only moderately well developed and weak in the upper horizons and becomes massive with depth; only the upper horizons are friable. Likewise root development is satisfactory in the surface horizons but poor further down. The poor drainage is caused mainly by slow run-off due to the relief, aggravated by the poor permeability of the soils themselves.

The Howardstown soils are devoted mostly to pasture. Grass growth is generally poor. Too well-defined grassland types occur. One has an abundance of the species of the well-drained grasslands growing side by side with moisture-loving rush species such as Juncus effusus (soft rush), Juncus articulatus (jointed rush) and Juncus inflexus (glaucous rush). See Figure 12.2 & 12.3

The site is underplayed with Dinantian Pure Unbedded Limestones. The rocks form part of a system of two tight major folds, whose axes are orientated ENE-WSW. Overall, the strata dip north, west and south, roughly at right angles to the edges of the GWB. Measured dip angles are between 10 and 40o meters and reflect the steep mounds of the Waulsortian limestones as well as the folding. N-S, E-W and NE-SW trending faults displace the rock units; they are mapped at the edges of the body, and although no faults or minor folds are mapped in the centre of this area, they will be present. See Figure 12.1.

Transmissivity in the diffusely karstified aquifers is in the range 20–2000 m. In this area of the country, the median value will probably be towards the lower-middle end of the range. At Croom and Fedamore WSs (in the adjacent Fedamore GWB), transmissivities are 120 m thickness.

The Dinantian Pure Unbedded Limestones attain maximum thicknesses of more than 1200 m. However, the effective flowing thickness is likely to be about 30 m, although much deeper inflows can occur if associated with faults or dolomitisation. An epikarstic layer at least a couple of metres thick is likely to exist at the top of the bedrock. In the vicinity of Newcastle West, borehole logs indicate three main production zones: a high permeability karstified band in the upper 10–15 m of bedrock; a middle zone from 35–50 m, where north/south trending fractures, spaced at between 500 m and 800 m apart,

12.3.3 Flood Risk

The is no flood risk for this site

12.4 Assessment of Impacts of the Proposed Development

It is noted that in assessing the likely or potential impacts on surface water/hydrology those potential impacts identified and discussed above in Chapter 7 are of relevance to this assessment and are also applicable. For clarity however, these potential impacts are also discussed below where relevant.

12.4.1 Construction Phase

The potential impacts of the proposed development on surface water are outlined below:

- Contamination of surface watercourses through the ingress of untreated effluent, chemicals and construction materials;
- Alteration of water table levels, and
- Flooding/erosion of watercourses.

The construction phase of the upgrade of the expansion will involve the excavation of soils for foundation construction to provide a base for new dwelling building.

Runoff and Drainage to Surface watercourses

The subsoil has been classified as well drained acid mineral and this combined with a very level site reduces suspended solids entering any surface water course, as rainfall will percolate downwards through the sub soils.

Oils, Lubricants and Construction Materials

The construction and operation of the proposed development involves the use of a range of materials and fluids. These include fuels and lubricants used for construction machinery, which if spilled, has the potential to give rise to contamination of surface

and ground waters.

The issue of accidental spillage of hydrocarbons such as diesel and lubrication oil during refuelling of plant machinery is a potential risk during the construction phase. Mitigation measures regarding the handling of potentially environmentally hazardous substances such as oils and lubricants are outlined in Section 7.5 above

12.4.2 Operational Phase

There is one emission point to surface water from the roof water. The primary emission to surface water is SW1 which discharges uncontaminated

12.5 Mitigation Measures

12.5.1 Construction Phase

As with any civil engineering project of this nature it is vital to ensure that prior to works commencing on site, adequate mitigation measures are put in place. All such mitigation measures will be detailed within a Construction Environmental Management Plan (CEMP) produced by the Contractor covering the action required to complete the project in a safe secure manner with respect to the environment. The Project/Site manager, who represents the Contractor is responsible for enforcing the technical and contractual requirements of the project.

Pre-emptive Site Drainage Management (Weather)

The programme will included measure to take account of weather forecasts, and predicted rainfall in particular. Large excavations and movements of subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.

It is recommended to suspend works if forecasting suggests either of the following is likely to occur:

- >10 mm/hr (i.e. high intensity local rainfall events); or
- >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or,
- > half monthly average rainfall in any 7 days.

Prior to works being suspended the following control measures will be completed:

- Secure all open excavations to prevent ingress of rainwater/runoff;
- Provide temporary or emergency drainage in the form of diversion channels to prevent back-up of surface runoff; and,
- Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded.

Excavation Works

It is noted that topsoils and subsoils must be stored separately. Excavated material may be temporarily stored adjacent to works but must be stored in an environmentally safe manner (e.g. covered with 1000-gauge polythene) and located at least 20m from existing watercourses. Any excess materials will be disposed of to a licensed disposal facility. At locations where excavated materials are stored, drains will surround and intercept surface run-off from materials mounds and distribute this water to controlled drainage system in place, as outlined below.

All excavated material will be visually assessed for evidence of possible contamination such as staining or strong odours. Should any there be any evidence samples of the excavated materials will be analysed for the presence of possible contaminants in order to ensure historical pollution of the soil has not occurred. Should the soil be identified as being contaminated it will be disposed of an appropriate waste contractor.

Environmental Monitoring

During the construction, the supervisor will be employed who will make at least weekly site visits for the duration of the construction works, and more frequently at start-up and during critical construction events such as concrete pours. The supervisors role will include the following actions.

- Inspection of surface water treatment measures
- Monitoring of stockpiles on a weekly basis;
- Daily visual inspection of the watercourses in proximity to the work at start-up and during critical construction events such as concrete pours;
- The Contractor's monitoring results will be audited on a weekly basis to ensure their implementation onsite;
- Provision of advice to minimise potential disturbance to wildlife and
- Liaison with NPWS, IFI and other prescribed authorities, when required.

12.5.2 Operational Phase

The site will be licensed by the Environmental Protection Agency and final ELV's to be adopted will be subject to their assessment and agreement.

Operational Impacts as a result of the landspreading of wash water within the agricultural landbanks are deemed as negligible subject to the identification and avoidance of ecological constraints prior to spreading and the implementation of the proposed mitigation measures outlined above.

12.6 Summary and Conclusion

It is considered that impacts on the hydrological environs during both the construction and operational phases of the development will be insignificant.

The main impacts associated with the construction phase of the development will be to the potential degradation to surface water quality on nearby watercourses.

Both erosion and sediment entrainment in runoff produced during excavation works

are considered the most significant risk to surface water during the construction stage. The proposed mitigation measures will ensure that this risk is kept to a minimum..

The main impact associated with the operational phase of the development will be discharge of roof water and the landspreading of wash water.

13 Chapter 13 – Material Assets

13.1Material Assets

The Draft Advice Notes for Preparing Environmental Impact Statements produced by the EPA in September 2015 state that "*Resources that are valued and that are intrinsic to specific places are called 'material assets'. They may be of either human or natural origin*".

The objective of the assessment of such assets is to ensure that they are used in a sustainable manner, to ensure continued availability for future generations after the development of the project.

Some examples of material assets relevant to the proposed development include:

- Assimilative capacity of air and water and sterilisation of resource;
- Minerals, soils, oil, gas;
- Transportation infrastructure (roads, railways, canals, airports etc), and
- Major utilities (water supplies, sewage, power systems, telecommunication systems).

13.1.1 Assimilative Capacity of Air and Water and Sterilisation of Resource

13.1.1.1 Air

As discussed in Chapter 9, a detailed air quality assessment was undertaken to determine the impact on local air quality resulting from the operation of the poultry facility in terms of emissions from the site and the planned construction of two more poultry buildings. The potential impact of odours and measures to control and reduce odorous emissions from buildings.

The results of the modelling for the site demonstrated that the predicted concentrations within the locality for PM_{10} (Particulates) comply with the Air Quality Standards. Overall, the assessment of air quality impacts demonstrated that no significant impact on the health of the local community or surrounding environment is predicted.

The results of this study indicated that based on existing and future planned operation, the change in emissions will not be significant and odours are unlikely to be detected beyond the plant boundary. The predicted odour concentrations are below the recommended guideline odour exposure limit value for emissions from a poultry site to prevent a potential odour nuisance at the nearest houses. It is concluded that as a result of the assessment, the asset of local air quality will not be impacted by the proposed development.

13.1.1.2 Water

The site will only discharge clean roof water to the steam and all other water are collected in the wash tank for landspreading as a result water will not be impacted by the proposed development

13.1.1.3 Minerals, Agricultural Lands and Soils

The proposed poultry buildings within agricultural fields with the development area stretching over 0.8 ha. During the construction stage the development site will utilise sections of the agricultural fields north of the site.

The proposed development will reduce the levels of agricultural lands by 0.8 Ha.

The proposed development will not adversely impact on soil quality or stability. Topsoils and subsoils will be stored separately during excavations, covered with 1000-gauge polythene when adjacent to works areas and will be located at least 20 m from existing watercourses. At locations where, excavated materials such as soils are stored, drains will surround and intercept surface run-off from materials mounds and distribute this water to the controlled drainage system in place.

The proposed development will have no impact on local mineral resources.

13.1.2 Transportation Infrastructure (roads, railways, canals, airports)

13.1.2.1 Bridges

The proposed development will result in no impacts on pedestrian or road bridges.

13.1.2.2 Roads

The proposed development will result in no additional impacts on the local road network will occur.

13.1.2.3 Canals and Airports

The proposed development will result in no impacts on canals and airports.

13.1.3 Major utilities (water supplies, sewage, power systems, telecommunication systems etc)

The proposed developments will not be constructed within proximity to major utility supply infrastructure and will result in no impacts on under or above ground services.

There are no predicted increased energy/power requirements associated with the proposed developments.

13.2 Residual Impact/Conclusions

There is no predicted adverse impact of the proposed dvelopments on the materials assets within or surrounding the facilities. As discussed above there is no predicted There is no predicted impact on traffic and transportation with any potential increase in traffic activity associated with the developments being temporary.

14 Chapter 14 – Interactions

14.1Introduction

As outlined in Article 3(1e) of Directive 2014/52/EU an EIAR is is required to assess the interactions between topics/factors discussed as part of the EIA i.e. population and human health, biodiversity, land, soil, water air and climate, material assets, cultural heritage and landscape where relevant.

This chapter describes and assesses the inter relationships between the different potential impacts of the proposed development. The identified technical inter-relationships are provided below.

14.2Noise and Human Health

The existing ambient noise environment in the vicinity of the Ahawilk poultry operation is typical of a rural poultry farm, the operation does not dominate the soundscape as there are a number of similar facilities in the area.

The ambient noise environment in the vicinity of the existing poultry house, is characterised mainly by extraneous sources including steady traffic on the R515 and intermittent flow on the local road network. The R522 and the L1311 traffic related sound also becomes more intermittent and un- steady as the night time period progresses thus leading to lower background levels at night. The existing operation is generally considered to be inaudible at the nearest NSLs.

Overall, it can be concluded that the proposed changes at the Ahawilk poultry Operation will not give rise to significant adverse noise related effects on nearby NSLs and residents provided that the mitigation measures as set out in Chapter 13 are adhered to.

14.3Air Quality, Human Health and Biodiversity

No significant air quality impacts on the health of the local community or surrounding environment are predicted from the proposed developments and the continued operation of the Patrick O'Connell operation. It is concluded for similar reasons that local ecological receptors will not be impacted by the proposed development.

14.3.1 Noise and Biodiversity

The noise assessment completed as part of this EIAR concluded that the proposed upgrades at the Patrick O'Connell operation are expected to be impact neutral and will therefore not affect noise sensitive locations in the vicinity of the main plant.

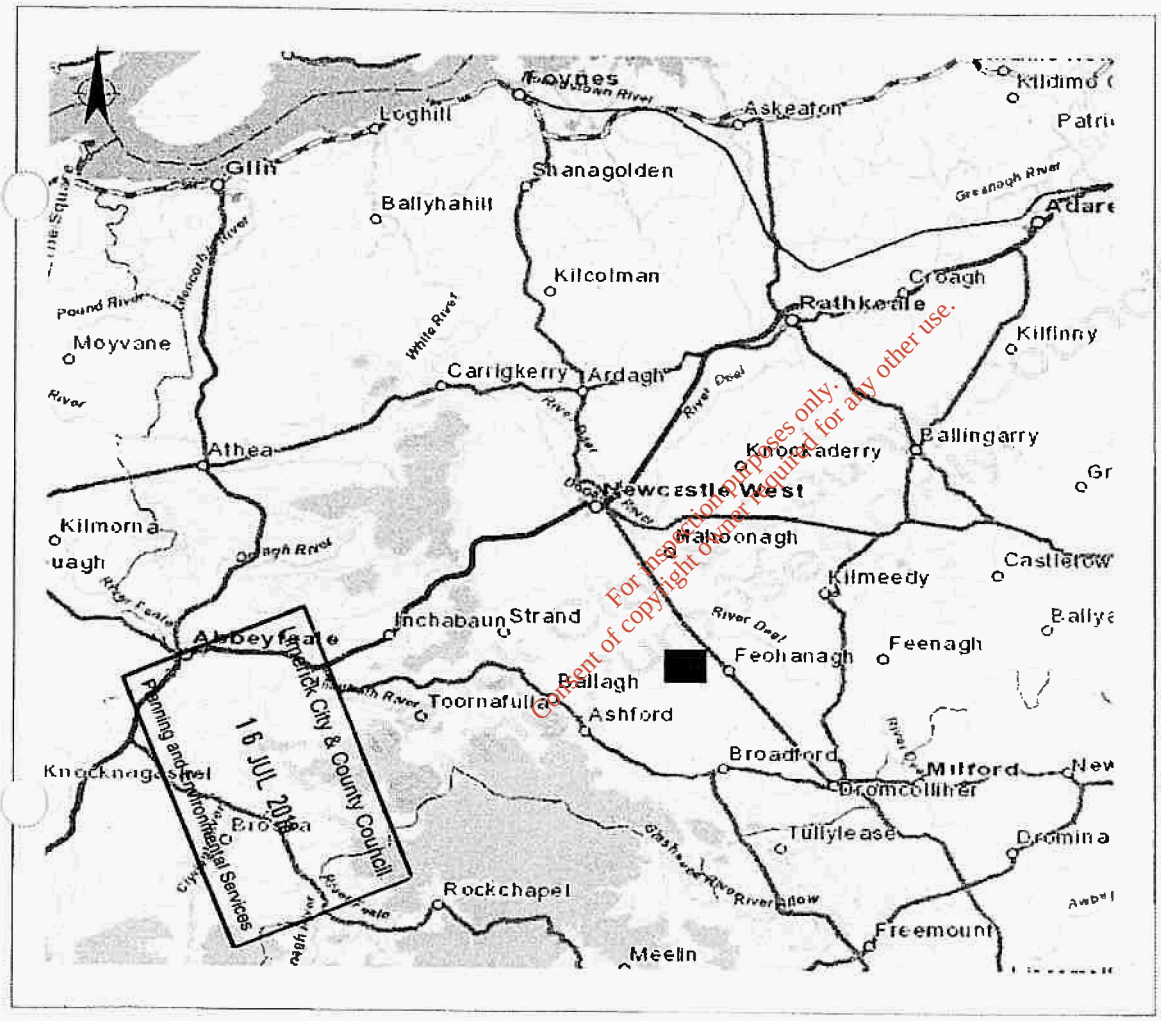
The assessment also concluded that the proposed upgrades to the site will result in new sources becoming operational on site. However, due to the abatement measures proposed, including screening of the main new sources (i.e. fans) and monitoring during the commissioning phase, it is expected that the new sources will not adversely affect the existing ambient noise environment and are not likely to result in an exceedance of existing background levels at NSLs in the vicinity of the site.

For similar reasons, significant noise related impacts from the operation of the proposed developments on ecological receptors are not envisaged.

Chapter 6 above identified potential disturbance to resident fauna of conservation concern during construction as the main impact associated with the proposed works. However through the implementation of various controls and measures, such impacts will not be significant.

The implementation of mitigation measures such as the avoidance of sensitive habits, the implementation of buffer zones and the identification of protected species prior to construction will ensure that construction related impacts, including those related to noise on sensitive habitats and species will not be significant

Figures

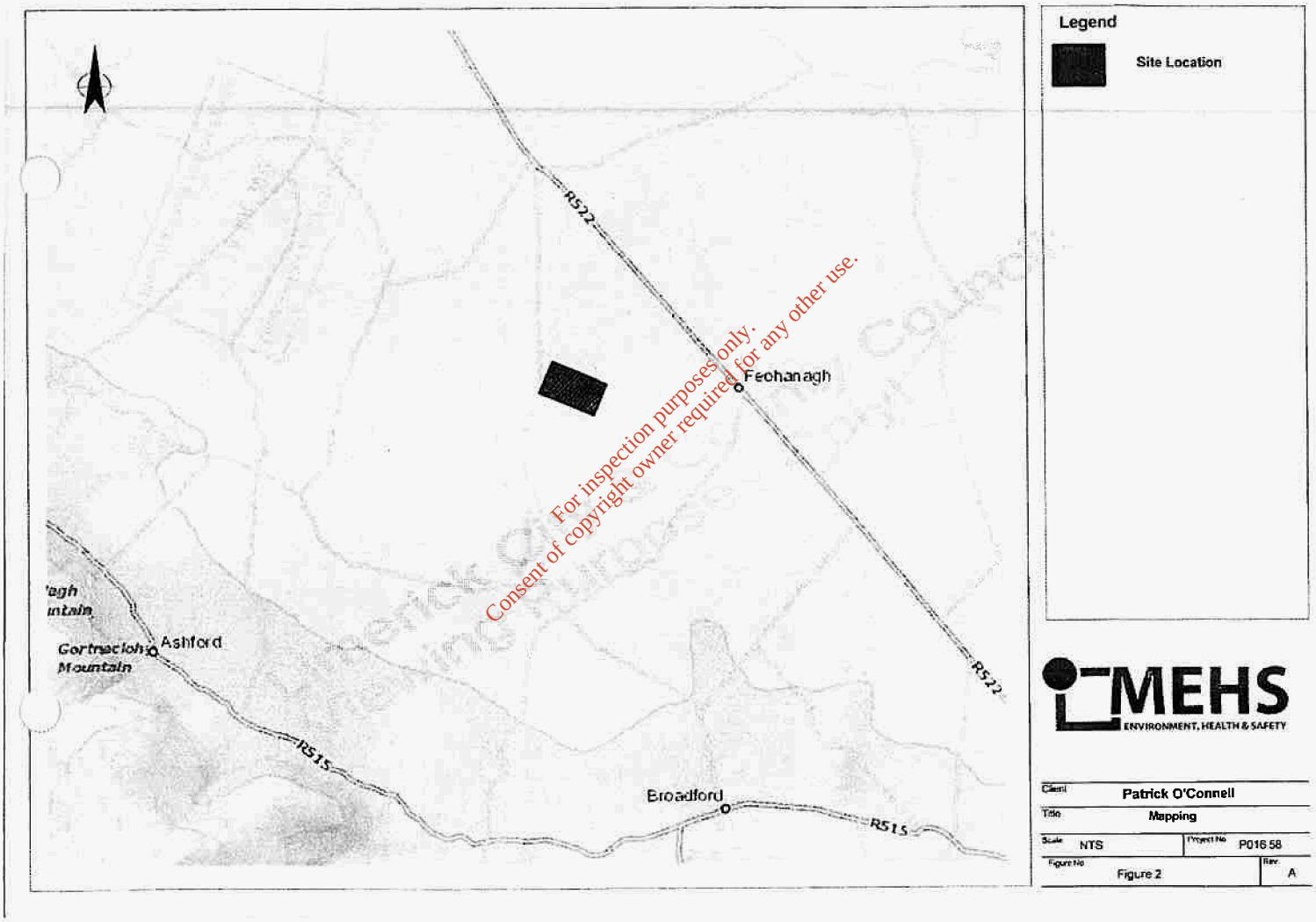


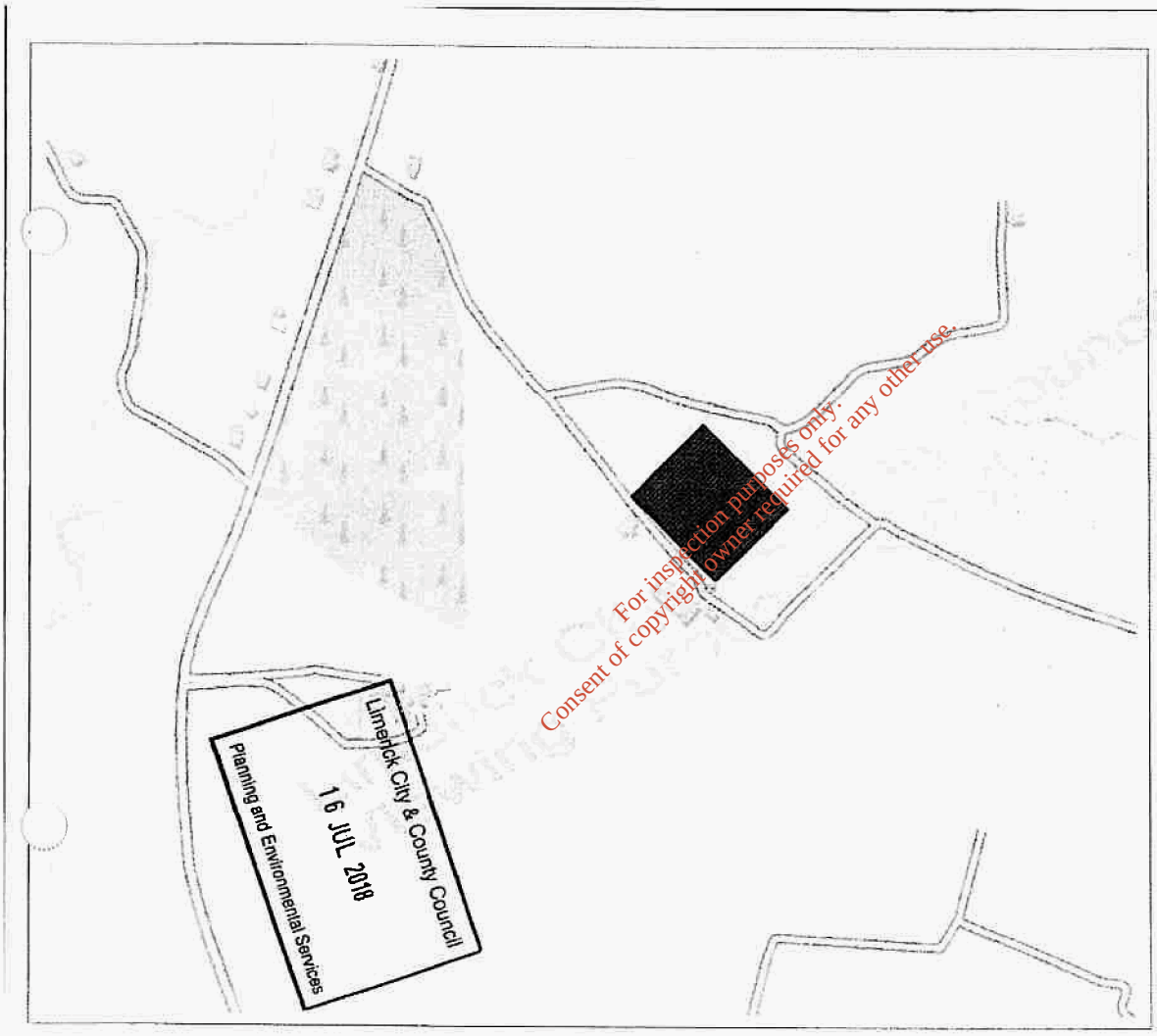
Legend

Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Mapping
Scale	NTS
Project No	P016 58
Figure No	Figure 1
Rev.	A





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Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

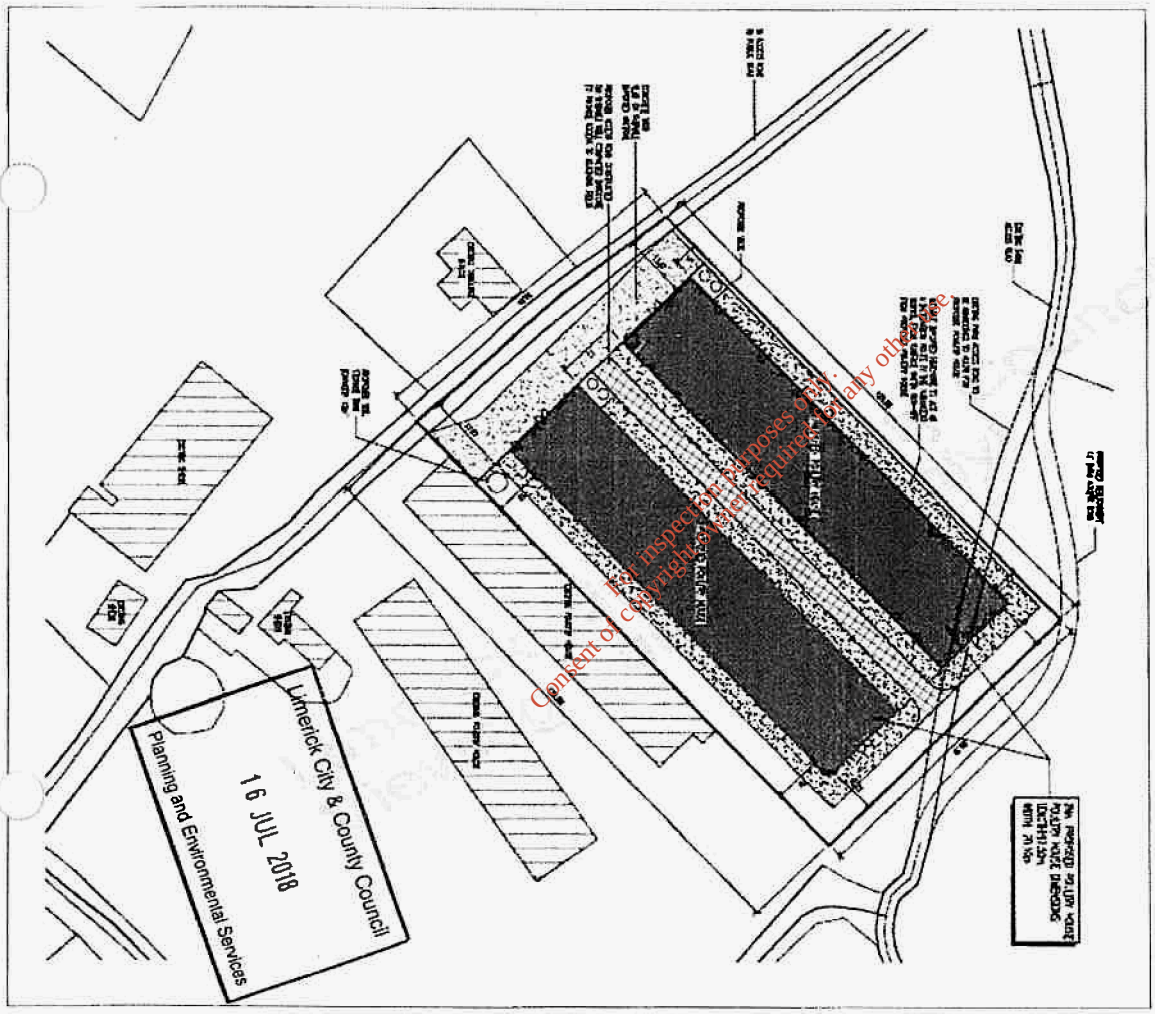
Client	Patrick O'Connell
Title	Mapping
Scale	NTS
Project No	P016 58
Figure No	Figure 3
Rev	

Legend

Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell		
Title	Aerial Photography		
Scale	NTS	Project No	P016 58
Figure No	Figure 4	Rev.	A



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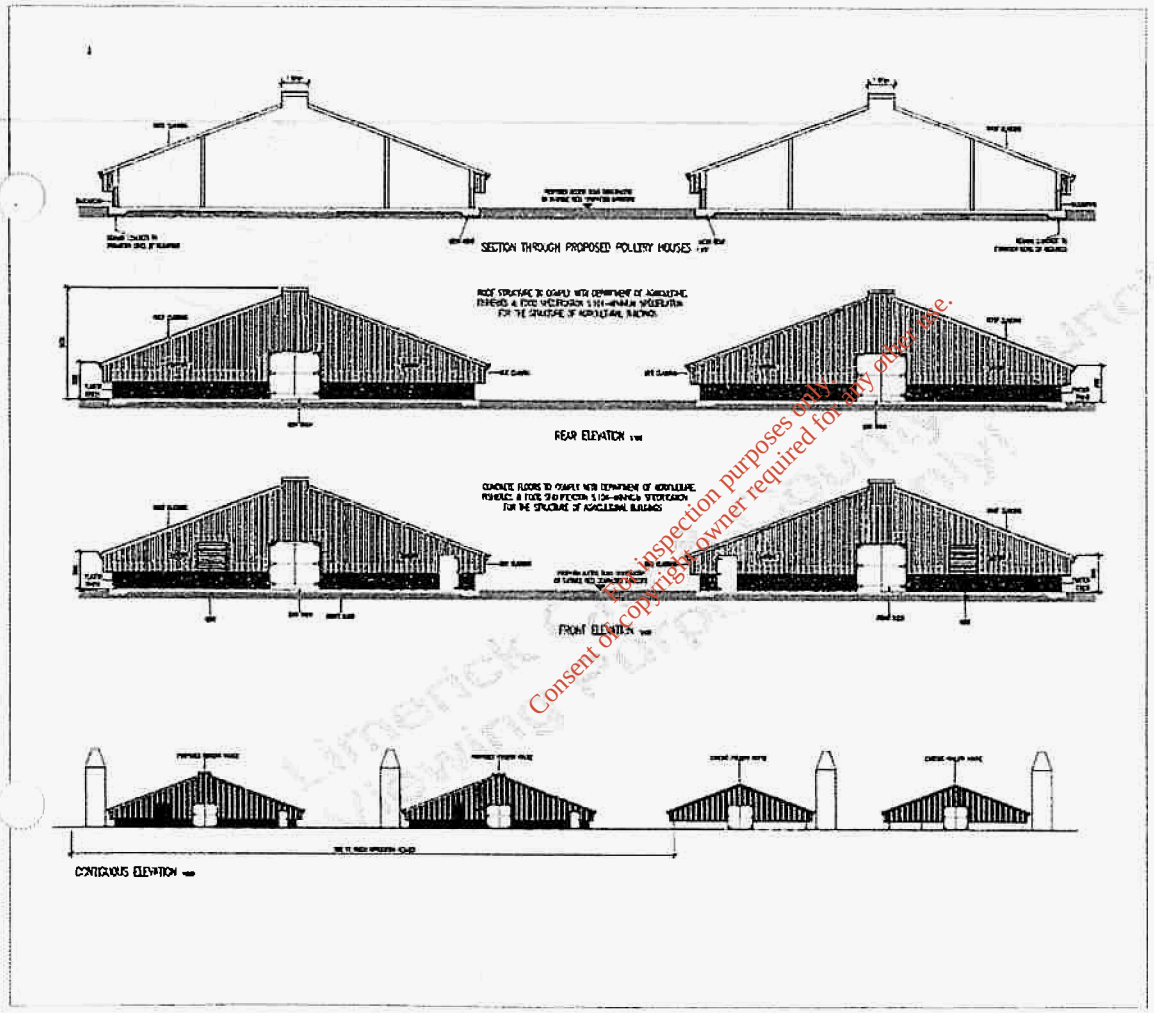
Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Site Layout
Scale: NTS	Project No: P016 58
Figure No: Figure 5	Rev: A

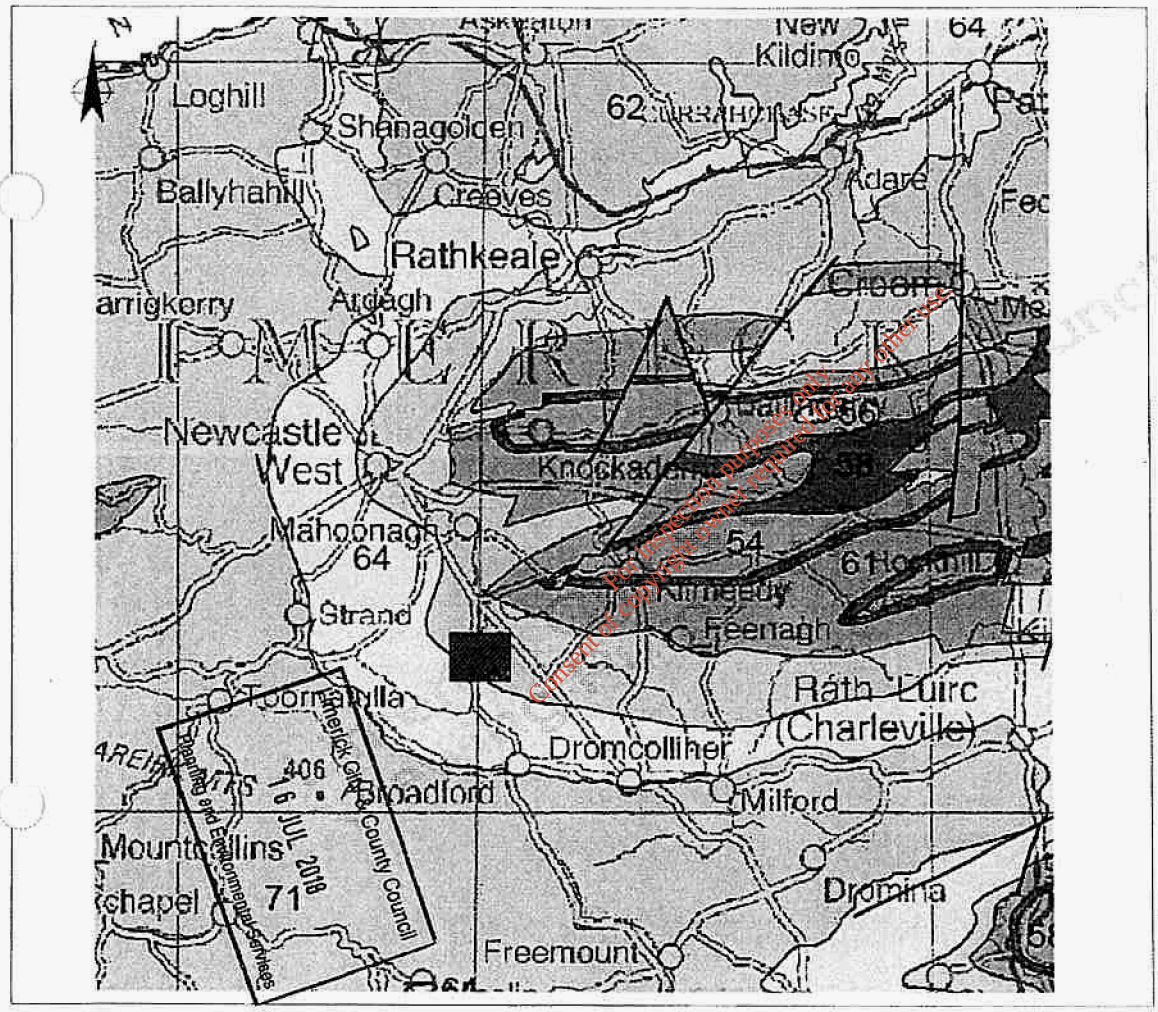


Legend

Site Location

MEHS ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Site plans and Sections
Scale: NTS	Project No: P016 58
Figure No: Figure 6	Rev: A



Legend

National Drift Generalised Bedrock Map

- AV - Basalts and other Volcanic rocks
- CM - Cambrian Metasediments
- DOL - Dinantian Dolomitised Limestones
- DSSSL - Dinantian early Sandstones, Shales and Limestones
- DKT - Devonian Kiltorcan type Sandstones
- DLL - Dinantian Lower Impure Limestones
- DMSC - Dinantian Mudstones and Sandstones Cork Group
- MSSL - Dinantian Mixed Sandstones, Shales and Limestones
- DORS - Devonian Old Red Sandstones
- DPBL - Dinantian Pure Bedded Limestones
- DPUL - Dinantian Pure Unbedded Limestones
- DS - Dinantian Sandstones
- DSL - Dinantian Shales and Limestones
- DUL - Dinantian Upper Impure Limestones
- GR - Granites and other Igneous Intrusive rocks
- NSA - Namurian Sandstones
- NSH - Namurian Shales
- NU - Namurian Undifferentiated
- OM - Ordovician Metasediments
- OV - Ordovician Volcanics
- PM - Precambrian Marbles
- POGS - Precambrian Quartzites, Gneisses and Schists
- PTMG - Permo Triassic Mudstones and Gypsum
- PTS - Permo Triassic Sandstones
- SMV - Silurian Metasediments and Volcanics
- WSA - Westphalian Sandstones
- WSH - Westphalian Shales

RBD Boundaries

County Boundaries

Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

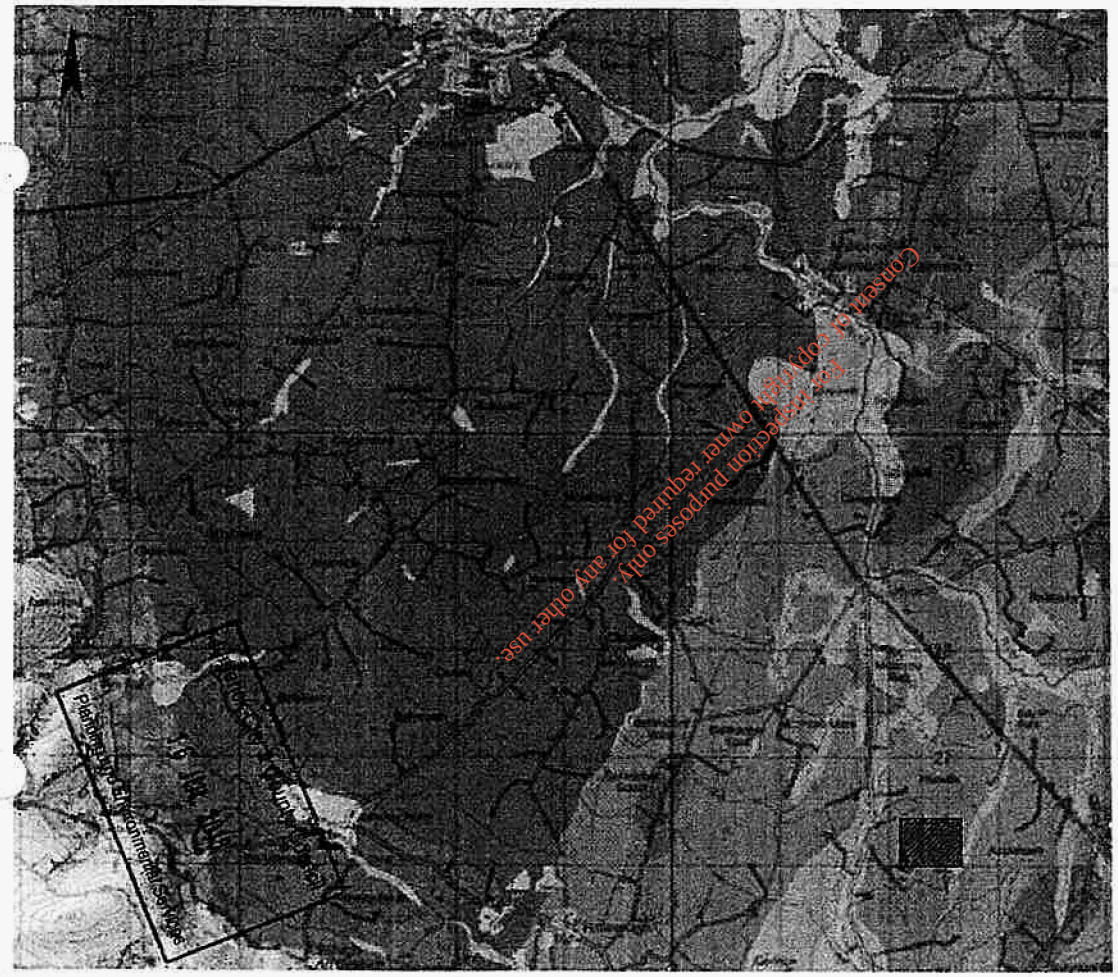
Client	Patrick O'Connell		
Title	Geology		
Scale	NTS	Project No	P016 58
Figure No	Figure 7	Rev	A

Legend

- GSI Subsoils
- Alluvium
- Beach sands and gravels
- Bedrock outcrop and subcrop
- Esker sands and gravels
- Glaciofluvial sands and gravels
- Lake sediments
- Made ground
- Marine/estuarine silts and clays
- Marsh
- Peat
- Scree
- Till derived chiefly from Devonian sandstones
- Till derived chiefly from Lower Palaeozoic rocks
- Till derived chiefly from Namurian rocks
- Till derived chiefly from granite
- Till derived chiefly from limestone
- Till derived chiefly from metamorphic rocks
- Till derived from metamorphic rocks
- Till derived from mixed Devonian and Carboniferous rocks
- Water
- Woodland sands
- RSC Boundaries
- County Boundaries

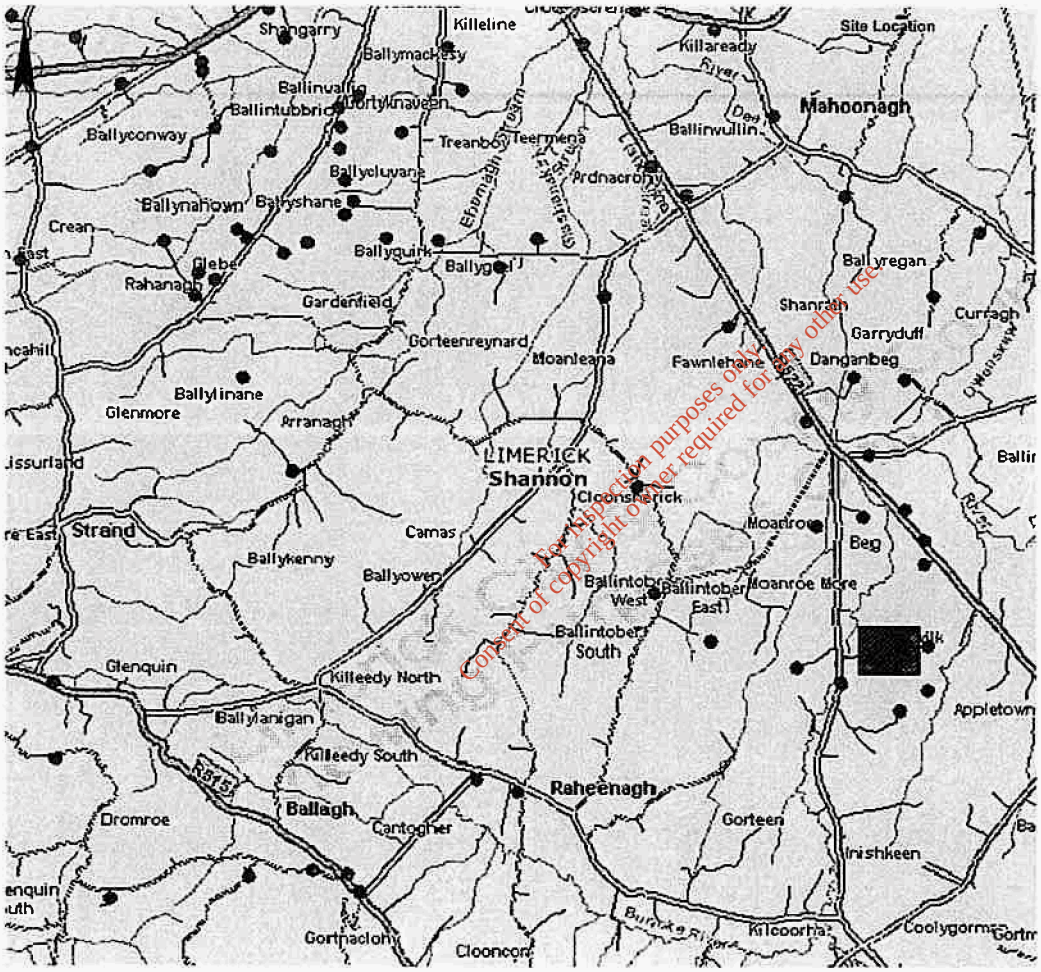
MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Sub-Soils
Scale: NTS	Project No: P016 58
Figure No: Figure 8	Rev: A



MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Soils
Scale: NTS	Project No: P016 58
Figure No: Figure 9	Rev: A

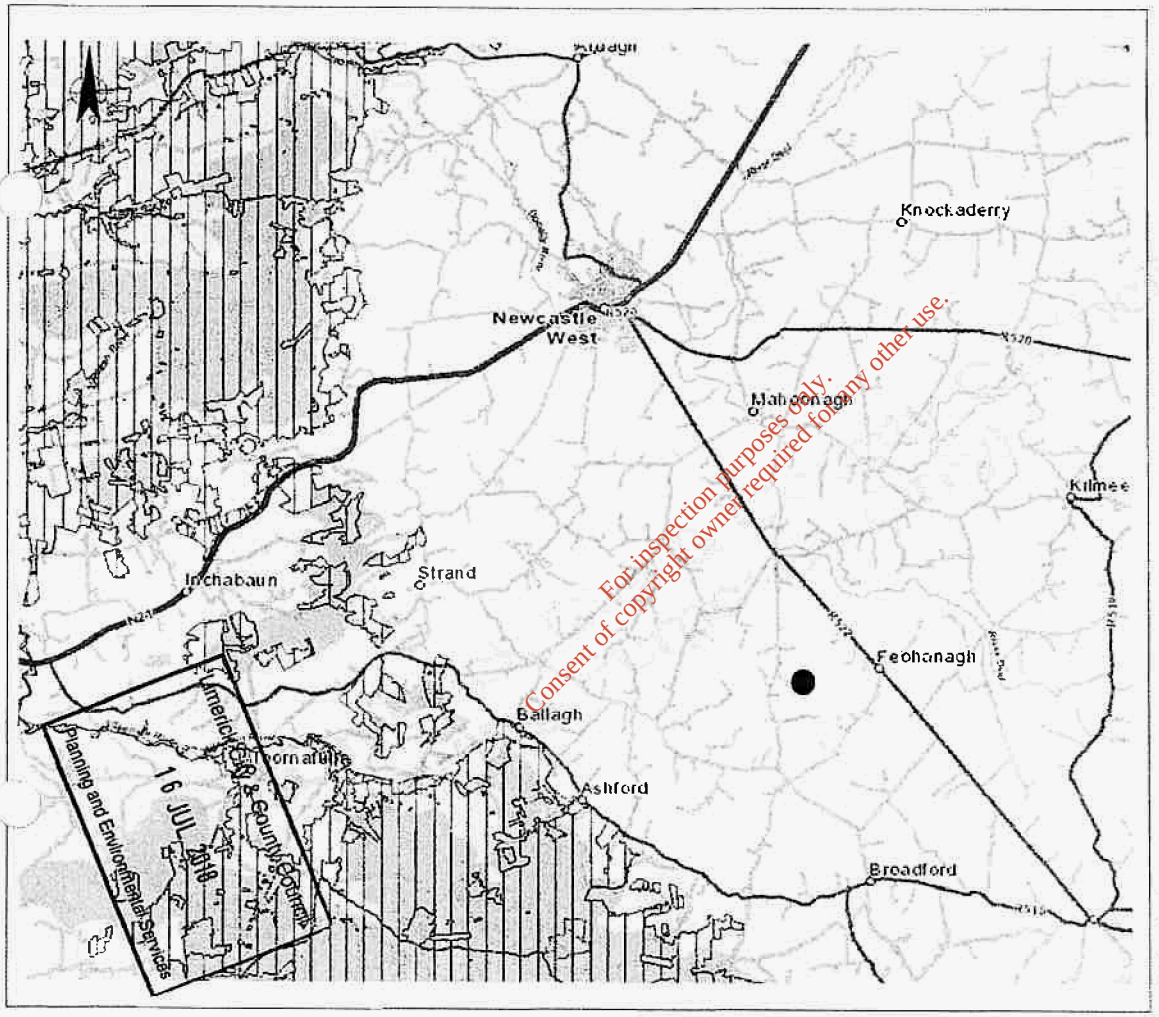


Legend

- Waste Accuracy within 10m to 50m
- National Draft Bedrock Aquifer Map
- Rf - Regionally Important Aquifer - Fissured bedrock
- Rk - Regionally Important Aquifer - Karstified
- Rkd - Regionally Important Aquifer - Karstified (diffuse)
- Rkc - Regionally Important Aquifer - Karstified (conduit)
- Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
- Lk - Locally Important Aquifer - Karstified
- Ll - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
- Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
- Pu - Poor Aquifer - Bedrock which is Generally Unproductive
- Unclassified
- National Draft Gravel Aquifer Map
- Rg - Regionally important, extensive sand/gravel aquifer
- Lg - Locally important, sand/gravel aquifer
- No gravels present
- Not Mapped
- Source Protection Area
- SI - Inner Protection Area
- SO - Outer Protection Area
- Bedrock Faults 100k
- RBD Boundaries
- GWB Boundaries
- County Boundaries
- Watermark

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Groundwater
Scale	NTS
Project No	P016 58
Figure No	Figure 10
Rev	A



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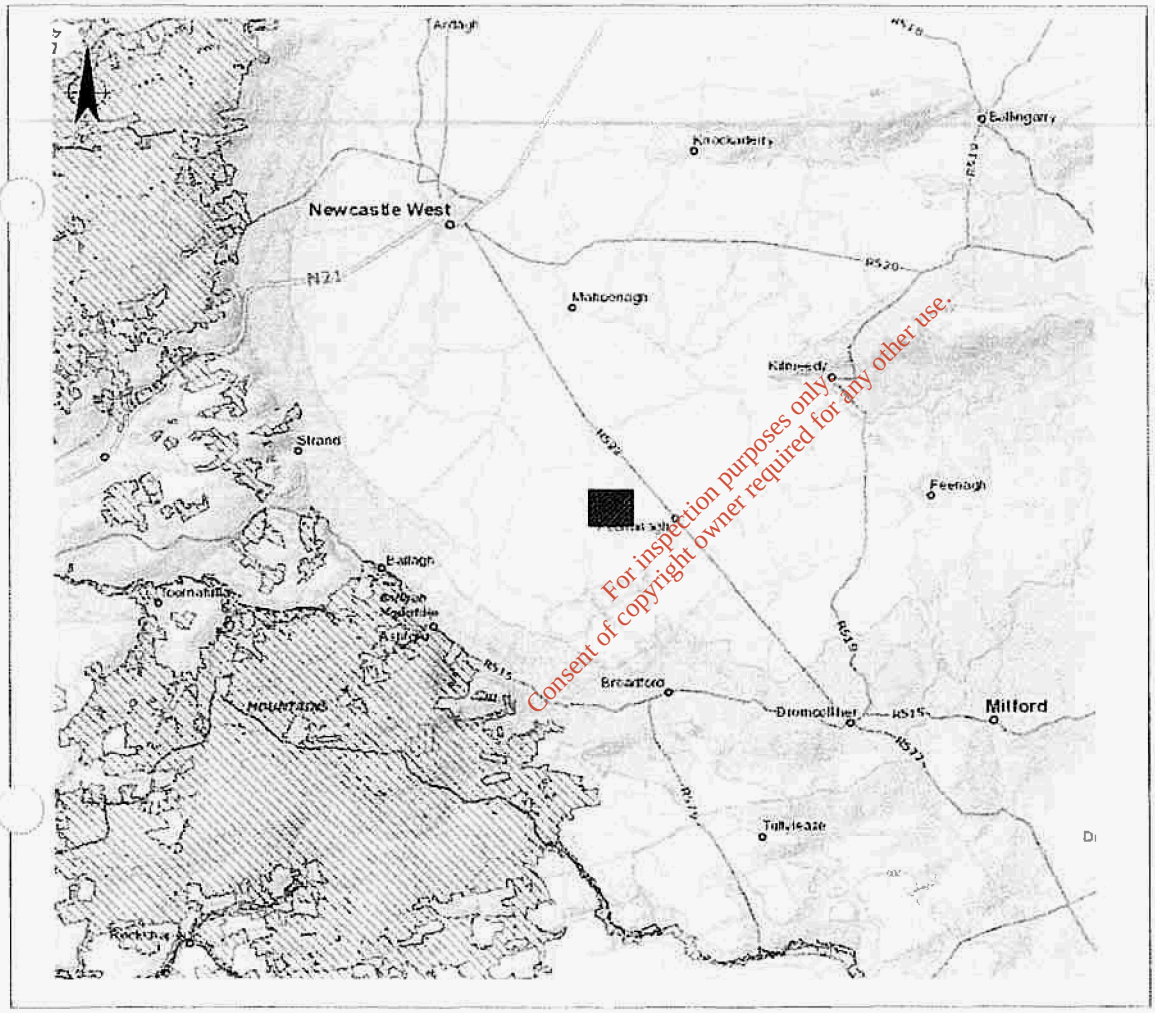
Site Location

Special Protection Areas
Proposed Natural Heritage Areas
Natural Heritage Areas
Special Areas of Conservation

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Designations Maps
Scale	NTS
Project No	P016 58
Figure No	Figure 11
Rev	A



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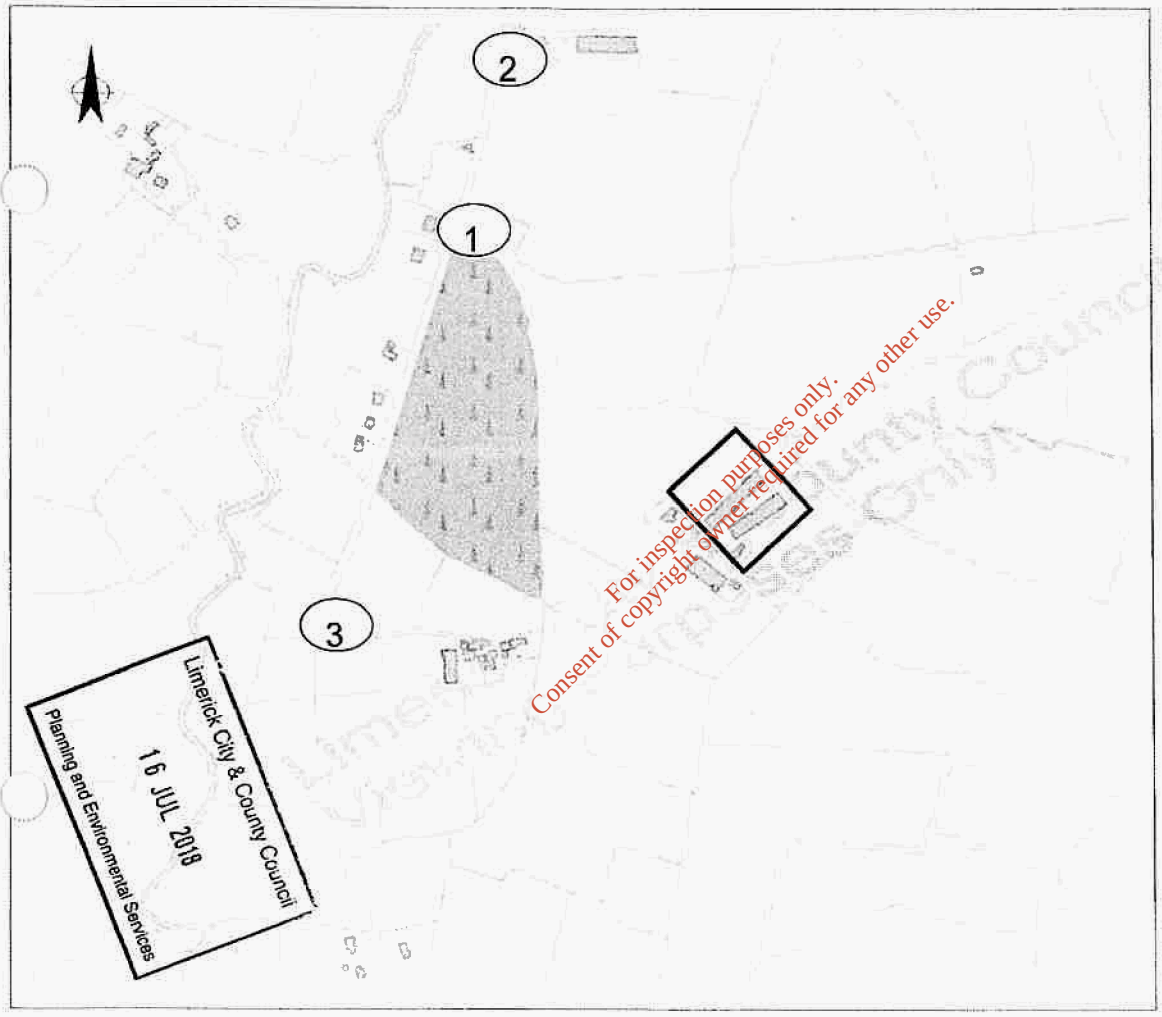
Site Location

- Special Protection Areas
- Proposed Natural Heritage Areas
- Natural Heritage Areas
- Special Areas of Conservation

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Aerial Photo of SAC & PNHA
Scale	NTS
Project No	P016 58
Figure No	Figure 12
Rev	A



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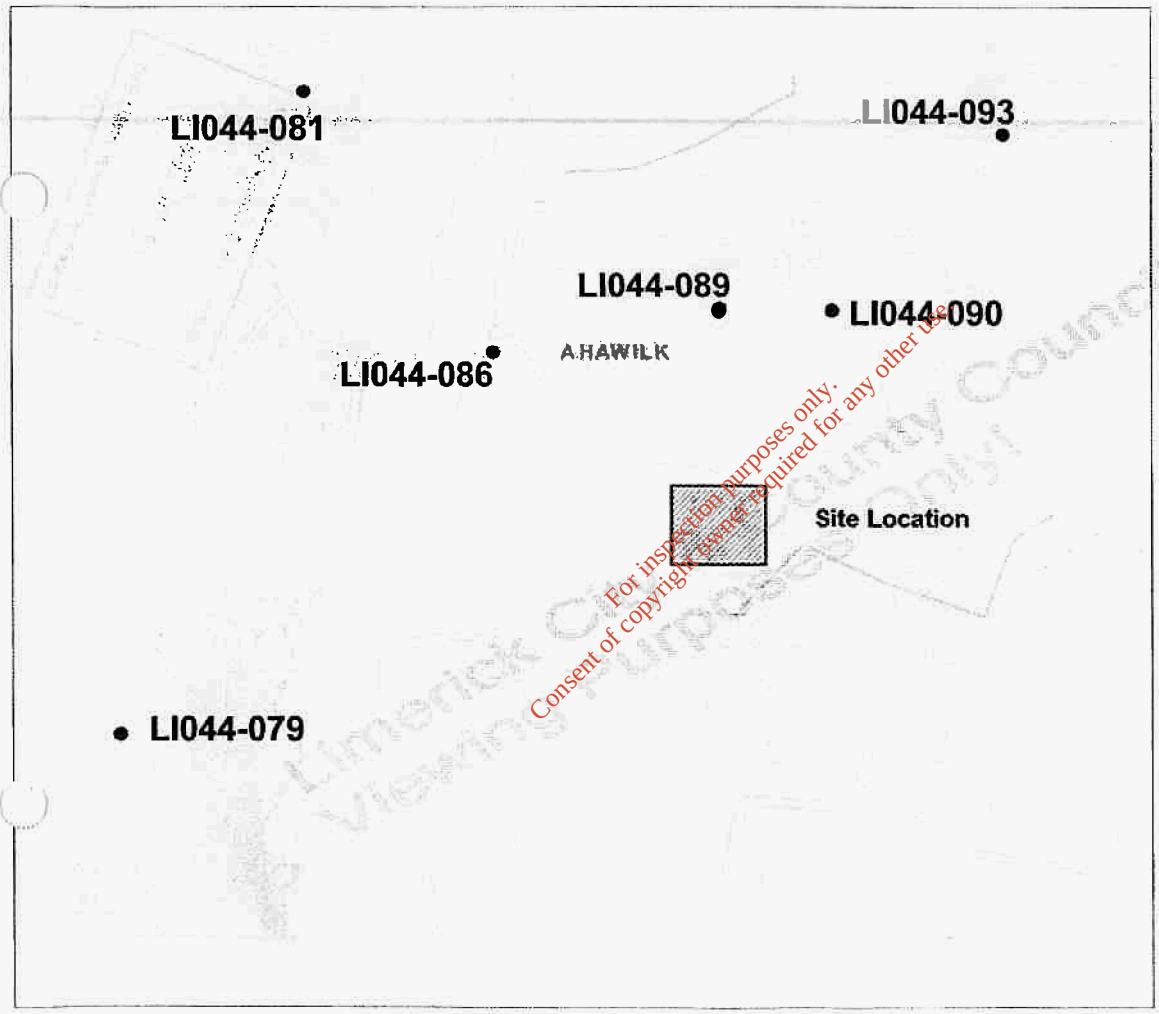
Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Noise Monitoring Location
Scale	NTS
Project No.	P016 58
Figure No.	Figure 13
Rev.	A



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Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

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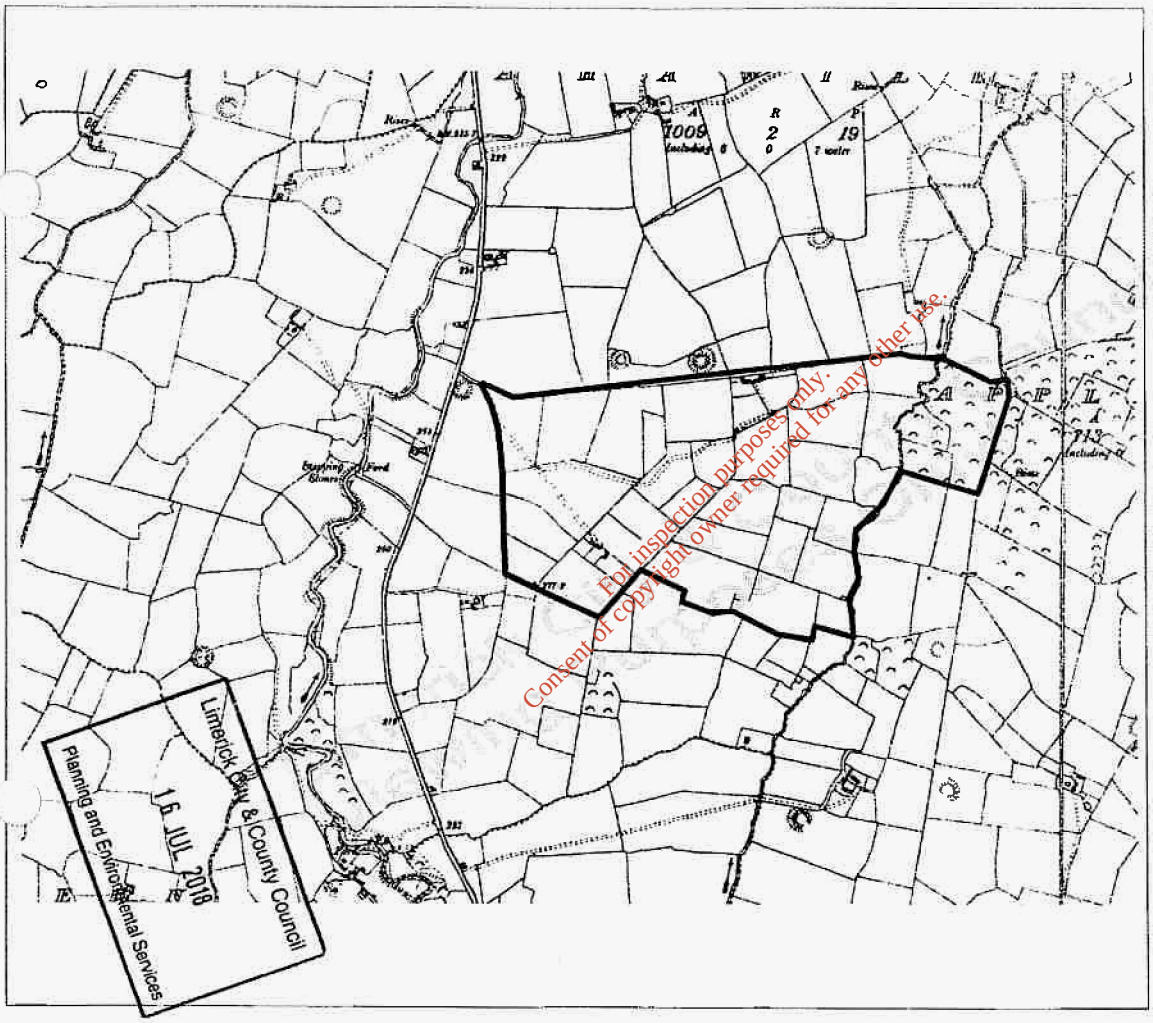
Title	Recorded Monuments
Scale: NTS	Project No: P016 58
Figure No: Figure 14	Rev:



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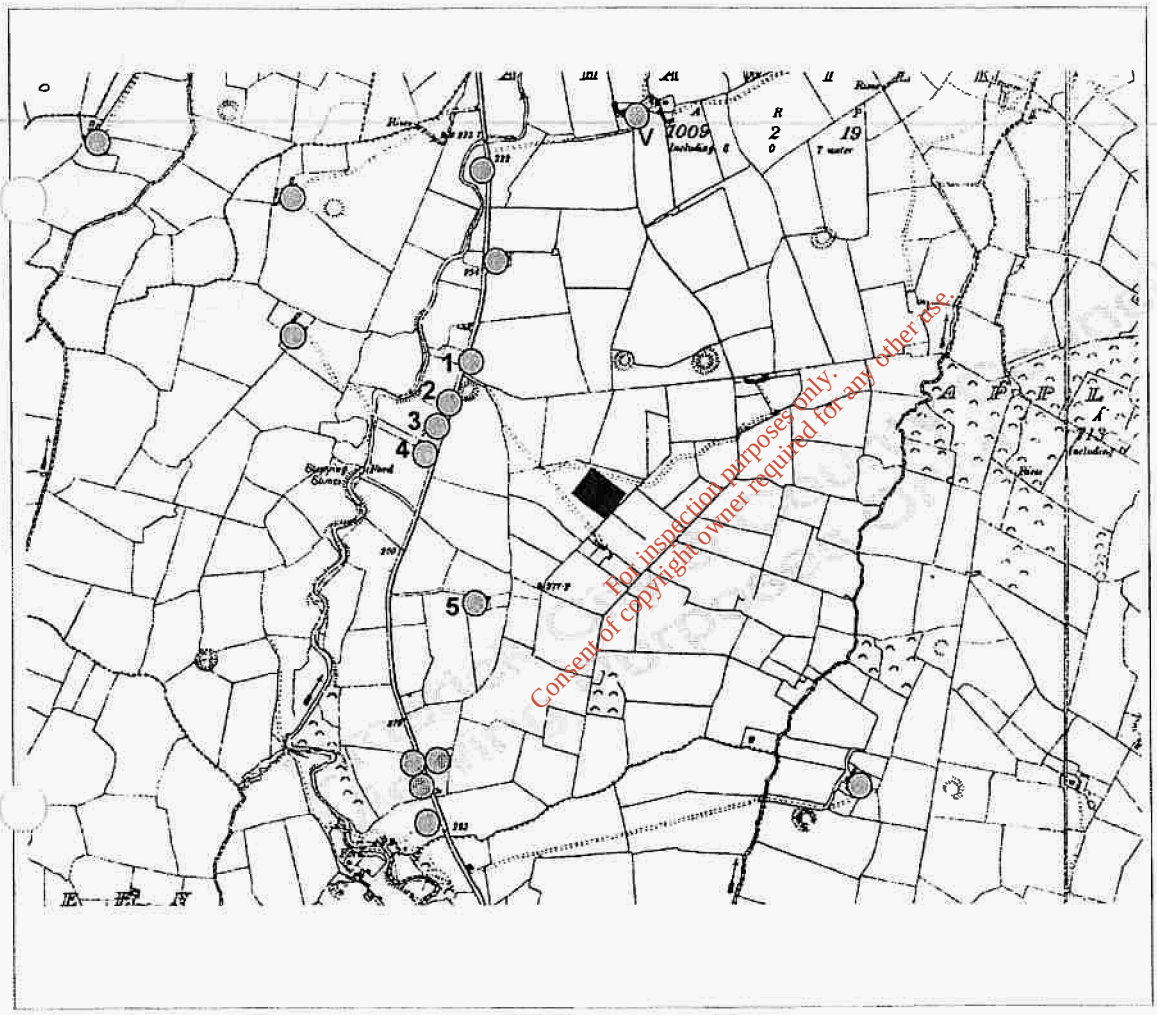
Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Landholding
Scale	NTS
Project No.	P016 58
Figure No.	Figure 15
Rev	



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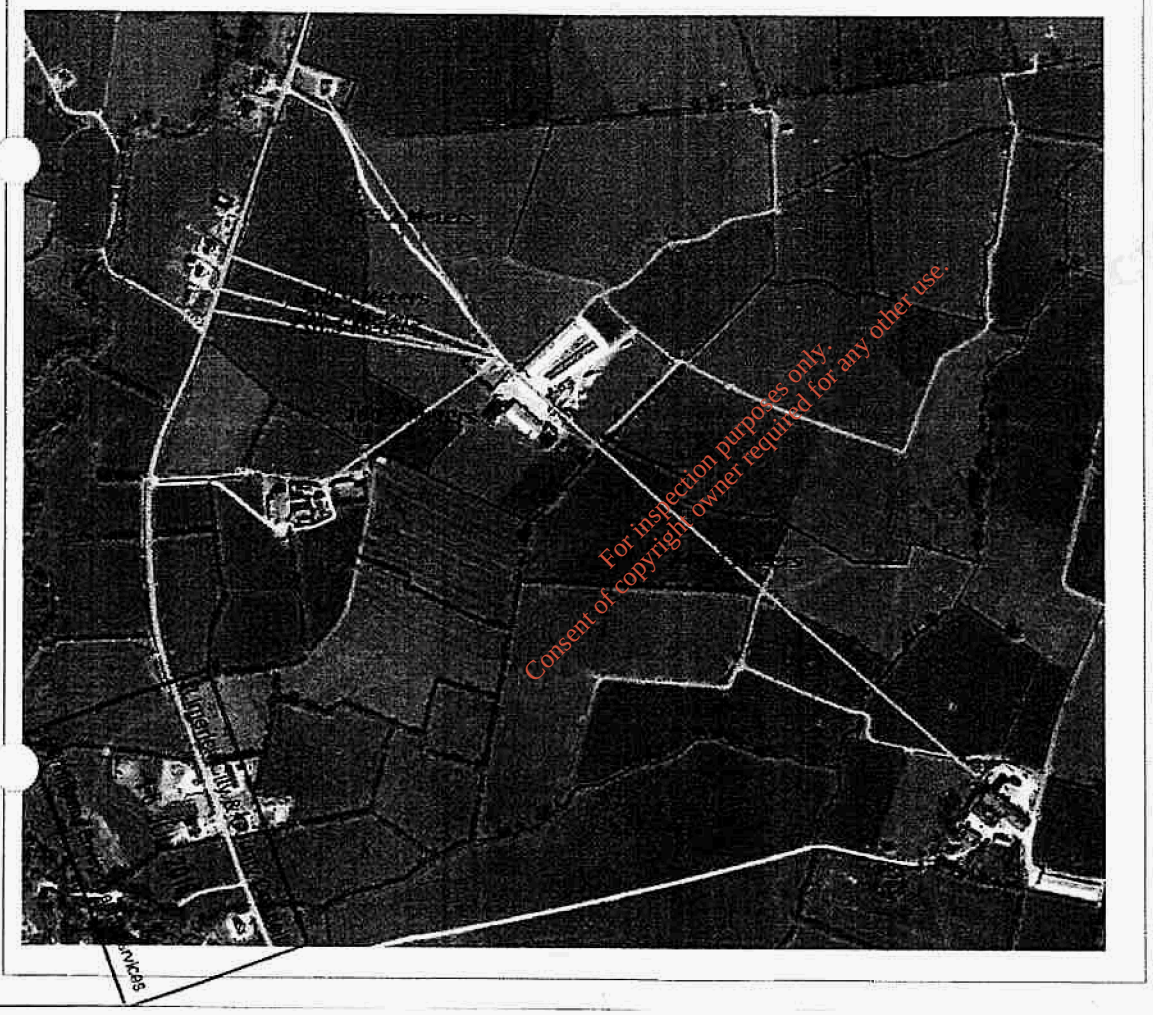
Site Location

Residential Properties

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Residential Properties
Scale	NTS
Project No.	P016 58
Figure No.	Figure 15
Rev.	



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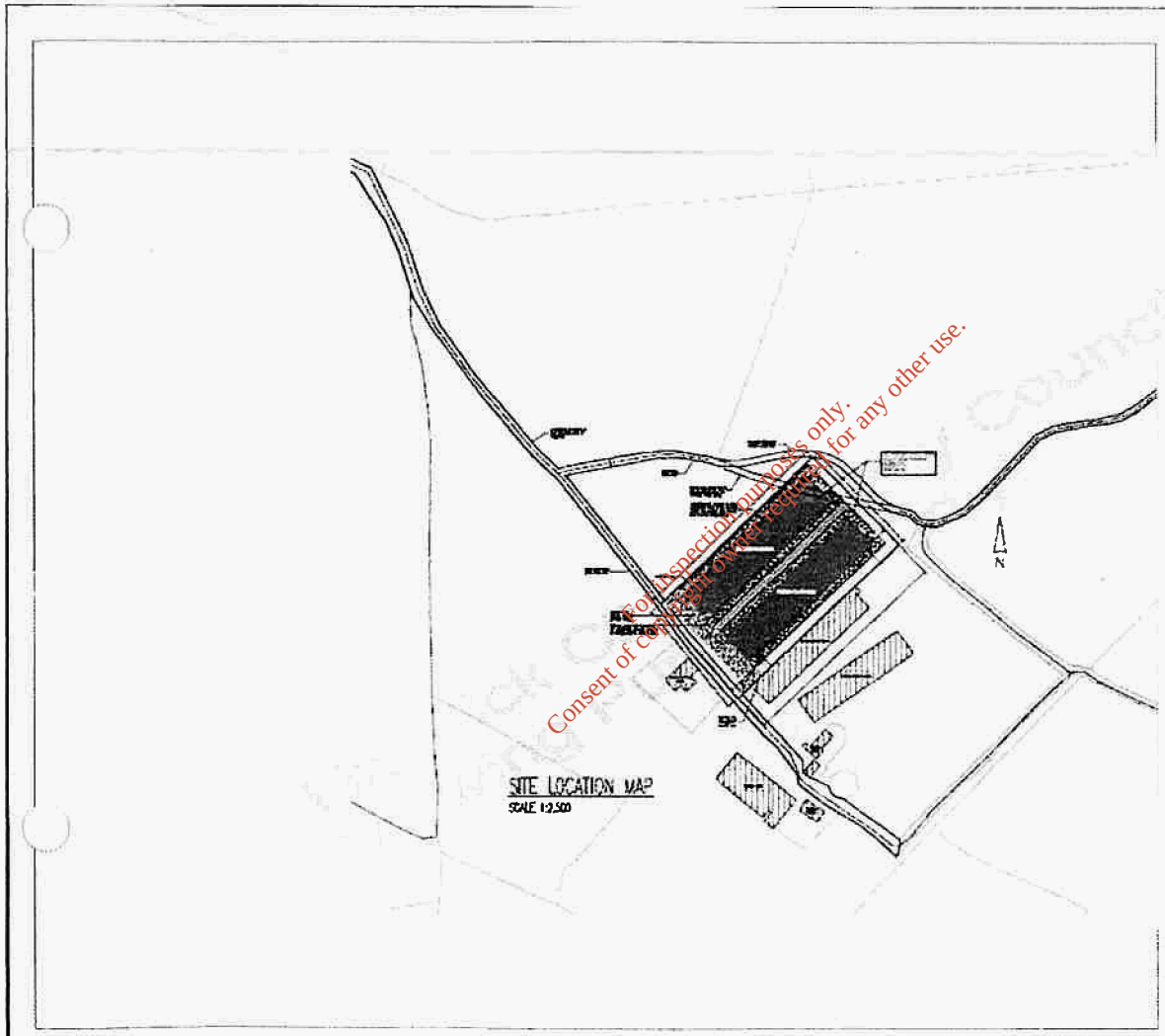
Site Location

Residential Properties

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Residential Properties
Scale	NTS
Project No.	P016 58
Figure No.	Figure 15
Rev.	



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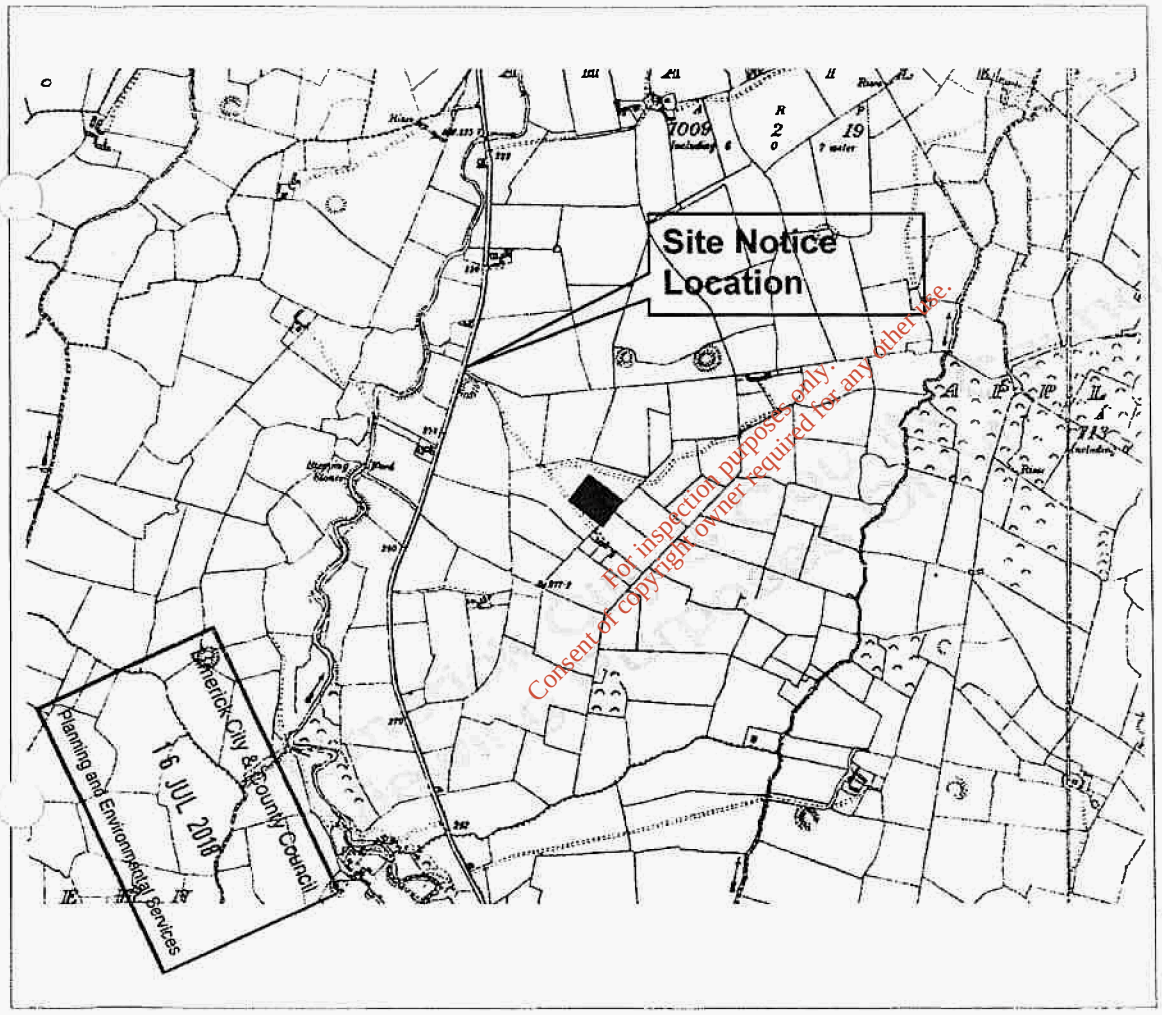
MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	
Title	
Scale	Project no
Figure no	Rev

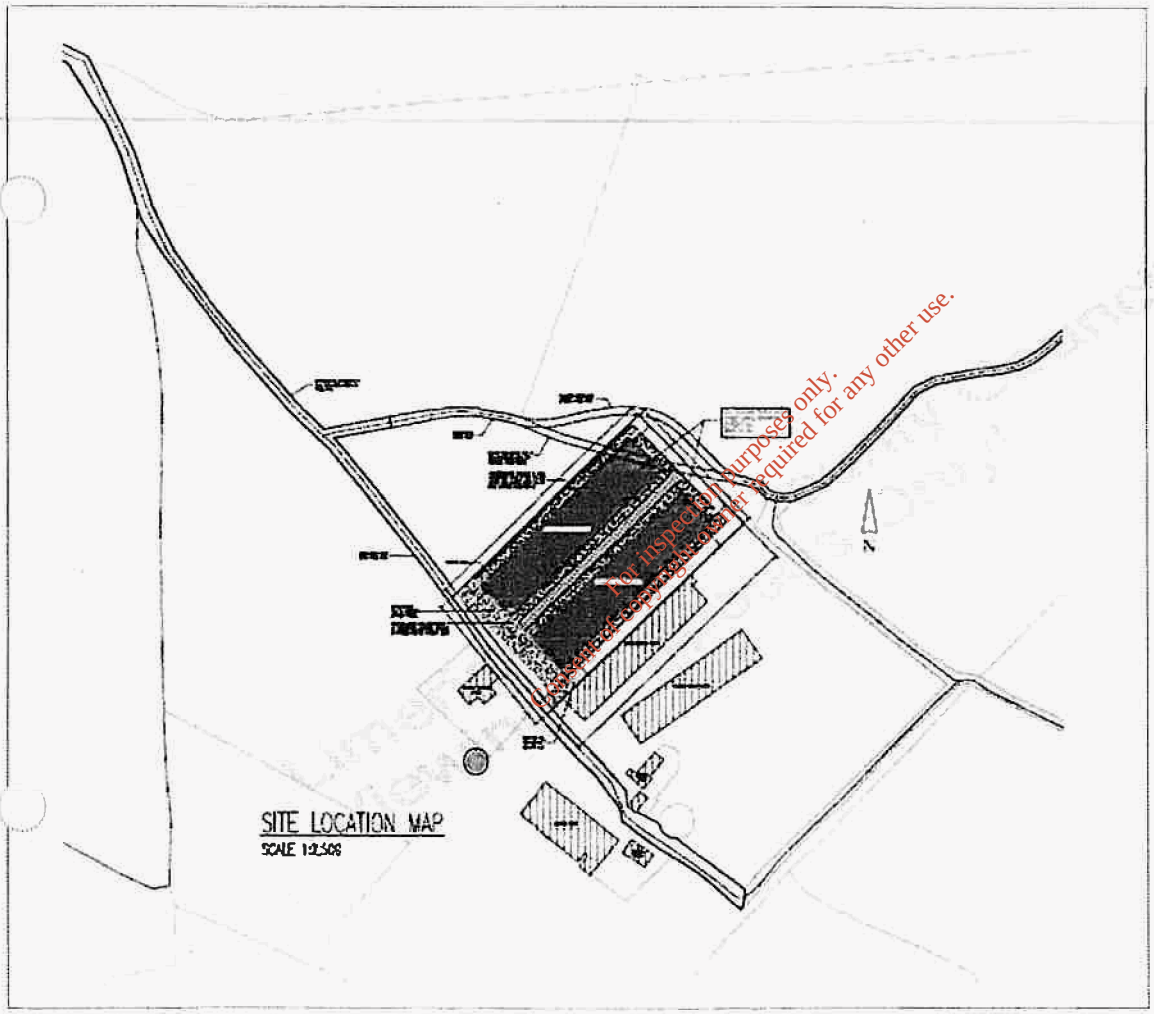


Legend

Site Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Site Notice Location
Scale	NTS
Project No.	P016 58
Figure No.	Figure 19
Rev.	



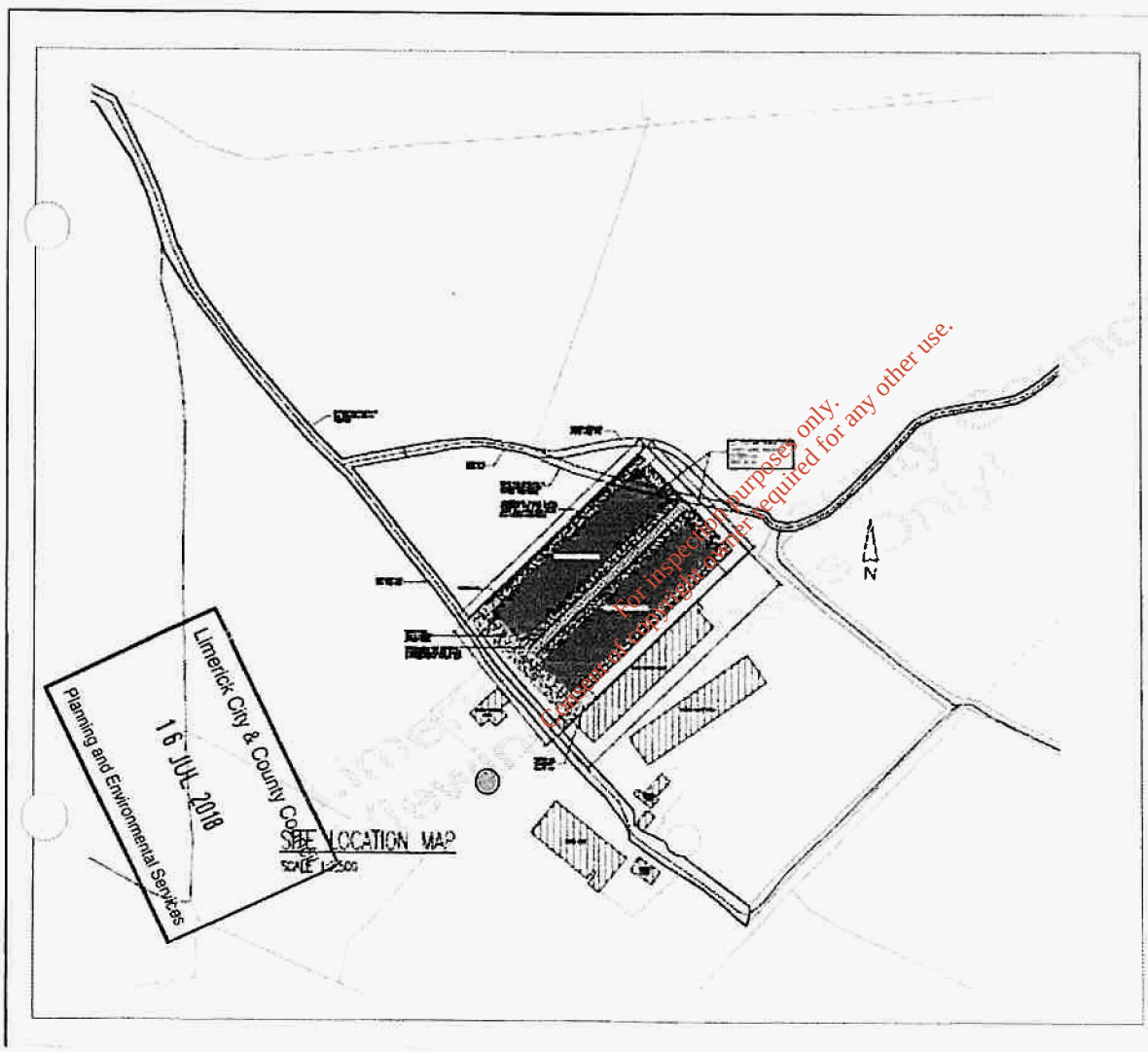
Legend

Site Location

Well Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Well Location
Scale	NTS
Project No.	P016 58
Figure No.	Figure 15
Rev.	



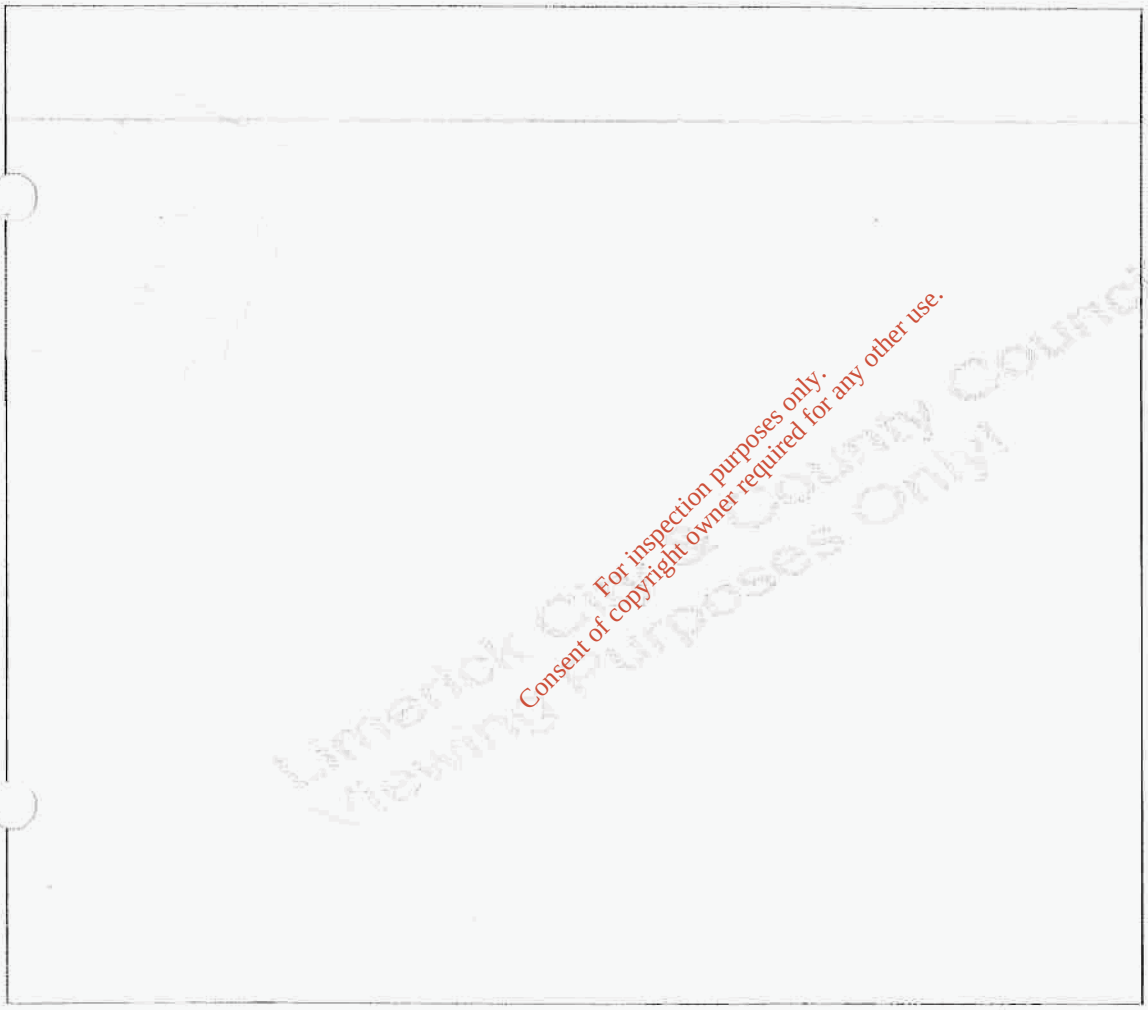
Legend

Site Location

Well Location

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Well Location
Scale: NTS	Project No. P016 58
Figure No. Figure 15	Rev



Legend

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	
Title	
Scale	Project No
Figure No	Rev

Appendix 1 Data for the SCAIL - Simple Calculation of Atmospheric Impact Limits

Results

Scail Home | User Guide | SCAIL-Agriculture Report | SEPA/EA/NIEA/EPA Contact Details | Online Tutorial

Content Specific Help Text

Site Information: Dwelling 1

Region:	Republic of Ireland
Site Name:	Dwelling 1
Site Code:	N/A
Designation Status:	Human Health Receptor
Distance from Installation (m):	435
Receptor Type:	N/A
Grid Reference:	131814,126223
Met Site:	SHAN
Run Mode:	Conservative
PM_{10} Percentile:	Average

Installation Information

No.	Name	No. of sources	No. of new sources	PM_{10} (t/a)	NH_3 (t/a)	Odour (kOu/s)	Conc NH_3 (µg/m3)	Dep N (kg/ha/yr)	Dep Acid (kEq H+/ha/yr)	Conc PM_{10} (µg/m3)	Conc Odour (Ou/m3)
1	Patrick O	1	undefined	undefined	-	undefined	-	0.35	-	1.89	-

Total Depositions/Concentrations and Exceedances

Concentrations/Depositions and Critical Loads/Levels	NH_3 (µg/m3)	N Dep. (kg N/ha/yr)	Acid Dep. (kEq H+/ha/yr)	PM_{10} (µg/m3)	Odour (Ou/m3)
Process Contribution (PC) at receptor edge	-	-	-	0.35	1.89
Background concentration at receptor edge	-	-	-	5.32	0
Predicted Environmental Concentration/Deposition (PEC)	-	-	-	5.67	1.89
Environmental Assessment Level or Critical Load / Level	-	-	-	40	3
		ALTERNATIVE CRITICAL LOAD INFO			
USE OWN THRESHOLD?					
% of relevant standard PC	-	-	-	1%	63%
% of relevant standard PEC	-	-	-	14%	63%
EXCEEDANCE	-	-	-	21.33	

Project Notes

Patrick O'Connell

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Results

Content Specific Help Text

Site Information: Dwelling 2

Region:	Republic of Ireland
Site Name:	Dwelling 2
Site Code:	N/A
Designation Status:	Human Health Receptor
Distance from Installation (m):	404
Receptor Type:	N/A
Grid Reference:	131751,126119
Met Site:	SHAN
Run Mode:	Conservative
PM_{10} Percentile:	Average

Installation Information

No.	Name	No. of sources	No. of new sources	PM_{10} (t/a)	NH_3 (t/a)	Odour (kOu/a)	Conc NH_3 (µg/m3)	Dep N (kg/ha/yr)	Dep Acid (kEq H+/ha/yr)	Conc PM_{10} (µg/m3)	Conc Odour (Ou/m3)
1	Patrick O	1	undefined	undefined	-	undefined	-	0.39	-	2.04	-

Total Depositions/Concentrations and Exceedances

Concentrations/Depositions and Critical Loads/Levels	NH_3 (µg/m3)	Dep. (kg N/ha/yr)	Acid Dep. (kEq H+/ha/yr)	PM_{10} (µg/m3)	Odour (Ou/m3)
Process Contribution (PC) at receptor edge	-	-	-	0.39	2.04
Background concentration at receptor edge	-	-	-	5.32	0
Predicted Environmental Concentration/Deposition (PEC)	-	-	-	5.71	2.04
Environmental Assessment Level or Critical Load / Level	-	-	-	40	3
		ALTERNATIVE CRITICAL LOAD INFO			
USE DATA FROM CLOSE					
% of relevant standard PC	-	-	-	1%	68%
% of relevant standard PEC	-	-	-	14%	68%
EXCEEDANCE	-	-	-	-34.29	-0.96

Project Notes

Patrick O'Connell

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Results

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Content Specific Help Text

Site Information: Dwelling 3

Region:	Republic of Ireland
Site Name:	Dwelling 3
Site Code:	N/A
Designation Status:	Human Health Receptor
Distance from Installation (m):	400
Receptor Type:	N/A
Grid Reference:	131734,126089
Met Site:	SHAN
Run Mode:	Conservative
PM_{10} Percentile:	Average

Installation Information

No.	Name	No. of sources	No. of new sources	PM_{10} (t/a)	NH_3 (t/a)	Odour (kOu/s)	Conc NH_3 (µg/m3)	Dep N (kg/ha/yr)	Dep Acid (kEq H+/ha/yr)	Conc PM_{10} (µg/m3)	Conc Odour (Ou/m3)
1	Patrick O	1	undefined	undefined	undefined	undefined	-	0.4	-	2.04	-

Total Depositions/Concentrations and Exceedances

Concentrations/Depositions and Critical Loads/Levels	NH_3 (µg/m3)	N Dep. (kg N/ha/yr)	Acid Dep. (kEq H+/ha/yr)	PM_{10} (µg/m3)	Odour (Ou/m3)
Process Contribution (PC) at receptor edge	-	-	-	0.40	2.04
Background concentration at receptor edge	-	-	-	5.32	0
Predicted Environmental Concentration/Deposition (PEC)	-	-	-	5.72	2.04
Environmental Assessment Level or Critical Load / Level	-	-	-	40	3
		ALTERNATIVE CRITICAL LOAD INFO			
USER OWN THRESHOLDS					
% of relevant standard PC	-	-	-	1%	68%
% of relevant standard PEC	-	-	-	14%	68%
EXCEEDANCE	-	-	-	-34.28	-0.96

Project Notes

Patrick O'Connell

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Results

Scail Home | User Guide | SCAIL-Agriculture Report | SEPA/EA/NIEA/EPA Contact Details | Online Tutorial

Content Specific Help Text

Site Information: Dwelling 4

Region:	Republic of Ireland
Site Name:	Dwelling 4
Site Code:	N/A
Designation Status:	Human Health Receptor
Distance from Installation (m):	384
Receptor Type:	N/A
Grid Reference:	131702,125983
Met Site:	SHAN
Run Mode:	Conservative
PM_{10} Percentile:	Average

Installation Information

No.	Name	No. of sources	No. of new sources	PM_{10} (t/a)	NH_3 (t/a)	Odour (kOu/s)	Conc NH_3 (µg/m3)	Dep N (kg/ha/yr)	Dep Acid (kEq H+/ha/yr)	Conc PM_{10} (µg/m3)	Conc Odour (Ou/m3)
1	Patrick O	1	undefined	undefined	-	undefined	-	0.42	-	2.13	-

Total Depositions/Concentrations and Exceedances

Concentrations/Depositions and Critical Loads/Levels	NH_3 (µg/m3)	N Dep. (kg N/ha/yr)	Acid Dep. (kEq H+/ha/yr)	PM_{10} (µg/m3)	Odour (Ou/m3)
Process Contribution (PC) at receptor edge	-	-	-	0.42	2.13
Background concentration at receptor edge		-	-	5.32	0
Predicted Environmental Concentration/Deposition (PEC)	-	-	-	5.74	2.13
Environmental Assessment Level or Critical Load / Level	-	-	-	40	3
		ALTERNATIVE CRITICAL LOAD INFO			
USE OWN THRESHOLDS?					
% of relevant standard PC	-	-	-	1%	71%
% of relevant standard PEC	-	-	-	14%	71%
EXCEEDANCE	-	-	-	-34.26	-0.87

Project Notes

Patrick O'Connell

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Results

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Content Specific Help Text

Site Information: Dwelling 5

Region:	Republic of Ireland
Site Name:	Dwelling 5
Site Code:	N/A
Designation Status:	Human Health Receptor
Distance from Installation (m):	245
Receptor Type:	N/A
Grid Reference:	131858,125746
Met Site:	SHAN
Run Mode:	Conservative
PM_{10} Percentile:	Average

Installation Information

No.	Name	No. of sources	No. of new sources	PM_{10} (t/a)	NH_3 (t/a)	Odour (kOu/a)	Conc NH_3 (µg/m3)	Dep N (kg/ha/yr)	Dep Acid (kEq H+/ha/yr)	Conc PM_{10} (µg/m3)	Conc Odour (Ou/m3)
1	Patrick O	1	undefined	undefined	-	undefined	-	0.71	-	3.06	-

Total Depositions/Concentrations and Exceedances

Concentrations/Depositions and Critical Loads/Levels	NH_3 (µg/m3)	N Dep. (kg N/ha/yr)	Acid Dep. (kEq H+/ha/yr)	PM_{10} (µg/m3)	Odour (Ou/m3)
Process Contribution (PC) at receptor edge	-	-	-	0.71	3.06
Background concentration at receptor edge	-	-	-	5.32	0
Predicted Environmental Concentration/Deposition (PEC)	-	-	-	6.03	3.06
Environmental Assessment Level or Critical Load / Level	-	-	-	40	3
		ALTERNATIVE CRITICAL LOAD INFO			
USE OWN VALUES OF 1ST					
% of relevant standard PC	-	-	-	2%	102%
% of relevant standard PEC	-	-	-	15%	102%
EXCEEDANCE	-	-	-	-33.97	0.06

Project Notes

Patrick O'Connell

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Attachment 2

Legend

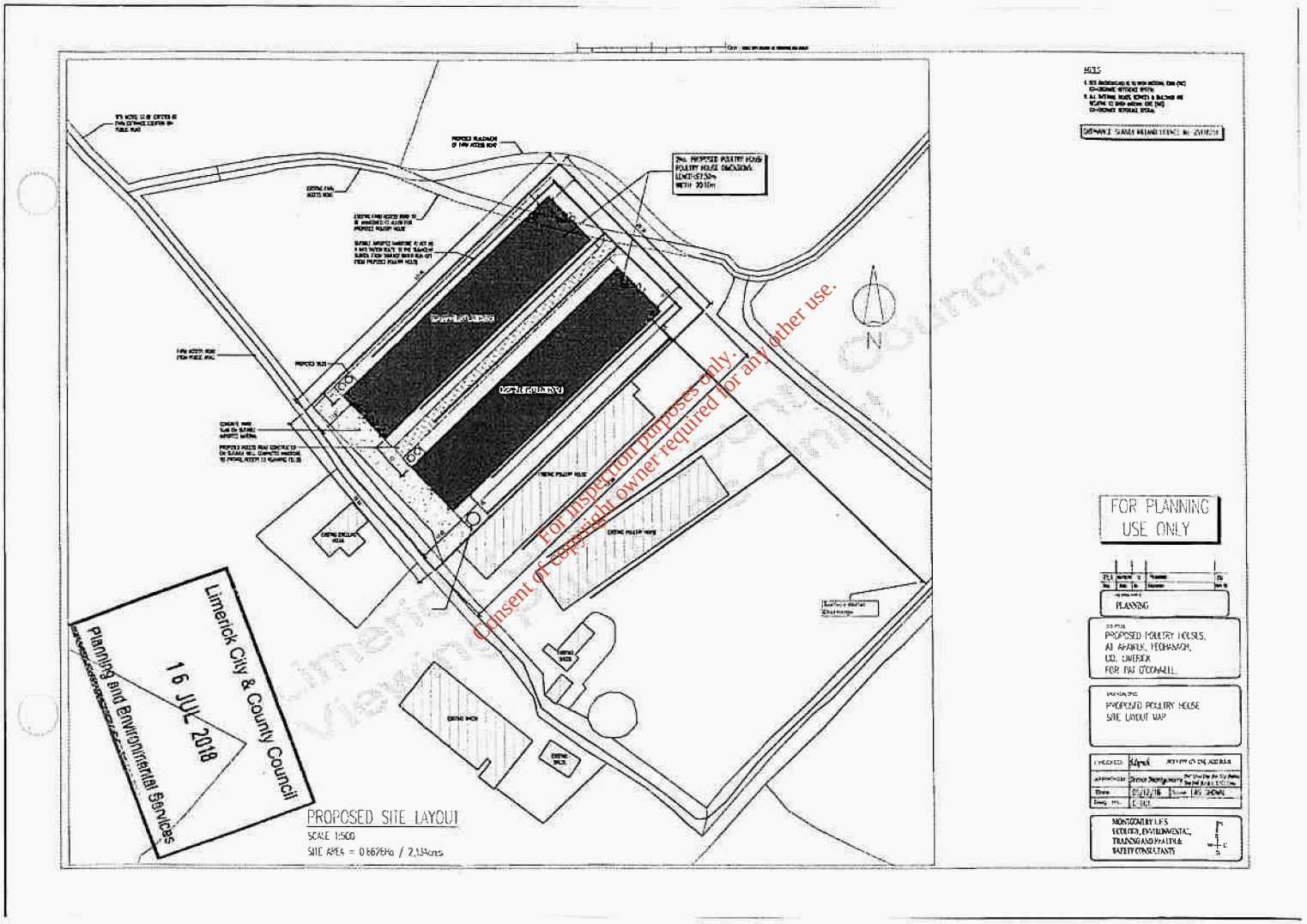
Site Location

Limerick City & County Council
16 JUL 2018
Planning and Environmental Services

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Well Location
Scale: NTS	Project No. P016 58
Figure No. Figure 15	Rev.

Attachment 3



SURFACE WATER

GENERAL

To comply with the surface water discharge requirements and best practice design, it is proposed to limit the discharge from the development to Greenfield runoff rates. Discharge from the site will be limited to the Greenfield runoff rate through the use of flow control unit. Surface water runoff from hard standing areas will be discharged through a perforated pipe laid in crushed stone to a water course which is shown on Drawing No. 005. The crushed stone acts as to allow infiltration into the ground but also provides the required attenuation for the worst case scenario, i.e. assuming that there is no infiltration.

The proposed surface water network showing interceptors, discharge locations, manhole locations, and direction of flow, is shown on Drawing No. 005 of the Planning Drawings. Attached contains surface water calculations.

SURFACE WATER DESIGN

Surface water design has been carried out in accordance with requirements of BS 752 and the "Recommendations for Site Development Works for Housing Areas" – published by the then Department of the Environment (D.O.E.). Drainage of the site is achieved by a combination of piped and channel drainage systems. Calculations for the surface water network are included below.

SUSTANABLE URBAN DRAINAGE

The principal behind controlled drainage is to reduce the quantity of discharge from developments to predevelopment flows and also to improve the quality of run-off from proposed developments. Applying the surface water discharge requirements, in conjunction with site specific rainfall data, an allowable outflow from the site of 6.01 l/s/ha was calculated. As discussed above, it is proposed to limit outflow from the site through a control device such as gravel with embedded drain..

Bearing in mind the requirements of the surface water discharge requirements and in order to avoid flooding of the site, a 1 in a 100 yr storm event was deemed appropriate the drainage will exist the site via drainage pipe.

Additionally the design has been checked in accordance with the other criteria of the design is such that there is no internal property flooding for a 1 in 100 year storm event. The detailed calculations are contained in below.

For reference the calculations for onsite Greenfield runoff rates and attenuation storage and were checked against the HR Wallingford online calculator.

The quality of runoff from the proposed development is improved by the fact that the surface water attenuated will provide some additional filtration throught the gravel and thereby improve the quality of the runoff.

In relation to the capacity of the system the surface water discharge system has been designed as follows:

- The surface water attenuation will cater for the 1:100yr storm event.
- Discharge from the site shall be restricted to Greenfield runoff rates.

DRAINAGE-AT INTERFACE COMPOUNDS

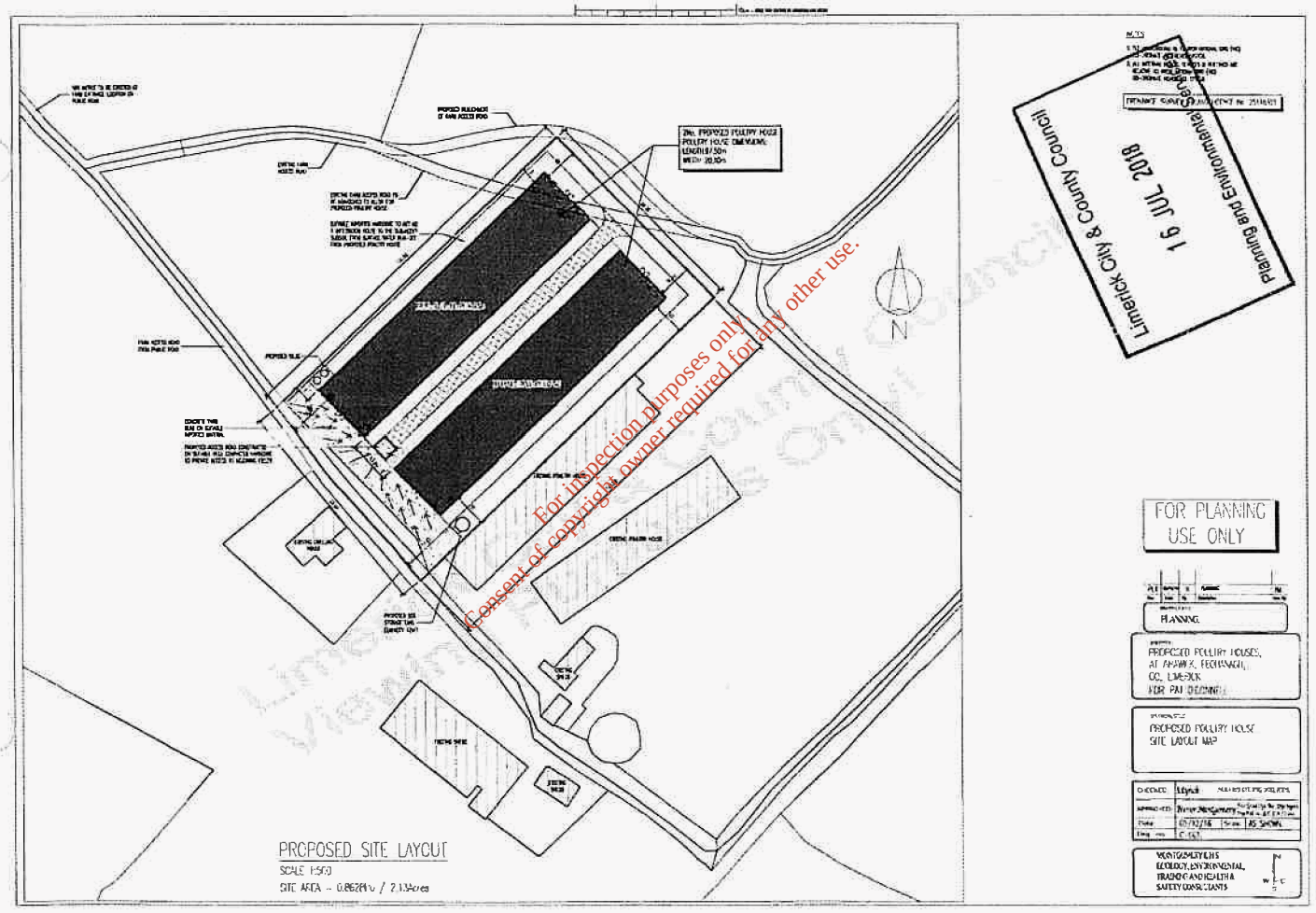
The proposed interface between the poultry houses will be finished with gravel. These gravel system are 5 meters wide 400 mm deep and 105 m long with a 399 drainage pipe within them to slow down the passage of the rain water from the site. In total there is 210 m3 of fill material on each side of the existing and proposed poultry house. In total there will be 1050 m3 of material in these gravel drains and the total water volume in 1:100 rain fall is Drainage for the site is designed such that water will flow into the filter drains located on the perimeter of the poultry houses. These filter drains are sized such that they can provide the required storage for a 1:100 year event the poultry house proposed (4120 m2) and existing (3389.6 m2). The 1 day event would generate a total of 436 m3 (7509.2 m2 by 0.058 m of rainfall) of water requiring discharge. The gravel drains will allow for slow discharge

The rainfall used data derived from Shannon Airport between 1941 and 2017, some 70 years of data. The results are tabulated:

	Maximum Precipitation in mm for Specific Event Durations		
Return Event Years	1 day	7 days	14 days
500	73	127	174
100	58	100	156
50	53	96	148

All drains will be diverted to an existing watercourse close to the site.

Attachment 4



Attachment 5

THE DEPARTMENT OF
AGRICULTURE, FISHERIES & FOOD
AN ROINN TALMHAÍOCHTA, IASCAIGH AGUS BIA

Biosecurity Information for Registered Poultry Flock Owners

8. DISINFECTION PROGRAMME FOR POULTRY FARMS

The following procedures should be followed for each house to be disinfected after depopulation to prevent the carry over of infection.

Removal of feed, equipment, litter etc.

1. Remove any residual food from the silo and feed equipment.
2. Take out any removable equipment.
3. Remove any dead bird carcases from the litter, and dispose of with other carcases.
4. Remove all litter from the house.
5. Load litter to ensure that all outside areas such as concrete pads at doors are cleared of old litter.
6. Ensure loads are covered before transport from the site.

Dry cleaning

1. Work from the top of the house and work down.
2. Blow down all surface dust from ceilings, water pipes, fan boxes and inlets.
3. Blow or brush loose debris from walls.
4. Scrape floor using mechanised scrapers.
5. Blow or wash down bulk feed bins.

Water sanitization

Drainable systems

1. Drain the header tank and check that it is free from debris. Clean as required.
2. Fill the tank with that volume of water required to fill the entire drinking system and add sanitizer at recommended dilution.
3. Allow sanitizer solution to fill the drinking system. Leave for one hour.
4. Drain the system and fill with fresh water.

Non-drainable systems

1. Shortly before depopulation, add sanitizer to the header tank.
2. Isolate supply from header tank and allow the water to be consumed until the tank is empty.
3. Remove any debris from the header tank.
4. Fill the tank with water, and add sanitizer at recommended dilution.

Cleaning and disinfection of the buildings and equipment

1. Include any stores in this cleaning procedure.
2. Wash all surfaces with a pressure washer with the detergent sanitizer solution.
3. Externally, spray air inlets, deposits from around fan boxes and the loading area.
4. Internally include air inlets, fan boxes, partitions, feeders and drinkers and all other equipment removed from the house, ensuring that everything is visibly clean.
5. Use a soak tank if available for removable equipment.
6. Soak all surfaces for 20-30 minutes, and then rinse all surfaces with water at high pressure.
7. Also ensure that all dirty areas such as concrete aprons around houses and bulk bin pads are washed clean.

Disinfection of the buildings and equipment

1. Ensure that disinfectants* have been properly stored, are in date, and are used in accordance with manufacturer's instructions.
2. Use a knapsack sprayer or pressure washer at a low pressure setting (300 psi) to apply.
3. Disinfect the feed silo.
4. Disinfect all removable equipment and store in a clean area under cover, or replace in cleaned house.
5. Disinfect the cleaned house, applying disinfectant solution evenly to all washed surfaces to achieve thorough wetting.
6. Pay particular attention to corners, cracks, seams and porous surfaces. Ensure that all sides of supporting posts are covered.
7. Spray into the apex of the roof and work down the walls to the floors.
8. On completion of disinfection, close all doors and place foot dips at entrances.

Fogging

1. Cold/thermal fogging or fumigation may also be carried out.

Parasite, insect and rodent control

1. Implement parasite and insect control programmes if necessary.
2. Replenish rodent bait points.

House repairs

1. Inspect all parts of the house for damage.
2. Carry out repairs to ensure that the house is wild bird-proof, and surfaces are intact and easily cleaned.
3. Bird-proof netting should have a maximum mesh size of 25mm.

Rest period

1. The longer a house can be rested after depopulation the better, as some infectious organisms can remain in the environment for months.
2. A minimum period of one week should be allowed before the house is re-stocked.

* An up-to-date list of approved disinfectants which are effective against Newcastle disease (fowl pest) and avian influenza (fowl plague) may be accessed at: http://www.agriculture.gov.ie

9. LIST OF APPROVED DISINFECTANTS

DEPARTMENT OF AGRICULTURE AND FOOD
Diseases of Animals (Disinfectants) Order, 1975 (Amendment) Order, 1978
LIST OF APPROVED DISINFECTANTS (13/03/2008)*

DISINFECTANT	Fowl Pest (Newcastle Disease, Fowl Plague(Avian Influenza)*
	Dilution rate[1]
Activ8 Hard Surface Cleaner	Ready to use
Agrisept MC Tabs	271
Antec Hyperox	375
Antec Virkon S	280
Bio Dine	145
Bio Guard	80
Bio Kill	365
Bi-OO-Cyst	125
Bio Phen	190
Bio Phen Plus	210
Bio Shield	155
Bio VX	285
Chlorasol	200
Citrox	0.66
Clinidine	140
Clinidine 28	170
Deosan Iodel FD	130
Dermicidal Extra	125
Envirocare A	99
Enviroguard	150
Equisept	450
FAM (New Formulation)	150
FAM 30	125
GPC 8 (New Formulation)	190
HPPA	400
Iodosure Bio	110
Iosan Farm Disinfectant	80
Jentabs	449
Jeyes Fluid	30

Kick Start 2	145
Microcleanse concentrate	5
Novagen FP	80
Omnicide 325	125
Opticide 200	125
Osmodex	150
Purogene	20
Septrivet	449
Septrivet 17	700
Sorgene 5	100
Spectocide 2000	150
Supercide	200
Superdine	125
Superkill	100
SWC Maxikleen	100
Tegodor FARM	51
V26	200
Vandox	300
Vesphene D39	50
Verucidal Extra	300
Victor	280
Virex	300
Virochlor	271
Viroguard	175
Virophen	210
Virophen Plus	240
Virophor 2.8%	185
Viroshield	165
Zal Perax II	145

[1]Dilution rate is expressed as one part (1 gram or 1 ml) of the preparation to the number of mls of water shown. Note that Equicept is prepared as a 10g tablet to dilute in 4.5 litres of water.

Revision Date 25/09/2017
Revision 1

SAFETY DATA SHEET
Jeyes Fluid

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name	Jeyes Fluid
Product No.	JF02 / Perfume 17-12894

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Outdoor Cleaner
Uses advised against	Only to be used as per the product label.

1.3. Details of the supplier of the safety data sheet

Supplier

Henkel Ltd
Wood Lane End
Hemel Hempstead
Hertfordshire
HP2 4RQ
UK
+44 1442 278000
Contact: Rowland Furse
Email: consumer.response@henkel.com

1.4. Emergency telephone number

+44 1442 278000

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Not classified.
Human health	Skin Corr. 1C - H314; Skin Sens. 1B - H317
Environment	Not classified.

The Full Text for all Hazard Statements are Displayed in Section 16. Human health
Causes severe skin burns and eye damage. May cause an allergic skin reaction.

2.2. Label elements

Contains 4-CHLORO-M-CRESOL

Label In Accordance With (EC) No. 1272/2008

Signal Word: Danger

Hazard Statements

H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.

Precautionary Statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P260	Do not breathe mist / vapours / spray.

P264	Wash hands and exposed skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear gloves and eye protection.
P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+313	If skin irritation or rash occurs: Get medical advice/attention.

2.3. Other hazards

Not applicable.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Fatty acids, Castor oil, Sodium salts CAS-No.: 8013-05-6 EC No.: 232-388-4	10-30%
Classification (EC 1272/2008) Skin Irrit. 2 - H315 Eye Irrit. 2 - H319	
4-CHLORO-M-CRESOL CAS-No.: 59-50-7 EC No.: 200-431-6	5-10%
Classification (EC 1272/2008) Acute Tox. 4 - H302 Acute Tox. 4 - H312 Skin Corr. 1C - H314 Skin Sens. 1 - H317 Aquatic Acute 1 - H400	
Terpineol CAS-No.: 8000-41-7 EC No.: 232-268-1	1-5%
Classification (EC 1272/2008) Flam. Liq. 4 - H227 Acute Tox. 5 - H303 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Aquatic Acute 3 - H402	

The Full Text for all Hazard Statements are Displayed in Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation

General first aid, rest, warmth and fresh air.

Ingestion

Immediately rinse mouth and provide fresh air. Do not induce vomiting. NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Consult a physician for specific advice. Skin contact

Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing.

Eye contact

Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation

No specific symptoms noted.

Ingestion

Causes severe skin burns.

Skin contact

Causes severe skin burns. May cause an allergic skin reaction.

Eye contact

Causes serious eye damage.

4.3. Indication of any immediate medical attention and special treatment needed

No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

Extinguish with foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Unusual Fire & Explosion Hazards

None known.

Specific hazards

The product is non-combustible. If heated, toxic vapours may be formed.

5.3. Advice for firefighters

Special Fire Fighting Procedures

Use protective equipment appropriate for surrounding materials.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes. For personal protection, see section 8.

6.2. Environmental precautions

Collect and dispose of spillage as indicated in section 13.

6.3. Methods and material for containment and cleaning up

Wear necessary protective equipment. Absorb with sand or other inert absorbent. For waste disposal, see section 13.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Read label before use.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and animal feeding stuffs. Store in closed original container at temperatures between 5°C and 25°C

Storage Class

Lagerklasse 12

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Ingredient Comments

No exposure limits noted for ingredient(s).

8.2. Exposure controls

Respiratory equipment

Use only outdoors or in a well-ventilated area.

Hand protection

For prolonged or repeated skin contact use suitable protective gloves. Rubber gloves are recommended.

Eye protection

Wear approved, tight fitting safety glasses where splashing is probable.

Hygiene measures

Wash hands after handling.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Dark Brown.
Odour	Tar acid.
Solubility	Forms an emulsion with water.
Initial boiling point and boiling range (°C)	ca. 100°C 760 mm Hg
Melting point (°C)	ca. 0°C
Relative density	ca. 1.042 @ 20°C
Vapour density (air=1)	
Not applicable.	
Vapour pressure	
Not applicable.	
Evaporation rate	
Not applicable.	
pH-Value, Conc. Solution	8.0 - 10.0
Viscosity	40 - 60 cP @ 20°C
Decomposition temperature (°C)	
Not applicable.	
Odour Threshold, Lower	
Not applicable.	
Odour Threshold, Upper	
Not applicable.	
Flash point (°C)	> 61°C CC (Closed cup).
Auto Ignition Temperature (°C)	
Not applicable.	
Flammability Limit - Lower(%)	
Not applicable.	

Flammability Limit - Upper(%)

Not applicable.

Partition Coefficient
(N-Octanol/Water)
Not determined.

Explosive properties

Not applicable.

Other Flammability

Not applicable.

Oxidising properties

Not applicable.

9.2. Other information

Not available.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

There are no known reactivity hazards associated with this product.

10.4. Conditions to avoid

Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials

Materials To Avoid

No specific, or groups of materials are likely to react to produce a hazardous situation.

10.6. Hazardous decomposition products

None under normal conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Inhalation

No specific health warnings noted

Ingestion

Causes severe skin burns.

Skin contact

Causes severe skin burns. May cause sensitisation by skin contact.

Eye contact

Causes serious eye damage.

Route of entry

Skin and/or eye contact.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

The product contains substances which are toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

12.2. Persistence and degradability

Degradability

The surfactant(s) contained in this preparation complies(comply) with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

12.3. Bioaccumulative potential

Bioaccumulative potential

No data available on bioaccumulation.

Partition coefficient

Not determined.

12.4. Mobility in soil

Mobility:

Forms an emulsion with water.

12.5. Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB substances.

12.6. Other adverse effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS

General information

When handling waste, consideration should be made to the safety precautions applying to handling of the product.

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

1760

14.2. UN proper shipping name

CORROSIVE LIQUID, N.O.S. (Cresol)

14.3. Transport hazard class(es)

Class 8.

14.4. Packing group

III.

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not relevant.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. 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, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.

Authorisations (Title VII Regulation 1907/2006)

No specific authorisations are noted for this product.

Restrictions (Title VIII Regulation 1907/2006)

No specific restrictions of use are noted for this product.

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

Revision Comments
This is first issue.

Issued By	Rowland Furse
Revision Date	25/09/2017
Revision	1

Hazard Statements In Full

H227 Combustible liquid. , H302 Harmful if swallowed. , H303 May be harmful if swallowed. , H311 Toxic in contact with skin. , H312 Harmful in contact with skin. , H314 Causes severe skin burns and eye damage. , H315 Causes skin irritation. , H317 May cause an allergic skin reaction. , H318 Causes serious eye damage. , H319 Causes serious eye irritation. , H400 Very toxic to aquatic life. , H402 Harmful to aquatic life.

City Analysts Limited
Environmental Laboratories

City Analysts Limited
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www.cityanalysts.ie

Customer Contact:	Trevor Montgomery
Customer:	Montgomery EHS
Customer Address:	Kantoher Business Park
	Killeedy, Ballagh
	Co. Limerick

Report Reference:	18-04829
Report Version:	1
Report Date:	11/06/2018
Customer PO No.:	
Chain of Custody No.:	Paperwork supplied

Certificate Of Analysis

Analysis of 1 sample(s) submitted on 04/06/2018 is now complete.
We have the pleasure of enclosing your certificate of analysis.

Should you have any queries regarding the report or require any further services, we would be happy to discuss your requirements. For additional information about the company please log-on to our web site at the above address.

Thank you for choosing City Analysts Limited. We look forward to assisting you again.

Authorised By: Melissa Brady

Melissa Brady

Date: 11/06/2018

Note: Information on methods of analysis and performance characteristics is available on request.

Note: Results relate only to the items tested.
Test report shall not be reproduced except in full or with written approval of City Analysts Ltd

Template 1146
Revision 015

City Analysts Limited
Environmental Laboratories

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Ringsend
Dublin 4

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Email info@cityanalysts.ie

www.cityanalysts.ie

Certificate of Analysis

Customer Contact: Trevor Montgomery

Customer: Montgomery EHS

Customer Address: Kantoher Business Park
Killeedy, Ballagh,
Co. Limerick

Report Reference: 18-04829
Report Version: 1
Date Received: 04/06/2018

Sample Description: Pat O'Connell
Sample Type: On-site Well
Date Sampled: 04/06/2018
Lab Reference Number: 289132

Site/Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value	Accreditation Status
L/1208	04/06/2018	TVC @ 22 °C (72 Hours)	< 1	cfu/ml	-	INAB
D/3000	05/06/2018	Ammonia as NH3	<0.01	mg/l	-	INAB
L/3229	05/06/2018	Kjeldahl Nitrogen	<0.01	mg/l	-	INAB
L/1009	05/06/2018	COD	< 10	mg/l O2	-	INAB
L/1201	05/06/2018	E. Coli	<1	cfu/ml	-	INAB
L/1041	05/06/2018	pH	7.18	pH Units	-	INAB
L/1201	05/06/2018	Total Coliforms	<10	MPN/100ml	-	INAB
D/3000	05/06/2018	Nitrite as NO2	<0.07	mg/l	-	INAB
D/3000	05/06/2018	Nitrate as NO3	<4.28	mg/l	-	INAB
D/3000	05/06/2018	Orthophosphate as PO4	<1.5	mg/l	-	INAB
D/3000	05/06/2018	Sulphate	<20	mg/l	-	INAB

Note:
NAC & ATC - No abnormal change and acceptable to customers
TVC - Total Viable Count
PV Value is the parametric value, taken from European Communities. (Drinking Water) (No. 2) Regulations, 2007. S.I. No. 278 of 2007. and relates only to drinking water samples.
Site D = Analysed at City Analysts Dublin. Site L = Analysed at City Analysts Limerick

Attachment 6

MEHS

ENVIRONMENT, HEALTH & SAFETY

NOISE IMPACT ANALYSIS

OF

PROPOSED POULTRY BUILDINGS, PATRICK O'CONNELL AHAWILK, FEOHANAGH, CASTLEMAHON CO. LIMERICK

Dates of measurements: 7rd & 8th May 2018
Date of report: 12th May 2018

Prepared by: Trevor Montgomery
Montgomery EHS
Kantoher Business Park
Killeedy,
Ballagh,
Co. Limerick,

CONTENTS

Contents

1.0 Summary and Conclusions

It is proposed to construct 2 new poultry houses to be used for housing broiler poultry with 2 existing poultry buildings to house broiler production at Ahawilk, Feohanagh, Castlemahon Co Limerick. The site is 90m from the nearest dwellings and 8 km from the edge of Newcastle west. The Local Planning Authority has called for a noise impact analysis to accompany the planning application.

This report describes measurements of the background sound levels at the nearest dwellings and predicts the sound levels which would be caused if the development were permitted. The predicted sound levels are compared with the background sound measurements in accordance with the method of BS 4142.

The sound levels from the proposed poultry houses as affecting the nearest dwellings are predicted at 38 – 40 dB LA_{eq} during the daytime and 32 - 36 dB LA_{eq} at night

The existing background levels L_{90} have been measured at the dwellings at:

40.2 – 44.8 dBA during a weekday from 10.20-13.45 hours, 25-34 dBA at night from 22.00 to 02:00.

The predicted noise rating levels from the poultry houses are between 3 dB and 14 dB below the measured daytime background and from 0 dB to 6 dB below the night background sound levels.

1.1 The conclusion of a BS 4142 rating is that complaints are unlikely from the proposed development.

1.2 The maximum sound level from vehicles entry and existing the site within the proposed poultry houses is predicted at 56-68 dB LA_{max} outdoors at the nearest dwelling. When translated indoors into dwellings with open windows, these sound peaks will be well below (ie. better than) the threshold at which sleep may be disturbed by sudden noise peaks.

2.0 BS 4142: 1997

2.1 Planning Requirement on Noise

No formal requirements have been received at this stage on the noise assessment criteria preferred by the Local Planning Authority. As a starting point this report adopt the guidance of the following documents:

2.2 Planning and Noise

There is no guidance to local authorities on the considerations of noise affecting dwellings. But in the UK Planning Policy Guidance 24 was issued in 1994 as: 'Planning and Noise'. Paragraph 19 of Annex 3 deals specifically with noise from industrial or commercial developments near to existing dwellings. The basic assessment method called for is a complaints rating to BS 4142.

2.3 BS 4142: 1997

The method recommended by BS 4142 is to measure outdoor sound levels at dwellings during the emission of noise from the industrial or commercial premises under investigation and measure the background level at the same location in the absence of the industrial noise. A correction factor is applied if appropriate to the measured levels for some specific factors which affect its acceptability, described as "a distinguishable, discrete, continuous note (whine, hiss, screech, hum, etc.) or if there are distinct impulses in the noise (bangs, clicks, clatters, or thumps), or if the noise is irregular enough in character to attract attention". The corrected measured level, the rating level, is compared with the background.

- complaints are likely if the rating level exceeds the background by around 10 dBA or more,
- a difference of around 5 dBA is 'of marginal significance',
- if the rating level is more than 10 dB below the background level then this is a positive indication that complaints are unlikely.

3.0 Sound from Proposed Development

3.1 Sound Sources

The proposed poultry farm will consist of 2 new buildings located on the site of 2 existing poultry buildings which are to be maintained at their current level. The new buildings will be used to house broilers. The walls of the buildings will be constructed from a timber outer skin with a lining of insulation board and mineral wool in the void between the inner and outer skins. The roofs will have a profiled steel outer skin with the same insulation board lining and mineral wool infill.

The only plant items with any external sound emission to be installed in the new buildings will be wall-mounted extraction fans. There will be 10 fans on the two new buildings. All fans are specified as Ziehl FC0710 type, three phase, with a sound pressure level of 55 dBA at 7m from the fan outlet under free-field conditions.

Sound from each fan will be attenuated by a baffle which will turn the sound downwards by 90° towards the ground surface. The estimated attenuation is 12 dBA resulting in a sound level of 43 dBA at 7m from each fan. All 10 fans will be mounted on the roof of the buildings. All other fans will be shielded from the site boundaries by the poultry house buildings.

The air inlets to the buildings will be mounted in the roof ridges of the buildings, baffled from weather and light ingress.

Sound generated by poultry inside the buildings will be transmitted to outdoors through the external fabric of the buildings. As part of this survey sound measurements were taken inside and outside an existing identical building at a different farm where breeder poultry is housed.

Vehicle movements at the premises will consist of 2 vehicles per week delivering feedstuff and 1 vehicles per week delivering fuel, plus occasional movements as detailed in 2.7 of the Environmental Report. The sound from vehicle movements is excluded from this assessment since there will be so few.

3.2 Sound Measurements at Existing Poultry Farm

Sound levels were measured at the existing farm owned by the applicant at Ahawilk, Feohanagh, Castlemahon Co Limerick on 7rd & 8th May 2018. The poultry within the buildings were 40,000 birds. The interior density of birds per square meter at Ahawilk farm will be similar to that for the proposed buildings so the internal sound levels will be similar but spread over a larger floor area. Sound levels were measured inside the poultry house 2 as a roving microphone sweep through its interior as this building has extract fans.

The sound sources during the survey inside the poultry house were extraction fans operating intermittently as is normal and poultry.

Existing poultry farm at Ahawilk,		Inside Poultry House
Sound from fans and birds		
Ambient	LA_{eq}	77.6
Background	LA_{90}	54.9
Minimum	LA_{min}	52.7
Maximum	LA_{max}	91.2

3.3 Noise-Sensitive Receptors

The nearest dwellings and their distances from the nearest proposed poultry house are:

(a) Dwelling 1 at 337.4 m to the south west,
(b) Dwelling 2 at 328.9 m to the south west,
(c) Dwelling 3 at 325.7 m to the south,
(d) Dwelling 4 at 336.5 m to the south.
(e) Dwelling 5 at 260 m to the south west

There are not direct sightlines from all of the dwellings to the poultry houses, broken only by hedgerows and topography which are assumed to have no sound attenuation.

3.4 Background Sound Levels at Ahawilk

Measurements were taken of the background levels at the above dwellings during the morning of 7th May and late at night on 7th and the 8th May 2018. Background sound was provided at all times by road traffic on the R522 road which runs 1.6 km east of the site, the L1311 road which passes 600 m to the south west adjacent to the premises. There was a low level of sound from fans at the existing poultry houses but this was excluded from the background results by choosing measurement positions shielded from the poultry houses.

Background Levels dB LA_{90}	**Daytime 1100-1400**	**Night 2300-0200**
Dwelling 1	44.3	35.7
Dwelling 2	47.3	34.6
Dwelling 3	46.5	35.1
Dwelling 4	45.9	35.2
Dwelling 5	46.1	34.8

All measurements were taken using Bruel & Kjaer 'Investigator' precision sound analyser type 2260 for which current calibration certificates are held. Climatic conditions during all outdoor tests were dry with no wind, being suitable for outdoor sound measurements.

3.5 Fan Sound Levels

The ventilation fans specified for the existing buildings are described by their supplier as each emitting a sound level of 55 dBA measured at 7m distance from the fan outlet under free-field conditions, i.e.. where the fan directly faces the measuring microphone. As described in 3.1, each fan will be connected to an external baffle which will turn the sound emission downwards through 90° towards the ground and will attenuate its sound to an estimated 43 dBA at 7m distance.

There will be 20 fans across the new building and existing building when extended all located on the roof. All will operate intermittently according to the ventilation needs inside each poultry house. It is estimated that the maximum ventilation requirement during summer temperatures will involve a fan utilization of 80% during the daytime and 50% at night.

4.0 Prediction of Sound at Dwellings

4.1 Fans

Daytime

Under the conditions of maximum daytime utilisation 66% of 20 fans, ie. 10 fans will operate simultaneously and emit sound towards dwellings with no shielding attenuation other than the 90° baffles fitted to each fan outlet. The remainder of the fans, ie. 33% of 10 fans, will receive 15 dBA attenuation caused by the poultry house buildings and be spaced progressively further from the dwellings.

The distance decay from 7m (where sound levels are quoted by the fan supplier) to the dwellings is given by the formula:

decay = 20 log (distance / 7) dB

since each fan acts as a point source of sound

After adding the cumulative effect of 10 fans operating together with no building shielding, and 5 shielded fans spread evenly across the plan area of the poultry house, and subtracting the distance decays, the estimated sound levels at the dwellings are:

45 dB LA_{eq} at Dwelling 1
44 dB LA_{eq} at Dwelling 2
44 dB LA_{eq} at Dwelling 3.
44 dB LA_{eq} at Dwelling 4.
47 dB LA_{eq} at Dwelling 5.

Night

The maximum fan utilization at night will be 50%, ie. 15 unshielded fans and 15 shielded fans operating together. The estimated sound levels at dwellings are:

36 dB LA_{eq} at Dwelling 1
36 dB LA_{eq} at Dwelling 2
36 dB LA_{eq} at Dwelling 3
36 dB LA_{eq} at Dwelling 4.
37 dB LA_{eq} at Dwelling 5.

4.2 Internal Sound

Results from Ahawilk

Sound from birds within the building will be transmitted to outdoors through the sound insulation of the buildings. The existing poultry house at Ahawilk will be similar in construction to those proposed buildings. The overall number of birds inside each house will be higher for the proposed buildings but the interior density of birds per square meter will be similar such that the internal sound levels will be similar but spread over a larger floor area. The maximum LA_{max} sound level from birds will be similar, measured at 94.7 dB LA_{max} inside the poultry building. Outdoors at 8m from the poultry house the sound levels were 50.7 dB LA_{eq} and 57.5 dB LA_{max}. Sound from outdoor background sources other than the poultry house was found to contribute 51.4 dB LA_{eq} and 56.3 dB LA_{max} and so the sound levels at 8m caused by the poultry house alone were 46.5 dB LA_{eq} and 54.6 dB LA_{max}. The time-averaged LA_{eq} value was dominated by fans, the maximum LA_{max} value was caused by birds. From these results the estimated outdoor sound levels at 8m from the poultry buildings are 49.1 dB LA_{eq} and 55.7 dB LA_{max}.

Predictions at Dwellings

The bird noise from inside occurs intermittently from a position near ground level within the buildings throughout normal daylight hours only. The interior surfaces of the buildings are sound-absorptive consisting of a deep litter floor bedding and insulation board linings to the walls and roofs. The transmission of sound to outdoors is thereby from point sources of sound near ground height, through the sound insulation of the buildings, then over the distance to dwellings.

Distance Decay

The distance decays from 8m (as used to measure the poultry birds sound levels) to the dwellings are given by the formula for point sources:

decay = 20 log (distance / 8) dB
= 21 dB decay to Dwelling 1
= 21 dB decay to Dwelling 2
= 23 dB decay to Dwelling 3
= 23 dB decay to Dwelling 4
= 23 dB decay to Dwelling 5

4.3 Bird Sound at Dwellings

After subtracting the distance decay, the predicted maximum outdoor sound levels at the nearest dwellings caused by poultry bird noise are:

45 dB LA_{max} at Dwelling 1
46 dB LA_{max} at Dwelling 2
46 dB LA_{max} at Dwelling 3.
47 dB LA_{max} at Dwelling 4.
46 dB LA_{max} at Dwelling 5.

The time averaged LA_{eq} sound levels at dwellings caused by all sound sources inside the poultry houses will be 12 dBA lower than these values.

5.0 Assessment of Sound Predictions

5.1 Fans

The combined sound levels reaching the nearest dwellings from the fans operating under typical summer conditions are as described in section 4.1. The time-averaged sound levels from sources inside the poultry houses are quantified in 4.2 above and will be insignificant compared to the fan sound levels.

Rating Levels

The fan sound may be tonal and will be intermittent such that a correction of 5 dB is added under the method of BS 4142 for 'acoustic feature'. The rating levels are 5 dB higher than the values given in 4.1.

Background Comparison

The background sound levels are quantified in the table of 3.4. A comparison of the rating levels with the background levels is shown overleaf.

Receptor	Rating Level dB	Background Level LA_{90}	Comparison v. Background
Dwelling 1			
Daytime 1000-1400	44 dB	48.2 dBA	4 dB below
Night 2300-0200	36 dB	41.9 dBA	6 dB below
Dwelling 2			
Daytime 1000-1400	47 dB	48.3 dBA	1 dB below
Night 2300-0200	35 dB	41.8 dBA	6 dB below
Dwelling 3			
Daytime 1000-1400	47 dB	48.8 dBA	1 dB below
Night 2300-0200	35 dB	42.1 dBA	7 dB below I
Dwelling 4			
Daytime 1000-1400	46 dB	49.3 dBA	3 dB below
Night 2300-0200	35 dB	41.7 dBA	6 dB below
Dwelling 5			
Daytime 1000-1400	46 dB	49.2 dBA	3 dB below
Night 2300-0200	35 dB	41.6 dBA	6 dB below

The noise rating levels are predicted between 1 and 7 dB below the background levels measured during the daytime and 0 to 7 dB below the background measured at night. It is concluded from BS 4142 that complaints are unlikely.

5.2 Poultry Bird Sound

Sound from the birds is entirely spontaneous and cannot be accurately described as a time-averaged LA_{eq} value as used in BS 4142. It is suggested that a more meaningful assessment value is the maximum sound level LA_{max} which was found to be repeatable and can be assessed in terms of the sleep disturbance threshold. Guidance from the World Health Organisation shows that sleep may be disturbed by peak sound levels greater than 45 dB LA_{max}.

In order to relate the predictions of this report to the sleep disturbance threshold it is necessary to convert the outdoor predictions as received at the dwellings into indoor sound levels within a bedroom. Guidance in PPG24 is that "The insulation provided by any type of window when partially open will be in the region of 10-15 dBA". From this, the predicted interior sound levels within the bedrooms of the dwellings with open windows, caused by the birds, will be:

32 - 34 dB LA_{max} inside Dwelling 1
32 – 34 dB LA_{max} inside Dwelling 2
32 – 34 dB LA_{max} inside Dwelling 3.
32 – 34 dB LA_{max} inside Dwelling 4.
31 – 35 dB LA_{max} inside Dwelling 5.

These values are all well below (i.e. better than) the sleep disturbance threshold of 45 dB LA_{max}.

It is concluded that sleep disturbance will not be caused by sound from birds in the proposed poultry houses.

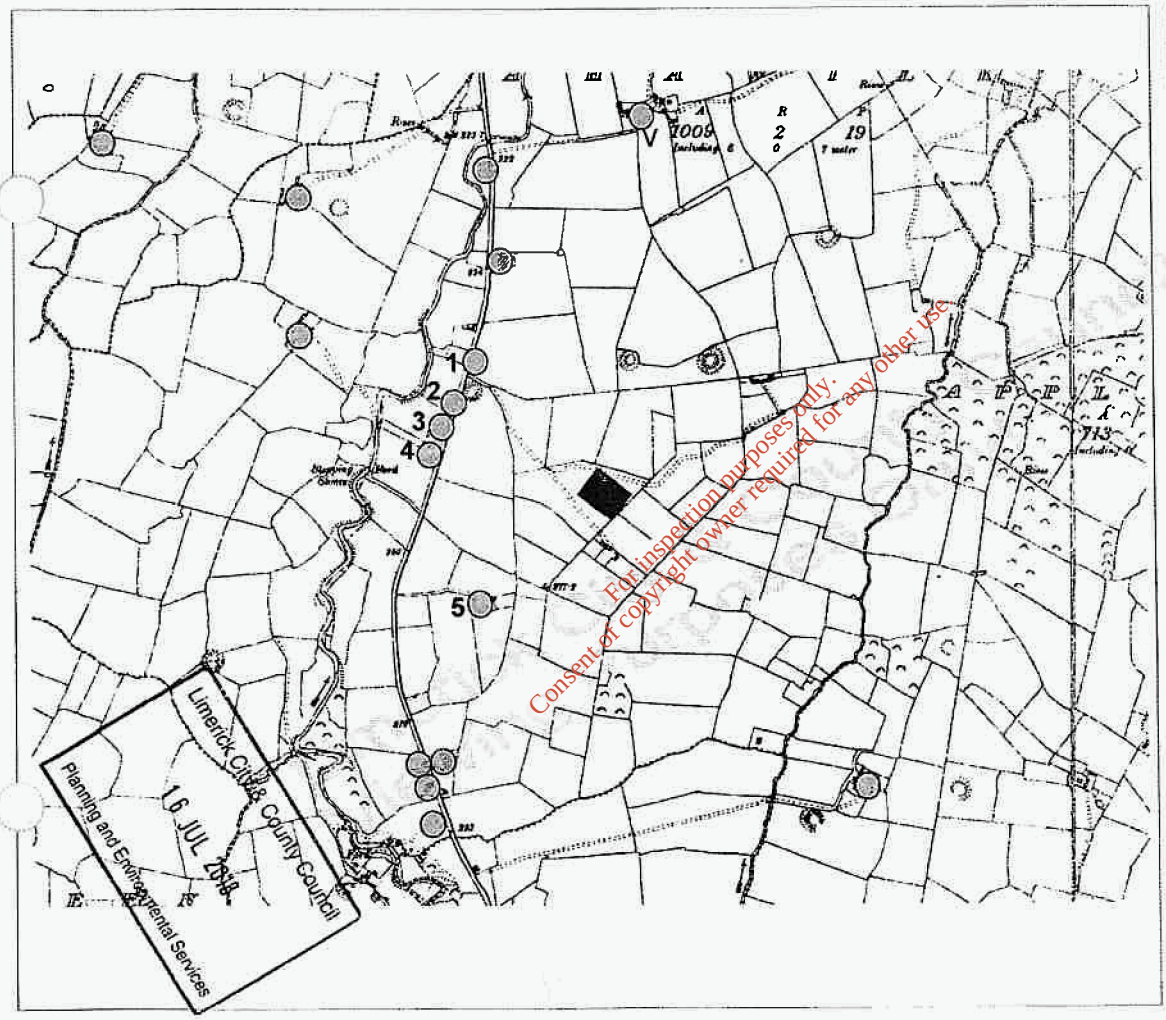
Legend

Site Location

Residential Properties

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Residential Properties
Scale	NTS
Project No	P016 58
Figure No	Figure 15
Rev.	



Legend

Site Location

Residential Properties

MEHS
ENVIRONMENT, HEALTH & SAFETY

Client	Patrick O'Connell
Title	Residential Properties
Scale	NTS
Project No	P016 58
Figure No	Figure 15
Rev	

Attachment 7

BASF
We create chemistry

Safety data sheet

BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.
Date / Revised: 20.10.2015 Version: 9.0
Product: **STORM SECURE**

(ID no. 58595254/SDS_GEN_IE/EN)
Date of print 21.10.2015

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

STORM SECURE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: rodenticide, biocide

1.3. Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY

Contact address:
BASF Ireland Ltd.
Inchera Industrial Estate, Little Island
County Cork, REPUBLIC Of IRELAND

Telephone: +353 21 451-7100
E-mail address: product-safety-north@basf.com

1.4. Emergency telephone number

For products classified and labelled in accordance with CLP:
National Poisons Information Centre, Beaumont Hospital, Dublin 9
Tel.: 01 8092566
Emergency medical information: 8am-10pm (seven days)
International emergency number:
Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

No need for classification according to GHS criteria for this product.

2.2. Label elements

Globally Harmonized System (GHS) in accordance with IE regulations.

Precautionary Statement:

P102	Keep out of reach of children.
P103	Read label before use.

Precautionary Statements (Prevention):

P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves.

Precautionary Statements (Response):

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):

P404	Store in a closed container.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container in accordance with national regulations.

The product does not require a hazard warning label in accordance with GHS criteria.

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

See section 12 - Results of PBT and vPvB assessment.

This product is hazardous to mammals, including domesticated animals, and birds. Exposure of non-target animals should be prevented.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Chemical nature

rodenticide, Bait, biocide

Contains: reaction mass of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy- 3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin (Content (W/W): 0.005 %)

Hazardous ingredients (GHS)
according to Regulation (EC) No. 1272/2008

Paraffin waxes and Hydrocarbon waxes
Content (W/W): < 30 %
CAS Number: 8002-74-2
EC-Number: 232-315-6
REACH registration number: 01-2119488076-30

SECTION 4: First-Aid Measures

4.1. Description of first aid measures
Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air.

On skin contact:
Wash thoroughly with soap and water.

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On ingestion:
Rinse mouth and then drink plenty of water.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms: coagulation disorders

Increased tendency to bleed.

In severe cases, massive bleeding from internal organs may result in circulatory shock, which could prove fatal.

The onset of symptoms is delayed for up to 4 days after uptake.

Hazards: The substance / product is an anticoagulant rodenticide with a coumarin-type mode of action.

4.3. Indication of any immediate medical attention and special treatment needed
Treatment: Symptomatic treatment (decontamination, vital functions).

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media
Suitable extinguishing media:
dry powder, foam, water spray

Unsuitable extinguishing media for safety reasons:
carbon dioxide

5.2. Special hazards arising from the substance or mixture
carbon monoxide, Hydrogen fluoride, Carbon dioxide, nitrogen oxides, toxic gas
The substances/groups of substances mentioned can be released in case of fire.

5.3. Advice for fire-fighters
Special protective equipment:
Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:
In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures
Use personal protective clothing. Avoid contact with the skin, eyes and clothing. Avoid dust formation.

6.2. Environmental precautions
Do not discharge into drains/surface waters/groundwater. Do not discharge into the subsoil/soil.

Do not allow contamination of public drains or surface or ground waters. Inform local water plc if spillage enters drains and the Environmental Protection Agency if it enters surface or ground waters. Keep people and animals away.

6.3. Methods and material for containment and cleaning up
For small amounts: Contain with dust binding material and dispose of.
For large amounts: Sweep/shovel up.
For residues: Contain with dust binding material and dispose of.
Avoid raising dust. Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

6.4. Reference to other sections
Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

No special measures necessary if stored and handled correctly. If dead and/or dying rats or mice are found during and after the control program, these must be cleared away immediately in order to avoid secondary poisoning phenomena. Do not apply in the open – cover bait points or use bait boxes. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:
Avoid dust formation. Dust can form an explosive mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

7.2. Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds.
Further information on storage conditions: Keep away from heat. Protect against moisture. Protect from direct sunlight.

Protect from temperatures above: 30 °C
Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

No occupational exposure limits known.

Refer to the current schedule of occupational exposure standards published by the Irish HSA. For normal use and handling refer to the product label/leaflet. In all other cases the following apply.

8.2. Exposure controls

Personal protective equipment

Respiratory protection:
Respiratory protection not required.

Hand protection:
Protective gloves (EN 374) are required for the safe handling of this product and are also recommended for protection against rodent-borne diseases.
e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinylchloride (0.7 mm) and other

Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Required when there is a risk of eye contact., Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Form:	solid, blocks	
Colour:	blue	
Odour:	almost odourless, faint odour, fresh cut grass	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
pH value:	approx. 4 - 7 (20 °C)	
Melting point:	>= 64 °C The statements are based on the properties of the individual components.	
Boiling point:	> 300 °C The statements are based on the properties of the individual components.	
Flash point:	not applicable, the product is a solid	
Evaporation rate:	not applicable	
Flammability:	not flammable	(Directive 92/69/EEC, A.10)
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.	

Upper explosion limit:		
	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.	
Vapour pressure:		
	not applicable	
Density:	approx. 1.27 g/cm3 (20 °C)	(OECD Guideline 109)
Relative vapour density (air):		
	not applicable	
Solubility in water:	insoluble	

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin

Partitioning coefficient n-octanol/water (log Kow):	*6.12 (pH value: 7)*	*(OECD Guideline 107)*

Self ignition:	Temperature: 267 °C	
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:		
	not applicable, the product is a solid	
Explosion hazard:	Based on the chemical structure there is no indicating of explosive properties.	(Directive 84/449/EEC, A.14)
Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	

9.2. Other information

Other Information:
If necessary, information on other physical and chemical parameters is indicated in this section.

SECTION 10: Stability and Reactivity

10.1. Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

10.2. Chemical stability
The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions
No hazardous reactions if stored and handled as prescribed/indicated.

10.4. Conditions to avoid
See MSDS section 7 - Handling and storage.

10.5. Incompatible materials

Substances to avoid:
strong acids, strong bases, strong oxidizing agents

10.6. Hazardous decomposition products

Hazardous decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11: Toxicological Information

11.1. Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Inhalation is not likely in the available physical form.

Experimental/calculated data:
LD50 rat (oral): > 5,000 mg/kg

LC50 (by inhalation):
Not inhalable due to the physico-chemical properties of the product.

LD50 rat (dermal): > 5,000 mg/kg

Irritation

Assessment of irritating effects:
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. Not irritating to the eyes. Not irritating to the skin.

Experimental/calculated data:
Skin corrosion/irritation rabbit: non-irritant

Serious eye damage/irritation rabbit: non-irritant

Respiratory/Skin sensitization

Assessment of sensitization:
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. There is no evidence of a skin-sensitizing potential.

Experimental/calculated data:
modified Buehler test guinea pig: Skin sensitizing effects were not observed in animal studies.

Germ cell mutagenicity

Assessment of mutagenicity:
The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity

Assessment of carcinogenicity:
The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Reproductive toxicity

Assessment of reproduction toxicity:
The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Developmental toxicity

Assessment of teratogenicity:
The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
Assessment of repeated dose toxicity:
Repeated exposure to small quantities may affect certain organs. Damages the coagulation system.

Other relevant toxicity information

Misuse can be harmful to health.

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms. The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
Toxicity to fish:
LC50 (96 h) 0.071 mg/l, Oncorhynchus mykiss (OECD Guideline 203)

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
Aquatic invertebrates:
EC50 (48 h) 0.17 mg/l, Daphnia magna (OECD Guideline 202, part 1)

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
Aquatic plants:
EC50 (72 h) > 18.2 mg/l, Pseudokirchneriella subcapitata (OECD Guideline 201)

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
Assessment biodegradation and elimination (H2O):
Not readily biodegradable (by OECD criteria).

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
Bioaccumulation potential:
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is possible.

12.4. Mobility in soil

Assessment transport between environmental compartments:
Adsorption in soil: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
Assessment transport between environmental compartments:
Adsorption in soil: Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

12.5. Results of PBT and vPvB assessment

The product contains a potential PBT substance.

Information on: a mixture of: cis-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin; trans-4-hydroxy-3-(1,2,3,4-tetrahydro-3-(4-(4-trifluoromethylbenzyloxy)phenyl)-1-naphthyl)coumarin
According to Annex XIII of Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Fulfills the criteria for PBT and vPvB

12.6. Other adverse effects

The product does not contain substances that are listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

12.7. Additional information

Other ecotoxicological advice:
Must not be discharged into the environment.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Must be disposed of or incinerated in accordance with local regulations.

Contaminated packaging:
Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

SECTION 14: Transport Information

Land transport

ADR

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

RID

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Inland waterway transport

ADN

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known
Transport in inland waterway vessel:	Not evaluated

Sea transport

IMDG

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable

Environmental hazards:	Not applicable
Special precautions for user	None known

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

14.1. UN number
See corresponding entries for "UN number" for the respective regulations in the tables above.

14.2. UN proper shipping name
See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

14.3. Transport hazard class(es)
See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

14.4. Packing group
See corresponding entries for "Packing group" for the respective regulations in the tables above.

14.5. Environmental hazards
See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

14.6. Special precautions for user
See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Regulation:	Not evaluated
Shipment approved:	Not evaluated
Pollution name:	Not evaluated
Pollution category:	Not evaluated
Ship Type:	Not evaluated

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

This product may be subject to the Seveso II Directive and amendments if specific threshold tonnages are exceeded.
For further medical advice Doctors should contact the National Poisons Information Centre at Beaumont Hospital, Dublin.

15.2. Chemical Safety Assessment

Advice on product handling can be found in sections 7 and 8 of this safety data sheet.

SECTION 16: Other Information

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.

Pest Control Procedure

Bait stations increase both the effectiveness and safety of the toxic baits used to control rats and mice.

Toxic baits are often used to reduce the damage caused by Norway rats (*Rattus norvegicus*) and house mice (*Mus musculus*). Bait stations used in rodent control programs increase both the effectiveness and safety of rodent baits (rodenticides).

- Bait stations are useful because they:
- Protect bait from moisture and dust;
- Provide a protected place for rodents to feed, allowing them to feel more secure and consume more bait;
- Keep nontarget species, including pets, livestock, wildlife, and children away from toxic baits;
- Allow bait to be placed in otherwise difficult locations given weather or potential hazards to nontarget animals;
- Help prevent accidental spillage; and
- Offer the applicator easy access to bait, making it easier to determine the amount of bait consumed by rodents, and to refill.

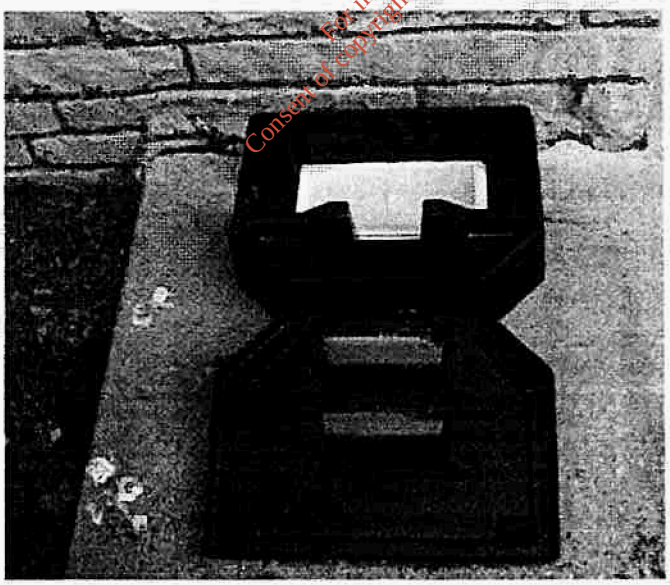


Figure 1. Bait Station. Many manufactured bait stations are designed with the flexibility to be used with traps and toxicants.

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Types of Bait Stations

To meet the variety of demands for rodent control, manufacturers have developed designs for several bait stations. The designs are based on whether the station needs to:

- target rats or mice,
- contain solid (pellets and block) or liquid bait,
- sustain indoor or outdoor use,
- resist tampering,
- hold traps (snap) *(Figure 1)*.

Stations also differ in the type of materials used for their construction, including plastic, metal and other materials.

To protect people and nontarget species, good practice mandates that a commercially produced bait station meet eight safety criteria before it receives the designation "tamper resistant." Tamper resistant stations must be:

1. Resistant to destruction or weakening by weather.
2. Strong enough to prohibit entry or destruction by dogs or children under 6 years of age using their hands, feet or objects.
3. Capable of being locked or sealed.
4. Equipped with rodent entrances that readily allow target animals access to baits but deny access to larger animals and birds.
5. Capable of being anchored (and must be anchored when used).
6. Equipped with internal structures for containing baits and minimizing spillage and tracking of bait outside of the station or into readily accessible parts of the station.
7. Made of design and colour not especially attractive to children.
8. Capable of displaying precautionary statements in a prominent location.

Manufacturers meet the safety criteria by constructing bait stations out of sturdy plastic, designed with two chambers positioned in a way that forces the rodent to take a 90 degree turn to access the bait *(Diagram 1)*. Finally, the station must be securable to the floor, heavy patio stone or a wall to prevent the bait from being removed by shaking. If the station is in proximity of hoofed livestock or wildlife, such as raccoons, stronger building materials (aluminum) may be needed.

Open Bait Station

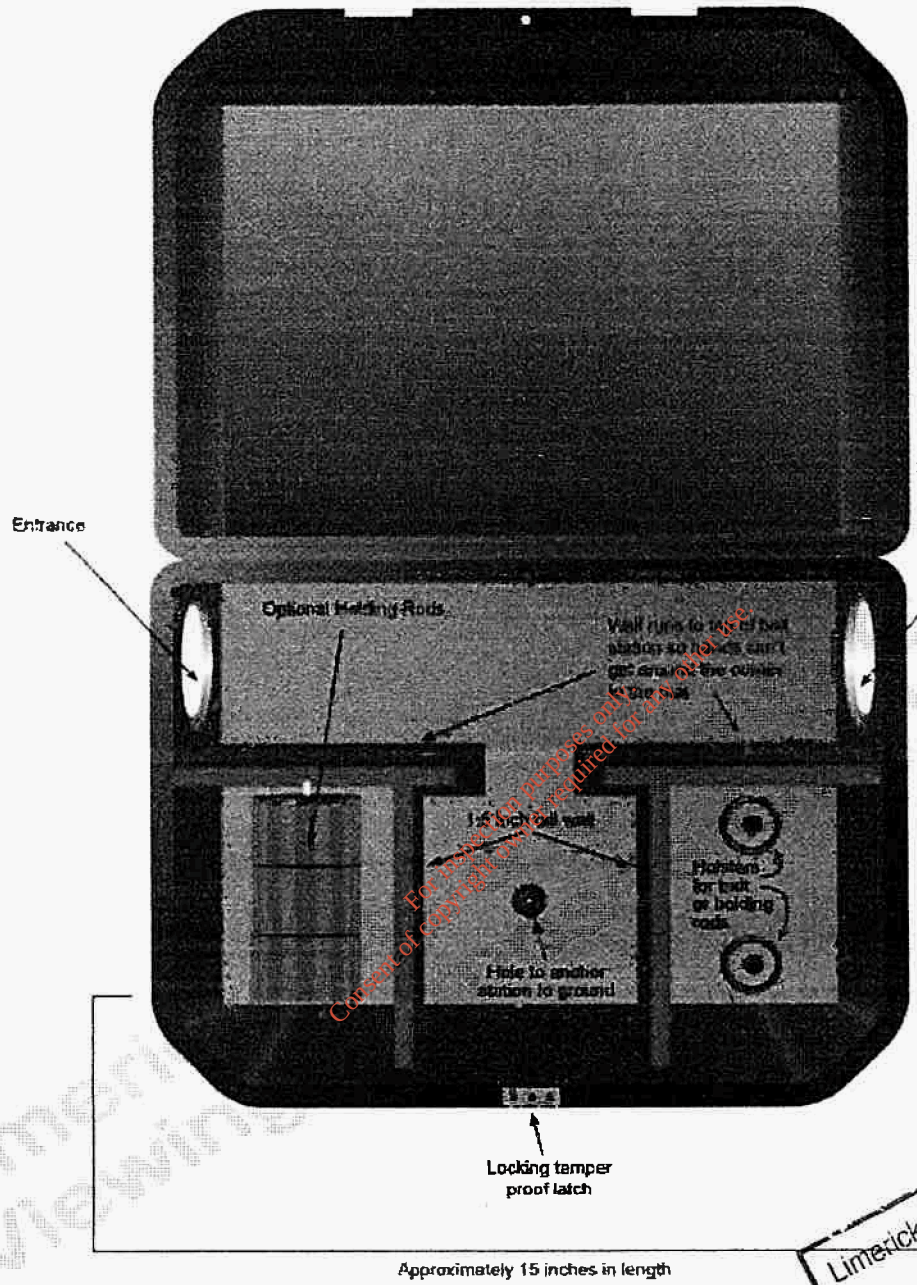

Diagram 1. Open bait station illustrating entrance holes, interior walls, holding rods, anchor points and locks.

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The colour of the bait station plays a critical role in station success when used outside. When placed in direct sunlight, black and clear stations become solar collectors. Internal station temperatures can reach as high as 50°C and melt the bait. Also, clear plastic stations have been known to become brittle during freezing temperatures. If stations are to be placed in areas exposed to direct sunlight, choose those that are gray or white.

Manufactured bait stations are available through vendors of farm and chemical supply stores or can be ordered through the Internet or pest management suppliers.

Bait Selection

Bait stations work best when used with commercial rodent baits. Today, most of these baits are anticoagulant rodenticides. For these baits to be effective, rodents must feed on them over a period of days. Baits are available in several forms — loose grain, pellet-grain mixtures, paraffin-grain blocks, extruded blocks, and water-soluble concentrates. The best approach is to use extruded bait blocks that can be anchored inside the bait station to prevent them from being removed. Loose grain and pelleted baits are often sold packaged in small "place packs" that can be placed intact into the bait station. Use caution with loose and pelleted grain formulations of toxicants, as rodents may relocate them to unsafe areas.

Liquid baits work well in locations where rodents have few water sources, such as granaries. Simply mix the dry concentrate with a measured amount of water to create an enticing rodent bait. Rats will often come to water stations because they need water daily unless they are feeding on very moist food. Although mice can survive without drinking water, they will use it when it is available. Because many non-target animals drink water, receptacles containing liquid rodenticides should be enclosed within bait stations to reduce hazards to pets, livestock, and wildlife.

Bait Station Placement

Proper placement of bait stations is just as important as using the appropriate bait. Rats and mice will not visit bait stations, regardless of their contents, if they are not conveniently located in areas where rodents are active.

When possible, place the stations between the rodents' food supply and their shelter. Position bait stations near rodent burrows, against walls, and along their travel routes. Look for signs of activity such as droppings, gnawing, tracks, and rubmarks to help identify sites to place bait stations. Rodents usually will not go out of their way to find baits. House mice seldom venture more than 20 metres from their nests or food, so place bait stations no more than 4 metres apart in areas where mice are active. Norway rats will travel up to 30 metres from their nests so rat stations can be placed 5 to 20 metres apart. It is important to be patient when controlling rats. Rats are often suspicious of new or unfamiliar objects. Do not be surprised if it takes up to two weeks for rats to enter and feed in recently placed bait stations. Landscape versions of bait stations are available that look like rocks, thereby blending in with overall surroundings.

Figure 2. Rat bait station properly placed against the exterior wall of a building.

On the energy generation centre, placement of bait stations depends on building design and use. In confined buildings, it may be possible to attach bait stations to wall ledges or to the top of dividing walls. Bait stations also can be placed in attics, along walls, or in alleys where rodents are active.

Never place bait stations where livestock, pets or other animals can disturb them. Spilled bait may pose a potential hazard, particularly to smaller animals. Rodent baits are poisonous to all animals, in varying degrees. Dogs are especially susceptible to anticoagulants.

Permanent bait stations can be placed inside buildings and along the outside walls of buildings that are not rodent-proof. Avoid placing stations away from structures, such as along fence lines or the perimeter of the property. Perimeter placements may endanger non-target species, while not substantially increasing target species control. Bait stations, however, may be necessary along the perimeter when structures are within 25 metres of thick vegetative covers and there is a large rodent population.

Bait Station Maintenance

Maintain the bait stations regularly with fresh anticoagulant bait to keep rodent numbers at a low level, as rodents will move in from other areas. When using baits, monitor their freshness and quality, as rats and mice will often reject spoiled or stale foods. Provide enough fresh bait for rodents to eat sufficiently, but don't overfill bait stations. When initially positioning bait stations check them daily and add fresh bait as needed. After a short time, rodent numbers and feeding will decline, and surveillance of stations will only be necessary every two weeks or so. If the bait becomes mouldy, musty, soiled, or insect-infested, empty the bait station, clean it, and refill it with fresh bait. Always wear appropriate safety equipment as specified by the label, including disposable gloves, glasses/goggles, and a mask during the cleaning process to protect workers from exposure to the toxicant and rodent excrement in the station. Dispose of spoiled or uneaten bait in accordance with the label. If possible, dispose of the spoiled toxicant at a qualified toxic-waste facility. If ants are a problem, treat the station interior (especially the bait tray) with a low-odour, liquid pyrethroid insecticide. Let the insecticide dry before filling the station with toxicant. Insecticides will not likely deter rodents, provided that the insecticide is applied at labelled rates. Another option is to sprinkle insecticide granules on and around the immediate area before placing the station. Never directly treat rodent bait with insecticide. ***Always follow all label directions*** for the products you are using.

Safety

Follow all safety guidelines when handling pesticides. Wear latex, nitrile or vinyl gloves when handling all toxicants. Avoid breathing dust when pouring granulated-pelletized pesticides. Don't smoke, eat or drink when handling pesticides. When finished applying toxicants at a location, wash your hands and face thoroughly and change your clothes. These pesticide precautions are also helpful in protecting yourself from biological hazards, such as salmonella. Deer mice, a species known to carry Hanta-virus, commonly take up residence inside empty stations. Avoid stirring up dust when opening. Hanta-virus can be disinfected with a 10 percent bleach solution or with Lysol.

Baiting Record Sheet

Use a copy of this sheet for each treatment within the baiting programme.							
Farm name							
Name and type of bait used							
Bait point number	Date of first baiting	Date of bait replacement or top-up applications				Signature	Comments
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
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