

**RESIDENTIAL DEVELOPMENT ON LANDS AT
CORBALLIS EAST FOR ALEDO DONABATE LIMITED**

**CONSTRUCTION & ENVIRONMENTAL
MANAGEMENT PLAN**

PROJECT: C1057

25th August 2023



OCSC

O'CONNOR | SUTTON | CRONIN

Multidisciplinary
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DOCUMENT CONTROL & HISTORY

OCSC Job No.: C1057	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status / Suitability Code	Revision
	C1057	OCSC	XX	XX	RP	C	0002	A1	C01
Rev.	Status	Authors	Checked	Authorised	Issue Date				
C01	A1	R. Hogan	P. Raggett	A. Horan	25/08/23				
Rev	Suitability Code	Author	Checker	Authorised	Issue Date				

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CONSTRUCTION & ENVIRONMENTAL MANAGEMENT PLAN

ALEDO DONABATE LIMITED

O'CONNOR SUTTON CRONIN & ASSOCIATES

MULTIDISCIPLINARY CONSULTING ENGINEERS

PROJECT NO. C1057

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APPENDIX A - CONSTRUCTION PHASE MITIGATION MEASURES

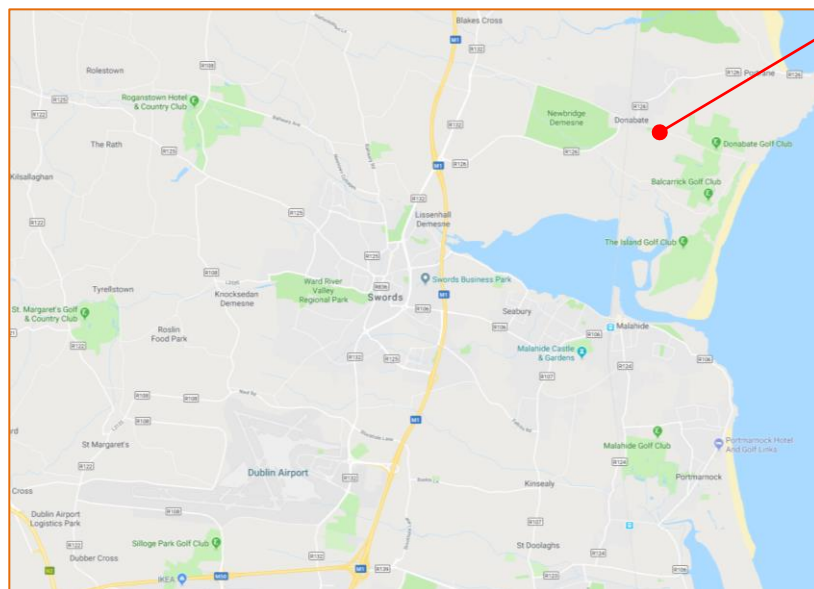
1. INTRODUCTION

General

O'Connor Sutton Cronin & Associates (OCSC) have been appointed by Aledo Donabate Limited to prepare a Construction & Environmental Management Plan (CEMP) in respect of a proposed residential development at Corballis East Donabate, County Dublin.

Project Description & Site Location

The subject site is located in Donabate County Dublin, immediately east of the Dublin to Belfast railway line and to the south of the existing town.



Site Location

Figure 1: Site Location Map

The site is bounded by the Dublin-Belfast Railway Line and permitted development (ref ABP-3008446-20, F20A/0204) to the west, by The Strand residential development and Main Street Donabate to the north, by agricultural lands to the East and by the Donabate Distributor Road (DDR) to the south. The proposed layout is shown in Figure 2.

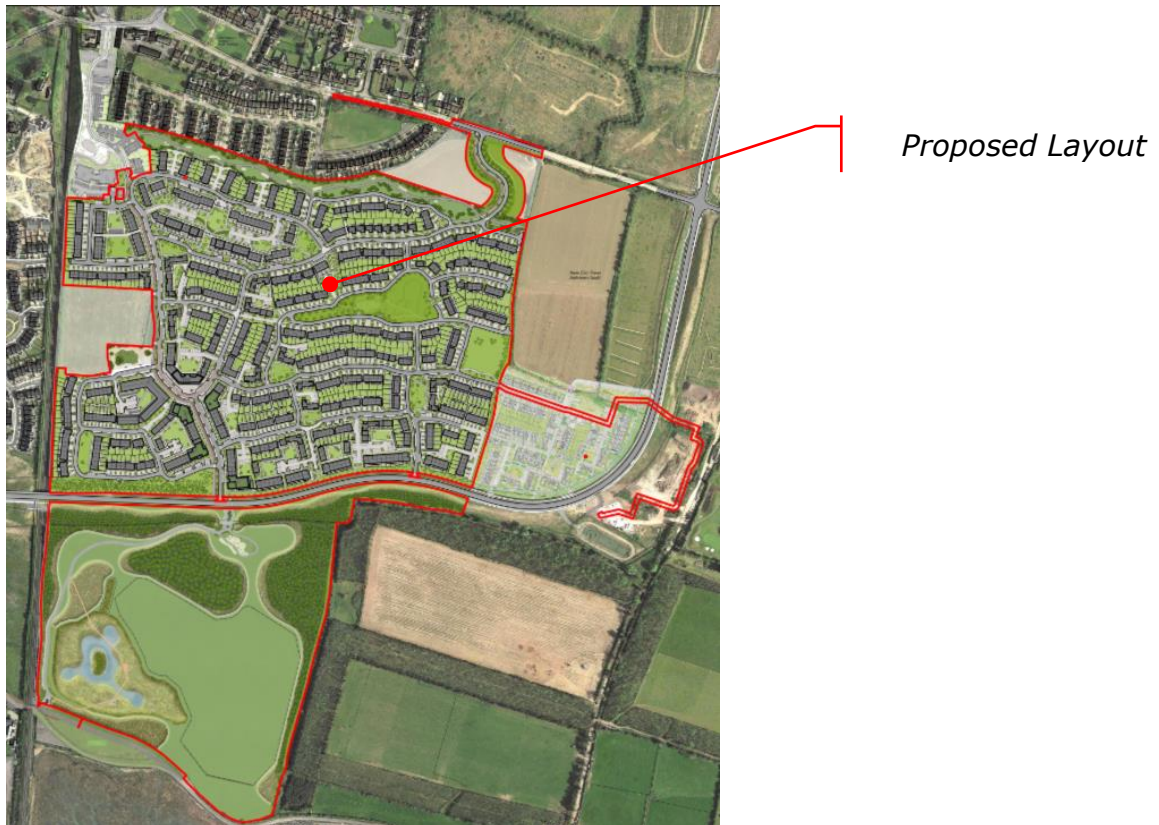


Figure 2: Planning Application Red Line Boundary

The application site comprises of a Main Residential Development Site of approximately 25.4 hectares, to the north of the Donabate Distributor Road (DDR), together with a Nature Park Site of approximately 13 hectares to the south of the DDR, and approximately 2.7 hectares of additional lands associated with proposed road improvement and landscaping works at New Road and along the DDR, and connection to a permitted wastewater pumping station (Reg. Ref. F19A/0472) to the east. A ten-year planning permission is being sought.

The proposed development of the Main Residential Development Site comprises of a total 1,020 no. dwellings comprising 70 no. one-bed apartments (includes 51 no. sheltered accommodation units), 94 no. two-bed apartments and 10 no. three-bed apartments arranged in 7 no. blocks (including a sheltered accommodation block) and 2 storey apartments in terraced format throughout the scheme (Apartment M Type); 63 no. one-bed apartments, 119 no. two bed apartments associated with 174 no. three-bed apartments in duplex and triplex format; and 38 no. two-bed

houses; 300 no. three-bed houses; 141 no. four-bed houses and 11 no. five-bed houses.

In addition, the proposed development provides 2 no. childcare facilities (total 1,243sqm GFA) with a total capacity for in the order of 237 no. children. The proposals also include 3 no. retail units, 2 no. café units and a medical centre (total gross floor area 730sqm), together with a multi-purpose community use unit (91sqm) at the proposed local centre area. The proposed development facilitates the future development of a primary school site on adjoining lands, within the Applicant's ownership.

A series of public parks, open spaces and pocket parks, providing approximately 3.4 hectares of public open space, are proposed throughout the Main Residential Development Site to serve the proposed development. The proposed development also facilitates a number of future potential pedestrian, cycle and vehicular links to existing and proposed adjoining developments, including a connection to the proposed Nature Park via an existing pedestrian crossing on the DDR, as well as a link to the approved Broadmeadow Way proposals via the Nature Park.

Vehicular access to the Main Residential Development Site will be via two existing junctions from the DDR, and a further new entrance proposed at New Road to the north-east of the site. The proposed development also provides for the extension of the existing footpath from The Strand to the proposed new entrance on New Road, along the southern side of New Road.

Permission is also sought for modifications to Phase 1, permitted under Reg. Ref. F20A/0204 (ABP-308446-20), to facilitate vehicular access to car parking associated with permitted Block 4 (34 no. units), via the principal proposed north-south street, together with all associated amendments to the Phase 1 road layout to omit vehicular access to Block 4 via the shared cycle street as originally permitted under Reg. Ref. F20A/0204 (ABP-308446-20). Pedestrian and cycle connectivity will be facilitated between the proposed development and Phase 1.

The Corballis Nature Park (approximately 13 hectares) is proposed on lands to the south of the DDR. The park will provide a multifunctional natural amenity area, incorporating ecological and biodiversity enhancements, appropriate recreational amenities, including pedestrian and cycle links

together with SUDS wetland areas, while acting as an ecological buffer zone between the future development to the north and the coastal habitat of Malahide Estuary to the south.

The proposed development provides for all associated and ancillary infrastructure, landscaping, boundary treatments and development works on a total site of approximately 41.9 hectares.

The proposed development will be served by surface, foul and potable water infrastructure, and roads, footpaths and cycle paths designed by Project Engineers O'Connor Sutton Cronin (OCSC). Boundary treatments to the west have been defined by consultations with Córas Iompair Éireann (CIÉ) and comprise a 2.4m high concrete wall along the boundary of the Main Development Site and a 2.4m high paladin fence along the boundary with the Nature Park Site.

2. CONSTRUCTION PROGRAMME & PHASING

Phasing

A ten-year permission is being applied for in respect of the proposed development. Given the limited size and scale of the proposed development, it is expected that it will be developed in a number of individual but sequential phases over the ten-year period.

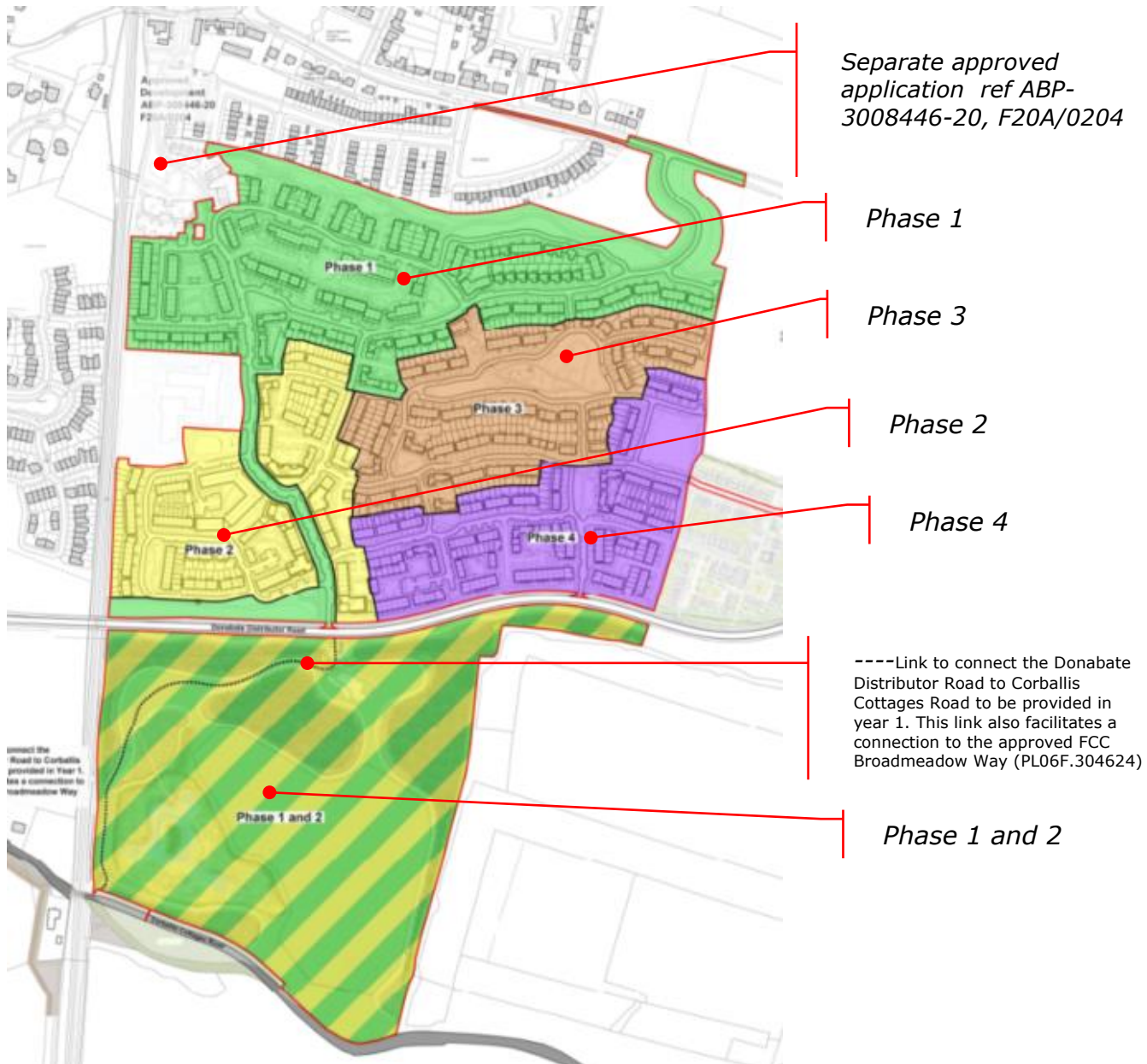


Figure 3: Phasing Plan

The various phases will be as follows:

Phase	Houses	Duplex, Triplex	Apartment M's	Apartments Blocks	Sheltered Housing	Total Residential	Crèche
Phase 1	142	185	11	-	-	338	1
Phase 2	90	63	9	84	51	297	1
Phase 3	150	26	2	-	-	178	-
Phase 4	108	82	17	-	-	207	-
Total Residential	490	356	39	84	51	1020	

- Phase 1: will comprise 338 units and Creche with associated roads and services as well as the Nature Park south of the DDR;
- Phase 2: will comprise 297 units and Creche with associated roads and services;
- Phase 3: will comprise 178 units with associated roads and services;
- Phase 4: will comprise 207 units with associated roads and services;

Total will comprise 1020 units.

Programme

The development programme will be market driven to a large extent; however, as noted, given the large size and scale of the development, it is assumed that it may be rolled out over a 120-month period post-receipt of planning permission.

Subject to a successful planning outcome it is expected that construction will commence in the first quarter of 2024 and be completed by the fourth quarter of 2032. The following phase-related buildout is proposed:

- Phase 1: will commence in Q1 2024 and run until Q4 2026;
- Phase 2: will commence in Q1 2026 and run until Q4 2028.
- Phase 3: will commence in Q1 2029 and run until Q4 2030.
- Phase 4: will commence in Q1 2031 and run until Q4 2033.

Applicant & Design Team

The following are the main participants in the project:

Role	Name	Contact
Applicant	Aledo Donabate Limited	Kevin Traynor
Architect	Conroy Crowe Kelly	Michael Crowe
Consulting Engineer	O'Connor Sutton Cronin	Anthony Horan
Landscape Architects	The Big Space	Dan Egan
Planning Consultant	Declan Brassil Associates	Declan Brassil
Main Contractor	TBC	

Table 2: Project Participants

3. SITE ESTABLISHMENT

Site Access

The site is currently accessible from two separate locations i.e., from the DDR and from the New Road, west of its junction with the DDR.

The long-term construction access to the site will be provided off the DDR from which it will be possible to access both the residential zoned lands to the north and the Nature Park lands to the south. An access location similar to that approved in F23A/0192, from one of the DDR junctions into the site, is shown in Figure 4 below. The figure also shows a possible location for a Site Compound to serve the development.

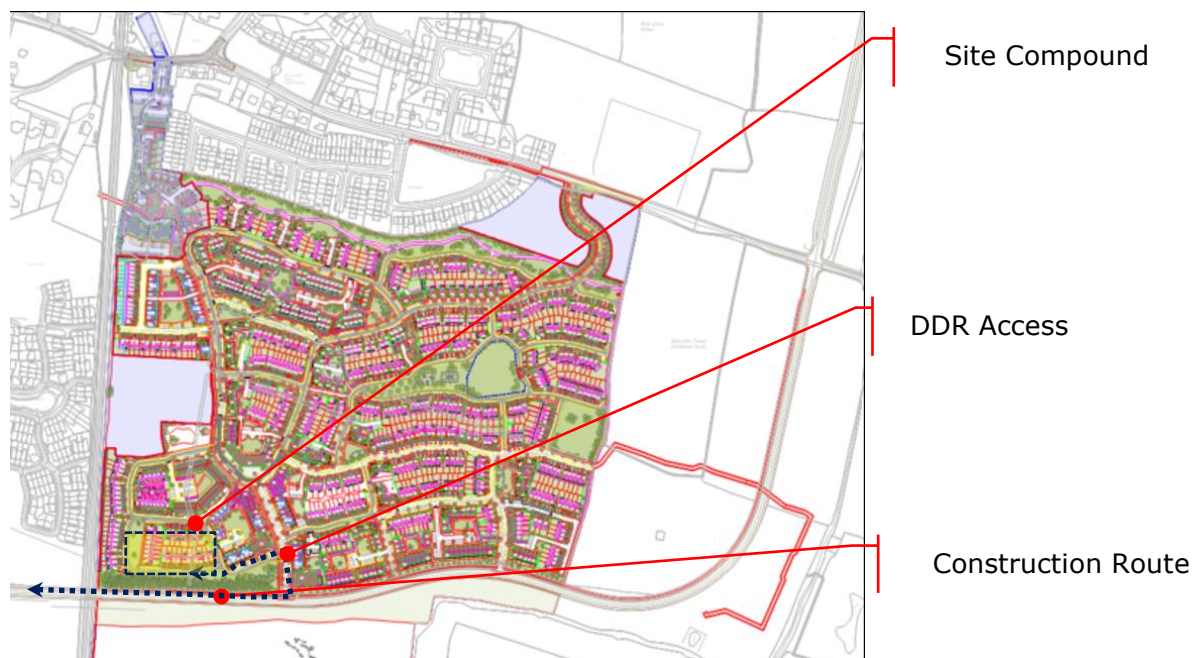


Figure 4: Initial Access and Site Set-Up Area

Some access, for smaller phases of the development at New Road, will require access from roads adjacent to those locations however, the bulk of the works will be accessed via the DDR. No temporary parking of construction-related vehicles will be allowed to take place on the DDR or the wider road network leading to the site.

Hoarding

Perimeter hoarding will be provided around the different phases of the site and along the public road so as to prevent unauthorised access to the site. Controlled access points will also be provided. Hoarding will be maintained to a high standard and painted or covered as appropriate. Temporary hoarding will be provided as necessary within the site as safety restrictions prevent public access. The locations of this temporary hoarding will vary as work progresses across the site.

Tree Protection

Appropriate measures will be put in place to protect any trees on the site which are designated for protection or retention under any granted planning permission for the development.

Archaeology

Appropriate arrangements will be made with a licensed archaeologist to monitor soil stripping and other development works as may be conditioned in any planning permission for the proposed development.

Enabling Works & Works on the Public Road

Works on the public road, including the proposed junction to the New Road, the extension to the footpath and a new section of cycle track will be carried out subject to, and in accordance with, a Road Opening Licence from Fingal County Council. It is noted that the proposed junctions off the DDR have been partially constructed as part of the DDR proper.

All works on the public road will be carried out in accordance with FCC and HSA guidelines for working on public roads.

4. CONSTRUCTION TRAFFIC

Site Access & Traffic Routing

As noted earlier, the long-term construction access to the site will be provided off the DDR from which it will be possible to access both the residential zoned lands to the north and the Nature Park lands to the south. Some access, for smaller elements of the development at New Road will require access from roads adjacent to those locations however, the bulk of the works will be accessed via the DDR.

Most of the construction traffic will use the DDR and then the R126 as far as the M1 Lissenhall Interchange from where it will continue along the M1 to a suitable disposal site. Similarly, all deliveries will approach the site via the M1, R126 and DDR. This will remove construction traffic from Donabate Town Centre and from sensitive residential areas.

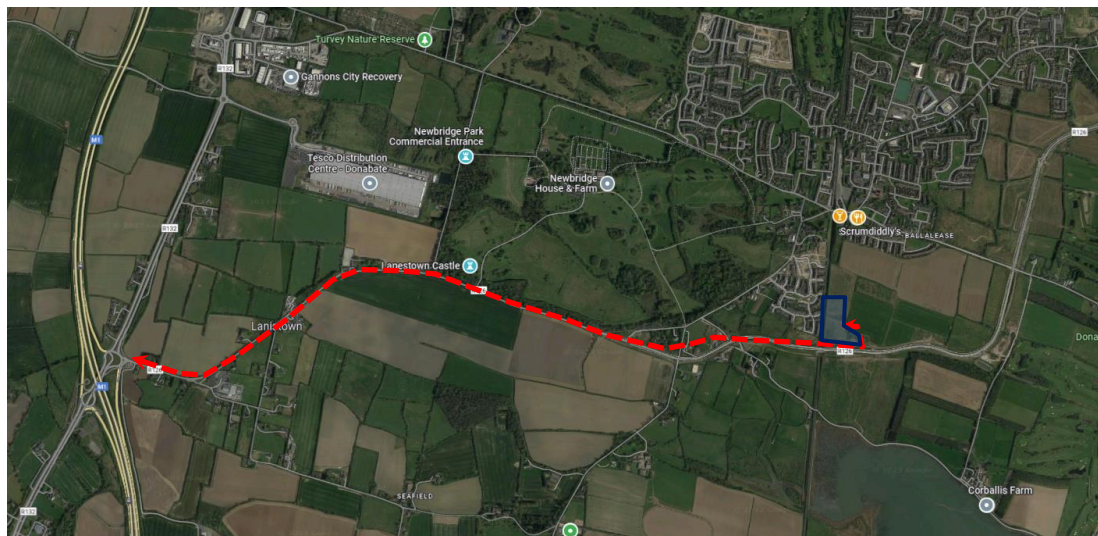


Figure 5: Construction Haul Route

The exact location of batching plants and disposal sites will be established once a contractor has been appointed. However, the route outline in Figure 5 will be the preferred access and egress route for the site. Details of all routes will be agreed upon with the Transportation Department of FCC prior to the commencement of works.

Construction Traffic Volumes

In order to estimate the volume and rate of construction traffic, it is first necessary to estimate the amount of excavation and earthworks required on the site. Topsoil and subsoil/stones will be excavated to accommodate roads, footpaths, services and housing construction. Based on a 3d ground model of the existing site the expected volume of materials has been calculated. The entire site is approximately 41.9 hectares of which the proposed Nature Park is 13.0 hectares. There are also other miscellaneous parks/open spaces, totalling 3.4 hectares, associated with proposed road improvement and landscaping works at New Road and along the DDR. The following calculations have been made (see Table 3 over) for the cut and fill on site:

- Allowing an average depth of 450 mm, the topsoil strip will generate approximately 125,000 m³ of material on lands north of the DDR;
- Subsoil excavation for road and footpath construction and for future housing will generate approximately 120,000 m³ of material;
- Excavation for watermains, foul and surface water sewers, will generate an additional 41,000 m³ of material;
- Subsoil excavation in the Nature Park to provide a SuDS retention and detention area will amount to 33,000 m³;
- The total subsoil excavation, therefore, amounts to 194,000 m³;
- 183,000 m³ of fill will be required for the northern part of the site which can be won from the 161,000 m³ of subsoil and 125,000 m³ of topsoil on the northern part of the site.
- Assuming 21,000m³ of the topsoil strip on the northern part of the site can be reused for front and rear gardens, open spaces areas and so on then an excess of 82,000 m³ of topsoil will be generated (when 22,000m³ topsoil is used for fill is also included) which can be used as fill in the Nature park;
- Allowing for stand-off perimeter areas in the Nature Park of 2.65 hA and an attenuation area of 2.2 hA means that just 8.8 hA can be used for fill. Allowing an average fill depth of 1.1 m means that the park could accommodate 96,000 m³ of material leaving then an overall excess of 125,000 + 161,000 + 33000 – 183,000 – 21,000 –

96000 = 19,000 m³. Further allowing a bulking factor of 1.3 for excavation, non-compacted materials mean that some 24,700 m³ of material will require to be disposed of off-site.

Item	Excavate m ³	Reuse m ³	Export m ³
Topsoil Strip North	125000		
Topsoil Reuse North (gardens and green areas)		21,000	
Topsoil Reuse North (Fill)		22,000	
Topsoil Surplus for Reuse South or export			82,000
Subsoil Roads & Houses North	120,000	120000	
Subsoil Services North	41,000	41,000	0
Total North	286,000	204,000	82,000
Subsoil Nature Park	33,000		
Fill to Nature Park		88,000	
Total South	33,000	88,000	-55,000
Subsoil Surplus for Export			27,000
Total Surplus for Export Off-Site			27,000
Total Surplus with Bulking Applied at 1.3x			35100

Table 3: Cut & Fill Calculation

Note

The cited figures in Table 3 are overall cumulative cut and fill volumes and relate to all proposed works at the site.

Based on the above, and from the experience of similar construction projects, it is considered that there will be a maximum of six HGVs serving the site during any given daytime hour. This is based upon the knowledge that it takes on average 10 minutes to load a lorry with spoil. As such, the two-way HGV traffic is unlikely to be higher than 12 vehicles per hour at any point of the day. Based on an 8-hour day and a 22-working-day month, 10 vehicles per hour equates to 1,760 vehicles per month. Allowing for some seasonal and holiday modulation in site activity, it is expected that it will take approximately 3500 vehicle movements to move all of the

soil required to be moved off the site. This will be spread over the duration of the project

Measures will be put in place to minimise the amount of construction traffic generated by the development. These measures will include the reuse of materials within the site for landscape purposes to limit the amount of spoilage. In this regard, the Nature Park offers the opportunity for significant materials reuse.

The contractor will maximise the use of precast materials or prefabricated materials wherever possible and economically viable. Adequate storage space will be provided on-site for the storage of materials and a site strategy will be put in place to manage the timing of deliveries to the site. Trips by construction workers will be limited by the provision of car sharing and Travel to Work Scheme benefits. Given the location of the site immediately adjoining Donabate rail station, construction workers will be encouraged to use public transport to the maximum possible extent. Adequate storage space will be provided on-site for the storage of materials and a site strategy will be put in place to manage the timing of deliveries to the site.

Nature Park

As noted, measures will be put in place to minimise the amount of construction traffic generated by the development. These will include the reuse of materials within the site for landscape purposes to limit the amount of spoilage. This volume of material is noted in Table 3 and will involve re-using approximately 88,000 cubic meters of soil which will allow us to reshape the existing profile of the Nature Park Lands. In this regard, the Nature Park offers the opportunity for significant materials reuse. Access to the Nature Park area will be gained via the DDR which has recently been completed. The proposed access route is shown in Figure 6.



Figure 6: Nature Park Access from DDR

Site Parking

A limited number of on-site parking will be provided for construction workers and site visitors. Given the location of the site proximate to Donabate Railway Station, construction personnel will be encouraged to use public transport.

Staff Welfare

Appropriate welfare facilities will be provided on-site for construction staff and will include, inter alia:

- Canteen facilities;
- Toilet Facilities;
- Office accommodation;
- Tool storage areas.

Construction Traffic Mitigation Measures

The appointed contractor will put in place measures to keep public roads free of muck and debris. This will include undertaking regular road sweeping by a mechanical sweeper and the provision of wheel wash facilities on the site.

5. SEGREGATION OF WASTE STREAMS

Waste Storage & Segregation

Waste materials generated will be segregated on-site. This will allow for the maximum possible degree of recycling. Where on-site segregation of certain waste types is not practical, off-site segregation will be carried out. Skips and receptacles will be provided to facilitate segregation at the source.

All waste receptacles leaving the site will be covered or enclosed. The on-site waste storage area will be secured within the overall site which will be hoarded off from public and unauthorised access.

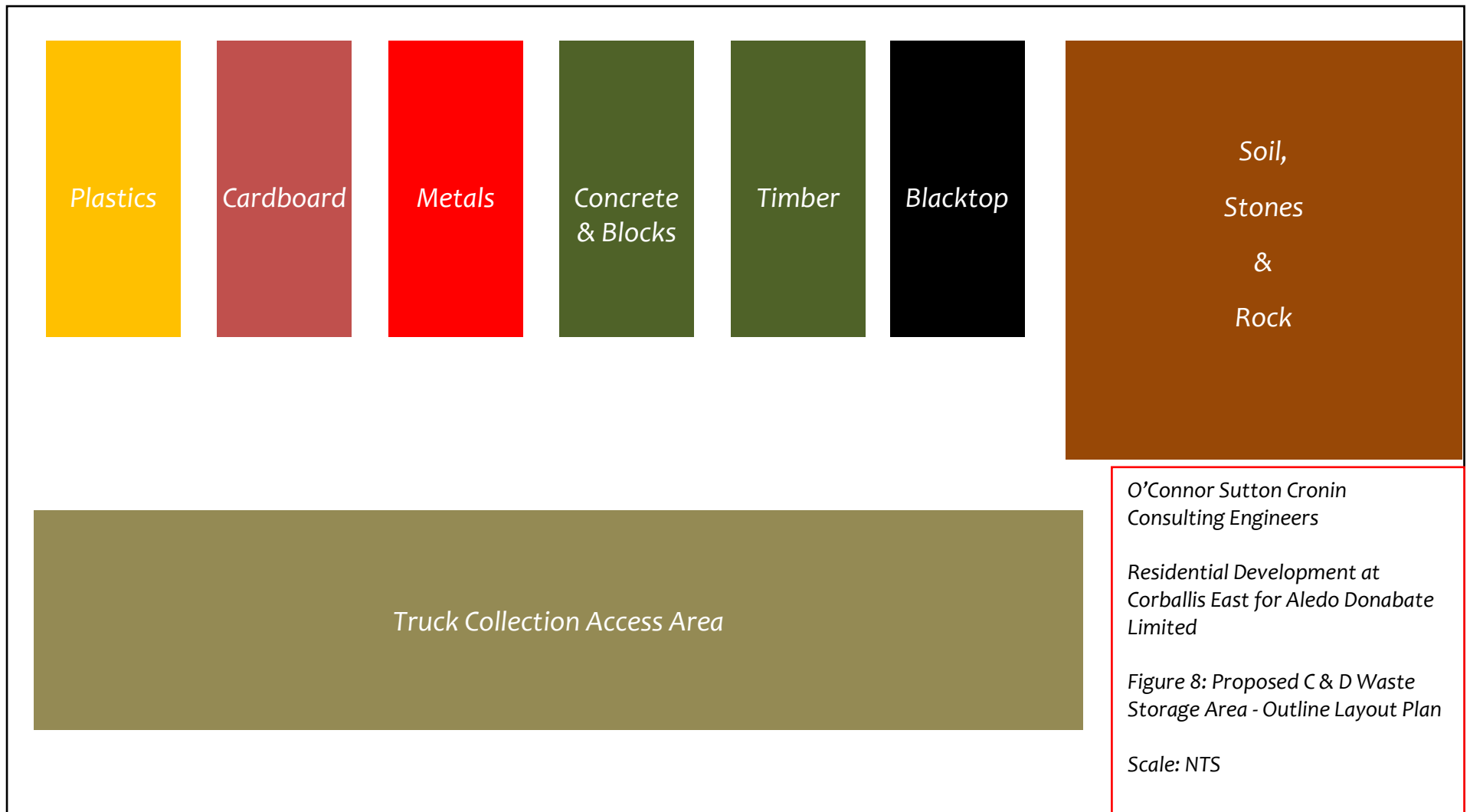
The appointed waste contractor will collect and transfer the waste as receptacles are filled. Any soil removed off-site will be carried by contractors licensed under the Waste Management Acts 1996 - 2008, the Waste Management (Collection Permit) Regulations 2007 and Amendments and the Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments.

Non-Recyclable Waste:

C&D waste which is not suitable for reuse or recovery will be placed in separate skips or other receptacles. This will include polystyrene, some cardboard and plastic which are deemed unsuitable for recycling.

Prior to removal from the site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team to determine if recyclable materials have been misplaced. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

An outline Layout Plan for a site-based waste segregation compound is shown in Figure 7 over.



6. ENVIRONMENTAL MANAGEMENT

Pollution Prevention

Pollution prevention measures will be undertaken in accordance with best practice guidelines from Inland Fisheries Ireland (2016). There are no sensitive fisheries habitats on the site, however, drainage ditches lead to the Malahide Estuary (a protected zone for nature conservation). A programme for the control of sediment will therefore be required. This will be put in place by the appointed contractor.

Only sediment-free run-off is to leave the site. A suitably sized detention basin or settlement area will be installed at the lowest point prior to discharge where excess run-off must leave the site. Silt curtains or earth berms will be used to channel run-off to locations where it can be controlled. These may take the form of an open detention area or, where the need arises, a portable skip/s, or similar, where inflow passes through straw bales, gravel etc.

The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained.

The site compound will include a dedicated bund for the storage of dangerous substances including fuels, oils etc. Refuelling of vehicles/machinery will only be carried out within the bunded area. The site compound will clearly display emergency contact details for Inland Fisheries Ireland, the National Parks and Wildlife Service, Fingal County Council and the Environmental Protection Agency in the event of a pollution incident or environmental emergency. Adequate spill kits will be available in the event of a spill of oil or other hazardous substance.

Malahide Estuary Special Area of Conservation/Special Protection Area

The estuary to the south of the site area is among the most protected areas in Ireland for its wetland bird population and sensitive habitats. The site is well-screened by the DDR and is close to 1 km from the subject

development site. However, to avoid disturbance during the construction phase, a tall, durable, opaque barrier will be erected along the southern boundary of the site. The barrier will be maintained for the duration of the works and inspected at appropriate intervals. The purpose of the barrier is to create a visual screen between the works area and the estuary, thus avoiding disturbance to birds. As such it must be of an appropriate height to fulfil this function.

Training

All site personnel will be trained in the importance of good environmental practices including reporting to the Site Manager when pollution, or the potential for pollution, is suspected.

Protection of Trees

As noted previously, appropriate measures will be put in place to protect any trees on the site which are designated for protection or retention under any granted planning permission for the development. The appointed contractor shall have regard to the *Arboricultural Report prepared by Charles McCorkell Consulting Arborist*.

Noise Control

Measures will be implemented to minimise the impact of noise emissions at sensitive locations during the construction phase. Such measures will include the following:

- Construction contractors will be required to comply with the requirements of the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations and the Safety, Health and Welfare at Work (Control of Noise at Work) Regulations;
- All plant items used during the construction phase should comply with standards outlined in the 'Safety, Health and Welfare at Work (Control of Noise at Work) Regulations' and the 'European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations'. Reference will be made to BS 5228: Part 1: 2009 (Noise Control on Construction and Open Sites - Part 1. Code

of Practice for Basic Information and Procedures for Noise Control) and will include the following mitigation measures:

- Training of site staff in the proper use and maintenance of tools and equipment;
 - The positioning of machinery on site to reduce the emission of noise and to site personnel;
 - Sources of significant noise will be enclosed where practicable;
 - Machines that could be in intermittent use will be shut down between work periods or will be throttled down to a minimum;
 - Plants known to emit noise strongly in one direction will, when possible, be orientated so that the noise is directed away from noise-sensitive areas; and
 - Plant and/or methods of work causing significant levels of vibration at sensitive premises will be replaced by other less intrusive plant and/or methods of working where practicable.
- Inherently quiet plants will be selected where appropriate;
 - Screening and enclosures will be utilised in areas where construction works are continuing in one area for a long period of time or around items such as generators or high-duty compressors. For maximum effectiveness, a screen will be positioned as close as possible to either the noise source or receiver. The screen will be constructed of material with a mass of $>7\text{kg/m}^2$ and should have no gaps or joints in the barrier material. This can be used to limit noise impact on any noise-sensitive receptors;
 - Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery and mobile equipment will be throttled down or switched off when not in use;
 - Accordingly, where possible all construction traffic to be used on site will have effective well- maintained silencers; and
 - All mobile plants will be maintained to a high standard to reduce any tonal or impulsive sounds.

Vibration Control

Any construction works that have the potential to cause vibration at sensitive receptors will be carried out in accordance with the limit values in Table 4 hereunder, at the most affected sensitive receptor.

Allowable PPV (mm/s) at Sensitive Receptors at Given Frequencies (Hz)		
<10 Hz	10 – 15 Hz	50 Hz and above
8 mm/s	12.5 mm/s	20 mm/s

Table 4: Vibration Limits

Dust Control

The main activities that may give rise to dust emissions during construction include the following:

- Materials handling and storage; and
- Movement of vehicles (particularly HGVs) and mobile plants.

The following mitigation measures will be implemented on-site during the construction phase, as required:

- Site roads shall be regularly cleaned and maintained as appropriate;
- Hard surface roads shall be swept to remove mud and aggregate materials from their surface as a result of the development works;
- Any un-surfaced roads shall be restricted to essential site traffic only;
- Any road that has the potential to give rise to fugitive dust may be regularly watered, as appropriate, during extended dry and/or windy conditions;
- On-site speed limits will be stipulated to prevent the unnecessary generation of fugitive dust emissions;
- Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to the wind;
- A complaints register will be maintained on-site and any complaints relating to dust emissions will be immediately dealt with;
- In periods of dry weather when dust emissions would be greatest, a road sweeper, which would also dampen the road, will be employed in order to prevent the generation of dust;

- Water misting or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods; and
- If appropriate, dust monitoring will be carried out during the construction phase of the scheme. If the level of dust is found to exceed 350mg/m²day in the vicinity of the site, further mitigation measures will be incorporated into the construction of the proposed scheme.

Construction Phase Mitigation Measures

For ease of reference and clarity, all mitigation measures contained in the EIAR have been compiled in Appendix A. All measures included as part of Appendix A form part of the proposed development and will be implemented in full.

7. HEALTH & SAFETY

General Health, Safety and Environmental Consideration

Construction works will be carried out in such a way as to limit, as far as practicable, adverse environmental impact. Works will be carried out in accordance with the following general provisions:

- Planning approvals from the Local Authority;
- Requirements of the Local Authority.

As part of any Construction Method Statement, the process will ensure that construction techniques and materials used are a fundamental consideration of the design and intended long-term use and that the aims below are achieved:

- Design for durability and low maintenance;
- Design for flexibility and adaptability;
- Use of materials from sustainable sources;
- Use of local materials where possible.

Safety, health and environmental issues in the development are a primary consideration in the construction methods adopted. The construction team will develop detailed health and safety plans, and specific environmental, fire and accident procedures to suit the construction sequence of the development.

Contractors involved in the development will ensure that all non-English speaking employees are provided with relevant Health and Safety information in their national language. All contractors will be required to adopt the relevant skills certification required for that element of the work. A site-specific Safety Statement and a detailed Construction Stage Safety & Health Plan will be compiled prior to any works on site and will be in accordance with the Health & Safety Authority and Local Authority guidelines.

Control of Substances Hazardous to Health

The strategy for controlling all substances and all work processes that may generate hazardous substances will have to be addressed and control measures put in place. Some of the control measures to be employed include the following:

- All fuel and chemicals are to be stored in designated areas, with deliveries of hazardous materials supervised.
- Storage tanks and container facilities will be appropriately bunded.
- In the case of spills or discharges, remedial action will be taken as soon as possible in accordance with company procedures.
- Personal protective equipment (PPE) suitable to the pertaining conditions will be used by all site personnel.

Environmental, Emergency and Accident Procedure

Measures will be carried out to avoid environmental incidents, however, if these occur then the following types must be reported to the responsible person in the construction team. The overall strategy in the event of a spillage will be to 'Stop-Contain-Notify' in the event of:

- Spills or discharge to the atmosphere, water supplies, sewage systems, rivers, and other watercourses, or to the ground:
 - Any chemical products
 - Oils or fuels
 - Effluent/fumes and gases
 - Waste or contaminated materials
- Damage to existing:
 - Trees and wildlife
 - Flora and existing local habitats
- Any environmental incidents that could lead to:
 - Local Authority or regulatory enforcement
 - Public complaint

Emergency routes and procedures will be continuously adapted to suit the construction sequence and stage of the Development. An *Emergency & Evacuation Plan* will be prepared following the guidelines detailed below and updated on a regular basis during construction:

- Definition of the management organisation and responsibility for safety
- Definition of appropriate fire prevention measures, including good housekeeping of site, welfare facilities and offices.
- Adequate provision of fire extinguishers across the site.
- Use of non-flammable/fire retardant materials for protection of finished works.
- Safe use and safe storage of flammable materials of all categories, whether solid, liquid or gas.
- Appropriate waste management procedures.
- Monitoring the type and frequency of fire inspections/audits.
- Development of evacuation plans, to include escape routes, muster stations, means of sounding alarms and general emergency procedures.
- Site safety inductions and fire drills.
- The application of permit systems for Hot works, Confined Space Entry and Electrical Access Control.
- The provision of first aiders. Checking of emergency routes is available and unobstructed at all times.
- Liaison with the emergency services and occupants of the adjacent buildings.

First aid facilities will be established and at least one trained first aider will be present on-site at all times. In addition, trained Fire Wardens / Fire Marshalls will be in place on-site to address fire safety.

8. HOURS OF WORKING

Construction operations will be carried out in accordance with any granted planning conditions. It is expected that normal working hours will be from 07:00 – 19:00 Monday to Friday and from 08:00 – 14:00 on Saturdays.

It may be necessary for some specific construction activities to take place outside of these times and in those cases, a specific derogation will be sought from the Planning Authority, Fingal County Council.

Deliveries to the site will be arranged to arrive within normal working hours as set out above.

There may, again, be specific deliveries which need to arrive outside of these hours e.g. in respect of wide loads. In all such cases, the applicant will again liaise and agree any necessary derogations with the Planning Authority.

RICHARD HOGAN

CHARTERED ENGINEER

WITH

O'CONNOR SUTTON CRONIN & ASSOCIATE

APPENDIX A

CONSTRUCTION PHASE MITIGATION MEASURES

1. Population and Human Health

Character of potential impact	Mitigation measure
Construction Phase	
Disturbance caused by construction	Advance notice will be given to the residents of The Strand residential estate before construction starts and in advance of any major planned disruptions.
Disturbance caused by construction	A construction management plan will be prepared to minimise impacts on adjacent residents.
Disturbance caused by construction	Construction traffic will be managed to mitigate against potential traffic delays and to facilitate the existing pattern of vehicular movement.
Disturbance caused by construction	The mitigation measures in relation to construction, traffic, noise, air quality and landscaping as set out in this EIAR will be carried out in full to minimise impacts on adjacent residents and the population of Donabate at large.
Access is opened and unauthorised persons enter the rail corridor.	The site shall be managed in such a way as to ensure that the boundary to the rail corridor is maintained secure by means of Heras Fencing or other temporary boundary agreed with Irish Rail. The permanent boundary should be constructed in the early stages/phases of construction.

2. Biodiversity

Character of potential impact	Mitigation measure
Construction Phase	
Disturbance to QIs of Malahide Estuary	The primary source of disturbance is construction activity within the Nature Park, which is adjacent to the estuary. Large scale construction activity within the Nature Park should be limited to the period April – September inclusive to minimise any risks of disturbance at the Malahide Estuary causing

	<p>movement of birds such as Light Bellied Brent Geese to other sites such as Baldoyle Bay (where they might put habitats such as <i>Zostera</i> beds under excess pressure);</p>
<p>Changes in water quality of Estuary</p>	<p>Ensure that all preventative and mitigation measures as described in Chapter 8 of the EIAR associated with construction are implemented and that monitoring is undertaken to determine success of mitigation</p> <p>Ensure that the foul waste associated with the proposed development is treated at a waste water treatment plant with sufficient capacity</p>
<p>Disturbance of flora and fauna within the Nature Park</p>	<p>An area of approximately 1.3 Ha will be retained along the eastern boundary of the Nature Park site as a <i>refugia</i>. No works will be carried out in this area. A post and rail fence of a minimum of 1.5 metres in height will be erected around this area before works commence in order to prevent accidental impacts. The fence will be constructed in such a way that it will not impede movement of fauna but will create a clear indicator that works are not to be carried out within the <i>refugia</i>.</p>
<p>Introduction and/or spread of any species listed on Part (1) of the Third Schedule of the EC (Birds and Natural Habitats) Regulations of 2011 as amended</p>	<p>Implementation of Alien Invasive Plant Species Management and Control Plan such as to eradicate any such species from the site and to prevent any introduction of propagules of such species to the site.</p>
<p>Disturbance of breeding birds</p>	<p>Implementation of Biodiversity and Habitat management Plan for Nature Park, including <i>refugia</i> during construction</p>
<p>Negative - Impacting on individual bats roosting in trees</p>	<p>Implement relevant guidelines</p>
<p>Short-term - loss of foraging habitat and larval foodplants</p>	<p>Implementation of Biodiversity and Habitat Management Plan for proposed Nature Park includes for the provision of a <i>refugia</i> during construction</p>
<p>Impact on frogspawn deposited in sub optimal habitat during construction</p>	<p>Survey for frogspawn immediately prior to any construction within suitable habitat and translocation of any frogspawn discovered to the constructed wetland within the Nature Park</p>

Loss of habitat during construction phase of Nature Park	Implementation of Biodiversity and Habitat Management Plan including provision of <i>refugia</i> during construction phase of Nature Park
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3. Land, Soil and Geology

Character of potential impact	Mitigation measure
Construction Phase	
Control of waste and soils on site & fuel handling on site	Contractor will provide a Construction Methodology document taking into account their approach and any additional requirements of the Design Team or Planning Regulator. The Contractor will also prepare a Construction Environmental Management Plan (CEMP).
Sources of imported fill	All imported fill and aggregate for the proposed development will be sourced from reputable suppliers as per the project Contract and Procurement Procedures.
Control of water	It is assumed that dewatering will not occur during construction. Localised dewatering during rainfall events may occur and discharge through settlement instruments is needed.

4. Water: Hydrogeology and Hydrology

Character of potential impact	Mitigation measure
Construction Phase	
Control of waste and soils on site & fuel handling on site	Contractor will provide a Construction Methodology document taking into account their approach and any additional requirements of the Design Team or Planning Regulator. The Contractor will also prepare a Construction Environmental Management Plan (CEMP).
Sources of imported fill	All imported fill and aggregate for the proposed development will be sourced from reputable suppliers as per the project

	Contract and Procurement Procedures.
Control of water	Dewatering will not be required during construction. Localised dewatering during rainfall events may occur and discharge through settlement instruments is needed.
Stockpile of soil	Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving water [and soils/ geological] environment. The material will be stored away at least ten (10) metres from any surface water/ land drains
Surface water run-off	Should any discharge of construction water be required during the construction phase, discharge (post settlement/ attenuation/ use of siltbusters etc) will be to foul sewer regulated under a Discharge Licence obtained from the Regulator (Irish Water) issued under the Water Pollution Act.

5. Air Quality

Character of potential impact	Mitigation measure
Construction Phase	
Negative, short-term dust soiling impacts to people and property	Implement dust mitigation measures as described in Appendix 9A
Construction Traffic Emissions	The prevention of on-site or delivery vehicles from leaving engines idling

6. Noise and Vibration

Mitigation measure	
Construction Phase	
Selection of Quiet Plant	The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item will be selected wherever possible. Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether or

	not said item can be replaced with a quieter alternative.
Noise Control at Source	<p>If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced by stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.</p> <p>Referring to the potential noise generating sources for the works under consideration, the following best practice migration measures will be considered:</p> <ul style="list-style-type: none"> • The lifting of bulky items, dropping and loading of materials will be restricted to normal working hours. • Mobile plant should be switched off when not in use and not left idling. • For piling plant, noise reduction can be achieved by enclosing the driving system in an acoustic shroud. • For concrete mixers, control measures will be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum. • For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials. • Demountable enclosures can also be used to screen operatives using hand tools and will be moved around site as necessary. <p>All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.</p>
Screening	<p>Screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. It is understood that the existing concrete perimeter wall at The Strand residential development will remain during the construction process and provide a degree of screening.</p> <p>Careful planning of the site layout will also be utilised. Where feasible, site buildings such as offices and stores will be located to provide noise screening when placed between the source and the receiver.</p>
Liaison with the	A designated environmental liaison officer will be appointed to

Public	site during construction works. Any noise complaints will be logged and followed up in a prompt fashion by the liaison officer. Where a particularly noisy construction activity is planned or other works with the potential to generate high levels of noise, or where noisy works are expected to operate outside of normal working hours etc., the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.
Project Programme	The phasing programme will be arranged to control the amount of disturbance in noise and vibration to sensitive areas. The working programme will be phased to prevent excavation/piling or other high noise generating works at the same time as other high noise or vibration generating works.
Monitoring	<p>Construction noise monitoring will be undertaken to check compliance with the construction noise criterion. Noise monitoring will be conducted in accordance with the International Standard ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.</p> <p>Vibration monitoring stations will log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with BS ISO 4866: 2010: Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.</p>

7. Material Assets: Traffic and Transport

Character of potential impact	Mitigation measure
Construction Phase	
CEMP	Full Implementation of the Construction Management Plan
Traffic Management	Standard daily and weekly working hours
Traffic Management	Agreed haul routes for incoming materials
Traffic Management	Licensed hauliers to be used

Waste Disposal	Only Licensed Disposal sites will be used
Traffic Management	Appropriate on-site parking arrangements for construction personnel to prevent overspill parking on the local road network
Traffic Management	Temporary construction entrances to be provided
Dust and Debris	Wheel wash facilities
Dust and Debris	Road cleaning and sweeping measures to be put in place
Traffic Management	Temporary construction signage to be put in place and maintained
Traffic Management	Any proposed traffic management measures such as temporary traffic lights and signage on any public roads

8. Material Assets: Water Supply, Drainage and Utilities

Character of potential impact	Mitigation measure
Construction Phase	
Runoff with increased silt levels	Surface water storage in excavations etc. will be directed to on-site settlement ponds, where silt will be removed prior to discharge to the surface water system at a controlled rate. Periodic testing of the surface water discharge might also be undertaken.
Runoff polluted by construction activities	If concrete mixing is carried out on site, the mixing plant will be sited in a designated area with an impervious surface draining to a contained sump to prevent overflow of any spills. All oils, solvents and paints used during construction will be stored within temporary bunded areas or chem-store containers.
Discharge from the excavated areas could potentially lead to siltation, surcharge and flooding within the sewerage system	Water runoff from areas of excavation will be collected and discharged to the sewerage system following treatment (such as silt traps, sedimentation ponds and interceptors) and at a flow rate subject

	to the conditions of a discharge licence from Irish Water. Sedimentation ponds will be desludged as necessary; maintenance desludging is to occur every 2 months or after any on-site flooding event.
Foul effluent from site welfare facilities leading to pollution of watercourses and flooding within the sewerage system	Discharge to the sewerage system at a location and at a flow rate subject to the conditions of a discharge licence from Irish Water
Welfare facilities will lead to an increase in demand for potable water which could potentially lead to a drop in pressure in the existing mains and a resulting reduction in service to existing customers	Supply from the public watermains will be subject to the conditions of a connection agreement with Irish Water
Increase in demand for electricity could potentially lead to outages in the electricity supply in the vicinity of the subject site	Where a connection to mains electricity is required, it is expected that ESB will assess and make provision to accommodate an increase in demand
Temporary interruption of gas supply to surrounding areas to accommodate new connection.	New connection works to be managed by Gas Networks Ireland
Temporary loss of service to surrounding areas during installation of telecommunications connections	Connection to the telecommunications network will be managed by telecommunications service providers
Site lighting impacting neighbouring properties	Site lighting installed by the contractor will be looking inwards to the compound so as to not impact on neighbouring properties

9. Cultural Heritage & Archaeology

Character of potential impact	Mitigation measure
Construction Phase	
Corballis 4	The portion of Corballis 4 within the proposed wastewater pipeline extending east from the main residential site to the approved wastewater treatment facility should be subject to full archaeological excavation and recording under licence to the DHLGH.

Corballis 6	<p>The site at Corballis 6 is currently interpreted as a substantial enclosed settlement with associated souterrain of probable early medieval date. Following the agreement of a Conservation and Management Plan with DHLGH, an archaeological exclusion zone will be established around Corballis 6 in order to ensure its preservation-in-situ. A temporary fence should be established at a distance of 10m from the archaeological site and maintained for the duration of site works. No construction traffic shall be allowed to traverse the area which shall not be used for storage of topsoil or building materials. The suggested buffer-zone/fence line is depicted on Figure 13.11 which shows the immediate site layout. Additional test excavation will be undertaken beyond the exclusion zone in order to further define the archaeological potential of this area. Should additional archaeological features be identified, a programme of additional mitigation measures (e.g. preservation in situ/preservation by record) will need to be agreed with the National Monuments Service with respect to these. The large boulder/capstone dislodged during ploughing activity marks the location of a souterrain (underground stone-lined structure) within the suggested exclusion zone. A programme of archaeological investigation will be required at this location in order to fully define its horizontal extent. A non-invasive (e.g. GPR) survey should be employed in the first instance. Should this prove inconclusive, additional test excavation should be undertaken. Following identification of the full extent of the souterrain, an engineering solution (e.g. geogrid or similar) should be incorporated into the design of the central green space in order to ensure the continued preservation of this structure and the safe operation of heavy machinery (e.g. tractors) during future grass cutting operations.</p>
Corballis 8	The potential impact has been mitigated by full archaeological excavation/preservation-by-record.
Corballis 9	The potential impact has been mitigated by full archaeological excavation/preservation-by-record.
Corballis 10	The potential impact has been mitigated by full archaeological excavation/preservation-by-record.
Corballis 11	The potential impact has been mitigated by full archaeological excavation/preservation-by-record.
Corballis 12	The potential impact has been mitigated by full archaeological excavation/preservation-by-record.
Corballis 13	The potential impact has been mitigated by full archaeological excavation/preservation-by-record.
Corballis 14	Following the agreement of a Conservation and Management Plan with DHLGH, an archaeological exclusion zone will be established

	around the <i>fulacht fia</i> at Corballis 14 which will be preserved in situ. An appropriate exclusion zone should be established around this site in advance of development works. A temporary fence should be established at a distance of 10m from the archaeological site and maintained for the duration of site works. No construction traffic shall be allowed to traverse the area which shall not be used for storage of topsoil or building materials.
Townland Boundary	It is recommended that a written and photographic record be undertaken of the townland boundaries within the subject site in areas where they may be subject to removal.

NOTE: These mitigation measures proposed are made subject to the approval of The Department of Culture, Heritage and the Gaeltacht. As the statutory body responsible for the protection of Ireland's archaeological and cultural heritage resource, the DCHG may issue alternative or additional recommendations.

10.Landscape and Visual Assessment

Character of potential impact	Mitigation measure
Construction Phase	
Surrounding residential areas and the wildlife associated with the estuaries wetlands	Operating a well-managed, organised and planned construction site, with adequate control of construction traffic and working activity, is key to avoiding/preventing negative impacts on the adjacent residences and the wildlife associated with the estuaries wetlands.
Surrounding residential areas and the wetland habitats	Any lighting required during the construction phase should be located sensitively to avoid unnecessary light spill into the surrounding residential areas and into the wetland habitats of the estuary.
Wildlife habitats & migratory birdlife	The construction works and the habitat protection measures will be carried out in accordance with measures outlined in the Natura Impact Report in the Donabate LAP and as per the mitigation measures outlined in Chapter 6 of this EIAR. This will ensure that the wildlife habitats are protected and that disturbance to migratory birdlife for the duration of the construction phase is mitigated as much as possible.

11. Climate Change

Character of potential impact	Mitigation measure
Construction Phase	
Impacts to climate through the release of GHGs associated with construction materials, transport, water and energy consumption	Embodied carbon associated with construction materials will be reduced during detailed design, by incorporating the IEMA GHG Management Hierarchy;
	Creating a construction program which allows for sufficient time to determine reuse and recycling opportunities for demolition wastes;
	Integrate and maintain measures to manage construction surface water runoff;
	Design will be optimised to minimise the requirements for raw materials;
	Appointing a suitably competent contractor who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled;
	Materials will be reused on site within the new build areas where possible;
	Construction traffic generated by the project will be managed via a transport strategy to ensure efficient movement of materials;
	Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods;
	Ensure all plant and machinery are well maintained and inspected regularly;
	Appointed contractor(s) to organise shuttle/minibuses to reduce number of passenger cars required for construction staff workers travelling to and from site;
	Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. Appointed contractor(s) to prepare and implement a Waste Management Plan adopting measures to minimise waste, manage materials effectively and prioritise reuse and recycling on site; and
Sourcing materials locally where possible to reduce transport related CO ₂ emissions.	

12. Monitoring

Where monitoring is proposed in the foregoing chapters, these requirements have been summarised below.

Character of Potential Impact	Monitoring Proposed
Chapter 6. Biodiversity	
Nature Park	<p>The development of the habitats within the ecological buffer zone provided by the Nature Park. In compliance with the Biodiversity and Habitat Management Plan, the area will be restored "Passively" – i.e., there will be no reseeding and fertilising of the Nature Park area. This will maximise the opportunities for biodiversity in addition to providing suitable conditions for foraging and/or roosting overwintering birds associated with the Malahide Estuary. Monitoring of the progress of recolonisation will be required in order to inform the management plan as to whether additional measures, such as the importation and spread of "Green Hay", which is now commonly used in Europe in the passive restoration of species-rich seminatural grassland both on former arable land and former intensive grassland¹. In order to monitor the progress of the development of the habitat, ten 2m X 2m permanent quadrats will established within the proposed grassland area and these quadrats will be monitored twice a year in early May and early September recording the cover and abundance of all species present and photographing each quadrat from a fixed point. This monitoring should be undertaken for a minimum of three years post construction by suitably qualified experts.</p>
Breeding Bird Surveys	<p>Two breeding bird surveys separated by a minimum of two weeks should be undertaken annually within the Nature Park ecological buffer zone, such as to establish the degree of success of mitigation measures and to inform the Biodiversity and Habitat Management Plan. These surveys should be undertaken during the construction phase of the Nature Park, and a minimum of three years post construction of this area by suitably qualified experts.</p>

¹ Wagner M, Hulmes S, Hulmes L, Redhead J, Nowakowski M and Pywell R (2020). Green Hay transfer for grassland restoration: species capture and establishment. *Restoration Ecology*, 9.

Character of Potential Impact	Monitoring Proposed
Surveys Outside of the Site	Monitoring of Zones 1 – 8 should be undertaken at high tide, low tide and post sunset during the period September – April during the construction period and for a minimum of 3 years post construction by suitably qualified experts in order to monitor the conservation status of QIs occurring within these zones. Monitoring should be undertaken through a combination of methods as utilised during winter bird surveys undertaken – the use of small drones with Zoom capability is of particular importance as it allows monitoring without disturbance of subjects from considerable distance, not requiring access to lands.
Invasive Species	All monitoring as indicated in the Alien Invasive Plant Species Management and Control Plan must be implemented as per the plan.
Chapter 7. Lands, Soil and Geology	
Construction Phase: Surface water run-off control	Regular inspection of surface water run-off and control of sediment (fines) will be undertaken, e.g. appropriately sized and located silt traps will be installed during the construction phase.
Construction Phase Implementation of construction mitigation measures	Regular inspection of construction mitigation measures will be undertaken, e.g. concrete pouring, refuelling etc. as part of the implementation of the CEMP for the site.
Operational Phase: Soil & Groundwater monitoring	No future soil or groundwater monitoring is proposed as part of the proposed development.
Operational Phase: Oil-water interceptors	Petrol/ oil interceptor(s) will be maintained and cleaned out in accordance with the manufacturer's instructions.
Operational Phase: Drainage System	Maintenance of the surface water drainage system and foul sewers as per normal urban developments is recommended to negate/ limit any accidental discharges to ground.
Chapter 8. Water: Hydrology and Hydrogeology	
Construction Phase: Surface water run-	Daily to weekly inspection of surface water run-off and control of sediment (fines) will be undertaken, e.g. appropriately sized and located silt traps will be installed

Character of Potential Impact	Monitoring Proposed
off control	during the construction phase to ensure the protection of the surrounding water quality.
Construction Phase: Implementation of construction mitigation measures	Daily to weekly inspection of construction mitigation measures will be undertaken for concrete pouring, refuelling, dewatering, discharges and storage of fuels. as part of the implementation of the CEMP for the site.
Operational Phase: Soil & Groundwater monitoring	No future soil or groundwater monitoring will be required as part of the proposed development.
Operational Phase: Oil-water interceptors	Petrol/ oil interceptor(s) will be maintained and cleaned out in accordance with the manufacturer's instructions.
Operational Phase: Drainage System	Maintenance of the surface water drainage system and foul sewers as per normal urban developments is required to negate/ limit any accidental discharges to ground.
Chapter 9. Air Quality	
Construction Phase: Negative, short-term dust soiling impacts to people and property	Monitoring of dust deposition along site boundary with sensitive receptors using Bergerhoff Gauges (or similar).
Chapter 10. Noise and Vibration	
Construction Phase: Noise Monitoring	Noise monitoring terminals will be installed at locations representative of noise sensitive locations, the number and exact location of these to be agreed.
Construction Phase: Vibration Monitoring	Vibration monitoring terminals will be installed at locations representative of vibration sensitive locations, the number and exact location of these to be agreed.
Chapter 11. Material Assets: Traffic and Transport	
Operational Phase: Future Traffic flows	The local area should be monitored in terms of transportation efficiencies into the future. In particular, given the aforementioned uncertainty with respect to future traffic flows and the significant amount of time between now and the assessments Design Year (2037), the operation of

Character of Potential Impact	Monitoring Proposed
	the Distributor Road/Hearse Road and the Hearse Road/Turvey Avenue/Main Street junctions should be monitored.
Chapter 12. Material Assets: Water Supply, Drainage and Utilities	
Construction Phase: Runoff with increased silt levels	Surface water storage in excavations etc. will be directed to on-site settlement ponds, where silt removal will be facilitated prior to discharge to the surface water system at a controlled rate. Periodic testing of the surface water discharge might also be undertaken.
Operational Phase: New storm drains could leak	All sealed pipelines will be pressure tested, in accordance with the requirements of Fingal County Council
Operational Phase: New foul sewers would leak, allowing wastewater to leak out of the sewers, potentially causing contamination of groundwater and surface waters in the area	All new sewers will be pressure tested and CCTV surveyed, in accordance with the requirements of Irish Water. Identified defects will be repaired.
Operational Phase: Misconnections of storm drainage and wastewater drainage	A short-term flow and rainfall survey (involving in-pipe flow monitors and rain gauges on site) will be carried out to identify misconnections and allow for comparison with watermain meter readings to facilitate assessment and identification of any leakages
Operational Phase: Leakage of watermains	New watermains will be tested according to the requirements of Irish Water and Fingal County Council prior to commissioning
Operational Phase: Electricity network	ESB Networks will monitor and maintain electricity infrastructure, including sub-stations. All connections will be metered
Operational Phase: Gas leaks arising from new pipework if incorrectly	All works and testing to comply with requirements of Gas Networks Ireland. Gas Networks Ireland will monitor and maintain gas supply infrastructure

Character of Potential Impact	Monitoring Proposed
installed	
Operational Phase: Telecommunications network	Telecommunications service providers will monitor and maintain their infrastructure
Chapter 13. Cultural Heritage and Archaeology	
All Phases	It is proposed that all archaeological works be carried out in accordance with the requirements of the DCHG and the planning authority and under licence to the DCHG in consultation with the NMI.
Chapter 14. Landscape and Visual Assessment	
Site establishment stage	Prior to any works taking place, clearly identify trees and hedgerows that are to be retained and protected – ensuring tree protection measures are then in place. Clearly identify trees and hedgerows that are to be removed.
Site excavation stage	Ensure existing vegetation is being adequately protected and that topsoil is being correctly stripped and stored for landscape reinstatement.
Construction stage	Ensure that landscape proposals are being implemented correctly.
Post-construction stage	Periodic visits will be required to ensure that any defects that may occur are rectified, that the landscape proposals are successfully establishing and being correctly maintained.
Chapter 15. Climate Change	
Construction stage	<p>The successful contractor shall be obliged to monitor and report GHG emissions during construction. The obligations will be included as part of the CEMP. The elements to be monitored include:</p> <ul style="list-style-type: none"> • Embodied carbon from products; • Transportation of staff, projects, waste etc; • Water use; • Raw material extraction; • Fuel usage, and • Waste

