

# Ballyoulster SHD – Phase 1 Residential Development

## Preliminary Construction Management Plan

180221-DBFL-XX-XX-RP-C-0004

INFRASTRUCTURE



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DBFL CONSULTING ENGINEERS



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## 1 Introduction

DBFL Consulting Engineers were appointed on behalf of Kieran Curtin, Receiver over certain assets of Maplewood Developments Unlimited Company (in liquidation and in receivership) to prepare a Preliminary Construction Management Plan to accompany a planning application for a proposed strategic housing development, in Ballyoulster, Celbridge, Co. Kildare.

The proposed development ("the site") is located between lands at Dublin Road and the Shinkeen Road, within the townlands of Donaghcumper and Ballyoulster, Celbridge, Co. Kildare. The application site is bound by a greenfield site, Donaghcumper Cemetery and the Dublin Road to the north, the Rye River Brewing Company and the Ballyoulster Park housing estate to the northeast, the Willow housing estate to the south, agricultural lands to the east and Shinkeen Road to the west. Donaghcumper Medieval Church Ruins (RPS No. B11-02) and the house on Dublin Road, Donaghcumper (RPS No. B11-26), are protected structures located north of the application site

The site is located within lands zoned under "Key Development Area 2 – Ballyouster" (KDA 3) in the Celbridge Local area Plan (2017-2023).



## 2 Works Proposal

The proposed development comprises a Strategic Housing Development of 344 no. residential units (comprising 54 no. 1 beds, 30 no. 2 beds, 210 no. 3 beds and 50 no. 4 beds), a childcare facility with a GFA of c. 369 sq.m, public and communal open space, landscaping, car and cycle parking spaces, provision of an access road from Dublin Road and Shinkeen Road, associated vehicular accesses, internal roads, pedestrian and cycle paths, bin storage, ESB substations, pumping station and all associated site and infrastructural works.

The associated site and infrastructural works include foul and surface water drainage, attenuation ponds, swales, detention basins, pumping station, communal open space, public open space including a Local Park and Pocket Parks, bin storage, 3 no. ESB substation, landscaping, public lighting, boundary treatment, internal roads, cyclepaths and footpaths.

The construction management issues addressed within this plan include the following:

- Working Hours
- Traffic Management
- Stripping of Topsoil and Excavation of Subsoil
- Erosion and Sediment Control
- Accidental Spills and Leaks
- Biodiversity
- Waste Management
- Noise and Vibration
- Air, Dust & Climatic Factors
- Landscape and Visual Impact
- Archeology
- Material Assets – Site Services
- Site Compound Facilities and Parking

This CEMP has been compiled to provide information regarding the construction stage of the project.



- C532 – Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (Construction Industry Research and Information Association (CIRIA, 2001);
- C741 - Environmental Good Practice on Site (4th edition) (CIRIA, 2015)

This Preliminary Construction Management Plan shall be referenced in all tender and contract documentation for the proposed works and is to be read in conjunction with all relevant Engineering and Architectural documentation.

All works must be carried out in accordance with the mitigation measures outlined in this document as well as mitigation measures outlines within the Environmental Impact Assessment.





### 3 Working Hours

For the duration of the proposed infrastructure works the maximum working hours shall be 07:00 to 18:00 Monday to Friday (excluding bank holidays) and 08:00 to 15:00 Saturdays, subject to the restrictions imposed by the local authority.

No working will be allowed on Sundays and Public Holidays.

Should construction work be required out of normal hours, then they shall be subject to prior agreement of the local authority. Examples of when this may be required are to facilitate water main connections or foul drainage connections, concrete pouring, road works.



## 4 Traffic And Transportation

A Traffic Management Plan (TMP) will be prepared for the works in accordance with the principles outlined below and shall comply at all times with the requirements of:

- Department of Transport Traffic Signs Manual 2019 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks
- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010)
- Any additional requirements detailed in the Design Manual for Roads and Bridges (DMRB) & Design Manual for Urban Roads & Streets (DMURS)
- Local Authority Road licensing restrictions;
- Planning Conditions.

In general, the impact of the construction period will be temporary in nature and less significant than the operational stage of the proposed development (HGV vehicle movements not expected to exceed 3 vehicles per hour during the busiest period of construction works).

All construction traffic will enter the site via the Shinkeen Road, and the entrances previously constructed as part of this development. This site entrance will also facilitate construction of the proposed road network within the site.

On-site employees will generally arrive before 08:00, thus avoiding morning peak hour traffic. These employees will generally depart after 16:00.

It should be noted that a large proportion of construction workers would arrive in shared transport.

Also, the site is a short walk from bus stops on the main street for workers that may travel using public transport.

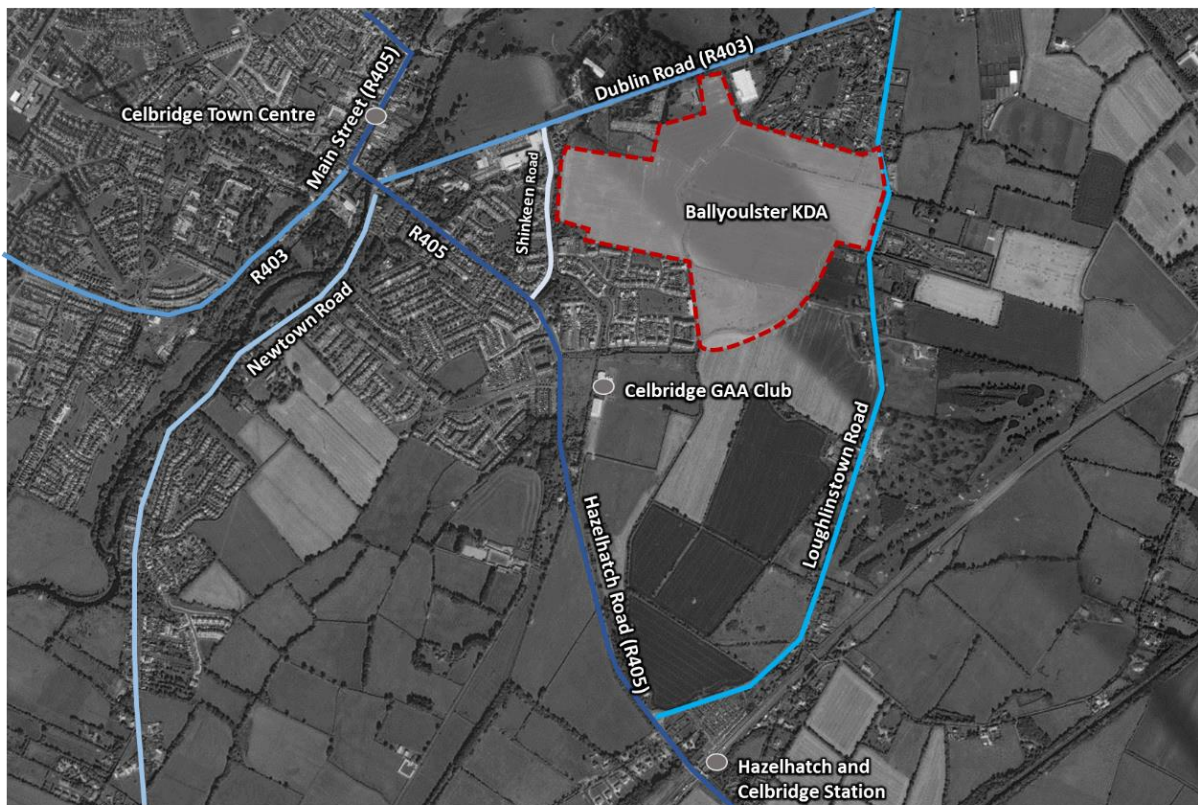
All construction related parking will be provided on site. Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site construction staff and by full time supervisory staff.
- Excavation plant and dumper trucks involved in site development works and material delivery vehicles for the following main elements of work: granular fill materials,

concrete pipes, manholes, reinforcement steel, ready mix concrete and mortar, concrete blocks, miscellaneous building materials, etc.

Where feasible, excavated material will be reused as part of the site development works (e.g., use as fill material beneath houses and roads) in order to minimise truck movements to and from the site, however, some unsuitable excavated subsoil is expected and will have to be removed to an approved landfill.

Depending on the type of works being completed and the local authority road opening license conditions, the work could require contraflow arrangements or road closures for some elements. It is envisaged that this element will be constructed early in the overall programme and prior to occupation.



*Figure 4-1: Site Boundary indicative Only and Access Routes (reference: <http://www.google.ie/maps>)*



## 5 Soils And Geology

Site development works will include stripping of topsoil and excavation of subsoil layers. These activities have potential to expose the soils and geological environment to pollution.

The contractor shall obtain approval of their proposed erosion and sediment control measures from Kildare County Council's Environment Section prior to commencing works on site. This control measures will also be in line within those proposed in the Environmental Impact Assessment report and in particular Chapter 7.

The following measures are to be implemented in order to mitigate against such risks.

### 5.1 Accessing the Site

- Earthwork's plant and vehicles delivering construction materials to site shall be confined to predetermined haul routes around the site.
- Appropriate facilities, agreed with the local authority, shall be installed to remove debris / soil from wheels of plant before exiting the site onto the public road.

### 5.2 Stripping of Topsoil

- Stripping of topsoil shall be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development.
- At any given time, the extent of topsoil strip (and consequent exposure of subsoil) shall be limited to the immediate vicinity of active work areas.
- Topsoil stockpiles shall be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains.
- Topsoil stockpiles shall also be located so as not to necessitate double handling.
- Topsoil to be re-used throughout the development in landscaping and public open spaces / linear park.

### 5.3 Excavation of Subsoil Layers

- Drainage pipework levels have also been set as high as possible to reduce excavation depths for drainage and services. The contractor shall work to the design levels provided unless otherwise agreed with the engineer.
- The duration that subsoil layers are exposed to the effects of weather shall be minimized. Disturbed subsoil layers will be stabilized as soon as practicable (e.g.,



backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping).

- Similar to the comments regarding stripped topsoil, stockpiles of excavated subsoil material shall be protected for the duration of the works. Stockpiles of subsoil material shall be located separately from topsoil stockpiles.
- Where bedrock is encountered, it will be investigated for being used within the designed works to reduce the volume of material leaving the site and imported to the site (subject to satisfactory crushing, screening and testing).

#### **5.4 Weather Conditions**

- Typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimizing soil erosion

#### **5.5 Dust Control**

- Dust suppression practices to be implemented during stripping of topsoil layers, excavation of subsoil layers and bedrock.

#### **5.6 Surface Water Runoff from excavated areas**

- Surface water runoff from areas stripped of topsoil and surface water and collecting in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- All excavation works within the quarry area shall be strictly managed to protect groundwater and infiltration characteristics of the area.
- *Refer also to further restrictions to be implemented under Water / Hydrogeology in relation to surface water.*

#### **5.7 Water Pumped from Excavations**

- Rainwater pumped from excavations is to be directed to on-site settlement ponds.
- Groundwater pumped from excavations is to be directed to on-site settlement ponds.
- On-site settlement ponds are to include geotextile liners and riprapped inlets and outlets to prevent scour and erosion.



- Surface water discharge points used during the construction phase shall be agreed with the Local Authority's Environment Section prior to commencing works on site.



## 6 Water – Hydrogeology & Hydrogeology

The following measures are to be implemented during the construction phase in order to mitigate risks to the water and hydrogeological environment. These measures are essential in preventing pollution effects to the bordering Hazelhatch stream and bisecting Shinkeen stream. Reference should also be made

As part of the construction works, the provision of 3nr bridge crossings over the Shinkeen (2nr) and Hazelhatch (1nr) streams shall be undertaken in a controlled manner. Reference should be made to Section 1.7 within the Infrastructure Design Report (Report Ref: 180221-DBFL-XX-XX-RP-C-0001-IDR). It is proposed that Site A along with the local distributor road linking Shinkeen and Dublin roads would be developed first. This would include the 3 number bridge crossings over the Shinkeen and Hazelhatch watercourses, which would prevent any temporary structures being constructed. The hydraulic flow of the existing stream will be maintained throughout the construction phase. Bank stabilisation will be achieved by a proprietary geogrid or temporary stone armour.

A S50 Consent to the office of public works will be lodged after planning permission has been granted. No construction activities in relation the construction of the bridges shall be undertaken prior to the Section 50 Application being lodged and consent provided. To comply with OPW Section 50 guidelines, the watercourse crossings shall be provided with a 300mm freeboard to the 1% AEP + CC flood level.

The design of the bridge shall consist of a series of prestressed concrete beams with a specified decking and in-situ concrete supports/ abutments. The abutments shall be designed to have minimal impact of the existing stream banks and shall be kept back from the stream edges a minimum of 1.5m from the stream bank. Quick-set, waterproof concrete will be utilised to install these concrete footings. These works will only be undertaken in dry weather with sufficient time for the concrete to fully cure. Reference should be made to drawings 180221-DBFL-RS-SP-DR-C-1151, 180221-DBFL-RS-SP-DR-C-1152 and 180221-DBFL-RS-SP-DR-C-1153.

### 6.1 Erosion and Sediment Control

- Measures shall be implemented to capture and treat sediment laden surface water runoff (e.g., sediment retention ponds, surface water inlet protection, fencing and signage around specific exclusion zones and earth bunding adjacent to open drainage ditches)



- Surface water runoff from areas stripped of topsoil and surface water collected in excavations shall be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate
- Groundwater pumped from excavations is to be directed to on-site settlement ponds.
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
- On-site settlement ponds are to include geotextile liners and riprapped inlets and outlets to prevent scour and erosion.
- Surface water discharge points during the construction phase are to be agreed with Kildare County Council's Environment Section prior to commencing works on site.
- Weather conditions and seasonal weather variations shall also be taken account of when planning stripping of topsoil and excavations, with an objective of minimizing soil erosion.

## **6.2 Accidental Spills and Leaks**

- All oils, fuels, paints and other chemicals will be stored in a secure bunded hardstand area.
- Refuelling and servicing of construction machinery shall take place in a designated hardstand area which is also remote from any surface water inlets (when not possible to carry out such activities off site)
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
- A response procedure shall be put in place to deal with any accidental pollution events and spillage kits shall be available and construction staff will be familiar with the emergency procedures and use of the equipment

## **6.3 Concrete**

- Pumped concrete will be monitored to ensure there is no accidental discharge
- Mixer washings are not to be discharged into surface water drains





## 6.4 Wheel Wash Areas

- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility



## 7 Water: Water Supply, Drainage & Utilities

The following measures are to be implemented during the construction phase in order to mitigate risks to the water supply, drainage and utilities.

- Surface water runoff from areas stripped of topsoil and surface water collected in excavations shall be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- Foul drainage discharge from the construction compound will be tankered off site to a licensed facility until a connection to the public foul drainage network has been established.
- The construction compound's potable water supply shall be located where it is protected from contamination by any construction activities or materials.
- Relocation of existing overhead ESB lines shall be fully coordinated with ESB Networks to ensure interruption to the existing power network is minimized
- Connections to the existing gas and telecommunications networks shall be coordinated with the relevant utility provider and carried out by approved contractors.
- Any excavations in proximity to potable watermain shall be undertaken in accordance with Irish Water recommendations for same.



## 8 Biodiversity

### 8.1 Disturbance of bird nests and vegetation

The following mitigation measures are to be implemented during the construction phase in order to mitigate risks to plant and animal life.

- Where possible, site clearance works should proceed outside the nesting season. The bird nesting season is from 1 March to 31 August.
- Vegetation must first be inspected by a suitably qualified ecologist. If a nest is encountered then works must stop, until such time as nesting has ceased.
- Cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches during the nesting and breeding season for birds and wildlife is restricted from 1 March to 31 August. Limited exemptions to the above restrictions which apply from March to August and include
  - The destruction, in the ordinary course of agriculture or forestry of any vegetation growing on or in any hedge or ditch;
  - The cutting or destruction of vegetation executed for public health and safety reasons by a statutory body including a local authority;
  - The clearance of vegetation carried out in the course of fisheries development works undertaken by Inland Fisheries Ireland.
- High value hedgerows/treelines should be retained where feasible.
- A bat Fauna Impact Assessment provided by Altemar was undertaken as part of this assessment and the survey was carried out in September 2021. Reference should be made to this report and Chapter 5 of the EIAR
- To avoid damage to trees the developer should follow the guidance from the National Roads Authority in establishing root protection areas (RPA) along hedgerows to be retained. The NRA gives the following equation for calculating the root protection area (RPA) (NRA, unknown year):

$$RPA(m^2) = \pi \left( \frac{\text{Stem Diameter}(mm) \times 12}{1000} \right)^2$$

The RPA gives the area around which there should be no disturbance or compaction of soil. This will be calculated for the largest tree within each hedgerow. Prior to construction this area will be



clearly labelled 'sensitive ecological zone', fenced off with durable materials and instruction given to construction personnel not to disturb this buffer zone. As a rule of thumb this buffer zone should extend at least to the canopy of the trees concerned. Prior to construction this area will be clearly labelled 'sensitive ecological zone', fenced off with durable materials and instruction given to construction personnel not to disturb this buffer zone.

Arborist Associates Ltd has prepared an Arboricultural Assessment report on the proposed site and reference should be made to this report which is included as part of the planning application.

## **8.2 Construction Pollution:**

- A detailed Construction Management Plan (CMP) shall be prepared by the Contractor to detail how construction activities and risk of pollution is to be managed during the project.
- The site manager will be responsible for ensuring that pollution prevention measures are fully implemented and monitored. A written record of at least daily checks should be maintained. Pollution incidents should be recorded and reported to the IFI in a timely manner.
- The CMP shall detail how these measures are to be implemented on the site as well as the construction methods for construction activities.



## 9 Waste Management

The following measures are to be implemented during the construction phase in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle waste in such a manner as to minimise the effect on the environment:

- Building materials should be chosen with an aim to 'design out waste'
- On-site segregation of non-hazardous waste materials into appropriate categories
- On-site segregation of hazardous waste materials into appropriate categories
- All wastes segregated at source where possible
- All waste material will be stored in skips or other suitable receptacles in a designated area of the site
- Left over materials (e.g., timber off-cuts) shall be re-used on site where possible
- All waste leaving the site will be recycled, recovered, or reused where possible
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted, or licensed facilities
- All waste leaving the site will be recorded and copies of relevant documentation maintained



## 10 Noise And Vibration

During the works the contractor shall comply with the requirements of BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014 (Code of Practice for Noise and Vibration Control on Construction and Open Sites) as well as Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration.

In particular, the following practices are to be implemented during the construction phase:

- Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;
- Establishing channels of communication between the contractor/developer, Local Authority and residents;
- Appointing a site representative responsible for matters relating to noise and vibration;
- Monitoring levels of noise during critical periods and at sensitive locations;
- All site access roads shall be kept even so as to mitigate the potential for vibration from lorries.
- Selection of plant with low inherent potential for generation of noise
- Siting of noisy plant as far away from sensitive properties as permitted by site constraints and implementation of noise reduction measures such as acoustic enclosures

### 10.1 Noise Limits

Noise Limits to be applied for the duration of construction works are as set out in the National Roads Authority (NRA) Guidelines for Treatment of Noise and Vibration in National Roads Schemes (summarised below in Figure 9.1) and BS 5228-1:2009+A1:2014 (Code of Practice for Noise Control on Construction and Open Sites).

Days and Times	Noise Levels (dB re. $2 \times 10^{-5}$ Pa)	
	$L_{Aeq}(1hr)$	$L_{Amax}$
Monday to Friday 07:00 to 19:00hrs	70	80



Monday to Friday 19:00 to 22:00hrs	60*	65*
Saturdays 08:00 to 16:30hrs	65	75
Sundays & Bank Holidays 08:00 to 16:30hrs	60*	65*

*Figure 9.1, NRA Guidelines for Maximum Permissible Noise Levels at the Façade of Dwellings During Construction.*

BS 5228 applies a noise limit of 70 dBA between 07:00 am and 19:00 pm outside the nearest window of the occupied room closest to the site boundary in suburban areas away from main road traffic and industrial noise.

For the duration of construction works, a daytime noise limit (07:00 am to 19:00 pm) of 70 dBA shall apply (in accordance with the requirements of BS 5228 and generally in agreement with the NRA guidelines).

## 10.2 Vibration Limits

Vibration Limits to be applied for the duration of construction works are as set out in BS 5228-2:2009+A1:2014 (Code of Practice for Vibration Control on Construction and Open Sites) and BS 7385: 1993 (Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration). Allowable vibration during the construction phase is summarised below in Figure 9.2

<b>Allowable Vibration Velocity (Peak Particle Velocity) at the Closest Part of Any Sensitive Property to the Source of Vibration, at a Frequency of</b>		
<b>Less than 10Hz</b>	<b>10 to 50Hz</b>	<b>50 to 100Hz (and above)</b>
8 mm/s	12.5 mm/s	20 mm/s

*Figure 9.2, Allowable Vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration*



## 11 Air, Dust & Climate Factors

The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed construction phase mitigation measures are implemented, and that construction impacts and nuisance are minimised. The following mitigation measures are to be implemented during the construction phase:

- During working hours, dust control methods shall be monitored as appropriate, depending on the prevailing meteorological conditions.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details.
- Community engagement shall be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses.
- A complaints register shall be kept on site detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out.
- A speed restriction of 20 km/hr shall be applied as an effective control measure for dust for on-site vehicles using unpaved haul roads.
- Access gates to the site shall be located at least 10m from sensitive receptors.
- Bowsers or equivalent watering equipment shall be available during periods of dry weather throughout the construction period. Watering shall be conducted during sustained dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use.
- Any hard surface roads shall be swept regularly to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust.





- During periods of very high winds (gales), construction activities likely to generate significant dust emissions should be postponed until the gale has subsided.
- Overburden material shall be protected from exposure to wind by storing the material in sheltered regions of the site. Where possible storage piles should be located downwind of sensitive receptors.
- Vehicles delivering or collecting material with potential for dust emissions shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
- At the main construction traffic exits, a wheel wash facility shall be installed. All trucks leaving the site must pass through the wheel wash. In addition, public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary.
- It is recommended that dust deposition monitoring be put in place to ensure dust mitigation measures are adequately controlling emissions. Dust monitoring should be conducted using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119.



## 12 Landscape And Visual Impact Assessment

Proposed construction phase mitigation measures are summarised below:

- Site fencing/hoarding shall be erected to restrict views of the construction activity e.g., standard 2.4m high
- Establishment of tree protection measures (no-dig construction zones, tree protection fencing and existing hedgerow retention).
- Appointment of an Arborist to oversee all works relevant to trees
- Monitoring of tree protection measures, e.g., maintenance of protective fencing to the satisfaction of the Arborist
- Hand dig excavation under supervision of an arborist is required should excavation be necessary in a tree protection area
- Tree protection fences are to be constructed in accordance with BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations"
- A 'Construction Exclusion Zone' notice shall be placed on tree protection fencing at regular intervals
- Tree Protection Zones are not to be used for car parking, storage of plant, equipment or materials
- A post construction re-assessment of retained trees shall be carried out



## 13 Archaeology & Cultural Heritage

Irish Archaeological Consultancy (IAC) undertook an assessment in order to assess the impact on the archaeological, architectural and cultural heritage resource of the proposed development. In 2021 a geophysical survey was carried out across the proposed development area in order to assess the potential of archaeological remains (Licence Ref.: 21R0270). A number of potential archaeological anomalies were identified within the site. Reference should be made to Chapter 4 Archeology, Architecture and Cultural Heritage of the EIA where the following extract was taken.

The results of the geophysical survey identified the location of part of a large, possible medieval settlement, located within the northern part of the site. This archaeological site occupies c.1ha of land within the proposed development. The remains extend to the southwest beyond the site boundary and may represent a settlement associated with church and graveyard KD011-013/KD011-013001 which is situated c. 185m west-northwest of the proposed development. The geophysical survey has also recorded the location of a well-defined ring-ditch and associated linear remains in the northern part of the site. Remnants of a possible early field system are also indicated throughout Field 1. Responses from past and present cultivation, former/suspected former boundaries and natural soil/geological variation are also evident in the results of this

A programme of archaeological testing (Licence Ref.: 21E0816, Piera 2022), was conducted within the proposed development area in 2021 and 2022. The topsoil recorded across the site was a mid-brown silty clay around 0.4m in depth. A plough soil layer was observed under the topsoil, consisting of a firm light brown clay of around 0.1-0.2m depth, covering the natural subsoil.



*Figure 13-1 Results of geophysical survey carried out within the proposed development area in 2021 (Source IAC)*

The trenches targeted geophysical anomalies and open green space. Testing revealed 12 areas of archaeological significance, which have been designated as Archaeological Areas AA1-AA12. These comprise:

- AA1-a medieval enclosure/settlement with multiple ditches and pits,
- AA2-a ring ditch of probable prehistoric date,
- AA3-a possible field boundary ditch,
- AA4-a cluster of pits and ditches of medieval date,
- AA5-a cluster of pits and ditches of medieval date
- AA6-a medieval ditch,
- AA7-a medieval ditch and two pits
- AA8-AA12- isolated pits and hearth/kilns of unknown date.

AA1 is the largest of the archaeological sites, representing a probable deserted medieval settlement. A large amount of medieval pottery sherds were retrieved from the features in this area, which were characterised by ditches, pits and hearths

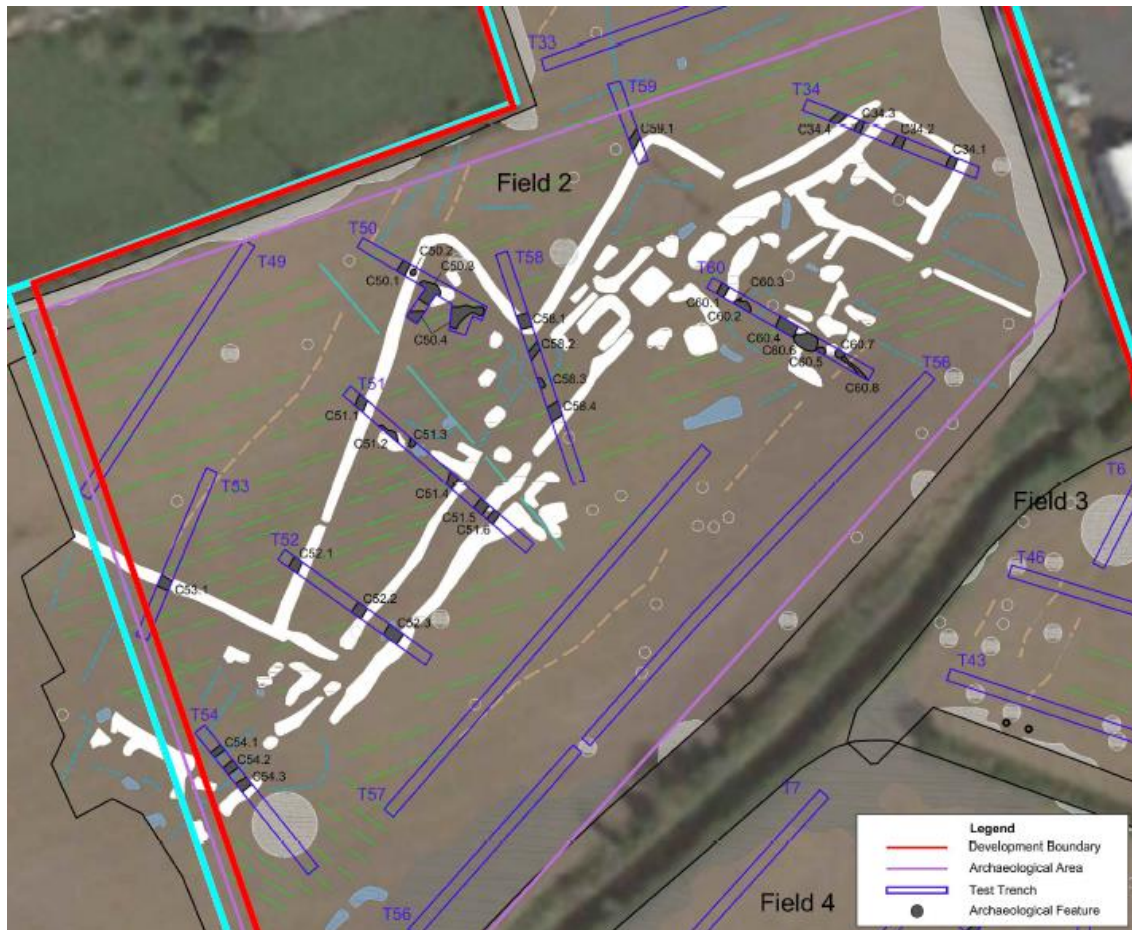


Figure 13-2 Detail of archaeological testing results in AA1 (Source IAC)

As a result an exclusion area was designated as part of the development around AA1.

### 13.1 Construction Phase Mitigation

A large portion of AA1 will be preserved in-situ during construction in order to retain the area of greenfield. Small sections of ditches in the north and east of the site will be affected by ground works. The archaeological exclusion area (Figure 13-2) will be established at construction stage in order to prevent inadvertent construction impacts. The small portions of the site to be impacted will be preserved by record. This will be carried out under licence to the National Monuments Service of the DoHGLH. Full provision will be made available for the resolution of the archaeological remains, both on site and during the post-excavation process.

Whilst it is acknowledged that the preservation in-situ of archaeological remains is indeed the best manner in which to conserve the archaeological resource, the required layout of the development



means that the archaeological features and deposits within AA2-12 (excluding AA8 and 9) will be subject to archaeological preservation by record (prior to the commencement of construction). This will be carried out under licence to the National Monuments Service of the DoHLGH. Full provision will be made available for the resolution of the archaeological remains, both on site and during the post-excavation process.

All topsoil stripping associated with the development will be subject to archaeological monitoring by a suitably qualified archaeologist. Should any archaeological remains be identified, consultation will be required with the National Monuments Service of the DoHLGH as to whether preservation by record or in-situ is carried out.

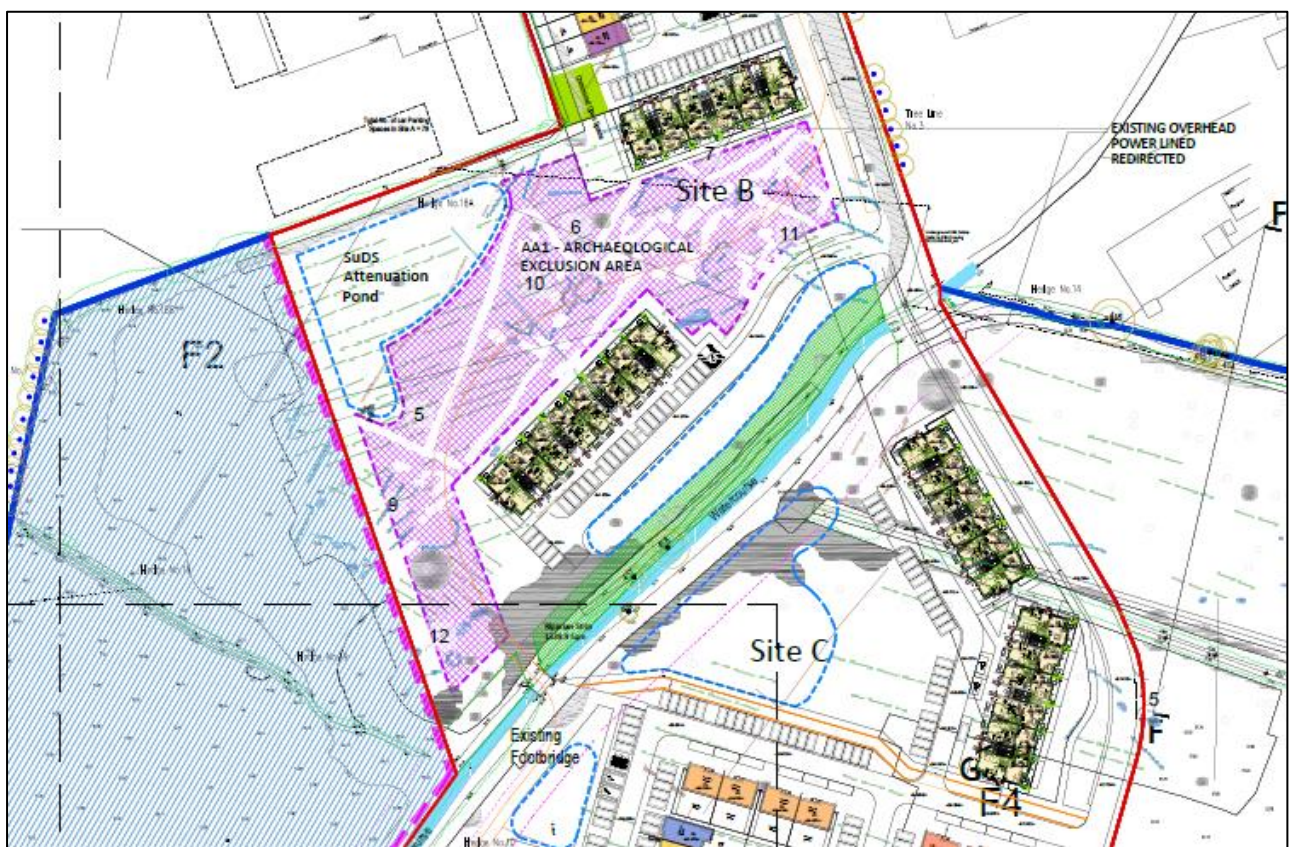


Figure 13-3 Exclusion Area designated as part of the development around AA-1

In addition an underwater archaeological assessment will be carried out along the path of the watercourse, where it will be affected by new crossing points. This will be carried out under licence to the National Monuments Service of the DoHLGH. Should any archaeological remains be identified, consultation will be required with the National Monuments Service of the DoHLGH as to whether preservation by record or in-situ is carried out.



### **13.2 Operational Phase Mitigation**

An archaeological conservation/management plan will be developed in order to inform future operations of the development within AA1 and ensure the area is managed appropriately. The plan will be compiled by a suitably qualified archaeologist and contain a list of proscribed activities and policies on future site maintenance.



## 14 Pest Control

The principal contractor must prevent, monitor and reactively treat any issues with vermin or pests throughout the entire construction phase.

- It is recommended that a vermin control layout plan should be devised, and bait traps located at strategic locations identified by an initial site survey.
- Bate traps shall be routinely checked to ensure their effectiveness.
- Skip and waste areas shall always be kept tidy, with skip sizes appropriate to the rate of fill and changed frequently.
- Housekeeping shall be routinely carried out to ensure no conditions are conducive to harbourage.
- Surface areas with standing water shall be regulated where possible.
- Routine site inspections should be carried out to ensure effectiveness of control plans.





## 15 Site Compound Facilities and Parking

The exact location of the construction compound is to be confirmed in advance of commencement of the works (and agreed with Kildare County Council).

The location of the construction compound is likely to be relocated during the course of the works, in line with the phasing of the development

The construction compound will include adequate welfare facilities such as washrooms, drying rooms, canteen and first aid room as well as foul drainage and potable water supply

- Foul drainage discharge from the construction compound will be tankered off site to a licensed facility until a connection to the public foul drainage network has been established
- The construction compound's potable water supply shall be protected from contamination by any construction activities or materials
- The construction compound will be enclosed by a security fence
- 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
- A permeable hardstand area will be provided for staff car parking
- A separate permeable hardstand area will be provided for construction machinery and plant
- The construction compound will include a designated construction material recycling area
- A series of way finding signage will be provided to direct staff, visitors and deliveries as required
- All construction materials, debris, temporary hardstands etc. in the vicinity of the site compound will be removed off-site on completion of the works