ENVIRONMENTAL BALANCE IN DESIGN AND CONSTRUCTION

KNOCKHARLEY LANDFILL LTD.

ENVIRONMENTAL IMPACT ASSESEMNT REPORT (EIAR) FOR THE PROPOSED DEVELOPMENT AT KNOCKHARLEY LANDFILL

VOLUME 2 – MAIN EIAR

CHAPTER 16 – SCHEDULE OF ENVIRONMENTAL COMMITMENTS

NOVEMBER 2018

Knockharley Landfill Ltd.

Kentstown, Navan,Co.Meath

FEHILY TIMONEY & COMPANY

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1 SCHEDULE OF ENVIRONMENTAL COMITTMENTS

1.1 Introduction

This document summarises the mitigation measures (environmental commitments) in the Environmental Impact Assessment Report for the proposed development.

Population & Health

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Population & Health			
N/A	6.6.1	Population No mitigation measures are proposed in relation to population, given the lack of significant direct construction and operational phase effects resulting from the proposed development. Appropriate mitigation measures for potential significant indirect effects on population and settlements associated with traffic, noise and air emissions are identified in full in their respective chapters of this EIAR, and are summarised hereunder for ease of reading.	N/A
N/A	6.6.2	Land Use No mitigation measures are proposed in relation to land use, given the lack of significant direct and indirect effects on land-use beyond the proposed development boundary.	N/A
N/A	6.6.3	Socio-Economics, Employment and Economic Activity No mitigation measures are proposed in relation to local employment and economic activity as the proposed development is considered as having positive, direct and indirect effects during the construction and operational phases.	N/A
N/A	6.6.5	Human Health No further mitigation measures are required beyond those set out in Chapters 7 Air and Climate, 9 Noise and 12 Hydrology and Surface Water Quality in Volume 2 of this EIAR.	N/A
N/A	6.8	Monitoring associated with potential significant indirect effects from noise, air emissions and surface water quality is proposed in respective sections of this EIAR.	N/A

Air Quality & Climate

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Air Quality & Climate			
1	7.5.1.1	All vehicles will comply with the onsite speed limit. The speed limit will be reduced appropriately on internal haul routes in extremely dusty environments	Construction
2	7.5.1.1	Stockpiles will be sprayed during periods of dry weather in order to suppress dust migration from the site	Construction
3	7.5.1.1	The earthen berms will be replanted in forestry immediately following construction in order to establish vegetated cover to prevent windblown erosion and associated dust emissions.	Construction
4	7.5.1.1	A water bowser will be available to spray work areas, especially during periods of infill activities coinciding with dry periods of weather, in order to suppress dust migration from the site.	Construction
5	7.5.1.1	The earthworks foreman will inspect internal haul roads as part of his daily supervision of the site.	Construction
6	7.5.1.1	The developer in association with the contractor will develop and implement a dust control plan. This plan will address aspects such as excavations, filling activities & temporary stockpiling. The plan will be prepared prior to any construction activities and will be established and maintained through the construction period.	Construction
7	7.5.1.1	Site roads shall be regularly cleaned and maintained as appropriate. Hard surface roads shall be swept to remove mud and aggregate materials from their surface while any un-surfaced roads shall be restricted to essential site traffic only. Furthermore, any road that has the potential to give rise to fugitive dust shall be regularly watered, as appropriate, during dry and/or windy conditions.	Construction
8	7.5.1.1	Public roads outside the site shall be regularly inspected for cleanliness and cleaned as necessary. Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind. Water misting, or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods.	Construction
9	7.5.1.1	Vehicles exiting the site will use the wheel wash at the administration area to mitigate track out onto the public road.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
10	7.5.1.1	All loads which could cause a dust nuisance will be covered to minimise the potential for fugitive emissions	Construction
11	7.5.1.2	No mitigation measures are proposed in relation to vehicle emissions, as the predicted vehicle emissions associated with the proposed development are within the relevant air quality guidelines.	Construction
12	7.5.2.1	The existing access road from the N2 to the administration area is surface sealed as are other internal roadways where required. The IBA facility haul roads will be surfaced to mitigate dust.	Operation
13	7.5.2.1	Speed limits are in place on site to mitigate dust nuisance.	Operation
14	7.5.2.1	The access roads and internal site roads will be sprayed during periods of dry weather to suppress dust migration from the site.	Operation
15	7.5.2.1	All HGVs leaving the site are and will be required to pass through the wheel wash.	Operation
16	7.5.2.1	A water bowser and road sweeper will be used daily to control dust nuisance.	Operation
17	7.5.2.1	All IBA handled at the facility will be handled at an appropriate moisture content to prevent dust emissions	Operation
18	7.5.2.1	Waste including IBA will be hauled in covered trucks to prevent windblown dust.	Operation
19	7.5.2.1	All waste disposed of in the landfill is covered daily.	Operation
20	7.5.2.1	A monitoring programme at the site will continue to measure dust and PM_{10} in accordance with the IE licence for the facility	Operation
21	7.5.2.1	A biofilter will remove dust emissions generated from the biological waste treatment building and therefore preventing any release of dust to the atmosphere.	Operation
22	7.5.2.1	All waste handling at the biological waste treatment facility including handling of finished product will be carried out indoors under negative air pressure and the building will be fit with fast action roller shutter doors.	Operation
23	7.5.2.2	No mitigation measures are proposed in relation to landfill gas plant onsite, as the landfill gas plant is within the relevant air quality guidelines.	Operation
N/A	7.5.2.3	No mitigation measures are proposed in relation to the vehicle emissions onsite, as the predicted emissions are within the relevant are quality guidelines.	N/A

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
24	7.5.2.4	Scrutiny and screening of waste intake to prevent particularly odorous material being accepted at the landfill for disposal. Regular patrols of the site will be undertaken to identify any odour problems and any complaints received will be promptly investigated.	Operation
25	7.5.2.4	The immediate compaction of the waste within a small controlled area will minimise the available area for odours to escape from the daily tipping area. Additionally, operating procedures at the facility will require immediate landfilling of waste once tipped or ejected from trailers.	Operation
26	7.5.2.4	The primary odour control measure is the use of daily cover in accordance with the provisions of the licence. Daily cover comprises a minimum of 150 mm of soil-like material covered with a 100 mm deep layer of woodchip, the microbial population on the latter being a well-documented medium used to treat odorous compounds in bio-filters. Before being covered the waste is compacted.	Operation
27	7.5.2.4	Leachate is removed regularly by a licensed waste contractor thus minimising the potential for odours which can form as a result of leachate stagnating and becoming anaerobic. The leachate lagoon is covered and exhaust fumes from the vacuum tankers are vented through carbon filters. Any additional leachate tanks and lagoons will be property enclosed and maintained at all times.	Operation
28	7.5.2.4	A mobile fog spray system is present on site and is used as required.	Operation
29	7.5.2.4	Long term odour control will be achieved via the active landfill gas extraction system, which collects landfill gas under negative pressure, reducing the potential for odours to be released in an uncontrolled manner. This is a requirement of the existing licence and any future licence. The design of the landfill gas extraction system is subject to EPA approval. The design of the system will mitigate uncontrolled landfill gas.	Operation
30	7.5.2.4	Daily checks of the landfill gas field and combustion plant shall be undertaken to ensure optimum operation. Monitoring of internal and external landfill gas wells is carried out in accordance with the licence.	Operation
31	7.5.2.4	The use of odour assessments and VOC surface emission surveys in accordance with the licence and the EPA guidance documents to determine any issues that may have a potential impact and implementation of mitigation measures.	Operation
32	7.5.2.4	The existing gas extraction system will comprise of horizontal sacrificial gas extraction pipework in the waste disposal cells (to facilitate extraction, under negative pressure,	Design

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
		of landfill gas, as may be required in cells designated for the placement of non-stabilised waste)	
33	7.5.2.4	The existing gas extraction system will comprise a network of vertical landfill gas extraction wells (constructed progressively with the development of the landfill, at 50 metre lateral and longitudinal centres. Additionally, vertical wells shall be drilled into the waste as required and determined by surveys of fugitive emissions, in order to minimise or eliminate landfill gas migration. The additional drilled wells shall be installed between the constructed main gas extraction wells, so as to reduce the distances between the individual wells and to increase the capture rate of landfill gas. Where appropriate, sacrificial vertical "pin" or "spike" wells will also be installed. It shall be ensured that the vertical gas wells are sealed at surface with bentonite as required in order to minimise the ingress of oxygen and the potential for migration of landfill gas.)	Design
34	7.5.2.4	All vertical and horizontal landfill gas extraction wells shall be connected to the gas collection pipe network which shall consist of a 355 mm ring main around the landfill footprint and 180 mm branches laid across the landfill surface. Each individual landfill gas well, as well as each individual branch shall, prior the point of connection into the next higher collection level (i.e. well-branch connections and branch-ring main connections) be equipped with shut-off valves in order to enable flow restriction or isolation of individual wells or branches.	Design
35	7.5.2.4	To continuously remove condensate from the landfill gas extraction network and therefore avoid uncontrolled flow restriction and pulsating, the ring main shall be connected to the gas flaring and utilisation plant via condensate knockout pots. The condensate accumulating in these pots shall be removed by pneumatic/electric pumps and piped back into the leachate riser pipes, from where it can drain to the cell base and be removed with the leachate.	Design
36	7.5.2.4	The landfill gas collected in the landfill gas extraction and collection network shall, after passing through the condensate knockout pots, be flared off in an enclosed flare or utilised in landfill gas combustion engines with electricity generation, as appropriate. Contingency arrangements are currently in place in accordance with the licence to avoid gas venting in the case of plant failures.	Design
37	7.5.2.4	Operational procedure for the operation of landfill gas flares addresses the operational requirements to optimise the combustion rates and maintain compliance with emission limits and monitoring requirements. Any significant downtime of landfill gas flares or other utilisation equipment shall be logged by Bioverda Power Systems (landfill gas plant operator). Should significant downtime of landfill gas flares or other utilisation	Design

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
		equipment occur and cause potential for environmental pollution, the Environmental Protection Agency shall be notified.	
N/A	7.5.2.5	No specific mitigation measures are proposed in relation to climate.	N/A
38	7.6.1	Monitoring of landfill gas, dust, odour and PM_{10} monitoring will continue in compliance with the IE licence for the site.	Operation
39	7.6.1	Landfill gas perimeter monitoring wells will be installed 12 months prior to waste acceptance at 50 m centres outside the landfill body. In-waste wells will be installed during and following landfilling.	Operation
40	7.6.1	Stack emissions monitoring will continue in compliance with the licence.	Operation
41	7.6.1	Monitoring of bioaerosols will be included in the new monitoring regime. New monitoring points relevant to the proposed development will be included in future monitoring.	Operation
42	7.6.1	A continuous monitoring system under SCADA control will monitor the operation of the air control system at the biological waste treatment facility. Any deviations in key design parameters will be detected and appropriate preventative maintenance will be undertaken to minimise air emissions.	Operation

Roads, Traffic & Transport

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Roads, Traffic & Transportation			
43	8.6	No mitigation measures are required to facilitate the proposed development, save for a commitment to adhere to the existing HGV routing arrangements.	Construction & Operation
44	8.6	The traffic management plan, included with the outline CEMP in Appendix 2.0 in Volume 3 will be followed during the construction phase.	Construction

Noise & Vibration

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Noise & Vibration			
45	9.7.1	The noise impact for construction works traffic will be mitigated by restricting movements along access routes to the standard working hours and exclude Sundays, unless specifically agreed otherwise.	Construction
46	9.7.1	The construction works on-site will be carried out in accordance with the guidance set out in BS 5228:2009+A1:2014, and the noise control measures set out in Appendix 2.0 outline Construction Environmental Management Plan (CEMP) in Volume 3 of this EIAR.	
47	9.7.1	A site representative responsible for matters relating to noise should be appointed	
48	9.7.1	Noise monitoring at noise sensitive locations should be performed during critical periods	
49	9.7.1	The hours of construction activity will be limited to avoid unsociable hours. Construction operations shall be restricted to between 07:30 hours and 18:30 hours Monday to Saturday in accordance with the IE licence, unless specifically agreed otherwise.	Construction & Operation
50	9.7.1	Avoid unnecessary revving of engines and switch off equipment when not required.	Construction & Operation
51	9.7.1	Keep internal haul routes well maintained and avoid steep gradients.	Construction & Operation
52	9.7.1	Select equipment conforming to international standards on noise and vibration.	Construction & Operation
53	9.7.1	Select equipment with quiet and low vibration emissions, and ensure equipment is regularly maintained ensuring it operates in an efficient manner. If possible, all mechanical plant will be fitted with effective exhaust silencers.	Construction & Operation
54	9.7.1	Compressors will be of the "sound reduced" models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.	Construction & Operation
55	9.7.1	Locate equipment as far away as noise sensitive receivers as possible within constraints of the site.	Construction & Operation

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
56	9.7.2	Where reasonably practicable planning of Berm A and B construction phase to take account of potential short-term noise impacts, including starting closest to receptor and building away to mitigate potential ongoing berm construction noise impact.	Construction
57	9.7.2	Where reasonably practicable orientate plant to minimise the noise impact on nearby receptors where practicable	Operation
58	9.7.2	Where reasonably practicable erect temporary noise barriers where practicable to provide acoustic screening	Operation
59	9.7.2	Where reasonably practicable ensure that noisy plant and equipment are not used for long periods of time and at inappropriate times	Operation
60	9.7.2	Where reasonably practicable works will be phased and on-time reduced to lower the noise impact.	Operation
61	9.7.2	Carrying out regular monitoring of noise levels as per requirements of the licence. Carry out additional monitoring during critical periods	Operation
62	9.7.2	Investigate and record noise complaints and take action to mitigate where levels are above the licence limit as is the case as part of the current operations at Knockharley landfill.	Operation
63	9.7.2	The programme for construction and filling of cells was developed to minimise noise impacts were practicable. Cells 27, 28 and 29 will be filled in a manner that minimises the noise impact by starting closest to receptors and moving away so that the filled cells will also be used as berms to minimise the noise impact on nearby receptors.	Construction & Operation
64	9.9	Monitoring of noise levels on site will be a requirement of the IE licence for the site. These limits will be applied from the commencement of waste acceptance during the operational phase of the development.	Operation
65	9.9	Noise monitoring will be undertaken during in accordance with the Site's IED licence conditions.	Construction & Operation

Biodiversity

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Biodiversity			
66	10.6.1.1	Treelines and hedgerows will be retained where possible.	Construction
67	10.6.1.1	Where retention is not possible vegetation clearance and tree felling will be carried out outside of the bird breeding season (1st March – 31st August).	Construction
68	10.6.1.1	Tree-felling will not be undertaken in May, June, July and early August, in order to ensure that breeding populations of bats are protected. Therefore, it is recommended that tree felling of mature trees in these areas will be conducted during the period of September – October/early.	Construction
69	10.6.1.1	The following measures should be undertaken to protect bats during tree felling: • The tree should be de-limbed (i.e. all branches removed first) prior to cutting the truck. • Day time temperatures of greater than 7^{0}C are favoured for felling to ensure that bats are active and can exit any potential trees being felled. • The tree should then be pushed to the ground slowly and should remain in place until it is inspected by a bat specialist. • A period of at least 24 hours, and preferably 48 hours, should elapse prior to such operations to allow bats to escape.	Construction
70	10.6.1.1	Immediately prior to felling, the trees will be examined for the presence or absence of bats, and/or other bat activity. This survey will be carried out by a suitably qualified bat specialist and will include a visual inspection of the tree during daylight hours followed by a night time detector survey. Where an examination of a tree has shown that bats have not emerged or returned to a tree, it is safe to proceed with the felling of the tree the following day.	Construction
71	10.6.1.1	In order to ensure the optimum warning for any roosting bats that may still be present, the tree should be pushed lightly two to three times, with a pause of approximately 30 seconds between each nudge to allow bats to become active.	Construction
72	10.6.1.1	A pre-construction mammal survey will be undertaken at an appropriate time of the year prior to construction and felling commencing. Should any new Badger setts or	Pre-Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
		Otter holts be discovered on areas proposed for development during construction works, the NPWS will be informed and Badger sett/ Otter breeding or resting site removal will take place under the advice and licensing/derogation regulations of the NPWS.	
73	10.6.1.1	Construction operations will take place during the hours of daylight to minimise disturbances to nocturnal mammal species, roosting birds or active nocturnal bird species.	Construction
74	10.6.1.1	During stream diversion and culverting, vegetation clearance will be kept to a minimum and in-stream sedimentation traps will be positioned prior to construction, and maintained for the duration. All diverted water /run-off will be sent to the onsite surface water attenuation lagoon to minimise sediment entering the stream, if required.	Construction
75	10.6.1.1	Any in-stream works will be undertaken in consultation with the Planning Authority and Inland Fisheries Ireland (IFI) and subject to Section 50 approval from the OPW.	Pre-Construction
76	10.6.1.1	In consideration of fisheries resources downstream, works in watercourses will be carried out during the period July-September unless prior agreement has been reached with IFI.	Construction
78	10.6.1.1	All equipment and all footwear/waders that will be placed within watercourses shall be steam-cleaned prior to arrival on site to prevent the spread of invasive species or disease entering the water and after use to prevent the spread to other catchments.	Construction
79	10.6.1.1	Best practice biosecurity measures are required to prevent the spread of the crayfish plague in Ireland along with other invasive species. The crayfish plague disease can be carried on wet equipment so ALL equipment to be used within or adjected to watercourses (clothing, fishing gear etc.) that has been in freshwater must be treated with a disinfectant and then completely dried before moving to another area.	Construction
80	10.6.1.1	A Check – Dry – Clean approach shall be adopted for all site personnel working within or directly adjacent to watercourses. • Check – Check you are not unknowingly carrying any water, living organism (including plant fragments) on your equipment or clothing – Pay particular attention to those areas that retain water, remain damp or are hard to inspect	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
		• Clean – Clean equipment, footwear and clothes thoroughly after water-based activity – Pieces of plants, seeds and organisms that get caught up in, or attach themselves to your equipment must be thoroughly removed from all hidden corners, inside clothing and other surfaces – Where available, use pressure washers and hoses to wash equipment and clothing – Ensure washings and any water that has collected in equipment are left in the cleaning area. Alternatively, empty them onto land away from other watercourses and not into another watercourse, drain or ditch • Dry – All equipment and clothing should be dried thoroughly – Where possible, air dry for 48 hours in order to kill any aquatic organisms – In slightly moist conditions, some species can live for many days. New research from the Environment Agency has shown that a killer shrimp can survive in the moist fold of a wader for up to 15 days.	
81	10.6.1.2	The new attenuation pond will be put in place at the commencement of construction at the site.	Construction
82	10.6.1.2	Site drainage, including silt traps and stilling ponds, will be put in place in parallel with or ahead of construction, such that excavation for new infrastructure will have a functioning drainage system in place.	Construction
83	10.6.1.2	Erosion control measures and temporary stilling ponds, including the attenuation ponds will be regularly maintained during the construction phase.	Construction
84	10.6.1.2	The 4-stage treatment train (swale – holding pond-attenuation pond– wetland/diffuse outflow) will retain and treat the discharges from the new surfaces as a result of the development and reduce any risk of flooding downstream.	Construction
85	10.6.1.2	Where required, portaloos and/or containerised toilets will be used in combination with existing site welfare facilities and associated waste water management facilities to provide toilet facilities for site personnel during construction.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
		Sanitary waste produced by portaloos/containerised toilets will be removed from site via a licenced waste disposal contractor.	
86	10.6.1.2	A modification will be installed across the stream in the form of a dam and culvert arrangement in order to channel extreme flows overbank into a wooded area. This will compensate for any loss in the 1 in 1000-year floodplain.	Design & Construction
87	10.6.1.2	Construction will not take place during extreme weather conditions.	Construction
88	10.6.1.2	The soil stability will be assessed at site specific locations particularly at stockpile, screening berms and stream bank locations where earthworks are proposed. Best practices will be employed in the prevention of silt laden run-off from entering watercourses.	Construction
89	10.6.1.2	Silt Protection Controls (SPCs) are proposed at the location of watercourse crossings and where access roads pass close to watercourses during construction. Silt fencing will be used to mitigate any contamination of streams with silt at the flowing locations: a. All stockpile material will be bunded adequately and/or surrounded by silt fences and protected from heavy rainfall to reduce silt run-off, where necessary. b. All open water bodies adjacent to proposed construction areas will be protected by fencing, including the proposed attenuation pond. c. along the banks of any streams at the location of the proposed tree felling to provide additional protection to the watercourses in this area.	Construction
90	10.6.1.2	Additional silt fencing will be kept on site in case of an emergency break out of silt laden run-off.	Construction
91	10.6.1.2	The developer will ensure that erosion control, namely silt-traps, silt fencing, stilling ponds and swales are regularly maintained during the construction phase.	Construction
92	10.6.1.2	Standing water in excavations will be pumped into the site drainage system (including attenuation ponds), after which permanent insitu dewatering will be implemented during operations.	Construction
93	10.6.1.2	Bio-degradable silt bags (or equivalent approved) will be used during dewatering of excavations.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
94	10.6.1.2	Swales will be shallow to minimize the disturbance to sub-soils. Temporary silt traps will also be provided at regular intervals in the swales.	Construction
95	10.6.1.2	Cross-drainage pipes of 450mm minimum diameter will be provided to prevent a risk of clogging for conveying flows from agricultural drains and forestry drains across the access roads.	Construction
96	10.6.1.2	Additional wheel washing facilities will be provided at the exit of the IBA facility. This will supplement the existing wheel wash which will be retained at the entrance to the site. The silt traps will be cleaned on a regular basis.	Operational
97	10.6.1.2	Tree felling will be undertaken in accordance the felling licence and the specifications set out in the Forest Service Guidelines and Forest Harvesting and Environmental Guidelines, to ensure a tree clearance method that reduces the potential for sediment and nutrient runoff. Trees will be felled away from watercourses where possible. Branches, logs or debris will not be allowed to accumulate in watercourses and will be removed as soon as possible.	Construction
98	10.6.1.2	The rate of absorption of a felled site is reduced, and therefore rate of run-off is expected to be slightly higher than that of a forested site, however it is proposed to develop berms on the deforested areas as soon as weather conditions allow following felling, followed by replanting. Thus, no significant increase in the rate of run-off is anticipated as a result of felling or risk of downstream flooding as set out in the flood risk assessment presented in Appendix 12.5, Volume 3.	Construction
99	10.6.1.2	There is an existing wheel wash at the entrance to the site which will be used during the construction period.	Construction
100	10.6.1.2	A designated concrete wash-down area will be constructed at the temporary compound. Every concrete truck delivering concrete to the site will use this facility prior to leaving the site. A settlement pond will be provided to receive all run-off from the concrete wash down area.	Construction
101	10.6.1.2	The outfall from the wetland will have vertical pipe drop energy dissipation structure within the wetland outlet chamber prior to discharge into the adjacent launching apron protection works. This design approach will mitigate the risk of suspended solids developing within the Knockharley stream downstream of the outfall.	Design & Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
102	10.6.1.2	Rock armour will be used to provide bank protection works upstream and downstream of new structures, to ensure no undercutting or destabilisation of either the structure or riparian bank areas occurs.	Design & Construction
103	10.6.1.2	All personnel currently working on site are trained in pollution incident control response and this will be a requirement of the construction contract(s).	Construction & Operational
104	10.6.1.2	Emergency Silt Control and Spillage Response Procedures are contained within under Site Drainage Management Plan of the CEMP.	Construction
105	10.6.1.2	Refuelling of plant during construction will only be carried out at the existing designated refuelling station locations. Each station is fully equipped for a spill response and a specially trained and dedicated environmental and emergency spill response team is in place on site.	Construction
106	10.6.1.2	Only emergency breakdown maintenance will be carried out on site and appropriate containment facilities will be provided to ensure that any spills from breakdown maintenance vehicles are contained and removed off site.	Construction & Operation
107	10.6.1.2	Drip trays and spill kits will be kept available on site, to ensure that any spills from the vehicle are contained and removed off site.	Construction & Operation
108	10.6.1.2	Any diesel or fuel oils stored at the temporary site compounds will be bunded. The bund capacity will be sufficient to contain 110% of the tank's maximum capacity	Construction & Operation
709	10.6.1.2	Appropriate information will be available on site outlining the spillage response procedure and a contingency plan to contain silt.	Construction & Operation
110	10.6.1.2	Adequate security will be provided to prevent spillage as a result of vandalism.	Construction & Operation
111	10.6.1.2	A regular review of weather forecasts of heavy rainfall is required and a contingency plan will be prepared for before and after such events.	Construction
112	10.6.1.2	A suitably qualified person will be appointed by the developer to ensure the effective implementation of the CEMP onsite. They will also ensure: a. regular monitoring of the drainage system and maintenance as required.	Construction

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		b. Record keeping of the daily visual examinations of watercourses which receive flows from the proposed development, during and for an agreed period after the construction phase. c. Water quality monitoring will continue to be carried out in accordance with the licence. (There will be one new monitoring point, at the discharge point from the new wetland.)	
113	10.6.1.2	If excessive suspended solids are noted, construction work will be stopped and remediation measures will be put in place immediately.	Construction
114	10.6.1.2	Discharges from paved roads paved areas will be surrounded by filter drains with petrol interceptors installed at respective outlets upstream of the storm water management attenuation ponds or other.	All
115	10.6.2	Replacement tree planting and new tree planting will be comprised of native deciduous tree species (see Landscape Masterplan LW14-821-01-P-0050-012 for more information).	Construction
116	10.6.2	Excessive additional lighting around the site will be avoided. Lighting will be kept to minimum safe levels to reduce disturbance to nocturnal mammals and birds. Directional lighting will be used to prevent light disturbance in the surrounding area.	All
117	10.6.2	Regular visual inspections and monitoring of the surface water management system will be required in compliance with the IED licence	Operational
118	10.6.2	Surface water runoff from the IBA facility perimeter road will be directed to the IBA weathering area leachate collection system to avoid dust contamination of drainage outfalls.	Operational
119	10.6.2	In the event of a leachate spill from a tanker, spill kits are kept on site and site staff are trained in the management of a spill.	Operational
120	10.6.2	Leachate haulage contractors will be required to have spill kits and training.	Operational
121	10.6.2	There will be regular inspections and maintenance of leachate tankers to mitigate leaks.	Operational
122	10.6.2	In the event of an unforeseen road traffic accident resulting in a leachate spill adjacent to a watercourse, Meath County Council and Inland Fisheries shall be contacted and spill protection measures will be implemented.	Operational

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
123	10.6.2	There will be continuous monitoring of surface water quality at the outfall from the surface water attenuation ponds to the wetland	Operational
124	10.6.2	Routine surface water sampling is and will continue to be carried out in accordance with the license which includes the submission of interpretive reports to the EPA for approval. Any incidents shall be notified to the EPA in accordance with the license.	Operational
125	10.6.3	There will be a period of restoration and aftercare following cessation of waste acceptance activities at the facility. Decommissioning of the development will be subject to Agency approval under prevailing waste Licence condition. It is proposed to leave the surface water management system in situ and this will mitigate any potential impacts during decommissioning activities and in addition, temporary mitigation will be put in place to protect watercourses in areas outside of the in-situ water management system. These measures will be similar to those proposed during the construction stage such as silt-traps, silt fencing and stilling ponds.	Decommissioning & Aftercare

Land, Soils & Geology

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Land, Soils & Geology			
126	11.5.1	The proposed waste infrastructure will be designed in accordance with best practice and subject to EPA approval prior to construction and subject to CQA and approval of such by EPA prior to operation.	Design
127	11.5.1	The works will be designed and checked by a geotechnical and civil engineer, suitably qualified and experienced in cell design, construction and operation.	Design & Construction
128	11.5.1	Any excavation and construction related works will be subject to a design risk assessment at detailed design stage to evaluate risk levels for the construction, operation and maintenance of the works. Identified risks will be minimised by the application of principles of avoidance, prevention and protection. Information on residual risks will be recorded and relayed to appropriate parties.	Design & Construction
129	11.5.1	A method statement for each element of the works will be prepared by the Contractor prior to any element of the work being carried out.	Construction
130	11.5.1	Given that the works comprises a significant proportion of excavation and earthworks, suitably qualified and experienced geotechnical personnel will be required on site to supervise the works.	Construction
131	11.5.1	The surface water management infrastructure will be constructed in the northern catchment prior to any other construction works to mitigation potential impacts on hydrogeology.	Construction
132	11.5.1	The Contract will require programming of the works such that earthworks are not scheduled during severe weather conditions. Where such weather is forecast, suitable measures will be taken to secure the works.	Construction
133	11.5.2.1	The proposed Construction Environmental Management Plan (CEMP) to be adopted during the construction phase is provided in Appendix 2.0 of Volume 3 of this EIAR. The CEMP defines the work practices, environmental management procedures and management responsibilities relating to the construction phase of the proposed development. The CEMP describes how the contractor for the main construction works will implement a site Environmental Management System (EMS) on this project to meet	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
		the specified contractual, regulatory and statutory requirements and environmental impact statement mitigation measures.	
134	11.5.2.1	All site personnel will be required to be familiar with the CEMP requirements as related to their role on site.	Construction
135	11.5.2.1	The CEMP is a controlled document and will be reviewed and revised as necessary.	Construction
136	11.5.2.1	A copy of the CEMP will be located at the site office.	Construction
137	11.5.2.1	All employees, suppliers and contractors whose work activities cause/could cause impacts on the environment will be made aware of the CEMP and its contents.	Construction
138	11.5.2.2	The development will be constructed in a phased manner to reduce the potential impacts of the development on the soils and geology; this reduces the amount of clearing and soil excavation required at any one time.	Construction
139	11.5.2.2	One of the primary mitigation measures employed at the preliminary design stage is the minimisation of volumes of soil excavation	Design
140	11.5.2.2	Excavated overburden soils will be reused as far as possible. This will include: • Use of suitable impermeable material for the engineered clay barrier. • Constructing screening berms to mitigate nuisance and visual impacts on adjacent sensitive receptors. • Facilitate final capping of the landfill cells and IBA cells	Construction
114	11.5.2.2	Some temporary stockpiles (not exceeding 2 m in height) of material may be necessary to facilitate capping works, however no permanent stockpiles of material will remain after construction and it is not proposed to remove waste soil or rock from site.	Construction & Operation
142	11.5.2.2	Existing practices are already in place to protect the soil from erosion.	Operation
143	11.5.2.2	Drainage of surface water is incorporated into the site design. This will divert storm water runoff away from the working area. Storm water run-off is directed and will continue to be directed to the existing and proposed attenuation pond / holding pond and wetlands prior to discharge.	All

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
144	11.5.2.2	Weekly measurements will continue to monitor the quality of surface water discharge.	Construction & Operation
145	11.5.2.2	All excavations will be constructed and backfilled as quickly as possible. Excavations will stop during or prior to heavy rainfall events.	Construction
146	11.5.2.2 & 11.5.4	Refueling of machinery and plant will only occur at designated refueling areas. Refueling will be conducted from refueling trucks with drip trays and spill kits available. A designated refueling area will be located at the site compound.	All
147	11.5.2.3	The soil stability will be assessed at site-specific locations particularly at stockpile, screening berms and stream bank locations where earthworks are proposed. Best practices will be employed in the prevention of silt laden run-off from entering watercourses.	Construction
148	11.5.2.4	Silt fencing will be used to mitigate any contamination of streams with silt at the flowing locations: a. all stockpile material will be bunded adequately and/or surrounded by silt fences and protected from heavy rainfall to reduce silt run-off, where necessary. b. all open water bodies adjacent to proposed construction areas will be protected by fencing, including the proposed attenuation pond. c. along the banks of any streams at the location of the proposed tree felling to provide additional protection to the watercourses in this area.	Construction
149	11.5.2.4	Screening berms will be constructed on a phased basis concurrent with overburden recovery from cell excavation works. Prior to berm installation, top soil will be stripped back, formation compacted, and soils as may become available placed and compacted in layers. Layers will be overfilled and once berms are at the final height is reached will have side slopes profiled receive and allow subsequent placement of topsoil, seeding and tress as required.	Construction
150	11.5.2.4	The proposed development will require the construction of an additional surface water attenuation pond / holding pond north of the IBA facility.	All
151	11.5.2.4	Storm drainage will be installed prior to bulk earth moves with silt fences and temporary settlement ponds placed around screening berms and pond banks until such time as a vegetation cover has become established.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
152	11.5.2.4	Prior to earthworks taking place temporary haul roads will also be installed.	Construction
153	11.5.2.5	Overburden will be removed from IBA cells and placed in screening berms.	Construction
154	11.5.2.5	Clay barrier material will be won from underlying boulder clays excavated to form IBA cells.	Construction
155	11.5.2.5	In the IBA cells, boulders within the excavated clay will be removed via screening and engineered clay will be placed in layers and compacted to 95% maximum dry density.	Construction
156	11.5.2.5	For the IBA cells, a ground water drainage system will be installed to accommodate prevailing site conditions upon which the engineered clay barrier will be installed and compacted to 95% maximum dry density.	Construction
157	11.5.2.6	Drip trays and spill kits will be kept available on site, to ensure that any spills from the vehicle are contained and removed off site.	Construction & Operation
158	11.5.2.6 & 11.5.4	Any diesel or fuel oils stored at the temporary site compounds will be bunded.	All
159	11.5.2.6 & 11.5.4	The bund capacity will be sufficient to contain 110% of the tank's maximum capacity.	All
160	11.5.2.6 & 11.5.4	All personnel currently working on site are trained in pollution incident control response and this will be a requirement of the construction contract(s).	All
161	11.5.2.6	Emergency Silt Control and Spillage Response Procedures are contained within the Draft CEMP.	Construction
162	11.5.2.7	The works will be designed and supervised by a suitably qualified and experienced geotechnical engineer or engineering geologist, and hydrologist or drainage engineer.	Design & Construction
163	11.5.2.7	Prior to construction the CEMP construction will be finalised, which will incorporate all measures set out in the Draft CEMP and other measures required on foot of conditions attached to any grant of permission.	Construction
164	11.5.2.7	A method statement for each element of the works will be finalised prior to any element of the work being carried out. A draft of the methods is provided in the Draft CEMP and will be reviewed and finalised prior to commencement of construction.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
165	11.5.2.7	The CEMP for construction will place emphasis on the regular checking of equipment, temporary stockpiles, as well as drainage structures and their attenuation ability by suitably qualified and experienced staff.	Construction
166	11.5.2.7	Excavation works will be monitored by suitably a qualified and experienced geotechnical personnel.	Construction
167	11.5.2.7	The programming of the works (by the Contractor) will be such that earthworks are not scheduled to be carried out during severe weather conditions. Where such weather is forecast, suitable measures will be taken to secure the works.	Construction
168	11.5.2.8	All cells, whether in the permitted landfill development or proposed IBA Facility, will require a composite lining in accordance with the Landfill Directive for non-hazardous cells. This requires a 2 mm HDPE barrier overlying a 1.0m clay barrier k= $1*10^{-9}$ m/s or equivalent. This requirement is also conditioned in the current IED licence for the facility.	Design & Construction
169	11.5.2.8	Surface water lagoon and the holding pond will be constructed using a similar lining system as the cells comprising a 2 mm HDPE barrier overlying a 1.0m clay barrier k $1*10^{-9}$ m/s or equivalent, albeit that lining systems may have additional cover systems using soil, concrete or other to facilitate maintenance and or safety criteria as required during detailed design.	Design & Construction
170	11.5.2.8	All above ground tanks for leachates or other treatment related products will be bunded to contain a minimum storage volume in accordance with Agency guidance[1] to be not less than the greater of: • 110% capacity of the tank within the bunded area, or • 25% of the total volume of the substance stored within the bunded area.	Construction
171	11.5.2.8	All tanks will have covers to prevent rainfall ingress.	Design & Construction
172	11.5.2.8	Below ground tanks will be surrounded with a 1.0m clay barrier k $1*10^{-9}$ m/s or equivalent.	Design & Construction
173	11.5.2.8	Below ground lagoons (leachate, holding pond or attenuation pond) will be constructed using a composite lining system comprising a 2 mm HDPE barrier overlying a 1.0m clay	Design & Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
		barrier k $1*10^{-9}$ m/s or equivalent. All below ground lagoons will have floating covers to prevent rainfall ingress.	
174	11.5.2.8	Diesel tanks, used to store fuel for the various items of machinery, will be self-contained and double-walled.	Construction
175	11.5.2.8	There will be a designated refuelling area at the site compound.	Construction
176	11.5.2.8	Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice - (Enterprise Ireland BPGCS005).	Construction
177	11.5.2.8	Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the site and properly disposed of.	Construction
178	11.5.2.8	Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling.	Construction
179	11.5.2.8	Appropriate spill control equipment, such as oil soakage pads, will be kept within the construction compound and in each item of plant to deal with any accidental spillage.	Construction
180	11.5.3	In the event that groundwater is required to be drained below the cell liner, it will be pumped and directed to the existing attenuation ponds as is presently the case or to the proposed northern attenuation pond.	Operation
181	11.5.3	Leachate minimisation and leachate containment using the in-situ composite landfill liner system will continue to occur.	Operation
182	11.5.3	Groundwater monitoring will continue to be undertaken at the site in accordance with the waste licence.	Operation
183	11.5.3	Post closure, the groundwater monitoring programme, as set out in the licence, will continue to assess groundwater quality at the site.	Aftercare
184	11.5.3	The emergency response procedures in place under the licence also address possible spillages. Corrective Action Procedures on the site ensure that any non-compliance with the waste licence are investigated and corrected and that measures are put in place to remedy and prevent reoccurrence of the non-compliance.	Operation

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
185	11.5.3	To mitigate against possible contamination of the exposed bedrock / aquifer, refuelling of machinery and plant during operation of the facility will only occur offsite or in specially designated areas such as site compounds, using designated refuelling bowsers.	Operation
186	11.5.3	All temporary cuts / excavations will be carried out such that they are stable or adequately supported. Unstable temporary cuts / excavations will not be left unsupported. Temporary cuts and excavations will be protected against the ingress of water or erosion. Temporary works will be such that they do not adversely interfere with any existing drainage channels.	Operation
187	11.6	Mitigation measures will be monitored throughout the construction and operational phases.	
188	11.6	Mitigation will be provided to protect the water quality by preventing any silt laden run-off or contaminated storm runoff reaching the downstream watercourses.	
189	11.6	Mitigation systems will, where required, be in place before development works commence.	

Hydrology and Surface Water Quality

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Hydrology and Surface Water Quality			
190	12.7	A minimum buffer of 10 m from watercourses has been adopted for the proposed works.	Design
191	12.7	The drainage system for the proposed development has been designed to mitigate potential impacts on hydrology and surface water quality and is described in detail in Section 12.4 and the drainage layout is shown in Drawing Nos. LW14-821-01- P-0000-003 through 0011 in Volume 4 and in Appendix 12.2 Surface water Management Plan in Volume 3 of this EIAR.	Design
192	12.7.1	A Surface Water Management Plan has been included in Appendix 12-2 of Volume 3 of the EIAR.	Construction
193	12.7.1	A Construction Environmental Management plan (CEMP) has been included in Appendix 2-0 in Volume 3 of the EIAR.	Construction
194	12.7.1	During the stream diversion and culverting, in-stream sedimentation traps will be positioned prior to construction, and maintained for the duration.	Construction
195	12.7.1	All diverted water /run-off can be sent to the onsite surface water attenuation lagoon to minimise sediment entering the stream, if required.	Construction
196	12.7.1	Any in-stream works will be undertaken in consultation with the Planning Authority and Inland Fisheries Ireland (IFI) and subject to Section 50 approval from the OPW.	Construction
197	12.7.1	In consideration of fisheries resources downstream, works in watercourses will be carried out during the period July-September unless prior agreement has been reached with IFI.	Construction
198	12.7.1	As discussed, the new attenuation pond will be put in place at the commencement of construction at the site.	Construction
199	12.7.1	Site drainage, including silt traps and stilling ponds, will be put in place in parallel with or ahead of construction, such that excavation for new infrastructure will have a functioning drainage system in place.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
200	12.7.1	Erosion control measures and temporary stilling ponds, including the attenuation ponds will be regularly maintained during the construction phase.	Construction
201	12.7.1	The 4-stage treatment train (swale – holding pond-attenuation pond– wetland/diffuse outflow) will retain and treat the discharges from the new surfaces as a result of the development and reduce any risk of flooding downstream.	Construction
202	12.7.1	The conceptual site drainage (see section 12.4.3 and Figure 12-6) has been designed to complement existing overland flow.	Design
203	12.7.1	A modification will be installed across the stream in the form of a dam and culvert arrangement in order to channel extreme overbank flows into a wooded area. This will compensate for any loss in the 1 in 1000-year floodplain. This is described in more detail in Section 12.4.3.	Construction
204	12.7.1	The proposed compensation flood culvert is designed to provide compensatory storage for the flood plan storage lost through constructing the northern surface water management system and permitted cell development in a 1:1000-year flood plain.	Construction
205	12.7.1	Construction will not take during extreme weather conditions when channel water levels / flows will be high.	Construction
206	12.7.1	Silt Protection Controls (SPCs) are proposed at the location of watercourse crossings and where access roads pass close to watercourses during construction. Silt fencing will be used to mitigate any contamination of streams with silt at the flowing locations: a. All stockpile material will be bunded adequately and/or surrounded by silt fences and protected from heavy rainfall to reduce silt run-off, where necessary. b. All open water bodies adjacent to proposed construction areas will be protected by fencing, including the proposed attenuation pond. c. along the banks of any streams at the location of the proposed tree felling to provide additional protection to the watercourses in this area.	Construction
207	12.7.1	Additional silt fencing will be kept on site in case of an emergency break out of silt laden run-off.	Construction
208	12.7.1	The developer will ensure that erosion control, namely silt-traps, silt fencing, stilling ponds and swales are regularly maintained during the construction phase.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
209	12.7.1	Standing water, which may arise in excavations, has the potential to contain an increased concentration of suspended solids as a result of the disturbance to soils. The excavations will be pumped into the site drainage system (including attenuation ponds), after which permanent *in situ* dewatering will be implemented during operations. As historically there is little evidence of high inflows, it is anticipated that pumped flows from excavations will be very low. Bio-degradable silt bags (or equivalent approved) will be used during dewatering of excavations.	Construction
210	12.7.1	The excavated subsoil material will be removed to form the screening berms.	Construction
211	12.7.1	Swales will be shallow to minimize the disturbance to sub-soils. Temporary silt traps will also be provided at regular intervals in the swales.	Construction
212	12.7.1	Cross-drainage pipes of 450mm minimum diameter will be provided to prevent a risk of clogging for conveying flows from agricultural drains and forestry drains across the access roads.	Construction
213	12.7.1	Additional wheel washing facilities will be provided at the exit of the IBA facility. This will supplement the existing wheel wash which will be retained at the entrance to the site. The silt traps will be cleaned on a regular basis.	Construction
214	12.7.1	Tree felling will be undertaken in accordance the felling licence and the specifications set out in the Forest Service Guidelines and Forest Harvesting and Environmental Guidelines, to ensure a tree clearance method that reduces the potential for sediment and nutrient runoff.	
215	12.7.1	Trees will be felled away from watercourses where possible. Branches, logs or debris will not be allowed to accumulate in watercourses and will be removed as soon as possible.	Construction
216	12.7.1	The rate of absorption of a felled site is reduced, and therefore rate of run-off is expected to be slightly higher than that of a forested site, however it is proposed to develop berms on the deforested areas as soon as weather conditions allow following felling, followed by replanting. Thus, no significant increase in the rate of run-off is anticipated as a result of felling or risk of downstream flooding as set out in the flood risk assessment presented in Appendix 12.5, Volume 3.	Construction
217	12.7.1	There is an existing wheel wash at the entrance to the site which will be used during the construction period.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
218	12.7.1	A designated concrete wash-down area will be constructed at the temporary compound. Every concrete truck delivering concrete to the site will use this facility prior to leaving the site. A settlement pond will be provided to receive all run-off from the concrete wash down area.	Construction
219	12.7.1	The outfall from the wetland will have vertical pipe drop energy dissipation structure within the wetland outlet chamber prior to discharge into the adjacent launching apron protection works. This design approach will mitigate the risk of suspended solids developing within the Knockharley stream downstream of the outfall.	Construction
220	12.7.1	Rock armour will be used to provide bank protection works upstream and downstream of new structures, to ensure no undercutting or destabilisation of either the structure or riparian bank areas occurs.	Construction
221	12.7.1	All personnel currently working on site are trained in pollution incident control response and this will be a requirement of the construction contract(s). Emergency Silt Control and Spillage Response Procedures are contained within under Site Drainage Management Plan of the Construction Environmental Management Plan (CEMP).	Construction
222	12.7.1	Refuelling of plant during construction will only be carried out at the existing designated refuelling station locations. Each station is fully equipped for a spill response and a specially trained and dedicated environmental and emergency spill response team is in place on site.	Construction
223	12.7.1	Only emergency breakdown maintenance will be carried out on site and appropriate containment facilities will be provided to ensure that any spills from breakdown maintenance vehicles are contained and removed off site.	Construction
224	12.7.1	Drip trays and spill kits will be kept available on site, to ensure that any spills from the vehicle are contained and removed off site.	Construction
225	12.7.1	Any diesel or fuel oils stored at the temporary site compounds will be bunded. The bund capacity will be sufficient to contain 110% of the tank's maximum capacity.	Construction
226	12.7.1	Appropriate information will be available on site outlining the spillage response procedure and a contingency plan to contain silt.	Construction
227	12.7.1	Adequate security will be provided to prevent spillage as a result of vandalism.	Construction

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
228	12.7.1	A regular review of weather forecasts of heavy rainfall is required and a contingency plan will be prepared for before and after such events.	Construction
229	12.7.1	A suitably qualified person will be appointed by the developer to ensure the effective implementation of the CEMP onsite. They will also ensure: a. regular monitoring of the drainage system and maintenance as required. b. Record keeping of the daily visual examinations of watercourses which receive flows from the proposed development, during and for an agreed period after the construction phase. c. Water quality monitoring will continue to be carried out in accordance with the licence. (There will be one new monitoring point, at the discharge point from the new wetland.)	Construction
230	12.7.1	If excessive suspended solids are noted, construction work will be stopped and remediation measures will be put in place immediately.	Construction
231	12.7.1	Discharges from paved roads paved areas will be surrounded by filter drains with petrol interceptors installed at respective outlets upstream of the storm water management attenuation ponds or other.	Construction
232	12.7.2	The surface water management system will mitigate any potential impacts on hydrology and surface water quality during the operational phase.	Operation
233	12.7.2	Regular visual inspections and monitoring of the surface water drainage system will be required in compliance with the IED licence.	
234	12.7.2	The conceptual drainage has been designed to operate effectively during the operational period.	Design
235	12.7.2	Surface water run-off will discharge to the drainage swales during rain events. During the operation period the swales will have vegetated and will serve to further attenuate flows and reduce the amount of sediment discharging from the site.	Operation
236	12.7.2	The attenuation ponds will be permanent features and will continue to be effective in filtering the run-off from the site should any accidental release of silt combine with the surface water run-off during operational activities.	Operation

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
237	12.7.2	Surface water runoff from the IBA facility perimeter road will be directed to the IBA weathering area leachate collection system to avoid dust contamination of drainage outfalls.	Operation
238	12.7.2	The mitigation measures applicable for spills during the construction phase are applicable during the operational phase.	Operation
239	12.7.2	In the event of a leachate spill from a tanker, spill kits are kept on site and site staff are trained in the management of a spill. The haulage contractor will be required to have spill kits and training.	Operation
240	12.7.2	There will be regular inspections and maintenance of leachate tankers to mitigate leaks.	Operation
241	12.7.2	In the unlikely event of an unforeseen road traffic accident resulting in a leachate spill adjacent to a watercourse, Meath County Council and Inland Fisheries shall be contacted and spill protection measures will be implemented	Operation
242	12.7.2	Surface water will be visually inspected as part of the operational site walkovers on a weekly basis.	Operation
243	12.7.2	There will be continuous monitoring of surface water quality at the outfall from the surface water attenuation ponds to the wetland.	Operation
244	12.7.2	Routine surface water sampling is and will continue to be carried out in accordance with the licence which includes the submission of interpretive reports to the EPA for approval.	Operation
245	12.7.2	Any incidents shall be notified to the EPA in accordance with the licence.	Operation
246	12.7.3	Decommissioning of the development will be subject to Agency approval under prevailing waste licence condition.	Decommissioning
247	12.7.3	It is proposed to leave the surface water management system in situ and this will mitigate any potential impacts during decommissioning activities and in addition, temporary mitigation will be put in place to protect watercourses in areas outside of the in-situ water management system.	Decommissioning
248	12.7.3	Measures employed during the decommissioning phase will be similar to those proposed during the construction stage such as silt-traps, silt fencing and stilling ponds.	Decommissioning
249	12.8	Mitigation will be provided to protect the water quality by preventing any silt laden run-off or contaminated storm runoff reaching the downstream watercourses.	All

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
250	12.8	Implementation and efficacy of the mitigation measures will be monitored throughout the construction and operation phases.	All

Landscape & Visual Impact

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Landscape & Visual Impact			
251	13.6.2	The biological treatment facility is positioned in a naturally low area of the site to improve screening by the existing vegetation.	Design
252	13.6.2	Maintenance of screening berms and planting.	Operational
253	13.6.2	Enhancement of the existing planting on top of the berm.	Construction
254	13.6.2	The filled landfill cells 27 and 28 will provide screening for landfilling activities south of those cells.	Design
255	13.6.2	The filled IBA cell 29 will provide screening for IBA facility activities west of that point	Design
256	13.6.2	Careful selection of colour finishes for elevations of the proposed buildings in adherence with the Development Management Standards and Guidelines of the Meath CDP 2013 – 2019 will provide additional visual impact mitigation.	Design
257	13.6.2	A landscape Plan has been prepared to show the forestry planting and the berms proposed in the site. This is shown in the Planning Drawing LW14-821-01-P-0050-012 in Volume 4 of this EIAR. Trees planted in the proposed berms will offer screening to the facilities that reach higher elevations and heights above the ground level.	Design
258	13.7	The proposed woodland screen planting will involve a maintenance and management programme to ensure successful establishment and development.	Construction & Operation
259	13.7	The maintenance and management programme will include provision for weed control and the replacement of any plant failures on an annual basis for the first 3-5 years. In the longer term (15-20 years) the trees will be sequentially thinned to promote the development of a healthy and self-sustaining mature woodland.	Operation

Cultural Heritage

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Cultural Heritage			
260	14.6.1	It is proposed that a programme of pre-development licensed geophysical surveying will be carried out in all suitable areas of land take.	Pre-construction
261	14.6.1	It is proposed that a programme of pre-development test trenching will be carried out after the geophysical survey has been completed and within all areas of proposed land take. Test trenching will take in to account the results of the geophysical survey and will be carried out under licence to the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs and the National Museum of Ireland. Further archaeological mitigation measures, which may include preservation in situ or preservation by record, may be made pending the results of the test trenching programme, and in agreement with the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs and the National Museum of Ireland.	Pre-construction

Material Assets

Mitigation No.	EIAR Section Reference	Description of Mitigation Measure / Environmental Commitments	Stage of Impact i.e. Construction or Operation
Material Assets			
262	15.6.1	During relocation of the power lines measures typically undertaken by ESB Networks, which will include prior notification of impacts to end users, as well as all health and safety precautions will be put in place.	Construction
263	15.6.1	The contractor will be required to take measures in accordance with the ESB Code of Practice on Avoiding Danger from Overhead Electricity Lines.	Construction
264	15.6.1	Mitigation measures to be applied to prevent potential for impact on the Bord Gais pipeline centre on appropriate method statements by Contractors and clear delineation of the route on site.	Construction
265	15.6.1	Insofar as possible, non-renewable resources associated with construction will be sourced locally in order to minimise transportation distances and impacts on climate change.	Construction
266	15.8	During the construction phase, all utility services will be marked and monitored to ensure there is no disturbance or disruption to the services.	Construction & Operation