

## 4. DESCRIPTION OF THE PROPOSED DEVELOPMENT

### 4.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) describes the proposed development and its component parts. The proposed development will consist of the following:

- 1) Demolition of existing outbuildings
- 2) Construction of 121 no. residential units comprising:
  - 52 no. houses (37 no. three-beds, 15 no. four-beds)
  - 4 no. duplex units in Duplex Block D1 (2 no. two-beds (ground floor units) and 2 no. three beds (2 storey units))
  - 8 no. duplex units in Duplex Block D2 (4 no. two-beds (ground floor units) and 4 no. three beds (2 storey units))
  - 6 no. duplex units in Duplex Block D3 (3 no. two-beds (ground floor units) and 3 no. three beds (2 storey units))
  - 14 no. duplex units in Duplex Block D4 (7 no. two-beds (ground floor units) and 7 no. three beds (2 storey units))
  - 4 no. duplex units in Terrace Block T5 (2 no. two-beds (ground floor units) and 2 no. three beds (2 storey units))
  - 14 no. Apartments in Apartment Block A1 (5 no. one-beds, 9 no. two-beds)
  - 13 no. Apartments in Apartment Block A2 (4 no. one-beds, 9 no. two-beds and a Multipurpose Room)
  - 2 no. Apartments in Apartment Block A3 (2 no. two-beds)
  - 4 no. Apartments in Apartment Block A4 (4 no. two-beds)
- 3) Development of a crèche facility (224.80 sqm) associated outdoor play areas and parking
- 4) Provision of a footpath connectivity link along the L-1321
- 5) Provision of shared communal and private open space, car and bicycle parking, site landscaping and public lighting, decommissioning of the existing wastewater treatment plant and provision of all services, access from the L-1321 via the Cnoc Fraoigh development and all associated site development works.
- 6) Provision of a public linear park along the Trusky Stream

### 4.2 Existing Site Description

#### 4.2.1 Site Layout

The site area comprises approximately 5.38 hectares of land located within the townlands of Trusky East, Trusky West, Freeport and Ahaglugger, in Bearna, Co. Galway, approximately 6km to the west of Galway City [I.G. Ref.: M 23388 23615]. The site is bounded by improved agricultural grassland to the north and east and residential housing to the west and south. The general area is rural in character and is surrounded by a number of residential developments, individual houses and agricultural lands. The Cnoc Fraoigh residential estate lies to the west of the site, with agricultural lands to the north and south.

There are no protected structures or archaeological monuments located within the application site. The nearest National Monument Record (GA093-010) is a settlement cluster that is located 400 metres

southwest of the site, however this is separated from the site by the L-1321 local road and the Cnoc Fraoigh housing estate.

The proposed development is not located in any European sites (designated pursuant to the obligations under the Habitats Directive and Birds Directive). However, the site is located approximately 900 metres west of the Galway Bay Complex (SAC) and approximately 1.2 kilometres west of the Inner Galway Bay (SPA). In this regard, an Appropriate Assessment Screening has been undertaken and a Natura Impact Statement has been prepared to accompany the application, so as to enable An Bord Pleanála, as competent authority, to carry out a Stage Two Appropriate Assessment.

Figure 4-1 provides an overview of the proposed development.

#### 4.2.2 Site Access

Access to the proposed development is to be facilitated via an existing residential development at Trusky East called Cnoc Fraoigh, off the L-1321 (Bearna Road) as detailed in Figure 4-2.

A network of footpaths throughout the proposed development will provide a high rate of accessibility to the landscaped amenity areas including parks, playgrounds and open play areas. The inclusion of these attractive, well designed walking routes will encourage pedestrians to access the local facilities on foot as opposed to taking their personal vehicles.



**SHD APPLICATION**

REV	DATE	DESCRIPTION	BY
1	14/04/2020	Issued for Information	AR
2	16/04/2020	Revised for Overbuilding Distances	AR
3	22/04/2020	Revised for Parking	AR
4	08/05/2020	Revised for A.I.L. Apartments, T3, Bin Store & Numbering	AR
5	14/05/2020	Import Landscape MP	AR
6	19/05/2020	Revised for Road Levels	AR
7	21/05/2020	Revised T5 Area, Boundary	AR
8	26/05/2020	Site & Apartment Block Stairs	AR
9	05/06/2020	Revised Landscaping	AR
10	23/06/2020	Revised Boundary Line	AR
11	26/06/2020	Revised Blue Storage	AR

**LEGEND**  
— Site Boundary  
+ Ground Floor Level

**NORTH POINT**  
  
ONLY FOR REFERENCE WITH PLAN OR DRIBGCS  
**APPROVED BY**

Client: BURKEWAY HOMES LTD  
 Project: BEARINA RESIDENTIAL DEVELOPMENT  
 Title: PROPOSED SITE LAYOUT PLAN  
**Figure 4.1 Site Layout**  
 Sheet No.: 924-MDO-XX-XX-DR-A-01101  
 Scale as: As Indicated (A1) Current Rev: 11 Project No.: 924

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10/01/2020 SCALE: 1:500 (FOR INFORMATION ONLY) | EXCEPT THE ARCHITECTS OF ANY DISCREPANCY ON THE DRAWING, PREFER TO WORK PROCEEDING | THIS DRAWING IS COPYRIGHT OF MC CAULEY DAVE O'CONNELL ARCHITECTS

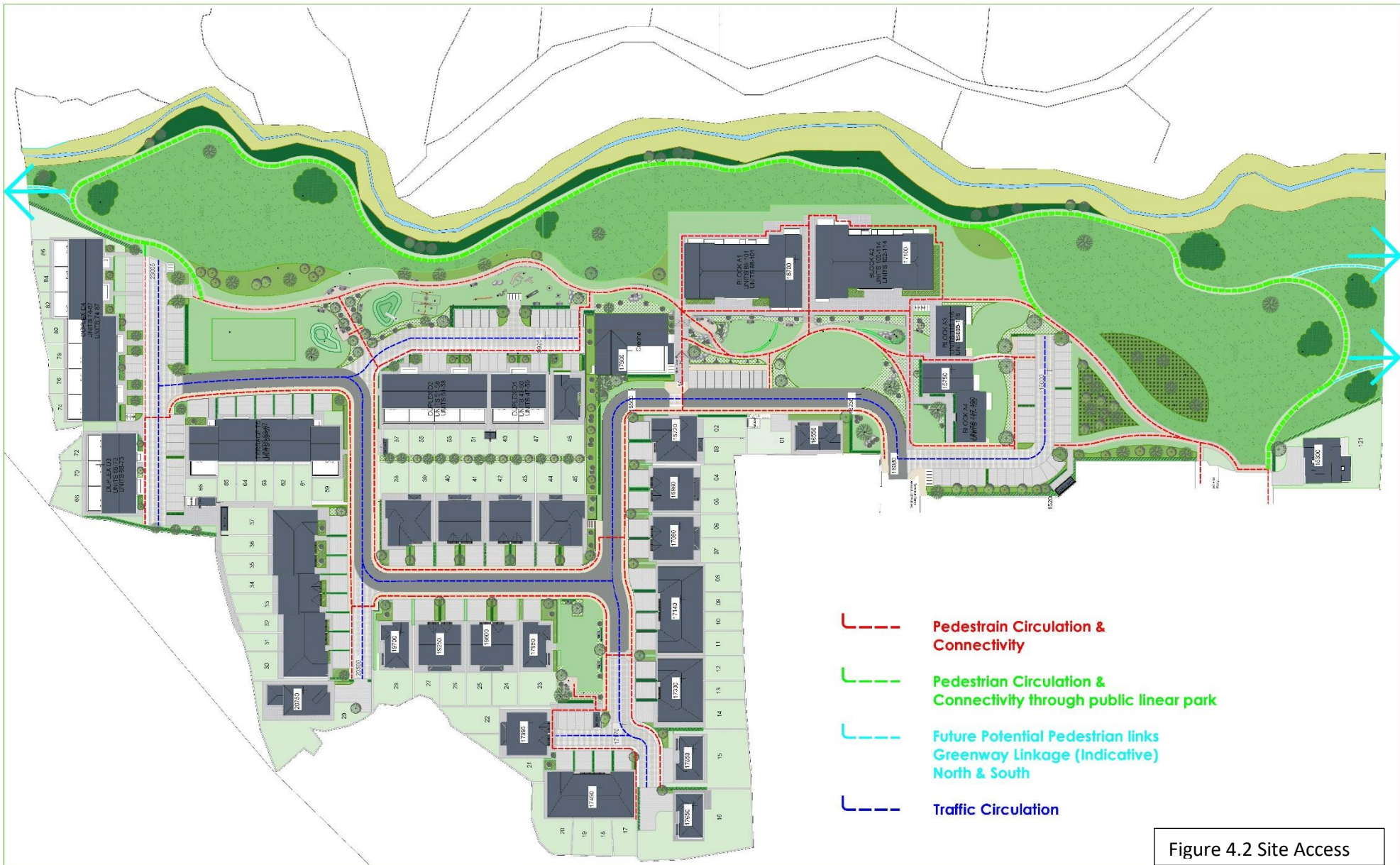


Figure 4.2 Site Access

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 ALL CONTRACTORS, WHETHER MAIN OR SUBCONTRACTORS MUST VISIT THE SITE AND ARE RESPONSIBLE FOR TANGING AND CHECKING ANY AND ALL DIMENSIONS (MAIN POINTS) AGAIN TO THE WORKS. ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR.

**GENERAL NOTES:**  
 • At least one street should have a paved surface during any weather/seasonal period is not to be.  
 • Topsoil should be replaced and a good topsoil layer should be provided. All topsoil to be spread to a minimum of 100mm and then from distance of 100mm.  
 • Organic matter to be added where necessary to create a good topsoil structure.  
 • Best practice for water runoff should be followed, this should be the general principle for 700mm.  
 • All pipes levels to be used 100mm above high water.  
 • All landscape treatment subject to engineer's approval for structural, moisture and drainage considerations.  
 • Gravel or hard surface laid between all planting and buildings, approx width 200mm.  
 • 100mm base shall be provided for the first two seasons in wind direction areas.  
 • Bark mulch dress to form a depth should be added to all ornamental planting and replaced annually in each year.


**TREES & SHRUBS PLANTING, CARE & MAINTENANCE:**  
 • Trees to be supported by stakes & secured on site. 1.1m dia trees planted in prepared pits, 500 x 500 x 150mm. Spaced with double stakes and cross bar. 1.5m dia trees secured with double stakes and cross bar.  
 • Container trees shall be planted at any time of the year but working periods of frost, snow, drought or drought.  
 • Bare root trees to be planted in the period of Nov-March.  
 • Shelter planting to be created using suitable wind breaks.  
**MAINTENANCE:**  
 • Water control to include chemical use by regular spot treatment with transparent herbicide. No. 300ml/ha during the growing season. Needs around plants to be hand applied where necessary.  
 • Pruning of plants to be carried out by a competent horticulturalist in accordance with good practice.  
 • Weeding of planting to be carried out during dry weather, especially during established phase.

**HATCH NOTE:**  
 The hatching is specific indication & not intended as an accurate reference factor of species work. Hatching and other hatching should be used as a guide. Please discuss further with Radharc regarding material finishes.

-  Pedestrian Circulation & Connectivity
-  Pedestrian Circulation & Connectivity through public linear park
-  Future Potential Pedestrian links Greenway Linkage (Indicative) North & South
-  Traffic Circulation

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Stages 3-5HD  
 rev: 04/20/2020

**Drawing Purpose:** FOR PLANNING  
**Project:** Seanna SÍO, Beanna, Co Galway  
**Client:** Suckley Homes  
**Drawing Title:** Circulation & Connectivity  
**Drawing No.:** 524\_B04\_1973\_03\_Circulation & Connectivity  
**Scale:** 1:5000(A1) **Drawn by:** SS  
**Date:** 13/07/2020 **Checked by:** SW

Do not scale from this drawing. All dimensions to be checked on site. Discrepancies between this drawing and information given elsewhere must be reported to this office for clarification before proceeding.

## 4.3 Proposed Construction Works

The detailed drawings in respect of the construction phase of the proposed development can be seen at Appendix 4-1 to this EIAR. A Construction and Environmental Management Plan (CEMP) can be seen at Appendix 4-2.

### 4.3.1 Hoarding

The site will be enclosed with a hoarding along the site boundary, details of which are to be agreed with Galway County Council. Hoarding panels will likely be a maximum of 2.4 metres in height and will be maintained and kept clean for the duration of the project. Internal Phases 1-4 will be enclosed with Heras Fencing.

### 4.3.2 Pedestrian and Cyclist Safety

Until such time as the construction of the first phase is complete, the new access road will not be open to members of the public. When vehicles are entering the construction site, or leaving the site, these movements should be supervised by road marshals. The construction site gates will be kept closed when not in use and monitored by security. Traffic cones and set-back signage should be put in place to warn and safely direct cyclists around obstructions.

It is proposed to provide a pedestrian footway along the road that connects the development to the existing Pedestrian Footway along the Cnoc Fraoigh residential estate road.

It is also proposed to provide a pedestrian footpath along the L1321 between Cnoc Fraoigh and Bearna Village to provide a pedestrian link between the proposed development and Bearna Village.

A network of footpaths throughout the proposed development will provide a high rate of accessibility to the local facilities within the area. The inclusion of these attractive, well designed walking routes will encourage pedestrians to access the local facilities on foot as opposed to taking their personal vehicles.

### 4.3.3 Proposed Hours in which Vehicles will Arrive and Depart

In general, the hours in which vehicles will arrive and depart will coincide with the expected site working hours of 8.00am to 7.00pm in the evening from Monday to Friday, and 8:00am to 2:00pm on Saturday. The construction phase of the proposed development is expected to last approximately 2.5 years in total, and construction of the proposed development will proceed in a sequential manner.

### 4.3.4 Access Arrangements for Vehicles

The access arrangements will be as specified in the statutory publications “Traffic Management Guidelines” manual and the “Traffic Signs Manual” and as agreed with Galway County Council.

All deliveries and vehicles into site will access the site from the new site entrance which will be located along the Cnoc Fraoigh residential estate road on the western edge of the site boundary.

The location of the construction entrance and access will be regularly reviewed during the construction to ensure that the pedestrian and vehicular access points are located and maintained appropriately.

#### 4.3.5 Exclusion Zones on Site

The areas of granite outcrops on site being retained are to be protected during the course of construction. An exclusion zone will be put in place around these areas/features, fenced off from site and the contractor will not have any storage, plant, or traffic going inside this exclusion zone during the construction period. Suitable fencing will be erected to ensure the flora and fauna are protected and preserved during the construction period, and regular checks and inspections will be carried out on this by the contractor.

#### 4.3.6 Size of Vehicles

It is anticipated that there will be numerous types of delivery vehicles used to bring material to and from the site. These include:

- › Skip lorries. These will standard yard skips for waste.
- › Spoil excavation.
- › Ready mix concrete lorries.
- › Flatbed delivery vehicles for the delivery of various material.

#### 4.3.7 Parking and Loading Arrangements

A “Just in Time” approach will be implemented for the delivery of particular building materials such as concrete formwork and large structural steels. The location of this materials storage facility will be within the site boundary and the proposed location is identified in the Construction and Environmental Management Plan appended to this EIAR.

Materials will be stored within the boundary of the site. It is proposed to provide on-site car parking spaces within the site boundary for workers during the construction.

#### 4.3.8 Site Compound and Facilities

Site accommodation will be provided including suitable washing and dry room facilities for construction staff, canteen, sanitary facilities, first aid room, office accommodation etc. Access to the compound will be security controlled and all site visitors will be required to sign in on arrival and sign out on departure. The compound will be constructed using a clean permeable stone finish and will be enclosed with hoarding/fencing. Any wastewater will be removed by vacuum tanker using an authorized waste collector.

#### 4.3.9 Phasing

It is anticipated that the development will be completed over 4 separate phases for construction and 3 phases for landscaping to open space lands as detailed in Figure 924-MDO-XX-XX-DR-A-01202 and the access and egress routes will change for the various phases. As some of the houses will be occupied during the later phases, a separate construction entrance will be formed to allow safe access for both construction traffic and residents. Traffic Management procedures will be implemented to ensure the safety of the users of the access routes, for both the residential access and the construction access. The construction phase of the proposed development is expected to last approximately 2.5 years in total.

#### 4.3.10 Property Management – Operational Stage

A property management company will be formed at an early stage of the development to ensure that all property management functions are dealt with for the development.

The property management company has a number of key responsibilities including compiling the service charge budget for the development for agreement with the owners' management company. The service charge budget covers such items as cleaning, landscaping, refuse management, utility bills, insurance, maintenance, and security.

The service charge budget also includes an allowance for a sinking fund and this allowance is determined following the review of the building investment fund report prepared by / for the owners' management company. The building investment fund report, once adopted by the owners' management company, determines an adequate estimated annual cost provision requirement based on the needs of the development over a 30 year cycle period.

#### 4.3.10.1 Sustainable Energy Use

The following are an example of the energy saving measures that are planned for the dwellings to assist in reducing costs for the occupants:

- › A BER certificate will be provided for each dwelling in the proposed development which will provide detail of the energy performance of the dwellings. It is proposed to target an A2 rating for the houses, equating to the following emissions:  
A2 - 25 to 50 kWh / m<sup>2</sup> /year with CO<sub>2</sub> emissions c. 10kg CO<sub>2</sub> / m<sup>2</sup> / year.
- › The apartments will be heated by means of exhaust air heat pump systems. It is proposed to utilize exhaust air heat pumps. The unit is A++ rated. Aluminium radiators will be provided in each space complete with thermostatic radiator valves (TRVs) as required.
- › The ventilation requirements for the houses will be met using a low maintenance Aereco demand control ventilation system. This system utilizes an central house extract fan and passive supply vents with mechanical humidity control around the house.

#### NZEB REQUIREMENTS

nZEB (Nearly Zero Energy Buildings), means a building that has a very high energy performance where the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources including energy from renewable sources produced on-site or nearby. In order to achieve this, a target of 20% Renewables Energy Ratio (RER) has been set as the NZEB energy from renewable sources onsite or nearby target. The software tool provided by SEAI will be provided to support the calculation of the RER. It is recognised that in certain confined situations it may not be possible to achieve the full 20% RER.

In addition to the reduced energy usage, all new buildings must generate 20% of their energy from renewable energy sources, although this may be reduced to 10% where the energy performance of the building is more than 10% better than the reference building. This option of further reducing energy use is likely to be selected for most buildings.

As part of the design process, consideration shall be taken in account with regards to the requirements of nZEB to ensure the building meets with its requirements.

The 20% or 10% requirement can be provided by Heat Pumps or Heat pumps / PV's.

The building will be constructed to meet the latest building regulations and U-Values

Further information about the proposed energy efficiency proposals can be found in Appendix 9-1, the Energy Statement Report.

#### 4.3.11 Site Landscaping

Before completion of the construction phase of each phase of the proposed development, landscaping works will be carried out to improve the visual amenity of the site. These landscaping works will follow the layout of the landscape plan provided by Radharc Landscape Co. Drawing No. 924\_Rad\_1973\_01 and included in Appendix 4-5 in this EIAR.

There are no landscape designations on the subject site. The site will not impact on any designated views or prospects within the Galway County Development Plan 2015-2021.

### 4.4 Construction Methodologies

This section describes the construction methodologies that will be used for the proposed housing development. Further details are also provided in the Construction and Environmental Management Plan (CEMP) included as Appendix 4-2 of this EIAR.

#### 4.4.1 General Construction Measures

Communication with the public, local residents and businesses adjacent the development will be an important responsibility of the Senior Project Manager and delegated persons. All parties will be kept up to date and informed both shortly prior and during the construction period at all times. Two to three weeks before any work commencing reasonable efforts will be made to inform all parties of the oncoming works.

A Traffic Management Plan (TMP) will be issued to Galway County Council for approval prior to works commencing on site. The approved TMP and any revisions thereto will be set up and implemented on site. All necessary signage will be erected in the weeks prior to any works commencing along and on adjacent roads to the proposed development giving advance warning to traffic, pedestrians / members of the public. Every effort will be made to minimise the impact of the above works on local residences and traffic. A copy of the draft Design Stage Traffic Management Plan is included as Appendix 4-4 of this EIAR.

- › All personnel will be inducted and made familiar with Risk Assessments / Method Statements (RAMS) and Traffic Management Plans.
- › All site-specific safety rules will be adhered to.
- › All plant operators will have appropriate CSCS training.
- › All personnel will have SOLAS Safe Pass training
- › Fire extinguishers and first aid supplies will be available in the work area.
- › All adjacent roadways will be maintained in clean condition at all times.
- › Helmets, high visibility clothing and safety footwear will be worn at all times.
- › Competent foremen will be on site at all times.

#### 4.4.2 Soil Stripping & Temporary Stockpiling

The excavation and stripping of soils and subsoils will be required across much of the site, and this soil will need to be redistributed and temporarily stockpiled around the site as the proposed development progresses. Prior to the construction phase of the proposal, site levelling will be undertaken. During these works, topsoil from the development area of the site will be stripped and stored in a designated storage area for reuse. Where these works occur, the following will apply:

- › The area where excavations are planned will be surveyed and all existing services will be identified.
- › All relevant bodies i.e. ESB, Bord Gáis, Eircom, Galway County Council etc. will be contacted and all drawings for all existing services sought.



- › All plant operators and general operatives will be inducted and informed as to the location of any services.
- › All plant operators and general operatives will be inducted and informed as to the identification of invasive species.
- › A tracked 360-degree excavator will be used to strip the topsoil, and a dumper will be used to move the excavated materials to the temporary stockpile location.
- › All excavated material which is not required for future landscaping works or for backfill of excavations will be removed to an authorised waste recovery facility. This will also apply to material which is not suitable for reuse on site.
- › All stockpiles will be damped down or covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation.

#### 4.4.3 Temporary Site Compound

One temporary construction compound is proposed for the construction phase of the proposed development, located in a centrally located section of the site. The proposed temporary compound area incorporates temporary site offices, staff facilities and car-parking areas.

A dedicated waste management area will be located within the compound, with waste to be sorted and collected from site by permitted collectors. Potable drinking water will be supplied via water coolers located within the staff facilities, which will be restocked on a regular basis as required during the construction phase. A supply contract will be set up with a water cooler supply company with water supplies delivered to site as required for the duration of the construction period.

Temporary port-a-loo toilets located within portacabins will be used during the construction phase. Wastewater from staff toilets will be directed to a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. Power will be supplied by a diesel generator, located within the compound until a temporary power supply is established. The construction compound will be used for temporary storage of some construction materials, prior to their delivery to the required area of the site.

#### 4.4.4 Site Roads

The construction methodology for the proposed access road is outlined as follows:

- › Excavation will take place until a competent stratum is reached.
- › The competent stratum will be overlain with up to 500mm of granular fill.
- › A layer of geogrid/geotextile may be required at the surface of the competent stratum.
- › A final hard surface layer will be placed over the excavated road to provide a road profile to accommodate construction traffic.
- › Prior to completion of the construction works on site, the finished road surface will be applied.

#### 4.4.5 Excavation and Services Installation

Services will be required to each property in the proposed development. Where these are located, the following will apply:

- › The area where excavations are planned will be surveyed and all existing services will be identified.
- › All relevant bodies i.e. ESB, Bord Gáis, Eircom, Galway County Council etc. will be contacted and all drawings for all existing services sought.

- › A traffic management plan will be produced as required for connection works to the existing service network.
- › A road opening licence will be obtained as required for connection to existing services.
- › All plant operators and general operatives will be inducted and informed as to the location of any services.
- › A tracked 360-degree excavator or similar will be used to excavate the trench to the required dimensions.
- › All excavated material will be removed to an authorised waste recovery facility (e.g. Barna Recycling, Carrowbrowne, Headford Rd.) or, if suitable, stock piled and reused for backfilling and landscaping where appropriate.
- › Once the trench has been excavated the ducting/pipework will then be placed in the trench as per specification.
- › Once the service ducts/pipework has been installed couplers will be fitted as required and capped to prevent any dirt etc. entering the ducts/pipes.
- › The as built location of the ducting/pipework will be surveyed using a total station/GPS.
- › Backfill material will be carefully placed so as not to displace the ducting/pipework within the trench.
- › The appropriate warning/marker tape will be installed above the ducts/pipes at the appropriate depths.
- › The surface will be reinstated as per original specification or to the requirements of the site layout/Local Authority as appropriate.

#### 4.4.5.1 Existing Underground Services

Any underground services encountered during the works will be surveyed for level and where possible will be left in place. If there is a requirement to move the service, then the appropriate body (ESB, Gas Networks Ireland, etc.) will be contacted, and the appropriate procedure put in place. Back fill around any utility services will be with dead sand/pea shingle where appropriate. All works will be in compliance with required specifications.

##### 4.4.5.1.1 Existing Cnoc Fraoigh Wastewater System

The existing wastewater treatment plant (wwtp) for the Cnoc Fraoigh development will be decommissioned. The existing Cnoc Fraoigh wastewater network will be maintained and connected to the wastewater network of the proposed development via a new pump station and rising main. Wastewater from both the proposed development (121 residential units) and the existing Cnoc Fraoigh development (21 residential units) will be connected to the existing public sewer via a new wastewater line to be installed along the L-1321.

Decommissioning of wwtp, which is located in the southeastern corner of the proposed development site, will be accomplished by disconnecting all electrical connections, and demolishing and removing all above ground elements of the plant. The wwtp will then be filled with inert material and covered with at least 30cm of topsoil. The area will then be landscaped as part of the general landscaping plan for the proposed development.

#### 4.4.6 House/Building Construction

The buildings will be constructed by the following methodology:

- › The area where excavations are planned will be surveyed and all existing services will be identified.
- › All relevant bodies i.e. ESB, Bord Gáis, Eircom, Galway County Council etc. will be contacted and all drawings for all existing services sought.

- › The area of each building will be marked out using ranging rods or wooden posts and the soil and overburden stripped and removed to nearby storage area for later use in landscaping. Any excess material will be sent to an authorised recovery facility.
- › All plant operators and general operatives will be inducted and informed as to the location of any services.
- › A tracked 360-degree excavator or similar will be used to excavate the area down to the level indicated by the designer and appropriately shuttered reinforced concrete will be laid over it;
- › The block work walls will be built up from the foundation (including a DPC) and the floor slab constructed, having first located any ducts or trenches required by the follow on mechanical and electrical contractors;
- › The block work will then be raised to wall plate level and the gables & internal partition walls formed. Scaffold will be erected around the outside of the buildings for this operation;
- › Any concrete slabs will be lifted into position using an adequately sized mobile crane;
- › The timber roof trusses will then be lifted into position using a telescopic load all or mobile crane depending on site conditions. The roof trusses will then be felted, battened, tiled and sealed against the weather.
- › Windows, electrics, plumbing and all other building components and services will be installed in as timely a manner as is possible.
- › Each building will be inspected and certified by an engineer at the appropriate stages of construction.

#### 4.4.7 Landscaping works

Prior to completion of works on the development site, the landscaping works will be carried out. The proposed landscaping plan is shown as Drawing No. 924\_Rad\_1973\_01 (Landscape Master Plan) in Appendix 4-5. The finishes include areas of amenity grassland, footpaths and tree planting. This work will be carried out before the completion of each phase in order to ensure that the development will be aesthetically pleasing place for residents to live. These works will involve the use of plant and machinery in order to carry out tasks such as earth moving. Materials which have been stockpiled for the task will be used as much as possible, and material will only be imported where it is required. Hoarding will be erected around the site boundary for the duration of the construction works.

#### 4.4.8 Construction Site Management Incorporated into Project Design

The following measures have been incorporated, by design, into the construction phase of the project to avoid potential effects on sensitive ecological receptors.

##### 4.4.8.1 Pollution Prevention Control Measures

The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2001). The construction phase of the proposed development will adhere to this guidance and will ensure that surface water arising during the course of construction activities will contain minimal sediment. The following methods and best practice measures will ensure that sediment release and potential for pollution during the construction phase is minimised and reduced to insignificant:

##### Drainage

The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering the wider environments including downstream watercourses.

- › A solid boundary fence will be constructed around the construction footprint in order to create a defined perimeter for the proposed works, leaving a natural vegetation buffer between the construction footprint and the Trusky stream and its associated riparian habitat. No works will be undertaken outside the confines of this fence with the exception of the installation of the two surface water outfalls, which will be undertaken as a separate element of the development that is described below.
- › A silt fence will also be attached to this boundary fence. This will protect the stream from any potential sediment laden surface water run-off generated during construction activities.
- › The silt fence will comprise a geotextile membrane that will be buried beneath the ground to filter any run-off that may occur as a result of the proposed works. The silt fence will be monitored throughout the proposed works and will remain in place after the works are completed and until the exposed earth has re-vegetated.
- › As construction advances there may be a small requirement to collect and treat surface water within the site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into sediment bags prior to overland discharge allowing water to percolate naturally to ground;
- › Discharge onto ground will be via a silt bag which will filter any remaining sediment from the pumped water. The entire discharge area from silt bags will be enclosed by a perimeter of double silt fencing;
- › Any proposed discharge area will avoid potential surface water ponding areas, and will only be located where suitable subsoils are present;
- › Daily monitoring and inspections of site drainage during construction will be completed;
- › Earthworks will take place during periods of low rainfall to reduce run-off and potential siltation of watercourses; and,
- › Good construction practices such as wheel washers and dust suppression on site roads, and regular plant maintenance will ensure minimal risk.

### Hydrocarbons

The use of hydrocarbons during the construction process can result in the potential for pollution and accidental spillage to enter natural watercourses downstream of the site via surface runoff and groundwater. The following measures have been built into the construction design phase of the project.

- › All plant and machinery will be serviced before being mobilised to site;
- › No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed;
- › Refuelling will be completed in a controlled manner using drip trays at all times;
- › Mobile bowsers, tanks and drums will be stored in secure, impermeable storage areas away from open water;
- › Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores;
- › Containers and bunding for storage of hydrocarbons and other chemicals will have a holding capacity of 110% of the volume to be stored;
- › Ancillary equipment such as hoses and pipes will be contained within the bund;
- › Taps, nozzles or valves will be fitted with a lock system;
- › Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage;
- › Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills;
- › Only designated trained operators will be authorised to refuel plant on site;
- › Procedures and contingency plans will be set up to deal with emergency accidents or spills; and,

- › An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill. A specific team of staff will be trained in the use of spill containment.
- › The following guidelines and documents will inform the detailed planning of the works phase: -
  - Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA) in particular;
  - C532 Control of water pollution from construction sites: guidance for consultants and contractors (Masters-Williams et al, 2001); and
  - SP156 Control of water pollution from construction sites - guide to good practice (Murnane et al, 2002).
  - Requirements for the protection of fisheries habitat during construction and development works at river sites developed by the ERFB.  
<http://www.fisheriesireland.ie/Research/recent-publications.html>.

#### 4.4.8.2 Invasive Species

The introduction and/or spread of invasive species such as Japanese Knotweed and Himalayan Knotweed for example, could result in the establishment of the species and this may have knock on effects on the surrounding environs.

Appropriate control measures will be incorporated into the design and construction phase of the development to ensure that the relevant measures (outlined in the following section below) will be implemented.

##### 4.4.8.2.1 Control Measures for the Management of Invasive Species

Invasive species, such as Japanese Knotweed, Himalayan Knotweed, Himalayan Balsam, Gunnera, and Giant Hogweed pose a serious threat to biodiversity and the health of native vegetation types. Construction machinery can act as a vector for the spread of these plants. Machinery that has worked at an infected site is likely to cause the spread of such species by transferring their tiny seeds or plant fragments, in soil trapped in their tyre tread for instance. Equally, they can cause the spread of species within a site. The duration of the impact could be short-term or permanent depending on whether or not an eradication effort is made but once established, eradication is time-consuming and expensive. Himalayan Knotweed, for example, propagates vegetatively, forming a new plant from even very small plant fragments. Thus, there is a high risk of causing the spread of this species to other parts of the site. The UK Environment Agency's 'Japanese Knotweed Code of Practice' provides guidance on managing Japanese Knotweed and Himalayan Knotweed on development sites. A number of control measures have been drawn up and included in the design and construction phase of the proposed works to avoid the introduction and spread of invasive plant species. The following project design elements have been devised to avoid such effects. The following measures, which will be implemented, address potential effects associated with the construction phase of the development:

- › Care will be taken not to disturb or cause the movement of invasive species fragments, either intentionally or accidentally.
- › Any soils or subsoils contaminated with invasive species will sent for disposal to an authorized waste facility.
- › All machinery will be thoroughly cleaned, dried and disinfected prior to arrival on site and before removal from site post-works using Virkon 1% biocide and departure from the site to prevent the spread of invasive species such as Asian Clam, Zebra Mussel, Crayfish plague.
- › Where staff are working instream (only for the installation of the stormwater outfalls), staff footwear and PPE will be inspected on daily completion of the works and vegetation or debris removed. Footwear will be dipped in or scrubbed with a disinfectant solution (e.g.

1% solution of Virkron Aquatic or another proprietary disinfection product) and thoroughly dried afterwards. Machinery that has been working within the channel and other equipment used in channel including PPE will be wiped down with 1% solution of Virkron Aquatic or another proprietary disinfection product. This will be carried out daily on completion of the works and/or prior to staff and machinery moving off site. Sandbags placed instream will not be re-used in other watercourses.

- › Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Rhododendron, Japanese Knotweed, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the site.
- › Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.
- › The treatment and control of invasive alien species will follow guidelines issued by the National Roads Authority – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA 2010) and the Environment Agency (2013) – The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Version 3, amended in 2013).

## 4.5 Other Site Details

### 4.5.1 Waste Management

The treatment of waste is to be employed by the contractor or a specialist waste management contractor as a trade package. This contractor is responsible for:

- › Ensuring the site is kept clean and safe
- › The collection of waste from a central point
- › Segregation of waste on site.

The waste management contractor should ensure that all access routes, fire escapes and staircases are swept and kept clear of debris on a regular basis to maintain high standards of health and safety on the project. No fires will be permitted on site.

A draft Construction Waste Management Plan (CWMP) has been prepared 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 will ensure that all material is disposed of at an appropriately licensed land fill site.

In order to ensure appropriate segregation of waste on site, a material storage zone will be provided in the compound area. This storage zone will include material recycling areas and facilities. A series of ‘way finding’ signage will be provided to route staff and deliveries into the site and to designated compound or construction areas, as appropriate.

### 4.5.2 Dust

Dust prevention measures will be included for control of any site airborne particulate pollution.

Dust control will be achieved by:

- › Dampening down the dust at the source
- › Sheeting will be used as required for stockpiled materials
- › Use of barriers such as debris netting on scaffolding around the building to block dust escaping where the building is within 10m of the site boundary where residential properties exist.

- › Site road ways will be maintained in a stoned hard core condition not allowing soil to accumulate which when dry can create dust.
- › Wheel wash equipment will be set up at the site exit gate for all construction vehicles to pass through prior to leaving the site thus ensuring that no dirt etc. is transported outside the site onto the roadways.
- › Plant and equipment that have the potential to create volumes of dust will have appropriate attachments to allow water source to dampen dust to not allow it to get airborne.
- › Plant and equipment that have the potential to create volumes of dust will be located away from sensitive receptors where possible.
- › Deploy Road Sweeper as required on External Roads.
- › Deployment of dust monitors across the site if required

### 4.5.3 Noise

The Contractor will be required to monitor base noise levels at the site location before commencement of the project. Noise monitoring will be required throughout all phases of the project. Variation of noise levels from those experienced as part of everyday life in an area can result in extreme disruption. The Contractor will implement measures to eliminate where possible and reduce noise levels where not. Noise levels will be kept below those levels specified in the National Roads Authority – “Guidelines for the Treatment of Noise and Vibration in National Roads Schemes” or such further limits as imposed by Galway County Council. The proposed development will comply with BS 5228 “Noise Control on Construction and open sites Part 1: Code of practice for basic information and procedures for noise control.”

- › Construction equipment for use outdoors will comply with the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2006– [S.I. No. 241 of 2006].
- › Noise emissions arising from construction phase operations at the proposed development site will not exceed the identified 65 dB LAeq 1 h criterion at receptors.
- › No other specific mitigation measures are warranted. Several general measures are proposed as follows:
- › Construction operations will in general be confined to the period Monday-Friday 0800-1900 h, and Saturday 08:00-14:00 h.
- › Plant used onsite during the construction phase will be maintained in a satisfactory condition and in accordance with manufacturer recommendations. In particular, exhaust silencers will be fitted and operating correctly at all times. Defective silencers will be immediately replaced.
- › Where it is proposed to operate plant during the period 0700-0800 h, standard ‘beeper’ reversing alarms will be replaced with flat spectrum alarms.
- › Erection of solid barriers (hoarding) to site boundary

### 4.5.4 Road Cleaning and Wheel Washing

Provision shall be made for the cleaning by road sweeper etc. of all access routes to and from the site during the course of the works as required. It is intended that cleaning will be undertaken on a daily basis during the excavation works and as required thereafter. A wheel wash facility will be provided on site to clean site traffic leaving the site. Waste water generated at this washing facility will be suitably treated on site and all settled silts disposed offsite to licensed landfill. All road sweeping vehicles will be emptied off site at a suitably licensed facility as per our construction stage environmental waste management document.

#### 4.5.5 Water Supply

Water will be supplied on site by water tankers for general use. Potable water will be provided in the form of bottled water for staff use.

#### 4.5.6 Wastewater Management

Portable toilets will be provided for the working on the construction site. Wastewater arising on-site from these toilets is stored in a sealed tank located within the portable toilets, and these will be emptied periodically (as required) by permitted waste contractors and transported to municipal wastewater treatment plants for treatment.

Sewage or greywater generated during the operational phase of the proposed development will be collected by the proposed wastewater network for the development and directed to the local municipal wastewater treatment plant for treatment via the sewage collection network. The existing Cnoc Fraoigh residential development will also be connected to the wastewater network for the proposed development via a new wastewater pumping system.

#### 4.5.7 Surface water runoff

All surface water runoff will be generated on site will percolate to ground. Silt fencing will be placed down gradient of works during the construction phase of the proposal to avoid any potential for impact on downstream waterbodies. Water will be allowed to percolate naturally to ground. Where pumping is required, siltbuster bags will be used to prevent the generation of suspended solids. In addition, water will be pumped at rates capable of allowing natural percolation (greenfield rates).

#### 4.5.8 Aggregates

The aggregates required for the construction of the proposed development will be sourced, as much as is possible and practicable, from quarries and suppliers located as near as possible to the proposed development. This will reduce the potential for any negative impacts associated with the haulage of the materials to the site of the proposed development. Existing soils and subsoils located on the site will be used where possible to reduce the amount of such materials required for import onto the site. It is assumed that circa 15,235m<sup>3</sup> of aggregates may be required over the course of the construction phase of the Proposed Development.

#### 4.5.9 Construction Traffic/Plant

The following mitigation measures will be implemented in relation to construction traffic and plant/machinery:

- › All vehicles to switch off engines when not in use – no idling vehicles
- › Effective vehicle cleaning and wheel washing on leaving site and damping down of haul routes
- › On-road vehicles to comply to set emission standards.
- › All non-road mobile machinery (NRMM) to be fitted with appropriate exhaust system and be regularly serviced.
- › Hard surfacing and effective cleaning of haul routes and appropriate speed limit around site



4.6

## Operational Phase

The proposed development will require periodic maintenance throughout the operational phase. The operation of a residential development is not a recognized source of environmental emissions or nuisance and so there will be no adverse effects associated with its operation.

It is proposed that the development will drain via a gravity sewer network that will convey runoff from the roofs and paved areas of the development to outfall manholes, which will discharge at controlled flow rates via 2 no. surface water drainage pipes to the Trusky stream. Discharge will be limited to the greenfield equivalent, QBARRURAL, runoff rate. This will be achieved using a Hydro-Brake flow restrictor prior to discharging to the Trusky stream via gravel infiltration beds. Temporary underground attenuation will also be provided at two separate locations in the form of underground cellular storage units. Silt traps will be provided for upstream of the attenuation tanks. Surface water will pass through petrol interceptors prior to discharging from the site. Wastewater from the development will be collected via discharge to the existing gravity wastewater network at the existing adjacent Cnoc Fraoigh residential estate prior to it exiting the estate. Water supply to the site will be via connection to the adjacent public (Irish Water) watermain.

4.7

## Decommissioning Phase

It is not intended that the proposed buildings will be removed, as permanent planning permission is being sought for this development. The proposed development will form an integral part of the local housing needs. Therefore, it is intended that the proposed development will be retained as permanent and will not be decommissioned.