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EIAR Non-Technical Summary: Derryarkin Sand & Gravel Pit Development

**Proposed Sand and Gravel Pit Development (Wet-
working) at Derryarkin Townland, Rhode, Co. Offaly**

BD Flood Unlimited Company

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1.0 Introduction

An Environmental Impact Assessment Report (EIAR) has been prepared in support of a planning application for a proposed development of a new sand and gravel pit at Derryarkin Townland, Rhode, Co. Offaly. This document provides a non-technical summary (NTS) of the EIAR.

An Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS) Report has also been prepared in support of the planning application and is provided as a separate document.

1.1 The Applicant

The planning application and accompanying supporting documentation has been prepared by SLR Consulting Ireland (SLR) on behalf of BD Flood Unlimited Company.

BD Flood is one of the main producers of precast concrete products, readymix concrete, aggregates and concrete blocks in Ireland. It is part of the Flood Group, a family run business founded in 1938 and which employs c. 450 people (directly and indirectly) across all of its locations. It began its operation in the extraction of aggregates and later expanded into the production of readymix concrete and blocks.

The Group's Headquarters and Precast facility is based adjacent to the application site at Hilltown, Oldcastle, Co Meath. Eight other aggregate/readymix and concrete block plants are located throughout the midlands.

BD Flood is an IS EN 206 accredited company that supplies a range of products to the building trade, the farming industry and the housing sector. These products include readymix concrete, stone, aggregate products and blocks. All products are certified to the I.S EN ISO 9002 Quality.

1.2 Rationale for Planning Application

The proposed extraction of the sand and gravel pit will be wet working, where extraction will be carried out below the natural groundwater level of the site. The process of extraction will produce a range of aggregates which largely will be used by the applicant in manufacturing concrete at their existing batching plant c. 600m to the northwest and the remainder will be distributed to their other sites in the region.

The proposed development is a greenfield site. No previous planning permissions have been granted on the lands.

1.3 Site Location

The application site is located within the townland of Derryarkin, near Croghan, Rhode, Co. Offaly, approximately 2km from the Offaly / Westmeath County border. Rochfortbridge (Co. Westmeath) is c. 4.5km northwest and Rhode (Co. Offaly) is c. 5km southeast of the application site, refer to **Figure NTS-1**. The land interest and application areas, outlined in blue and red respectively are shown on the site location maps **Figure NTS-2** and **Figure NTS-3**.

1.4 Site Description

Within the application site (c. 19.5 hectares) the site consists of poorly drained and open agricultural lands. There are no internal hedgerows or trees within the proposed sand and gravel extraction area of c. 11.7 hectares. The proposed extraction lands are flat, and ground levels are slightly variable from c. 78-80m AOD.



The northern application site boundary is denoted by a post/wire fence, with an unnamed stream and the local access road c. 265m and c. 295m further to the north respectively. Between the northern application site boundary and the unnamed stream is Turbine T7 associated with the Yellow River Windfarm development which has recently been constructed.

The southern and western boundaries consist of an agricultural track and post/wire fencing. The eastern boundary consists of a mature hedgerow and the Yellow River watercourse which flows in a northerly direction to converge with an unnamed stream to the northeast of the application area.

There are no overhead powerline routes or other utilities or services that cross the application site. There are no structures within the application site.

1.5 Surrounding Land-Use

The area surrounding the proposed application area largely comprises cutaway bog, existing sand and gravel extraction wet-working developments and forestry, with few dwellings in the immediate vicinity.

The wider area to the north and west is dominated by agricultural land, with most of the mixed sized fields under pasture. Field boundaries are typically marked by dense, low-cut hedgerows or hedgerows lined with mature trees. In some cases, hedgerows are replaced by post & wire fencing, creating an appearance of very large fields.

To the south and east of the site, the landscape is dominated by cutover bogs, formerly worked at an industrial level. The large areas that have been left untouched for years have been densely colonised by locally occurring scrub species. However, some areas of bare cutover bog or with low grass species colonisation also remain. Some areas have been planted with forestry plantations, including the land to the immediate east and north-east of the site. Within 2km to the north and west of the site there are also several active and disused wet working sand and gravel pits. These have made use of the sand and gravel reserves underlying the worked-out peat areas, as is proposed through this development.

The applicant operates an existing concrete batching plant located c. 600m to the northwest of the application site, and it is proposed that the majority of the aggregates won and processed at the application site (if permitted) will be used to supply this operation with the balance distributed to their other sites in the region.

The Yellow River windfarm is a 29 turbine wind farm which has recently been constructed in the wider rural area spanning from c. 2km in the northwest to c. 8km in the northeast.

There is no large settlement within the vicinity of the site. The small village of Rhode, c. 5km to the southeast, and Rochfortbridge c. 5km to the north being the only formal settlements. There is frequent one-off housing and ribbon development along the local roads to the south-east. The closest residential properties to the site are located to the southwest, being c. 180-260m from the proposed extraction area, refer to **Figure NTS-3**. In total 5 residential properties have been indicated as potentially sensitive receptors within a 1km radius of the application site.

1.6 Site Access

Junction 3 of the M6 motorway is approximately 3.5km north of the application site, measured in a straight line (and c. 6km via road). Junction 3 provides motorway access from the R400 regional road that links the towns of Mullingar and Portarlinton. The site occupies a strategic location in the midlands region and is immediately accessible to a number the national and secondary routes including the M6, M4, R400, R446 and R148 making it widely accessible for the urban centres of Athlone, Mullingar and Tullamore.

The proposed extraction development will be accessed along the northern application site boundary via an existing site entrance into the landholding. The entrance provides direct



access to the local access road which in turn provides access to the R400 regional road and M6 motorway. The local access road is currently used to access the existing BD Flood concrete batching plant which is located northwest of the application site within the existing Derrycoffey S&G extraction site; along with access to the existing Skeagh Farm piggery.

1.7 Consideration of Alternatives

The existing site is located in an area favourable to extraction activities, due to, inter alia the:

- application site is a proven source of high-quality sand and gravels;
- ongoing and continued increases in the level of construction and development activity in the midlands and eastern regions is generating ever increasing demand for construction materials;
- within an appropriate topographic setting i.e. mostly flat and well screened from surrounding areas;
- remote location, but with access to the regional and national roads network;
- best practice industry standard extraction methods can be used; and
- the proposed development will be carried out by a long established and experienced operator in the extractive and ancillary concrete manufacturing industry with a proven track record in planning and environmental compliance within their overall pit / quarry portfolio.

1.7.1 Do Nothing Alternative

If the proposed development does not take place, the lands would remain in use for agricultural purposes, and there would be a loss of a proven and valuable aggregate supply within the lands.

1.7.2 Alternative Sources of Aggregates

For the foreseeable future there are no real alternatives to primary land-won aggregates. At present, the use of secondary (recycled) aggregates in Ireland is at an early stage in development. The volume of C&D waste suitable for recycling into secondary aggregates is low in comparison to the overall demand for aggregates. The demographic spread of the population results in only the large urban centres generating sufficient volumes of construction and demolition (C&D) waste to justify a commercial operation producing secondary aggregates.

In the longer term, there may be some scope for extraction of sand and gravel from marine sources.

In the absence of a significant increase in the sources of recycled / secondary and marine sources, land-based deposits (such as the proven sand & gravel reserves at Derryarkin) will continue to be the main source of construction aggregates both nationally and regionally.

1.7.3 Alternative Locations

This development is not comparable to a factory or other commercial enterprise that can be located at many potential locations. It is a resource-based development and therefore the aggregates can only be worked (extracted) where they are present in-situ.

Aggregates can only be worked where they exist and where the environmental effects of working them can be minimised. However, this is not the only prerequisite which determines a suitable location for an aggregates site. Others include a willing vendor, distance from market, required quality and quantity to justify capital investments, etc. It is usually the case that a number of these prerequisites are not met, and the alternative is discounted.



The continuous provision of aggregates is essential to meet the needs of society. As reserves of sand and gravel and rock are finite resources and eventually become exhausted at their location, it is therefore necessary for quarry operators to continually seek out new greenfield sites in tandem with maximising or extending extraction at existing established sites. Both options are essential and required to replace existing supplies that are being worked out and to provide a security of supply of aggregates and building materials to the construction sector.

At the current time, the application site is considered the most acceptable source of sand and gravel location available to the applicant, given its proximity to the existing concrete batching facility.

The application site is also adjacent to existing established pits in a relatively remote location and has a local road network providing access to and from it that has proven to be suitable for this type of development previously.

Notwithstanding the continual search for suitable development sites, the lands at the Derryarkin application site are proven to contain an economically viable volume of quality sand and gravel reserves. The site is deemed appropriate for the following reasons:

- Suitability of the economic sand and gravel reserve;
- In close proximity to the existing established concrete batching facility;
- Extent of the lands over which the applicant has an interest in, and which are available for development;
- Access and road infrastructure with proximity to the national road network and key transport corridors, namely the R400 regional road and M6 motorway;
- Low environmental impact: topography and surrounding forestry assists with screening of the development (no significant visual intrusion), no recorded monuments within the application area; and not within a designated ecological or landscape area; and
- Detailed water and ecology studies indicate the development can proceed without impacts on the surrounding hydrogeological and ecological regimes.

Based on the above, it is considered that the proposed development, subject to implementation of best environmental management practice and compliance with appropriate planning controls (i.e. planning conditions and standard emission limit values for the sector) can be carried out without any significant environmental impacts on the surrounding area.

1.7.4 Alternative Designs / Layouts

Alternative designs and layouts within the site were considered with particular attention being paid to the phased extraction of the development and the location of the access and secondary facilities being located away from the nearest residences.

The design layout that was chosen for the proposed extraction area is considered to best minimise the potential impacts on the environment from noise, dust, visual and landscape impacts, through the design proposed.

1.7.5 Alternative Processes

BD Flood are a company with expertise and experience in the field of quarrying, aggregates production and the manufacture of value-added products. The consideration of alternative processes is confined to alternative options for the products that are proposed to be processed at the application site. In general, the alternatives are only subtly different.



2.0 Description of the Proposed Development

2.1 Existing Development

The application area covers a total area of approximately 19.5 hectares (48.2 acres) and comprises reclaimed cutaway bog, with a thin layer of residual organic rich clay material remaining, below which there are reserves of sand and gravel both above and below the underlying water table. The entire eastern landholding boundary is denoted by the Yellow River. The application boundary runs along the western bank of the river and consists of a post and wire stockproof fence and intermittent trees and vegetation.

The application area includes an extensive deposit of sand and gravel which is proposed to be extracted and processed on site, the majority of which will be used by the applicant in the manufacture of concrete at their existing concrete batching plant located c. 600m to the northwest, and the balance distributed to their other sites in the region.

2.2 Proposed Development

The proposed extraction of the sand and gravel will be wet working, (i.e., extraction below the natural groundwater level of the site). Processing of the extracted materials will be carried out on-site to produce a range of aggregates for use by the applicant in the manufacture of concrete.

The proposed development being applied for under this current planning application will consist of:

- An overall application area of c. 19.5 hectares;
- Phased extraction of sand and gravel (wet working) over an area of c. 11.7 hectares with processing that includes crushing and screening and all ancillary works and structures;
- Provision of new site facilities to include wheelwash (c. 35m²), weighbridge (c. 69m²); mobile welfare pod facility (c. 16m²) consisting of office, canteen, toilet and drying room; dedicated parking area, perimeter vegetation planting and fencing.
- Access to the site will be via an existing entrance onto the local access road to the north of the site;
- Progressive restoration of the site to naturally regenerated wildlife habitat and a permanent water body;
- The proposed development life is for 15 years to complete extraction and restoration operations.

The overall extraction development plan is shown in **Figures NTS-5 & NTS-6**.

2.2.1 Construction Phase

Due to the development being a greenfield site, there is a requirement for new welfare and ancillary facilities and infrastructure to be installed to service the site for the duration of the proposed development.

Extraction works are estimated to be carried out within a 3-6 month period. Extraction and production operations may be commenced within this 6-month time period and carried out alongside the below mentioned development works.

A new-internal access road will run from the existing site entrance, in a south-westerly direction to the new site facilities compound area. There is a section of the internal access entrance where hardcore is already in place serving the turbine compound location. A section



(210m) of hardcore road will be constructed between the existing hardcore road and new site facilities area.

A hardcore surface where the weighbridge and wheelwash will be installed on the outbound carriageway nearby the mobile welfare pod (office, canteen, toilet) and dedicated parking area. The area will be fenced, and an automated barrier will be installed to control access to the site.

Outside the compound area, a hardcore surface track will run south to the proposed extraction and stripped soil stockpile storage areas.

2.2.2 Operational Phase

The proposed operational phase will see sand and gravel extraction carried out within an overall extraction area of c. 11.7 hectares. The final extraction scheme is shown in plan on **Figure NTS-5**. It is proposed that extraction would be carried out over four phases as shown in **Figure NTS-6** with a maximum of 100,000 tonnes per year extracted.

Extraction within the working area will be carried out as a wet extraction operation and mostly below the groundwater table. No pumping or lowering of the water table will occur that could potentially impact existing localised groundwater flow.

A mobile long-reach excavator will take material and stockpile it in a row beside the excavation area where it will be allowed to dry out for 2-3 days. The extracted sand & gravel from the working area will be screened by a mobile tracked screener and separated into 4 different stockpiles. Trucks will be loaded directly from the screener or from adjacent stockpiles.

2.2.3 Restoration Phase

The extraction and restoration activities proposed for the site will be on a phased basis. Working in this manner will facilitate the progressive restoration of each area which will generally comprise reinstatement of excavated deposits to the extracted areas, the establishment of a permanent water body and allowing the lake edges and external perimeter berms to naturally regenerate / revegetate over time. The restoration plan is shown on **Figure NTS-7**.

Following extraction activities, areas will become colonised with locally occurring grass, wildflower and scrub species, as well as aquatic species along the lakes edge. It is anticipated that the restored site will contain a variety of habitats and plant species, making it considerably more diverse than the current monoculture type grassland present.

The only material requirements in respect of the planned restoration scheme are those topsoils and subsoils already present on site and which will remain on site for restoration purposes. It is not proposed to import material onto the site for operational or restoration purposes.

2.3 Hedgerows/Tree (Removal / Reinstatement)

There is no requirement for the removal of any hedgerows or trees as part of the proposed development.

The proposed landscaping / restoration plan is shown on **Figure NTS-7**. On commencement of the development, native hedge planting would be carried out along the western and southern boundary of the application area, to increase the screening by vegetation in views from locations to the west and south and to provide habitat corridor connections around the site.

As part of the final restoration works, it is proposed to carry out tree planting within the 20m wide riparian corridor between the eastern screening berm and the Yellow River, to encourage biodiversity between the application site and the adjacent river. Any trees planted as part of



the proposed restoration plan will be comprised of native and typically occurring species present in the local vegetation and/or hedgerows in Co. Offaly.

All hedges and trees planted as part of the proposed landscaping and restoration plans will be comprised of native and typically occurring species present in the local vegetation and/or hedgerows in Co. Offaly.

2.4 Aggregate Reserve Assessment

Surveys and modelling have indicated a total recoverable reserve of sand and gravel from within the proposed development design scheme estimated to be c. 1.4M tonnes.

2.5 Duration of Extraction

The duration of quarrying activities at the application site will largely be dictated by the rate at which the sand and gravel is extracted from the site. There are many factors which will influence this, including, but not limited to the prevailing economic climate and related construction industry demand and distance of construction projects from the facility (and scale of activity).

It is envisaged that the annual extraction rate of sand and gravel at the site will be up to a maximum of 100,000 tonnes per year. Assuming a total reserve of 1.4 M tonnes across the extraction area, this indicates that the life of the development will be c. 14 years, based on the maximum extraction rate of 100,000 tonnes per annum.

The proposed development seeks a development life of 15 years overall. 14 years will be used to extract the sand and gravel reserves at the site and a further 1-year period to carry out any final restoration works.

It is considered that planning permission for the proposed development should be commensurate with the life of the reserves. This will ensure the developer has security for this investment and that the operation is carried out in accordance with proper planning and development guidelines. An adequate operational life is required to secure an acceptable return on investment, when the costs of investment in the site development, aggregate processing plant, operational costs and development contributions are considered.

2.6 Removal of Overlying Soils

In order to gain access to the sand and gravel deposits within each phase, efficient removal of the overlying soil materials is required. The excavated materials will either be backfilled along the edges of a previously excavated area or will be placed in mounds within the soil/overburden storage area to the north of Phase 1 to await use in final restoration operations.

It is proposed to work the extraction area in a series of phases as outlined above. Within each phase, stripping will be carried out in blocks which will be cleared to allow sufficient area for aggregate excavation. The removal of the overlying materials will thus be an intermittent operation which will progress in advance of aggregate excavation with site stripping typically taking place during periods of drier weather.

There is no requirement to remove any soils off site.

2.7 Site Drainage

Existing agricultural lands drain through the soil and sub-strata to the groundwater table. A shallow drainage channel runs west to east along the northern boundary where it flows towards the unnamed stream.

Due to the high permeability of the underlying materials, a low amount of rainwater run-off is expected. In the case that there is an abnormal amount of rainwater run-off, the surface water management system at the site will be relatively simple. Rainwater falling across the site will



infiltrate naturally into the ground across in-situ residual soil / sand & gravel areas, internal haul roads or stripped processing areas. In worked out areas it will fall into the permanent restoration lake and become part of the surface water body.

There is no surface water discharge from the proposed extraction area off site. It is envisaged that the proposed development will not present any pollution risk to surface water sites near to the proposed development.

2.8 Method of Extraction

The proposed sand and gravel extraction will be carried out using industry standard mechanical excavation techniques - mechanical loader and long-reach excavator, with processing being carried out by mobile processing plant. Extraction will proceed on a phased basis, through Phases 1 to 4. In each phase, activities will commence with the establishment of a working platform across land which has been stripped of soils. A long reach excavator will then be used to excavate the sand and gravel deposit.

There is no requirement for blasting.

2.9 Processing Methods

Initial stockpiling of excavated aggregate will occur behind the mobile long-reach excavator where stockpiling of the sand and gravel adjacent to the working extraction area will allow drying of the materials, i.e., to allow water within the extracted materials to percolate back to the ground. The stockpiled material will be allowed to dry out for typically 2-3 days. A mechanical loader will then transfer the extracted material to the mobile tracked screener to screen the materials into 4 different stockpiles: sand, 10mm, 20mm and oversize. Oversize stockpiles will be crushed to produce aggregates of a suitable size.

Once processed, the finished products will include a range of sand and gravel aggregates for use in concrete production.

2.10 Pit Working Hours

The proposed hours for operations (extraction, processing and haulage) at the site will be 07.00 hours to 18.00 hours Monday to Friday inclusive and 07.00 hours to 14.00 hours on Saturdays. No operations will be carried out on Sundays or Public Holidays.

2.11 Employment

The proposed sand and gravel extraction development will provide employment for 2 staff members directly, with a further estimate of 3 sub-contractors, hauliers and service providers on-site on a regular basis, and it is not anticipated that these numbers will increase. The proposal will secure direct employment for site staff for the duration of the development. The proposed site will provide a vital feedstock for the construction sector locally and within Ireland. In addition to supporting direct and indirect employment, it will also support downstream jobs in construction and development sectors.

2.12 Site Access and Security

The site access is located on the local access road to the north and beyond to the R400 regional road and junction 3 of the M6 motorway. The access gate will be locked outside operational hours, and the application site will be fully enclosed with a stockproof fence and automated barrier.



2.13 Parking

There will be adequate provision for HGV manoeuvring, where HGV traffic entering the site will keep left along the internal road to gain access to the working area. Once loaded, the HGV traffic will again, keep left leaving the site to pass over the weighbridge and wheelwash before exiting.

Adequate car parking provision for employees, contractors and visitors will be provided in a dedicated area on a hardcore surface at the welfare compound area.

2.14 Wheelwash

A wheelwash facility will be provided within the facilities compound area and will be set back c. 350m from the edge of the public road at site entrance. It will be utilised throughout the life of the development, with due maintenance as required. This will eliminate the risk of mud and dust being carried from the development onto the public road. All aggregate haulage vehicles will be required to pass through the wheelwash prior to leaving the site.

2.15 Weighbridge

In order to track and record the amount of material exiting the site, all HGV traffic will be directed across the existing weighbridge. The access road from the site entrance to the weighbridge is constructed of a concrete paved surface.

2.16 Offices and Ancillary Facilities

A new welfare pod (containing a canteen, office, toilet, and drying room) will be towed to the site prior to commencement of works.

2.17 Utilities and Services

The ancillary site infrastructure will be powered by mains electricity from the ESB's national grid via a new connection to the existing power lines in the area. This will be done in consultation with ESB Networks through standard connection arrangements.

Drinking water will be supplied by means of bottled water.

Site based staff at the application site will be contactable by mobile phone, and email and broadband connections to the site office will be provided via a mobile network.

The provision of a serviced welfare pod (with toilet) on site will negate the requirement for installing a septic tank / propriety effluent treatment system. The wastewater from the welfare pod will be serviced by contract with the hire company, under its waste management licence. The welfare pod will also contain a clean water tank for washing and hygiene purposes.

Given the lack of combustible waste materials at this site, it is considered highly unlikely that a fire will break out. A range of fire extinguishers (water, foam and CO₂) will be kept at the site office to deal with any localised small scale fires which might occur. Additional fire-fighting capacity can be provided by storing water in a mobile bowser.

2.18 Lighting

Lighting will be provided at the site, only as necessary. This will include fixed downlights outside the office / welfare facilities; and mobile lighting on the machinery used within the working pit area. All lighting would only be in use for wintertime operations, when darkness has fallen, within the proposed site operating hours of 07.00 hours until 18.00 hours Monday to Friday and until 14.00 hours on Saturdays. There will therefore be a period where such lighting will be required for up to 1 hour in the morning and up to 2.5 hours in the evening,



during periods in winter. Any night-time light pollution caused by the proposed development will therefore be of brief duration during winter months and is not considered significant.

2.19 Fuel and Oil Storage

There will be no diesel fuel stored on site. HGV's will be refuelled off-site at other BD Flood sites. The long excavator, loading shovel and crusher / screener will be re-fuelled on-site using a mobile 'bundled' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits).

Spill kits will be provided on all mobile machinery and periodic spill kit training will be provided to staff.

2.20 Waste Management

Almost all products and by-products arising from the aggregate processing have commercial value. There is no intention on behalf of BD Flood to discard, where possible, any material extracted from the sand and gravel application site. The principal aim of the extractive waste management plan for the site is to prevent waste production which is in accordance with Section 5(2)(a) of the 2009 Regulations. All materials will be used for operational or restoration purposes.

Potential waste produced and the proposed measures used to control it are described as follows:

- **Scrap metal/disused plant and machinery** – these materials are chiefly produced from the maintenance of the processing plants and can cause a nuisance if allowed to build up in an uncontrolled manner. A designated scrap metal area will be demarcated on site and the build-up of scrap will be controlled by the regular removal by licensed scrap metal contractors.
- **Used Oil and Oil Filters** – any waste oil/oil filters that may arise from servicing of fixed or mobile plant will be removed from the site by a licensed waste contractor.
- **Used Batteries** – similarly all used batteries will be removed from site for collection and recycling by a licensed waste contractor in accordance with the Waste Management Regulations.
- **Domestic Waste** (Canteen Waste) – domestic waste generated at the offices and employee's facility will be collected by a licensed waste collection contractor.

2.20.1 Environmental Control, Management & Monitoring

Extraction, processing and ultimately restoration activities at the application site require a number of environmental controls to eliminate or minimise the potential nuisance to the public arising from the extraction and processing operations. The environmental control measures to be put in place at the site for dust, noise and water management are outlined in the relevant EIAR Chapters and these are summarised under the relevant topic headings in this summary document.

A site-specific Environmental Management System (EMS) will be implemented at the site under the group's ISO14001 accredited system.

2.21 Pit Restoration

It is proposed to restore the application area on a phased basis to a natural habitat land use. The water body within the restoration scheme includes shallow sand & gravel slopes in some locations along the edge of the water body. This will help increase the potential for biodiversity-rich habitats along the edges of the final water body. The proposed restoration to



a natural habitat land use, is in line with the beneficial after uses recommended in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006).

It is anticipated that the restored site will contain a variety of habitats and plant species, making it considerably more diverse than the existing monoculture type grassland currently present.

The principal landscaping aims are:

- the physical and visual integration of the existing site and associated features into the surrounding landscape;
- screening to minimise visual intrusion and to reduce any significant negative aspects regarding the visual impact of the proposed development on adjacent sensitive receptors;
- retention of boundary planting to reduce/eliminate visual prominence of the proposed development area to the closest receptors.

2.21.1 Proposed Landscape Scheme

On commencement of the development, native hedge planting would be carried out along the western and southern boundary of the application area, to increase the screening by vegetation in views from locations to the west and south and to provide habitat corridor connections around the site.

Shallow sand & gravel slopes would be retained, instead of extracting the sand and gravel at a steeper angle all the way to the edge of the water body. This will create more biodiversity friendly shallow water areas. In tandem with the extraction phasing, material stripped from the extraction areas would be backfilled along the edges of the completed wet working areas to further create shallow water areas and/or additional dry areas.

2.21.2 Proposed Restoration Scheme

The proposed restoration scheme envisages that the worked-out area will ultimately be reinstated to a landscaped lake, interspersed with constructed peninsulas, capable of supporting new habitat.

The principal activity which will be undertaken at the application site is the extraction of the in-situ sand and gravel, with ultimate restoration of the overall application site to a natural wildlife and biodiversity diverse habitat, which is a beneficial after use listed in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006). The final restoration scheme and detail is shown on the restoration plan in **Figure NTS-7**.

It is expected that the proposed restoration scheme would integrate into the surrounding landscape. The proposed restoration scheme relates to the overall site and will be achieved by the following measures:

- stockpiles and processing plant to be removed from site;
- all welfare and ancillary facilities to be removed from site;
- all existing boundary hedgerows will be retained;
- the final earth screening berm and stockproof fencing will be retained to ensure that the site is secure;
- the entrance gates at the site entrance will be retained and kept locked at all times, except for maintenance access.

Most restoration works will be carried out on a phased basis as outlined previously. The only restoration works that will remain on permanent completion of extraction works will be the removal of all of the site welfare and ancillary facilities such as the welfare pod, weighbridge, wheelwash and parking area.



The restoration works will be carried out in accordance with the EPA Guidelines (2006). Ecological advice will also be incorporated into the restoration process to facilitate future habitat value in the area for biodiversity.

2.21.3 Site Management and Supervision

BD Flood will clearly define the management responsibility for the site restoration work and will ensure that this person has the necessary information (from the planning application) and authority to manage the whole restoration process. Relevant staff will be briefed on the scheme and will be adequately supervised / controlled. A system of record keeping for the key restoration activities will be put in place.

2.21.4 Long Term Safety and Security

All components of the barrier system of the site consisting of existing mature boundary hedgerows, fences and walls will remain in place after extractive/ processing operations have ceased.

As the lands will be restored to natural habitat use with a body of open water, the secure fencing provided around the perimeter of the site will be retained. Existing hedges surrounding the development will be gapped up and thickened where required. These combined with the secure and locked entrance gates to the development will prevent unauthorised third-party access.

2.21.5 Long Term Surface Water and Groundwater

There will be no requirement for any active long-term surface water or groundwater management at the site.

2.21.6 Decommissioning of Plant and Machinery

Redundant structures, plant equipment and stockpiles will be removed from site on permanent cessation of extraction activity. Machinery and structures will either be utilised by BD Flood on other sites or be sold as working machinery or scrap.

2.21.7 Aftercare and Monitoring

There will be no on-going requirement for monitoring noise or dust after extraction and processing and manufacturing operations have ceased.

Establishment maintenance will be carried out for 2 years following the restoration works on a (minimum) quarterly basis. This will include weed control, replacement planting, watering (if required) and the adjustment of spiral guards, ties, and stakes.

3.0 Existing Environment, Effects and Mitigation

3.1 Population & Human Health

The review of population is based predominantly on a review of settlement and land use patterns to identify existing residential housing and sensitive receptors in the vicinity of the application site. Ordnance Survey maps and aerial photography were also examined. Demographic information from the Electoral Division (ED) area of Croghan, from the census years of 2016 and 2022 were used in order to identify broad trends in the area.

The census results indicate that the population has increased in the local area, but at a slightly lower rate than that observed at the county and national level. Co. Offaly also experienced a pace of growth slightly lower than the national average. The area also has a noticeably higher



rate of population in all age categories between the ages of 25 and 44. In general, it also has a higher rate of population across the age ranges from 45 upwards.

Short and long-term employment rates were observed locally on par with County/State levels, but number of persons retired and unable to work due to permanent illness were recorded to be higher than County and State. The proportion of local populations working in professional occupations appear to have grown between 2016 and 2022 by 0.7%. However, more residents in the local area are reliant on non-office-based employment such as agriculture, forestry and fishing and manufacturing, than at the County and State level.

The publicly available information reviewed did not identify any particular sensitivities in relation to human health. The deprivation indices in the area do not highlight the area as significantly disadvantaged and self-reported health status is positive and better than the national situation. The scale of community facilities and amenities available to local residents is considered to be in proportion with their rural location. Tourism and economic resources are closely linked with typical rural activities including mineral extraction and agriculture.

The proposed development will support the direct employment of 2 new staff members and a further 3 sub-contractors, hauliers and service providers until the year 2039. Employment will cease on completion of extraction activities.

The proposed development will also indirectly support and sustain indirect employment and contribute to the local and regional economy by supporting the construction industry and providing supply of aggregates that are proven to be lacking in the region.

The main potential for the proposed development to cause negative impacts to human health is through the potential for noise emissions and emissions to air, land and water. Distances/directions of the closest residences to the proposed development area which have been obtained through the population review have been used as the basis for technical assessments relating to potential emissions.

The potential for emissions and suggested mitigating measures to reduce/eliminate these to ensure no negative health impacts have been addressed in detail in their respective chapters of the EIAR. The proposed development has potential for a substantial positive influence on the local economy through the enabling of the application site to continue to provide a source of direct and indirect employment. This has potential knock-on effects in terms of contributing to the overall wellbeing of the local population.

3.2 Biodiversity

All designated sites for biodiversity within 15 km and with ecological and/or hydrological connectivity have also been considered as part of this assessment, which comprised of both desk and field studies.

The preliminary ecological appraisal (PEA) of the application site was undertaken during a field survey in February 2025 to identify initial ecological constraints and to determine the need for targeted surveys. All habitats within the site were mapped and are described in detail in EIAR Chapter 5. The upland river and hedgerow habitats on-site may provide suitable habitat for fauna species such as the white-clawed crayfish and whooper swan. After the extraction of each phase, the sand and gravel pit will be restored to a naturally regenerated habitat for biodiversity use, therefore, in the long term, the proposed development will increase the value of the site for whooper swans & other waterfowl. No invasive species were noted on-site during the field surveys. Red Listed species such as lapwing and snipe were also noted foraging on site. There is no requirement for removal of hedgerow or trees during any of the development, therefore, there is no potential for direct impacts on nesting birds.

The closest European designated natura sites, are the River Boyne and River Blackwater SAC (Site Code 0002299) which connects the site to the River Boyne and River Blackwater SPA



(Site Code 0004232) c. 27km downstream of the application site, the Boyne Coast and Estuary SAC (Site Code, 0001957), and the Boyne Estuary SPA (Site Code 0004030).

Best practice management practices will ensure that potential contaminant pathways between the application site and the ecologically designated areas will be prevented. Breeding otters are unlikely to be present due to the heavy disturbance and human use of the site and lack of vegetation cover. The site is considered to be of low value to foraging and commuting bats due to a lack of suitable, linear habitats on-site. The river flowing along the eastern Site boundary may provide low/moderate foraging value to bats. The site is evaluated to be of negligible importance to, invasive species, mammals such as badgers, fallow deer and pine marten.

3.3 Land, Soils & Geology

This assessment was undertaken based on available desktop information, a number of detailed site investigations to establish the geological conditions and prove the sand and gravel resource, as well as professional experience. The sand and gravel material reserve at the site has been proven through site investigations including, a geophysical survey, trial pits & boreholes at the site undertaken between January and May 2025.

The proposed development comprising sand and gravel material extraction will result in the direct loss of agricultural land, soils and the sand & gravel subsoils through extraction. However, it is considered that the context of the site and quality of the land and soils, the residual impact on both will not be significant. The soils at the site will be stripped and stored on site during the extraction of the sand and gravel material and will be used for the restoration of the site to return it to a beneficial biodiversity habitat and permanent waterbody after-use.

According to the Irish Soil Information System (ISIS) project, the soil combination in the study zone is considered to be moderate to poor and imperfectly draining. The principal soil types encountered are the Urban and Elton from the Grey Brown Podzolic Group. These two groups are encountered across the wider study zone of a 2km radius surrounding the application site. These soils are considered to be moderately and imperfectly draining.

Subsoils across Ireland have been mapped under the Teagasc Irish Forestry Soils (IFS) study. The subsoils in the study area are represented by four main subsoil types:

- Cut over raised peat;
- Sand and Gravels derived from Limestones;
- Limestone Till; and
- Lake Sediments.

Subsoils in the site have been mapped under the IFS project as Peat Cut. The entirety of the site is underlain by a thin layer of organic rich clayey soil of c. 0.3 m thickness. Borehole drilling for groundwater monitoring (2025) indicate that there are thick layers of sands and gravels beneath the organic rich clayey soil. Based on the IFS mapping these are likely to be Sands and Gravels derived from Limestones. There are no bedrock exposures at the site, the nearest bedrock exposure within the study area is located c. 1.2 km to the south of the site. It is not proposed to extract or blast any bedrock at the site as part of this planning application.

The Geological Survey of Ireland's (GSI) Irish Geological Heritage (IGH) Programme has identified geological heritage sites in Ireland. The site at Derryarkin is not located within a designated County Geological Site (CGS).

Soils will be managed on site in line with best practice. A specific Soil Management Plan (based on The Institute of Quarrying Guidelines, 2021) will be developed for the site for the stripping, storage and reuse of the soils in restoration at the site.



3.4 Water (Hydrology and Hydrogeology)

The application site is within the Yellow River Catchment which is a sub-catchment of the River Boyne.

The closest waterbody to the application area is the Yellow River which flows along the eastern boundary. Under the WFD classification, the Yellow River is classified as “Good Status” and is designated under the Third Cycle as being ‘At Risk’ from agricultural pressures in the catchment.

There are no recorded flood events near the site, nor is there any risk of potential flooding.

The site is located within the Athboy GWB. The bedrock aquifer in the area is classified as a locally important aquifer. The aquifer at the site is classified as a locally important (Lm) aquifer. The GWB is classified as being of Good status under WFD classification.

The bedrock aquifer in the area is classified as a locally important aquifer, The aquifer at the site is classified as a locally important (Lm) aquifer. The GWB is classified as Good under WFD classification. The groundwater vulnerability is classed as Low-to-High due to the preamble nature of the sand and gravels material.

Three monitoring boreholes have been installed on the application site area with a maximum depth of 11m bgl.

There will be no dewatering associated with the proposed development and therefore there will be no impact on groundwater flows or quantities. Any rain falling across the pit will percolate naturally through unsaturated ground to the underlying groundwater or to the open wet working excavation. A number of management measures will be implemented in order to mitigate against the risk of pollution to groundwater and surface water occurring at the site and these are described in detail in Chapter 7 of the EIAR. Environmental water monitoring will continue to be carried out on a regular basis to demonstrate that the sand and gravel pit is not having any significant adverse effects on the surrounding environment.

3.5 Air Quality

A qualitative assessment has been undertaken, following appropriate industry guidance, to assess the potential to generate fugitive dust emissions and particulates (PM₁₀), to result in impacts on local air quality. The potential for combustion emissions (primary PM₁₀, and oxides of nitrogen) from vehicle emissions associated with transportation has also been considered.

Baseline dust monitoring was undertaken between the months of February to June, inclusive, and was carried out at 3 locations around the application site.

The qualitative assessment of future potential dust effects, taking into account site specific factors such as distance between activities/receptors, weather patterns and baseline air quality, has factored in the continued implementation of operational dust control measures on site and the designed in environmental measures. Impacts on disamenity, human and ecological receptors are not considered to be significant. Notwithstanding this, a series of industry good practice measures have been recommended, alongside continued monitoring for the life of the proposed development.

A screening assessment of vehicle has been undertaken. The proposed trip generation with regards to both HDV movements and total movements as a percentage of the baseline are below the screening criteria for both human and ecological receptors. Road traffic impacts can be considered as having a negligible impact and therefore a not significant effect. No further assessment is required.

Overall, it is therefore considered that the potential impacts from dust and airborne emissions arising from the proposed development do not present a material constraint to the development proposals.



3.6 Climate

Observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising sea level are unequivocal evidence of warming of the climate system globally. Global mean temperature has increased compared with pre-industrial times for land and oceans. Most of the observed increase in global average temperatures is very likely due to human activity.

Ireland has a typical maritime climate with relatively mild and moist winters and cool, cloudy summers. The prevailing winds are south westerly in direction. The climate is influenced by warm maritime air associated with the Gulf Stream, which has the effect of moderating the climate, and results in high average annual humidity across the country. The area of least precipitation is along the eastern seaboard of the country in the rain shadow of the Leinster uplands.

Despite the different methods and scenario combinations used to project climate change, there is agreement in projected changes in Ireland, including sea level rises, storm surge and temperature extremes.

The climate data referred to as indicative of the local area is based on Met Éireann data for Mullingar (c. 19km south).

The design of the proposed development has been developed alongside the review of vulnerability to the effects of climate change, and the adaptation measures incorporated include avoiding mapped flood hazard areas, resilient water management system and procedures to facilitate operational shutdown during extreme weather events.

GHG emissions have been estimated for the proposed development based on likely annual energy, fuel use and traffic movements at the proposed development site in future years. Based on the calculated total of 444,842 CO_{2e} kg (445 CO_{2e} tonnes) and a comparison to Ireland's 2023 emissions value of c. 58.83 Mtonnes of CO_{2e}, it is assessed that proposed operations would be c. 0.00075% of Ireland's annual CO_{2e} emissions for the duration.

3.7 Noise & Vibration

The existing noise levels at noise sensitive locations in the vicinity of the site and haulage routes was determined through initial monitoring at representative locations. Industry standard predictions of noise levels associated with proposed activities during the construction and operational phases was then used to calculate potential noise impacts arising at sensitive locations.

The design of the proposed development has incorporated measures from the outset to minimise the potential for noise disturbance to its nearest neighbours. This will be achieved through general best practice along with the construction of a 2 to 3 m high perimeter berm which should aid in acoustic screening.

Additional proposed mitigation measures include general best practice mitigation along with specific measures in respect of mechanical plant and vehicle movements.

The nature of onsite operations (i.e. no blasting, piling or drilling) and the distance to the nearest noise sensitive locations is such that the risk of vibration impacts occurring during either the construction or operational phases is negligible.

Noise monitoring was undertaken at 2 noise sensitive locations from the hours of 10:01 – 12:27 on Tuesday 23rd September 2025 around the overall landholding. Noise levels attributable to the extant operations is considered to be well within the limits set out in the approved monitoring strategy; noise control measures in place for the existing sand and gravel operations are therefore deemed to be satisfactory.



3.8 Material Assets

The material assets assessment comprises the consideration of existing resources pertinent to the proposed development and the application site that are not addressed elsewhere in the EIAR and the likely development impacts on those resources. On this basis, it includes a review of utilities such as electricity, telecommunications, gas, water supply infrastructure and sewerage, as well as waste management arrangements.

The proposed development is not predicted to have any negative impacts on any other services / utilities. Excavation works at the site do not require any blasting.

Waste arising at the site will be disposed of by appropriately authorised waste collection services for each stream, in line with the Environmental Management System for the site.

3.9 Cultural Heritage

The archaeological, architectural and cultural heritage component of an Environmental Impact Assessment Report of a proposal to develop a sand and gravel pit on lands at Derryarkin, Co. Offaly, was carried out in 2025. The work was undertaken by Dr. Charles Mount who is a member of the Institute of Archaeologists and has more than thirty years of cultural heritage assessment experience.

This study which complies with the requirements of Directive EIA 2014/52/EU is an assessment of the known or potential cultural heritage resource within a specified area and includes the information that may reasonably be required for reaching a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment. It consists of a collation of existing written and graphic information in order to identify the likely context, character, significance and sensitivity of the known or potential cultural heritage, archaeological and structural resource using an appropriate methodology.

The study involved detailed investigation of the archaeological and historical background of the development site, the landholding and the surrounding area extending 1km from the development boundary. This area was examined using information from the Record of Monuments and Places of County Offaly, the Offaly County Development Plan, lists of excavations and cartographic and documentary sources. A field inspection was carried out to identify and assess any known archaeological sites and previously unrecorded features and portable finds within the area of landholding. An impact assessment and mitigation strategy have been prepared.

There are no known items of archaeological, architectural and cultural heritage in the application site or the vicinity.

No direct or indirect impacts on any known items of archaeological, architectural and cultural heritage in the application site or the vicinity during the construction or operational or stages of the proposed development or as a result of an unplanned event have been identified by the assessment. In the worst case scenario, previously unknown sub-surface archaeological material could be impacted without preservation by record taking place.

Due to the potential of the survival of previously unknown sub-surface archaeological deposits or finds within the application site and access road, all soil-stripping should be archaeologically monitored under licence from the National Monuments Service.

3.10 Landscape & Visual

A landscape and visual impact assessment (LVIA) of the proposed development was completed in accordance with accepted best practice guidance and involved both desk and field study. The application site is located within the townland of Derryarkin, Croghan, Rhode,



Co. Offaly, approximately 2 km from the Offaly / Westmeath county border. Rochfortbridge (Co. Westmeath) is c. 4.5km northwest and Rhode (Co. Offaly) is c. 5km southeast of the application site.

The proposed extraction development will be accessed along the northern application site boundary via an existing site entrance into the landholding. The entrance provides direct access to the local access road which in turn provides access to the R400 regional road and M6 motorway.

The site is substantially screened in most views from the surrounding landscape, due to a combination of flat topography and intervening vegetation. In order to minimise the visibility of the site in views from close proximity and some elevated locations in the wider landscape, as well as reduce the impact on local landscape character, a detailed landscape and restoration scheme has been prepared where, the scheme aims at providing native hedge screening along the southern and western boundary in addition to the proposed perimeter berms. As the site will be wet worked, a large open body of water will be created and remain on completion of the extraction works.

A study area of approximately 3km surrounding the application site was identified during the desktop study, based on the Zone of Theoretical Visibility Map (refer to EIAR Figure 13-2). While, the ZTV indicates very restricted visibility within this 3km radius, the 3km study area is maintained for the purposes of providing landscape context.

Levels within the main part of the site range from 78-79 m above Ordnance Survey (AOD), with a subtle increase to 80 m AOD along the access road and at the site entrance. The topography within the study area and the surrounding wider landscape remains largely flat at levels between 80-85 m AOD. Beyond 1.5km to the south the ground begins to rise steeply towards the widely visible Croghan Hill, with a summit at 234 m AOD, 3 km south of the site. Another perceptible elevation within the study area is a hill with a highpoint of just over 110 m AOD, in the townland of Knockdrin, just over 2 km north-east of the site.

Photography and visual representations have been prepared in accordance with industry standards to enable an understanding of the landscape and visual impacts of the proposals. Six viewpoint locations were selected to represent the range of available views.

There were no protected views or prospects located within the study area, and those located just over 3km to the south-west, are not directed at the application area.

The application site is located just over 2km south of Character Area 10 Lough Ennell & South Eastern Corridor, which covers the north-western edge of the study area. The description of this area includes the following. None of the Areas of High Amenity (AHA) listed in the Westmeath LCA are located within the study area. No further information on the sensitivity or value of other areas within the county are provided, although it can be deduced that these are considered to be of lower landscape value / sensitivity. The Offaly County Development Plan does not contain a comprehensive Landscape Character Assessment. It does however provide a sensitivity classification of the landscapes of County Offaly, which is divided into low, moderate and high sensitivity. The following areas of low, moderate and high sensitivity are located within the southern half of the study area:

- Low Sensitivity Areas: flat agricultural land;
- Moderate Sensitivity Areas: cutaway bog; and
- High Sensitivity Areas: Croghan Hill and its Environs.

There will be no visual impacts, due to the proposed site. Assessment of the landscape effects during the operational phase, based on the sensitivity of each of the landscape receptors combined with the magnitude of change experienced by each of them are assessed to be not significant. Visual effects are assessed to be not significant. While there are a number of third-party sand and gravel pits within 2km to the north-west, north and north-east, these are all visually separated from the application area by intervening vegetation. Also, the



characteristics of the large open pit lakes and associated flat topography can be compared to the large fields of flat farmland or large open areas of flat cutover bog. All are well established features in the local landscape. The addition of another sand and gravel pit is therefore unlikely to result in significant cumulative landscape or visual impact.

The proposed hedge planting, as well as tree planting along the eastern boundary, combined with the proposed restoration of the sand and gravel pit to a natural habitat (i.e., wet working area to be retained as wetland habitat, leaving all parts of the extraction area above the water level for natural regeneration) would help the integration of the site into the local landscape. Should it be found towards the end of the one year restoration period, that there are still large areas along the lake shore which have not been colonised by locally occurring grass and scrub species, some planting of willow and birch would be carried out (note: this is highly unlikely, as natural regeneration is prolific in the surrounding areas of cutover bog and existing third-party sand and gravel pits). As no additional mitigation measures are proposed during the operational stage, the residual levels of landscape and visual impact would be as per the assessment above.

3.11 Traffic

PMCE Ltd provided an assessment of the traffic impacts associated with the proposed development, which comprised a review of the local road network, including the L1009, Local Access Road and the R400 Regional road. The site will be accessed from an existing unmarked Local Road that serves the existing Derrycoffey Sand and Gravel pit, BD flood concrete plant and Skeagh Farms Piggery.

The R400 is a regional road which is located 2km to the northeast of the proposed sand and gravel pit access. The R400 is a two-way single carriageway which is approximately 6.5m wide. The road is approximately 40km in length and extends from Mullingar to Portarlinton in a north-south direction.

Predicted traffic volumes were based on assumptions on likely trips generated by the proposals and from data obtained from traffic counts undertaken in the vicinity in February 2025. Based on the projected maximum of 100,000 tonnes of sand and gravel to be extracted per year, a total of 19 daily Heavy Goods Vehicle trips are expected to arise from the proposals.

Link capacity analysis was carried out on the Site Access Local Road and R400 Regional Road within the vicinity of the site. It was determined that the link road assessed will continue to operate within capacity for each of the assessment years 2026, 2031 and 2041.

Junction Capacity Analysis was undertaken at the site access junction on the R400 Regional Road and the Site Access Local Road, and the Site Access Local Road and the Proposed Development access. The results indicate that the junction will continue to operate within capacity for each of the assessment years 2026, 2031 and 2041.

The assessment therefore indicates that the development will have a negligible impact on traffic flows on the existing road network due to the relatively low volumes of traffic being generated by the development.

Visibility at the access junction, in both directions, was determined to meet, and exceed, the requirements of TII Guidance.

3.12 Interactions

A matrix and associated commentary is provided in Chapter 15 of the EIAR, which acts as a checking mechanism to ensure that there are no potential additional impacts from the interactions of impacts that are dealt with within the individual assessment chapters of the EIAR.



3.13 Mitigation and Monitoring

Chapter 16 of the EIAR provides a summary of mitigation and monitoring commitments set out within the technical chapters. This is intended to assist Offaly County Council in determining the planning application and identifying any planning conditions that it may wish to impose on any future planning permission.

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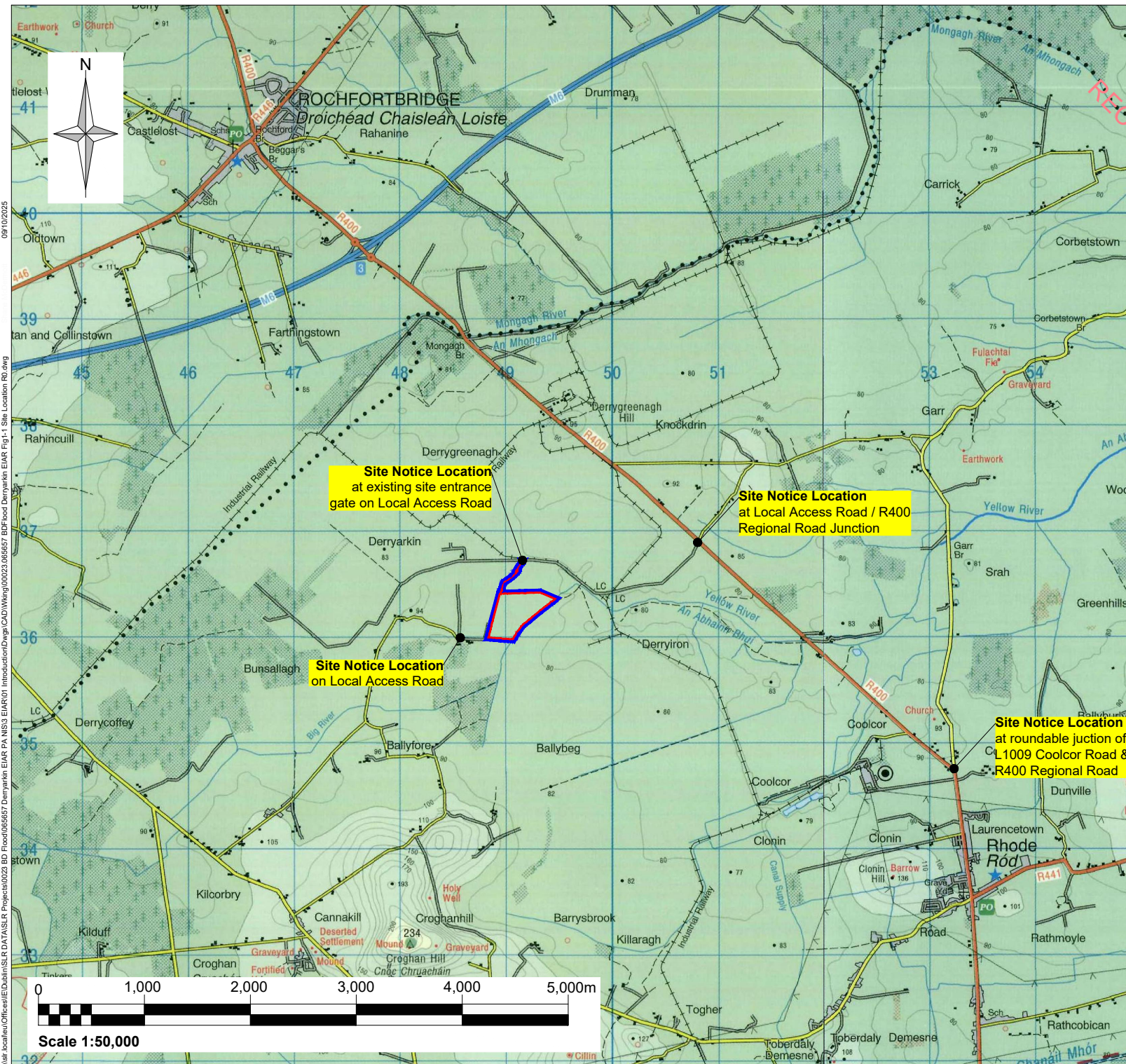


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Figures

NTS Figure 1	Site Location Map
NTS Figure 2	Site Location & Site Notice Map
NTS Figure 3	Site Location & Site Notice Map
NTS Figure 4	Existing Site Layout
NTS Figure 5	Proposed Site Layout
NTS Figure 6	Proposed Phasing Layout
NTS Figure 7	Proposed Restoration Layout





Notes:
 Tailte Éireann OSI Mapping 50,000 scale Discovery Series - sheet no.'s 48 & 49

Legend:

- Applicant Land Interest Boundary c. 19.5 hectares
- Proposed Planning Application Area 19.5 hectares

Rev	Amendments	Date	By	Chk	Auth



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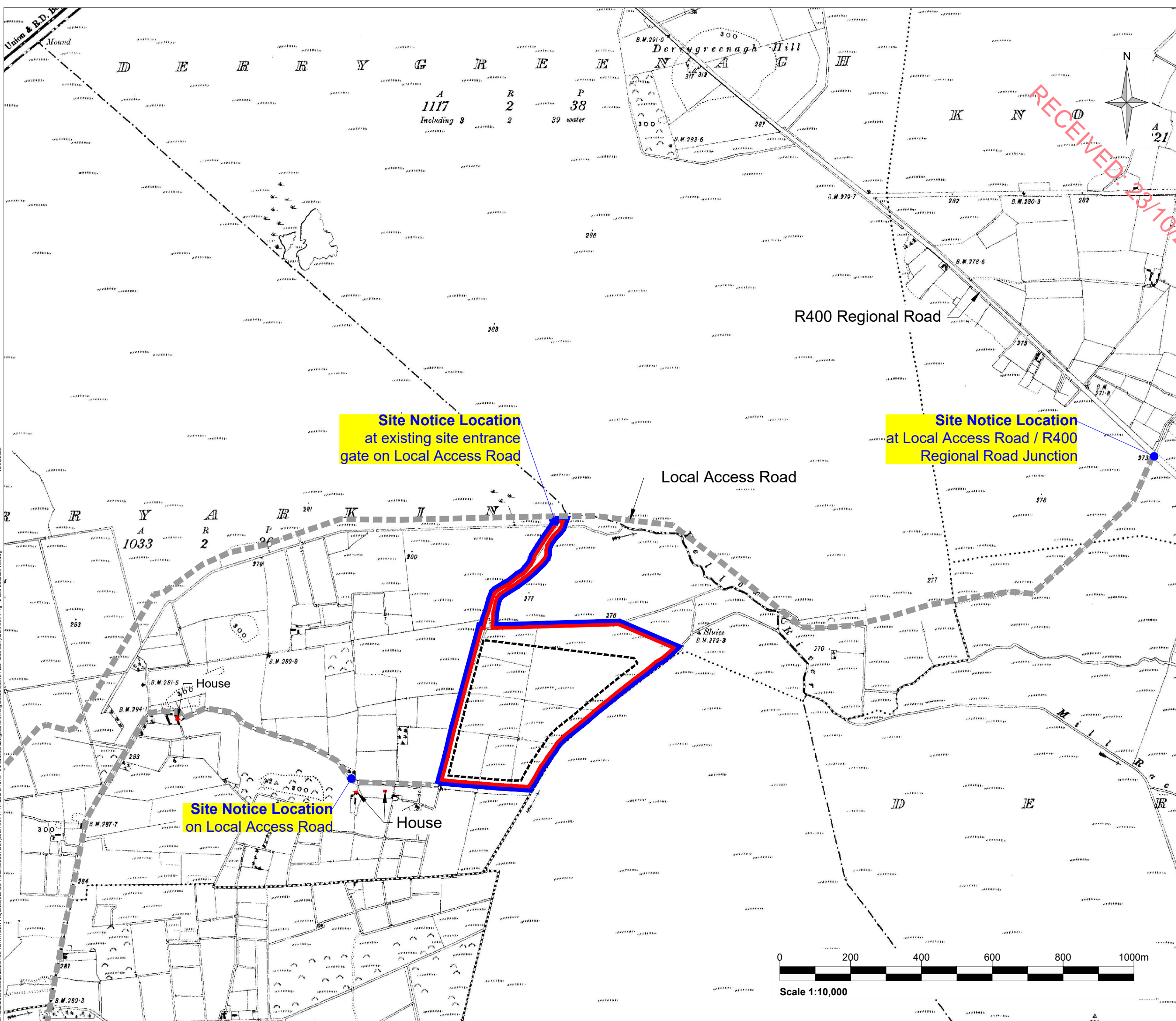
Client
 BD Flood Unlimited Company

Project
 Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
 Site Location Map

Scale 1:50,000 @ A4		SLR Project No. 501.00023.065461	
Designed smcd	Drawn smcd	Checked lh	Authorised lh
Date 01/25	Date 01/25	Date 10/25	Date 10/25
Figure Number Figure NTS-1			Rev. 0

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Notes:
 Tailte Éireann OSI Mapping 5,000 scale - sheet no.'s 3180 & 3181

Legend:

- Applicant Land Interest Boundary
c. 19.5 hectares
- Proposed Planning Application Area
c. 19.5 hectares
- Proposed Sand and Gravel Extraction Area
c. 11.7 hectares

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Client
 BD Flood Unlimited Company

Project
 Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
 Site Layout Map

Scale
 1:10,000 @ A3

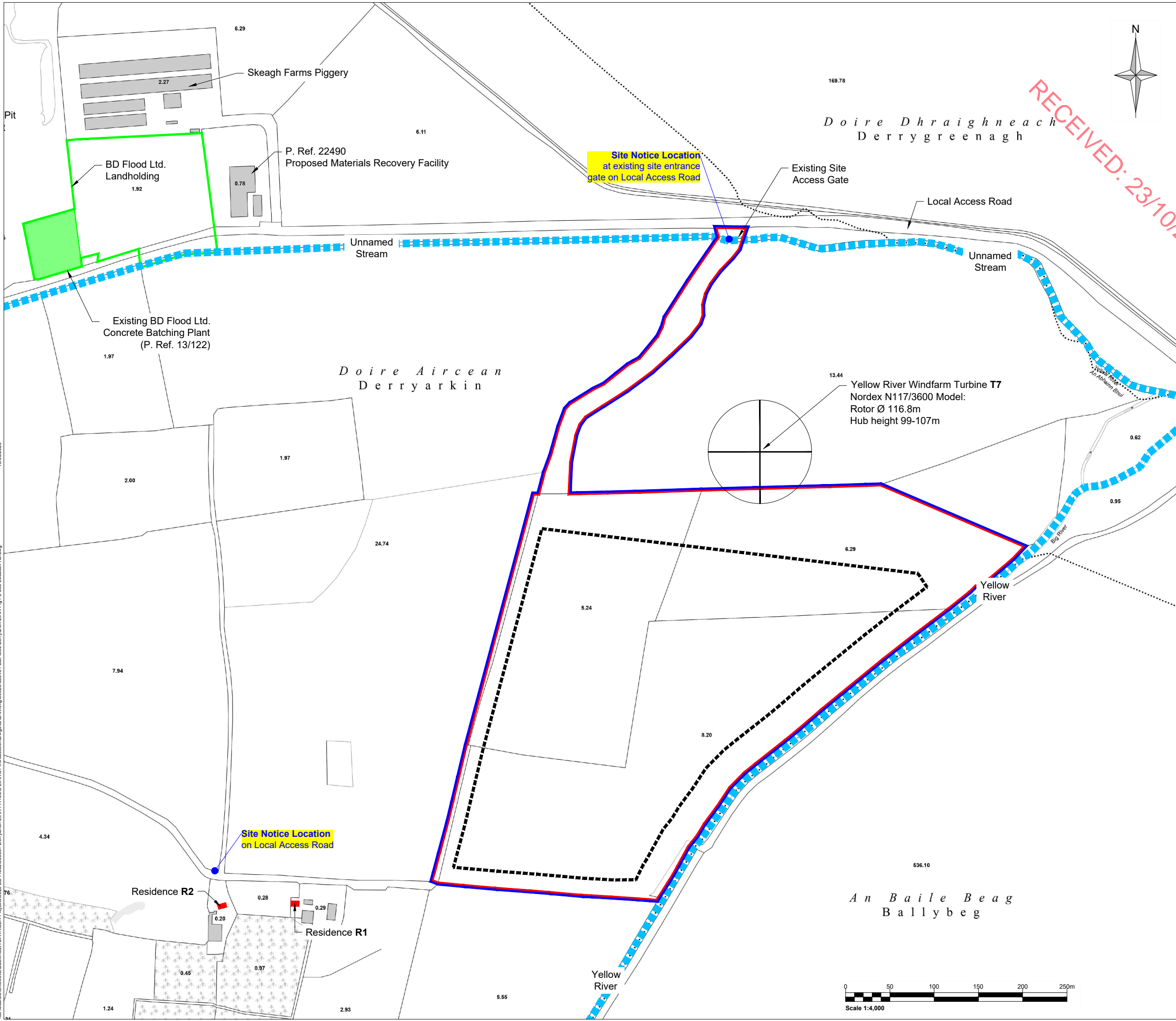
SLR Project No.
 501.00023.065461

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Date 01/25	Date 01/25	Date 09/25	Date 09/25

Figure Number
 Figure NTS-2

Rev.
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Notes:
 Tailte Éireann OSI Mapping 5,000 scale - sheet no.'s 3180 & 3181

- Legend:**
- Applicant Land Interest Boundary
c. 19.5 hectares
 - Proposed Planning Application Area
c. 19.5 hectares
 - Proposed Sand and Gravel Extraction Area
c. 11.7 hectares
 - BD Flood Ltd. Land Interest Boundary
2.5 hectares
 - Existing BD Flood Ltd. Concrete Batching Facility (P. Ref. 13/122)
 - Surface Water Features (Yellow River / Unnamed Stream)
 - Residential Property Locations

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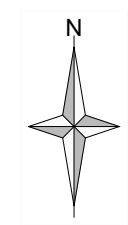
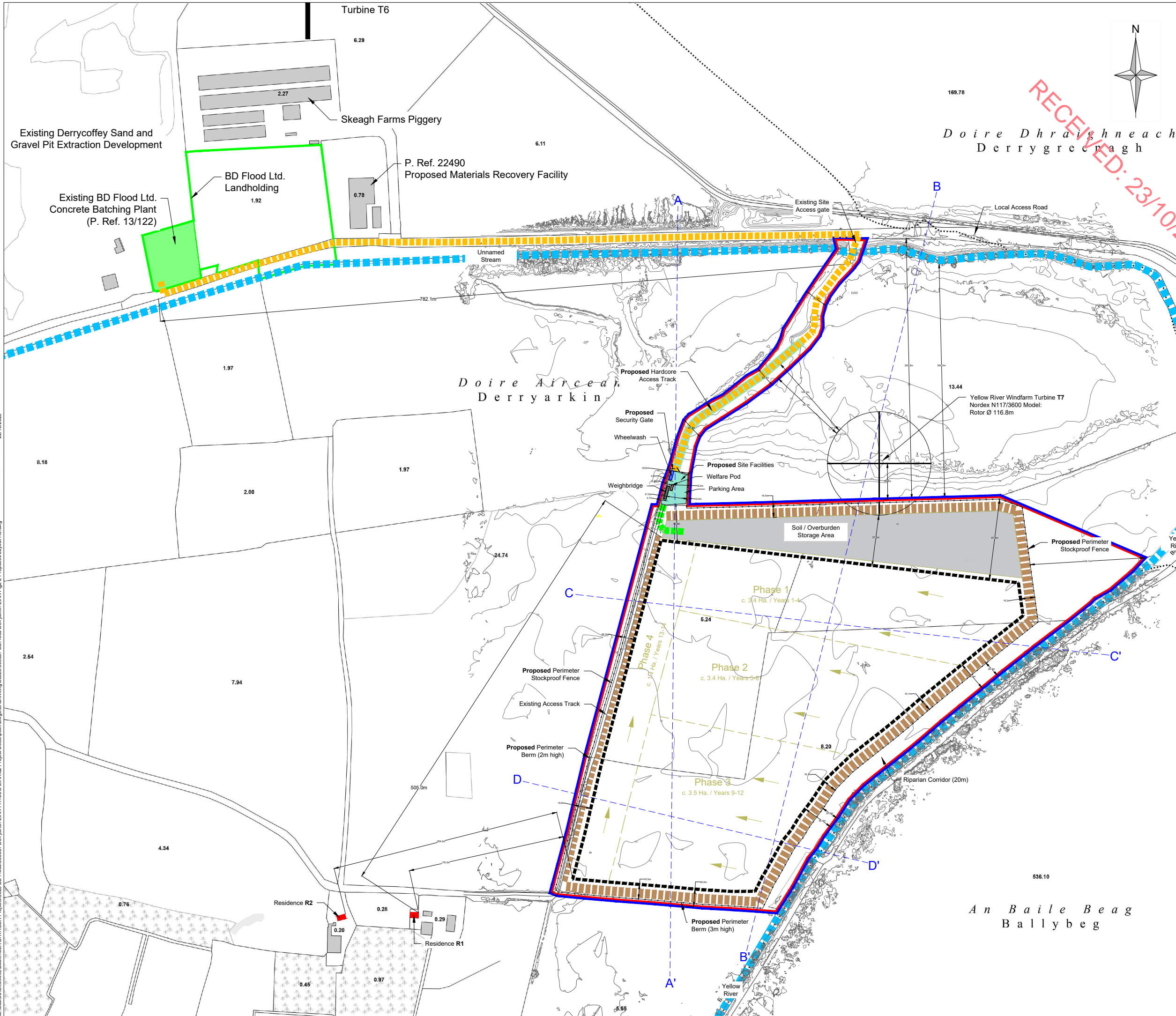
Client
 BD Flood Unlimited Company

Project
 Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
 Site Location Map

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Date 01/25	Date 01/25	Date 09/25
Figure Number Figure NTS-3	Rev. 0	

19/09/2025
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Notes:
 Tailte Éireann OSI Mapping 5,000 scale - sheet no.'s 3180 & 3181

- Legend:**
- Applicant Land Interest Boundary
c. 19.5 hectares
 - Proposed Planning Application Area
19.5 hectares
 - Proposed Sand and Gravel Extraction Area
11.7 hectares
 - Surface Water Features
(Yellow River / Unnamed Stream)
 - Proposed Perimeter Berms
 - Proposed Perimeter Stockproof Fencing
 - Proposed Hardcore Areas
 - Proposed Haulage Route from Proposed Sand & Gravel Extraction Area to Existing Concrete Batching Plant
 - Existing Contours: extraction will be below the water table to a depth of 6-10m (c. 69-73m AOD)

Rev	Amendments	Date	By	Chk	Auth



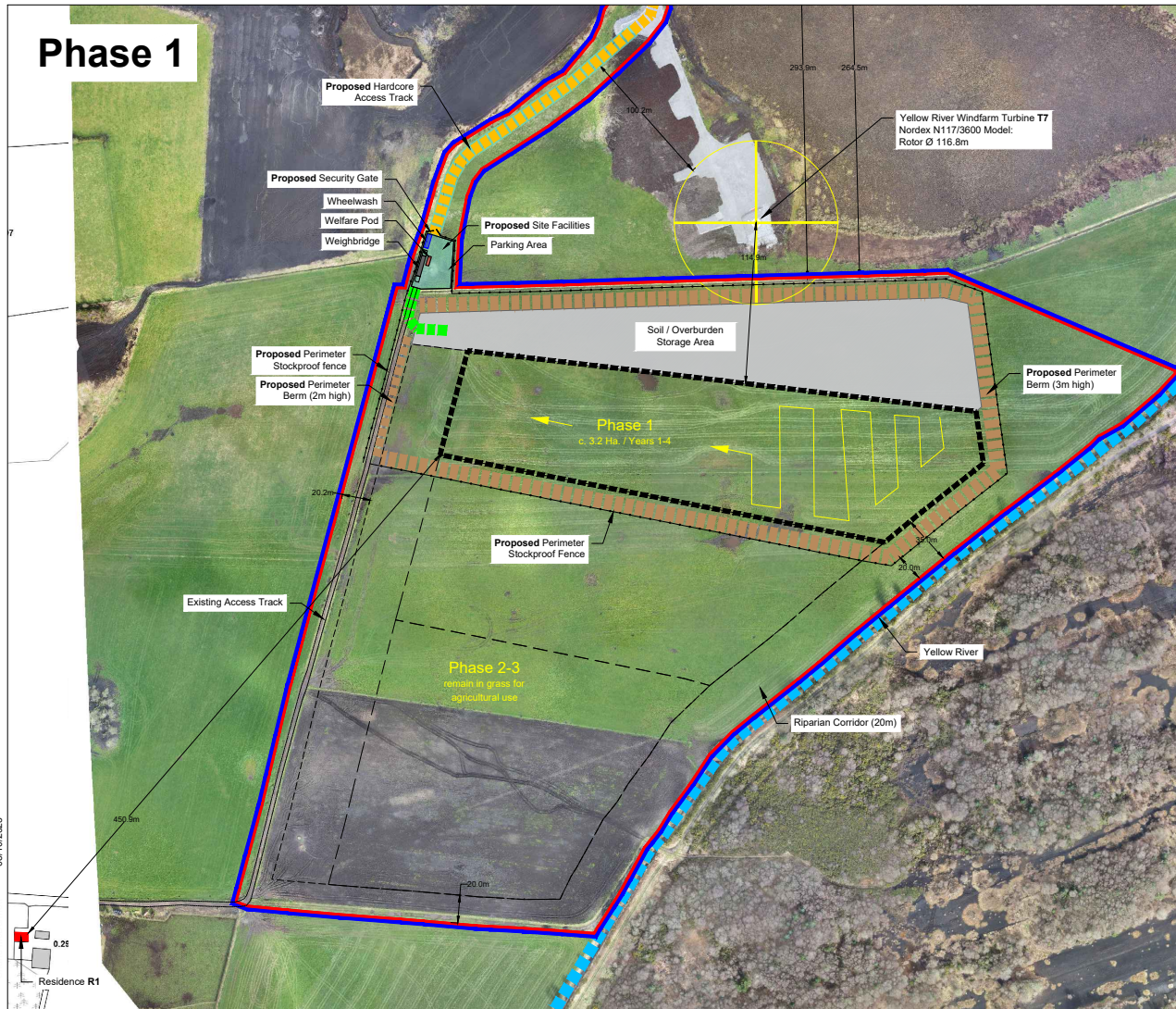
Client
 BD Flood Unlimited Company

Project
 Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
 Proposed Site Layout: Development Overview

Scale 1:4,000 @ A3		SLR Project No. 501.00023.065461	
Designed smcd	Drawn smcd	Checked lh	Authorised lh
Date 01/25	Date 01/25	Date 09/25	Date 09/25
Figure Number Figure NTS-5			Rev. 0

Phase 1



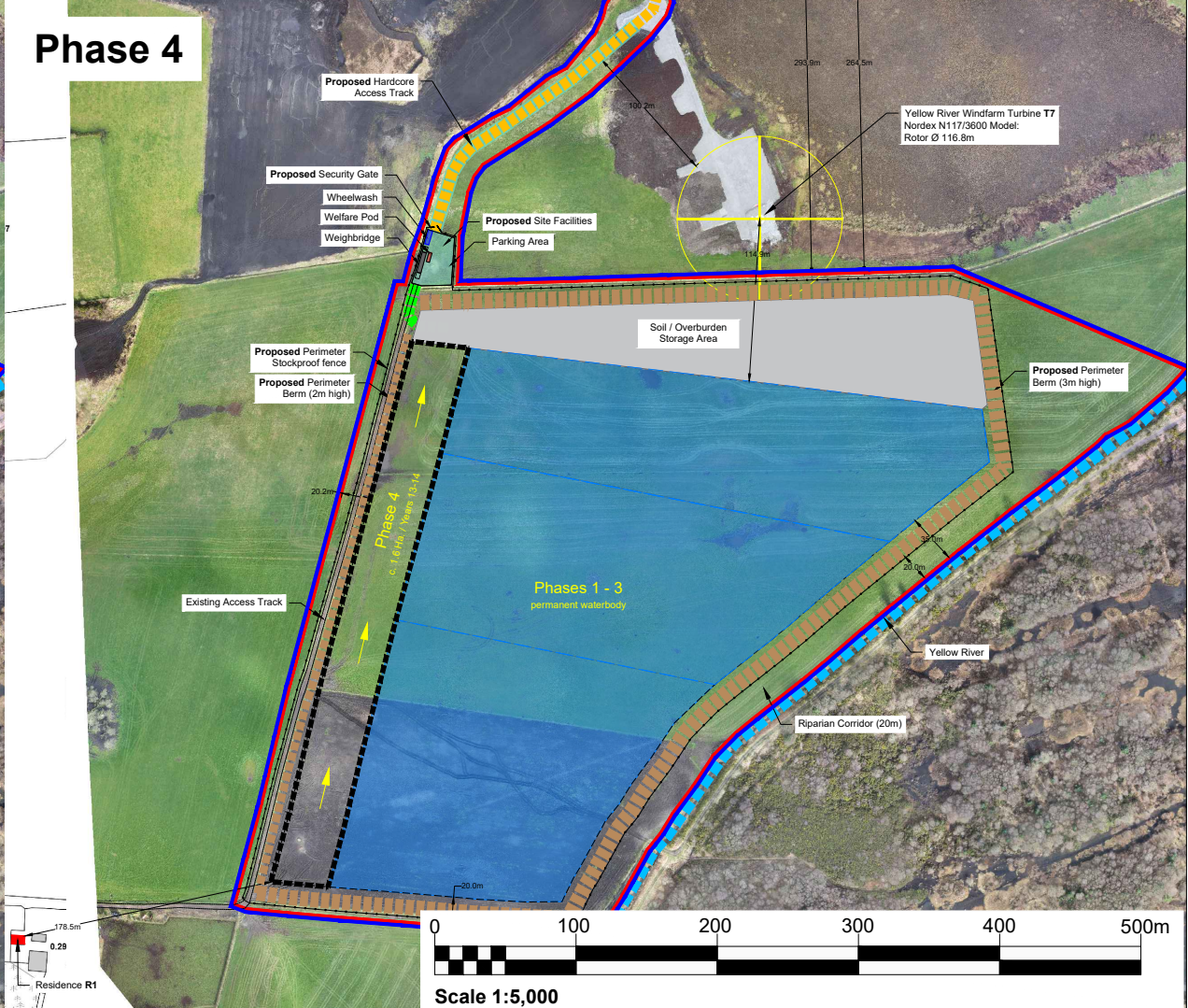
Phase 2



Phase 3



Phase 4



Notes:
 Tailte Éireann OSI Mapping 5,000 scale - sheet no.'s 3180 & 3181

- Legend:**
- Applicant Land Interest Boundary c. 19.5 hectares
 - Proposed Planning Application Area 19.5 hectares
 - Proposed Sand and Gravel Operational Extraction Area Phase
 - Proposed Perimeter Berms
 - Proposed Perimeter Stockproof Fencing
 - Proposed Hardcore Areas
 - Proposed Permanent Waterbody (created following S & G extraction)
 - Proposed Haulage Route from Proposed Sand & Gravel Extraction Area to Existing Concrete Batching Plant
 - Proposed Direction of Sand & Gravel Extraction within Each Phase

Rev	Amendments	Date	By	Chk	Auth

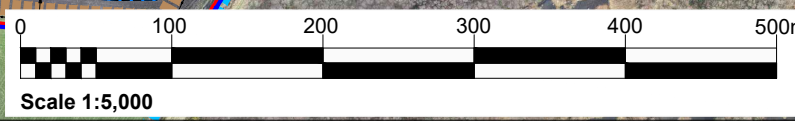


Client
 BD Flood Unlimited Company

Project
 Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
 Proposed Phasing Layout Plan

Scale 1:5,000	@ A3	SLR Project No. 501.00023.065461
Designed smcd	Drawn smcd	Checked lh
Date 01/25	Date 01/25	Date 09/25
Figure Number Figure NTS-6	Rev. 0	





LANDSCAPE AND RESTORATION SCHEME

It is proposed to restore the application area on a phased basis to a natural habitat land use, which is in line with the beneficial afteruses recommended in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006).

The sand and gravel pit will be worked wet and the resulting water body will be retained on completion of the extraction works. Undulating and shallow edges will be created, to help increase the potential for biodiversity-rich habitats along the edges of the final water body. Native hedge planting and blocks of native trees along some of the boundaries will increase habitat linkage and provide additional biodiversity potential.

LANDSCAPE PHASE 1

The following works will be carried out on commencement of the proposed development:

- **Native Hedge Planting** will be carried out along the western and southern boundaries, to augment the screening provided by the proposed perimeter berms in views from a number of residential properties to the west and south, as well as increase biodiversity.

LANDSCAPE PHASE 2

The following works would be carried out in tandem with the extraction works:

- In the approximate locations indicated on the plan, undulating shallow sand & gravel slopes would be retained, instead of extracting the sand and gravel at a steeper angle all the way to the edge of the water body; and / or
- any surplus material (i.e. not used in perimeter berm construction) stripped from the extraction areas will be backfilled along the edges of the completed wet working areas to create / enhance the undulating shallow water and dry areas.

RESTORATION PHASE

The following works would be carried out on completion of the extraction works:

- Both the perimeter berms and stock proof fencing will be retained.
- The site facilities near the site entrance will be cleared and the ground decompacted. The soil / overburden storage area will also be cleared and both areas left for natural regeneration. (note: during the one-year restoration period, any dry areas along the edge of the water body will be monitored for the level of natural regeneration. Should there be large bare areas, these will be planted with willow and birch, to initiate the natural regeneration of these areas. It is however expected that this will not be an issue, as natural regeneration is readily taking place within the local area).
- Some blocks of native trees will be planted along the buffer with the Yellow River, to increase habitat linkage and biodiversity further.

GENERAL NOTES:

- All plant handling, planting and establishment works to be carried out in accordance with current best practice and to take place in the appropriate planting season (e.g. bareroot planting: November to March only) and in favourable weather conditions.
- All works to be carried out by a suitably qualified landscape contractor.
- Establishment maintenance to be carried out for 2 years following the completion of planting (minimum 3 maintenance visits per year; i.e. spring, summer and autumn). Works to include weed control, replacement planting (where required) and the adjustment/removal of spiral guards.

NATIVE HEDGE PLANTING

Hedge to be planted as a double row, with plants 40cm apart (i.e. 2.5 plants per m, Approx. 720m in total = 1,800 plants). To be planted randomly in same species groups of 3-8 and to be supplied with spiral guards.

No.	Plant Name	Common Name	Height (cm)	Age	%
<i>Transplants/Container Grown Shrubs</i>					
180	<i>Betula pendula</i>	Silver Birch	60-90	1+1	10
270	<i>Corylus avellana</i>	Common Hazel	60-90	1+0	15
630	<i>Crataegus monogyna</i>	Hawthorn	60-90	1+1	35
270	<i>Prunus spinosa</i>	Blackthorn	60-90	1+0	15
270	<i>Rosa canina</i>	Dog Rose	40-60	1+1	15
180	<i>Salix aurita</i>	Eared Willow	60-120	0+1	10

NATIVE TREE MIX

To be planted at 1.5m centres (i.e. 1 plant/2.25m²; approx. 2,475m² in total = 1,100 plants). To be planted randomly with no more than 4-6 plants of the same species in one group and to be supplied with spiral guards.

No.	Plant Name	Common Name	Height (cm)	Age	%
<i>Transplants/Container Grown Shrubs</i>					
165	<i>Betula pendula</i>	Silver Birch	60-90	1+1	15
165	<i>Corylus avellana</i>	Common Hazel	60-90	1+0	15
165	<i>Crataegus monogyna</i>	Hawthorn	60-90	1+1	15
165	<i>Prunus spinosa</i>	Blackthorn	60-90	1+0	15
165	<i>Rosa canina</i>	Dog Rose	40-60	1+1	15
165	<i>Salix aurita</i>	Eared Willow	60-120	0+1	15
110	<i>Pinus sylvestris</i>	Scots Pine	60-80	R/B	10

Notes:
 Tailte Éireann OSi Mapping 5,000 scale - sheet no.'s 3180 & 3181

Legend:

- Applicant Land interest boundary
- Proposed planning application area
- Proposed extraction phasing boundaries
- Proposed hardcore access track
- Landscape Phase 1 (to be carried out on commencement of the development)
- Native hedge planting (720m in total)
- Landscape Phase 2 (to be carried out in tandem with the extraction works)
- Wet working area to be retained as wetland habitat
- Undulating / shallow edges to be created by retaining edge / backfilling with overburden material
- Restoration Phase (to be carried out on completion of all extraction works)
- Site facilities and soil / overburden storage area to be removed and area to be left for natural regeneration
- Grassed perimeter berms to be retained
- Stock proof fence to be retained
- Native tree planting blocks (2,450m² in total)

Rev	Amendments	Date	By	Chk	Auth

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Client
 BD Flood Unlimited Company

Project
 Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
 Proposed Landscape & Restoration Plan

Scale 1:2,500	@ A3	SLR Project No. 501.00023.065461
Designed CN	Drawn CN	Checked AM
Date 09/25	Date 09/25	Date 09/25
Figure Number Figure NTS-7	Rev. 0	

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