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Outline Construction and Environmental Management Plan

Proposed Residential Development

Drumlark, Co. Cavan

Client: Drumlark Investments Ltd

Job No. D111

February 2023

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OUTLINE CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN

PROPOSED RESIDENTIAL DEVELOPMENT, DRUMLARK, CO. CAVAN

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1.0 INTRODUCTION

Cronin and Sutton Consulting Engineers (CS Consulting) have been commissioned by Investments Ltd to prepare an Outline Construction and Environmental Management Plan (OCEMP) for a proposed 145-unit Large-scale Residential Development (LRD) at Drumlark Developments, Cavan.

The OCEMP is a preliminary plan. This provides a framework within which all final construction processes, site management arrangements, and environmental protection measures employed during construction are to be specified. Construction of the proposed development will be under the control of a lead contractor, who will be appointed following a grant of planning permission. Upon appointment, once familiar with the site and having developed a final detailed methodology for construction, the lead contractor will expand upon the OCEMP to produce a detailed Construction and Environmental Management Plan (CEMP). The content of the contractor's CEMP will be agreed with Cavan County Council (CCC) prior to commencement of works.

The contractor's detailed Construction and Environmental Management Plan will give greater detail of construction management arrangements and processes, while adhering to the stipulations of this OCEMP. It will also incorporate the following:

- an Operational Health & Safety (OH&S) Management Plan;
- an Environmental Management Plan (including a Waste Management Plan); and
- a Construction Traffic Management Plan (including a Pedestrian Management Plan).

The contractor's Construction and Environmental Management Plan will be strictly adhered to throughout the development's construction stage, to ensure the following:

- That all site activities are effectively managed to minimise the generation of waste and to maximise the opportunities for on-site reuse and recycling of waste materials.
- To ensure that all waste materials generated by site activities, which cannot be reused on site, are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved licensed facilities in compliance with the Best Practice Guidelines for preparation of resource & waste management plans for construction & development projects (EPA, 2021), and the Protection of the Environment Act 2003.
- To manage and control any environmental impacts (noise, vibration, dust, water) that construction activities may have on the local receiving environment, in particular on receptors and properties adjacent to the construction site.
- To comply with all planning conditions and requirements imposed in relation to waste management.

The OCEMP demonstrates how the appointed contractor, and the appointed Project Supervisors (Site Manager, Health & Safety Officer, and Project Ecologist) will comply with the following relevant legislation and best practice guidelines:

- Integrated Pollution Prevention and Control Directive (1996/61/EC)
- The Waste Framework Directive (Directive 2008/98/EC)
- Environmental Protection Agency Act 1992
- Best Practice Guidelines for preparation of resource & waste management plans for construction & development projects (EPA, 2021), and the Protection of the Environment Act 2003
- Waste Management (Collection Permit) (Amendment)(No.2) Regulations 2016

- Department of the Environment, Heritage and Local Government – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – June 2006
- Local Government Water Pollution Act 1977
- Environmental Protection Agency (EPA) – Draft Best Practice Guidelines for the Preparation of Resource Management Plans for Construction & Demolition Projects – April 2021.

2.0 SITE LOCATION AND CONDITION

2.1 Site Location

The proposed development site in located approx. 3kms north from the Cavan Town Centre. The site is located in the administrative jurisdiction of Cavan County Council and has a development site area of circa 4.62ha.

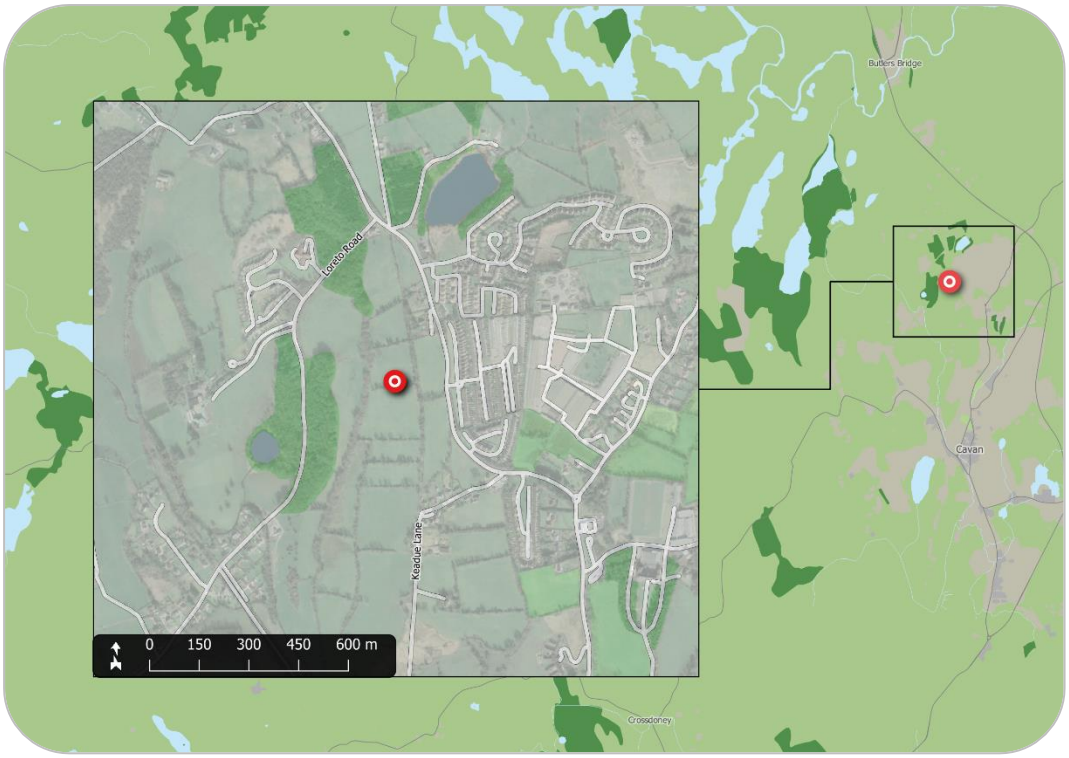

Figure 1 – Location of proposed development site
(*map data and imagery: EPA, NTA, OSM Contributors, Google*)

The location of the proposed development site is shown in **Figure 1** above; the indicative extents of the development site, as well as relevant elements of the surrounding road network, are shown in more detail in **Figure 2**.

Figure 2 – Site extents and environs
(*map data and imagery: NTA, OSM Contributors, Google*)

The subject site is bound by greenfield on all the sides. There are a few existing residential developments to the north-east of the development site.

2.2 Existing Land Use

The subject site is greenfield. There is an existing water course approx. 80m from the eastern boundary of the development site.

3.0 PROPOSED DEVELOPMENT

The development will consist of the provision of a total of 145no. residential units along with provision of a crèche. Particulars of the development comprise as follows:

a. Site excavation works to facilitate the proposed development to include excavation and general site preparation works.
b. The reprofiling of ground levels within the site as required.
c. The provision of a total of 91no. residential dwellings which will consist of 25no. 2 bed units, 55no. 3 bed units and 11no. 4 bed units. The dwellings range in height from single storey to two storey.
d. The provision of a total of 54no. duplex apartment units consisting of 15no.1 bed units and 39no. 2bed units. The duplex apartment blocks range in height from two storey to three storey in height.
e. Provision of a 2 storey creche with associated parking, bicycle and bin storage.
f. Provision of associated car parking at surface level via a combination of in-curtilage parking for dwellings and via on-street parking for the creche and duplex apartment units.
g. Provision of electric vehicle charge points with associated site infrastructure ducting to provide charge points for residents throughout the site.
h. Provision of associated bicycle storage facilities at surface level throughout the site and bin storage facilities
i. Creation of a new access point from the public road with associated works to include for a connections to the existing public footpath along with provision of a pedestrian crossing point with a raised table.
j. The provision of a new shared cycleway and footpath to serve the site.
k. Provision of internal access roads and footpaths and associated works.
l. Provision of residential communal open space areas to include formal play areas along with all hard and soft landscape works with public lighting,

planting and boundary treatments to include boundary walls, railings & fencing.

m. Internal site works and attenuation systems which will include for provision of a hydrocarbon and silt interceptor prior to discharge into the surface water network.

n. All ancillary site development/construction works to facilitate foul, water and service networks for connection to the existing foul, water and ESB networks.

4.0 LOGISTICS

4.1 Construction Programme and Phasing

Subject to a successful grant of planning, it is intended for the works to commence in Q3 2024. The proposed development is anticipated to be constructed over a 24-month period.

The development is proposed to be constructed on the following basis:

- Set up site perimeter hoarding, maintaining existing pedestrian and traffic routes around the site.
- Site clearance.
- Reduced level excavations and foundation construction.
- Site services installations (drainage, power, water).
- Building superstructure and roof construction.
- Finish interior and exterior landscaping.

4.2 Vehicular Access to Site

The subject site shall be accessed from L1532 to the east of the development site. It is anticipated that for the duration of the works all access and egress for deliveries shall be via L1532. In addition, it may also be beneficial to install a pedestrian only entrance to the site to segregate vehicular and pedestrian movements to and from site.

Security personnel will be present at the entrance/exit of the site to ensure all egressing traffic will do so safely. A wheel wash will be installed at the exit from the site to prevent any dirt being carried out into the public road. A road sweeper will be employed as required to keep the public road around the site clean.

4.3 Protection of Public Areas from Construction Activity

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 at 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.

4.4 Site Security

The site will be secured with a hoarding. This will be branded using the appointed Contractors' logos. 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.

4.5 Material Hoisting and Movement Throughout the Site

Hoists and teleporters may be utilised as required during the project to facilitate material movement into the structures and waste movements out. Hoists and teleporters will be used in order to minimise the use of cranes, which would be more affected by inclement weather conditions. With the commencement of the fit-out activities, hoists strategically positioned will play a key role for successful project delivery.

4.6 Deliveries and Storage Facilities

It is proposed that unloading bays are provided for deliveries to the site within the hoarding perimeter. They should be accessible by forklifts. Appropriately demarcated storage zones will be used to separate and segregate materials.

All deliveries to site will be scheduled to ensure their timely arrival and avoid need for storing large quantities of materials on site. Deliveries will be scheduled outside of background peak traffic hours (within the permitted site working hours) to avoid disturbance to pedestrian and vehicular traffic in the vicinity of the site.

4.7 Site Accommodation

On-site facilities will consist of:

- Materials storage area
- Site office & meeting room
- Staff welfare facilities including but not limited to toilets, drying room, canteen.

Electricity will be provided to the site via the national grid.

Water supply to the site will be provided by means of a temporary connection to the public watermain. Similarly, a temporary connection for foul water drainage will be made to the public network.

4.8 Site Parking

There will be sufficient on-site parking for staff and visitors. Construction staff will also be encouraged to use public transport in accordance with the guidance provided by the Health Service Executive and local transportation services.

4.9 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.

Deliveries of materials to site will generally be between the hours of 07:00 and 19:00, Monday to Friday, and 08:00 to 14:00 on Saturdays (subject to planning conditions). 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. Any such deliveries will be made with the advance agreement of Cavan County Council.

5.0 EXCAVATED WASTE GENERATED BY THE PROPOSED DEVELOPMENT

5.1 Demolition and Excavation

There are no existing structures on the development site to be demolished. The management of spoil generated by excavation on site is described within the following section of this document.

5.2 Estimated Excavated Material

The arising excavated materials shall be used to re-profile the development land. The anticipated excavation volume is approx. 105,189.25m^3, which it is anticipated shall be retained on the development lands or shall be transferred for recycling, recovery, or disposal. It is anticipated that a total of 8,149.90m^3 of fill materials will be required on site.

6.0 CONSTRUCTION WASTE GENERATED BY THE PROPOSED DEVELOPMENT

6.1 Construction Waste Classification

Waste generated during construction at a typical site includes the following:

- Concrete, bricks, tiles, and cement
- Wood
- Glass
- Plastics
- Bituminous mixtures, coal tar, and tarred products
- Metals (including their alloys)
- Soil and stones
- Insulation materials (possibly including asbestos-containing materials)
- Gypsum-based construction material
- Materials containing mercury
- PCB-containing materials (e.g. sealants, resin-based floorings, capacitors, etc.)
- Waste electrical and electronic equipment
- Oil wastes and waste of liquid fuels
- Batteries and accumulators
- Packaging (paper/cardboard, plastic, wood, metal, glass, textile, etc.)

The EPA issued the European Waste Catalogue (EWC) in January 2002 and this system is used to classify all wastes and hazardous wastes according to a consistent EU-wide system. The EWC classification for typical waste materials to be expected to be generated during construction of the subject development is given in **Table 1** below.

Table 1 - European Waste Catalogue

Waste Material	EWC Code
Non-Hazardous	
Concrete, bricks, tiles, ceramics	17 01
Wood, glass and plastic	17 02
Bituminous mixtures, coal tar and tarred products	17 03
Metals (including their alloys)	17 04
Soil, stones and dredged spoil	17 05
Gypsum-based construction material	17 08
Hazardous	
Electrical and Electronic Components	16 02
Batteries	16 06
Wood Preservatives	03 02
Liquid Fuels	13 07
Soil and stones containing dangerous substances	17 05 03
Insulation materials containing asbestos	17 06 01
Other insulation materials consisting of or containing dangerous substances	17 06 03
Construction materials containing asbestos	17 06 05
Construction and demolition waste containing mercury	17 09 01
Construction and demolition waste containing PCBs	17 09 02
Other construction and demolition wastes containing dangerous substances	17 09 03

Table 2 shows the breakdown of construction waste types produced on a typical site, based on data from EPA National Waste Reports.

Table 2 – Composition of C&D Waste in Ireland - 2019

Waste Type	**Proportion**
Soil & Stones	84.8%
Concrete, Brick, Tile & Gypsum	6.9%
Bituminous Mixtures	1.3%
Metal	2.2%
Segregated Wood, Glass & Plastic	0.3%
Other Mixed C&D Waste	4.5%
Total	**100%**

Table 3 presents the EPA statistics on the final treatment methods of construction and demolition waste streams in Ireland for the year 2019.

Table 3 – Final Treatment of C&D Waste in Ireland - 2019

Waste Type	Final Treatment Proportion			
	Recycling	Energy Recovery	Backfilling	Disposal
Soil & Stones	0%	0%	91%	9%
Concrete, Brick, Tile & Gypsum	45%	0%	52%	2%
Bituminous Mixtures	64%	0%	36%	0%
Metal	100%	0%	0%	0%
Segregated Wood, Glass & Plastic	39%	54%	7%	0%
Other Mixed C&D Waste	13%	1%	60%	26%
Total	**6.8%**	**0.2%**	**84.0%**	**9.0%**

The development's predicted waste generation is given in **Table 4**.

Table 4 – Predicted Waste Generation

Waste Type	Predicted Tonnage Produced	Re-Use		Recyclable		Disposal	
		Tonnage	%	Tonnage	%	Tonnage	%
Mixed C&D	300	30	10	240	80	30	10
Timber	200	80	40	110	55	10	5
Plasterboard	100	30	30	60	60	10	10
Metals	50	3	5	45	90	2	5
Concrete	50	15	30	32	65	3	5
Mixed Waste	200	40	20	120	60	40	20
Total	**900**	**198**	**22**	**607**	**67**	**95**	**11**

6.2 Waste Management and Mitigation Measures

The following measures are proposed to ensure effective management of construction waste at the development site, to maximise recycling of construction waste, and to minimise the environmental impact of construction waste.

- On-site segregation of all waste materials into appropriate categories, including:
  - top-soil, sub-soil, bedrock;
  - concrete, bricks, tiles, ceramics, plasterboard;
  - asphalt, tar, and tar products;
  - metals;
  - dry recyclables (e.g. cardboard, plastic, timber).
- All waste material shall be stored in skips or other suitable receptacles in a designated waste storage area on the site.
- Wherever possible, left-over material (e.g. timber cut-offs) and any suitable demolition materials shall be reused on or off site.
- Uncontaminated excavated material (top-soil, sub-soil) shall be reused on site in preference to the importation of clean fill, as soil to be reused or removed from site must be tested to confirm its contamination status and subsequent management requirements.
- All waste leaving the site shall be transported by a suitably licensed/permitted contractor and taken to a licensed/permitted facility.
- All waste leaving the site shall be recorded and copies of relevant documentation retained.

These measures are intended to ensure that the waste arising from construction of the proposed development is dealt with in compliance with the provisions of the Best Practice Guidelines for preparation of resource & waste management plans for construction & development projects (EPA, 2021), Waste Management Acts 1996 to 2013, the Litter Act of 1997, and the Eastern-Midlands Region (EMR) Waste Management Plan 2015-2021, achieving optimum levels of waste reduction, re-use and recycling.

7.0 GENERAL ENVIRONMENTAL PROTECTION MEASURES

7.1 Surface Water Management

All existing surface water drainage elements (including adjacent watercourses) will be maintained free from waste materials generated during the construction of the proposed development, including the initial site clearance and excavation. Routine visual inspections by the contractor shall reduce any risk of excess construction materials causing obstructions to surface water drainage and any potential flooding occurring. A maintenance schedule and operational schedule must be established by the contractor for silt and pollution control measures during the construction period. This should be undertaken in consultation with the relevant statutory authorities.

Run-off from the working site or any areas of exposed soil shall be channelled and intercepted at regular intervals for discharge to silt traps or lagoons. A temporary positive drainage system shall be installed prior to the commencement of the construction works, to collect surface water runoff from the site during construction. A series of geotextile-lined cascading, high level outfall settling basins will be installed upstream of an agreed discharge point, the location of which is to be determined by the contractor as part of their detailed Construction and Environmental Management Plan and approved by Cavan County Council. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed before being discharged in a controlled manner to the agreed outfall. All inlets to the cascading settling basins will be riprapped to prevent scour and erosion in the vicinity of the inlet.

Pouring of concrete shall be carried out in the dry and allowed to cure. Mixer washings and excess concrete shall not be discharged to surface water. Implementation of comprehensive and strict site housekeeping measures to isolate concrete from local surface waters is essential.

Oil storage tank(s) and the associated filling area and distribution pipe work shall be separated by at least 10m from surface watercourses. Storage tanks shall have secondary containment provided by means of an above ground bund to capture any oil leakage, irrespective of whether it arises from leakage of the tank itself or from associated equipment (such as filling and off-take points, sighting gauges, etc.), all of which should be located within the bund. The bund specification should conform to the current best practice for oil storage (Enterprise Ireland BPGC5005).

Weather conditions and seasonal weather variations shall also be taken account of when planning stripping of topsoil and excavations, with an objective of minimising soil erosion.

Hazardous construction materials shall be stored appropriately to prevent contamination of watercourses or groundwater. Spill kits shall be kept in designated areas for re-fuelling of construction machinery.

7.2 Noise

The Contractor will implement measures to eliminate where possible and reduce noise levels where not.

All construction activities will be carried out in compliance with the recommendations of BS 5228, Noise Control on Construction and open sites part 1 and comply with BS 6187 Code of Practice for Demolition.

Potential sources of noise impact include construction activities on site which may involve the use of heavy machinery.

All works on site will comply with BS 5228 2009 which gives detailed guidance on the control of noise and vibration from construction activities. In general, the contractor will implement the following mitigation measures during the proposed infrastructure works:

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together.

More specifically the Contractor will ensure that:

- In accordance with Best Practicable Means, plant and activities to be employed on site are reviewed to ensure that they are the quietest available for the required purpose.
- Loading and unloading will occur within designated loading areas as far from noise receptors as possible.
- Equipment will be fitted with appropriate silencers where possible.
- Regular and effective maintenance by trained personnel is carried out to reduce noise and / or vibration from plant and machinery.
- Hours are limited during which site activities likely to create high levels of noise and vibration are carried out – no noisy activities will be carried out outside of the permitted construction hours.

A site representative responsible for matters relating to noise and vibration will be appointed prior to construction on site. This individual will be responsible for engagement with local residents, advance notice for noisy activities and the maintenance of a complaints register/record.

A noise and vibration monitoring specialist will be appointed to carry out independent monitoring of noise and vibration during critical periods at sensitive locations.

7.3 Air Quality and Dust Monitoring

Dust prevention measures will be included for control of any site airborne particulate pollution. The Contractor will monitor dust levels in the vicinity of the site in accordance with planning conditions. Records will be kept of such

monitoring for review by the Planning Authority. There are currently no national or European Union standards of air quality with which levels of dust deposition can be compared. The minimum criteria to be maintained will be in accordance with the *German Standard Method for determination of dust deposition rate (VDI 2119)*, which is a maximum deposition of 350mg/m^2/day as measured using Bergerhoff type dust deposit gauges.

The Contractor will continuously monitor dust over the variation of weather and material disposal to ensure the limits are not breached throughout the project. Potential sources of dust impact are present due to construction activities on site.

7.4 Migrating Dust and Dirt Pollution

The Contractor will ensure that all construction vehicles that exit the site onto the public roads will not transport dust and dirt to pollute the external roadways. This will be achieved through a combination of the following measures:

- Ensuring construction vehicles have a clean surface to travel on within the site (i.e., haul road).
- Providing a "Full-Body Self Contained" wheel wash, constructed and located within the site confines.
- Ensuring an appropriate wheel or road washing facility is provided as and when required throughout the various stages of construction on site. If conditions require it then a manned power washer will be put in place to assist the wheel wash system.

The use of appropriate water-based dust suppression systems will greatly reduce the amount of dust and windborne particulates as a result of the construction process. This system will be closely monitored by site management personnel particularly during extended dry periods and in accordance with site management methods.

7.5 Harmful Materials

Harmful material will be stored on site for use in connection with the construction works only. These materials will be stored in a controlled manner. Where on-site facilities are used there will be a bunded filling area using double bunded steel tank at a minimum.

7.5.1 Potentially Hazardous Wastes to be Produced

Contaminated Soil

If any contaminated material is encountered, it will need to be segregated from clean/inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled 'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous' using the HazWasteOnline application (or similar approved classification method). The material will then need to be classified as clean, inert, nonhazardous or hazardous in accordance with the EC Council Decision 2003/33/EC, which establishes the criteria for the acceptance of waste at landfills.

Fuel/Oils

As fuels and oils are classed as hazardous materials, any on-site storage of fuel/oil, all storage tanks and all draw-off points will be bunded and located in a dedicated, secure area of the site, away from watercourses. Provided that these requirements are adhered to and site crew are trained in the appropriate refuelling techniques, it is not expected that there will be any fuel/oil wastage at the site.

Other known Hazardous Substances

Paints, glues, adhesives and other known hazardous substances will be stored in designated areas away from watercourses. They will generally be present in small volumes only and associated waste volumes generated will be kept to a minimum. Wastes will be stored in appropriate receptacles pending collection by an authorised waste

contractor. In addition, WEEE (containing Construction and Demolition Waste Management Plan 11 hazardous components), printer toner/cartridges, batteries (Lead, Ni-Cd or Mercury) and/or fluorescent tubes and other mercury containing waste may be generated during construction activities. These wastes (if encountered) will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

7.6 Adjacent Watercourse

- Discharge Licences – It will not be permitted to discharge into any newly constructed storm water systems or watercourse without adhering to the conditions of the discharge licence and agreeing the same with the Design Team, Site Manager and Local Authority Area Engineer.
- Over Ground Oil / Diesel Storage – Only approved storage system for oil / diesel within the site will be permitted, (i.e., all oil / diesel storage to be located within a designated area placed furthest away from adjacent watercourses and contained within constructed bunded areas e.g., placed on 150mm concrete slab with the perimeter constructed with 225mm solid blockwork rendered internally). The bunded area will accommodate the relevant oil / diesel storage capacity in case of accidental spillage. Any accidental spillages will be dealt with immediately on site however minor by containment/removal from site.
- Re-fuelling will be contained within a designated area adjacent to the storage area.
- Concrete Washout – The washing out of concrete trucks on site will not be permitted as they are a potential source of high alkalinity in watercourses. Consequently, it is a requirement that all concrete truck washout takes place back in the ready-mix depot.

- Disposal of Wastewater off Site – The Site Management Team will maintain a record of all receipts for the removal of toilet or interceptor waste off site to insure its disposal in a traceable manner.
- Road Sweepers / Cleaning – The cleaning of public roads in and around the subject site will be undertaken to reduce environmental impacts and care will be taken to prevent any pollution of watercourses from this activity.
- Maintenance of existing gullies on existing roads used for site access

7.7 Vibration

The Contractor will be required to carry out their works such that the effect of vibration on the adjacent buildings and surroundings is minimised, and that no damage to these results from construction activity on site. Potential sources of significant vibration include:

- Reduced level excavation and/or rock breaking.
- Construction of piled basement walls.
- Other construction activities on site involving the use of heavy machinery.

The Contractor will be required to comply with any planning conditions relating to vibration limits and vibration monitoring.

8.0 ECOLOGY AND BIODIVERSITY PROTECTION

8.1 Project Ecologist

The Project Ecologist (PE) appointed to the proposed development project is:

Patrick McCabe
Hydrec Environmental Consultant
The Station House – Office 3,
North Road, Monaghan Town
(www.hydrec.ie)

This OCEMP report has been prepared in consultation with the Project Ecologist and with reference to the following documents prepared by the PE (both of which are submitted separately with this planning application):

- Ecological Impact Statement (EcIA)
- Nature Impact Assessment (NIA)

The lead contractor appointed for construction of the proposed development will also consult with the Project Ecologist when preparing their detailed Construction Environmental Management Plan, as well as throughout construction of the development.

During the demolition and construction phases of the development, the primary responsibilities of the PE shall be to:

- Act as the primary on-site ecological contact and advisor for the Project Coordinator (PC) and Site Manager (SM) regarding implementation of the EcIS.
- Ensure compliance with all recommendations of the EcIA during regular site inspections.
- Request relevant records and documentation from the SM where necessary.

- Attend routine meetings with the SM.
- Keep detailed records of any ecological incidents and report these to the PC.
- Keep records of any variations to construction methods or design brief and modify EcIA recommendations in consultation with the PC.

Produce staged monitoring reports on flora and fauna if required by any planning conditions or relevant legislation.

8.2 Ecological Impact Assessment

An Ecological Impact Assessment (EcIA) in respect of the proposed development has been prepared by the Project Ecologist and is submitted under separate cover with this planning application.

8.3 Nature Impact Assessment (NIA)

An Nature Impact Assessment (NIA) in respect of the proposed development has been prepared by the Archaeological Consultant Services Unit and is submitted under separate cover with this planning application. Please refer to NIA report for further details on the Geophysical Survey Results and mitigation measures.

8.4 Retention and Protection of Vegetation During Construction

Any vegetation (including trees or hedgerows adjacent to, or within, the proposed development boundary) which is to be retained shall be afforded adequate protection during the construction phase in accordance with the Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes (National Roads Authority, 2006b), as follows:

- Any trees along the proposed development boundary that are to be retained, both within and adjacent to the proposed development boundary (where the root protection area of the tree extends into the proposed development boundary), shall be fenced off at the outset of works and for the duration of construction to avoid structural damage to the trunk, branches or root systems of the trees. Temporary fencing shall be erected at a sufficient distance from the tree so as to enclose the Root Protection Area (RPA) of the tree. The RPA shall be defined based upon the recommendation of a qualified arborist.
- Where fencing is not feasible due to insufficient space, protection for the tree/hedgerow shall be afforded by wrapping hessian sacking (or suitable equivalent) around the trunk of the tree and strapping stout buffer timbers around it.
- The area within the RPA shall not be used for vehicle parking or the storage of materials (including soils, oils and chemicals). The storage of hazardous materials (e.g. hydrocarbons) or concrete washout areas shall not be undertaken within 10m of any retained trees, hedgerows and treelines.
- A qualified arborist shall assess the condition of, and advise on any repair works necessary to, any trees which are to be retained or that lie outside of the proposed development boundary but whose RPA is impacted by the works. Any remedial works required shall be carried out by a qualified arborist.
- A buffer zone of at least 5m shall be maintained between construction works and retained hedgerows to ensure that the root protection areas are not damaged.
- Dust suppression methods shall be employed to protect retained vegetation from excessive dust.

8.5 Protection of Bird Nesting Sites

Unless explicitly permitted by the Project Ecologist, no onsite vegetation (i.e. hedgerows, trees, or scrub) shall be removed or significantly disturbed between the 1st of March and the 31st of August, to avoid direct impacts on nesting birds.

Should the construction programme not allow this seasonal restriction to be observed, then these areas shall be inspected by a suitably qualified ecologist for the presence of breeding birds prior to clearance. Areas found not to contain nests shall be cleared within 3 days of the nest survey, otherwise repeat surveys shall be required. Should nesting birds be encountered during surveys, the removal of vegetation shall be required to be delayed until after the nesting season (1st March to 31st August inclusive), unless permitted by a derogation licence from the National Parks and Wildlife Service (NPWS).

9.0 TRAFFIC MANAGEMENT

9.1 Site Traffic, Traffic and Pedestrian Management

The anticipated truck movements from and to the site in relation to the preliminary programme for the works will be specified in the construction methodology by the main contractor.

The construction site will be delineated by means of hoardings and lockable gates with screened fencing at the entry and exit points. The Contractor will pay particular attention to pedestrian traffic and safety at the entrances. All vehicles will enter and exit the site in a forward direction.

Pedestrians will have right of way. If required, alternate pedestrian routes around the site will be created and clearly signed. Depending on the progress of the works and temporary constraints imposed by the construction methodology, the location of access and exit points to the site may vary.

9.2 Vehicular Access to the Site

It is anticipated that for the duration of the construction works all construction access and egress for deliveries will operate via L1532 along the eastern boundary of the development site. L1532 shall provide easy access to N3 via a network of local distributor roads for deliveries and extraction to and from the site.

Security personnel will be present at the entrance/exit of the site to ensure all exiting traffic will do so safely. A self-contained wheel wash system will be installed at the exit from the site, to minimise dirt being carried out into the public road, and a road sweeper will be employed as required to keep public roads around the site clean.

The vehicular access to the construction site shall include the following design elements:

- Sufficient entrance width to permit two rigid body vehicles to pass one another (i.e. one can enter while another waits to leave).
- An entrance gate set back a minimum of 18m from the public road edge, to ensure that vehicles may leave the road completely before having to stop.
- Appropriate sight lines for vehicles exiting onto the public road, to be ensured by removing existing visual obstructions and by appropriate design of perimeter hoarding.
- Directional signage for site traffic and advance warning signage for all other road users.

9.3 Vehicle Movements During Construction

The major construction items include excavation, construction, and fit out. It is anticipated that the peak of HGV movements to and from the site will be during excavation works and construction of the building foundations and basement. The peak LGV movements to and from the site will be during the building construction and fit out. It is anticipated that the construction traffic impact on the surrounding local road network will be minimal.

The final programming and scheduling of excavation, and construction works shall be determined by the appointed contractor. Under a 'worst-case' scenario, however, it is possible that up to 10no. delivery trips may be made to the site each hour during this phase (one HGV arrival and one HGV departure every 6 minutes). In addition to HGV traffic, periodic deliveries of materials to site shall be made by Light Goods Vehicles (LGVs). Under a worst-case construction traffic generation scenario, 10no. such LGV arrivals and 10no. LGV departures are assumed in each of the background peak hours.

Limited car parking for construction personnel is likely to be provided on site during construction works; some vehicular trips shall therefore be made to and from the site each day by construction personnel commuting to and from

work. However, as the site working hours are expected to be from 08:00 to 20:00 (subject to planning conditions), the majority of these trips are expected to fall outside the background traffic peak hours. In the worst-case scenario, it is assumed that the equivalent of 10no. light vehicle trips may be made to the site during the AM peak hour, and the equivalent of 10no. such trips may be made from the site during the PM peak hour.

It is therefore expected that – under a worst-case scenario – vehicular traffic to and from the development site during the construction phase shall comprise the following:

- 10no. HGV arrivals and 10no. HGV departures in each of the peak hours;
- 10no. LGV arrivals and 10no. LGV departures in each of the peak hours;
- 10no. car arrivals (construction personnel) in the AM peak hour; and
- 10no. car departures (construction personnel) in the PM peak hour.

The Contractor must submit a Construction Traffic Management plan to the Local Authority for approval. Haulage vehicle movements should be fully coordinated to comply with the requirements of the layout and requirements herein.

- At no time should construction associated vehicles be stopped or parked along the routes.
- Haulage vehicles will not travel in convoys of greater than two vehicles at any time.
- Haulage vehicles will be spaced by a minimum of 250m at all times.
- Strictly at no time will haulage vehicles be parked or stopped at the entrance to the site.
- All loading of excess material will occur within the site boundary.
- All off-loading of deliveries will take place within the site, away from the public road and will access via the construction site access.

The routes to and from the site shall depend on where the excavated material will be taken to and from where construction material will be brought into the site. The above locations will be identified by the Contractor at a later stage and appropriate routes will be agreed with Cavan County Council as part of the Contractor's more detailed Construction and Environmental Management Plan.

The increase in traffic as a result of construction will be minor and can be readily accommodated within the existing road network.

9.4 Minimising Construction Vehicle Movements

Construction vehicle movements will be minimised through:

- Consolidation of delivery loads to/from the site and manage large deliveries on site to occur outside of peak periods.
- Use of precast/prefabricated materials where possible.
- 'Cut' material generated by the construction works will be re-used on site where possible, through various accommodation works.
- Adequate storage space on site will be provided.
- A strategy will be developed to minimise construction material quantities as much as possible.
- Construction staff vehicle movements will also be minimised by promoting the use of public transport.

9.4.1 Public Transport

Construction staff will be encouraged to use public transport as means to travel to and from the site where possible. Public transport will be utilised in accordance with the guidelines of the Health Service Executive. An information leaflet will be provided to all staff as part of their induction on site highlighting the location of the various public transport services in the vicinity of the construction site.

9.4.2 Protection of Public Roads

A Visual Condition Survey (VCS) will be carried out of all surrounding streets prior to any site works commencing. The Contractor will liaise with Cavan County Council Roads and Traffic Department to agree any changes to load restrictions and construction access routes for the site. Measures will be put in place as required to facilitate construction traffic whilst simultaneously protecting the built environment.

All entrances and temporary roads will be continuously maintained for emergency vehicle access.

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

- A regular programme of site tidying will be established to ensure a safe and orderly site.
- Scaffolding will have debris netting attached to prevent materials and equipment being scattered by the wind.
- 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.
- Wheel wash facilities will be provided for vehicles exiting the site.

9.5 Project Specific Traffic Management Plan

A detailed project specific traffic management plan will be developed by the Contractor and agreed with Cavan County Council prior to works commencing on site. This plan will be updated as required throughout the project.

Issues addressed in the Traffic Management Plan will include:

- Public safety

- Construction traffic routes
- Deliveries schedule
- Special deliveries (wide and long loads)
- Traffic flows
- Signage and lighting
- Road opening requirements
- Road closures
- Lighting

10.0 PROVISIONS FOR CONSTRUCTION

10.1 Hoarding, Set-up of Site, and Access/Egress Points

The site area will be enclosed with hoarding details of which are to be agreed with Cavan County Council. Hoarding panels will be maintained and kept clean for the duration of the project.

This will involve erecting the hoarding around the proposed site perimeter in line with the finished development description.

10.2 Removal of Services

Prior to any works a utility survey will be carried out to identify existing services. All services on site will be disconnected, diverted or removed as agreed with service providers.

10.3 Site Clearance and Demolition

The site of the proposed development is greenfield, there are no existing structures on site which require demolition.

10.4 Excavation

This development will involve excavation and removal of material from site for foundations and regrading of the site profile.

It is not envisaged that rock will be encountered during the excavation works. The appointed contractor will engage with the project archaeologist prior to the commencement of excavation on site. Excavation will be carried out under the supervision of the project archaeologist.

The Contractor must prepare a Construction Waste Management Plan in accordance with the "Best Practice Guidelines on the Preparation of Waste

Management Plans for Construction and Demolition Projects" (Department of Environment, Heritage and Local Government, 2006) and ensure that all material is disposed of at an appropriately licensed land fill site. The Contractor must also outline detailed proposals within the Construction and Environmental Management Plan to accommodate construction traffic.

10.5 Site Service Installations

Drainage, power, water will be installed to serve the proposed development.

10.6 Housing Construction

The housing is proposed to be constructed on the following basis:

- Reduced level excavations
- Foundation construction (traditional strip foundations, ground beams and floor slabs)
- Installation of utilities/services infrastructure (drainage, power, water)
- Construction of building superstructures (blockwork and/or timber frame elements) and roofs
- Interior finishing and exterior landscaping

10.7 Erection and Operation of Cranes

It is not envisaged that a tower crane will be required for construction of the proposed development; teleporters and mobile cranes will instead be used for the distribution and placement of building materials. However, should a tower crane be required, the Contractor will obtain all necessary licences from the Local Authority.