

2021

# Construction Environmental Management Plan



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## Construction Environmental Management Plan

The Green Quarter SHD at Cartrontrouy, Kilnafaddoge and Lissywollen, Ardnaglug (townlands), Athlone, Co. Westmeath

### Document Control Sheet

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## 1 Introduction

### 1.1 Background

ORS were commissioned by Avenir Homes Ltd. to complete a Construction Environmental Management Plan (CEMP) for the proposed Green Quarter Strategic Housing Development (SHD) at Cartronroy, Kilnafaddoge, Lissywollen and Ardnaglug (townlands), Athlone, Co. Westmeath.

The proposed development will be divided into 2 No. main areas: residential units and student accommodation.

The development will consist of 122No. residential units with ancillary creche, 46No. student apartments consisting of 283 bed spaces, and all associated site development works. The proposed development makes provision for 60No. dwelling houses comprising 38No. 2-storey 3-bed townhouses, 7No. 2-storey 4-bed townhouses, 7No. 3-storey 4-bed townhouses, 6No. 2 storey 4-bed semi-detached and 2No. 2 storey 4-bed detached. The proposed development includes 62No. apartments / duplexes to be provided as follows: Block R1 containing 38No. apartments (16No. 1 bed units and 22 no. 2 bed units) in a 3-6 storey building, and Block R2 containing 20No. duplex units (10No. 2 bed units and 10No. 3 bed units) over 4 storeys with 4No. apartments (4No. 2 bed units) in one 5th storey feature area. The proposed student accommodation makes provision for 283No. bed spaces in 3No. blocks to be provided as follows: Block S1 containing 18 apartments with 117 bed spaces over 5-6 storeys, Block S2 containing 16 apartments with 107 bed spaces over 6-7 storeys, and Block S3 containing 12 apartments with 59 bed spaces over 4-5 storeys.

The proposed development will provide for two new vehicular accesses as well as pedestrian entrances onto Lissywollen Avenue east-west access road (as permitted under An Bord Pleanála Reference ABP-309513-21). Minor modifications to ABP-309513-21 are proposed to cater for these access points, alterations to cycle/pedestrian paths, the removal of a central island to facilitate the south-eastern entrance, and provision of bus stop infrastructure. Ancillary site works include public and communal open spaces, hard and soft landscaping, pedestrian / cycleways, car parking, cycle parking, bin storage, public lighting, solar panels, ESB substation and supporting distribution kiosks, and all other ancillary works above and below ground. The proposal includes pedestrian and cycle linkages onto the Old Rail Trail Greenway to the south and Blackberry Lane (L40061) to the west.

### 1.2 Objective of the Construction Management Plan (CEMP)

This Construction Management Plan (CEMP) is an outline document of the proposed approach to ensure that construction activities have the least impact on the surrounding environment. Below is an outline of the objectives:

- Ensure appropriate measures to prevent or mitigate nuisance emissions of noise and dust and uncontrolled discharges to water during construction.

- Ensure that all activities on site are effectively managed to minimise the generation of waste and to maximize opportunities for reuse and recycling of waste materials.
- Ensure that all wastes generated onsite are removed from site by an appropriately permitted waste contractor and that all wastes are disposed of at an appropriate licensed/permitted facility in accordance with the Waste Management Act 1996 as amended.
- Ensure that an adequate system is in place for the management, storage, segregation and recycling of waste.
- Minimise the impact on local traffic conditions resulting from construction activities.
- Outline how the measures proposed above shall be implemented.

This preliminary Construction Management Plan has been prepared for the planning phase of the development to outline the general considerations of the works, from initial enabling works to sub-structure and superstructure construction with regards to waste and the environment. An experienced and competent contractor will be appointed for duration of this project.

The CEMP, due to its structure and nature, will also require constant updating and revision throughout the construction period. This version focuses on phase-1 of the proposed development and will require further revision for subsequent phases. Therefore, this is a working document and will be developed further prior to and during construction.

### 1.3 Responsibility

A contractor has not yet been appointed to carry out the proposed project. Once appointed it will be the responsibility of the contractor to maintain and update the construction stage CEMP throughout the work and this updated document will be issued to Westmeath County Council.

## 2 Site details

### 2.1 Site Location

The proposed development site is located on an undeveloped strip of land, situated amongst densely settled residential land to the south of the site and commercial/industrial developed land to the north. The site is bounded by agricultural land to the west and the “Old Rail Greenway” to the south. The Garrycastle exit (Exit 9) of the N6 national road is located ca. 45m north of the site boundary and a large industrial unit is located ca. 41m east of the site boundary.

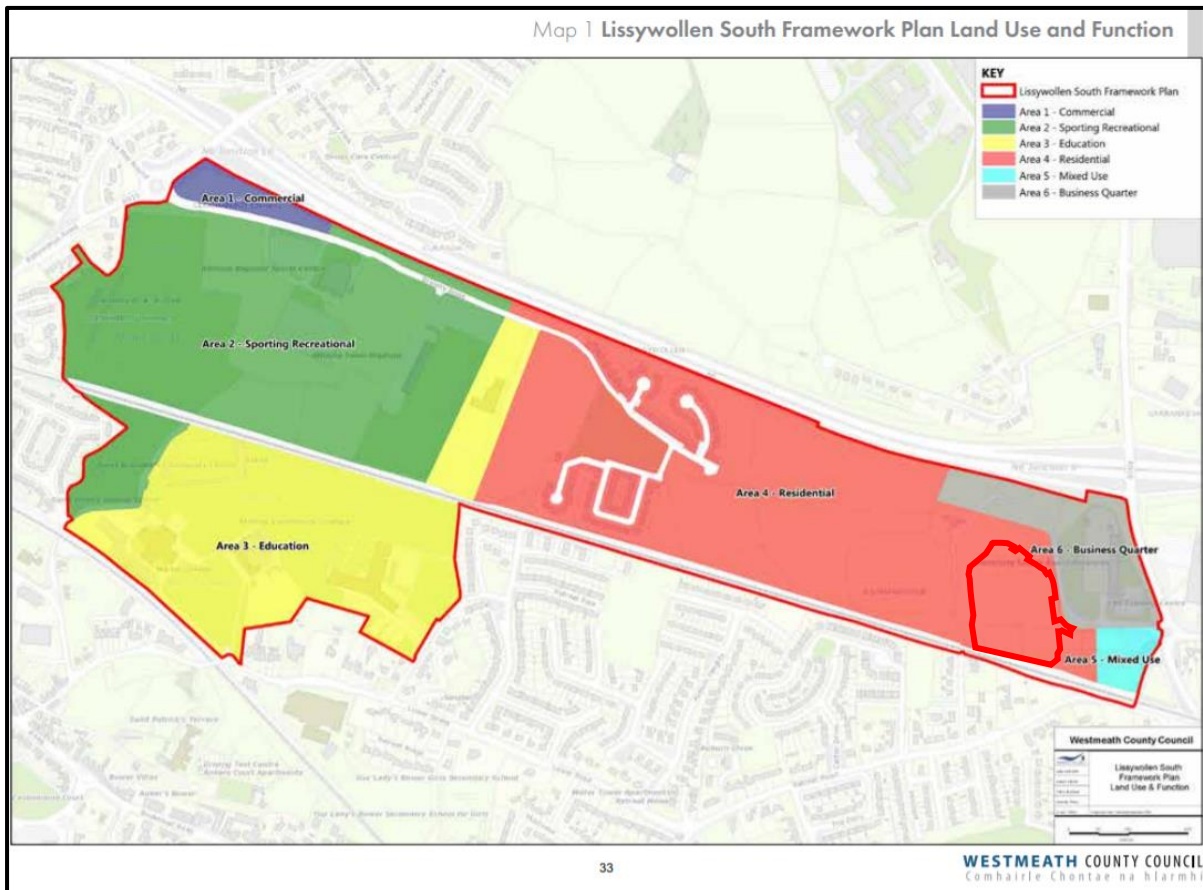
The site is a ‘greenfield’ site with no development noted according to aerial photos dating back to 1995 and historic maps dating back to 1837. was previously an active construction site during the development of the existing block of apartments to the west in ca. 2008.

The total area of the site is ca. 4.1 hectares. An approximate outline of the subject site is provided in **Figure 2.1** below.



**Figure 2.1: Proposed construction boundary marked in red and surrounding urban/greenfield area.**

The proposed development will be delivered as part of the Lissywollen South Framework Plan 2018-2024, which will see the development of a series of wider planning objects including the construction of an east-west access road through the application site, from the Ballymahon roundabout to the Garrycastle roundabout, along with a network of all associated underground services. **Figure 2.2** illustrates the proposed development site into the wider context of the Lissywollen South Framework Plan.



**Figure 2.2: Site location superimposed into the Lissywollen South Framework Plan. (Source: Westmeath CC)**

## 2.2 Site Environmental Considerations

A topographical survey was carried out in 2020. The site slopes gradually from South to North with a level difference of approximately 2.5m between the northern boundary and southern boundary of the proposed development. There is also a slope across the site from west to east with a level difference of approximately 5m.

There are no water courses within the immediate vicinity of the site. The nearest water course is the Shannon (Upper) tributary located ca. 738m SE of the site which confluences with the River Shannon ca. 2.1km W of the site. The River Shannon was determined “At Risk” by the Water Framework Directive with a WFD status reported as “poor”. A cross reference with the



EPA database on the below criteria highlighted the following sensitivities for the watercourses near the site:

- Surface Water for Drinking Water applies to The Shannon River
- Surface Water within SPA/SAC habitats reported for The Shannon River.
- Groundwater for Drinking Water

The site was cross referenced with the Teagasc SIS soil profile map which states that it's underlain with Elton (1000a) soil type, characterised as "fine, loamy drift with limestones.

According to the Geological Survey of Ireland's map viewer, the site is underlain by the Athlone Gravels Aquifer and groundwater vulnerability is classified as "high" at the site, meaning groundwater is likely to be encountered at 1-3 metres below ground level. Subsoil permeability is classified as "high". The culmination of these factors leads to a significant risk posed by potential activities at this site to groundwater receptors.

The OPW Floodinfo.ie website was consulted for high level information on any potential flood risk on or near the site. A high incidence of likely past or future flood incidences were identified in the vicinity of the Shannon River, South and West of the site. The site itself is of sufficient distance and elevation outside the projected flood risk areas hence the fluvial flood risk is considered to be low. The development will present no significant increase in risk of flooding either within the site or downstream of the site.

Crosswood Bog SAC (Site Code: 002337) is located ca. 1.6km SE of the site. River Shannon Callows SPA (Site Code: 004096) and SAC (Site Code: 000216) are located ca. 2.15km SW of the site. Lough Ree SPA (Site Code: 04064) and SAC (Site Code: 000440) are located ca. 3.5km NW of the site.

Overall, the environmental sensitivity of the area in immediate proximity to the proposed site is considered to be low, with the exception of the risk to groundwater receptors which is considered to be moderate to high.

## 2.3 Site Ecological Considerations

### 2.3.1 Designated Nature Conservation Sites

An Ecological Impact Assessment (EclA) was carried out in December 2021 by *Ecology Ireland Ltd*. An evaluation of the ecological features that were identified through desk and field based studies are summarised below.

The site at Cartrontroiy, Kilnafaddoge, Lissywollen and Ardnaglug (townlands) is not located within or near to any designated wildlife conservation site however is located within 15km of thirteen sites designated under the Natura 2000 network, and nineteen nationally designated sites.

There are no watercourses on or adjacent to the proposed development site. The closest watercourse; The Shannon (Upper)\_020 (IE\_SH\_26S021800) to the proposed site boundary is located approximately 904m south. The site is not considered to be at risk of flooding.

The closest designated Natura 2000 sites to the proposed development are Crosswood Bog SAC, Middle Shannon Callows SPA and River Shannon Callows SAC. After construction surface water from the site will be attenuated before connecting with the municipal system. Sustainable Urban Drainage Systems (SuDS) will be utilised throughout the site where practical to help mitigate the adverse effects of urban stormwater runoff on the environment by reducing runoff rates, volumes and frequencies and reducing pollutant concentrations in stormwater runoff. SuDS measures which have been incorporated include green roofs, rain gardens, permeable paving and attenuation systems which promote infiltration.

The proposed site will be served via below ground gravity pipework which predominately runs below the proposed internal roads within the development. The surface water network will be fed via road gullies and rainwater from building roofs via guttering and downpipes. The surface water network will be attenuated in the north of the site and flow controlled at greenfield runoff rates prior to outfall into the diverted 1050mm diameter surface water drainage sewer to the north.

The surface water catchment will have a gravity surface water drainage network which will outfall into a dedicated attenuation tank to the north of the site. The attenuation tank has been sized to store the runoff from a 1:30 year storm of critical duration below ground, with the additional storage required for a storm event greater than 1:30 and up to 1:100 year to be stored above ground within a depressed area (detention basin) in the public open space. The depressed area has been sized such that the maximum water level in the public open space for a 1:100 year storm event of critical duration will be 300mm in depth. Full details can be found in the Civil Engineering Report which accompanies this application.

Sustainable Urban Drainage Systems (SuDS) will be utilised throughout the site where practical to help mitigate the adverse effects of urban stormwater runoff on the environment by reducing runoff rates, volumes and frequencies and reducing pollutant concentrations in stormwater runoff. SuDS measures which have been incorporated include green roofs, rain gardens, permeable paving and attenuation systems which promote infiltration.

The site is divided into two main catchments. The first catchment includes runoff from all individual houses, block R2 apartment/duplexes, roads and paved areas directed into below ground drainage which outfalls to the attenuation system to the north of the site. The second catchment includes the collection of roof runoff from R1 apartment block and S1-S3 student accommodation blocks which will be collected locally and directed into rain gardens for treatment and infiltration.

Athlone agglomeration within which the proposed development is located is served by Athlone WWTP which discharges treated wastewater to the River Shannon. This WWTP has adequate spare capacity (design PE 36,000) and is currently compliant with the ELV's in the wastewater discharge license (Irish Water Annual Environmental Report 2020 Athlon D0007-01).

Crosswood Bog is located at significantly higher elevation than the proposed development site and not at risk from any hydrologically mediated impacts. Similarly, Lough Ree SPA and SAC are located upstream of the proposed development site. There is no concern in relation to hydrologically mediated effects on any of the other nationally or European designated conservation sites in the wider hinterland area

Consideration needs to be given to the potential for disturbance/displacement impacts of fauna through noise and/or visual cues arising from the proposed development. Crosswood Bog SAC lies 1.6km southeast of the proposed works and is not designated for the protection of any qualifying interest faunal species. The study site does not overlook any of the designated sites and given the distances between the proposed development and even the most proximate of designated sites (>1.6km away) there is no concern in relation to potential direct impacts upon these sites, in relation to disturbance or displacement effects.

The special conservation interests of the Middle Shannon Callows SPA are:

- Whooper Swan (*Cygnus cygnus*) [A038]
- Wigeon (*Anas penelope*) [A050]
- Corncrake (*Crex crex*) [A122]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Lapwing (*Vanellus vanellus*) [A142]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Wetland and Waterbirds [A999]

These are waders and waterbirds species very unlikely to occur, with any regularity, or in any significant numbers, within the agricultural fields in the suburban part of Athlone. Similarly, Otter, *Lutra lutra*, the only Qualifying Interest of the River Shannon Callows SAC, is very unlikely to occur within or near the proposed development site due to the nature of the habitats present.

The conservation objectives/interests of the remaining designated sites in the wider hinterland of the proposed development site relate to habitats and/or flora that have no likelihood of being subject to disturbance/displacement impacts as a result of the construction of the proposed development.

Impacts on qualifying interests present in this area as a result of the proposed development can be ruled out.

In summary, there is a potential link between the study site and the River Shannon through post-construction connection to municipal drainage and wastewater connection. Neither, has the potential for likely significant effects upon these designated sites due to the design of the drainage system and operational performance of the WWTP.

### 2.3.2 Habitats and Flora

An Ecological Impact Assessment (EclA) was carried out in December 2021 by *Ecology Ireland Ltd.* An evaluation of the ecological features that were identified through desk and field based studies are summarised below:

No legally protected plant species have been previously recorded in the NBDC or BSBI databases for the 2-km grid squares (N04Q) within which the proposed development is located. The BSBI database holds a historic records for the following species listed on the Flora (Protection) Order, 2015. A record for Basil Thyme (*Acinos arvensis*) from pre-1930 from the 10-km grid square N04 is held on the BSBI database. The BSBI database also holds nine records of Narrow-leaved helleborine (*Cephalanthera longifolia*) from the 10-km grid square N04, the most recent being from the period 2010-2019. The NBDC database also holds records for this species with the records being from 2 km grid square N04N around Coosan Point on the eastern shore of Lough Ree, north of Athlone. The BSBI database holds recent (2020 onward) records of Short-leaved Starwort (*Callitriche truncata*) from 2 km grid squares N04F and N04K, in the River Shannon area of Athlone. The BSBI database holds two records for Red hemp nettle (*Galeopsis angustifolia*) for the 10-km grid square N04 with one record from the 2 km grid squares N04F, west of the River Shannon, from the period 1987-1999. The BSBI database holds a record of Betony (*Betonica officinalis*) from the 10-km grid square N04 from the period 1987-1999.

Two records for Japanese knotweed (*Reynoutria japonica*) are held on the NBDC database for 2 km grid square N04Q. These records are from 2012 and are located on the R446 road around the Garrycastle bridge area, south of the study site (N068404 and N066406). This species is listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations (i.e. species of which it is an offense to disperse, spread or otherwise cause to grow in any place) and classified as a 'risk of high impact' invasive species (Kelly et al, 2013). Traveller's Joy (*Clematis vitalba*) which has been classified as a 'risk of medium impact' invasive species (Kelly et al., 2013) has also previously been recorded in the 2 km grid square N04Q.

The following habitats were recorded within the proposed development site:

- Agricultural grassland (Semi-improved) (GA1S)
- Neutral grassland (GS1N)
- Dry calcareous and neutral grassland (GS1)
- Dry meadows and grassy verges (GS2)
- Recolonising bare ground/Semi-natural grassland (ED3/GS)
- Hedgerows (WL1)
- Scrub (WS1)

No legally protected or species classified as threatened (Critical, Endangered and Vulnerable) and so included on the Ireland red list of vascular plants (Wyse Jackson et al, 2016) were recorded within the boundary of the proposed development site during the baseline survey.

No species listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations (i.e. species of which it is an offense to disperse, spread or otherwise cause to grow in any place) were recorded within the proposed development site boundary.

Invasive alien plant species of European Union concern (IAS Regulation 1143/2014) were not recorded within the proposed development site boundary.

Traveller's Joy (*Clematis vitalba*) was recorded at three locations around the margins of the smaller southern fields, scrambling over the existing hedgerow vegetation. This species is classified as 'risk of medium impact' invasive species (Kelly, J. et al, 2013).

Montbretia (*Crococsmia x crocosmiiflora*) was recorded growing on the grassy bank close to the proposed entrance location for the proposed development. This species has not been risk assessed but has the potential to spread into habitats such as grasslands, roadsides, forests and riparian areas, where it can compete with native understory or ground vegetation

### 2.3.3 Fauna - Birds

A total of 29 bird species were recorded during the baseline walkover surveys completed at the study site.

Red-list species are those that are Globally Threatened according to the IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.

Three Red-listed species (of high conservation concern in Ireland) were recorded for during the site visit and transect surveys; Swift (*Apus apus*), Herring Gull (*Larus argentatus*) and Kestrel (*Falco tinnunculus*). These species are on the Red List due to recent breeding population and range declines. Herring Gull was observed flying over the site during the walkover. Six Swifts were observed during the transects and Kestrel was spotted over 100m off site.

Amber-list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations. Five Amber-listed species (of medium conservation concern in Ireland) were recorded for the study site (Table 3 2). Starling (*Sturnus vulgaris*), Linnet (*Linaria cannabina*), Swallow (*Hirundo rustica*), Lesser Black Backed Gull (*Larus fuscus*) and House Sparrow (*Passer domesticus*) are of European Conservation concern (SPEC 3), where the global population is concentrated outside of Europe (Gilbert et al. 2021).

The remaining species recorded for the study site are considered of no particular conservation concern in Ireland at present and are considered typical for the habitats present at, and/or in the immediate vicinity of the study site.

Overall, the diversity and abundance of bird species recorded is considered typical of the habitats present on the study site and in the immediate vicinity of the study site. Similar

habitats are also present to a much greater extent in the wider landscape (e.g. hedgerows/wooded areas, arable crop, pastures, buildings and artificial surfaces and mature suburban gardens/amenity spaces).

### 2.3.4 Fauna – Terrestrial Mammals

There were few direct sightings or signs of any mammal species made during the baseline site surveys undertaken for the study site. An adult Fox was seen on the visit on 8th July and there were frequent observations of Rabbit made during both site visits, particularly in the small fields at the south of the proposed development site.

The analysis of the trail cameras deployed at the site recorded relatively limited mammal activity during the period of deployment.

Three trail cameras were placed on site. Their locations can be seen in Figure 3 4. All three cameras had records of Fox, *Vulpes vulpes*. Fox are of Least Concern in Ireland (Marnell et al. 2019) and are offered no legal protection here. The two subsequent cameras recorded one domestic cat, three accounts of brown rat, four wood mice and two domestic dogs.

Badger *Meles meles* have been recorded for the 2km grid square; N04Q overlapping the study site. Badger are of Least Concern in Ireland at present (Marnell et al. 2009). Badger are protected under the Irish Wildlife Acts (1976 – 2000). Further species recorded in the 2km grid square.

No Badger *Meles meles* or signs of Badger were recorded during field assessments undertaken at the study site (e.g. setts, latrines, feeding signs etc.). The nature of the proposed site is such that it provides extremely limited foraging (e.g. earthworms and other invertebrates, see Byrne et al. 2012) and no suitable breeding habitat for Badger at present. Ongoing/regular human disturbance (e.g. residential and nearby construction activity) may deter mammals such as Badger for using the site on a regular basis.

The study site contains extremely limited foraging, commuting, breeding and resting habitats for the mammal species recorded in general. The mammal fauna recorded for the study site are terrestrial species listed of 'Least Concern' in the Irish Red Data Book of Mammals (Marnell et al., 2019) and the proposed site is of low local importance for mammal (non-volant) species.

Breeding fox and cubs were noted close to the study site on the trail camera on the eastern hedge, but no den was found on-site. The cubs were several months old, and they are commonly observed a good distance from the natal site at that age (G. Fennessy pers obs).

### 2.3.5 Fauna – Bats

The vegetation along the field boundaries was visually assessed as having low potential for roosting bats and no Potential Roost Features (PRFs) were identified. As the study site also does not have any buildings/structures attractive to roosting bats, an active emergence/return

study was not undertaken. Two passive bat detectors (Wildlife Acoustics SM4) were deployed within the study site.

The deployment of the passive bat detectors at the site recorded relatively limited activity for foraging and commuting bats. In all five species were confirmed present, three of which are the most common and widespread of the Irish bat species: Common Pipistrelle, *Pipistrellus pipistrellus*, Soprano Pipistrelle, *Pipistrellus pygmaeus* and Leisler's Bat, *Nyctalus leisleri* which made up the majority of registrations detected. There were also a limited number of records of a 40/50kHz Pipistrelle and Brown Long Eared Bat *Plecotus auritus*.

No bat species have been historically recorded in the wider overlapping area (2km N04Q after NBDC database), which is more likely due to a lack of historical survey effort at the wider area rather than an actual absence of bats. Lundy et al. (2011) suggests that the study site is part of a landscape that has a low-moderate resource value for bat species.

There are no permanent/transient roosting opportunities for bats at the study site due to the lack of suitable structures (i.e. metal sheds and buildings and lack of mature trees).

The bat species identified at the study site are considered to be relatively widespread and common nationally (Lysaght & Marnell 2016, Roche et al. 2014, Marnell et al. 2019) and are largely considered to be of least concern in terms of conservation status. All bat species occurring in Ireland are legally protected under the Irish Wildlife Acts (1976 - 2018), where it is an offence to hunt or interfere with or destroy their breeding or resting places (unless under statutory licence / permission). Furthermore, all bat species are listed on Annex IV of the EU Habitats Directive as species requiring strict protection.

The study site currently provides some feeding opportunities for bats through the presence of linear/edge hedgerow habitat features on the southern boundary of the study site. While the study site does not currently support roosting opportunities for bats, such existing linear/edge features will support commuting/feeding bats associated with roosts in the wider area also. The study site is therefore considered to be of low-moderate local value for bats overall.

### 2.3.6 Fauna – Other Taxa

Other taxa recorded for the study site include butterfly species Meadow Brown *Maniola jurtina*, Small Tortoiseshell *Aglais urticae*, Green-veined White *Pieris napi* and Ringlet *Aphantopus hyperantus*. Bumblebee species found during the site walkover included Red-tailed bumblebee *Bombus (Melanobombus) lapidarius*, Common Carder bee *Bombus pascuorum* and *Bombus lucorum* agg.

Ringlet and Green-veined White are of least concern in Ireland at present (Regan et al. 2010). Red Tailed Bumble Bee is listed as Near-Threatened, while Common Carder Bee and *Bombus lucorum* agg. are of least concern in Ireland at present (Fitzpatrick et al. 2006).

In general, recolonising bareground (ED3), improved agricultural grassland (GA1) and small areas of dry calcareous and neutral grassland (GS1) present at the study site provides a

limited source of food for invertebrates such as butterflies and bees. Overall, due to the modified, disturbed and/or transient nature of the habitats present, they are considered of lower local value for most other taxa species at present.

#### **2.4 Summary of Ecological Sensitivity**

Overall based on this current assessment, the study site is of lower local importance to biodiversity. The main habitats which will be directly impacted by the proposed development included Dry calcareous and neutral grassland (GS1), Improved agricultural grassland (GA1) and Dry meadows and grassy verges (GS2).

Given the habitats present the study site is of lower local importance for general birds, mammals (non-volant), bats and other taxa overall



### 3 Conceptual Site Model

#### 3.1 Summary of Contaminant Sources

Based on a preliminary risk assessment of the proposed site, the following sources have been identified as potential sources of environmental contamination/nuisance during the construction phase.

**Table 3.1: Potential sources of environmental contamination/nuisances**

SOURCE REF	SOURCE DESCRIPTION	LOCATION	POTENTIAL CONTAMINANT/NUISANCE
Desktop review	Pneumatic drills, construction vehicles, generators	Throughout Entire Site	Noise
	Pneumatic drills, construction vehicles	Throughout Entire Site	Vibration
	Soil stripping and excavation of foundations for the main building and the sawing of concrete	Main Construction Areas	Dust
	Spills/Run-off	Main haul roads/work areas	Fuel/Oils/Chemicals Silt/Concrete
	Putrescible waste/sewage	Contractor compound/canteen	Vermin/Rodents/Pests

#### 3.2 Receptors and Sensitivity

The key receptors likely to be at risk of impact from construction related contamination and/or nuisances are detailed in the following table along with an assessment of the sensitivity of each receptor.

**Table 3.2: Potential receptors**

KEY RECEPTORS	DETAIL	SENSITIVITY
Groundwater	Site overlies a Locally important gravel aquifer whose groundwater vulnerability classified as 'High'	High
Surface Water	Nearest surface water receptor, a tributary to the River Shannon, located ca. 738m southeast of the site.	Low
Human Health (On-Site)	Site workers – Risk mitigated by the fact that all operatives will be well trained and will wear adequate PPE at all time while present on-site.  Members of public – Access to the site by members of the general public will be forbidden. The site will be under 24/7 surveillance and a site hoarding will be erected, minimising potential impacts.	Moderate to Low
Human Health (Off-Site)	The nearest residential units to the site are located ca. 45m from the site boundary to the south and a commercial unit located ca. 190m to the east.	Moderate to High
Ecology	The study site is not part of any designated wildlife conservation site. A Screening Report in support of the Appropriate Assessment (AA) process has	Low

	<p>concluded that there is no likelihood of significant effects on any Natura 2000 site as a result of the proposed development.</p> <p>Indirect habitat loss or deterioration of designated sites within the surrounding area can occur from the effects of run-off or discharge into the aquatic environment through impacts such as increased siltation, nutrient release and/or contamination. Given the nature of the habitats present, the absence of any watercourses on site, the use of SuDS and that surface water from the site will be attenuated before connecting with the municipal system and the standard construction management that will be employed at the site there is no concern in relation to run-off or pollution from the construction site.</p>	
<p><b>Flora</b></p>	<p>Habitats listed on Annex I of the EU Habitats Directive were not recorded within the proposed development site boundary. Botanical species protected under the Flora (Protection) Order 2015, listed in the EU Habitats Directive (92/43/EEC) or species classified as threatened (Critical, Endangered and Vulnerable) and so included on the Ireland red list of vascular plants (Wyse Jackson et al, 2016) were not recorded during the site survey.</p> <p>The habitats present within the proposed development site boundary are considered to be of local importance (lower value) (e.g. semi-improved agricultural grassland, neutral grassland, dry meadows and grassy verges and bramble scrub) and local importance (higher value) (e.g. hedgerows and dry calcareous and neutral grassland).</p> <p>The main area of the proposed development will result in the permanent loss of grassland habitats that have been modified for agricultural land use value (i.e. northern and southwestern fields) and/or have subsequently been abandoned with no evidence of recent management (western side of eastern small field). These habitats have been evaluated as being of lower local value. The small area of dry calcareous grassland has been evaluated as higher local value will also be permanently lost due to the proposed development.</p> <p>Existing hedgerow habitat along the western, northern and eastern boundary along with much of the internal field boundaries will be permanently removed to facilitate the proposed development. This habitat has been evaluated as being of higher local value. The permanent loss of these habitats as a result of the proposed development will result in a moderate, negative effect</p>	

<p><b>Fauna</b></p>	<p>The study site is of lower local importance for most fauna overall. While there are no suitable buildings or mature trees for roosting bat species, sections of the study site boundaries to the east and south i.e. hedgerows/treeline (WL1/WL2) are of some local importance for commuting/foraging bat species in general. The largely modified habitats of the study site also provide some (albeit) extremely limited commuting, roosting, breeding and feeding opportunities for fauna in general. The extent of these habitats is relatively limited, given the overall size of the study site and considering that most of the study site area (i.e. proposed development footprint) is comprised of Dry calcareous and neutral grassland (GS1), Improved agricultural grassland (GA1) and Dry meadows and grassy verges (GS2) of negligible ecological value or lower local importance at present. There will be a slight permanent increase in modified habitat; buildings and artificial surfaces (BL3; of no appreciable ecological value), as a result of the proposed development. This increase will have a imperceptible-neutral impact on general fauna, where the extent of suitable habitat is already relatively limited, given the overall size of the study site and that most of the study site area (i.e. proposed development footprint) in question is already comprised of similar modified habitats. Similar habitats are also available in the surrounding suburban/rural/agricultural environment in the wider area (to the south, west and north) such that any affected fauna can move into the hinterland.</p> <p>The study site currently provides some commuting and feeding opportunities for bats through the presence of linear/edge habitat features i.e. hedgerow (WL1) to the west and south of the study site. While the study site does not currently support roosting opportunities for bats, existing linear/edge features will support commuting/feeding bats associated with roosts in the wider area. However, the linear habitats present will be maintained as is such that impacts on bat species are not anticipated.</p> <p>Works and associated activities arising from construction of the proposed development may lead to a disturbance of fauna through displacement at and close to the study site in general. However, the study site is already comprised/adjacent to a modified and/or built environment and as such fauna may already be relatively tolerant of human disturbance. As previously mentioned, similar and potentially more suitable habitats are available in the surrounding landscape so that affected fauna, including bats, can disperse into the wider area if disturbed/displaced during the construction phase.</p>	<p>Low</p>
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	For some fauna (i.e. active at dusk/night/early dawn), in particular bats, disturbance displacement can also arise as a result of artificial lighting, where most bat species are negatively affected by artificial light in general (see Bat Conservation Ireland 2010, Stone 2013). With the exception of health and safety lighting, during the construction phase of the proposed development the construction site will not be lit at night (with the exception of low-level switchable safety lighting). Pole mounted lighting will be provided in the site to cater for the access road, parking areas and shared walkways. Lighting will also be provided to the pedestrian links at the western environs road on western site boundary. Lighting will be focussed on the access roads and pathways and away from neighbouring sites. During the operation phase of the proposed development all additional lighting systems have been designed to minimise nuisance through light spillage. There will be minimal light spill onto adjoining areas. Lights will be controlled via light sensors and will be turned off at a pre-determined time using photocell and time clock control.	
<b>Historical Features</b>	Nearest historical feature, a National Monument – Children’s Burial Ground located ca. 336m W of the site	Low
<b>Sensitive Properties</b>	Technical University located ca. 415m south of the site.	Low

### 3.3 Potential Pathways

The potential pathways, facilitating the migration of contamination or nuisances are detailed in the table below:

Table 3.3: Potential pathways

KEY PATHWAYS	AREA	DETAIL	RISK
<b>Dermal contact, inhalation or ingestion of contaminants / nuisances</b>	On-site	Risk mitigated the fact that all operatives will be well-trained, site signage will emphasise health & safety, and all operatives will be wearing PPE.  The site will also be under 24/7 surveillance and a site hoarding will be erected, minimising potential impacts	Moderate
	Off-site	Risk mitigated by erection of good quality hoarding at the site perimeter to limit rogue emissions off-site via air.  Groundwater vulnerability is high and the presence of a shallow, gravelly substrata beneath the site exacerbates the risk of off-site migration.	Moderate to High

<b>Underground Services</b>	On-site	Potential for migration of contamination along preferential pathways created by underground pipework (asbestos pipeline).	Moderate (Low following removal of underground asbestos pipe)
	Off-site	Pipeline to be removed prior to construction phase, limiting preferential pathways	
<b>Air</b>	On-site	Dust generated by site activities (concrete cutting, soil stripping, earthworks).  Pathway potentially present, particularly in periods of dry/windy weather. Use of good quality PPE & dust suppression techniques to limit impacts to on-site receptors.	Moderate to High
	Off-site	Dust generated by site activities (concrete cutting, soil stripping, earthworks).  Pathway potentially present, particularly in periods of dry/windy weather. Good site hoarding and dust suppression techniques to limit migration off-site.	
<b>Water Features</b>	Groundwater	Potentially Present; Groundwater vulnerability classified as 'High' beneath site. Potential for vertical migration of contamination to groundwater is considered to be high.	High
	Drinking Water	The groundwater body beneath the site is designated as a drinking water body however there are no public water scheme wells or private wells for abstraction of groundwater noted in the area.	Moderate
	Surface Water	Potentially present, but unlikely; surface water features ca. 738m southeast of the site.	Low
<b>Rodents/Vermin/Pests</b>	Canteen/work areas/toilets	Potentially present, mitigated by good housekeeping practices, waste management system for municipal waste, and good hygiene standards.	Moderate

### 3.4 Potential Pathways - Summary

For a contaminant/nuisance linkage to exist, a contaminant source, pathway for migration and viable receptor must exist. The presence of all three of these elements is known as a 'pollutant linkage'.

The likely potential pollutant linkages identified as a result of the construction stage of the proposed development has been provided in the initial CSM. The model has been based upon the site setting at the time of the assessment, the land use (current and reasonably foreseen future use) of the surrounding area and the state what the proposal is (i.e. development, ongoing use, etc.).

As well as identifying the potential pollutant linkages the model includes a preliminary assessment of risk based upon the probability of impact and the likely severity of impact in the context of the site setting and proposed future site use.

### 3.5 Conceptual Site Model

Table 3.4 below explains the level of risk to be expected in simple terms.

Table 3.4: Explanation of Risk Levels

<b>High</b>	Significant harm / pollution / nuisance is likely to occur to a designated receptor. Further investigation and/or remediation will be required.
<b>Moderate</b>	It is possible that harm / pollution / nuisance could occur to a designated receptor, but the likelihood and/or severity are not considered to be high. The requirement for further investigation and /or remediation should be considered.
<b>Low</b>	Significant harm / pollution / nuisance to an identified receptor is unlikely to occur and no further action is deemed to be necessary.

The level of risk associated with each potential pollutant linkage (PPL) is represented visually in Figure 3.1, overleaf.

Figure 3.1 – Schematic of the site CSM.

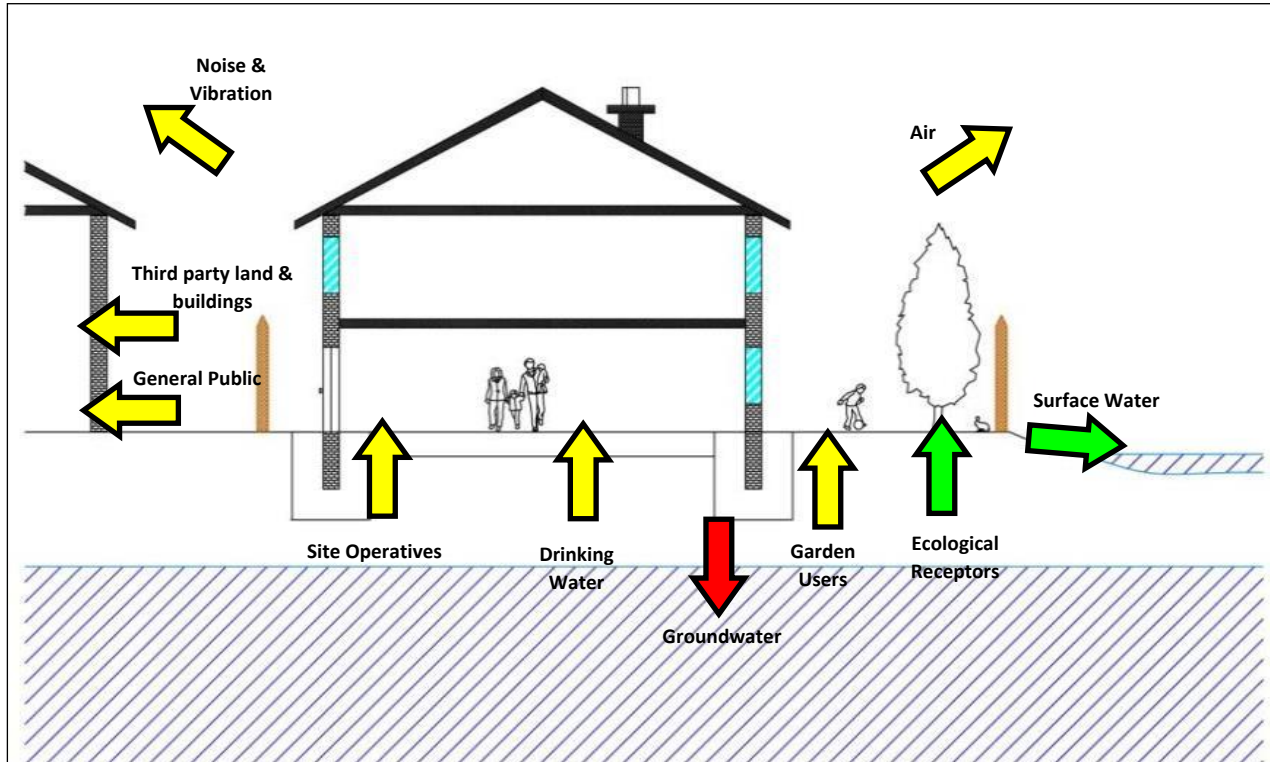


Table 3.5: Preliminary Conceptual Site Model and Qualitative Risk Assessment

Source	Pathway	Receptor	Pollutant / Nuisance Linkage?	Risk	Comments
Concrete Cutting/Earthworks	Direct soil/dust ingestion and dermal contact (outdoors, exacerbated in periods of dry/windy weather)		✓	Moderate	Mitigation Measures Outlined in <b>Section 6.3</b>
Spillage of fuel/chemicals /cement	Vapour inhalation (outdoors)	Human Health On/Off Site	✓	Moderate	Mitigation Measures Outlined in <b>Section 6.4 &amp; Chapter 5.</b>
	Ingestion of impacted drinking water		✓	Moderate to High	There are no drinking water wells recorded in the area (nearest Public Supply Source >5km W of site). Adjacent properties likely be connected to mains supply. Underlying aquifer is designated as drinking water. Mitigation Measures Outlined in <b>Section 6.4 &amp; Chapter 5.</b>
	Lateral migration of free phase / mobile contaminants through ground / services		✓	Moderate	Likelihood of impacts reduced upon removal of existing underground asbestos pipe Mitigation Measures Outlined in <b>Section 6.4 &amp; Chapter 5.</b>
	Lateral migration of free phase / mobile contaminants through ground / services Vertical migration of free phase / mobile contaminants Lateral migration of dissolved phase contaminants	Third-Party	✓	Moderate	Possible impacts to residential units located ca. 45m SW of site. Mitigation Measures Outlined in <b>Section 6.4 &amp; Chapter 5.</b>
		Groundwater	✓	High	Site underlain by a Locally important Gravel Aquifer whose vulnerability is classified as high.
	Groundwater (Locally important Gravel Aquifer )	✓	High	Potential for contamination migration in underlying "made" ground is considered to be high. Mitigation Measures Outlined in <b>Section 6.4 &amp; Chapter 5.</b>	

Source	Pathway	Receptor	Pollutant / Nuisance Linkage?	Risk	Comments
	Lateral migration of dissolved phase contaminants	Third Party abstraction borehole	×	Low	No groundwater abstractions recorded in the vicinity however there is always the possibility of undocumented wells present.
	Lateral migration of dissolved phase contaminants	Surface water	✓	Low	Nearest surface water receptor, a tributary is located ca. 738m SE of the site.
	Lateral migration of dissolved phase contaminants	Ecological Receptors	✓	Low	TBC Mitigation Measures Outlined in <b>Section 6.4 &amp; Chapter 5.</b>
Concrete Cutting/Earthworks	Air in periods of dry weather / wind / rapid vehicle movements	Third-Party	✓	Moderate	Possible impacts to residential units located ca. 45m SW of site. Mitigation Measures Outlined in <b>Section 6.3</b>
		Ecological Receptors	✓	Low	TBC Mitigation Measures Outlined in <b>Section 6.3</b>
Pneumatic drills, construction vehicles, generators	Noise Waves	Human Health On/Off Site	✓	Moderate	Mitigation Measures Outlined in <b>Section 6.2</b>
	Vibration Waves		✓	Moderate	
Putrescible Waste/ Sewage attracting Rodents/vermin/ pests leading to disease	Rodents/vermin/ pests	Human Health On/Off Site	✓	Moderate	Mitigated by good housekeeping practices, waste management system for municipal waste, and good hygiene standards as outlined in <b>Chapters 5 &amp; 6</b>

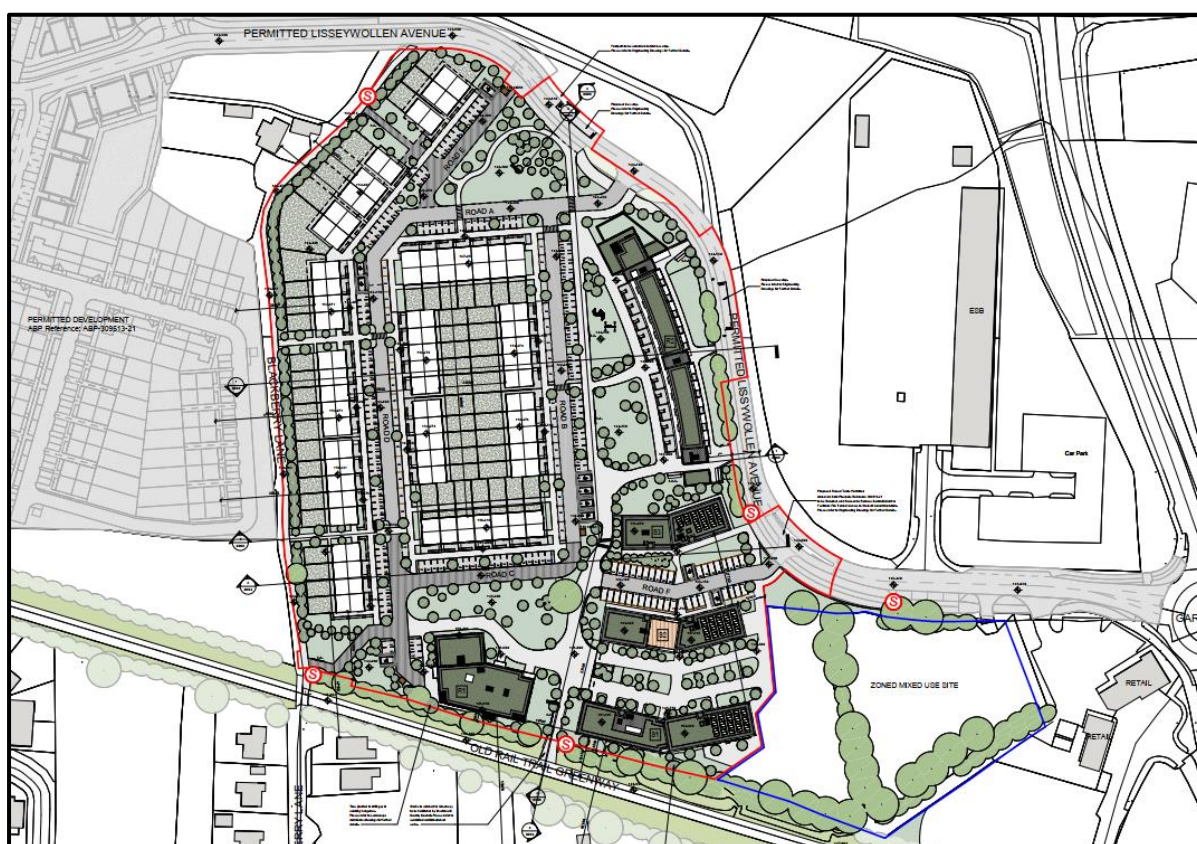


## 4 Development Description

### 4.1 Phasing of the Development

This outline document will outline an indicative sequence of works. The appointed Contractor will clearly outline works within the construction phase Construction Management Plan that shall be submitted and agreed with Westmeath County Council (WMCC).

A construction program of 24 - 36 months is anticipated for the project. A layout plan of the various phases of the development is detailed in **Figure 4.1** below.



**Figure 4.1: Residential and student accommodation (Source: Henry J Lyons).**

The project is to be divided into several distinct phases as follows:

#### **Pre-Construction Phase** – Site clearance and preliminary works

- Site set-up, temporary services and staff welfare facilities.
- Removal of topsoil and landscaping.

**Residential Development** – for 60No. dwelling houses (38 no. 2-storey 3-bed townhouses 7No. 2-storey 4-bed townhouses, 7No. 3-storey 4-bed townhouses, 6No. 2 storey 4-bed semi-detached and 2No. 2 storey 4-bed detached), includes 62No. apartments / duplexes to be provided as follows: Block R1 containing 38No. apartments (16No. 1 bed units and 22No. 2

bed units) in a 3-6 storey building, and Block R2 containing 20No. duplex units (10 No. 2 bed units and 10 no. 3 bed units) over 4 storeys with 4 no. apartments (4 no. 2 bed units) in one 5<sup>th</sup> storey feature area.

- **Residential houses** to be constructed in one of three layout styles using the same construction methods:
  - Type 1
  - Type 2
  - Type 3
  - Parking Spaces
  - Private Back Gardens
- **Apartment Block R1** will be a 3-6 storey building, comprised of the following layout styles:
  - One Bed Apartments
  - Two Bed Apartments
  - Bin Storage Area
  - Generator Room
  - SWST Room
  - Meter Cupboard
  - Bicycle Storage
- **Apartment Block R2** will be 4-storey building, comprised of the following layout styles and amenities:
  - Two Bed Duplex
  - Three Bed Duplex
  - Bin Storage Area
  - Parking Spaces
  - Creche on ground floor
  - Bicycle Storage Area
- Hard and soft landscaping
- Pedestrian Entrances

**Student Accommodation Development** – 283 no. student housing bedrooms in three apartment blocks which will range from 4 to 7 storeys high.

- **Student Accommodation Block S1** – will be a 5-6 storey building comprised of the following:
  - Ground floor space consisting of boiler room, living spaces and canteen areas, cinema room and games room.
  - Each floor from 1<sup>st</sup> – 4<sup>th</sup> will typically consist of living spaces, communal kitchen areas, and 26 no. en-suite bedroom units.
  - 5<sup>th</sup> Floor to consist of 13 en-suite bedrooms and living spaces/kitchen areas.
  - Shared Parking with Block S2.
  - Public open space.

- **Student Accommodation Block S2** – will be a 6-7 storey building comprised of the following:
  - Ground floor space consisting of boiler room, bike storage, living spaces and canteen areas.
  - Each floor from 1<sup>st</sup> – 5<sup>th</sup> will typically consist of living spaces, communal kitchen areas, and 20 no. en-suite bedroom units.
  - 6<sup>th</sup> Floor to consist of 7 no. en-suite bedrooms and living spaces/kitchen areas.
  - Shared Parking with Block S1 & S3.
  - Public open space.
- **Student Accommodation Block S3** – will be a 4-5 storey building comprised of the following:
  - Ground floor space consisting of kitchen areas, living, and dining areas, and 09 no. en-suite bedroom units.
  - Each floor from 1<sup>st</sup> – 3<sup>rd</sup> will typically consist of living spaces, communal kitchen areas, and 14 no. en-suite bedroom units.
  - 4<sup>th</sup> Floor to consist of 8 no. en-suite bedrooms and living spaces/kitchen areas.
  - Shared Parking with Block S2.
  - Public open space.

**Ancillary works** – which will consist of:

- **Water Supply Connection** – The proposed water supply for the development will connect to a proposed 200mm watermain which will be installed on Blackberry Lane to the east and north of the site. It is proposed to make two connections. One connection point will be at the northern residential entrance to the site. The second connection will be made at the student accommodation entrance which is adjacent to student housing.
- **Wastewater Drainage** – There are existing x2 no. 225mm Ø gravity wastewater drainage pipe running diagonally across the southern and northern ends end of proposed site.
  - The proposed student housing and southern residential apartment block will connect into the southern foul line.
  - The residential houses and the northern apartment block will connect into the northern foul line.
- **Sustainable Urban Drainage System (SUDS)** – There is an existing 950mm Ø surface water drainage pipe which diagonally crosses the north of the proposed site, parallel to the proposed diverted wastewater drainage pipe.
  - It is proposed to divert the surface water drainage at the north of the site also around the proposed 3 bed semi-detached houses to the north of the site.
  - The proposed site will be served via below ground gravity pipework which predominantly runs below the proposed internal roads within the development.
  - The surface water network will be fed via in road gully and rainwater from houses via guttering and downpipes.

- The surface water network will be attenuated in the north of the site and flow controlled prior to outfall into the diverted 950mm Ø storm line.

- **Electrical and telecom services.**

## 4.2 Pre-Construction Activities

The main contractor will establish site setup, appropriate signing, hoarding, security fencing and welfare facilities.

- **Removal of Asbestos Pipe:** A specialist contractor will be commissioned to removed and dispose an underground pipe, constructed from asbestos which traverses the site.

## 4.3 Site Set-Up and Hoarding

Perimeter hoarding will be provided around the site to provide a barrier against unauthorized access from the public areas. Controlled access points to the site, in the form of gates or doors, will be kept locked for any time that these areas are not monitored (e.g. outside working hours).

The hoarding will be well-maintained and will be painted. Any hoardings may contain graphics portraying project information. The site hoarding will be branded using the appointed Contractors logos etc. Some marketing images or information boards may also be placed on the hoarding. Access to site will be controlled and monitored outside of site working hours. All personnel working on site must have a valid Safe Pass card and the relevant CSCS cards.

Temporary connection to electricity and water services will be set up to facilitate site works.

A suitably secure site compound will be set up, wherever the restricted confines of the site will allow and will facilitate the efficient delivery of materials and personnel to the site. This compound is to include material storage, site office and meeting room, and staff welfare facilities. The final location of the site compound will be highlighted in the Construction Management Plan to be issued to Westmeath County Council by the appointed main contractor.

## 4.4 Site Access, Deliveries and Traffic Management

A site-specific Traffic Management Plan, (TMP) is detailed in section 6 of this CEMP to introduce temporary measures to facilitate access to the site by plant, machinery, and trucks during the construction phase.

## 4.5 Construction Sequence of New Structures

### 4.5.1 Residential Houses

The exact construction specifications and sequencing of the new-build houses are yet to be finalised. This section of the CEMP will be updated once a main contractor is appointed and

a definitive construction programme is established, in advance of the commencement of the project.

The houses are likely to be constructed from traditional blockwork, timber frame, ICF or modern methods of construction such as light gauge frame. Ground investigations will be required to determine the footing requirements. The houses are likely to be founded on reinforced concrete strip footings, should the ground be confirmed as suitable for same.

#### **4.5.2 Duplex Residential Apartment Block**

The exact construction specifications and sequencing of the new-build apartment blocks are yet to be finalised. This section of the CEMP will be updated once a main contractor is appointed and a definitive construction programme is established, in advance of the commencement of the project.

Depending on results of ground investigations, the footings for the duplex block could potentially be strip footings should the ground be confirmed as suitable for same. If a suitable bearing-strata is not identified at a shallow depth the duplex apartments will need to be piled, with reinforced concrete ground beams spanning between piles to transfer the vertical and lateral loading from the superstructure.

It is envisaged that the duplex apartment block will be constructed from in situ or precast concrete framing with external cavity walls and hollow core precast concrete floor slabs. Cantilever balconies can be achieved by projecting steel beams from the inner leaf via Schock connectors. The lateral stability system is achieved via full-height concrete lift and staircores. Due to the length of the building a full height structural movement joint will be required

#### **4.5.3 Multi-Storey Residential Apartment & Student Accommodation Blocks**

The exact construction specifications and sequencing of the new-build apartment block and student housing blocks is yet to be finalised. This section of the CEMP will be updated once a main contractor is appointed and a definitive construction programme is established, in advance of the commencement of the project.

##### **4.5.3.1 Substructure**

The appointed contractor will prepare a project-specific construction programme. This section includes descriptions of construction methodologies of similar developments. This section will be updated accordingly when a contractor is appointed.

Based on the extent of the proposed development, it is anticipated that foundations for the buildings will be piled. Given the site location within an urban area, a form of augered pile solution will be considered as this can mitigate construction noise generated by driven pile solutions. This may involve excavation and rock-breaking work; filling, blinding and compacting work. Final type of pile foundation will be decided at the detailed design stage and will be dictated by the results of ground investigations. The proposed pile foundation will also

provide sufficient load carrying capacities required for the development and should be designed by a piling specialist.

Vibration monitoring techniques will need to be employed during construction to ensure that vibrations from piling are within acceptable limits considering neighbouring properties around the perimeter of the site.

#### 4.5.3.2 Superstructure

Method statements will be agreed in advance with the appointed contractor to ensure that safe working practices are in place including edge protection, access platforms, fall arrest systems and netting during superstructure works.

The construction of the superstructure will consist of cavity external walls with RC walls for inner leaf and brickwork as an outer leaf. For the inner structural walls RC walls are proposed and for the partitions light-weight timber/concrete walls. Reinforced Concrete (RC) ground beams will be constructed, forming pile caps over the piles on top of pile caps which will complete the substructure. If ground conditions allow, the ground floor slab will probably likely be a concrete ground bearing slab over insulation with screed. Each floor will be constructed of precast hollow core slabs with structural screed topping, spanning between reinforced concrete load bearing walls.

The building superstructure will be confirmed at detailed design stage but will likely be RC walls with RC Columns and RC beams where required. Some amount of structural steel might be used in certain locations. The stair cores, lift cores will be of RC construction and the areas of extensive green roof on certain buildings will be precast hollow core slabs with structural screed topping.

#### 4.5.3.3 Envelope

The external walls of the building are envisaged to be cavity walls with a brick or block outer leaf tied back to the structural internal leaf via wall ties, constructed off the ground beams and fixed back to the slab edge at every other floor by Ancon Optima system or similar. Elevation of the walls will be combination of bricks and rendered masonry walls. The cavity thickness will be dictated by BER requirements for insulation.

As each section of the works is made weather tight, working upwards from the ground floor, the internal fitting out will commence including first-fix services installations. The ceilings will then be installed in conjunction with the second fix services followed by joinery, floor finishes and decoration. Inspections and snagging will then be carried out, final testing and commissioning completed and a final clean prior to handover and completion of the ICT installations.

A summary of operations for all phases is listed in **Table 4.1** overleaf.

**Table 4.1: Summary of operations expected for the various developments at The Green Quarter SHD at Cartrontroty, Kilnafaddoge and Lissywollen (townlands), Athlone, Co. Westmeath.**

External envelope will require the following operations:	Internal work will require the following operations:
<ul style="list-style-type: none"> <li>• Blockwork/ Brickwork</li> <li>• Metal Cladding</li> <li>• Window/ Curtain Walling/ Roof Lights</li> <li>• Roof coverings - Slate &amp; Tile</li> <li>• Low Pitch Roof coverings - Trocal or similar</li> <li>• Flashing &amp; Aprons &amp; Tray – Leadwork/ Powder coated metal</li> </ul>	<ul style="list-style-type: none"> <li>• Electrical Installation</li> <li>• Mechanical Installation</li> <li>• Fireproofing</li> <li>• Partitions &amp; Ceilings – use of gypsum-based products</li> <li>• Painting</li> <li>• Plastering</li> <li>• Joinery</li> <li>• Timber Stairs</li> <li>• Labour-Only Carpentry</li> <li>• Air Tightness sealing and testing</li> <li>• Tiling</li> <li>• Sanitary-ware installation</li> <li>• Vanity Units</li> <li>• Kitchens &amp; wardrobes installer</li> <li>• Metal work</li> <li>• Industrial Cleaners.</li> </ul>
Above ground external operations:	
<ul style="list-style-type: none"> <li>• Boundary construction - timber fencing/ block and stone walls</li> <li>• Landscaping</li> <li>• Stone Walling</li> <li>• Signs</li> <li>• Play Equipment</li> <li>• Street Furniture.</li> </ul>	

#### 4.6 Site Working Hours

Construction operations on site will generally be subject to a planning permission and conditions. However, it may be necessary for some construction operations to be undertaken outside these times, for example, service diversions and connections, concrete finishing and fit-out works, etc.

Deliveries of materials to site will generally be between the hours of 08:00 – 19:00 Monday to Friday, and 08:00 to 14:00 on Saturdays. There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times.

## 5 Waste Management Plan

### 5.1 Background

The Waste Management Plan (WMP) will address the following points:

- Analysis of waste arisings / material surpluses
- Specific Waste Management objectives for the Project including the potential to re-use existing on-site materials for further use.
- Methods proposed for Prevention, Reuse and Recycling
- Waste Handling Procedures
- Waste Storage Procedures
- Waste Disposal Procedures
- Waste Auditing
- Record Keeping.

### 5.2 Policy and Legislation

The principles and objectives to deliver sustainable waste management for this project have been incorporated in the preparation of this report and are based on the following strategic objectives:

- Environmental Protection Agency Act 1992
- Waste Management Acts 1996 to 2005
- Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)
- Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008), as amended.
- The Waste Framework Directive (Directive 2008/98/EC)
- Department of the Environment, Heritage and Local Government – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – July 2006.

In reference to the above legislation the below hierarchy has been adapted for this site:

- Reduction of the amount of waste generated by the construction process
- Segregation of waste will be implemented during the construction phase of the development to enable easy re-use and recycling, wherever possible
- Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals, packaging etc.



### 5.3 Waste Minimisation

The Construction Project Manager shall take primary responsibility for the minimisation and prevention of waste generation. The following initiatives should be implemented to assist in this task:

- Materials to be ordered on an “as needed” basis to prevent oversupply and material build up on site.
- Appropriate storage facilities should be provided to ensure materials are correctly handled and stored thus reducing damage to materials.
- Material ordering shall coincide with the programme of works to reduce the need to store materials on site.
- Sub-contractors will be responsible for the management of their wastes.

### 5.4 Ongoing Review of WMP

It is proposed that a review of waste management practices will form part of regular site inspection audits to be carried out by the construction contractor. This information should be forwarded to the Construction Project Manager to assist in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the works progress.

### 5.5 Management of Construction/Demolition Waste Disposal

It is proposed to establish a dedicated and secure compound on site for the setting down of bins / skips to facilitate waste storage prior to disposal.

The site manager on behalf of the construction contractor will ensure that all staff are made aware of their responsibility in relation to waste management on site. The Construction Project Manager shall inform staff by means of clear signage and verbal instruction of housekeeping and waste segregation practices.

It will be the responsibility of the Construction Project Manager to ensure that a written record of all quantities and nature of waste removed off site are maintained on site in a Waste File to be kept at the Project Office.

It is the responsibility of the Construction Project Manager or nominated person that all contracted waste hauliers employed at the site hold an appropriate Waste Collection Permit for the waste streams which will be generated and that all waste materials are disposed of at an appropriately licensed or permitted waste facility.

Typical waste materials anticipated to be generated throughout the course of the project are classified under Section 17 – Construction and Demolition Wastes – of the List of Waste (LoW) as detailed in **Table 4.1**, overleaf.

**Table 4.1: Description of Waste**

<b>Description of Waste</b>	<b>EWG Code</b>
Concrete, Bricks, Tiles and Ceramics	<b>17 01</b>
Concrete	<b>17 01 01</b>
Bricks	<b>17 01 02</b>
Tiles and Ceramics	<b>17 01 03</b>
Mixture of concrete, bricks tiles & ceramics	<b>17 01 07</b>
Wood, Glass and Plastic	<b>17 02</b>
Wood	<b>17 02 01</b>
Glass	<b>17 02 02</b>
Plastic	<b>17 02 03</b>
Bituminous mixtures, coal tar and products	<b>17 03</b>
Bituminous mixtures containing other than those mentioned in 17 03 01	<b>17 03 02</b>
Bituminous Mixtures including Coal Tar and Tared products	<b>17 03</b>
Metals (including their alloys)	<b>17 04</b>
Copper, Bronze, Brass	<b>17 04 01</b>
Aluminium	<b>17 04 02</b>
Lead	<b>17 04 03</b>
Zinc	<b>17 04 04</b>
Iron and Steel	<b>17 04 05</b>
Tin	<b>17 04 06</b>
Mixed Metals	<b>17 04 07</b>
Cables other than those mentioned in 17 04 10	<b>17 04 11</b>
Insulation and asbestos-containing Construction Materials	<b>17 06</b>
Gypsum based construction Materials	<b>17 08</b>
Other Construction and Demolition Materials	<b>17 09</b>
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	<b>17 09 04</b>
Sewage Screenings	<b>19 08 01</b>
Paper and Cardboard	<b>20 01 01</b>
Wood other than that mentioned in 20 01 37	<b>20.01 38</b>
Soil and Stones	<b>17 05 04</b>
Mixed Municipal Waste	<b>20 03 01</b>

It is proposed that materials will be collected and stored in separate, clearly labelled skips, within a predefined waste storage area in the site compound and that these materials will be collected by a permitted waste contractor and disposed of at an appropriately licensed/permitted waste facility.

Prior to the commencement of the project the Construction Project Manager will instruct an appropriately permitted waste contractor to collect the waste and ensure that the waste contractor and licensed/permitted waste facility hold relevant waste permits and licenses.

All waste soils shall be classified as inert, non-hazardous or hazardous in accordance with the EPA's Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous prior to being exported off site. This is to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility

## 5.6 Onsite Waste Reuse and Recycling Management

Each waste stream will have a dedicated area for segregation to allow easy reuse or recycling of materials. Collections for these will be as usage requires. Where possible recyclable waste will be kept dry and clean to allow processing. Recyclable waste will be transferred by suitable means to a licenced/permitted facility. Material for recycling will be segregated into suitable containers which have adequate access for collection vehicles.

## 5.7 Record Keeping

It is the responsibility of the Construction Project Manager or his/her delegate that a written record of all quantities and natures of wastes reused / recycled during the project are maintained in a Waste File at the Project office. Details to be included are as follows:

- Contractors and subcontractors on Site every day
- All main Contractor employees on Site
- All plant and equipment on Site
- All visitors [including Health and Safety procedures] and any associated reports
- Weather every day
- Activity during the day
- Invoices showing standard of material installed adheres to specifications
- Results of concrete cube, slump and other testing
- Any accident and incident reports, safety audits internal or external
- Safety statement and safety file
- Site programme
- Any other items required by the Contractor to maintain on Site by law, Building Regulations, Building Control or health and safety.
- Minutes of all Site meetings
- Any applicable certificates.

## 5.8 Waste Collector and Waste Facility Details

**Table 4.2** overleaf, summarises the names and permit numbers of the waste collectors and waste facilities which are currently utilised for off-site disposal of the various waste-streams

arising from the development. This table will be updated as the project advances and waste streams change.

**Table 4.1: Waste collector and waste facility details**

Description of Waste	EWC Code	Waste Collector		Waste Facility	
		Name	NWCP	Name	WFP/W L No.
Concrete, Bricks, Tiles and Ceramics	17 01				
Concrete	17 01 01				
Bricks	17 01 02				
Tiles and Ceramics	17 01 03				
Mixture of concrete, bricks tiles & ceramics	17 01 07				
Wood, Glass and Plastic	17 02				
Wood	17 02 01				
Glass	17 02 02				
Plastic	17 02 03				
Bituminous mixtures, coal tar and products	17 03				
Bituminous mixtures containing other than those mentioned in 17 03 01	17 03 02				
Bituminous Mixtures including Coal Tar and Tarred products	17 03				
Metals (including their alloys)	17 04				
Copper, Bronze, Brass	17 04 01				
Aluminium	17 04 02				
Lead	17 04 03				
Zinc	17 04 04				
Iron and Steel	17 04 05				
Tin	17 04 06				

Mixed Metals	<b>17 04 07</b>				
Cables other than those mentioned in 17 04 10	<b>17 04 11</b>				
Gypsum based construction Materials	<b>17 08</b>				
Other Construction and Demolition Materials	<b>17 09</b>				
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	<b>17 09 04</b>				
Sewage Screenings	<b>19 08 01</b>				
Paper and Cardboard	<b>20 01 01</b>				
Wood other than that mentioned in 20 01 37	<b>20.01 38</b>				
Soil and Stones	<b>17 05 04</b>				
Mixed Municipal Waste	<b>20 03 01</b>				
Bulky Mixed Municipal Waste	<b>20 03 07</b>				

## 6 Environmental Management Plan

### 6.1 Background

A preliminary risk assessment was carried out for the proposed site location in accordance with the Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition, produced by the London Authorities Noise Action Forum, July 2016. This assessment took into account factors relating to the proximity of the site to sensitive receptors and rated the level of nuisance anticipated with scheduled work practices.

Following the completion of this risk assessment, the proposed development was determined, for the most part to be a **low**. The risk was deemed to be elevated to **medium** risk towards the southern section of the site due to the presence of residential units in close proximity to the site boundary. This section outlines suitable measures to minimise nuisance noise and dust emissions in order to minimise any impact of the proposed developments on surrounding receptors.

### 6.2 Noise and Vibration

The Contractor will be required to restrict noise levels to the following levels:

- Daytime (08:00 to 19:00 hrs) – 55dB
- Evening (19:00 to 23:00 hrs) – 50dB
- Night-time (23:00 to 08:00 hrs) – 45dB (measured from nearest noise sensitive location).

To minimize noise from construction operations, no heavy construction equipment/ machinery (to include pneumatic drills, construction vehicles, generators, etc) shall be operated on or adjacent to the construction site before 8.00 or after 19.00, Monday to Friday, and before 8.00 or after 14.00 on Saturdays. No activities shall take place in site on Sundays or Bank Holidays. No activity, which would reasonably be expected to cause annoyance to residents in the vicinity, shall take place on site between the hours of 19.00 and 8.00am. No deliveries of materials, plant or machinery shall take place before 8.00 in the morning or after 19.00 in the evening.

The proposed development will be obliged to comply with BS 5228 "Noise Control on Construction and open sites Part 1". The appointed contractor shall implement the following measures to eliminate or reduce noise levels where possible:

- All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.
- All staff should be briefed on the complaint's procedure, the mitigation requirement and their responsibilities to register and escalate complaints received.
- The site entrance shall be located on Blackberry Lane, away from the residential units to the south, to minimise disturbance to noise sensitive receptors
- Good Quality site hoarding is to be erected to maximise the reduction in noise levels.

- Contact details of the contractor and site manager shall be displayed to the public, together with the permitted operating hours.
- Material and plant loading and unloading shall only take place during normal working hours.
- Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC.
- Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer.
- Use all plant and equipment only for the tasks for which it has been designed.
- Locate movable plant away from noise sensitive receptors.
- Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings.
- Ensure at least 4 days’ notice is given to Westmeath County Council Planning Department when applying for extensions to normal working hours. No out of hours work to be undertaken unless permission to do so has been granted.

Any construction works that have the potential to cause significant levels of vibration at sensitive receptors will be carried out in accordance with the limit values in **Table 5.1** below, at the most affected sensitive receptor.

**Table 5.1: Vibration Limits**

Type of Building	Peak Component Particle Velocity	
	4 Hz – 15 Hz	15 Hz & above
Reinforced or framed structures/ industrial and heavy commercial buildings	50 mm/s @ >4Hz	50 mm/s @ >4Hz
Unreinforced or light framed structures. Residential or light commercial buildings	15 mm/s @ 4Hz 20 mm/s @ 15 Hz	20 mm/s @ 15Hz 50 mm/s @ >40 Hz

The following limits from continuous vibration are required on this project:

- For vibration sensitive spaces an upper limit of 1mm/s is required. This includes educational and residential buildings;
- For commercial buildings where the activities are not of an especially vibration sensitive nature or for potentially vulnerable unoccupied buildings a vibration limit of 3mm/s is required;
- For all other buildings 5mm/s is required. This includes unoccupied buildings and non-sensitive buildings.

Where unavoidable, exceedance in these levels will only be for short durations and with prior notice to the sensitive receivers of concern. The vibration levels will not exceed 10mm/s at any of the adjacent buildings.

Continuous vibration monitoring will be undertaken on each boundary of the site (North, South, East and West) in line with the active demolition/construction and the nearest sensitive receiver. Vibration monitoring will be undertaken in general accordance with B55228 and reporting to relevant stakeholders in a timely manner. Continuous vibration monitoring will be conducted using a vibration monitor that:

- Includes a tri-axial vibration sensor measuring over a frequency range from 1 to 315 Hz;
- Is capable of sending immediate exceedance alerts to relevant site staff
- via email and/or SMS;
- Allows for regular reporting of all data as required and/or in response to complaints;
- Is configured with alarms/alerts the relevant to the vibration limits defined earlier;
- Operates continuously during the nominated construction phases.

In addition to monitoring, the following measures will be adhered to minimise impacts on the surrounding environment:

- Adjacent residents and businesses will be informed of the progress of the works. As concern from community is generally regarding possibility of building damage, they will be informed that vibration levels causing building damage are much higher than the levels likely to be experienced
- Where vibration compaction works are occurring near to sensitive receivers or structures, the smallest size roller capable of completing the works will be used where practical
- Processes and equipment that generate lower vibration levels will be implemented where feasible
- Where breaking up of building elements using a hydraulic hammer or pulveriser, the size of the debris (broken up building elements) falling from height will be minimised where practical
- Using excavators to lift and drop large/heavy debris items to assist breakage into smaller pieces will be avoided. Pulverisers will be used instead to break large debris pieces into smaller pieces

### 6.3 Dust and Air Quality

Dust prevention measures will be put in place for any particulate pollution. The extent of dust generation under construction activities being carried out is dependent on environmental factors such as rainfall, wind speed and wind direction. The most likely sources of dust generation at this site include soil stripping and excavation of foundations for the main building and the sawing of concrete throughout the duration of the project.



Control Measures are outlined as follows:

- Soil will not be exposed until a replacing capping layer is almost ready to be placed. This is to ensure that soil is left exposed for the minimum amount of time possible.
- Material stockpiles will be strategically placed to reduce wind exposure. Materials will be ordered on an “as needed” basis to reduce excessive storage.
- The contractor will spray water on the surface of all roads in the vicinity of the site if required in order to minimise dust generation from the construction activities.
- Appropriate dust suppression will be employed to prevent fugitive emissions affecting those occupying neighbouring properties or pathways.
- Restrict vehicle speeds to 15 kmph as high vehicle speeds cause dust to rise.
- Covers are to be provided over soil stockpiles when high wind and dry weather are encountered if required.
- All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers shall be covered during transit on and off site.
- Street and footpath cleaning shall be undertaken during the demolition and ground works phase to minimise dust emissions.
- No materials shall be burned on-site.

#### 6.4 Surface Water and Groundwater Protection

The main pollutants with the potential to impact water receptors are silt, fuel/oil, concrete and chemicals. There are a number of steps outlined below to eliminate contamination of site surface water runoff. The below recommendations are advised with reference to the Eastern Regional Fisheries Board recommendations for protection of adjacent water courses during the construction phase:

- Harmful materials such as fuels, oils, greases, paints and hydraulic fluids must be stored in bunded compounds well away from storm water drains and gullies. Refuelling of machinery should be carried out using drip trays.
- Runoff from machine service and concrete mixing areas must not enter storm water drains and gullies leading off-site.
- Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site.
- Open excavations to be backfilled immediately following installation of services/foundations etc.

#### 6.5 Habitats & Flora

An Ecological Impact Assessment was carried out in December 2021 and has suggested the following mitigation measures in order to maximise protection for local habitats and flora.

- No permanent removal/damage of habitats or movement of construction machinery will occur outside of the development works area/footprint during the construction phase,

where the development site works area/footprint will be clearly marked for associated site staff.

- Trees and hedgerows that have been identified for retention will be protected in line with current guidelines (e.g. NRA 2006).
- As outlined above, the proposed landscaping plan for the proposed development has been developed in cognisance of the recommendations of the All-Ireland Pollinator Plan 2021-2025 (and associated guidance documents) both in terms of native species selection, where possible, and pollinator friendly non-natives where required and the ongoing management of elements of the landscaping to provide gains for pollinating insects and wildlife generally across the site.
- A suitably experienced ecologist will undertake an invasive species survey prior to the commencement of works to update the current survey results and if any changes to the species present has occurred, update the outline invasive species management plan accordingly.
- A suitably experienced contractor is employed to undertake an invasive species eradication programme at the site in line with best available methods of control and eradication (e.g. Maguire et al, 2008; NRA Guidelines (2010); Fennell et al. (2018) to ensure that non-native, potentially invasive plant species are not spread across the site during development and/or to surrounding areas due to construction activities

## 6.6 Fauna

An Ecological Impact Assessment was carried out in December 2021 and has suggested the following mitigation measures in order to maximise protection for local fauna.

- All excavations/trenches should be covered at night or a suitable means of escape provided for nocturnal mammals such as Badger.
- Light spill into possible bat foraging areas will be minimised into the adjacent tree areas to lower potential effects on foraging/commuting bats by utilising asymmetric flat glass directional LED fittings.
- Construction works will be carried out according to standard environmental controls and according the commitments provided in the CEMP (e.g. dust suppression, run-off control; see CIRIA 2001 & 2010).
  - For instance, the management of edible and putrescible waste will be according to the measures outlined in the CEWMP. Waste will be stored appropriately in covered and segregated bins for disposal at approved licensed facilities.
- Any excavations that become inundated will be checked daily for the presence of Frog (and/or if in the early part of the year, Frog Spawn). If Frogs, or their spawn, are discovered these will be translocated under licence to a suitable site by a qualified ecologist
- A pre-works walkover will be carried out by a qualified ecologist to identify the presence of any protected fauna on-site. In the event that protected fauna are found actively using the site for breeding/roosting (e.g. bird nest, bat roost) at any stage during the



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construction phase, works will cease immediately and the area will be cordoned off until advice is sought from a suitably qualified/experienced ecologist.

## 7 Outline Traffic Management Plan

### 7.1 Background

This Outline Traffic Management Plan, (OTMP) is designed to facilitate access to the site by plant, machinery, and work vehicles during collections/deliveries; and to minimise traffic impacts of construction to local residents in the vicinity of the site.

### 7.2 Outline Traffic Management Plan

The construction phase OTMP has been prepared in accordance with the following best practices publications and demonstrates compliance with the requirements of the Health and Safety Authority:

- (1) *Chapter 8 of the Traffic Signs Manual and the Safety, Health & Welfare at Work (Construction) Regulations* – Department of Transport
- (2) *Temporary Traffic Management Design Guidance* – Department of transport, Tourism and Sport.

The main contractor will be required to ensure that the elements of this outline OTMP shall be incorporated into the final TMP. The contractor shall also agree and implement monitoring measures to confirm the effectiveness of the mitigation measures outlined in the OTMP. The final TMP shall address the following issues (including all aspects identified in this outline TMP):

- Site Access & Egress
- Traffic Management Signage
- Routing of Construction Traffic / Road Closures
- Timings of Material Deliveries to Site
- Traffic Management Speed Limits
- Road Cleaning
- Road Condition
- Road Closures
- Enforcement of Construction Traffic Management Plan
- Details of Working Hours and Days
- Details of Emergency plan
- Communication
- Construction Methodologies
- Particular Construction Impacts.

## 7.3 Construction Entrance and Construction Traffic Control

### 7.3.1 Access in

The proposed construction entrance is to be from Blackberry Lane. Construction traffic will approach the site entrance from the east utilising the network of local roads connecting the site to the R916 road. The entrance will be manned by a banksman at all times who will direct traffic safely into the construction site and facilitate the safe navigation of larger construction vehicles as required.

The entrance gate will be set back off the public road to prevent incoming vehicles from causing obstruction to local traffic. Access will have enough straight entrance controls to allow at least two HGVs to enter the site. Strong lines of communication with hauliers, strict delivery schedules and just-in-time delivery methods will be in operation to ensure no more than two trucks will visit the site at any one time. It is envisaged that strict adherence to these protocols will ensure that no queuing will occur on Blackberry Lane.

### 7.3.2 Access Out

When vehicles are due to depart from the site the banksman will ensure the roadway is safe to proceed and will communicate with the driver in the cab. The proposed construction exit from the site will be onto Blackberry.

The main contractor is required to ensure that the provision of adequate guarding and lighting appropriate to the circumstances. Traffic signs should be placed in advance of the works area on both sides to ensure adequate warning to the general public and maintained when necessary, they should be operated as reasonably required for the safe guidance or direction of the public with regard to the needs of people with disabilities. The main contractor will comply with Regulation 97 of the Safety, Health and Welfare at Work (Construction) Regulations 2013.

Access to the construction site will only be to authorised persons. During afterhours, security will be employed by the main contractors to ensure no unauthorised access.

### 7.3.3 Construction Vehicle Numbers

Construction vehicles will fall into 2 no. categories, heavy and light vehicles. Heavy vehicles will consist of HGV's involved in the removal of material off-site and for the delivery of concrete and other large construction materials. Light vehicles include cars and tradespeople's vans.

Estimates of vehicle movements per day for both categories will be outlined upon appointment of a contractor for the project.

## 7.4 Deliveries to Site / Site Access

The site entrance will be gated; and manned at all times with access only permitted for site vehicles and plant movements when necessary.

Deliveries of materials to site will be planned and programmed to ensure that the materials are only delivered when required by adopting a 'just in time', lean construction management approach. There will be periods where multiple vehicle deliveries will be required, e.g. site fill material under roads, houses and landscape areas, pre-cast concrete and large concrete pours. These will be planned well in advance and no queuing of vehicles allowed on the public road at the entrance to the site. Supply chain to be directed as not to travel in convoys greater than three at any time.

All off-loading of material will take place within the site, remote from the public road and access via the agreed access construction point only. Bulk deliveries to take place outside of peak traffic hours within a six-day week as to minimise impact on the existing road network.

Access control: The site entrance will always be controlled by a banksman. The contractor will carry out a visitor induction briefing for all visitors or other persons who need access to the construction area. All visitors to the site will be required to have current 'Safe Pass' cards.

Sign Management: Signs are to comply with statutory requirements on public roads. Other construction sites may be carrying out construction activity at the same time as the subject site. It is therefore imperative that directions to each site are distinctly identifiable.

## 7.5 Cranes & Lifting of Equipment

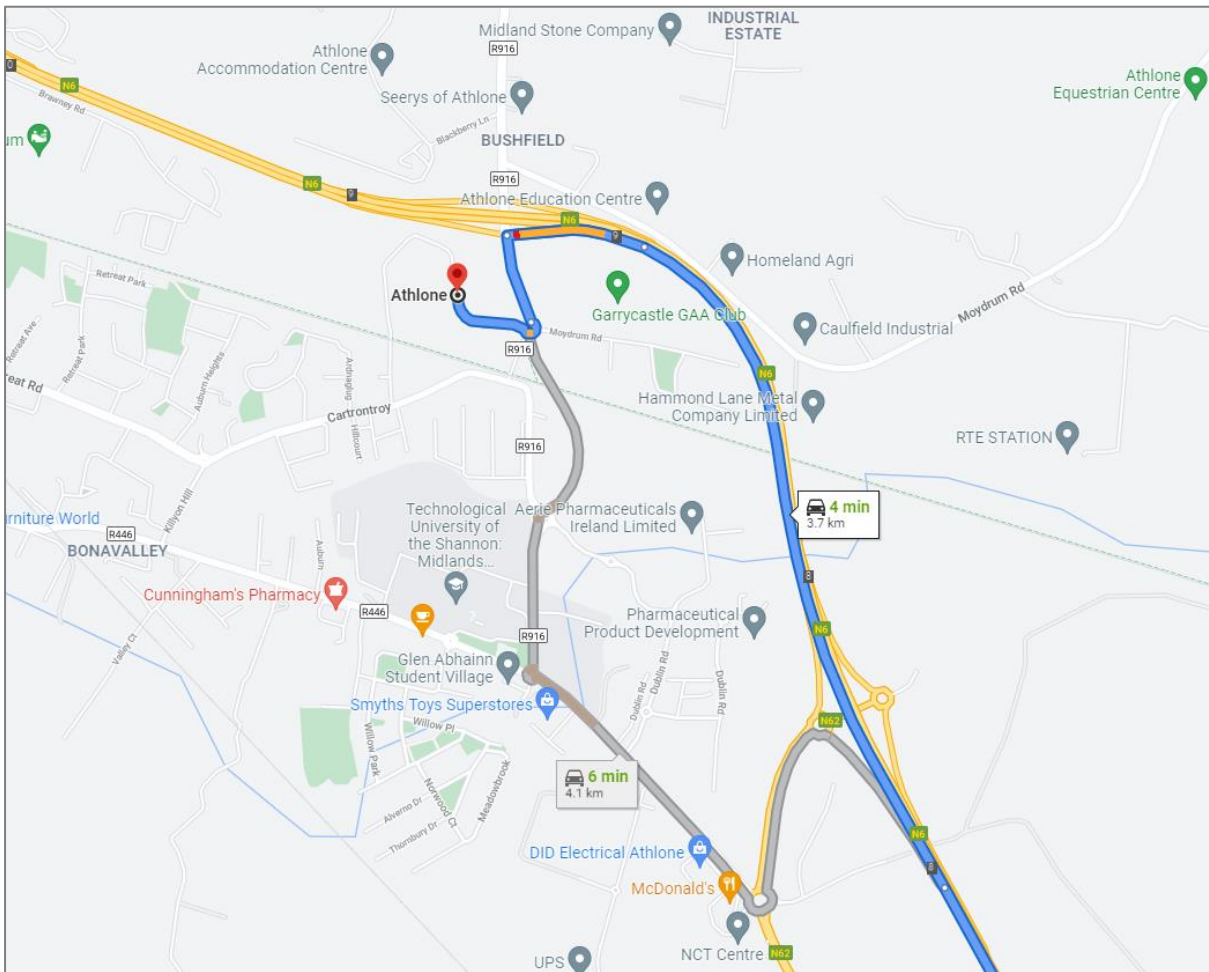
A tower crane and concrete placing boom will be provided to erect the RC frame. A combination of goods hoists and a telehandler will offload and distribute materials for the finishing trades.

All lifting equipment will carry current test certificates and will be inspected thoroughly, prior to use. Trained banksmen will attend the cranes as always.

## 7.6 Routing of Construction Traffic

As outlined in **Figure 7.1** overleaf, construction traffic will access the site from the N6 national road and will travel to the site via the R916, connecting exit 9 of the N6 to the Garrycastle Roundabout, ca. 162m east of the site entrance. Construction traffic will take 3<sup>rd</sup> exit on the Garrycastle Roundabout and use Blackberry Lane to access the site entrance.

Traffic leaving the site will turn right onto Blackberry Lane, utilise the local road network, taking the 1<sup>st</sup> exit on the Garrycastle Roundabout on to the R916, and will exit Athlone via Exit 9 on the N6 National Road. Construction traffic will be instructed to utilise dual carriageway road only on approach to/ departure from the R916, to avoid / minimise the encountering of narrow road widths, poor visibility and unsuitable bearing capacities.



**Figure 7.1: Construction Traffic Route**

## 7.7 Traffic Management Speed Limits

Adherence to posted / legal speed limits will be emphasised to all contractors and sub-contractors during induction training.

Drivers of construction vehicles / HGVs will be advised that vehicular movements in locations, such as local community areas, shall be restricted to 50 km/h. Special speed limits of 30 km/h shall be implemented for construction traffic in sensitive areas such as school locations. Such recommended speed limits will only apply to construction traffic and shall not apply to general traffic.

## 7.8 Road Cleaning

A wheel wash facility will be provided prior to exit of the site when required throughout the various stages of construction on-site. This is to ensure that the minimum road sweeping will be required on the public road, although a requirement for road sweeping cannot be eliminated

entirely, control measures within site is aimed at limiting road sweepers. If conditions require it then a manned power washer shall be put in place to assist the wheel wash system.

Road sweeping operations to remove any project related dirt and material deposited on the road network by construction / delivery vehicles will be utilised as required. All material collected will be disposed to a licensed waste facility.

The following additional measures will be taken to ensure that the site, public roads and surroundings are kept clean and tidy:

- A regular program of site tidying will be established to ensure a safe and orderly site
- Food waste will be strictly controlled on all parts of the site
- Mud spillages on roads and footpaths outside the site will be cleaned regularly and will not be allowed to accumulate.

## 7.9 Road Condition

The higher volume of heavy vehicle traffic movements and the nature of the payload may create problems to the local road network in terms of:

- Fugitive losses from wheels, trailers or tailgates.
- Localised areas of subgrade and wearing surface failure.

The main contractors shall ensure that:

- Loads of materials leaving each site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation.
- The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive losses from a vehicle during transportation to and from site, including but not limited to:
- Covering of all waste or material with suitably secured tarpaulin/ covers to prevent loss; and utilisation of enclosed units to prevent loss.
- Roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.

## 7.10 Enforcement of TMP

The traffic management plan will be enforced by both the Construction Project Manager and the Resident Engineer.

All project staff and material suppliers will be informed of the measures proposed by the TMP during site induction and will be required to adhere to the final TMP. As outlined above, the contractor shall agree and implement monitoring measures to confirm the effectiveness of the TMP.



### 7.11 Working Hours

Deliveries of materials to site will generally be between the hours of 08:00 and 19:00 Monday to Friday, and 08:00 to 14:00 on Saturdays. No deliveries will be scheduled for Sundays or Bank Holidays.

### 7.12 Emergency Procedures

The main contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and site accesses. The contractor shall provide to the local authorities and emergency services, contact details of the contractor's personnel responsible for construction traffic management. In the case of an emergency the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112.
- Exact details of the emergency / incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner.
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer; All construction traffic shall be notified of the incident (where such occurs off site).
- Where required, appointed site first aiders will attend the emergency immediately.
- The Safety Officer will ensure that the emergency services are en route.

### 7.13 Communication

The main contractor shall ensure that close communication with the Westmeath County Council and the emergency services shall be maintained throughout the construction phase. Such communications shall include:

- Submissions of proposed traffic management measures for comment and approval.
- On-going reporting relating to the condition of the road network and updates to construction programming.
- Information relating to local and community events that could conflict with proposed traffic management measures and construction traffic in order to implement alternative measures to avoid such conflicts.

The contractor shall also ensure that the local community is informed of any proposed traffic management measures in advance of their implementation. Such information shall be disseminated by posting advertisements in local newspapers and delivering leaflets to houses in the affected areas. Such information shall contain contact information for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures etc. which may conflict with proposed traffic management measures.

## 8 Implementation

### 8.1 Role and Responsibilities

Due to the nature and scale of this development, the appointment of a full-time environmental manager is deemed surplus to requirements for the duration of the project. The Construction Project Manager will be responsible for the day-to-day implementation of the measures outlined in the Project CEMP. The Construction Project Manager will be supported by an Environmental Consultant who will be involved in the project on an ad-hoc basis should unforeseen or significant environmental incidents arise.

#### 8.1.1 Construction Project Manager

The Construction Project Manager have the overall responsibility of ensuring the measures outlined in the Project CEMP are adhered to for the duration of the construction phase. The primary responsibilities of the Construction Project Manager are as follows:

- Promotion of awareness of environmental issues associated with each project phase.
- Ensure adherence with all environmental and traffic management standards listed in the Project CEMP.
- Facilitate environmental audits and site visits.
- Monitor the impact of construction traffic on local traffic conditions.
- Awareness and implementation of relevant legislation, codes of practice, guidance notes as stated in the CEMP.
- Conduct regular site inspections to facilitate the timely identification of environmental risks or incidents.
- Ensure all construction activities are carried out with minimal risk to the environment.
- Report environmental incidents in a timely manner to the project environmental consultant and the relevant authorities.

#### 8.1.2 Project Environmental Consultant

The main contractor will nominate a suitably qualified person/organisation as the Project Environmental Consultant, prior to construction works taking place. The primary responsibilities of the Project Environmental Consultant are as follows:

- Quality assurance of the Project CEMP.
- Update of the Project CEMP as required paying particular attention to site-specific environmental hazards or changes in legislation.
- Ensuring compliance of Project CEMP with the conditions of the Planning Permission.
- Provide expertise to the Construction Project Manager on environmental concerns.
- Conduct the various specialist environmental monitoring tasks outlined within the Project CEMP (noise, dust, surface water monitoring etc.).
- Prompt response to environmental issues if they arise.

### 8.1.3 Resident Engineer

Typically, the Resident Engineer's primary role involves assurance that the construction work of a project is carried out according to the quality, time and cost requirements of the contract. A significant degree of cross-over can usually be anticipated between the roles of a Resident Engineer, a Construction Project Manager and an Environmental Consultant. With respect to the Project CEMP, the Resident Engineer is expected to play a crucial role in the Traffic Management Plan along with the following responsibilities:

- Performing or coordinating site inductions.
- Monitoring the performance of subcontractors.
- Monitoring the performance of the traffic management plan.
- Managing and supervising less experienced site engineers and operatives.
- Ensuring that work activities have been carried out in accordance with the plans, specifications and industry standards.
- Ensuring that tests and inspections are performed.
- Liaising with construction management to remove any hazards associated with work activities.
- Ensuring that delivered materials meet specifications and established quality standards.
- Initiating and maintaining records, back-charge procedures, progress reports etc.

## 8.2 Awareness and Training

### 8.2.1 Environmental Induction

The key environmental topics outlined in the Project CEMP will be summarised and integrated into the general site induction. Site-specific concerns and best work practices will be outlined to all contractors and sub-contractors due to carry out work at the site. As a minimum this will include:

- The roles and responsibilities of the Construction Project Manager; the Environmental Consultant and the Resident Engineer; along with the responsibilities of contractors/sub-contractors themselves.
- Incident and complaints procedure.
- Outline of the CEMP structure.
- Site specific environmental concerns.
- Best work practices

### 8.2.2 Toolbox Talks

Daily toolbox talks will be conducted by the Construction Project Manager as standard practice. It is the duty of the Construction Project Manager to liaise with the Project Environmental Consultant and Resident Engineer to assess site operations for environmental concerns particularly as the project advances and new activities commence. Appropriate

mitigation measures will be devised and communicated to the relevant personnel prior to the commencement of any such activities.

### 8.3 Environmental Incidents and Complaints Procedure

The Construction Project Manager will maintain a register of environmental incidents which will document the nature, scale and severity of any environmental incident or complaint which arises as a result of site activities. In the event of an environmental incident the following steps must be followed:

- The Project Environmental Consultant is notified immediately.
- The Project Environmental Consultant will liaise with the competent authority if necessary.
- The details of the incident will be recorded on an Environmental Incident Form which will record the following details:
  - Cause of the incident
  - Extent of the Incident
  - Immediate actions
  - Remedial measures
  - Recommendations made to avoid reoccurrence
- If the incident has impacted on an ecologically sensitive receptor (SPA, SAC, NHA) an ecological specialist will be consulted.
- The Project Environmental Consultant and Construction Project Manager will fully cooperate with any investigations conducted by the competent authority.

## 9 Conclusion

This Construction Environmental Management Plan (CEMP) will form part of the construction contract and is designed to reduce possible impacts which may occur during the construction of the proposed development.

The proposed development shall be constructed and developed to minimise the generation of construction and demolition waste. During the construction phase, construction waste shall be stored and segregated in dedicated waste storage areas which shall optimise the potential for off-site reuse and recycling. All construction waste materials shall be exported off-site by an appropriately permitted waste contractor.

Extensive measures shall be taken to prevent uncontrolled emissions to drains and gullies leading off the site. Noise mitigation measures will be utilised as required. Several measures have been outlined to ensure adequate dust suppression throughout the project. Noise and dust monitoring shall be carried out at various stages throughout the project to ensure compliance with the relevant standards.

Suitably qualified personnel including a Construction Project Manager, Project Environmental Consultant, Project Ecologist and Resident Engineer will be appointed to implement the procedures and protocols relevant to their profession as outlined in this CEMP.

The Client shall be responsible for ensuring that the contractor manages the construction activities in accordance with this Construction Environmental Management Plan and shall ensure that any conditions of planning are incorporated into the final Construction Project Management Plan prepared by the appointed works contractor.