Note to Inspector
ABP- 303211-18

Development	Proposed development at Knockharley Landfill
Location	Knockharley Landfill in the townlands of Knockharley, Tuiterath & Flemingstown, Navan, Co. Meath.
Applicant	Knockharley Landfill Limited
Topic: **Biodiversity &** **Appropriate Assessment**	Response by Applicant to An Bord Pleanála requests for further information and evidence presented at oral hearing on EIAR Chapter 10 Biodiversity, Appropriate Assessment Screening Report and Natura Impact Statement
Site visit	09 Dec 2020
Oral hearing	16-18 Dec 2020
Ecologist	Maeve Flynn BSc. PhD. MCIEEM
Senior Planning Inspector	Breda Gannon

Contents

1.0 **Introduction**

Knockharley Landfill Ltd. submitted an application for permission for a proposed strategic infrastructure development at Knockharley Landfill in December 2018. The application was accompanied by an Environmental Impact Assessment Report (EIAR), Chapter 10 of which comprises an assessment of effects on biodiversity. A Natura Impact Statement (NIS) was also submitted with the application to inform Appropriate Assessment.

As part of their submission on the project, Meath County Council appointed FERS (Forest, Environmental Research and Services ltd.) to undertake a peer review of the application in relation to Biodiversity and the NIS including the preceding Screening Report for Appropriate Assessment. The FERS report was critical of the approach taken in both the biodiversity assessment and the NIS, including the screening report. The review claimed critical flaws in the approach and content of reports prepared by Fehily Timoney on behalf of the applicant, calling into question the adequacy of the information supplied and to be relied upon by the Board in making a planning determination.

An Bord Pleanala requested the applicant to submit the following supplementary information in relation to biodiveristy and the NIS as part of a formal *Request for Further Information* (16th May 2019):

> *The applicant is requested to review and consider in full the issues raised in the Peer Review Report commissioned by Meath County Council on the biodiversity chapter of the EIAR, the Appropriate Assessment Screening Report and the Natura Impact Statement. The report identifies perceived deficiencies and issues which the applicant is requested to address. The applicant should consider the requirement for additional surveys for species of conservation interest and the availability of suitable habitats for such species. The response should ensure that adequate and up to date information is available to enable the Board to fully*

assess the ecological impacts of the proposed development and to carry out an Appropriate Assessment for the purposes of Article 6(3) of the Habitats Directive.

In October 2019, the applicant submitted a detailed response to the request for further information. This was prepared by Fehily Timoney and included:

- Response to Request for Further Information- Issue No. 4 Part 1- Response to FERS Ltd. Observations on the EIAR Biodiversity Chapter (Including additional and updated ecological surveys- Appendices 1-6).
- Response to Request for Further Information- Issue No. 4 Part 2- Response to FERS Ltd. Observations on the Appropriate Assessment Screening and Natura Impact Statement.

Further opportunity to address the content of the additional information was afforded at the Oral Hearing held by An Bord Pleanála between16-18th December 2020. On the morning of the 18th December 2020, Patrick Moran of FERS made a further submission on behalf of Meath Co. Council and Carl Dixon, Consultant Ecologist, supported by Dr Sorcha Sheehy, acted as expert witness for the applicant. Fehily Timoney were not in attendance.

1.1. Scope of 'Note to Inspector'

As part of my role as Inspectorate Ecologist, I was asked to examine and evaluate the Applicants response, attend the oral hearing and provide a note for the case Inspector and the Board in relation to the adequacy of the information for the purposes of the Environmental Impact Assessment of Biodiversity and for Appropriate Assessment.

I made a site visit to Knockharley Landfill on 9th December 2020 in advance of the oral hearing (notes attached).

This note to the Senior Planning Inspector and available to the Board is a written record of my review of the submitted information and the oral Hearing as it relates to the Appropriate Assessment (AA) and Biodiversity assessment only. This note does not comprise the AA, rather it is a professional opinion as to adequateness of the information for the purpose of AA and for the biodiversity assessment.

2.0 **Proposed Development**

The proposed development comprises further development within the existing Landfill on a 135.2 Ha site in the townlands of Knockharley, Flemingstown and Tuiterath, Navan Co. Meath. A full description is provided in the Inspectors report and a summary is provided below:

- An increase in the rate of waste acceptance up to 440,000 tonnes per annum comprising up to 435,000 tonnes of non-hazardous wastes (including incinerator bottom ash (IBA) as well as household, commercial and industrial wastes including residual fines, non-hazardous contaminated soils, construction and demolition (C&D) wastes and baled recyclables, and up to 5,000 tonnes of stable non-reactive hazardous waste).
- The acceptance and placement within the existing permitted landfill footprint of incoming wastes for recovery or disposal and increasing the height of the landfill body from the current permitted post settlement final contour height of 74m OD to a final contour height of 85 m OD.
- The construction and operation of a dedicated Incinerator Bottom Ash (IBA) facility.
- The construction and operation of a processing building [108m x 50m x 17 m maximum height] for the biological treatment of the organic fraction of municipal solid waste (MSW) (i.e., MSW 'fines' material).
- The construction and operation of a leachate management facility at the site including 3 no. additional leachate storage lagoons, bunded above ground tanks for raw leachate (2 no.) and treated leachate (3 no.), extension of loading area and addition of 1 new tanker loading area, continued operation post filling of landfill cells to facilitate continued leachate management.
- The construction of screening berms up to 10m maximum height at the western and eastern boundaries and up to 6m maximum height at the northern boundary with a total berm footprint of approx. 11.3 hectares.
- The construction of surface water management infrastructure with discharge to the adjacent Knockharley River at the northern end of the permitted landfill footprint and proposed IBA cell to comprise: (i) holding pond; (ii) storm water

attenuation lagoon; (iii) wetland; (iv) flood compensation culvert to provide equivalent 1:1000-year flood plain storage and (v) permitted stream diversion around permitted development.

- The relocation of an existing 20kV overhead ESB powerline serving the facility administration buildings and the construction of two additional ESB sub stations.
- The extension of the existing car park for the administration area to provide 40 no. additional car parking spaces.
- The extension of existing permitted below ground infrastructure and the provision of additional below ground infrastructure including power, water, telemetry, leachate rising mains, and drainage together with all associated and ancillary works necessary to facilitate the proposed development at the subject site.

The Planning application is supported by an Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) prepared by Fehily Timoney (December 2018) on behalf of the applicant.

As outlined above the proposed development is an expansion of an already operational and active landfill and waste management site, wholly within the land boundary of the site. The proposed development will require expansion into areas of the site that are currently 'green field' including grassland and planted semi-mature mixed woodland.

The proposal is not located within or adjacent to any European Site. The River Boyne, Blackwater SAC and River Boyne SPA are the closest European Sites located within 5.5 km to the North of the Knockharley landfill site boundary. However, the Knockharley site and the minor watercourse (Knockharley River /EPA named Flemingstown 08) that crosses the site are not within the River Boyne Catchment and thus have no hydrological connection to that system[1]. The Knockharley/Flemmingstown stream is a tributary of the River Nanny, a catchment area that includes, Duleek and Julianstown to the East, and reaching the sea at Laytown, within the River Nanny Estuary and Shore SPA (some 22km downstream).

[1] EPA Maps

Other possible ecological connections between the development site and European Sites are investigated in the application and further information response.

3.0 **Request for further Information- Peer Review by FERS**

As outlined above, the Board made a request for further information on various topics including biodiversity, AA screening report and the NIS to the applicant on the 16th May 2019. This was largely based on the Peer Review Report commissioned by Meath County Council and undertaken by FERS (February 2019) on the biodiversity chapter of the EIAR, the AA Screening Report and the NIS. At the oral hearing it was confirmed that this was a desk-based review with no site visit undertaken.
The review by FERS was highly critical of the application, citing numerous deficiencies and critical flaws. The review went so far as to deem the findings of the Biodiversity Chapter, the AA Screening and the NIS not fit for purpose. The main issues raised are summarised below.

Main issues (FERS): Biodiversity:

- Lack of detail regarding the methodology used for any of the ecological surveys and personnel who carried out the surveys.
- Data used in desk study: records of protected species and GIS
- Flora and habitats: lack of detail on qualitative and qualitative botanical survey, no records of lower plants (moss, liverwort, lichen), no assessment of presence of ecological stepping-stones (Article 10 Habitats Directive)
- Birds: lack of detail on survey methodology, dedicated surveys should have been undertaken for breeding waders, raptors, whooper swan, Golden Plover, Barn Owl
- Mammals (general): lack of detail on surveys, question surveys of woodland, data out of date?
- Otter: lack of detailed otter survey in 2015
- Bats: lack of detail on survey methods and results (qualitative and quantitative)

- Other fauna: little information on reptile, amphibian or invertebrates and no dedicated surveys undertaken.

Main issues (FERS): AA Screening Report and NIS

- Failure to correctly identify potential impacts on Natura 2000 sites within the zone of influence.
    - Dispute the lack of connections to the River Boyne system
    - Presence of Otter and Kingfisher both qualifying interests of the Boyne indicate a possible connection.
    - Possible connection to Boyne Estuary SPA and Boyne Coast and Estuary SAC
    - Potential for impact (ex situ) on foraging Golden Plover (SCI of both River Nanny Estuary and Shore SPA and Boyne Estuary SPA)
- As the AA Screening fails to include sites that could potentially be impacted, the NIS considered redundant.
- Data relied upon in NIS from NPWS Natura 2000 data form out of date.

4.0 Response to request for further information and evidence presented at the oral hearing.

Following on from the An Bord Pleanála request for further information, Fehily Timoney submitted a detailed response on behalf of the applicant (October 2019). The information included results from additional and updated ecological surveys undertaken at the development site.

4.1. Information in response to peer review: EIAR, Biodiversity

Part 1 of the applicants' response to the FERS report clarifies and addresses each of the issues raised. The applicant strongly challenged the FERS contention that the

Biodiversity chapter is not fit for purpose and provides greater detail and clarification on each issue to counter such assertions.

The response includes the results of continued ecological/biodiversity surveys carried out at Knockharley Landfill over the 2018/19 winter period and in 2019. The ecological surveys are stated to be part of the ongoing environmental monitoring at the existing landfill development but also supplement the ecological baseline. The surveys include more detailed botanical survey including transects, detailed bird surveys (winter and breeding), updated mammal and bat surveys, aquatic surveys and the inclusion of a survey for Viviparous Lizard, a relatively uncommon survey to be undertaken in any ecological assessment. This additional survey effort and data does bolster the information available for the assessment of significant effects and provides greater detail on survey methodology and who undertook the surveys.

At the oral hearing, Mr Patrick Moran (FERS) confirmed that most of the issues he had raised in the peer review had been improved upon significantly in the response document related to the EIAR, Chapter 10-Biodiversity, providing a more in-depth analysis compared to the original application. However, he outlined a number of issues remained that were not *scientifically secure* namely, the presence of Otter on the site and possible effects, uncertainty as to use of the site or lands adjacent by Golden Plover (winter foraging) and uncertainty as to the impacts on Whooper Swan from the proposed realignment of the electricity line. My review will focus mainly on these issues and the adequateness of the information before the Board to complete the assessment.

At the outset, the response document provides detailed information on the ecologists (including experience and competencies) who carried out the surveys (2018/2019) and I note from examination of the original application that it appears to be a much-expanded team (details of only three ecologists are provided in section 1.8 Contributors to the EIAR, Table 1.1).

A section is included in the additional information (Section 1.3) on *soils, historical habitats and management* which aims to put the development site in contex*t* in terms of the ecological value of the site- it is and has been an intensively managed landfill site since approximately 2010, and intensively managed for agriculture prior to the development of the landfill. The woodland, hedgerow, Knockarley River and unmanaged grassland habitat around the periphery of the site have been evaluated as being the only habitats of local biodiversity importance – higher value (from NRA[2]). The woodland around the site is relatively immature mixed woodland, planted to screen the landfill site and not a mature diverse stand. This aspect, of an already much altered and active site, does not appear to have been acknowledged in the FERS peer review report and is quite central in terms of the proportionality of the approach to the ecological assessment taken by the applicant (see note on proportionality below). In his overview of the information at the oral hearing, Mr Carl Dixon (for the Applicant) stated that the level of survey undertaken as part of the updated surveys represented an unusual level of effort for a site as modified as the development site and that nothing recorded in the additional surveys changed the original conclusions.

At the oral hearing, Mr Moran confirmed that he did not visit Knockharley landfill site or the immediate area around the site at any time during his review.

Otter

The concern expressed by Mr Moran in the peer review and at the oral hearing related to the fact that the presence of otter at the site could be significant in terms of an ecological connection to the River Boyne Blackwater SAC in terms of this qualifying interest species. The lack of hydrological connections to the River Boyne catchment is a primary factor in the screening out of this European Site from further assessment in the NIS and is discussed in section 4.2 below.

[2] NRA (National Roads Authority) (2009) Guidelines for the Assessment of Ecological Impacts of National Road Schemes (Rev 2). NRA, Dublin.

There is no uncertainty that Otter is occasionally present at or near the landfill site with signs recorded along the Knockharley River over the various surveys conducted at the site. The 2019 surveys were consistent in terms of the findings of the EIAR, which noted Otter spraint and territorial markings were found along the Knockharley River, and an Otter spraint and the remains of foraged frogspawn were located along a drain in the northeast of the site but no evidence of breeding (i.e. an Otter holt) was found. Otter are likely to travel along the Knockharley river communing overland and as outlined by Mr Moran to take advantage of opportunistic foraging on frog spawn in springtime[3] .

Research from NPWS shows that territories of otter in lowland rivers with fish rich feeding resources only need to maintain small territories (1- 2km), but on smaller rivers and in upland areas, where food tends to be less abundant, otter territories can stretch to 10 or 15 km. Given the lowland nature and resource rich status of the River Boyne and distance of over 5 km with no hydrological connection and relatively low/weak levels of other ecological connections, such as the local hedgerow network which is disrupted by with multiple roads and a railway line in the interviewing habitat, I consider it unlikely that the Knockharley river forms any significant part of the River Boyne Otter populations wider resource needs.

Otter is also listed on Annex IV of the Habitats Directive which provides for strict protection of these species outside of European Sites (see Regulation 51 of European Communities (Birds and Natural Habitats) Regulations, 2011-2015)[4]. The applicant has shown that no breeding sites or resting places will be affected and any temporary disturbance to otter that may occasionally commute or forage along the Knockharley River will not be significant and there is no requirement for any derogation license in relation to this species.

[3] Otter Leaflet 4 (npws.ie)
[4] S.I. No. 477 of 2011, as amended by S.I. No. 290 of 2013, S.I. No. 499 of 2013, S.I. No. 355 of 2015.

Bird surveys including wintering birds:

The detail of all bird surveys and competencies of the ecologists are clarified, and additional surveys of specific birds were undertaken. Clarification is provided as to the unsuitability of the wet grassland habitat for breeding waders and a survey conducted to evidence that further.

Golden Plover

The peer review and evidence by Mr Moran at the oral hearing suggested that there was a possibility of Golden Plover, a wintering bird species and special conservation interest species for both the River Nanny Estuary and Shore SPA and the Boyne Estuary SPA to utilise grassland habitat in and around the landfill site as ex situ feeding areas. Surveys undertaken by the applicant in 2008 recorded golden plover in fields adjacent to the (then proposed) landfill site, but there have been no subsequent records of them adjacent or on the site since.

Mr Moran questioned if a specific survey was to be conducted and the use of infrared/ thermal imaging should be employed to determine night-time feeding. Mr. Dixon responded for the applicant reiterating that it is not necessary to extend survey effort to this species. There is no evidence that this active landfill site is of particular significance for this species and there is a point where the line is drawn on survey effort. He stated that has never encountered a scenario where thermal imaging would be used for a development type such as that under examination. (Note that thermal imaging is used where there is a risk of collision for birds such as a windfarm development but no such risk exists at this proposed development site).

Having visited the site, I can confirm that it would be highly unlikely that it could provide any feeding resources that wouldn't be available in the wider countryside, surrounded as it is by agricultural grassland and arable farming. The undertaking of dedicated survey for this species is not required and would be disproportionate. Even if Golden Plover did occasionally forage in grassland near the landfill site, as the site

has been in operation for many years, the proposed expansion of the operation within the site boundary would not have any significant effect on their use of neighbouring lands.

Whooper Swan

The concern expressed in the peer review at the oral hearing in relation to Whooper Swan is primarily concerned with the movement/realignment of an overhead electricity line. This species can be at risk of collision with overhead electricity lines and a change in the baseline organisation of the 'wire scape' may be a collision risk for birds flying between foraging and roosting sites during the winter period in the area. (Note there are no records of Whooper swan foraging in or near the Knockharley landfill site or flying over the site). Mr Moran stated that his company undertakes surveys of the Whooper Swans and Golden Plover that roost at the Tara Mines tailing ponds and there is some uncertainty as to the movements of those birds in the wider countryside and possibly between SPA sites as they move out to foraging sites.

It was clarified at the oral hearing that the overhead line in question is a low voltage line -20kV that connects to the service building and **not** the high voltage 220kV line along the western boundary of the site. The movement of this lower voltage line would not cause any significant change to the current baseline. At the hearing it was clarified that there has never been a known record of a bird collision with the 220kv line. The possibility of any effects on Whooper Swan are therefore excluded.

Ecological connections

It is clear from the evidence presented at the oral hearing, further information and the original application documents that the existing active landfill site at Knockharley and its currently undeveloped areas of modified and semi natural habitats do not represent features that are of major importance for wild flora and fauna, such as those with a stepping-stone and ecological corridor function as referenced in Article 10 of the Habitats Directive.

The continued development of the landfill site will result in the loss of habitat but this has been shown to be not significant in terms of the severance of any high value ecological connections with the wider countryside.

Guidance followed in the preparation of the Biodiversity assessment:

The methodology followed by Fehily Timoney in the biodiversity assessment (Chapter 10 EIAR) includes the *Guidelines for ecological impact assessment in the UK and Ireland* (Chartered Institute of Ecology and Environmental Management)[5]. The guidance is very clear that '*the level of detail required in an ecological impact assessment will inevitably be proportionate to the scale of the development and complexity of its potential impacts*'. This is of relevance as the issue of the proportionality of survey effort was a central theme in the peer review. The Guidelines do not prescribe exactly how to undertake an ecological/biodiversity impact assessment (EcIA) but provide guidance to practitioners for refining their own methodologies[6]. The guidance goes on to state that when scoping the ecological/ biodiversity assessment it should be '*proportionate to potential effects on ecological features*. *Professional ecologists need to use their knowledge and experience to judge the resources required to complete an adequate and effective EcIA. Emphasis in EcIA is on 'significant effects' rather than all ecological effects.*

At the oral hearing, I asked if Mr Moran had assessed the Biodiversity chapter against the CIEEM guidelines (see also CIEEM EcIA checklist[7]) and he confirmed that he had not. Rather he examined the biodiversity chapter against the individual requirements for various surveys. The Peer review was concerned with the lack of attention to detail and lack of information on who conducted the surveys, the timing of surveys, weather conditions, lack of a scientific approach and that individual survey methodologies were not clearly set out.

[5] https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf
[6] Differing Scales of Ecological Impact Assessment (EcIA) and a Proportionate Approach- from CIEEM Guidelines for ecological impact assessment in the UK and Ireland: pg 10
[7] EcIA-Checklist.pdf (cieem.net)

Overall, I consider that the combined information from Chapter 10 of the EIAR, the additional information provided in the response documents and clarifications provided at the oral hearing are more than adequate for the Inspector and the Board to undertake their assessment and beyond what is normally required for such developments. In summary:

- the technical content of ecological information is sound and includes adequate and up-to-date data, ecological methods have been clarified and are in general in accordance with good practice, with any departures from good practice made clear.
- The ecological features likely to be affected have been identified and all potential impacts are described adequately.
- The magnitude of effects are evaluated and where these are significant are capable of being mitigated.
- It has been adequately demonstrated that the proposal will deliver stated outcomes, with regard to likely effectiveness and certainty over deliverability of mitigation and monitoring measures.
- The measures are capable of being secured through appropriate planning conditions.

4.2. Information in response to peer review: AA Screening and NIS

The main contention in the peer review and reiterated at the oral hearing by Mr Moran (FERS) was that the Applicant incorrectly screened out the potential for likely significant effects on European Sites including the River Boyne and Blackwater SAC, River Boyne and Blackwater SPA and further downstream, the River Boyne coast and Estuary SAC and the Boyne Estuary SPA.

The peer review undertaken by FERS correctly identified the hypothetical connection between the Knockharley landfill site to River Boyne and Blackwater SAC and SPA (and associated estuarine European sites downstream) as the River Boyne lies some 5.5km North of the landfill site and records of Otter and kingfisher from the site which

are also qualifying interest species of the SAC and SPA may indicate some connection.
The applicant did consider these issues in the AA Screening report and in the response document and came to the same conclusion in both examinations that there is no likely ecological connection between Knockharley and the River Boyne and that likely significant effects on those sites associated with the River Boyne could be excluded.

The lack of hydrological connections (surface water) and separate catchment area has been clearly demonstrated in the application and reaffirmed in the further information documents. There is no possibility that surface water or ingress of potentially polluting substances to the Knockharley river could reach the River Boyne system. The possibility of other ecological pathways are examined in detail in the AA screening report including the consideration if the evidence of Otter along the Knockharley River could be connected to the QI feature Otter for the River Boyne Blackwater and could the (occasional) observation of Kingfisher at the site be connected with the River Boyne SPA population. The lack of hydrological connections such as streams and drainage channels to the River Boyne further decreases this possibility.

There was some further discussion on this topic at the oral hearing. Mr Dixon for the Applicant explained that ecologists can differ in their approaches to screening but that he would likely have come to the same conclusion as the Applicant. On balance, I am of the opinion that the applicant has taken correct approach. In taking the source, pathway receptor model, ecological pathways have been excluded and knowledge of the site built up from surveys and catchment data support the conclusion.

The Knockharley river is a tributary of the River Nanny and at the point where it leaves the south east of the landfill site is some 22km upstream of the River Nanny

Estuary and Shore SPA. The distance between the potential source (landfill site) and the receptor (the SPA) makes this a relatively weak ecological connection and the screening in of this site for appropriate assessment is considered precautionary by the Applicant.

It is highly unlikely that any construction related emission could reach the River Nanny Estuary and Shore SPA and cause any effect given the distance to the site and dilution effect of the river system. The most significant issue in the development and operation of a waste facility is the management of leachate and the protection of watercourses from any adverse effects. An operational impact resulting from a leachate breach may cause an impact that could affect the downstream environment and possibility the receiving estuarine muds that are feeding grounds for wintering birds of the River Nanny Estuary and Shore SPA. As the application of any measures intended to avoid or prevent negative effects on European sites is not permitted to be considered in the screening of likely significant effects, the applicant is correct in preparing a NIS with a detailed assessment and the application of mitigation to prevent water quality issues down-stream at both construction and operation stage of the proposed expansion of activities at Knockharley.

The contention raised in the peer review and at the oral hearing that by virtue of the fact that the River Nanny Estuary and Shore SPA is screened in for AA, the Boyne Estuary SPA should also be screened in as these sites share a number of qualifying interest bird species including Oystercatcher, Golden Plover, Knot and Sanderling and that there is likely to be interaction of birds between the two sites; i.e., could the possibility of a significant effect on the qualifying interest *wetlands and waterbirds* on the River Nanny Estuary and Shore SPA have a significant knock-on effect on species associated with the River Boyne Estuary SPA? This issue was addressed in the response document and also by Mr. Dixon acting on behalf of the Applicant. Mr Dixon expressed his doubt that any effect on QI species associated with the River

Boyne Estuary SPA was likely given the weak connection to the River Nanny Estuary and Shore SPA.

Overall, I consider that the information provided by the applicant in response to the various issues raised in the peer review commissioned by Meath County Council and at the oral hearing, to be comprehensive and the assertion of critical flaws and scientific doubt as to the adequateness of the biodiversity assessment, AA screening and NIS can be dispelled.

5.0 **Conclusion**

Following an examination and evaluation of the material submitted as part of the request for further information, discussion and clarifications at the oral hearing, my findings are that the information before the Board comprehensively addresses all issues raised. I consider that the information provided is more than adequate to address the queries of the Board and ensures that all aspects of the project can be assessed to provide for complete, precise, and definitive findings for the purpose of Appropriate Assessment and the Biodiversity assessment as part of the EIA.

My examination and analysis of the information is that significant effects on Biodiversity will be avoided. The proposed development is within an already active landfill site with a number of habitats along the margin of site of local importance only.

There will be no significant impacts on species for which Article 12 of the Habitat Directive applies (strict protection regime for animal species listed in Annex IV(a)) including Bats, Otter or Kingfisher which is listed on Annex I of the Birds Directive. There will be no significant effects on any other protected species.

The site is not located within or close to any European Site and with the application of mitigation and monitoring measures designed to prevent any negative operational effects on water quality, adverse effects on the only ecologically connected site, the River Nanny Estuary and Shore SPA, will be avoided.

Maeve Flynn BSc. PhD, MCIEEM
Inspectorate Ecologist

20th Jan 2021

6.0 **Appendix: Record of site visit (see also photographic record)**

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Surveyor: M. Flynn	Date: 09.12.2020	Start time: 11:40 End time: 13:20
Project: 303211-18	Site: Knockharley	Weather: overcast → rain
Species of note: n/A	Habitats of note: n/A	Invasive spp: n/A

Ref #	Notes
	Purpose of visit: Familiarise with site in advance of oral hearing (scheduled from 16.12.2020); Confirm habitats on site. For safety, accompanied by site manger (Sean Smyth) and driven around site in 4x4. Stop off points P1 – P6 (on map).
P1	From viewpoint an elevated area on landfill (near active cells 15/16) - view to North of the site - Spoil + Bare Ground (ED2) from excavations. Unmanaged grassland; tussocks - conforming to GS4/GS2 on habitat mapping. Immature mixed broad leaved woodland (WD2) all along N, W boundary.
P2	NE of site - through planted broadleaved woodland (WD1) - Immature - limited ground flora diversity, grass dominated. Confirms to habitat map. Dom. spp. ash, Alder, Sycamore, no shrub layer - besides bramble. Conforms to Relevés undertaken in survey update / RFI. Area of N. Surface Water attenuation lagoon
P3	- Knockharley/Flemingstown stream. Heavily silted stream @ this location
P4	Access on elevated spoil heap - view towards W boundry - mixed woodland.
P5	View towards area id as wet grassland (GS4/GS2) / Dry meadow lower lying area - poor drainge - sloping towards stream - Juncus tussocks dom. in places - conforms with updated habitat Descriptions. Not Annex I
P6	Improved ag. Grassland (GA1) - 20kV line to be moved located here.

Ecology site visit field notes v1_ABP


LEGEND
Planning Boundary
Ownership Boundary
Existing Wayleave
Ground Contours
Existing Watercourse
Landfill Cells currently being filled (2017/'18)
Constructed Landfill Cells
Final Forested Areas
Permitted Landfill Cells, To Be Constructed
Proposed IBA Facility
IBA, Cell 33 (Outline Only Shown For Clarity)
Proposed Screening Berms with New Replanting
Proposed Stream Diversion
Existing Berm
Options considered:
• Option 1 – IBA storage facility – east of the existing permitted landfill footprint
• Option 2 – IBA storage facility - west of the existing permitted landfill footprint
• Option 3 – Biological treatment facility Location 1
• Option 4 – Biological treatment facility Location 2
OPTION 1
OPTION 2
OPTION 3
OPTION 4
SITE NOTICE LOCATION
TUITERATH
KNOCKHARLEY
PHASE 1
PHASE 2
PHASE 3
PHASE 4
PHASE 6
PHASE 7
Proposed Flood Compensatory Culvert & Emergency Spill / Knockharley Stream
Proposed Northern Surface Water Attenuation Lagoon
Proposed Surface Water Holding Pond
Proposed IBA Facility
Proposed Overhead Electricity Supply
Proposed Wetland
Permitted Stream Diversion
Proposed Forestry Compensatory Planting
Proposed Electricity Sub Station 1
Permitted Cell Development
Proposed Increase In Contour Height
Proposed Wheelwash
Existing Wheel Wash
Existing Landfill Offices
L1-Existing Leachate Lagoon
Proposed Relocation / Undergrounding Of Electricity Supply
Existing Cattle Underpass
Existing Underpass
Proposed Extension To Leachate Management Facility
Proposed Leachate Lagoons With Floating Covers
Proposed Electricity Sub Station 2
Proposed Biological Treatment Facility
Existing Landfill Gas Compound
Existing Screening Berm
Existing Southern Surface Water Attenuation & Wetland
Existing gas main
EXISTING GAS MAIN
Area under construction
Quarry
Ruin
Rev. A
Drawn: SK
Chkd: JJC
Appd: BG
Cork
10.07.18
Issue For Planning Application
Description
Name of Client
KNOCKHARLEY LANDFILL LTD.
Name of Job
PROPOSED DEVELOPMENT AT KNOCKHARLEY LANDFILL
Title of Drawing
ASSESSMENT OF ALTERNATIVES
Scales Used
1:3750
Dwg. No.
LW14-821-01-P-0000-012