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EXISTING DEVELOPMENT

Development History

2.1 The application site comprises a bedrock quarry located in the townlands of Ballinclare and Carrigmore, near the village of Kilbride, Co. Wicklow. Historically, permitted activities at the quarry have included extraction of diorite bedrock using blasting techniques; processing (crushing and screening) of the fragmented rock to produce aggregates for on-site concrete (readymix) and asphalt production for road construction and related site development works.

2.2 The quarry was owned and operated by S.M. Morris Ltd up to 2009, at which time it temporarily shut down as a result of the downturn in the Irish construction industry which followed the Global Financial Crisis of 2008. In 2014, the quarry was acquired by Kilsaran Concrete Unlimited Company (hereinafter 'Kilsaran'). Quarry activities re-commenced shortly thereafter and there was significant investment in upgrading the concrete batching plant, a new aggregate production plant and an asphalt / tarmacadam production plant.

2.3 In December 2014, Kilsaran sought planning permission for the continuation of previously permitted development at the quarry for a period of 25 years. Permission was sought for a revised extraction scheme which provided for deepening of the quarry to a floor level of +1mOD over an extended extraction area of 16.5 hectares, a concrete block manufacturing plant and concrete block manufacturing yard and an increase in output from the quarry to c. 800,000 tonnes per annum. Planning permission for the quarry extension and associated development was granted by Wicklow County Council subject to 23 conditions in January 2016 (Planning Ref. 14/2118).

2.4 Extraction and production activities at the quarry were suspended in June 2016 following the discovery of small quantities of Naturally Occurring Asbestos (NOA) in the diorite bedrock being quarried at the time. A decision was also made at that time to manage the quarry on a 'care and maintenance' basis while potential future uses of the site were examined. Thereafter, following suspension of quarrying and concrete / asphalt production activities, there was no outlet or end use for surface water run-off and groundwater inflow which had, up to that time collected in sumps at low points on the quarry floor, and as a result, water levels in the quarry void started to rise.

2.5 Following suspension of activities in 2016, SLR Consulting Ireland was appointed to examine the feasibility of a range of development options for the quarry, focussing in particular on waste management opportunities to backfill and restore the quarry using imported soil / C&D waste materials and taking account of aspects such as the availability of materials, available intake capacity at, and location of, other existing waste facilities, market entry and establishment costs and potential water treatment costs.

2.6 Arising out of this review, Kilsaran decided to establish a waste management facility at the quarry which would facilitate the backfill and restoration of the quarry void using imported inert soil / C&D waste materials. This was to be achieved by developing an engineered landfill facility within the quarry void with a natural, low permeability clay liner at its base and sides to protect groundwater. At that time, it was envisaged that on completion of the quarry backfilling and restoration works, the site would be restored to a landform with long-term grassland / scrub habitat similar to that which existed prior to quarrying.

2.7 The proposed development also provided for the establishment and operation of a construction and demolition (C&D) waste recovery facility at the paved area to the west of the site access road (to produce recycled aggregate from mass / reinforced concrete, blocks, paving stones, hardened asphalt returns) and a soil washing plant at the former concrete yard (to produce recycled aggregates from excess natural / waste soils).

2.8 In view of the projected scale of waste intake to the facility (up to 800,000 tonnes per annum), the proposed development was referred to An Bord Pleanála in June 2019 as required under Section 37B of the Planning and Development Act of 2000 (as amended) to establish whether or not it met the legislative criteria for Strategic Infrastructure Development (SID) (Referral Ref. ABP-304735-19).

2.9 The Board confirmed that the proposed development did constitute SID in February 2020, and a planning application in respect of the development was duly submitted directly to ABP in April 2021. That application (Ref. No.ABP-309991-21) was ultimately refused permission in September 2023, principally on account of perceived deficiencies in baseline ecological surveys around the application site. All other aspects of the proposed development, including need, compliance with policy objectives and traffic impact were deemed satisfactory by the ABP Inspector in his report to the Board.

2.10 On foot of the recent refusal for the development at Ballinclare, Kilsaran undertook a further review of its site development strategy and decided to submit a modified planning application which addressed a number of issues and concerns raised in respect of the earlier proposal and which also had regard to recent developments in waste policy and regulation promoting the development of the circular economy. Details of the modified proposal are presented in subsequent Chapter sections and paragraphs below.

Existing Site Layout

2.11 The existing quarry development at Ballinclare extends across approximately 24 hectares (c.59.3 acres), of which the existing quarry extraction area extends to c.9.3 hectares (c.22.9 acres). Ground levels in the vicinity of the quarry vary between 55mOD to 60mOD along the southern site boundary, close to the L1157 Local Road and rise above 90mOD at the highest point along the northern boundary where the main quarry face cuts into a rock slope which rises northwards. Typical levels along the northern quarry boundary range from 50mOD to 70mOD.

2.12 Extraction across the quarry generally extended to a floor level of approximately 37mOD. At the time activity was suspended in 2016, the two quarry benches were being extended westwards. As a result the quarry floor is locally higher at the western end, where the first bench has only been developed to a level of approximately 52mOD. The quarry floor is also locally deeper in the central eastern area of the quarry and extends to approximately 22mOD where a third bench had been commenced. This area effectively acted as the quarry sump when it was operational.

2.13 The quarry is accessed via a 120m long surfaced entrance road leading off the L1157 Local Road. The former concrete batching plant, aggregate plant and asphalt plant were all located in the south-eastern corner of the quarry holding, to the east of the access road, in an area where rock was previously excavated to a relatively shallow depth (of between 5m and 10m).

2.14 Established ancillary facilities at the quarry include the main site office, a weighbridge and adjoining weighbridge office, staff canteen and toilets, a wastewater treatment system, a wheelwash, a bunded fuel storage area, a garage / workshop and a laboratory.

2.15 A number of former farm buildings and a paved storage yard remain in place to the west of the site access road. The farm buildings comprise a stone barn and two concrete walled barns, each with a corrugated tin roof. A more modern two-storey brick clad building is also present in this location. The existing site layout is shown in Figure 2-1.

2.16 When it was operating, the quarry at Ballinclare was effectively worked dry, with very little inflow of groundwater recorded into the quarry void. A sump was located at the lowest point on the quarry floor and collected any surface water falling over the excavation area as well as any minor inflows of groundwater which may have arisen.

2.17 The water collecting in the sump was periodically pumped to water storage tanks for subsequent re-use in concrete production on-site or for dust suppression. There was also provision for occasional off-site discharge of surplus water via a surface water treatment system (a number of settlement lagoons in series) to a drainage channel which falls to the Ballinclare Stream immediately beyond the north-western site boundary.

Existing Water Management System

2.18 At the present time, rainfall across the existing quarry site (including the former concrete / asphalt production yard) generates run-off which generally falls to the quarry void, while run-off across the western side of the quarry site falls to the drainage channel leading off-site to the Ballinclare Stream. Given that the diorite bedrock is a poor aquifer, there is relatively little infiltration to ground or recharge to the underlying groundwater table.

2.19 After extraction and production activities were suspended in 2016, quarry dewatering ceased in the absence of any on-site outlet or end use for the water collecting in the quarry sump. In subsequent years, the quarry void was flooded by surface water run-off from surrounding ground and (relatively minor) groundwater inflows and water levels within the quarry rose gradually over time.

2.20 In November 2019, Wicklow County Council issued a discharge licence (Ref. No. WPL116) which provided for off-site discharge of water collecting in the quarry void to the Ballinclare Stream (and Potters River further downstream) and some proposed small-scale soil / C&D waste recovery activity under a Local Authority waste facility permit (which ultimately never progressed).

2.21 The current discharge licence provides for pumping of water from the quarry void (using a rising main pipe) to an existing on-site treatment unit located at a former storage area upstream of a series of existing settlement ponds. The approved water treatment system was installed and commissioned in October 2022 and comprises a bespoke Siltbuster treatment system which reduces naturally-elevated concentrations of arsenic which were identified in the water within the quarry void, as well as also removing suspended solids.

2.22 Following treatment at the Siltbuster plant, surface water run-off flows under gravity towards the settlement ponds for further polishing and sediment removal. The settlement ponds provide approximately 16 hours retention time which is generally sufficient, as the treatment plant removes the suspended solids in the discharged water. All off-site discharges are sampled and tested at this point in accordance with licence requirements. Test results to date have been consistently compliant with the emission limit values set by the discharge licence.

2.23 Thereafter, the treated run-off flows under gravity along the channel which drains to the Ballinclare Stream. Approximately 400m north and downstream of the discharge point, the Ballinclare Stream flows into the much larger Potters River. The layout and configuration of the existing surface water management system, including the treatment system required by the current discharge licence, is shown in Figure 2-1.

2.24 The background normal pumping volume from the quarry, based on groundwater inflows and surface water run-off is of the order of 860m^3/day, while the maximum permitted discharge volume is of the order of 1,730m^3/day. The quarry was substantially dewatered by the end of summer 2024 and at the present time, pumping and treatment is being undertaken on an intermittent basis to maintain the water level within the final bench / large sump at a relatively constant (low) level above the deepest point on the quarry floor.

PROPOSED DEVELOPMENT

Development Overview

2.25 The proposed development at Ballinclare Quarry provides for the establishment and operation of a licensed, integrated material recovery / recycling facility and inert landfill on a site of 32.6 hectares which comprises three key elements

- a soil washing plant to win aggregate from imported soil and stone;
- a construction and demolition (C&D) waste recycling facility to produce aggregate from construction and demolition waste (principally concrete); and
- an inert engineered (i.e. lined) landfill to facilitate backfilling and restoration of the existing quarry void.

In essence, it will provide for the importation, re-use, recovery and/or disposal of by-product materials and inert wastes generated by construction and development projects in Counties Wicklow, Dublin and Wexford as well as the backfilling and long-term restoration of the former quarry to native woodland habitat.

2.26 The proposed soil washing plant will be installed at the former concrete and asphalt production yard in the south-eastern corner of the quarry and will be capable of recovering sand and gravel aggregate from excess soil and stone (managed both as waste and non-waste by-product) which has been imported from construction and application sites across the surrounding region.

2.27 The proposed construction and demolition (C&D) waste recovery facility will be established across the footprint of an existing paved area immediately west of the existing internal access road. The principal wastes to be imported to the facility and used to produce recycled aggregates will include concrete (ready-mixed, reinforced, blocks and/or pavement slabs), bricks and bituminous mixtures (hardened asphalt returns and road plannings). Most of these wastes will be sourced from off-site clearance and demolition projects across the surrounding region.

2.28 Any aggregates produced from waste materials at either the soil washing plant or the C&D waste recovery facility will be of construction grade and will comply with an engineering specification and the End of Waste criteria for recycled aggregates recently published by the EPA[1].

2.29 It is proposed to backfill the existing quarry void to a final ground level of approximately 80mOD and to leave the upper rock face exposed for a height of up to 15m to facilitate continued nesting by peregrine falcons. Backfilling will be progressed by way of inert landfilling activity on an ongoing and progressive basis in discrete cells with an engineered (natural clay) liner at the base and sides. The final completed landform will substantially, though not entirely, re-establish the former landform that existed at the application site prior to commencement of historical quarrying activities.

2.30 As part of the proposed inert landfill development, suitable uncontaminated, undisturbed, natural soil by-product (i.e. non-waste) which conforms to an engineering specification will also be imported for re-use in the construction of the required basal and side liners.

2.31 Some uncontaminated topsoil waste and/or topsoil by-product will also be imported for use in the final restoration of the backfilled landform. Topsoil will be temporarily stockpiled at the inert landfill facility as required, pending its re-use as cover material.

[1] EPA National End-of-Waste Decision EoW-N001/2023 of 12th September 2023 establishing criteria determining when recycled aggregate ceases to be waste under Regulation 28 of the European Union (Waste Directive) Regulations 2011 – 2020

2.32 The proposed development at Ballinclare Quarry will provide for the following:

- Installation and operation of a soil washing plant at the former concrete / asphalt yard to produce construction grade sand and gravel aggregate from imported excess soil and stone. The soil washing plant comprises a loading hopper, a number of soil screens in series with connecting conveyor systems, a primary wastewater treatment tank (thickener), a buffer tank holding sludge and recycled water, an elevated plate press and filter cake discharge area;
- Construction of a close-sided industrial shed (portal frame structure with roof mounted solar panels) at the existing paved area to the west of the access road to house crushing and screening equipment and process / recycle inert C&D waste (principally solid / reinforced concrete, bricks, ceramics and solid bituminous waste mixtures);
- Use of external paved and hardstanding areas surrounding the C&D waste processing shed for the external handling and storage of both unprocessed and processed C&D wastes;
- Separation of any intermixed solid construction and demolition (C&D) wastes (principally metal, timber, PVC pipes and plastic) prior to its removal off-site to authorised waste disposal or recovery facilities;
- Substantial backfilling of the existing quarry void to a maximum level of 80mOD through disposal of imported inert soil and stone waste and residual fines from the soil washing process and the use of non-waste soil by-product for engineering, capping and/or landscaping purposes
- The progressive restoration of the completed landfill landform to long-term native woodland habitat;
- Continued use of established site infrastructure and services including, site / weighbridge office, staff welfare facilities, surface water run-off and wastewater treatment systems, weighbridge, garage / workshop, wheelwash, hardstand areas, fuel and water storage tanks to service the proposed development;
- Clearance of vegetation and felling of a number of mature trees to facilitate widening of the internal site access road and make provision for off-road queuing of inbound HGVs within the application site boundary;
- Decommissioning of any remaining fixed plant and infrastructure associated with former rock extraction or concrete / asphalt production activities;
- Off-site removal of any waste materials or bulky wastes associated with former quarrying or production activities;
- Installation of a new weighbridge along the inbound lane of the quarry access road;
- Installation of an additional wheelwash facility on the eastern side of the former concrete / asphalt yard;
- Modification / upgrade of existing drainage channel along the site access road, Installation of silt trap and hydrocarbon interceptor to treat run-off and provision of additional pumping capacity to transfer run-off from existing surface water pond at site entrance to quarry sump
- Installation of a silt trap and hydrocarbon interceptor at the proposed C&D waste recovery facility to treat run-off prior to being pumped to the soil wash plant or surface water ponds elsewhere on site.
- Installation of a sub-surface concrete wastewater holding tank;
- Construction and establishment of an on-site (passive) wetland treatment system and any associated drainage infrastructure to treat / polish water collected from the

active backfilling / landfilling cells prior to its discharge off-site to the Ballinclare Stream;

- Re-use of an existing storage shed as a dedicated waste inspection and quarantine facility to inspect and store suspect waste consignments as required. Any waste which has been accepted at the facility and which is likely (on basis of visual inspection) or confirmed (on basis of compliance testing) to be non-compliant with waste acceptance criteria for the facility will be temporarily stored at this location pending results of further waste classification testing and a decision as to how and where they should ultimately be disposed of or recovered;
- Re-alignment, upgrading and ongoing maintenance of internal haul routes across the application site;
- Temporary stockpiling of topsoil pending re-use as cover material for final restoration of the inert landfill / backfilled quarry void;
- Implementation of a series of measures to enhance local biodiversity including the retention of habitats and features of biodiversity value (e.g. ponds, buildings), quarry face retention for nesting peregrine falcon, establishment of an artificial sand martin colony, creation of roost space / deployment of bird boxes for bats, creation of habitat / erection of bird nest boxes for breeding / roosting birds and erection of fence along the site perimeter to include access points for mammals.
- Environmental monitoring of noise, dust, surface water and groundwater for the duration of the landfilling and restoration works and C&D waste recovery / recycling activities and for a short period thereafter;
- All ancillary site works, landscaping and perimeter fencing.

The proposed layout of site infrastructure and locations of site services are shown on Figure 2-2 and Figure 2-3 respectively.

SITE INFRASTRUCTURE

Site Screening

2.33 At the present time, almost all views into the existing quarry and the application site are screened by roadside and intervening vegetation. Dense vegetation growth and perimeter screening berms around the site boundary essentially reduce visibility into the existing quarry site to almost zero.

2.34 The only public views of or into the site are available from sloping land to the south of the application area, from elevations above 100mOD. This includes a small number of views from Kilmacurragh Botanic Gardens and from short stretches of the local road to the north of Westaston Hill. In most instances, roadside and intervening vegetation effectively screen much, if not all, of the existing quarry development from views across this area. There are also some views into the site from private lands to the south-west and west of the site.

2.35 Although the proposed backfilling / landfilling and restoration works at the quarry will remediate any existing visual impact over time, immediate re-planting of some failed forestry and progressive planting of native woodland species is proposed as part of the site restoration plan, refer to the Restoration Surface and Landscaping Plan in Figure 2-4 and to EIAR Chapter 13 (Landscape). Cross-sections through the restored / landfilled landform are provided in Figure 2-5A, while cross sections through the retained northern rock face section (for peregrine nesting) are shown in Figure 2-5B.

Site Access

2.36 Under the existing quarry planning permission(s) (Planning Ref 07/45 and 14/2118), HGVs travelling to and from Ballinclare Quarry were directed to use a dedicated one-way haul route. HGVs approaching the quarry from M11 Junction 18 (at the Beehive Inn) travelled approximately 4km along the L1113 Local Road, then turned left onto the L1157 Local Road and travelled a further 600m up to the junction with the existing quarry access road.

2.37 Traffic departing the quarry turned left and travelled along the L1157 for approximately 2km, up to its junction with the R772 Regional Road (the former N11 National Primary Road) at the Junction 18 Coffee Shop and Green Angel premises (formerly the Tap Restaurant) and, from there, proceeded north (or south) to access the M11 Motorway and the National Road network.

2.38 As part of pre-application consultations undertaken with Wicklow County Council in respect of the earlier (2021) planning application, a walkover survey of the existing local road network around the application site was undertaken and an assessment made of aspects such as road geometry, pavement condition, traffic flows and travel speeds.

2.39 Based on these assessments and having regard to local traffic flow characteristics and the changes which arose after the M11 motorway opened in 2015, Wicklow County Council advised that it would be preferable to avoid using the previous (established) haul route to the quarry and that HGVs should avoid using the L1113 Local Road. It proposed that HGVs should instead travel the shorter distance between the quarry and the R772 Regional Road in both directions along the L1157 Local Road. In more recent follow-up discussions with Council officials in September 2024, in advance of submitting this planning application, it was confirmed that this remains the Council's view / recommendation.

2.40 In light of this feedback, this planning application provides for the routing of all traffic to and from the proposed development at Ballinclare Quarry along the L1157 Local Road. It also includes provision for a comprehensive road improvement scheme along the entire length of the L1157 leading up to the application site, including road widening to 6.0m everywhere along its length, with road strengthening and repair overlay and road markings where required. Further details in respect of consultations with the Roads Authority and the proposed road upgrade works to be undertaken in advance of any waste or by-product intake to the facility, are presented in Chapter 14 (Traffic) of this EIAR.

2.41 Under the routing proposal, it is expected that the majority of the HGVs travelling to the proposed development from Dublin and North Wicklow will use the M11 Motorway, exiting at Junction 18 and joining the R772 Regional Road southbound. After travelling south for approximately 4km, traffic heading for the facility will turn right, off the R772, and onto the L1157 at the ghost island junction beside the Junction 18 Coffee Shop and Green Angel premises at Kilbride. The access junction to the quarry and proposed development is located along the L1157, approximately 2km north-west of the R772 junction.

2.42 It is expected that only a minor proportion of HGV traffic will arrive from the direction of Arklow and North Wexford to the south. This traffic will use the M11 Motorway, exiting at Junction 19 to turn onto the R772 Regional Road at Jack Whites Pub. It will then travel north for approximately 5km, turn left off the R772 and onto the L1157, and continue thereafter up to the quarry and proposed development.

2.43 The proposed haul route requires all HGV traffic (with the exception of that travelling west to Rathdrum or to local sites) to turn left when departing the proposed facility and follow the upgraded L1157 back to the junction with the R772 Regional Road, and from there continue toward the national motorway network.

Site Security

2.44 At the present time, the following measures have been put in place at Ballinclare Quarry to secure the external perimeter and restrict access, protect the property and safeguard public safety:

- Stockproof fencing has been erected along the site boundary (in accordance with the Quarry Regulations 2008). All necessary warning signs are displayed at visible locations around the property boundary at appropriate intervals;
- Existing perimeter hedgerows species have been reinforced where required to provide an impenetrable barrier around the property;
- A large, robust metal gate is in place at the entrance to the quarry. The gate is locked at all times outside operational hours and when there is no ongoing activity at the quarry;
- The site is currently actively monitored by NETWATCH security.

2.45 There is no other vehicular access to the quarry other than from the L1157 Local Road. Prior to commencement of the proposed site activities, replacement deer proof fencing will be installed. At a later date , during final restoration, security fencing will be erected to prevent access to the area retained for peregrine falcon nesting. Hedgerows will also be strengthened or fortified by additional planting as necessary.

Office and Ancillary Facilities

2.46 The existing quarry site / weighbridge office is located on an elevated platform in the centre of the existing access road leading into the quarry, as shown in Figure 2-2. This office will be refurbished internally and will be the designated site office where the site manager and site staff will be based and where all site records will be held.

2.47 There is an established canteen / changing room and toilet facilities located at the end of the access road into the quarry, around the existing garage / workshop, as shown in Figure 2-2. Effluent from the toilet facilities will be treated by way of a proprietary effluent treatment system (an Aeration Treatment Unit for secondary treatment and a two module Puraflo unit for tertiary treatment), previously approved by way of Planning Ref. 14/2118). A sub-surface concrete wastewater tank will be installed beside the existing treatment unit at the outset of the proposed development to provide supplementary wastewater holding capacity during busy periods when extra staff are based on site. The holding tank will be emptied regularly as required by an external waste Contractor and sewage brought for treatment to a nearby municipal WWT plant.

Weighbridge

2.48 In order to track and record the amount of material entering the application site, all HGV traffic importing inert soil / stone / C&D materials to the proposed facility will be directed across a new weighbridge which will be installed along the inbound lane of the access road into the quarry, at the location indicated on the proposed development layout plan in Figure 2-2.

2.49 Intake of soil / C&D byproduct and waste must be pre-approved and meet site-specific waste acceptance criteria where required. After entering the site the HGV deliveries will be controlled from the existing site / weighbridge office which sits on a slightly elevated platform a short distance away (alongside the existing weighbridge on the outbound lane leading out of the site).

2.50 There will be a voice and camera link between HGV drivers and staff based at the weighbridge office. CCTV cameras will be installed around the new weighbridge to provide a live feed to screens at the existing weighbridge office and facilitate visual

inspection of all soil / C&D materials being imported for landfilling, processing and/or recovery activities at the proposed facility. Details of the proposed new weighbridge are shown in Figure 2-6

2.51 On arrival, pre-approved HGV drivers will identify themselves and produce site identification documentation to staff at the site / weighbridge office before proceeding to the active backfilling / landfilling area, soil washing plant or C&D recovery facility (as appropriate). Staff will record the time and date of arrival, the nature, origin and weight of the imported materials (whether waste or by-product / engineering materials), the customer / Client name, the truck licence plate number, any relevant waste collection permit details and any further details required by an EPA waste licence in respect of the proposed facility. All records of by-product and waste intake will be maintained on site for tracking and auditing purposes.

2.52 Any recycled aggregates produced by soil washing and C&D waste will be dispatched off-site and weighed out at the existing weighbridge, located along the outbound lane of the quarry access road. Any rejected waste intake or non-inert construction and demolition waste inadvertently brought to the facility (and separated from other, acceptable wastes) will also be weighed out at the existing weighbridge, as it is dispatched off-site to other authorised waste disposal or recovery facilities.

Wheelwash

2.53 In order to prevent transport of mud, clay and dust onto the public road network, all traffic exiting the proposed waste facility will be routed through the existing wheelwash facility along the outbound / egress lane of the existing site access road, the location of which is indicated on the proposed development layout plan in Figure 2-2.

2.54 In order to augment the existing wheelwashing facility and ensure that as much soil and mud as possible is removed from the wheels and undercarriage of HGVs before they depart the facility, it is proposed as part of this development, to install a second wheelwash facility on the eastern side of the former concrete / asphalt production yard, along the haul route leading away from the inert landfill and soil washing areas. All HGVs delivering soil will be subject to washing at both wheelwash facilities. The proposed new wheelwash location is shown in Figure 2-2. Wheelwash details are provided in Figure 2-7.

Site Roads, Parking and Hardstanding Areas

2.55 All HGVs delivering soil / C&D materials to the facility (either as waste or by-product) will be confined within the application site. HGVs will turn into the site from the L1157 Local Road and travel over the existing paved road surface and inbound weighbridge before turning for the C&D waste recovery facility, active inert landfill area or soil washing plant as required. As HGVs move across the facility thereafter, they will travel over a network of unpaved haul roads constructed of crushed natural stone / concrete / hardcore fill or recycled aggregates produced on site.

2.56 It is intended to provide an additional lane along the western (inbound) side of the access road to facilitate queuing of inbound HGVs within the site at peak times (rather than along the L1157 Local Road). Surface water run-off from the additional paved area will fall to a hydrocarbon interceptor and flow on to the existing surface water pond to the right (south) of the site entrance.

2.57 There is existing provision for employee / visitor car parking around the existing site offices, and for HGVs around the existing garage / workshop area, as indicated on the proposed development layout plan in Figure 2-2 and Figure 2-3.

Traffic Control

2.58 Where appropriate, and subject to agreement / approval from the Local Authority, roadside notices will be placed along the existing local road network in the vicinity of the application site to provide motorists with advance notice of HGVs turning in and out of the proposed facility at Ballinclare Quarry ahead of them. Driver speed feedback signs will also be placed along the haul route, subject to agreement with the Local Authority.

2.59 As noted previously, all HGV traffic entering the site will be required to pass over the proposed new weighbridge along the inbound lane, while all egressing HGV traffic will be routed across the existing weighbridge and through the existing wheelwash along the outbound lane.

2.60 Internally, within the proposed facility, warning notices, direction signs and speed restriction signs will be erected where appropriate along the internal road network leading to and from active backfilling / landfilling areas, the soil washing plant, the C&D waste recovery area and/or the waste inspection and quarantine area. An indication of the internal traffic management arrangements which will be put in place initially at the proposed facility is presented in Figure 2-8.

Utilities and Services

2.61 Site staff at the proposed facility will use existing toilet, hand washing and welfare facilities. Water is supplied to these facilities from an existing groundwater production well on-site, identified as the Water Supply Well in Figure 2-1. Potable water is not sourced from this well however and bottled drinking water will be delivered to the site on a regular basis, as required.

2.62 Water supplied to the existing wheelwash is recycled in a closed system and is topped up with water from the supply well or from the quarry sump as required. The wheelwash generates very little run-off and any it does either evaporates or will fall to the hydrocarbon interceptor. It is envisaged that the new wheelwash facility will also be a closed system topped up from the supply well or quarry sump. Water from the quarry sump is also pumped to a water tank and used for dust suppression purposes.

2.63 Wastewater from the site offices and staff welfare facilities is piped to an existing on-site effluent treatment system. This system, which comprises an aeration treatment unit and two modular Puraflo system over a 300mm deep gravel bed, was previously approved by way of the 2016 quarry planning permission. As previously mentioned, a sub-surface concrete wastewater holding tank will be installed beside the existing treatment unit to provide supplementary wastewater holding capacity during busy periods when extra staff are based on site. Details of the location and layout of the wastewater treatment system and the proposed waste water storage tank are provided in Appendix 2-A.

2.64 Electricity will provide the principal source of energy for office lighting and heating at the facility and will power any fixed plant or equipment. There is an existing connection to the electricity distribution network and a transformer at the quarry which will remain in service for the life of the proposed facility. The configuration of power lines around the existing quarry is shown in Figure 2-2 and Figure 2-3. As part of the proposed development, it is intended to install Solar PV panels on the roof of the C&D shed. It is estimated that these panels could provide up to 12% of the electricity required at the proposed development.

2.65 Although fixed telephone lines run along the local road network leading to / from the proposed facility, it is envisaged that site-based staff overseeing site operations will generally be contactable by mobile phone. Rural high speed broadband infrastructure has been installed in the local area surrounding the facility and will facilitate connection to email and internet service providers.

2.66 Given the lack of combustible waste materials at the facility, it is considered highly unlikely that a fire will break out in the course of site operations and activities. A range of fire extinguishers (water, foam and CO_2) will be kept at the site office / welfare facilities to deal with any localised small-scale fires which might occur. Extinguishers will also be kept in all mobile plant and close to all fixed processing plant and equipment. Additional fire-fighting capacity can be provided by storing water in a mobile bowser on paved or hardstand areas surrounding the site offices / facilities.

Soil Washing / Aggregate Recovery Plant

2.67 At the outset of the project, a soil washing plant will be set up and commissioned in the former concrete / asphalt production yard in the south-eastern corner of the application site. This plant will effectively recover sand and gravel and recycled (secondary) aggregates from selected, more granular soil intake (managed both as waste and non-waste by-product) and claybound C&D waste intake imported to the facility.

2.68 The soil washing plant comprises a loading hopper, a number of soil screens in series with connecting conveyor systems, a primary wastewater treatment tank (thickener), a buffer tank holding sludge and recycled water, an elevated plate press and filter cake discharge area.

2.69 Separate connected elements of the soil washing plant are identified below. For each item of plant, outline details are provided below as to their function / role in the soil washing and aggregate recovery process:

- Feed Hopper : Accepts soil intake from front-end loaders. The hopper has extendable sides to facilitate charge filling to increase the efficiency of input;
- Primary Scalping Screens : Removes any oversized materials within the soil intake which is not suitable for processing by the washing plant;
- Feed Conveyors : A number of inclined electrically driven feed conveyors lift and drop sorted materials into various elements of processing plant placed in series;
- Log Washer : Paddles fitted to twin shafts of the log washer scrub the granular soil / soil bound C&D intake material and transform it into a granular product suitable for screening into aggregates of various size grades. A slurry pump transfers fines to the sand recovery unit;
- Screens : Vibrating horizontal sizing screens to sort materials by particle size;
- Sand Recovery Unit : Sediment laden water from the modular log washer is passed through hydrocyclones were silt is removed from the sand. The sand slurry passes over a horizontal dewatering screen to produce two grades of market ready sand;
- Screen Decks : Vibrating inclined sizing screens to further sort materials by particle size;
- Stockpile Conveyors : A number of inclined electrically driven radial stockpile conveyors;
- Thickener (Primary stage water treatment) : Silt laden water from the sand recovery unit is pumped to the centre of the thickener to settle out. An integrated unit doses pre-mixed flocculent to the material to ensure rapid settlement. A thickened sludge is pumped from the base of the tank to the sludge buffer tanks whilst clarified water overflow is pumped to the recycled water buffer tank for recirculation back to the washing plant;

- Buffer Tank (Sludge): Settled sludge from the thickener is stored in the buffer tank to ensure a consistent feed to the elevated filter press. The sludge buffer tank features a set of agitators to ensure sludge consistency is maintained;
- Buffer Tank (Recycled Water) : Holds the recycled water recovered from the thickener and filter press for re-circulation back to the washing plant. Topped up using water from the on-site water management system. The wash plant is designed to recover and re-use 95% of the water.
- Plate Filter Press : Slurry is pumped into the filter press from the sludge buffer tank. Solids build up on the filter cloth, forming the filter cake. The filtrate exits the filter plates through the corner ports, yielding clean filtered water which is pumped to the recycled water buffer tank. Once the cycle is complete the filter cake is released into the discharge area and the cycle is repeated;
- Filter Cake Discharge Area : The filter cake contains 85% dry solids and is picked up by a front-end loader and transferred via haulage truck for placement / disposal at the adjoining lined landfill facility.
- Backloading Truck Wash System : A washdown area will be established to the side of the filter press which will facilitate cleaning of HGVs if required prior to reloading with recycled aggregates produced on site. Water used for this purpose will be sourced from, and excess water returned to, the adjoining wash plant.

2.70 Top-up water for the plant will be provided by capturing run-off from the surrounding paved area in a sump beside the wash plant and pumping it to the recycling tank. This will be further supplemented by run-off captured by the on-site water management system at other waste areas around the facility.

2.71 There will be no surface water / groundwater emissions or off-site discharges arising from the proposed soil washing and aggregate recovery activities as all process water will be re-circulated within a closed loop system. As such, there is no requirement to make provision for treatment for any process water associated with the soil washing activity.

2.72 All elements of the washing plant are either mobile or largely self-standing and can be readily lifted into place, assembled in-situ and relocated / removed as required. Most of the plant will be supported on the existing concrete slab which extends across the former production yard. Shallow concrete foundations will be required to support the log washer, screens, sand plant and elevated plate press which dewaters the thickened sludge to form a filter cake. Sub-surface service ducting will also be required for power and water circulation and water capture / recovery.

2.73 The proposed wash plant location is shown in Figure 2-2, while the plan configuration and elevations of the soil washing / aggregate recovery plant are shown in Figures 2-9A and 2-9B.

Proposed C&D Waste Recovery Shed

2.74 It is proposed to construct a large, roofed portal frame structure, ~~open on two~~ closed on all sides at the existing paved concrete area to the west of the site access road. All future C&D waste processing, crushing and recovery activities will take place within this structure in order to reduce noise and fugitive dust emissions.

2.75 The proposed structure will be of portal frame steel construction and will have a plan footprint area of approximately 42m long by 36m wide, with the long axis orientated in an east-west direction. The structure height will vary from 10m at the haunch (top of sidewall column supports) to a maximum of 12m at the roof apex. Roof mounted solar panels will provide renewable energy for the proposed development.

2.76 The supporting columns for the proposed C&D waste recovery shed will be founded on shallow (pad) foundations and will be cross braced along the long axis to provide lateral stiffness. The sides of the structure will comprise a concrete wall to 3.5m above ground, with the remainder of the side walls clad to haunch level by single skin steel wall panels supported on side rails. Roof panels will be carried on purlins. There will be further cross-bracing between structural frames at roof level to enhance lateral stiffness as required. Plans and elevations of the recovery shed are shown in Figure 2-10.

2.77 It is envisaged that once C&D waste recovery infrastructure is established at Ballinclare Quarry, mobile crushing plant will be brought to the facility periodically (when sufficient quantities of solid recyclable C&D materials have accumulated in external stockpiles).

2.78 During recycling campaigns, the crushing plant will be set up on the paved concrete floor within the ~~open~~-sided waste recovery shed. The recyclable C&D wastes will be transferred from external stockpiles to the mobile crusher within the shed to produce recycled (secondary) aggregates.

2.79 Once crushed and processed, the recycled materials will be moved from inside the shed to external stockpiles pending testing (to confirm compliance with recently published EPA End of Waste criteria) and/or subsequent sale and export off site, most likely for re-use in pavement or road construction.

2.80 Storm water run-off from the shed roof will be captured in pipe drains and open channels and flow to the existing settlement ponds before being discharged off site without any further treatment to the Potters River.

2.81 Run-off from paved concrete surfaces will be collected by sub-surface drains and/or perimeter channels and passed through a silt trap and hydrocarbon interceptor before being pumped to the water recycling / storage tanks at the soil wash plant. Run-off may also be directed to the proposed Integrated Constructed Wetland or temporary balancing ponds constructed at backfilled quarry areas (depending on which phase of landfilling is ongoing and whether or not there is a potential water deficit at the facility at the time).

Lighting

2.82 External lighting is currently fixed to a number of existing structures along the internal site access road and around the former quarry. The existing lighting, together with some additional external lighting to be fixed to the proposed soil wash plant and C&D waste recovery shed, will provide illumination along the site access road and to working areas adjoining the wash plant and C&D waste recovery shed during early morning and late evening periods over winter months. In addition, lighting to active backfilling / landfill areas within the quarry void will be provided by mobile plant and/or mobile lampstands as required.

Equipment Storage

2.83 Mobile plant and equipment used in backfilling / landfilling operations will be stored on hardstand areas within the application site. As access to the site can be restricted outside of working hours, it is not considered necessary to provide a dedicated, secure compound for plant and equipment within the waste facility.

2.84 Storage for small items of plant and equipment, replacement parts, minor quantities of hydraulic oil and/or lubricants, storage of minor quantities of liquid (oil) waste, safety clothing and equipment will be provided in the existing garage / workshop at the northern end of the site access road, at the location shown on the development layout plan in Figure 2-2.

2.85 In addition to providing for storage of potentially hazardous oils / waste liquids over spill pallets, internal bunding may also be provided to contain any potential leaks or spills of any potentially hazardous stored oils or waste liquid.

Fuel and Oil Storage

2.86 Fuel for mobile plant based at the facility will be stored in the existing bunded fuel storage tanks (capacity 53,000 litres) located along the back (eastern) wall of the garage / workshop at the northern end of the site access road. The bunds have a volume of at least 110% of the largest tank.

2.87 Refuelling of mobile plant and machinery at the facility will generally take place over the existing concrete hardstanding area in front (east) of the fuel tank. Surface water run-off from the concrete hardstand area is captured by sub-surface drainage pipes and passed through an existing hydrocarbon interceptor before being discharged to ground via an existing soakaway / infiltration area. The existing interceptor will be cleaned out and fully serviced prior to commencement of soil / C&D intake to the proposed facility.

2.88 On other occasions, and only when necessary, mobile plant will be refuelled directly from a mobile fuel tanker over paved concrete surfaces. The location of the existing fuel tank, hardstand area and hydrocarbon interceptor are shown on the development layout plan in Figure 2-2 and Figure 2-3.

Plant Maintenance

2.89 There is an existing workshop at the quarry for the routine servicing, maintenance and/or repair of plant and machinery. As previously noted, oils and lubricants (including liquid waste materials) are stored under cover, on pallets and bunds within the workshop.

2.90 Some maintenance of plant and machinery may also be undertaken over the paved concrete slab in front (east) of the fuel storage tanks, over the paved slab at the C&D waste recovery area or at the existing service pit along the eastern side of the existing access road. More extensive or non-routine repair or maintenance of plant will take place at off-site locations.

Waste Inspection and Quarantine Facility

2.91 It is proposed to designate the former aggregate storage shed at the southern site boundary (at the southern limit of the former concrete / asphalt production area) as the on-site waste inspection and quarantine facility. The shed is roofed, closed on three sides and has a concrete floor, thereby protecting any suspect waste which might be transferred and held there from incident rainfall and avoiding the potential to generate (suspect) contaminated surface water run-off (and a requirement for separate wastewater collection and storage infrastructure).

2.92 Any soil and stone / C&D waste which is accepted for intake to the facility but is subsequently suspected to be non-inert and/or non-compliant with approved waste acceptance criteria will be transferred to the waste inspection and quarantine facility by HGVs for closer examination and/or follow-up testing.

2.93 Should subsequent inspection and/or testing of suspect waste held at the inspection and quarantine facility identify any non-inert material which cannot be accepted and managed at the proposed facility, it will be segregated and temporarily stockpiled (quarantined) pending removal off site by permitted waste collectors to an authorised waste disposal or recovery facility.

2.94 Provision will also be made for temporary storage of any separated non-inert construction and demolition waste (including metal, timber, plastic etc.) in skips at this location (and at

the C&D waste recovery area) prior to their removal off site for recovery or disposal at an authorised waste facility.

INERT LANDFILL DESIGN

2.95 The existing quarry void at Ballinclare Quarry is approximately 70m deep at its deepest point, with sub-vertical faces around the perimeter. The quarry void is currently accessed via two haul roads, one from the centre and the other from the south-eastern corner. Both accesses are descents formed by cutting into bedrock.

2.96 The diorite bedrock at Ballinclare Quarry is classified by the Geological Survey of Ireland (GSI) as a '*poor aquifer (PI) which is unproductive except in local zones*'. GSI mapping also indicates that the quarry is not located within a source protection area. Guidance on Groundwater Protection Responses for Landfills published by the GSI suggests that this hydrogeological setting is generally suitable for landfill development, subject to EPA landfill design guidance and/or conditions attached to a waste licence.

2.97 The requirements set out by the EPA Guidance for inert landfill sites are that the lining system should comprise the following :

- *Base and side wall mineral layer of **minimum** thickness 1m with a hydraulic conductivity less than or equal to 1x10^{-7} m/s or a 0.5m artificial layer of enhanced soil or similar giving equivalent protection to the foregoing.*

2.98 It is envisaged that at this facility, the basal lining system for the inert landfill will comprise a minimum 1m thick layer of uncontaminated low permeability compacted soil. It is most likely to comprise pre-selected, excess well graded clayey glacial till, sourced from construction activities at greenfield sites (which were not previously developed) across the wider region.

2.99 Soils to be used for construction of the basal liner will be imported to site as a non-waste by-product for engineering use rather than as waste. These soils will be placed and compacted intermittently (on a campaign basis) in accordance with an engineering specification. Where acceptable and feasible to do so, filter cake / dewatered fines material from the soil washing plant which would be expected to have very low permeability could also be used for landfill lining purposes. The basal liner will have an upper formation level of approximately 38mOD and will be subject to verification testing to confirm that it achieves the target hydraulic conductivity / permeability value required for an inert landfill in advance of any subsequent landfilling activity above it.

2.100 Around the perimeter of the existing quarry, a steepwall lining system will be installed progressively upwards from the lined quarry floor, against steep sections of the quarry face, as landfilling activities also progress upward. Above the crest of the quarry faces, the flatter ground or shallow slopes would be trimmed and lined, in a similar manner to that required for the basal liner across the quarry floor area.

2.101 The steepwall lining system will comprise a minimum 2m wide clay liner installed immediately against the face of the quarry. Some greater liner thickness may be required where the existing quarry face is uneven and irregular. As with the basal liner, the source soils for the sidewall liner are likely to be excess uncontaminated clayey glacial tills generated by construction activities at greenfield sites and will be subject to similar placement and verification procedures.

2.102 A leachate drainage system (to collect and remove water percolating through the waste body) is not required for an inert landfill and as such, no provision is made for it at the proposed landfill facility.

2.103 There are currently several stockpiles and a locally deeper quarry bench (extending to approximately 22mOD) located on the existing quarry floor. It is envisaged that the locally deeper bench which is partially flooded at the present time will remain in place over the initial phase of landfill development (Phase 1A) and will effectively function as a sump to collect all run-off and groundwater inflow which does not come into contact with backfilled waste materials over the initial phases of quarry backfilling (Phases 1A through to Phase 1C).

2.104 As landfill activities progress closer to the sump however (during Phase 1C landfilling), it will be progressively backfilled with site sourced materials (principally excavated rock and stockpiled aggregates) or soil imported from external greenfield sites (as non-waste or by-product) The use of these materials means that the deeper bench / sump at the quarry will effectively be backfilled using natural site-sourced or non-waste materials, creating a level formation area over which the 1m deep engineered basal clay liner can be constructed (to provide an upper (formation) level of approximately 38mOD).

2.105 The European Landfill Directive (1999/31/EC) and the EPA Landfill Design Manuals do not require an inert landfill to have an upper low permeability barrier (also referred to as an engineered capping layer). Notwithstanding this, the likelihood is that the inert soil waste imported and placed at the proposed landfill at Ballinclare Quarry will predominantly comprise low permeability clayey till and will, in practice, effectively behave as a capping layer.

2.106 The EPA guidance on Landfill Restoration and Aftercare advises that the final capping and restoration scheme for an inert landfill should comprise topsoil and subsoil, thickness dependent on after-use, but to a minimum combined depth of 0.65m. It has been assumed for conceptual design that a minimum of 150mm of topsoil and 500mm of subsoil will be used for the final restoration of the completed landfill landform at Ballinclare Quarry.

Formation Levels and Phasing

2.107 Final formation levels on completion of the landfilling and restoration works will vary on account of the sloped nature of the surrounding original, pre-quarrying landform. Rather than restore the site to its original pre-development landform however, it is proposed to backfill it to a maximum level of 80mOD along the northern boundary and to leave approximately 15m of existing rock face exposed to facilitate continued nesting by peregrine falcons at this location.

2.108 Backfilling at other areas around the former quarry area will extend up to the surrounding (original) ground level which typically falls from north to south, to a level of approximately 55mOD to 60mOD along the southern boundary.

2.109 The final, restored landform at Ballinclare Quarry will comprise a very slightly domed / sloping plateau which extends across the northern quarry area and falls from a ground level of 80mOD to surrounding undisturbed ground levels of between 55mOD and 60mOD, as shown in the restoration plan in Figure 2-4. Corresponding cross-sections are shown in Figures 2-5A and 2-5B.

2.110 It is envisaged that the existing quarry at Ballinclare will be restored in three distinct phases. The landfilling Phase 1 works will initially progress cross the deeper quarry void from the existing quarry floor to approximately 60mOD in four distinct sub-phases, identified as Phases 1A to 1D as shown in Figure 2-11 to Figure 2-14.

2.111 Of the 4 sub phases,

- Phase 1A comprises the initial inert landfilling cell at the western end of the quarry,
- Phase 1B comprises an inert landfill cell at the eastern end of the quarry;

- Phase 1C comprises a landfill cell extending eastward from Phase 1A toward the quarry sump. While this cell is under construction, the deeper quarry area between 22mOD and 37mOD (which will function up to this stage as a sump for surface water run-off and groundwater inflows) will be backfilled using a combination of site-sourced materials and imported non-waste (by-product) materials;
- Phase 1D will comprise one further inert landfill cell in the centre of the quarry (constructed over the deeper quarry area backfilled during Phase 1C).

2.112 Each inert landfill cell will be initially developed by placing a 1m thick layer of low permeability material across the quarry floor to form the basal liner. The liner would not have to cover the whole basal area of any defined landfill cell area to facilitate placement of inert soil and stone waste. A minimum area of liner would however have to be in place to ensure that there is sufficient space to allow HGVs and landfill plant to operate.

2.113 Low rise clay bunds will be constructed at the base of active (lined) landfilling areas / cells to permit localised capture and management of any surface water run-off (which may be impacted or lightly contaminated by contact with the inert soil waste) in temporary sumps / ponds behind them. Surface water run-off collecting in these sumps will be managed separately to surface water run-off and groundwater inflows from non-landfill areas which will collect in the deeper sump area.

2.114 In addition to preventing surface water run-off water from flowing over exposed bedrock on the quarry floor, the collection of surface water run-off in temporary sumps within landfill cells will also facilitate some initial settling out of suspended solids before it is pumped to the soil wash plant or fed to the on-site water management system for subsequent treatment and off-site discharge if required'

2.115 The installation of the basal liner will progress in line with the importation of suitable low permeability by-product materials as landfilling with inert waste extends laterally and/or progresses upwards Once the basal extent of each landfill cell has been reached, the installation of the steepwall liner against the quarry side walls will progress upward and the open front face of the landfilled inert waste will be sloped back at a suitable (i.e. safe) gradient.

2.116 Although the proposed approach reduces the volume of low permeability clay by-product material to be imported to the facility for engineering (lining) purposes at the outset, it is expected that suitable soil by-product material will be imported on an ongoing basis over the operational life of the facility as it becomes available from construction and application sites. The imported soil by-product will either be used immediately for engineering (lining) purposes at the landfill cells or alternatively, could be stockpiled, to be placed on a campaign basis at a later date (either by site-based personnel or by an appointed earthworks Contractor).

2.117 The deeper quarry excavation area (extending to 22mOD) will serve as a large sump to drawdown groundwater levels and capture surface water run-off for the duration of landfilling Phases 1A and 1B. As this area is backfilled over the course of Phase 1C, it will be necessary to install riser wells to facilitate the continued operation of the groundwater collection system required to control groundwater uplift pressures beneath the basal liner during subsequent Phase 1 landfilling operations. Riser wells will continue in operation until such time as the weight of fill placed above the basal liner exceeds the potential uplift pressures acting it. Once they are no longer required, these wells will be backfilled with bentonite to create an effective seal through the basal liner.

2.118 Over the course of Phase 1C, temporary storage (balancing) ponds will also be constructed at a higher level in areas backfilled previously (during Phases 1A and/or 1B). These balancing ponds will hold and retain water which has not come into contact with

backfilled waste materials which has been captured separately and pumped up from the quarry floor. Balancing ponds are required after Phase 1C to manage and address a potential deficit which might otherwise arise in the volume of run-off available to supply the soil wash plant (were it to be immediately discharged off-site).

2.119 Following completion of Phase 1 landfilling to 60mOD (as indicated in Figure 2-14), a sloped landform will be constructed above it, rising north and eastwards against the existing rock face to a maximum of around 80mOD. The extent, height and shape of the proposed Phase 2 landform are indicated in Figure 2-15. As for the Phase 1 landfilling, a steepwall liner will be constructed against the quarry face and low-rise clay bunds will be constructed at the base of active landfilling areas / cells to permit localised capture and management of any surface water run-off in contact with the inert soil waste.

2.120 In Phase 3, landfilling will progress southwards across the former concrete / asphalt production area, following decommissioning of the soil washing plant. Landfilling will progress from the existing floor level of approximately 50mOD to a final restored level which falls from approximately 80mOD in the north to 55mOD in the south, as indicated in Figure 2-16. A sump to collect surface water run-off in contact with the landfilled waste will be provided throughout this phase at the existing low point in the south-eastern corner of this area.

2.121 The area around the existing aggregate storage shed on the southern limit of the landfilling area (which will be re-used as a waste inspection and quarantine shed for the duration of the on-site waste activities) will be last area to be landfilled and restored.

2.122 Once landfill cells have been backfilled and capped to the proposed final level, they will be progressively restored to a native woodland habitat. As well as improving the landscape and visual characteristics of the site, the establishment of vegetation across completed landfill cells will also reduce soil erosion and the potential volume of suspended solids carried in surface water run-off.

2.123 Note that the phasing plan outlined above is indicative and will need to be reviewed based upon anticipated input rates of inert soil and stone waste and the availability of low permeability by-product material for engineering (lining) purposes.

Slope Gradients

2.124 Temporary side slopes in the sidewall liner and landfilled soils will be graded at an angle no steeper than 26° (approximately 1v:2h), sufficient to ensure no large-scale instability arises over the short-term. Ongoing assessment of slope stability will be undertaken at the application site as landfilling progresses.

2.125 In the longer-term, once landfilling and final restoration works are complete, there will be no risk of instability, as the final ground surface will be graded to a relatively shallow slope, similar to the natural slope which existed prior to the quarry development. Permanent restored slopes on completion of the filling and restoration activities will be comparable to those on surrounding lands, generally shallower than 1v:5h (11°) and everywhere shallower than 1v:2h (26°).

2.126 Temporary access ramps in and out of active filling areas will be at a gradient of approximately 1v:10h. Temporary side slopes in soil will be constructed at gradients no greater (steeper) than 1v:2h in order to ensure stability.

2.127 Given that the bulk of the soil materials to be imported to site for landfilling and restoration purposes are likely to be relatively competent glacial tills, no long-term slope instability is anticipated to occur. This assertion is made in view of the fact that glacial till slopes of 1v:2h are routinely constructed for infrastructure projects across Ireland and are demonstrably stable.

Water Management Infrastructure

2.128 When it was operational, the former quarry was effectively worked dry with very little inflow of groundwater ingress into the quarry void. This observation is consistent with the GSI classification of the bedrock as a poor aquifer.

2.129 A quarry sump located at the lowest level on the quarry floor collected any surface water falling over the void area as well as any minor inflows of groundwater which occurred. This water was recycled and used in concrete production activities and on-site dust suppression, with periodic pumping of water to on-site storage tanks as required.

2.130 After quarrying ceased and management of quarry water was suspended in 2016, the quarry void was partially flooded. To enable the quarry to be re-engineered as an inert landfill, and as previously noted, the quarry void is currently being dewatered, with ponded waters being pumped to an on-site water treatment system and discharged to the Potters River, in line with an existing Local Authority discharge licence (Ref. WPL 116).

2.131 Once the quarry is dewatered and landfilling activities commence, the surface water management philosophy will be to ensure that surface water run-off in contact with the inert waste body is captured and managed separately to that which does not come into contact with it, as outlined in paragraphs below.

Surface Water Run-off / Groundwater in Contact with Landfilled Waste

2.132 From the outset, temporary surface water ponds will be formed behind earthwork berms at the low point of active backfilling / landfilling areas in order to capture any surface water run-off (or groundwater flows) which have been in contact with the body of backfilled waste. These ponds will facilitate some initial settling out of suspended solids before the water collecting in them is either recirculated within the landfill cell itself or pumped to recycling / storage tanks for subsequent use in soil washing.

2.133 Any excess water held in temporary ponds / sumps at active landfill areas thereafter will be pumped across to the proposed Integrated Constructed Wetland (ICW) for treatment and removal of contaminants prior to off-site discharge to the Ballinclare Stream and Potters River.

2.134 During the initial phase of landfill development, any excess water build-up in ponds at the active (Phase 1A) landfill areas which is not recirculated or recycled at the soil wash plant will be tankered off-site and brought to a Local Authority wastewater treatment plant for treatment. This arrangement is necessary at the outset while the proposed Integrated Constructed Wetland (ICW) is constructed and the vegetation therein becomes sufficiently well established to take up any contaminants in any run-off passing through it.

Surface Water Run-off / Groundwater from Non-Landfill Areas

2.135 The proposed phasing of landfill cell development within the existing quarry void endeavours to keep the existing deeper bench / sump in the middle of the existing quarry floor in use for as long as possible (expected to be up to Phase 1C landfilling stage) and to collect all surface water run-off and groundwater inflow across the quarry footprint (and the former production area in the south-eastern corner of the application site) which does not come into contact with backfilled or stockpiled wastes.

2.136 When necessary and when capacity is available, water collecting in the sump will be pumped to recycling / storage tanks and used for soil washing at the nearby plant or for on-site dust suppression. Any excess water remaining at the sump will be pumped to the existing water treatment plant (to remove metals / suspended solids) and discharged off off-site thereafter via the existing series of settlement ponds.

2.137 As noted above, previous experience of operating the quarry is that the surrounding volcanic rock is relatively tight, with relatively limited volumes of groundwater flowing through it. The volume of the groundwater contribution to waters collecting in the sump is therefore expected to be low, with the bulk of any water removed comprising rainfall and/or surface water run-off over the exposed quarry floor area (i.e. that floor area which has not been backfilled and/or is not being actively backfilled).

2.138 After Phase 1C landfilling, as the lower excavation / sump area is being backfilled, a number of temporary balancing ponds will be constructed at restored quarry areas to retain the surface water run-off from the quarry floor (and the former production area in the south-eastern corner of the application site). As previously noted, temporary balancing ponds are required over the later landfilling stages (Phase 1D, Phase 2 and Phase 3) to manage and address a potential deficit which would otherwise arise with the volume of surface water run-off available to supply the soil wash plant (were it to be discharged off-site).

2.139 Schematic details of the surface water management system to be implemented across the inert landfill area at each phase of development are shown in Figure 2-11 to Figure 2-16.

Control of Uplift Pressures

2.140 As previously noted, it will be necessary to install a groundwater control system across the quarry floor and beneath the proposed clay liner system on completion of quarry dewatering to ensure that is it not damaged by hydrostatic uplift pressures. It is envisaged that the drainage system at the base of the quarry / inert landfill cells will comprise a herringbone system of granular drainage channels and that these would feed groundwater inflows to a collection point at the deeper excavation in the middle of the existing quarry floor which effectively acts as a sump over the initial landfilling stages (Phases 1A to 1C).

2.141 During Phase 1C of landfilling, riser pipes will be installed at the sump area to facilitate the continued operation of the groundwater collection system which controls uplift pressures beneath the basal liner. Submersible pumps will be placed in these risers and will continually lift and remove any dewatered groundwater collecting in them. Pumping will continue until such time as the overlying inert waste has reached a depth / height where the weight of waste exceeds the maximum uplift pressure from surrounding groundwater. At that point in time, pumping of groundwater is likely to cease and the riser pipe will be decommissioned by backfilling it with bentonite.

Initial Landfill Restoration Stages

2.142 As the inert landfill is progressively restored, surface water ditches will be constructed as part of the works to capture surface water run-off flowing toward the backfilled landform and divert it, without any requirement for treatment, to a discharge point along the Ballinclare Stream on the western side of the application site (see Figure 2-11).

2.143 Should it be necessary to ensure sufficient treatment capacity is available for surface water run-off arising at remaining active soil waste infill areas, some provision is also made for the construction of a vegetated channel / swale in the north-western corner of the application site to capture surface water run-off from capped and restored landfill areas (Phase 1A) and to then divert it (if necessary) without any requirement for further treatment, to a discharge point along the Ballinclare Stream (see Figure 2-11).

2.144 The proposed swale feature would be developed in previously undisturbed, natural ground and would be sized so as to substantially reduce the concentration of suspended solids which may arise in any run-off across the upper surface of capped / restored landfill areas.

Water Treatment Infrastructure

2.145 At the current time, water ponded in the existing quarry void is being discharged off-site to the Ballinclare Stream and Potters River under the terms of the existing quarry planning permission and a trade effluent discharge licence issued by Wicklow County Council in November 2019 (Ref. WPL116).

2.146 Although dewatering of the quarry is progressing at close to the maximum rate permitted by the trade effluent discharge licence, it is expected that once dewatered, future off-site discharges will be at a notably lower rate during the landfilling / operational phase, particularly as much of the collected run-off will be diverted for use in soil washing and/or dust suppression. The operational phase will extend for a period of up to 25 years and will be dependent on the rate of soil and stone / C&D intake to the proposed facility (as waste and/or by-product) and the proportion of that which can be processed at the wash plant to obtain construction grade sand and gravel aggregate for re-sale and export off-site.

2.147 The approved water treatment system which is currently installed on-site to facilitate the ongoing quarry dewatering comprises a bespoke Siltbuster treatment system and is necessary to treat naturally elevated levels of arsenic which were observed in the ponded water collecting in the quarry void. As well as reducing arsenic concentrations, the unit is also quite effective in removing suspended solids from the ponded water. The existing water treatment system will remain in service to complete the ongoing quarry dewatering and also prevent the quarry void being reflooded by waters with arsenic levels significantly elevated above the background levels recorded in nearby groundwater abstraction / monitoring wells. It is envisaged that the existing on-site Siltbuster treatment system will remain in service for the duration of the proposed materials recovery / recycling and landfilling activities.

2.148 In waste management, 'leachate' is the term assigned to the slightly contaminated liquid that is generated as influent rainwater and/or groundwater flows over or through a waste mass, picking up soluble and particulate matter as it moves to a low point at the base of the landfill.

2.149 Landfill leachates have varying compositions that reflect the types of wastes deposited, through which rainfall percolates. There is on-going generation of leachate from rainfall and groundwater sources over the operational life of a landfill. As a result of the containment provided by the basal and side liners, any leachate from the landfilled mass needs to be captured, removed and treated prior to being discharged off-site.

2.150 Based on SLR's past experience, it is likely that the inert waste landfill at Ballinclare will generate leachate that will have little or no ammoniacal nitrogen, BOD and COD but could potentially elevated concentrations of sulphate, reduced pH and detectable concentrations of metals. In addition, some hydrocarbons and/or organics could also be present.

2.151 Leachate may also be generated for a period after landfilling activities have ceased. Once landfilling activities are complete and capped (covered) with low permeability soils, the infiltration of rainfall and the volume of leachate generated will be reduced.

2.152 A number of potential leachate treatment and disposal options were considered for the proposed inert landfill and waste recovery facilities at Ballinclare in addition to the existing water treatment system (which, as noted above, is principally required to deal with elevated arsenic levels in water which ponds in the quarry void). Arising out of this review, it was considered that the most suitable option for treatment of any leachate requiring reduction of inorganic substances would be an on-site (passive) wetland treatment system.

2.153 When installed in parallel, wetland areas can be independently placed out of service to allow for remediation and replenishment of infiltration / substrate media whilst still allowing on-going treatment of leachate through an active bed. Wetland treatment systems have a low visual and amenity impact and require little on-going intervention once installed. The main drawback which can arise with wetlands is that they often require a large footprint area to treat anticipated input volumes.

2.154 As the inert landfill is not currently in existence at Ballinclare Quarry, some initial assumptions have had to be made about the likely quality of leachate that will be produced by the inert landfill and the volumes that will be generated over time. For the purposes of this development proposal and EIAR, worst case scenarios have been considered both in terms of leachate quality (most problematic in terms of composition) and volume (highest generation volume).

2.155 An initial assessment indicates that there is sufficient spare land available at Ballinclare Quarry for a wetland treatment system at the western site area, adjacent to the planned landfill footprint. For initial sizing / EIA purposes, it has been assumed that the volume of leachate requiring treatment at the proposed waste facility will be limited by progressive capping and/or restoration of the landfill landform over its operational life. Thereafter, worst case scenarios have been considered both in terms of leachate quality (most problematic in terms of composition) and volume (highest generation volume).

2.156 Should it be necessary, the effectiveness of wetland treatment systems can be enhanced by the temporary addition of various, more active treatment systems, such as chemical dosing, aeration or other such processes. This can allow a wetland system to handle higher contaminant loads or flows for periods of time (should it be necessary) before reverting to more standard modes of operation, therefore providing flexibility should leachate generation rates and chemical constituents change over time.

2.157 Based on the initial assessment and design, the proposed wetland treatment system for leachate from landfilled areas at Ballinclare Quarry will comprise the following :

(i) A wetland treatment system : comprising the following elements in series
  (a) Anaerobic (biochemical reactor) wetland;
  (b) Iron Sequestering Unit (ISU);
  (c) Aerobic wetland

(ii) A leachate reception tank : up to 50m^3, self-bunded storage tank with level controls.

(iii) A pump house : housed is a standard shipping container (6.0m x 2.4m x 2.6m) containing feed, discharge and chemical dosing pumps;

(iv) Off-site discharge via existing ditch / drainage channels to the Ballinclare Stream and the Potters River further downstream.

2.158 Based on the assumption that the leachate flow rate is generated from a progressively capped / sealed inert landfill, the area of on-site wetland required at Ballinclare Quarry is initially assessed to be of the order of 1.06 hectares. The location and approximate dimensions of the proposed wetland treatment area is indicated in Figures 2-12 to 2-16, while some construction details are provided in plans and sections in Figure 2-17.

SITE PREPARATION WORKS

2.159 Prior to commencement of the recycling / recovery and backfilling activities at the application site, the following site preparation works will be required :

- Securing existing site perimeter with additional fencing / planting as required; (including deer fence);

- Completing the dewatering of the quarry void in advance of engineering (lining) works and inert waste landfilling activities;
- Felling of a small number of mature trees along the western side of the existing internal access road to facilitate its widening and construction of 2 internal queuing lanes for HGVs;
- Modification / upgrade of existing drainage channel along the site access road to facilitate construction of additional queuing lane and the increase in paved area along site access road.
- Installation of silt trap and hydrocarbon interceptor to treat run-off and provision of additional pumping capacity to transfer it from existing surface water pond at site entrance to quarry sump;
- Installation of a silt trap and hydrocarbon interceptor at the proposed C&D waste recovery facility;
- Cutting and mulching of any existing scrub and vegetation across the proposed development footprint and off-site removal to authorised waste facilities (to be undertaken in phases prior to commencement of works in designated areas);
- Decommissioning and dismantling of any other legacy infrastructure from prior development (e.g. production plant, metal, WEEE, additives etc.) and removal off-site to other Kilsaran production sites or authorised waste facilities as required;
- Reconfiguration of existing site office and re-establishment of staff welfare facilities;
- Installation of new weighbridge at the northern end of inbound lane along internal access road;
- (Re-)commissioning the existing wheelwash facility on outbound lane of site access road and construction of an additional wheelwash facility on the eastern side of former concrete / asphalt yard (in the south-eastern corner of the site);
- Minor repair / maintenance / upgrading works to existing bunded fuel storage area and concrete slab with sub-surface drainage to hydrocarbon interceptor and soakaway area;
- Maintenance and continued use of previously approved septic tank and wastewater treatment facilities and installation of sub-surface concrete wastewater holding tank (to augment existing capacity);
- Maintenance and continued use of existing (Siltbuster) water treatment plant to treat off-site discharge from sump in quarry floor and/or water balancing ponds;
- Excavation, clearance and levelling of existing ground at proposed wetland area and construction of the wetland treatment area;
- Installation and commissioning of the soil washing plant in the former concrete / asphalt yard;
- Construction of the proposed concrete portal frame structure at the C&D waste recovery facility at the paved area to the west of the access road;
- Construction / installation of surface water drainage infrastructure between the inert landfill area, recovery shed and C&D waste recovery area, existing settlement ponds and proposed wetland area;
- Upgrading of existing internal access roads across the site leading to the initial landfill cell (Phase 1A) on the western side of the quarry, the soil washing plant, C&D waste recovery facility and wetland area;
- Establishment of biodiversity enhancement features; and
- Establishment of environmental control and monitoring infrastructure.

2.160 It is likely that some or all of the proposed site establishment / pre-commencement works outlined above will be subject to prior agreement and oversight of the EPA, in accordance with standard conditions attaching to any EPA waste licence issued in respect of proposed on-site waste recycling / recovery and disposal activities.

WASTE OPERATIONS AND PROCEDURES

2.161 The proposed landfilling and restoration of the former quarry at Ballinclare using inert soil and stone waste and the proposed soil / C&D waste recovery activities at the soil waste plant and recovery shed comprise the following classes of waste activity in accordance with the Waste Management Acts 1996 – 2023:

- Class D1 : Deposit in, on or under land. This activity principally provides for use of inert soil and stone to backfill the former quarry void and substantially reinstate the original (pre-quarry) sloping landform to 80mOD.
- Class D5 : Specially engineered landfill, (e.g. placement into lined discrete cells which are capped and isolated from each other and from the environment). This is the principal waste activity and references the requirement for a low permeability clay liner at the base and sides of landfill cells as part of the overall phased development of the landfill.
- Class D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage (being preliminary storage according to the definition of “collection” in Section 5(l), pending collection on the site where the waste is produced. This provides for on-site storage of materials pending disposal to landfill, principally stockpiling of inert wastes prior to placement and final disposal at the inert landfill.
- Class R3 : Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes). This activity applies to proposed importation and use of topsoil for use in the final restoration of the backfilled landform.
- Class No. R5 : Recycling and reclamation of other inorganic materials, which includes soil washing resulting in recovery of the soil and recycling of inorganic construction materials This activity applies to the importation and use of inert soil and stones and C&D wastes for soil washing and/or processing at the recycling area to produce construction grade recycled (secondary) aggregate.
- Class No. R12 : Exchange of waste for submission to any of the operations R1 to R11. This activity provides for the segregation of intermixed C&D wastes (prior to removal / transfer to authorised off-site waste recovery facilities).
- Class No. R13 : Storage of waste pending any of the operations R1 to R12. This activity will be limited to the temporary storage of imported waste for on-site recovery (e.g. topsoil) or transfer to authorised off-site waste recovery facilities (e.g. segregated wood or metal).

2.162 The material to be imported and used for quarry backfilling and restoration purposes will comprise non-waste by-product, engineering material and waste. The inert soil and stone classified as waste to be placed within the engineered (i.e. lined) landfill facility will require a waste licence from the Environmental Protection Agency (EPA). A licence is also required in respect of the cumulative intake of soil / C&D waste for recovery purposes which will be of the order of 50,000 tonnes per annum.

Permitted Waste Intake

2.163 The extraction void at the application site will be backfilled using only inert soil materials (and engineering / by-product materials with some construction and demolition wastes for haul road construction) from external, pre-approved application sites which comply with the inert waste acceptance criteria set out in Section 2.1.2 of Council Decision 2003/33/EC dated 19 December 2002 establishing criteria for the acceptance of waste at landfills.

Particulate / Soil Waste Intake (for Disposal and Recovery)

2.164 No peat, non-inert / non-hazardous soils will be accepted at the proposed landfill facility. It is envisaged that the following wastes (with their respective List of Waste (LoW) Codes) will be deposited on land and landfilled at the application site:

- 01 01 02 Waste from mineral non-metalliferous excavations
- 01 04 12 Tailings and other waste from washing and cleaning of minerals
- 01 04 08 Waste gravel and crushed rocks other than those mentioned in 01 04 07
- 01 04 09 Waste sand and clays
- 01 04 12 Tailings and other wastes from washing and cleaning of materials other than those mentioned in 01 04 07 and 01 04 11
- 01 04 99 Wastes not otherwise specified*
- 10 10 06 Casting core and moulds which have undergone pouring*
- 17 05 04 Soil and stones other than those mentioned in 17 05 03;
- 17 05 06 Dredging spoil other than those mentioned in 17 05 05;
- 17 06 04 Insulation materials*
- 17 09 04 Mixed construction and demolition wastes*
- 19 09 02 Sludges from water clarification*
- 19 09 04 Spent activated carbon*
- 19 12 12 Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11*
- 20 02 02 Soil and stone from municipal facilities.

(* subject to licensing approval by the EPA)

2.165 The inert waste landfill will accept both soil and stones (LoW Code 17 05 04) which could also be acceptable for intake at (unlined) soil recovery facilities or which may not be acceptable for intake to such facilities for failing to meet any existing or future Waste Acceptance Criteria published by EPA.

2.166 Non-waste (or by-product) soil material will also be accepted at the landfill, principally for use in engineering works which will include the construction of basal and side wall liners and internal (separation) bunds within the inert landfill.

2.167 Approval may be sought by way of a waste licence application to the EPA in due course for an increase in the waste acceptance criteria limits for a number of parameters in soil intake for deposition at the landfill, as provided for in Council Decision 2003/33/EC.

2.168 Extending the soil intake limits in this way will allow the facility to accept soil waste for disposal which may contain elevated levels of sulphate and chloride (e.g. if sourced from a site in a coastal environment), if it contains naturally elevated concentrations of some parameters (such as antimony, molybdenum or selenium) or soil has been slightly impacted by previous site development.

2.169 Increasing the waste intake limits, as proposed, would permit wastes which would otherwise have to be diverted to non-hazardous landfills to be accepted at the proposed inert landfill at Ballinclare and, as such, will relieve some pressure on the limited intake capacity currently available at the 2 existing non-hazardous landfills in the region.

2.170 EPA approval may also be sought at licensing stage for disposal of soils containing rhizomes of a number of prescribed invasive species (including Japanese Knotweed, other knotweeds, Giant Hogweed and Himalayan Balsam) at designated disposal areas within designated engineered landfill cells. The management and handling of any impacted soil waste will be undertaken in accordance with a site-specific management plan which provides for its safe import and disposal. Such a plan will be submitted to and approved by the EPA as part of its waste licencing function.

C&D Waste Intake (for Recovery Only)

2.171 Any C&D wastes which are listed in Section 2.1.1 of Council Decision 2003/33/EC dated 19 December 2002 establishing criteria for the acceptance of waste at landfills are assumed to be inert and will be accepted for recovery at the proposed Construction Materials Management Facility at Ballinclare Quarry without prior testing. These wastes are denoted by the superscript (a) in Para. 2.173 below.

2.172 Other C&D waste streams accepted for waste recovery in mixed consignments will be segregated during materials recovery and processing at the recovery facilities. All segregated wastes will be placed in stockpiles / dedicated bays / skips inside the recovery shed and/or inspection / quarantine shed and will be transferred off-site to appropriately authorised waste recovery or disposal facilities.

2.173 It is envisaged that the following wastes (with their respective List of Waste (LoW) Codes) will be accepted for recovery at the proposed C&D waste recovery / recycling facility at the paved area to the west of the site access road:

- 10 12 01 Waste preparation mixture before thermal processing;
- 10 12 06 Discarded moulds
- 10 12 08 Waste ceramics, bricks, tiles and construction products (after thermal processing)
- 10 13 11 Waste from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
- 10 13 14 Waste concrete and concrete sludge
- 17 01 01[a] Concrete
- 17 01 02[a] Bricks
- 17 01 03 Tiles and Ceramics
- 17 01 07[a] Mixtures of concrete, bricks, tiles and ceramics
- 17 02 02[a] Glass
- 17-03 02 Bituminous mixtures other than those mentioned in 17 03 01

2.174 The following wastes (with their respective List of Waste (LoW) Codes) will be accepted for recovery at the soil washing plant at the former concrete / asphalt production yard:

- 01 04 08 Waste gravel and crushed rocks other than those mentioned in 01 04 07
- 01 04 09 Waste sand and clays
- 17 05 04 Soil and stones other than those mentioned in 17 05 03;
- 17 05 06 Dredging spoil other than those mentioned in 17 05 05;
- 17 05 08 Track ballast other than those mentioned in 17 05 07

- 17 09 04 Mixed construction and demolition wastes other than those mentioned 17 09 01, 17 09 02 and 17 09 03
- 19 12 09 Minerals
- 19 13 02 Solid waste from soil remediation other than those mentioned in 19 13 01
- 20 02 02 Soil and stone from municipal facilities .

2.175 Some non-waste (or by-product) material could also be imported for processing at the soil washing plant, potentially including marine aggregates.

2.176 It is envisaged that compatible non-hazardous waste streams will be accepted periodically at the materials recovery facilities (as at other EPA licenced facilities), subject to prior agreement with the Agency. Any additional hon-hazardous waste intake agreed will be within the overall intake limit set by planning permission and any waste licence issued in respect of the proposed facility.

2.177 Other C&D waste streams accepted for waste recovery in mixed consignments will be segregated during materials recovery and processing at the recovery facilities. All segregated wastes will be placed in stockpiles / dedicated bays / skips inside the recovery shed and/or inspection / quarantine shed and will be transferred off-site to appropriately authorised waste recovery or disposal facilities.

Waste Intake and Acceptance Procedures

2.178 All inert soil / C&D waste materials will be transported to the proposed materials recovery / recycling facility and inert landfill at Ballinclare Quarry using heavy goods vehicles (HGVs) comprising a mix of rigid body lorries and articulated trucks. All HGVs importing inert wastes (or by-product) to the facility will be required to pass over the new weighbridge which is to be installed at the northern end of the existing access road into the site.

2.179 On arrival, HGV drivers carrying the waste intake materials will identify themselves to staff at the site / weighbridge office before proceeding to the active backfilling / landfilling area or the C&D waste recovery A barrier system will be installed at the weighbridge to restrict unauthorised access to the active backfilling / landfilling area or the C&D waste recovery. Staff will record the time and date of arrival, the nature, origin and weight of the imported materials (whether waste or by-product / engineering materials), the customer / Client name, the truck licence plate number, any relevant waste collection permit details and any further details which may be required by the EPA waste licence before permitting access to the active backfilling / landfilling area or the C&D waste recovery facilities. All records of by-product and waste intake will be maintained on site for tracking and auditing purposes.

2.180 The source of each large consignment of soil imported to site for landfilling purposes shall be identified in advance and subject to basic characterisation testing to confirm that it is inert according to the criteria set by Council Decision 2003/33/EC and complies with site acceptance criteria. ~~Ideally~~, A site investigation report or similar detailing the characterisation testing undertaken and results of testing will be submitted for approval in advance by customers, clients or sub-contractors intending to forward soil and stone materials to the facility. A suitably qualified person shall review the Site Investigation Report and determine if the material is suitable for acceptance. All HGVs transporting waste to the site must hold a valid Waste Collection Permit issued under the Waste Management (Collection Permit) Regulations 2007. Details of the hauliers permit shall be issued in advance. Prior to accepting waste materials, a letter of suitability shall be issued by a suitably qualified person at the source site. Specific conditions if required will be outlined and agreed by the source site. Onsite CCTV cameras at the weighbridge will be fitted with vehicle recognition software to ensure the vehicle is pre-approved and carries a

waste collection permit. A CCTV image for every consignment / load of soil imported to site will be recorded and retained.

2.181 Operating procedures at the facility will require all wastes forwarded for landfilling and/or recovery purposes to be pre-sorted at source, inert and free any non-hazardous / hazardous domestic, commercial or industrial wastes. Any waste consignment arriving at the facility which is identified with intermixed non-hazardous / hazardous wastes on foot of a CCTV / visual inspection at the weighbridge will be deemed unacceptable, will be immediately rejected and re-directed off-site to an alternative authorised (i.e. permitted or licensed) waste facility.

2.182 All inert soil and stone imported to the inert landfill facility will be unloaded (end-tipped) from HGVs at active landfilling areas. In addition to prior visual / CCTV inspection at the weighbridge, it will be further inspected by trained site-based personnel at the landfilling area to ensure that there is no non-hazardous or hazardous waste intermixed with it. Should any intermixed, non-inert waste or olfactory evidence of contamination be identified at this point, the entire consignment will be rejected and reloaded back onto the truck / HGV and the haulier directed to remove it off-site to another authorised waste facility.

2.183 Should any non-inert or non-C&D waste be identified amongst incoming waste consignments at soil / C&D recovery areas, the entire waste consignment will also be rejected and reloaded onto the truck / HGV and the haulier directed to remove it off-site to another authorised waste facility.

2.184 If, following its acceptance at the facility, there is any subsequent grounds for concern about the nature of the wastes imported to and/or handled on site, it will be segregated and transferred to the covered waste inspection and quarantine shed for closer inspection and classification testing to establish whether it can be accepted at the facility or not. Suspect waste will be identified on the basis of visual inspection (unusual colour, intermixed wastes etc.) or by smell during waste placement, handling and/or processing / crushing. A detailed record will be kept of all such inspections.

2.185 Should detailed inspection and/or any subsequent testing indicate that the quarantined materials are non-inert or cannot be accepted and used for landfilling or recovery / recycling purposes at the facility, they will be transferred off-site by to another appropriately authorised waste facility.

2.186 Any significant volumes of intermixed non-inert C&D wastes (principally metal, timber, PVC pipes and plastic) inadvertently imported to the facility will be separated out and temporarily stored in skips or covered at the waste recovery area / shed or at the waste quarantine area prior to removal off-site to appropriately authorised waste facilities.

2.187 A representative sample will be taken (in accordance with waste licence requirements) of waste materials accepted at the inert landfill facility and subjected to compliance testing which focuses on key contaminant indicators. This data shall be used to confirm that the accepted soils are inert / acceptable (according to Council Decision 2003/33/EC) and/or comply with approved waste intake acceptance criteria. Compliance testing will be undertaken by the Applicant.

2.188 Only operators and/or haulage firms holding valid current waste collection permits will be engaged to transfer waste streams off-site to other authorised waste disposal or recovery facilities as required.

Processing and Recovery of C&D Wastes

2.189 The recovery / recycling of C&D waste will be carried out on an intermittent (or 'campaign') basis, according as imported waste material accumulates in unprocessed stockpiles and demand for recycled product dictates. The size of unprocessed waste

stockpiles will therefore vary according to availability of C&D waste, the stage of recovery / recycling operations and/or the demand for the finished recycled aggregate products.

2.190 It is estimated that up to 6 months intake of C&D waste could be stored at the C&D waste recovery facility over at one time. This suggests a maximum waste stockpile height of between 6m and 8m.

2.191 Construction and demolition waste held in 'unprocessed' stockpiles on paved / hardstand areas around the recycling shed is recovered by excavating it using a loading shovel / front–end loader and tipping it into a mobile crusher within the proposed recovery shed in order to produce construction grade recycled (secondary) aggregates of varying nominal size.

2.192 Processing procedures, production standards and conformance testing requirements for the recycled aggregate will comply with the National End of Waste (EoW) Decision in respect of recycled aggregates produced from C&D waste which was published by the EPA in September 2023.

2.193 The recovered / recycled aggregates are transferred by loading shovel / front-end loader from production stockpiles at the crusher to 'processed' stockpiles at a separate outdoor stockpiling paved / hardstanding areas. They are then stored on-site pending their subsequent sale and export off-site. It is envisaged that recycled aggregates will principally be supplied for road or pavement construction or for production of non-structural concrete and other uses deemed acceptable by the EPA EoW Decision or subsequent EPA EoW Decisions..

2.194 As with unprocessed waste, it is estimated that 6 months output of recovered / recycled aggregates could be stored at the C&D recovery facility at any one time. This suggests a maximum processed stockpile height of between 6m and 8m.

2.195 The recovered / recycled (secondary) aggregate is transferred from processed stockpiles to HGVs using a loading shovel / front-end loader on an ongoing, intermittent basis as demand for recycled aggregates dictates.

2.196 As all imported waste is required to be sorted and segregated at source, before being brought to the waste recovery facility, it is expected that only minimal sorting of waste materials other than separation of reinforcement from concrete and the removal of occasional inclusions of wood, metal, plastic, etc. will be undertaken at the recycling facility. Reinforcement separated from concrete will be stored in skips at the recovery area before being transferred to the quarantine facility and/or removed off site by an authorised waste collector.

Soil Washing / Aggregate Recovery

2.197 A proportion of more granular (i.e. more sandy / gravelly) soil / claybound ~~C&D~~ intake to the proposed facility at Ballinclare Quarry will be diverted from disposal at the inert landfill facility and submitted for recovery of construction grade sand and gravel at the soil wash plant to be set-up in the south-eastern corner of the site (at the former concrete / asphalt yard). All items in the plant assemblage will be connected to, and powered by, an electrical mains supply provided via existing on-site transformers.

2.198 Selected soil waste intake will be fed by front end loaders from end-tipped stockpiles to the washing plant. Thereafter, the material will be washed and screened, in line with the process described previously. Small stockpiles of sand and gravel aggregate obtained from the washing / recovery process will build up at the end of conveyor arms and will be temporarily transferred to larger stockpiles around the former production yard, pending sampling, testing, approval and subsequent collection and removal off-site by hauliers.

2.199 As for C&D waste, the recycled aggregates produced by soil washing are subject to conformance testing and will comply with the National End of Waste (EoW) Decision in respect of recycled aggregates which was published by the EPA in September 2023.

2.200 Recovered aggregates will generally be transferred off-site to one of Kilsaran's other locations or facilities and re-used in the production of construction materials. They may also be supplied directly to off-site construction projects or supplied for other engineering uses within the application site.

2.201 The estimated throughput capacity of the soil washing plant could be up to 500,000 tonnes per annum and is ultimately dependent on the nature of the soil wastes imported to the facility. It is estimated that up to75% of the throughput materials (i.e. approximately 375,000 tonnes per annum) could ultimately be recovered for re-use as aggregate by the soil washing process if the plant was operated at maximum capacity, with the balance consigned, as pressed filter cake material or dewatered sludge material, for disposal at the adjoining inert landfill facility (or if acceptable, subject to testing, for use as landfill liner material).

2.202 At the present time, in order to minimise increases in HGV traffic across the existing public road network, it is envisaged that recovered aggregates will be taken off-site using a 'backloading' system whereby HGVs delivering soil or C&D waste to the Ballinclare facility will pick up a consignment of recovered aggregate before departing the site and hauling it directly to a construction site or to one of Kilsaran's other production locations or facilities.

2.203 Soil washing activities will continue in operation up to the end of the Phase 2 landfilling activity, at which time the soil washing assemblage will be decommissioned and removed off site in order to facilitate the final phase of landfilling across the former concrete / asphalt production area. Any associated infrastructure or materials stockpiles will also be removed and the underlying concrete slab broken up and recycled at the adjoining C&D recovery facility.

General Waste Management

2.204 Waste oils, batteries, tyres, domestic waste and scrap metal will be stored on site in designated (bunded) storage areas at the existing workshop and will be collected and recycled or disposed of at authorised off-site waste facilities by approved waste contractors.

2.205 General office waste and food waste produced at the site office and canteen facilities will be minimised insofar as possible. Management systems will be established and implemented prior to commencement of waste intake to control and manage all potential waste streams, to avoid waste generation where possible and to maximise waste re-use or re-cycling opportunities thereafter.

2.206 The proposed inert landfill and C&D waste recovery facility will comply with all waste management responsibilities prescribed by conditions attached to any future grant of planning permission and/or EPA waste licence.

Landfill Intake Capacity

2.207 The only materials required to backfill and restore the former quarry are inert soil, stone and rock (and other particulate soil-like / sludge wastes). At the present time, it is envisaged that the principal sources of these materials over the lifetime of the proposed development will be construction sites in Counties Wicklow, Dublin and Wexford.

2.208 The total volume of soil required to create the final (restored) landform is approximately 3,600,000m^3. The basal liner and landfilled materials will be subject to a degree of compactive effort (by earthworks plant and tracked bulldozer) and materials placed at the base of the landfill will be further compacted by the weight of overlying materials.

2.209 If an average target compaction density of 1.8 tonnes/m^3 is assumed for tonnage assessment purposes, this suggests an import requirement for approximately 6,500,000 tonnes of soil and stones. The overall volume will comprise a mix of

(i) natural soil and/or non-waste by-product to be used in engineering works (principally the construction of basal and side liners and separation berms);

(ii) low permeability filter cake materials produced by the on-site soil washing activities; and

(iii) imported inert soil and stone waste (and other permitted particulate wastes).

2.210 The inert landfill facility will be developed in 3 separate phases as follows:

(i) Phase 1 (comprising sub-phases 1A to 1D) will extend across the existing quarry void area from a lower quarry floor level of 22mOD to approximately 60mOD (and has a total intake capacity of approximately 2,900,000 tonnes);

(ii) Phase 2 will extend above the central / eastern quarry void area from approximately 60mOD up to 80mOD (and has a total intake capacity of 2,750,000 tonnes); and

(iii) Phase 3 will extend across the former concrete yard to south-east of the quarry void (and has a total intake capacity of 850,000 tonnes), located.

Rate of Waste / Material Intake

2.211 It is envisaged that the combined (cumulative) intake of (i) inert soil / C&D waste for on-site disposal and recovery and (ii) non-waste by-product material required for on-site landfill engineering works or supplied to the soil wash plant, will not exceed 600,000 tonnes per annum.

2.212 Within this overall intake, the maximum annual intake of soil and stone (waste and by-product) is likely to be of the order of 550,000 tonnes per annum.

2.213 Where suitable, inert soil and stone waste will be imported and processed at the soil washing plant to recover construction grade aggregates. If not, it will be placed directly at the engineered (lined) landfill facility.

2.214 While any by-product intake will principally comprise soil and stone sourced from greenfield (i.e. previously undeveloped) construction sites, it could possibly evolve to include other prospective by-product materials as other regulatory decisions in respect of by-products are made and/or enacted by the EPA over time.

2.215 The annual intake of inert, construction and demolition waste will be of the order of 50,000 tonnes per annum and will principally comprise concrete (ready-mixed, reinforced, blocks and/or pavement slabs), bricks and bituminous mixtures / hardened asphalt.

2.216 The expected throughput at the soil washing plant is likely to average around 300,000 tonnes per annum and feedstock will comprise a mix of waste and by-product soil materials, albeit these would have to be processed and managed separately to ensure full and appropriate waste traceability. Processing this volume of soil would generate approximately 225,000 tonnes of construction grade aggregate for off-site export and 75,000 tonnes of filter cake material for disposal at the adjoining inert landfill facility.

2.217 Within this development application, flexibility is required to vary the quantities of inert soil and stone waste and by-product materials which may be imported and managed on-site in any given calendar year. Given the phased nature of the proposed landfill development and likely fluctuations in the level of activity within the construction and development sector over the projected life of the facility, the requirements for (and availability of) soil by-product material could vary considerably from year to year, with more materials being required in some years and near none in others.

2.218 In recognition of this and for the purposes of this EIAR therefore, application is made for a maximum intake of 600,000 tonnes of inert soil / C&D waste to this facility per annum. Although it is unlikely that this scenario will arise over the operational life of the proposed facility, it is conservative and will at least ensure that all relevant planning and waste licencing decisions are robust and provide the required degree of operational flexibility required at the facility. This approach will also ensure that any technical studies which inform regulatory decision making are equally robust.

Development Lifespan

2.219 The duration of landfilling activities at the application site will largely be dictated by the rate at which approximately 6,500,000 tonnes of externally sourced soil and stone intake and the natural / by-product soils required for landfill engineering works are imported to the facility. Several factors which will influence this, including, but not restricted to the:

- Volume of inert soil waste and/or soil by-product materials generated at construction / application sites in the surrounding region;
- Prevailing economic climate and related construction industry output;
- Distance of construction projects from the facility (and scale of activity);
- Logistical / programming constraints at sites generating inert materials;
- Climatic conditions (reduced construction activity in wet weather) and
- Disruptions along the existing local and national road network.

2.220 In light of these and other variables, prediction of intake rates and volumes and timing of activities is not an exact science.

2.221 Were the combined clay liner (non-waste by-product) and inert waste intake of 6,500,000 tonnes to be imported at a projected maximum (combined) intake rate of 550,000 tonnes per annum and the entirety of such intake was directed to the inert landfill, landfilling activities could be complete in a minimum of 10.5 years.

2.222 Given the focus on maximising materials recovery and re-use, this scenario is unlikely to occur and it is envisaged that, on average, between imported inert waste, filter cake material generated on site and soil by-product materials used for landfill engineering purposes, the average intake to the landfill will be of the order of 300,000 to 350,000 tonnes per annum. This in turn suggests an operational lifespan of between and 18.5 and 21.5 years for the proposed landfill facility.

2.223 It is anticipated that the construction and demolition (C&D) waste recovery activities will continue for as long as the inert landfilling activities are ongoing across the former quarry void / footprint, particularly in view of the economies of scale achieved in undertaking both activities at the one location. The rate of C&D waste recovery is expected to be a maximum of 50,000 tonnes per annum. As previously noted, any soil washing and aggregate recovery activities will cease in advance of the final landfill phase across the former concrete / asphalt yard (Phase 3).

2.224 This application provides for a cessation of C&D waste recovery activities at the waste recovery shed / paved area to the west of the access road on completion of landfilling activities and for any associated infrastructure to be decommissioned and materials removed off site.

2.225 In light of the above, making allowance for a degree of uncertainty around the rate of material intake to the facility and provision for post-landfill restoration and aftercare works, it is projected that the overall life of this facility could extend to 25 years. Accordingly, this planning application seeks permission for a 25-year period to facilitate completion of landfilling and restoration works at the former quarry site.

Traffic Movements

2.226 As previously noted, the maximum annual intake of soil and stone (waste and by-product) at the proposed Construction Materials Management Facility at Ballinclare Quarry will be 550,000 tonnes per annum, while that of construction and demolition (C&D) waste will be 50,000 tonnes per annum.

2.227 When averaged out over a year, the combined maximum intake of 600,000 tonnes per annum is equivalent to an average of

- 12,000 tonnes per week (assuming 50 weeks in a working year)
- 2,400 tonnes per day (assuming 5 days in a working week)
- 240 tonnes per hour (assuming 10 hours in a working day)

2.228 If it is conservatively assumed that the average HGV / truck consignment travelling to the waste facility at Ballinclare has a carrying capacity of 25 tonnes, this suggests that at a projected maximum intake rate of 600,000 tonnes per annum, there will be 9 to 10 HGV / truck trips generated every hour by on-site activities. This is equivalent to 18 to 20 individual HGV / truck movements in or out of the site every hour.

2.229 In order to minimise HGV traffic across the existing public road network, recycled aggregates generated by soil washing and C&D waste recovery activities will be dispatched off-site using a 'backloading' system whereby HGVs which have previously delivered inert / C&D waste or by-product to the facility will pick up a consignment of recycled aggregate before departing the site. As previously noted, recycled aggregates will be dispatched off-site either directly to a construction / application site or to one of Kilsaran's other production locations or facilities.

2.230 Reducing the total number of trips and unladen HGV / truck movements from the facility offers clear financial and environmental benefits. These are considered sufficiently strong to incentivise the implementation of a backloading system at the proposed development and to minimise any additional HGV movements across the public road network.

2.231 For traffic assessment purposes therefore, it is assumed that the off-site export of recycled aggregates from the facility will be on the return (outbound) leg of a round trip which brought soil / C&D waste to the proposed facility import trips and, as a consequence, the activity will not generate any additional traffic movements over the local road network.

2.232 Based on the figures indicated previously, production of recycled aggregates for off-site dispatch and backloading is likely to average 225,000 tonnes /annum from the soil wash plant and 50,000 tonnes per annum from the C&D waste recovery facility (assuming 100% recovery rate), equivalent to 275,000 tonnes in total. This would mean that a significant proportion of HGV's journeys to and from the proposed facility at Ballinclare Quarry will be fully laden on both legs of their return journey.

2.233 In order to facilitate the proposed development, it will be necessary for some road upgrade and improvement works to be undertaken along the L1157 Local Road leading to the application site. These works will comprise junction improvements around the existing site access gates and road widening to 6m along the entire route (with the elimination of any requirement for passing bays) so as to facilitate safe opposed passage of HGVs / lorries. Pavement strengthening, drainage improvements and re-surfacing works will also be required locally along the road.

2.234 Full details and drawings showing the extent of works envisaged are provided in Chapter 14 (Traffic) of this EIAR. It is envisaged that these works, which will be delivered under the auspices of the Roads Authority (Wicklow County Council), will be largely funded by development contributions.

Working Hours

2.235 Weekday operating hours for proposed development activities will be the same as those in the planning permission previously granted for quarrying at the application site (Wicklow County Council Planning Ref. 14/2118), between 08:00 hours and 18:00 hours, Monday to Friday. In line with the previous planning permission, it is envisaged that that loading and unloading of lorries will take place from 7am each working day.

2.236 In response to feedback from public consultations, Kilsaran has given a commitment that no work other than general housekeeping (site management) activities and plant maintenance will take place on site on Saturdays. The facility will be closed on Sundays and Public / Bank Holidays.

Employment

2.237 The proposed backfilling operations will require a minimum of six personnel to be based at the facility at all times during working hours. When operating at full capacity, up to 15 people could be employed at the facility (depending on the number of ongoing activities).

2.238 One member of staff will be nominated as the facility / site manager and will be required to

(i) check that the soil and stone / C&D waste being imported to the facility for landfilling or recovery has been pre-approved for intake and/or complies with waste acceptance criteria;

(ii) collate and maintain records of waste intake and

(iii) manage the environmental monitoring and reporting programme.

2.239 Other staff will be required to

(i) be in attendance at the weighbridge office to weigh HGVs in and out of the facility;

(ii) operate the site plant and equipment at the inert landfill facility on a full-time basis (such as a bulldozer or mechanical excavator) as required;

(iii) visually inspect and monitor the suitability of the inert soil and stone waste being accepted and placed at the facility;

(iv) oversee the intake and processing of soil and stone at the soil wash plant on an ongoing basis;

(iv) manage the processing, handling and C&D recovery activities on an intermittent, campaign basis, as required;

(v) Mange the testing of aggregates for environmental compliance and ISO / EN standards at the on-site laboratory;, and

(vi) oversee the dispatch of approved recycled aggregates off-site, to an ultimate end-use which is sanctioned by the EPA's National End of Waste Decision criteria in respect of recycled aggregates.

2.240 In addition to the full-time site-based staff, it is envisaged that operatives and drivers travelling to and from the proposed waste facility will also share the established staff welfare facilities at the site.

Laboratory Testing

2.241 Laboratory testing of soil, surface water, groundwater and soil water percolate will be undertaken off-site at an ILAB / UKAS accredited geo-environmental laboratory.

2.242 Any validation testing and laboratory testing, required to confirm inert classification of waste soil / C&D wastes, will also be undertaken at a similarly accredited laboratory. All samples taken on-site will be forwarded to the laboratory and test results will typically be forwarded to site within seven to ten working days.

2.243 Laboratory testing of recovered aggregates will be carried out on site in line with EPA guidelines for environmental conformance and industry guidelines for performance.

2.244 It is not intended to store environmental monitoring equipment such as pH and temperature meters, conductivity meters, flow meters and dissolved oxygen meters at the site office. Any such equipment will be brought to site by an in-house environmental scientist and/or independent environmental consultant as and when required.

PROPOSED ENVIRONMENTAL CONTROLS

General

2.245 Several safeguards will be established to ensure that only acceptable inert waste materials (and by-products) are received and handled at the proposed recovery / recycling facility or inert landfill. These will include the following;

- Ensuring all soil / C&D waste delivered to the facility site has been pre-approved for intake, has originated from pre-cleared sites / sources and complies with the approved waste acceptance criteria;
- Ensuring all intake materials are subject to a visual / CCTV inspection both prior to and during unloading;
- Ensuring that any unacceptable materials identified at the facility at the time of delivery are immediately rejected and sent off-site and that any identified subsequently is separated and transferred to another authorised waste disposal or recovery facility; and
- Restricting or denying further use of the facility to any sub-contractor who persistently directs or imports unacceptable soil and stone / C&D wastes to the facility.

2.246 Details of existing and proposed surface water management systems at the existing quarry and at the proposed facility have been presented in preceding paragraphs of this Chapter.

Noise Generation and Control

2.247 Once operational, the principal noise sources at the proposed facility will arise from

- ongoing (i.e. almost continuous) grading and compaction of soil and stone across the landfill (former quarry) footprint using a bulldozer and/or mechanical excavator;
- intermittent handling and processing of C&D waste and the movement of a front-end loader at the C&D waste recovery facility;
- activity at and around the soil washing plant and
- general movement of HGVs around the facility.

2.248 The nearest noise sensitive properties to the proposed waste facility occur along the local road network, beyond the south-western and north-western site boundary, with one property located beyond the south-eastern boundary - refer to EIAR Chapter 4 (Population and Human Health).

2.249 The operation of the proposed facility includes provision for a number of mitigation measures with respect to noise, including:

- working below and behind existing quarry faces for much of the working life of the proposed landfill development;
- retaining existing boundary screening berms and boundary hedgerows to provide acoustic screening;

- undertaking all C&D waste processing activities within the confines of the proposed recovery shed at the C&D waste recovery area.

2.250 Noise levels attributable to the establishment and operation of the waste facility will not exceed those set out in the EPA's Guidance Note for Noise In Relation to Scheduled Activities which states that "the noise level at sensitive locations should be kept below an L(AR, T) value of 55 dB(A) by daytime" when measured at the nearest noise sensitive location or site boundary.

Dust Control

2.251 In dry, windy weather conditions, the operation of the proposed facility may give rise to dust blows across, and possibly beyond the application site. In order to control dust emissions, the following control measures will be implemented:

- water will be sprayed from a tractor drawn bowser on any dry exposed surfaces (exposed soil at landfill areas, haul roads, paved surfaces and hardstand areas);
- dust blows at the landfill area will be partially screened by existing quarry faces and/or perimeter screening berms as landfilling progresses upwards;
- all HGVs exiting the site will be routed through the existing and/or proposed new wheelwash facility on the eastern side of the former concrete / asphalt yard in order to minimise transport of mud and/or soil fines by HGVs onto the public road network.
- as the level of the landfilled material within the quarry approaches final surface levels, cover soils (subsoil and topsoil) will be placed and seeded (with grass) at the earliest practicable opportunity (on an ongoing basis) to minimise soil erosion and potential dust emissions;
- stockpiling of imported inert soil and stone waste at the landfill facility will be minimized and it will ideally be placed and compacted in-situ immediately after being imported to site. If and when temporary stockpiling of soil is required for engineering (lining) works and/or final restoration purposes, it will be placed as far as practicable from nearby residences;
- the area of bare or exposed soils will, insofar as practicable, be kept to a minimum. If excessive dust emissions arise from the landfill facility, consideration will be given to establishing temporary vegetation (grass) cover over exposed soil surfaces and/or stockpiles pending subsequent resumption of landfilling activities;
- all C&D waste recovery activities (specifically crushing and processing into recycled aggregate) will take place within the proposed waste recovery shed;
- if excessive dust emissions arise along haul roads or around the C&D waste recovery facility, consideration will be given to the installation of sprinkler systems (if necessary) to suppress dust rise from vehicle movements and fugitive emissions from stockpiles;

2.252 The amount of dust or fines carried onto the public road network will be further reduced by periodic sweeping of internal paved site roads and public roads, if required.

Bird and Vermin Control

2.253 As the inert wastes being imported, landfilled and/or recovered at the proposed facility are free of putrescible (food / kitchen) waste, site-based activities are unlikely to attract scavenging birds such as gulls and crows or vermin (rats). Accordingly, it is not intended to implement any specific bird or vermin control measures at the inert landfill facility. Canteen waste will be carefully managed and stored in appropriate sealed containers. Automatic non-toxic predator traps will be used if required.

Odour Control

2.254 Landfilling and recovery activities at the proposed facility will not give rise to odour nuisance as the soil and stone / C&D wastes being placed or recovered are inert and not biodegradable, and as such will not emit any odourous gases. Accordingly, it is not intended to implement any specific odour control measures at the facility.

2.255 In the unlikely event that any biodegradable waste is identified among imported materials, it shall be immediately removed to the waste inspection and quarantine area pending removal off-site to an authorised waste disposal or recovery facility.

Litter Control

2.256 As the inert soil and stones / C&D wastes being landfilled or recovered at the proposed facility will be largely free of litter, site activities are unlikely to give rise to problems with windblown litter. Accordingly, it is not intended to implement any specific litter control measures at the facility.

2.257 In the unlikely event that any litter waste is identified among imported materials, it shall be immediately removed to the waste inspection and quarantine shed pending removal off-site to an authorised waste disposal or recovery facility.

Invasive Species

2.258 An invasive species management plan will be prepared prior to commencement of landfilling operations at the facility. The plan will set out how the facility operator will establish, maintain and implement an invasive species prevention and an eradication plan, to cover specific invasive species, including but not limited to Japanese Knotweed, Giant Knotweed and Bohemian Knotweed.

2.259 The invasive species plan will identify specific actions to prevent the acceptance of invasive species in loads of soil and stone imported to the facility and will make provision for periodic surveys of filled areas to detect if invasive species could (potentially) be present. The plan will describe methods of plant detection and identification, identify remedial actions for eradication of invasive species (if necessary) and outline proposals for staff training on plant identification and eradication. It will also set out validation requirements to confirm the absence of invasive species on completion of backfilling and restoration. .

Fire Control

2.260 The inert soil and stone / C&D wastes being landfilled and recovered at the application site are free of flammable materials and biodegradable waste which could create a fire or explosion risk. Site activities will not therefore present a fire risk for the duration of the landfilling and C&D waste recovery activities. Accordingly, there is no requirement for specific fire control measures at this facility.

2.261 The following operational practices will be implemented in order to prevent the outbreak of fire at the facility:

(i) smoking outdoors, at the site office or staff welfare facilities will be prohibited;

(ii) any biodegradable or flammable waste identified or suspected in the waste materials accepted at the facility shall be immediately transferred to the waste inspection and quarantine shed pending removal off-site to an authorised waste facility; and

(iii) plant and equipment will be removed if they exhibit signs of overheating etc.

2.262 In the unlikely event that a fire does occur, the local fire stations in Rathdrum and/or Wicklow will be contacted and emergency response procedures will be implemented. Fire

extinguishers (water and foam) will be provided at the site office to deal with any small outbreaks which may occur.

Landscape and Boundary Treatment

2.263 Prior to commencement of proposed landfilling and C&D waste recovery activities, a survey of the site boundary will be undertaken and where necessary, new boundary fencing will be erected, existing fencing will be repaired and/or replaced and hedgerows will be strengthened or fortified by additional planting as required.

PROPOSED ENVIRONMENTAL MONITORING

General

2.264 Kilsaran will establish an environmental management programme to monitor and manage emissions from the proposed materials recovery / recycling facility and inert landfill at Ballinclare Quarry. It is anticipated that limit values for environmental emissions arising from waste disposal and recovery activities at the facility will be similar to those applied to other EPA licenced facilities and that these will be reviewed and confirmed / amended by the EPA should it decide to issue a waste licence in respect of the proposed facility.

2.265 Environmental sampling, monitoring and testing will be undertaken by Kilsaran personnel and/or specialist contractors appointed by it. Records of environmental monitoring and testing will be maintained on-site and forwarded to the EPA and Wicklow County Council as required under the terms of any grant of planning permission and/or waste licence issued in respect of the proposed facility. Preliminary proposals for monitoring locations around the application site are presented in Figure 2-18.

Dust Monitoring

2.266 Dust deposition monitoring will be undertaken at 3 No. established dust monitoring locations around the site boundary (designated D1, D2 and D3), shown in Figure 2-18 It is envisaged that monitoring at these locations will continue for the duration of the on-site recycling / recovery and inert waste landfilling activities. Dust monitoring locations shall be reviewed on an ongoing basis and revised as and when necessary. The results of regular dust monitoring shall be submitted to the EPA and/or Wicklow County Council on a periodic basis for review and record purposes as required.

Noise Monitoring

2.267 Noise monitoring will be undertaken at the application site at 3 No. noise monitoring locations around the site boundary (designated N1, N2 and N3), shown in Figure 2-17. It is envisaged that monitoring at these locations will continue for the duration of the on-site recycling / recovery and inert waste landfilling activities. Noise monitoring locations shall be reviewed on an ongoing basis and revised as and when necessary. The results of the noise monitoring shall be submitted to the EPA and/or Wicklow County Council on a regular basis for review and record purposes.

Surface Water Monitoring

2.268 With the ongoing quarry dewatering, surface water discharged off-site to the Ballinclare Quarry is monitored on a daily and weekly basis, in line with the requirements of the existing trade effluent discharge licence (Ref. WPL116). This monitoring regime will continue until such time as it is replaced by an EPA Waste Licence in respect of the proposed development / facility.

2.269 When the facility is operational, surface water quality will be monitored at any temporary surface water body or sump across the quarry floor and at the discharge point along the

drainage channel leading to the Ballinclare Stream, located immediately downstream of the settlement ponds and proposed wetland treatment area.

2.270 Occasional surface water sampling and testing will also be undertaken on samples taken from any other significant, temporary water body or pond which may be constructed or which may otherwise form at low points in landfilled waste across the application site.

2.271 It is also envisaged that surface water monitoring will be undertaken along the Potters River, upstream and downstream of the discharge from the Ballinclare Stream, in accordance with the existing requirements of the Local Authority discharge licence (Ref. No WPL116). The existing, established surface water monitoring locations at and around Ballinclare Quarry (designated SW1, SW2, SW3a, SW3b and SW4) are shown on Figure 2-17.

2.272 Testing of key chemical parameters is likely to be undertaken on water samples collected on a weekly basis, while testing of other chemical parameters will be undertaken on either a bi-annual or annual basis (depending on the test parameter involved), as may be required by any EPA Waste Licence issued in respect of the proposed facility. Further detail on surface water quality and testing is presented in EIAR Chapter 7 (Water).

2.273 The principal objective of surface water monitoring is to assess water quality and to confirm there is no contamination associated with on-site waste recovery / recycling and landfilling activities. Surface waters will be monitored for the duration of the waste recovery / recycling and landfilling activities at the facility and for a limited closure and aftercare period thereafter.

Groundwater Monitoring

2.274 Three groundwater monitoring wells (designated GW1, GW2, GW3) were installed at Ballinclare Quarry in 2014 and have been monitored intermittently since that time, refer to EIAR Chapter 7 (Water). Details on existing baseline water quality at the application site is presented in EIAR Chapter 7 (Water). Groundwater well locations are shown in Figure 2-17.

2.275 Groundwater wells at the proposed facility will be sampled and tested on a regular basis for a range of physical and chemical parameters in order to assess water quality and confirm the absence of contamination associated with proposed landfilling and waste recovery activities.

2.276 It is currently envisaged that the following programme of groundwater water monitoring will be implemented by Kilsaran at the proposed facility (subject to review and approval by the EPA in its determination of an application for a waste licence):

- Groundwater levels will be monitored at each of the 3 No. existing monitoring wells and at any groundwater pond in the central quarry area;
- Limited groundwater quality testing will be undertaken on samples recovered from the 3 No. groundwater monitoring wells on a quarterly basis;
- More detailed groundwater quality testing (to include metals and a number of specified hazardous substances) will be undertaken on an annual basis.

2.277 The groundwater monitoring regime will remain in place for the duration of the landfilling and/or C&D waste recovery activities at the facility and for a limited closure and aftercare period thereafter.

Leachate and Landfill Gas Monitoring

2.278 In the absence of biodegradable waste amongst the inert soil and stone waste to be landfilled and used for quarry restoration purposes, no hazardous / organic leachate or landfill gas can be generated. Accordingly, in line with accepted design norms for inert

landfills established by Council Directive 1999/31/EC on the landfill of waste, no provision has been made for leachate collection and treatment, nor for landfill gas management, at the proposed landfill facility, no provision is made for sampling or monitoring of either at this facility.

2.279 As the materials being placed at the landfill are inert and, by definition, not biodegradable, they will not generate or emit odorous gases. The proposed landfilling and restoration activities will not therefore give rise to odour nuisance and accordingly, no provision has been made for odour monitoring at this facility. Site staff will report and record any odour emissions at the site in the highly unlikely event that a complaint is made about odours emanating from the facility.

Meteorological Monitoring

2.280 No site-specific meteorological monitoring has been undertaken at Ballinclare Quarry. Temperature, rainfall, sunshine, wind speed and direction are all recorded at the weather station at Casement Aerodrome, at Baldonnell in South County Dublin, approximately 46km to the north-west of the application site. It is currently envisaged that representative meteorological data will be acquired from the existing weather station at Casement Aerodrome, as and when required.

Stability and Settlement Monitoring

2.281 Temporary slopes in landfilled soils will be visually inspected on an ongoing basis, at least once a month, by site staff and a record will be kept of same. Should these inspections give cause for concern, an inspection of the affected area(s) will be undertaken by a qualified geotechnical engineer and measures will be implemented to address any instability identified.

2.282 Following phased completion of landfilling and restoration works, the former quarry footprint will be returned to a native woodland habitat. In view of proposed after-use and the expected minimal post-closure settlement of the inert soil mass, it is considered that post-closure stability and settlement monitoring of the backfilled landform will not be required.

POST-CLOSURE RESTORATION WORKS

Inert Landfill Facility

2.283 The principal activity which will be undertaken at the application site at Ballinclare Quarry is the landfilling and restoration of the lands within the former bedrock quarry. As previously noted, the site will be restored to a landform which will substantially reinstate that which existed prior to quarry development at the site and will better merge the site into the surrounding rural landscape.

2.284 As working areas are progressively landfilled toward the final ground level envisaged by the proposed landfill / site restoration scheme, a cover layer comprising 150mm of topsoil and up to 500mm of subsoil will be placed above the inert soil and stone waste.

2.285 The soil cover layer will initially be seeded with a grass mix in order to promote stability and minimise soil erosion and dust generation. Thereafter native woodland planting will be established on a progressive / phased basis. Details of the proposed final landform contours and the native woodland planting scheme are provided on the long-term restoration plan presented in Figure 2-4.

2.286 Topsoil and subsoil will be imported to the site on a continual basis and shall not be used immediately in landfilling / restoring the former quarry. The topsoil and subsoil shall be stockpiled separately within the former quarry footprint, away from the active landfilling

area and in such location and manner as not to create any temporary adverse visual impact or dust nuisance. These materials will then be used on an ongoing basis in the progressive restoration of the former quarry, as the upper surface of the landfill body approaches the proposed final ground level.

2.287 On completion, any rainfall over the landfill footprint will either

(i) percolate directly into the backfilled soil mass (depending on the permeability and/or degree of saturation of the soil at the ground surface);

(ii) run-off over the restoration surface (without coming into contact with the underlying inert waste) and be collected by surface water channels which will carry it to the settlement ponds and/or wetland area (or to the separate swale / attenuation pond feature on the western flank of the backfilled quarry). It will then be discharged off-site to the Ballinclare Stream and the Potter's River approximately 450m further downstream).

2.288 Locally, in the south eastern corner of the landfill area, the final restored ground levels will be lower than at the discharge point to the Ballinclare Stream and cannot therefore drain to it under gravity. Accordingly, it is envisaged that once restored, surface water run-off from this area will collect at a swale / attenuation pond to be constructed close to the south-eastern boundary. Discharge from the swale will be to a minor (unnamed) stream which flows for 300m parallel to the L1157 Local Road and into the Kilmacurragh Stream, which in turn flows into the Potters River approximately 400m further downstream.

2.289 The long-term surface water management regime for the backfilled landform, shown in Figure 2-19, will be established incrementally over time, as landfill and restoration works proceed. On completion of the quarry backfilling and restoration works, any outstanding long-term site drainage works will be completed.

C&D Waste Recovery Facility

2.290 At the present time, it is anticipated that C&D waste recovery activities will end at Ballinclare Quarry following cessation of landfilling and completion of restoration works at the adjoining inert landfill facility.

2.291 On cessation of C&D waste recovery activities, any remaining stockpiles of unprocessed C&D waste will be crushed and added to processed waste stockpiles. These stockpiles will in turn be gradually run down as recycled (secondary) aggregate is sold to the market.

2.292 The waste recovery shed will be dismantled to ground / foundation level and, insofar as possible, all structural elements (steelwork, wall cladding wall panels etc.) will be recycled and/or recovered. All processing plant and machinery will be removed off-site and any related site infrastructure will also be decommissioned and/or removed off-site as appropriate.

2.293 Any paved or hardstanding surfaces around the C&D waste recovery area will be excavated in phases as space is freed up and will be processed / recovered on-site and sold as recycled aggregate to the market. If a residual volume of processed aggregate remains at the end, it will be either be used in final restoration works around the application site or transferred to another C&D waste recovery facility off-site.

2.294 As the paved or hardstanding surfaces are excavated and recycled, a replacement cover layer comprising a combined 150mm of topsoil and 500mm of mineral subsoil will be placed over exposed in-situ soil. This material will most likely be imported (as non-waste by-product) from construction sites.

2.295 The upper surface of the reinstated ground around the recovery area will be graded so as to ensure that any surface water run-off falls to drainage channels which will run north-westwards, toward the wetland area. This area will then be seeded with a native grass mix and will most likely evolve to a seasonal grassland habitat over time.

Facility Closure Agreements

Site Management and Supervision

2.296 Kilsaran will delegate responsibility for management of the final site restoration and closure works to a nominated individual or staff member and will ensure that this person has the necessary information (from the EIAR / planning application) and authority to direct and oversee the required restoration works, site closure and decommissioning activities, as well as any aftercare activities (principally environmental monitoring and site maintenance works).

Long Term Site Safety and Security

2.297 All existing perimeter security features, site access and proposed upgrading / modifications thereto will remain in place following facility closure and expiry of any agreed aftercare period.

2.298 Existing perimeter berms, fencing and hedgerows will be surveyed again post facility closure and upgraded / enhanced where required. These works, combined with the securing and locking of the existing entrance gates will prevent any unauthorised third-party access to the facility.

Long Term Surface Water and Groundwater Management

2.299 Ballinclare Quarry is located in an area which originally had very little (if any) overburden cover which (based on site observations) is relatively impermeable (below a thin, near-surface weathered zone). It is therefore inferred that the original (pre-quarrying) regime at the site would have meant that there was relatively small amount of recharge to groundwater and that most rainfall ended up as run-off over the ground surface to the natural drainage network.

2.300 The material to be used to complete the backfilled landform will generally comprise clayey glacial till and will likely replicate the pre-development hydrology of the site and minimise post-closure infiltration into the backfilled inert landfill mass.

2.301 In the long-term, following closure, there will likely be no significant difference in infiltration characteristics between the original (pre-quarry development) and restored landform and no requirement to attenuate any surface water run-off from the site.

2.302 In the short term however, immediately post-closure there could be some slight increase in the rate of run-off (relative to pre-quarry development phase) while vegetation cover is establishing over the final landfill phase.

2.303 Following completion of landfilling and restoration works, the settlement ponds and wetland area at the western end of the application site will remain in-situ and allowed to naturally evolve and re-wild, with no provision being made for any active long-term maintenance.

2.304 Post closure, the surface water management system for the landfilled area provides for a collector channel to intercept and carry surface water run-off from the restored landform toward the settlement ponds and/or wetland area and via the established drainage network to the Ballinclare Stream. Alternatively (if required) run-off from the landfilled area could be discharged off-site via the proposed swale along its western flank, directly to the Ballinclare Stream, as shown in the post-closure site drainage layout in Figure 2-19.

2.305 The wetland feature could also effectively serve as a long-term soakaway, settlement lagoon and/or attenuation pond for any surface water run-off from the landfilled area prior to its discharge off-site via the established drainage network to the Ballinclare Stream.

2.306 Due to the topography of the proposed landform, it will not be possible to direct all the run-off from the restored landform to the settlement ponds / wetland by gravity and as such, the residual, southern flank will be drained to a swale along the southern boundary that will discharge to an existing stream which flows to the Kilmacurragh Stream, as also shown in Figure 2-19.

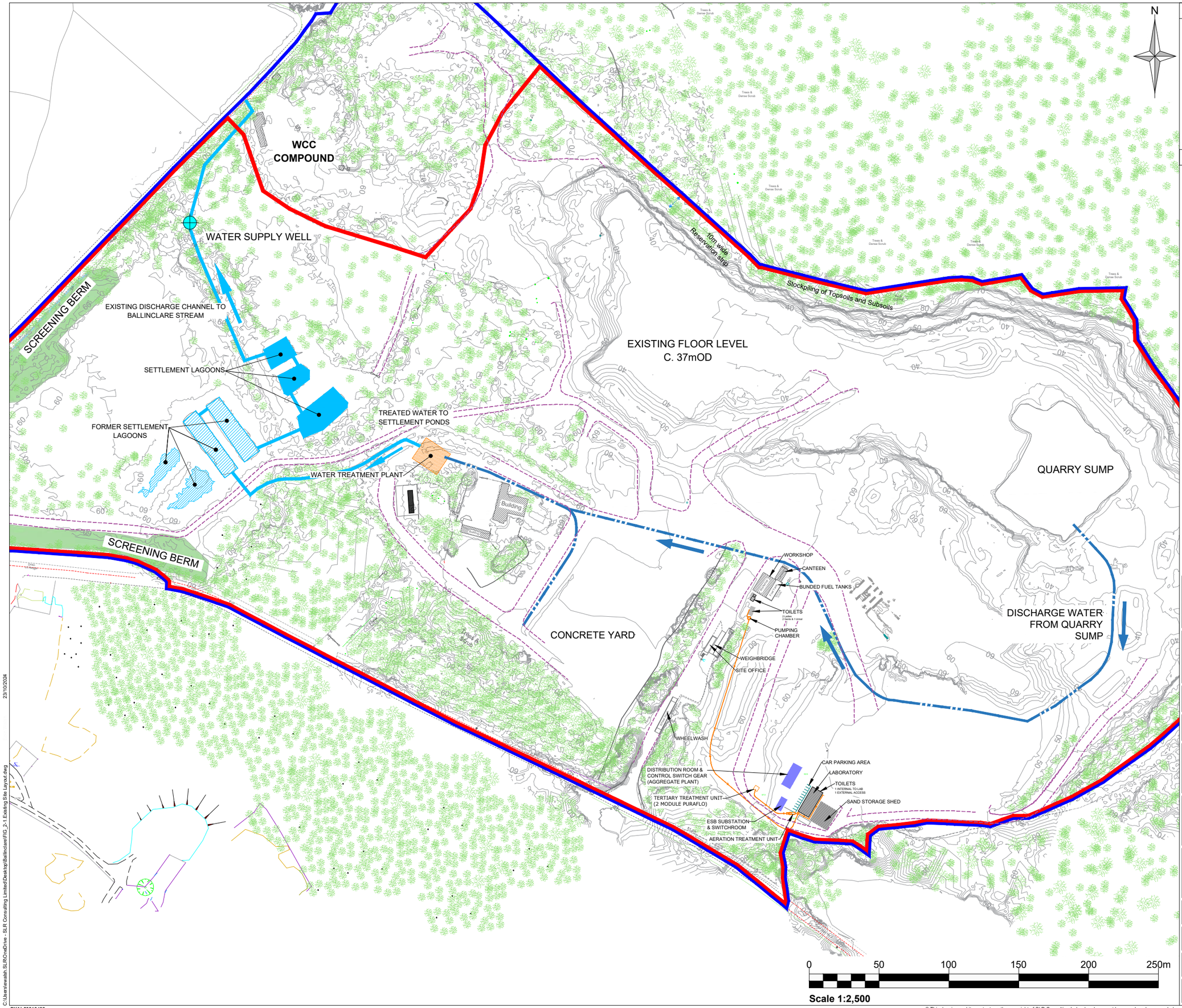
Decommissioning of Plant and Machinery

2.307 On completion of site operations, all mobile plant and equipment associated with landfilling and C&D waste recovery activities at Ballinclare Quarry will be removed off-site. Any dedicated site accommodation, infrastructure and/or services will also be progressively decommissioned, dismantled and/or removed off-site to authorised waste disposal or recovery facilities.

Aftercare and Monitoring

2.308 Some establishment maintenance will be carried out across the application site for a period of up to 3 years following planting of proposed native woodland species, with a minimum of 3 maintenance visits per year (i.e. spring, summer and autumn). This work will principally comprise adjustment / removal of tree ties and spiral guards and replacement planting where required. It is expected that over time, the restored landform will ultimately merge into the surrounding local rural agricultural landscape.

FIGURES



Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- EXISTING CONTOURS
- INTERNAL ACCESS ROADS
- PUMPED WASTEWATER FROM SURFACE RUNOFF

Rev	Amendments	Date	By	Chk	Auth
2	Title block	06.24	AB	DL	DL
1	Title block	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: EXISTING SITE LAYOUT

Scale	SLR Project No.
1:2,500 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date 10/24	Date 10/24	Date 10/24	Date 10/24

Drawing Number: **FIGURE 2-1** Rev. **2**

23/10/2024

C:\Users\ewalsh.SLR\OneDrive - SLR Consulting Limited\Desktop\Ballinclare\FIG_2-1 Existing Site Layout.dwg

CYAL50316488

INDICATIVE LOCATION OF PROPOSED CHEMICAL DOSING AND CONTROL BUILDING (6 x 2m)

WATER SUPPLY WELL

INDICATIVE LOCATION OF PROPOSED BUNDED 50m³ TANK

WCC COMPOUND

DISCHARGE TO BALLINCLARE STREAM

SCREENING BERM

INTEGRATED CONSTRUCTED WETLAND (ICW)

BED B

BED A

ESTABLISHMENT OF ADDITIONAL HABITAT

CELL 1A

WATER TREATMENT PLANT

EXISTING SUMP

SCREENING BERM

C&D WASTE STOCKPILES (PROCESSED)

PROPOSED WEIGHBRIDGE

HGV QUEUEING AREA

WASTE RECOVERY SHED 42m X 36m

WEIGHBRIDGE

SITE OFFICE

UNPROCESSED C&D STOCKPILE

EXISTING WHEELWASH

SOIL WASHING PLANT

PROPOSED ADDITIONAL WHEELWASH

A

A'

B

B'

C

C'

D

D'

G

N

Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- EXISTING CONTOURS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION

2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL
Rev	Amendments	Date	By	Chk	Auth

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Client

KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project

Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title

PROPOSED SITE DEVELOPMENT LAYOUT
PHASE 1A LANDFILLING

Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

Drawing Number **FIGURE 2-2** Rev. **2**

\\slr.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\065366 Ballinclare Materials Mgmt Facility\EIAR\Volume-2 EIAR Report Figs Appends\02 Project Description\Dwgs\CAD\Wking\Final_Oct_2024\FIG_2-2 Proposed Site Dev. Phases 1A.dwg 05/11/2024

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PROPOSED WEIGHBRIDGE
WORKSHOP
CANTEEN
BUNDED FUEL TANKS
WASTE RECOVERY SHED
42m X 36m
HGV QUEUEING AREA
TOILETS
2 Ladies
2 Gents & 1 Urinal
PUMPING CHAMBER
CAR PARKING AREA
(8 SPACES)
WEIGHBRIDGE
SITE OFFICE
PUMP TO SITE WATER
MANAGEMENT SYSTEM
HYDROCARBON INTERCEPTOR (SIZED FOR
TREATMENT RUN-OFF)
UNPROCESSED C&D
STOCKPILE
VISITOR CAR PARKING
AREA (3 SPACES)
SURFACE PAVEMENT
DRAINAGE
EXISTING WHEELWASH
PUMP TO SITE WATER
MANAGEMENT SYSTEM
LINE DRAINAGE
EXISTING STORAGE POND
HYDROCARBON INTERCEPTOR (SIZED FOR
TREATMENT RUN-OFF)
TERTIARY TREATMENT UNIT
(2 MODULE PURAFLO)
DISTRIBUTION ROOM & CONTROL
SWITCH GEAR (AGGREGATE PLANT)
CAR PARKING AREA (10 SPACES)
LABORATORY
TOILETS
1 INTERNAL TO LAB
1 EXTERNAL ACCESS
SAND STORAGE SHED
ESB SUBSTATION &
SWITCHROOM
WASTEWATER
HOLDING TANK
AERATION TREATMENT UNIT
PROPOSED ADDITIONAL
WHEELWASH

0 10 20 30 40 50 60 70 80 90 100m

Scale 1:1,000

N

Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- CONTOURS
- INTERNAL ACCESS ROUTES
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code
FINAL

Client
KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project
Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title
SITE INFRASTRUCTURE AREA

Scale		SLR Project No.
1:1,000	@ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

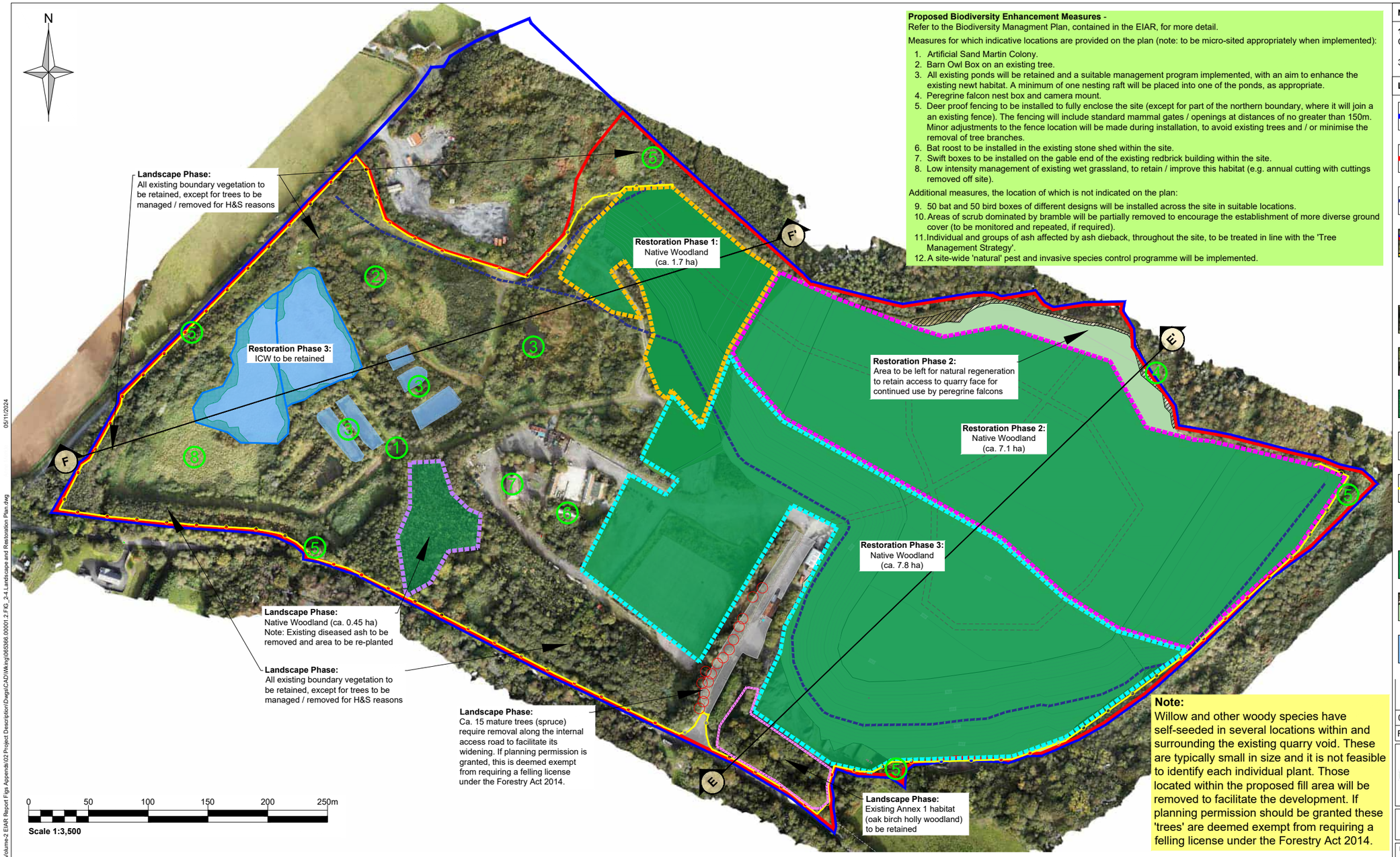
Drawing Number
FIGURE 2-3

Rev.
2

05/11/2024

\\slr.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\0036 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIAR\volume-2 EIAR Report Figs Appendix\02 Project Description\Dwgs\CAD\Wking\Final_Oct 2024\FIG_2-3 Proposed Site Infrastucture Area.dwg

CYAL50316488



Proposed Biodiversity Enhancement Measures -
Refer to the Biodiversity Managment Plan, contained in the EIAR, for more detail.

Measures for which indicative locations are provided on the plan (note: to be micro-sited appropriately when implemented):

1. Artificial Sand Martin Colony.
2. Barn Owl Box on an existing tree.
3. All existing ponds will be retained and a suitable management program implemented, with an aim to enhance the existing newt habitat. A minimum of one nesting raft will be placed into one of the ponds, as appropriate.
4. Peregrine falcon nest box and camera mount.
5. Deer proof fencing to be installed to fully enclose the site (except for part of the northern boundary, where it will join a an existing fence). The fencing will include standard mammal gates / openings at distances of no greater than 150m. Minor adjustments to the fence location will be made during installation, to avoid existing trees and / or minimise the removal of tree branches.
6. Bat roost to be installed in the existing stone shed within the site.
7. Swift boxes to be installed on the gable end of the existing redbrick building within the site.
8. Low intensity management of existing wet grassland, to retain / improve this habitat (e.g. annual cutting with cuttings removed off site).

Additional measures, the location of which is not indicated on the plan:

9. 50 bat and 50 bird boxes of different designs will be installed across the site in suitable locations.
10. Areas of scrub dominated by bramble will be partially removed to encourage the establishment of more diverse ground cover (to be monitored and repeated, if required).
11. Individual and groups of ash affected by ash dieback, throughout the site, to be treated in line with the 'Tree Management Strategy'.
12. A site-wide 'natural' pest and invasive species control programme will be implemented.

Notes:

1. AERIAL PHOTOGRAPH (OCTOBER 2023) PROVIDED BY KILSARAN CONCRETE.

3. CONTOURS SHOWN ARE INDICATIVE ONLY.

Legend:

- Land Interest Boundary (c. 36.0 ha)
- Planning Application Area (c. 32.6 ha)
- Proposed stormwater drainage channel
- Restoration Section Lines - refer to Figures 2-20 and 2-21 of the EIAR

Landscape Phase
(to be carried out on commencement of the proposed development)

- All existing boundary vegetation to be retained - refer to 'Tree Management Strategy' for general management proposals
- Existing Annex 1 Habitat (oak birch holly woodland), east of the site entrance, to be protected and retained
- Native Woodland Planting
(note: existing stand of ash affected by ash dieback to be removed - refer to 'Tree Management Strategy' for more detail)
- Approximate locations of proposed Biodiversity Enhancement Measures - refer to legend to the left for the individual numbered elements.
- Proposed Deer Fence

Restoration Phases
(to be carried out in line with restoration programme outlined below left)

- Restoration Phase 1-3:
Native Woodland Planting
- Restoration Phase 2:
Area to be left for natural regeneration to retain access to quarry face for continued nesting by peregrine falcons
- Restoration Phase 3:
ICW to be retained as wetland habitat

Note:
Willow and other woody species have self-seeded in several locations within and surrounding the existing quarry void. These are typically small in size and it is not feasible to identify each individual plant. Those located within the proposed fill area will be removed to facilitate the development. If planning permission should be granted these 'trees' are deemed exempt from requiring a felling license under the Forestry Act 2014.

Landscape and Restoration Scheme

The proposed landscape and restoration scheme for the inert landfill area at Ballinclare, Co. Wicklow aims at the retention and improvement of existing wildlife habitats, as well as the restoration of the landfill area to a natural habitat, i.e. a native woodland area. This is one of the beneficial afteruses recommended in the EPA Guidelines 'Environmental Management in the Extractive Industry' (2006).
The landscape and restoration works will take place on a phased basis, in conjunction with the phased filling activities.

Landscape / Restoration Programme

Landscape Phase: to be carried out on commencement of the development.
Restoration Phase 1: to be carried out on completion of filling Phase 1A
Restoration Phase 2: to be carried out on completion of filling Phase 2
Restoration Phase 3: to be carried out on completion of filling Phase 3

Landscape / Restoration Elements:

Retention of Existing Vegetation: All existing screening vegetation along the site boundaries, and most of the internal woodland areas and scrub vegetation will be retained. Please refer to the Tree Management Strategy provided as part of the EIAR for further information on the management proposals.
Management of ash dieback: There are a number of individual ash trees / groups of ash affected by as dieback. Any diseased / dead trees will be removed in line with the Tree Management Strategy and the natural re-growth of native trees encouraged.
Biodiversity Enhancement: Biodiversity enhancment actions will be carried out in a number of locations, as indicated on the plan above, in line with the Biodiversity Plan provided as part of the EIAR.
Planting Preparations: The infill landform will be covered with ca. 350mm of subsoil and 200-300mm of topsoil on completion of each phase of the landfilling/ re-grading works. The spoil material will be sourced from the material imported into the site, which will be stored in temporary stockpiles.
Native Woodland Planting: Once the earthworks are complete, the area will be planted, using a Native woodland planting mix.

General Notes:

Earthworks: All soil handling to be carried out, as per current best practice guidance. Topsoil and subsoil to be handled separately.
Planting General: All proposed species are native and are to be sourced from Irish provenance, where possible.
All plant handling, planting and establishment works will be carried out in accordance with current best practice and will take place in the appropriate planting season (e.g. bareroot planting: November to March only) and in favourable weather conditions. The planting will be carried out by a suitably qualified landscape contractor.
Plant establishment: Establishment maintenance will be carried out for 2 years following each stage of the planting works (minimum 3 maintenance visits per year; i.e. spring, summer and autumn).This will include weed control, replacement planting where required and the adjustment/removal of tree ties and spiral guards.
Long-term management: The woodland planting establishment will be followed by long-term woodland maintenance, in line with the chosen forestry grant.

Native woodland planting mix:

The proposed mix and planting details are based on the Native Forest Grants currently available in Ireland provided, as by DAFM (i.e. Forest Type (FT) 1 - Native Forests; Scenario 5: Pioneer Birch Forest).
The species mix may be updated to reflect the eligible grants available at the time the planting will be carried out, depending on the ground / soil conditions of the completed fill areas.
To be planted at 2 m centres (i.e. 1 plant/4 m^2 or 2,500 plants / ha; approx. 17 ha in total = 42,500 plants; spread over 4 phases, including the Landscape Phase). Transplants to be planted randomly with no more than 15-20 plants of the same species in one group. The whole site will be enclosed with deer proof fencing. However, the transplants will be individually protected from rabbit/hare grazing by spiral guards.

No.	*Plant Name*	*Common Name*	*Height (cm)*	*Age*	*%*
Transplants/Container Grown Shrubs					
19,125	Betula pubescens	Downy birch	60-90	1+1	45
2,125	Corylus avellana	Hazel	60-90	1+0	05
2,125	Ilex aquifolium	Holly	60-80	2Lt	05
8,500	Pinus sylvestris	Scots pine	60-80	2Lt	20
6,375	Quercus petraea	Sessile oak	60-90	1+1	15
4,250	Sorbus aucuparia	Rowan	60-90	1+1	10

Rev	Amendments	Date	By	Chk	Auth
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D14 N2Y7

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow.

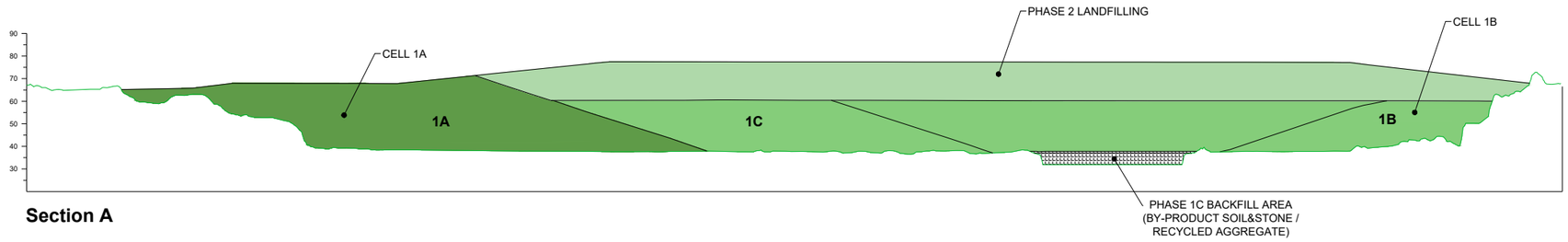
Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: Proposed Landscape and Restoration Plan

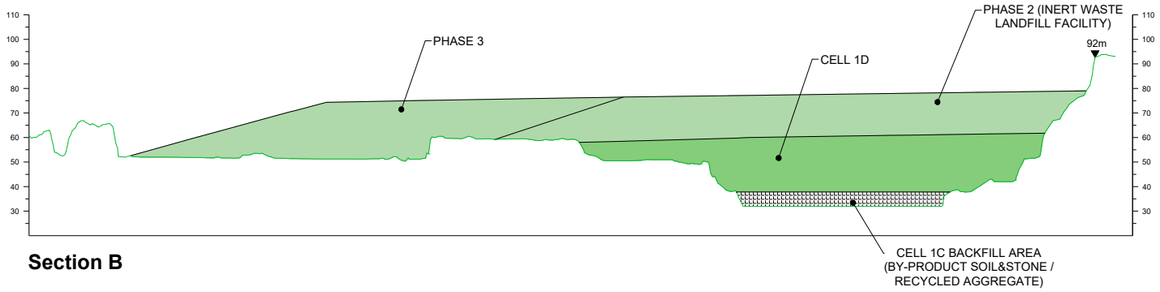
Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
AM	AM	DL	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

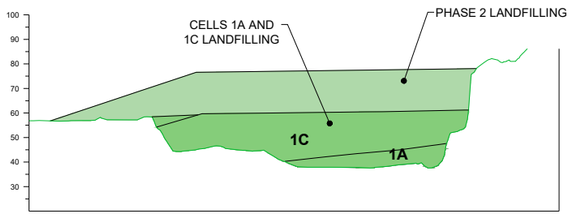
Drawing Number: **FIGURE 2-4**
Rev.: **0**



Section A



Section B



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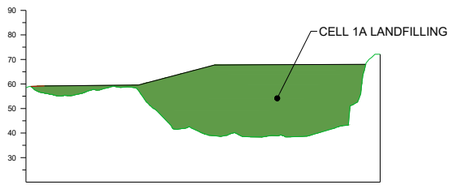

Section D

Notes:

1. REFER TO FIGURE 5 & FIGURE 6 FOR LOCATION OF CROSS SECTIONS.

Legend:

- EXISTING PROFILE
- PHASE 1A LANDFILL
- PHASE 1B-1D BACKFILL
- PHASE 2-3 BACKFILL OVER 60mOD

Rev	Amendments	Date	By	Chk	Auth
2	Title block and Sections	06.24	AB	DL	DL
1	Sections	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code
FINAL

Client
KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project
Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title
RESTORATION / LANDFILLING
CROSS-SECTIONS

Scale	SLR Project No.
1:2,500 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

Drawing Number
FIGURE 2-5A

Rev.
2

0 50 100 150 200 250m

Scale 1:2,500

\\slr.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\00036 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIAR\Volume-2 EIAR Report Figs Appendix\02 Project Description\Dwgs\CAD\Wking\Final_Oct 2024\FIG_2-5A Site Dev. Sections.dwg 04/11/2024

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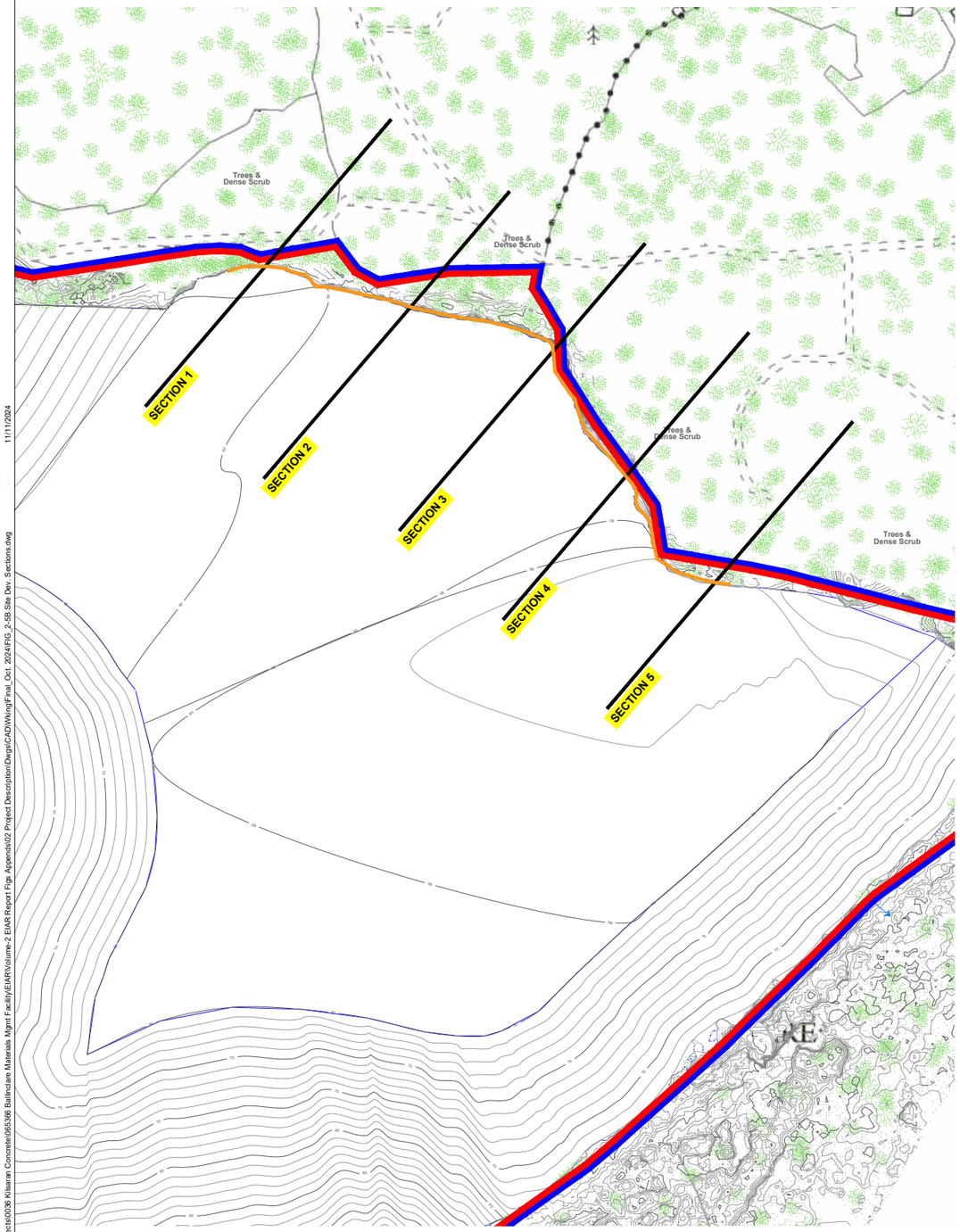
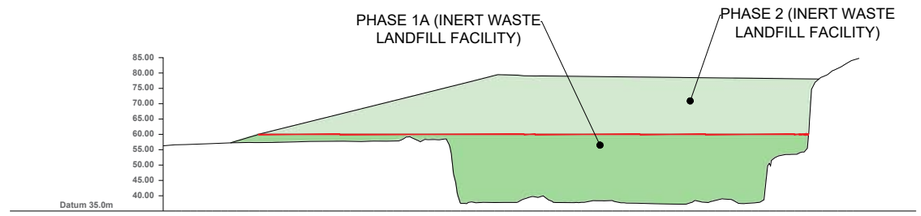
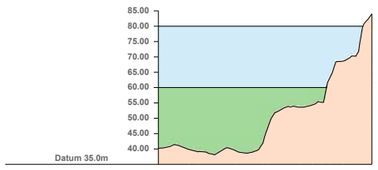
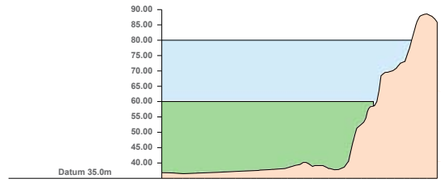




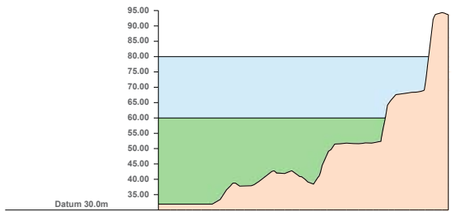
SECTION C-C'



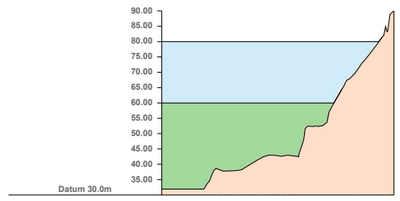
SECTION 1



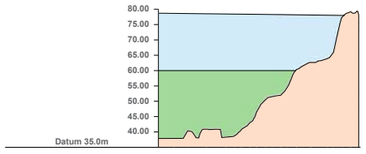
SECTION 2



SECTION 3



SECTION 4



SECTION 5

Scale 1:2,000

Notes:

Legend:

- EXISTING QUARRY PROFILE
- PHASE 1 & PHASE 1A
- PHASE 2
- LENGTH OF EXPOSED ROCK FACE (Approx. 240m)

Rev	Amendments	Date	By	Chk	Auth
2	Title block and Sections	06.24	AB	DL	DL
1	Sections	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: PROPOSED SITE DEVELOPMENT SECTIONS
RETAINED ROCK FACE

Scale	SLR Project No.
1:2,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

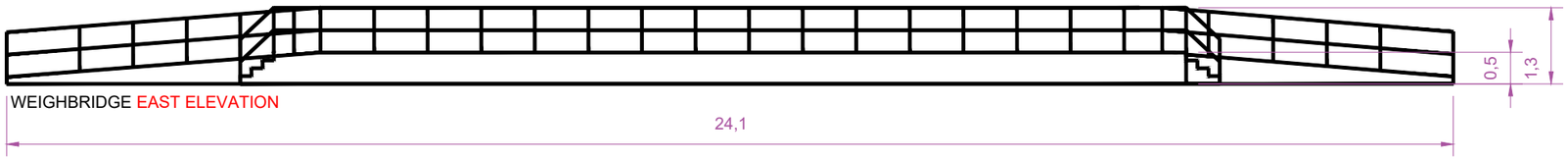
Drawing Number: **FIGURE 2-5B** Rev. **2**

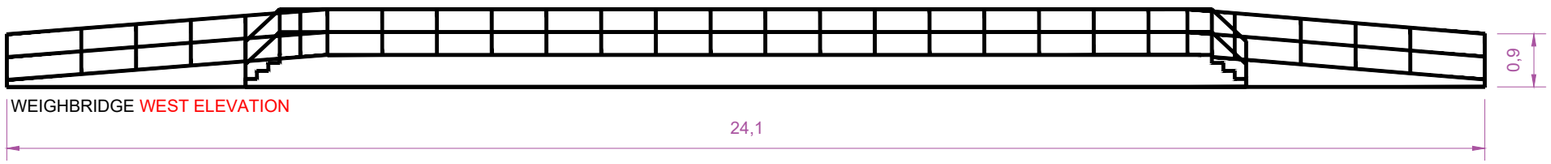
\\slr.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\065366 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIAR\Volume-2 EIAR Report Figs Appends\02 Project Description\Dwgs\CAD\WkingFinal_Oct. 2024\FIG_2-5B.Site Dev. Sections.dwg 11/11/2024

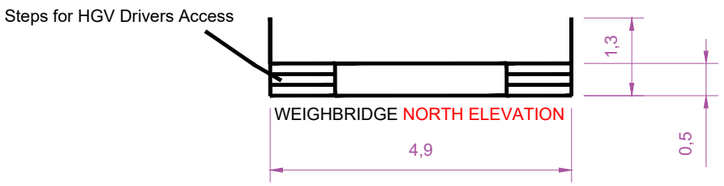
CYAL50316488

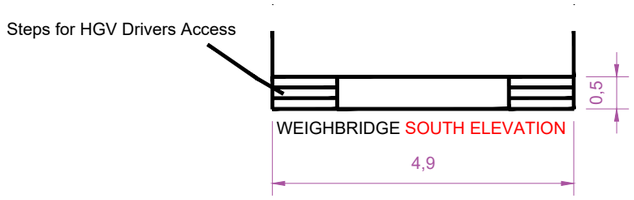
Notes:

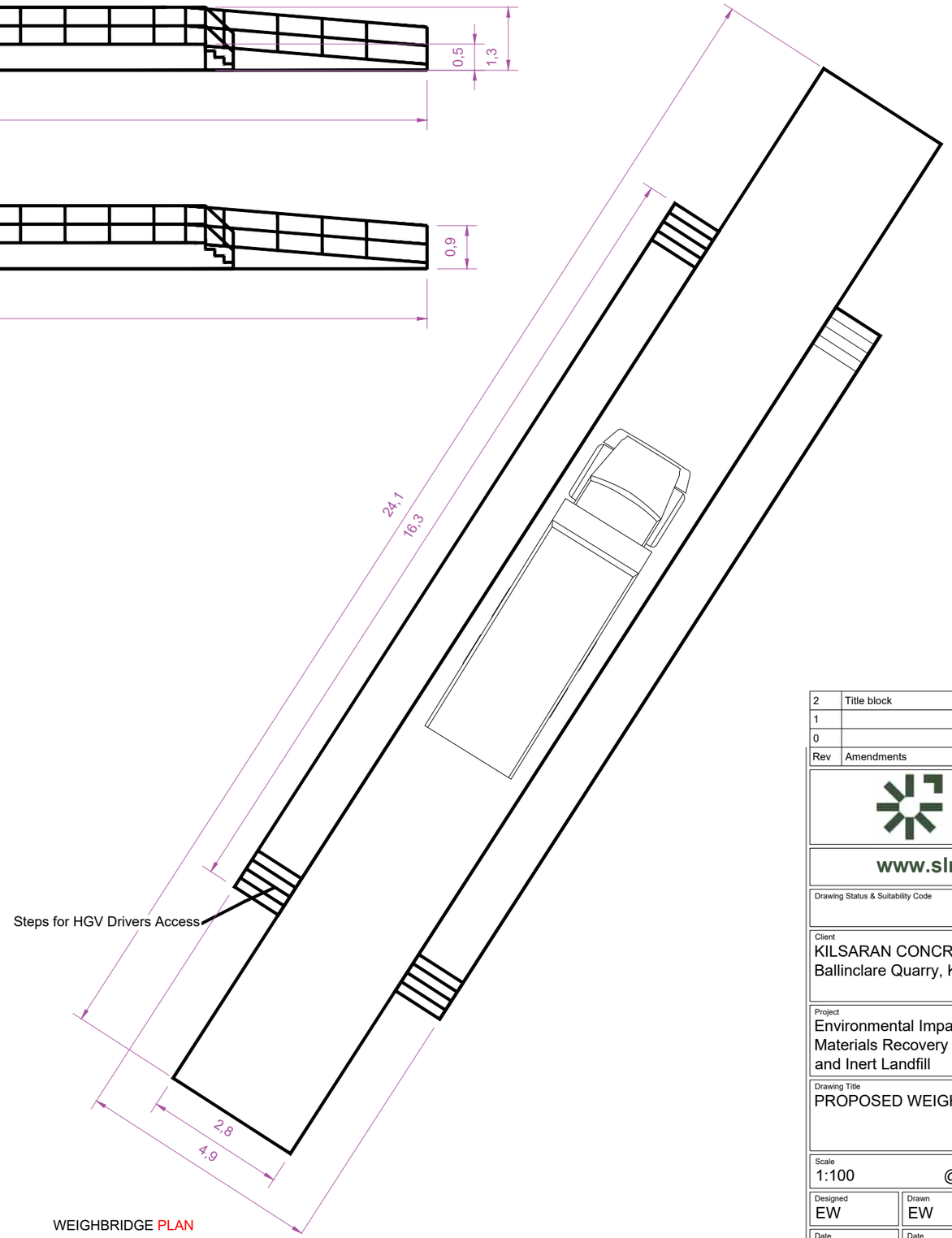
1. REFER TO FIGURE 2-2 FOR LOCATION OF PROPOSED WEIGHBRIDGE.
2. ALL DIMENSIONS IN METERS.











Rev	Amendments	Date	By	Chk	Auth
2	Title block	06.24	AB	DL	DL
1		05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: PROPOSED WEIGHBRIDGE

Scale	SLR Project No.
1:100 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date 10/24	Date 10/24	Date 10/24	Date 10/24

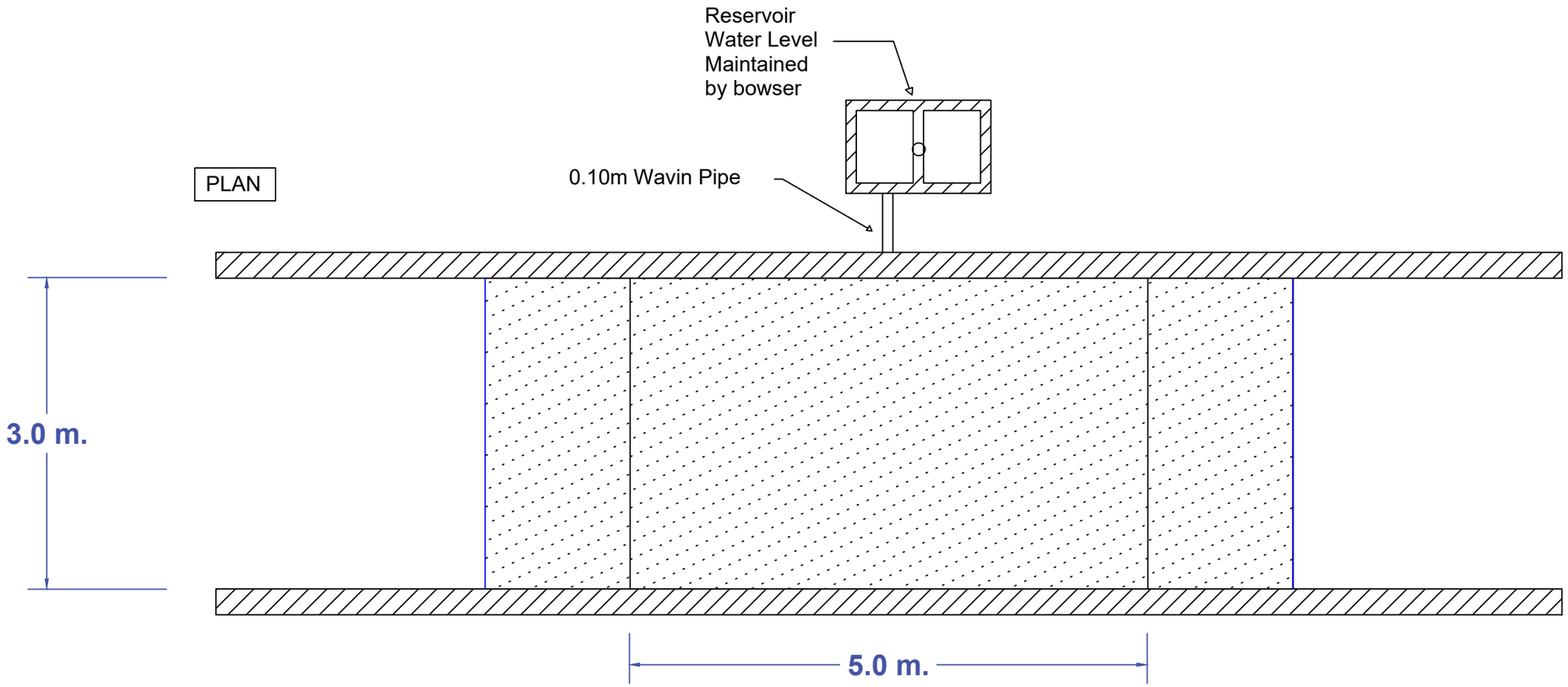
Drawing Number: **FIGURE 2-6** Rev. **2**

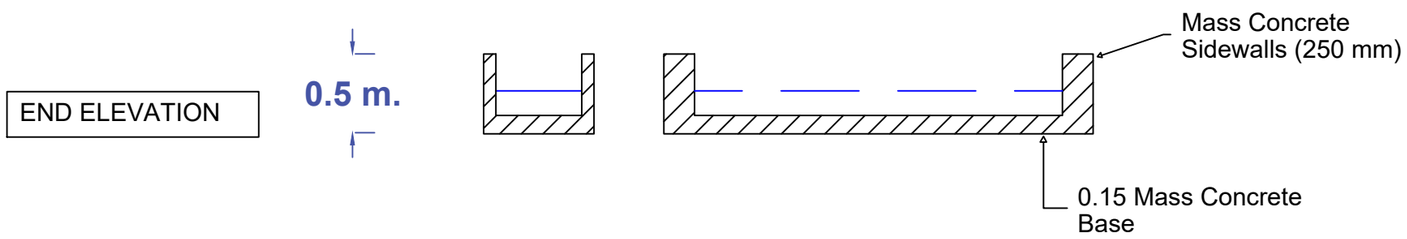
\\slr.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\00336 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIAR\Volume-2 EIAR Report Figs Appendix\02 Project Description\Dwgs\CAD\Wking\Final_Oct. 2024\FIG_2-6 Proposed Weighbridge.dwg 05/11/2024

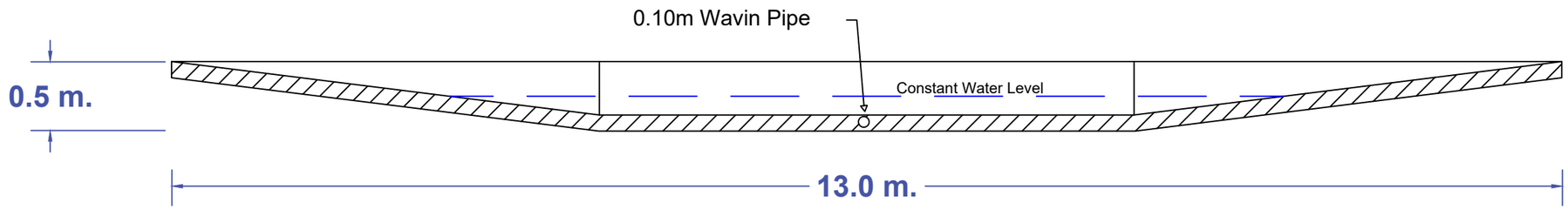
CYAL50316488

Notes:

1. REFER TO FIGURE 2-2 FOR LOCATION OF PROPOSED WEIGHBRIDGE.
2. ALL DIMENSIONS IN METERS.







SIDE ELEVATION

Horizontal &
Vertical Scale
1:75

0 1 2 3 4 5m

Scale 1:50

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: PROPOSED WHEELWASH

Scale	SLR Project No.
1:50 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date 10/24	Date 10/24	Date 10/24	Date 10/24

Drawing Number: **FIGURE 2-7** Rev. **2**

05/11/2024

\\dir.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\00366 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIARV\Volume-2 EIAR Report Figs Appends\02 Project Description\Dwgs\CAD\Wkng\Final_Oct. 2024\FIG_2-7 Proposed Wheelwash.dwg

CYAL50316488

N

DISCHARGE TO BALLINCLARE STREAM

INDICATIVE LOCATION OF PROPOSED CHEMICAL DOSING AND CONTROL BUILDING (6 x 2m)

WATER SUPPLY WELL

INDICATIVE LOCATION OF PROPOSED BUNDED 50m³ TANK

WCC COMPOUND

SCREENING BERM

INTEGRATED CONSTRUCTED WETLAND (ICW)

BED B

BED A

ESTABLISHMENT OF ADDITIONAL HABITAT

NG BERM

SCREENING BERM

WATER TREATMENT PLANT

Building

C&D WASTE STOCKPILES (PROCESSED)

C&D Waste

WASTE RECOVERY SHED 42m X 36m

PROPOSED WEIGHBRIDGE

HGV QUEUEING AREA

UNPROCESSED C&D STOCKPILE

WORKSHOP

CANTEEN

BUNDED FUEL TANKS

TOILETS

2 Cabins
2 Cabins & 1 Urinal

WEIGHBRIDGE

SITE OFFICE

VISITOR PARKING AREA

EXISTING WHEELWASH

DISTRIBUTION ROOM & CONTROL SWITCH GEAR (AGGREGATE PLANT)

Landfill Intake

Wash Plant

Backhaul

Aggregates

CAR PARKING AREA

LABORATORY

TOILETS
1 INTERNAL TO LAB
1 EXTERNAL ACCESS

SAND STORAGE SHED

SOIL WASHING PLANT

PROPOSED ADDITIONAL WHEELWASH

Reservation Stream

Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- CONTOURS
- INTERNAL ACCESS ROADS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- DISCHARGE FLOW DIRECTION
- HGV TRAFFIC DIRECTIONS

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code
FINAL

Client
KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project
Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title
PROPOSED INTERNAL HGV TRAFFIC MANAGEMENT

Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	EW	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

Drawing Number
FIGURE 2-8

Rev.
2

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06/11/2024

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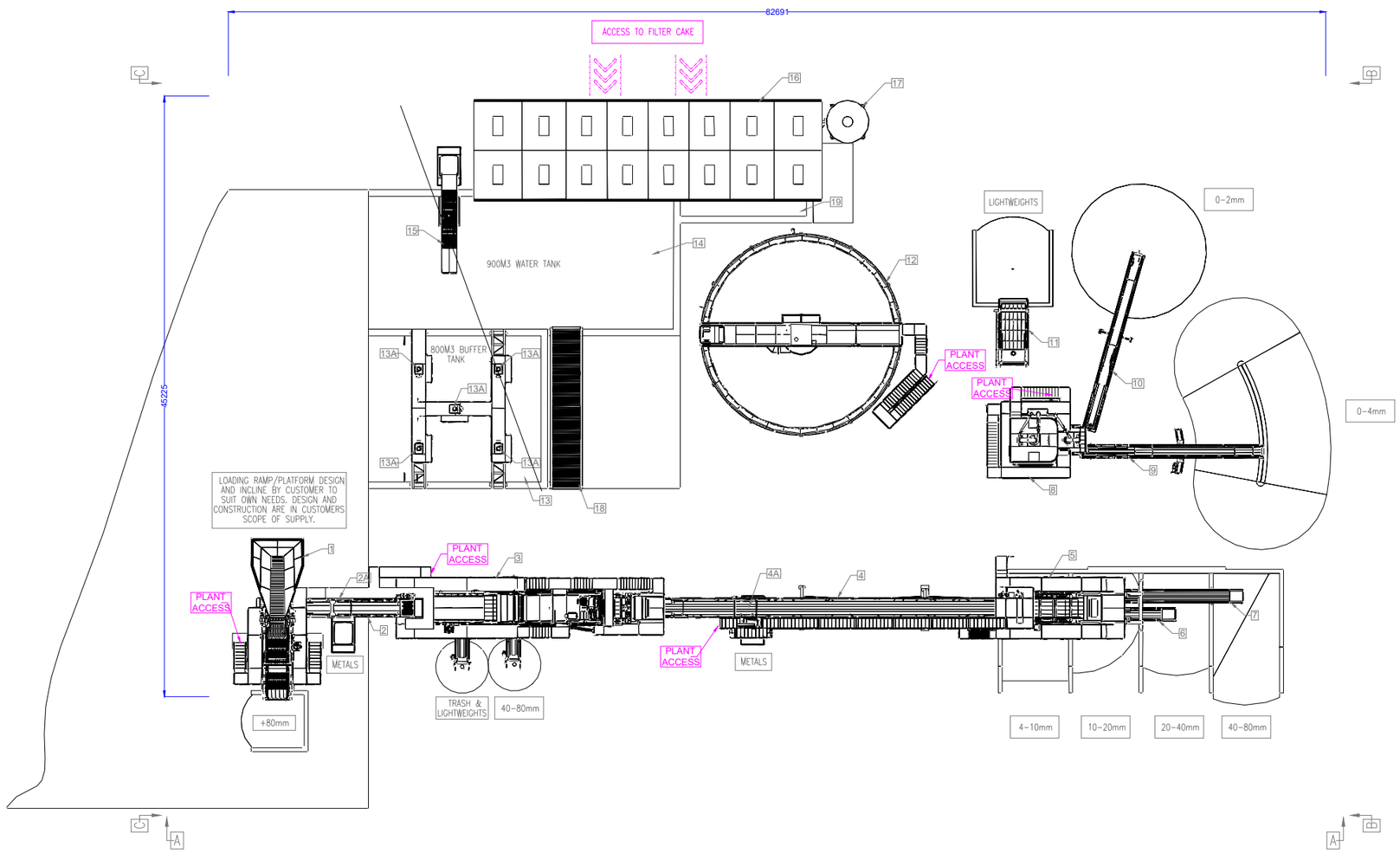

Notes:

1. REFER TO FIGURE 2-2 FOR LOCATION OF SOIL WASH PLANT.

2. FOR PLANNING PURPOSES ONLY. DRAWING PROVIDED TO SLR CONSULTING BY CDE - DWG REF. SL8236-T3-L1.

3. ALL DIMENSIONS ARE IN mm.

Item	Qty	Plant Item	
1	1	R4500 APRON FEEDER	
2	1	M1210 FEED CONVEYOR	
2A	1	CORE 1000E OVERBAND MAGNET	
3	1	AGGMAX 253SR	
4	1	S2908 PROGRADE FEED CONVEYOR	
4A	1	CORE 800E OVERBAND MAGNET	
5	1	P3-75 DRY SIZING SCREEN	
6	1	M0565 AGG STOCKPILE CONVEYOR	
7	1	M1065 AGG STOCKPILE CONVEYOR	
8	1	CFCU 200	
9	1	R1765 SAND STOCKPILE CONVEYOR	
10	1	M1765 SAND STOCKPILE CONVEYOR	
11	1	ORGANICS SCREEN	
12	1	A1500 AQUACYCLE	
13	1	800M3 CONCRETE BUFFER TANK	
13A	1	CDE 200/55/38	
14	1	800M3 CONCRETE WATER TANK	
15	1	4 PANEL SCREEN W/ ANTIPEG	
16	1	CDE 2000 P19 PRESS 246	
17	1	LIME DOSING PLANT	
18	1	12M CONTROL CABIN	
19	1	60M3 CONCRETE CLOTH WASH TANK	

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code
FINAL

Client
KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project
Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

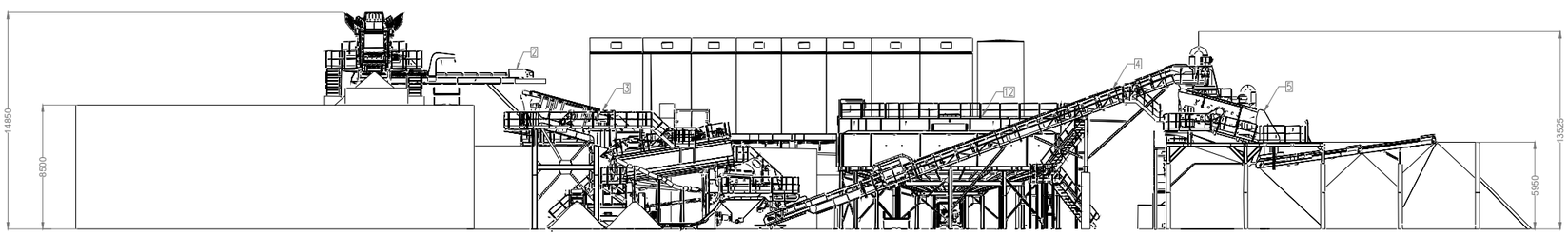
Drawing Title
SOIL WASHING PLANT PLAN

Scale	SLR Project No.
1:4,000 @ A3	065366.00001

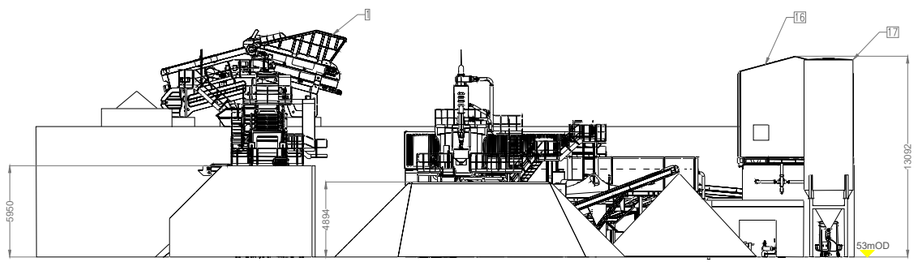
Designed	Drawn	Checked	Authorised
AB	AB	DL	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

Drawing Number
FIGURE 2-9A

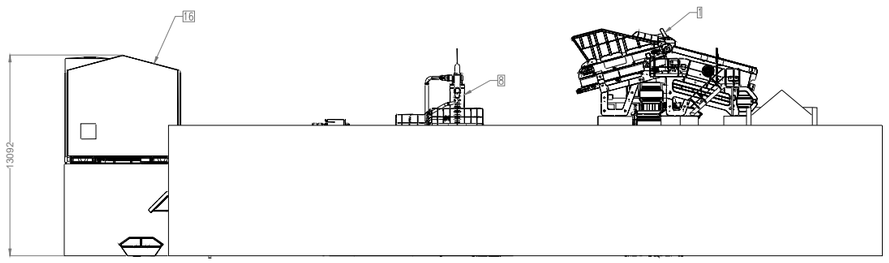
Rev.
2



VIEW A-A



VIEW B-B



VIEW C-C

Notes:

1. REFER TO FIGURE 2-2 FOR LOCATION OF SOIL WASH PLANT.

2. FOR PLANNING PURPOSES ONLY. DRAWING PROVIDED TO SLR CONSULTING BY CDE - DWG REF. SL8236-T3-L1.

3. ALL DIMENSIONS ARE IN mm.

Item	Qty	Plant Item	
1	1	R4500 APRON FEEDER	
2	1	M1210 FEED CONVEYOR	
2A	1	CORE 1000E OVERBAND MAGNET	
3	1	AGGMAX 253SR	
4	1	S2908 PROGRADE FEED CONVEYOR	
4A	1	CORE 800E OVERBAND MAGNET	
5	1	P3-75 DRY SIZING SCREEN	
6	1	M0565 AGG STOCKPILE CONVEYOR	
7	1	M1065 AGG STOCKPILE CONVEYOR	
8	1	CFCU 200	
9	1	R1765 SAND STOCKPILE CONVEYOR	
10	1	M1765 SAND STOCKPILE CONVEYOR	
11	1	ORGANICS SCREEN	
12	1	A1500 AQUACYCLE	
13	1	800M3 CONCRETE BUFFER TANK	
13A	1	CDE 200/55/38	
14	1	800M3 CONCRETE WATER TANK	
15	1	4 PANEL SCREEN W/ ANTIPEG	
16	1	CDE 2000 P19 PRESS 246	
17	1	LIME DOSING PLANT	
18	1	12M CONTROL CABIN	
19	1	60M3 CONCRETE CLOTH WASH TANK	

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code
FINAL

Client
KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project
Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title
SOIL WASHING PLANT ELEVATIONS

Scale	SLR Project No.
1:4,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
AB	AB	DL	DL
Date 10/24	Date 10/24	Date 10/24	Date 10/24

Drawing Number
FIGURE 2-9B

Rev.
2

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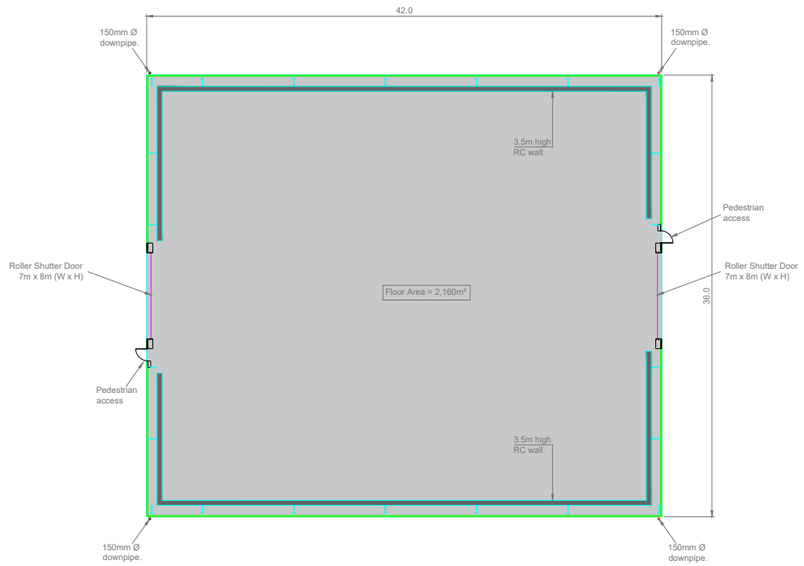
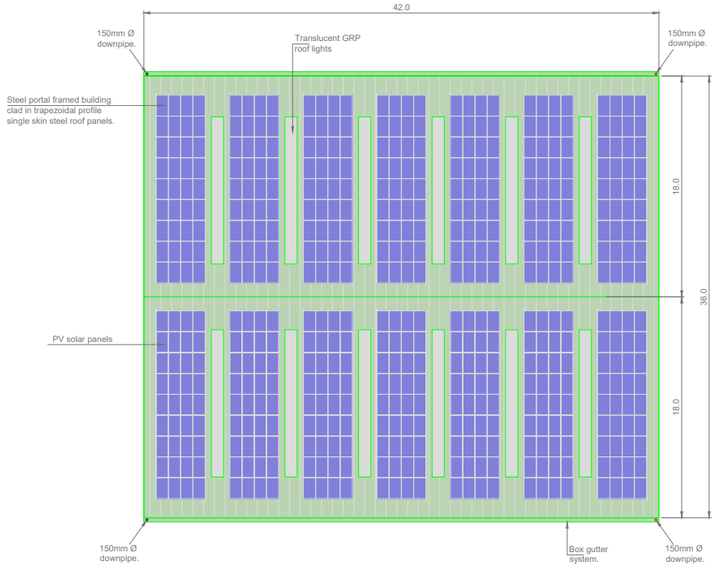
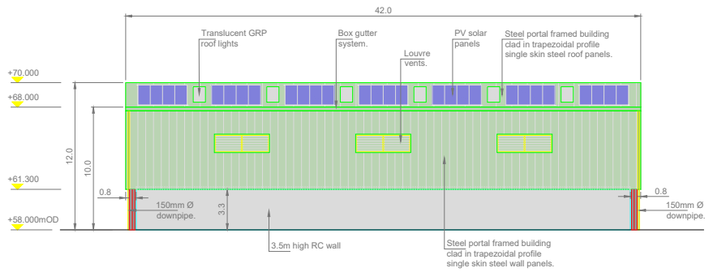


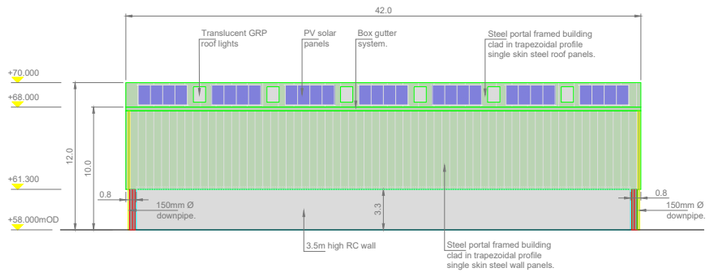
GROUND FLOOR PLAN
1:500



ROOF PLAN
1:500

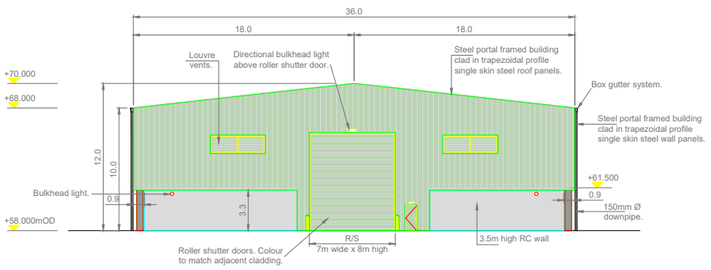


NORTH ELEVATION
1:500



SOUTH ELEVATION
1:500

WEST ELEVATION
1:500



EAST ELEVATION
1:500

0 5 10 15 20 25 30 35 40 45 50m

Scale 1:500

Notes:

1. REFER TO FIGURE 2-2 FOR LOCATION OF PROPOSED C&D WASTE RECOVERY SHED.

Rev	Amendments	Date	By	Chk	Auth
3	Enclosed building	10.24	AR	DP	DL
2	Title block	06.24	AB	DL	DL
1		05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code
FINAL

Client
KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project
Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title
PROPOSED C&D WASTE RECOVERY SHED

Scale	SLR Project No.
1:500 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date 10/24	Date 10/24	Date 10/24	Date 10/24

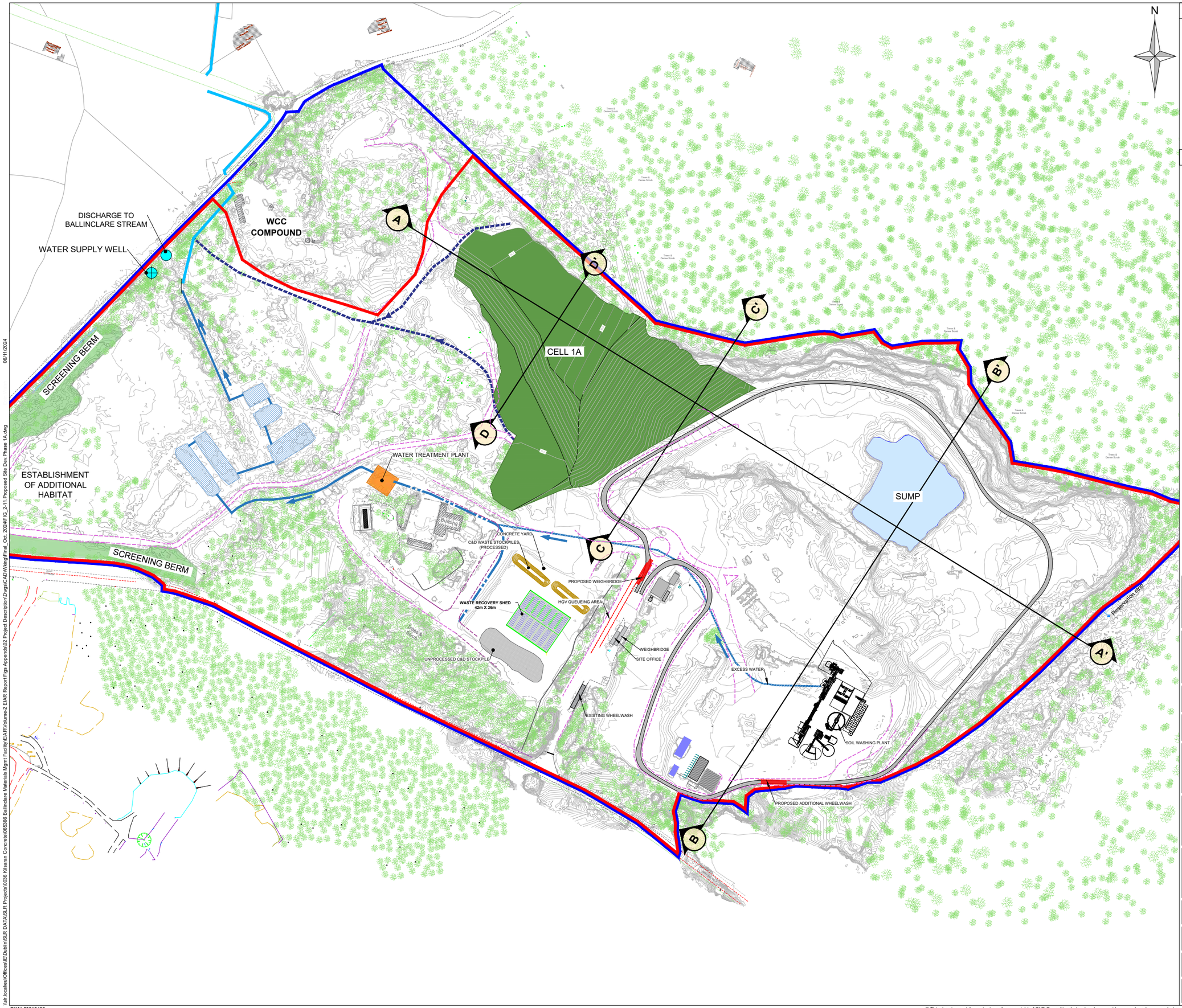
Drawing Number
FIGURE 2-10

Rev.
3

05/11/2024

\\slr.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\00536 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIAR\volume-2 EIAR Report Figs Appends\02 Project Description\Dwgs\CAD\WkingFinal_Oct. 2024\FIG_2-10 Proposed C&D Waste Rec Shed R2.dwg

CYAL50316488



Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

3. CONTOURS SHOWN ARE INDICATIVE ONLY.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- EXISTING CONTOURS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION
- PROVISION FOR TEMPORARY STORMWATER DRAINAGE CHANNEL (IF REQUIRED)

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: PROPOSED SITE DEVELOPMENT
PHASE 1A - COMPLETED LANDFORM

Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date: 10/24	Date: 10/24	Date: 10/24	Date: 10/24

Drawing Number: **FIGURE 2-11** Rev.: **2**

06/11/2024

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CYAL50316488

N

DISCHARGE TO BALLINCLARE STREAM

INDICATIVE LOCATION OF PROPOSED CHEMICAL DOSING AND CONTROL BUILDING (6 x 2m)

WATER SUPPLY WELL

INDICATIVE LOCATION OF PROPOSED BUNDED 50m³ TANK

WCC COMPOUND

SCREENING BERM

INTEGRATED CONSTRUCTED WETLAND (ICW)

BED B

BED A

ESTABLISHMENT OF ADDITIONAL HABITAT

WATER TREATMENT PLANT

SCREENING BERM

CONCRETE YARD

C&D WASTE STOCKPILES (PROCESSED)

PROPOSED WEIGHBRIDGE

HGV QUEUEING AREA

WASTE RECOVERY SHED 42m X 36m

UNPROCESSED C&D STOCKPILE

WEIGHBRIDGE

SITE OFFICE

EXISTING WHEELWASH

EXCESS WATER

SUMP

CELL 1B

SOIL WASHING PLANT

PROPOSED ADDITIONAL WHEELWASH

Reservation Strip

A

A'

B

B'

C

C'

D

D'

Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

3. CONTOURS SHOWN ARE INDICATIVE ONLY.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- CONTOURS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION
- PROVISION FOR TEMPORARY STORMWATER DRAINAGE CHANNEL (IF REQUIRED)

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: PROPOSED SITE DEVELOPMENT
PHASE 1B - COMPLETED LANDFORM

Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date: 10/24	Date: 10/24	Date: 10/24	Date: 10/24

Drawing Number: **FIGURE 2-12** Rev. **2**

06/11/2024

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CYAL50316488

N

DISCHARGE TO BALLINCLARE STREAM

INDICATIVE LOCATION OF PROPOSED CHEMICAL DOSING AND CONTROL BUILDING (6 x 2m)

WATER SUPPLY WELL

INDICATIVE LOCATION OF PROPOSED BUNDED 50m³ TANK

WCC COMPOUND

SCREENING BERM

INTEGRATED CONSTRUCTED WETLAND (ICW)

BED B

BED A

ESTABLISHMENT OF ADDITIONAL HABITAT

WATER TREATMENT PLANT

CELL 1C

SUMP

CONCRETE YARD

C&D WASTE STOCKPILES (PROCESSED)

PROPOSED WEIGHBRIDGE

WORKSHOP

CANTEEN

HGV QUEUEING AREA

WASTE RECOVERY SHED 42m X 36m

WEIGHBRIDGE

SITE OFFICE

UNPROCESSED C&D STOCKPILE

EXCESS WATER

EXISTING WHEELWASH

SOIL WASHING PLANT

PROPOSED ADDITIONAL WHEELWASH

Reservation strip

A

A'

B

B'

C

C'

D

D'

Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

3. CONTOURS SHOWN ARE INDICATIVE ONLY.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- EXISTING CONTOURS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION
- PROVISION FOR TEMPORARY STORMWATER DRAINAGE CHANNEL (IF REQUIRED)

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: PROPOSED SITE DEVELOPMENT
PHASE 1C - COMPLETED LANDFORM

Scale		SLR Project No.
1:3,000	@ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date: 10/24	Date: 10/24	Date: 10/24	Date: 10/24

Drawing Number: **FIGURE 2-13** Rev. **2**

06/11/2024

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CYAL50316488

N

DISCHARGE TO BALLINCLARE STREAM

INDICATIVE LOCATION OF PROPOSED CHEMICAL DOSING AND CONTROL BUILDING (6 x 2m)

WATER SUPPLY WELL

INDICATIVE LOCATION OF PROPOSED BUNDED 50m^3 TANK

WCC COMPOUND

SCREENING BERM

INTEGRATED CONSTRUCTED WETLAND (ICW)

BED B

BED A

ESTABLISHMENT OF ADDITIONAL HABITAT

WATER TREATMENT PLANT

CONCRETE YARD

C&D WASTE STOCKPILES (PROCESSED)

PROPOSED WEIGHBRIDGE

HGV QUEUEING AREA

WASTE RECOVERY SHED 42m X 36m

UNPROCESSED C&D STOCKPILE

WEIGHBRIDGE

SITE OFFICE

EXISTING WHEELWASH

EXCESS WATER

SOIL WASHING PLANT

PROPOSED ADDITIONAL WHEELWASH

CELL 1D

PROVISION FOR WATER BALANCING POND (IF REQUIRED)

PROVISION FOR WATER BALANCING POND (IF REQUIRED)

A

A'

B

B'

C

C'

D

D'

Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

3. CONTOURS SHOWN ARE INDICATIVE ONLY.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- CONTOURS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION
- PROVISION FOR TEMPORARY STORMWATER DRAINAGE CHANNEL (IF REQUIRED)

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: PROPOSED SITE DEVELOPMENT
PHASE 1D - COMPLETED PHASE 1 LANDFORM

Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

Drawing Number: **FIGURE 2-14** Rev. **2**

CYAL50316488

06/11/2024

\\dir.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\0036 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIA\RV\olume-2 EIAR Report Figs Appends\02 Project Description\Dwgs\CAD\Weng\Final_Oct_2024\FIG_2-14 Proposed Site Dev.Phase 1D.dwg

N

Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

3. CONTOURS SHOWN ARE INDICATIVE ONLY.

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- EXISTING CONTOURS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION
- PROVISION FOR TEMPORARY STORMWATER DRAINAGE CHANNEL (IF REQUIRED)
- AREA OF QUARRY FACE RETAINED FOR PEREGRINE FALCON

DISCHARGE TO BALLINCLARE STREAM
INDICATIVE LOCATION OF PROPOSED CHEMICAL DOSING AND CONTROL BUILDING (6 x 2m)
WATER SUPPLY WELL
INDICATIVE LOCATION OF PROPOSED BUNDED 50m³ TANK
WCC COMPOUND
SCREENING BERM
INTEGRATED CONSTRUCTED WETLAND (ICW)
BED B
BED A
ESTABLISHMENT OF ADDITIONAL HABITAT
PROVISION FOR WATER BALANCING POND (IF REQUIRED)
WATER TREATMENT PLANT
PHASE 2
A
Ḋ
Ċ
B
D
C
A'
B'
CONCRETE YARD
C&D WASTE STOCKPILES (PROCESSED)
PROPOSED WEIGHBRIDGE
HGV QUEUEING AREA
WASTE RECOVERY SHED 42m X 36m
WEIGHBRIDGE
SITE OFFICE
UNPROCESSED C&D STOCKPILE
EXISTING WHEELWASH
SOIL WASHING PLANT
PROPOSED ADDITIONAL WHEELWASH
Reservation Strip

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: PROPOSED SITE DEVELOPMENT
PHASE 2 - COMPLETED LANDFORM

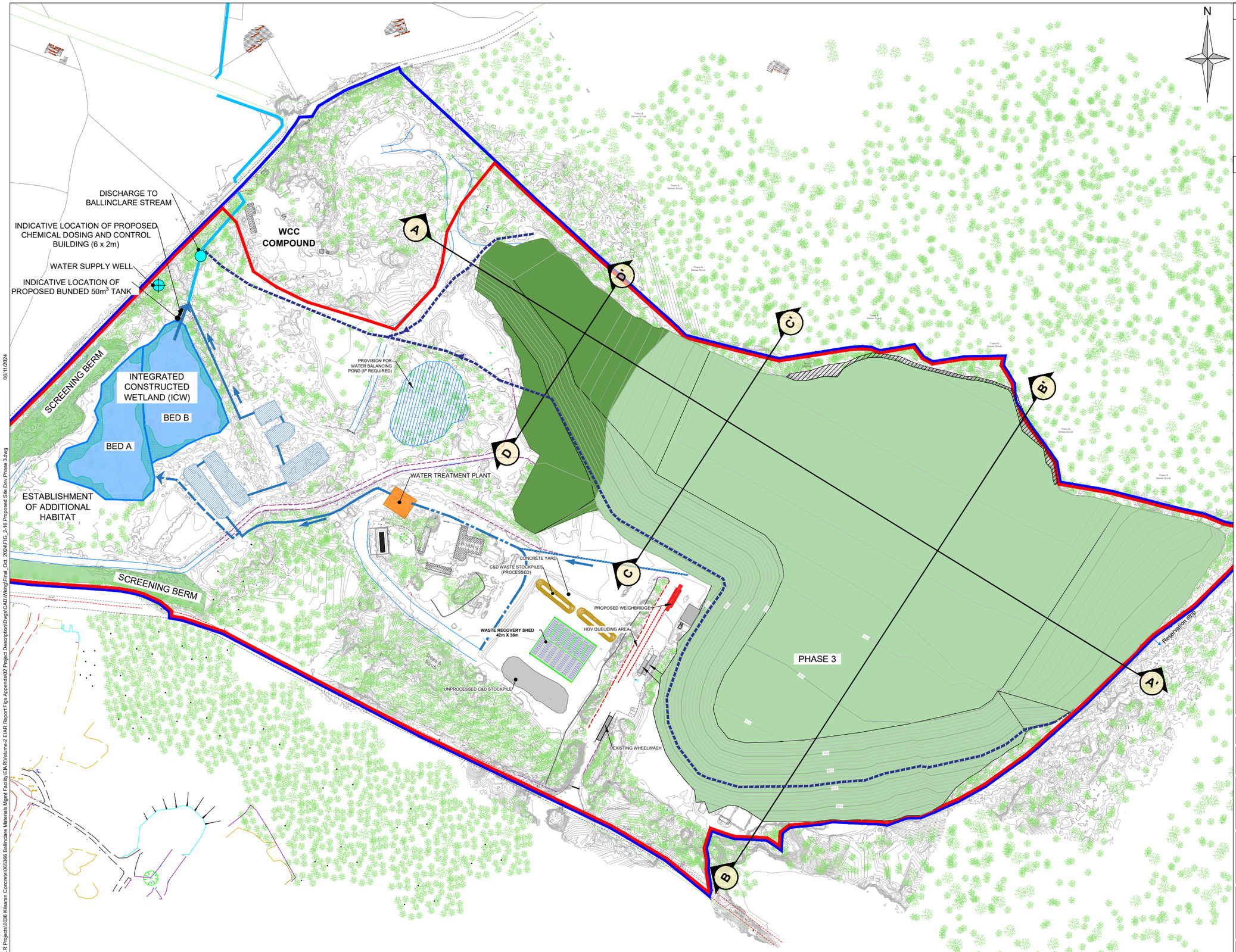
Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date: 10/24	Date: 10/24	Date: 10/24	Date: 10/24

Drawing Number: **FIGURE 2-15** Rev. **2**

CYAL50316488

\\slr.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\0036 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIAR\Volume-2 EIAR Report Figs Appendix\02 Project Description\Dwgs\CAD\Wking\Final_Oct. 2024\FIG_2-15.Proposed Site Dev.Phase 2.dwg 06/11/2024



Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

3. CONTOURS SHOWN ARE INDICATIVE ONLY.

Legend:

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- PLANNING APPLICATION AREA (c. 32.6 HA)
- EXISTING CONTOURS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION
- PROVISION FOR TEMPORARY STORMWATER DRAINAGE CHANNEL (IF REQUIRED)
- AREA OF QUARRY FACE RETAINED FOR PEREGRINE FALCON

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code
FINAL

Client
KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project
Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title
PROPOSED SITE DEVELOPMENT
PHASE 3 - COMPLETED LANDFORM

Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date	Date	Date	Date
10/24	10/24	10/24	10/24

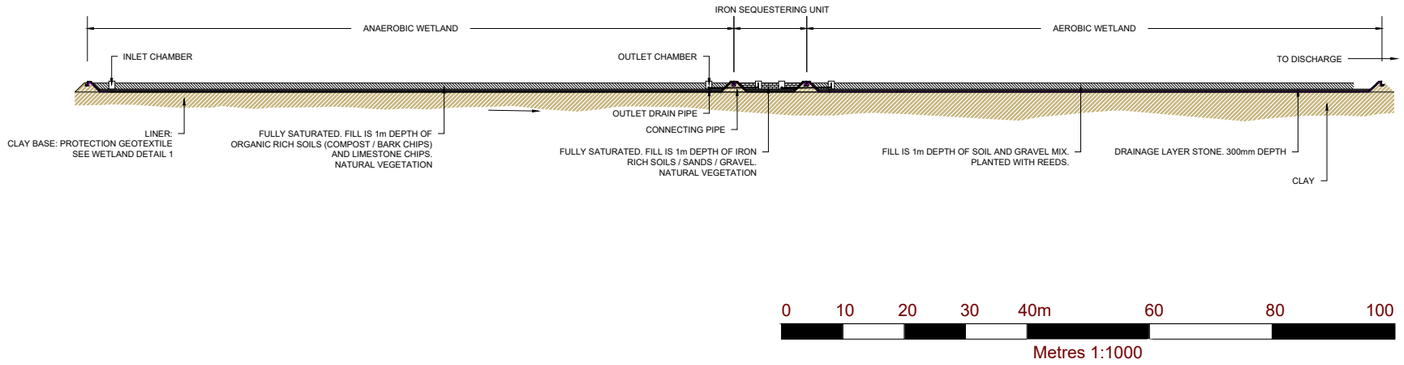
Drawing Number
FIGURE 2-16

Rev.
2

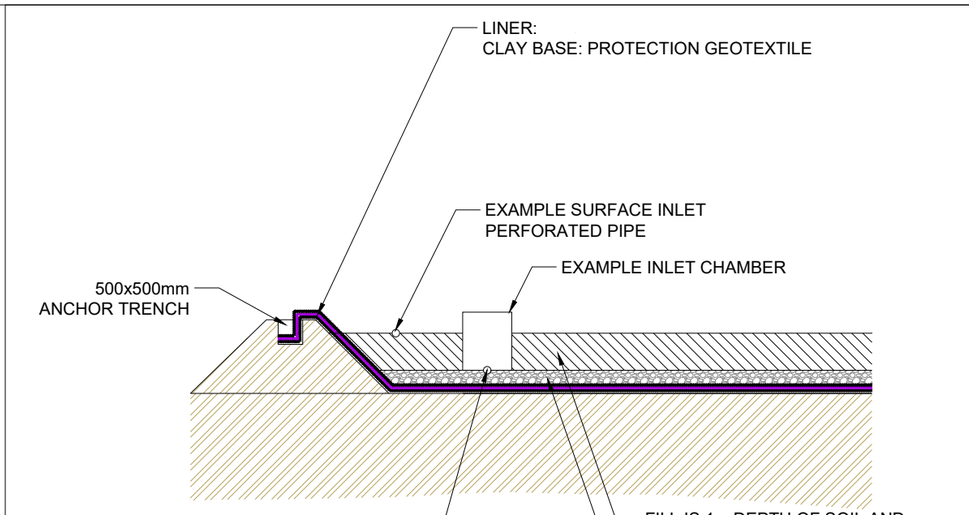
\\slr.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\00036 Kilsaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIAR\Volume-2 EIAR Report\Figs Appendix\02 Project Description\Dwgs\CAD\Working\Final_Oct. 2024\FIG_2-16 Proposed Site Dev Phase 3.dwg

06/11/2024

CYAL50316488

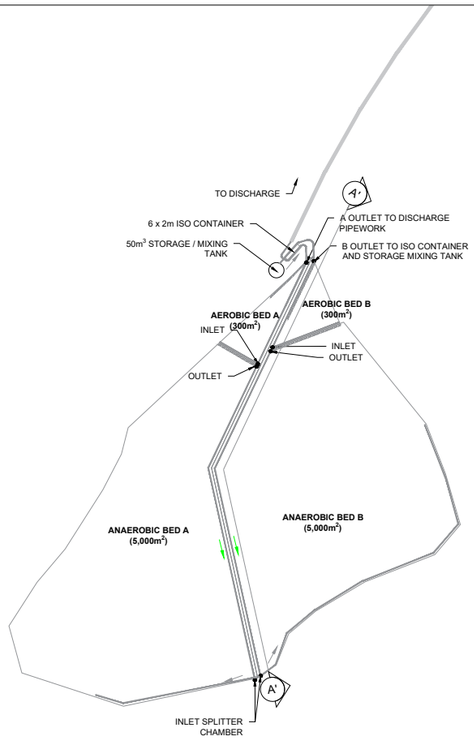


INDICATIVE PROPOSED TREATMENT LAYOUT - SECTION A-A' VIEW



WETLAND DETAIL 1

SCALE 1:250



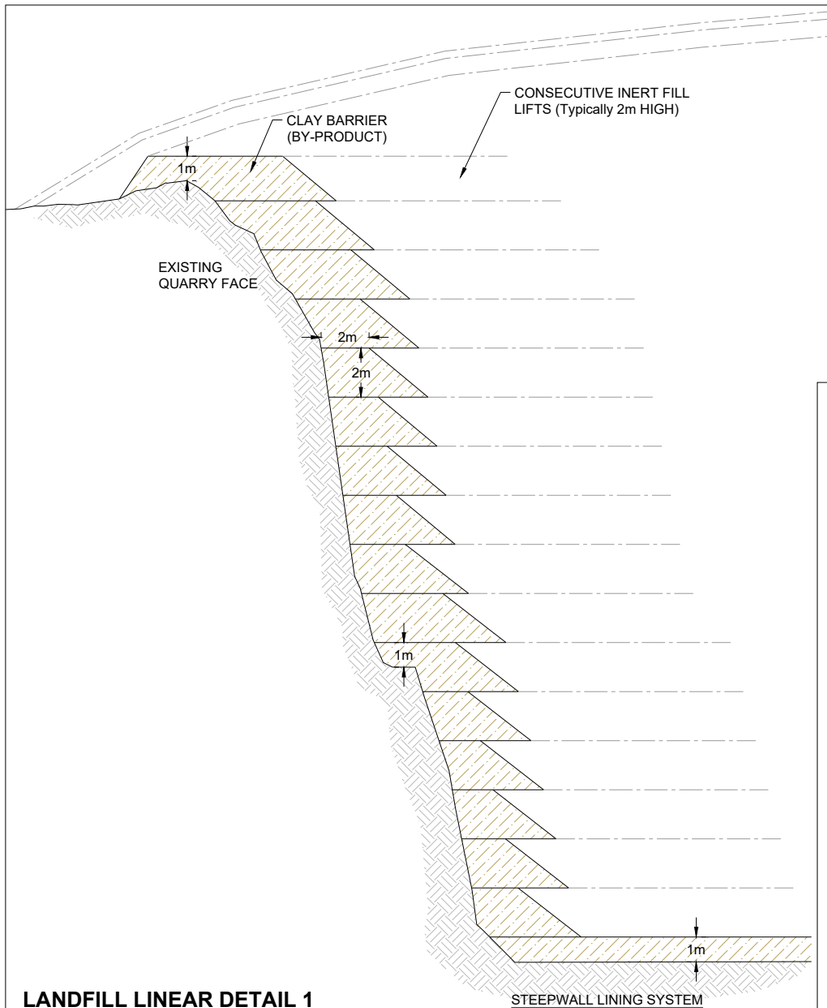
BUNDS OMITTED FOR CLARITY - REFER TO SECTIONS FOR DETAILS

0 20 40 60 80m 120 160 200

Metres 1:2000

INDICATIVE PROPOSED TREATMENT LAYOUT - PLAN VIEW

SCALE 1:2000



LANDFILL LINEAR DETAIL 1

SCALE 1:250

CAPPING
SCALE 1:250

Rev	Amendments	Date	By	Chk	Auth

SLR

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: CONSTRUCTION DETAILS

Scale		SLR Project No.
1:2,500	@ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date 10/24	Date 10/24	Date 10/24	Date 10/24

Drawing Number: **FIGURE 2-17** Rev. **1**

23/10/2024

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N

SW3B

SW4

N1

D1

SW1

DISCHARGE TO BALLINCLARE STREAM

GW3

WATER SUPPLY WELL

SCREENING BERM

EXISTING DISCHARGE CHANNEL TO BALLINCLARE STREAM

SETTLEMENT LAGOONS

FORMER SETTLEMENT LAGOONS

TREATED WATER TO SETTLEMENT PONDS

WATER TREATMENT PLANT

EXISTING FLOOR LEVEL C. 37mOD

QUARRY SUMP

SW2

DISCHARGE WATER FROM QUARRY SUMP

D3

N3

SCREENING BERM

SCREENING BERM

GW1

CONCRETE YARD

D2

GW2

N2

KILMACURRA WEST

0 100 200 300 400 500m

Scale 1:5,000

Notes:

1. EXTRACT FROM 1:50,000 O.S DISCOVERY SERIES MAP **NO. 50.**

Legend:

- LAND INTEREST BOUNDARY (c. 36.0 HA)
- PLANNING APPLICATION AREA (c. 32.6 HA)
- D1 — DUST MONITORING LOCATIONS
- N1 — NOISE MONITORING LOCATIONS
- SURFACE WATER MONITORING LOCATIONS
- GROUNDWATER MONITORING LOCATIONS

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: ENVIRONMENTAL MONITORING LOCATIONS

Scale	SLR Project No.
1:5,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date 10/24	Date 10/24	Date 10/24	Date 10/24

Drawing Number: **FIGURE 2-18** Rev. **2**

06/11/2024

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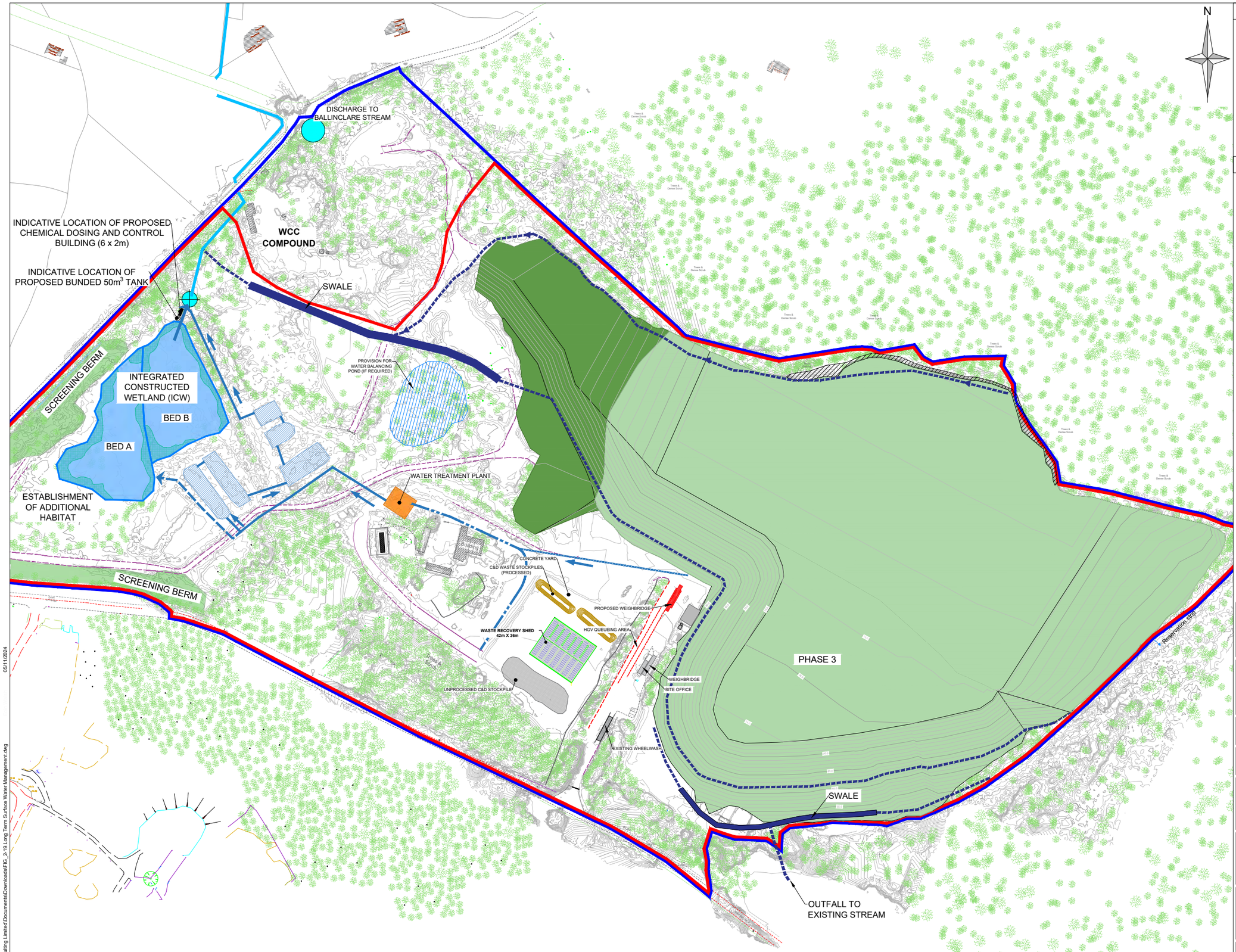
CYAL50316488



Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

3. CONTOURS SHOWN ARE INDICATIVE ONLY.

Legend:

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- PLANNING APPLICATION AREA (c. 32.6 HA)
- CONTOURS
- INTEGRATED CONSTRUCTED WETLAND (ICW)
- PUMPED SURFACE WATER RUN-OFF FROM QUARRY FLOOR / INERT LANDFILL CELLS
- DISCHARGE FLOW DIRECTION
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- AREA OF QUARRY FACE RETAINED FOR PEREGRINE FALCON

Rev	Amendments	Date	By	Chk	Auth
2	Title block and layout	06.24	AB	DL	DL
1	Layout	05.24	AB	DL	DL
0		01.24	EW	DL	DL

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Drawing Status & Suitability Code: **FINAL**

Client: KILSARAN CONCRETE
Ballinclare Quarry, Kilbride, Co. Wicklow

Project: Environmental Impact Assessment Report
Materials Recovery / Recycling Facility
and Inert Landfill

Drawing Title: LONG TERM SURFACE WATER MANAGEMENT

Scale	SLR Project No.
1:3,000 @ A3	065366.00001

Designed	Drawn	Checked	Authorised
EW	EW	DL	DL
Date: 10/24	Date: 10/24	Date: 10/24	Date: 10/24

Drawing Number: **FIGURE 2-19**
Rev.: **2**

05/11/2024

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CYAL50316488

APPENDICES

Appendix 2-A: Approved Wastewater Treatment System

NOTES

1. EXTRACT FROM ORDNANCE SURVEY DIGITAL MAP 4137 / 1:2,500 4137-B & 4137-D

2. ORDNANCE SURVEY IRELAND LICENCE CO. SU 0000715 (c) ORDNANCE SURVEY IRELAND & GOVERNMENT OF IRELAND

LEGEND

TERTIARY TREATMENT
(2 MODULE PURAFLO)
Constructed as per Site Characterisation Form

Distribution Pipe

GROUND LEVEL 57.3m AOD

PRE-STRESSED CONCRETE LINTEL

Discharge to Ground

300mm Gravel Base

SECONDARY TREATMENT
(PLATINUM UNIT)

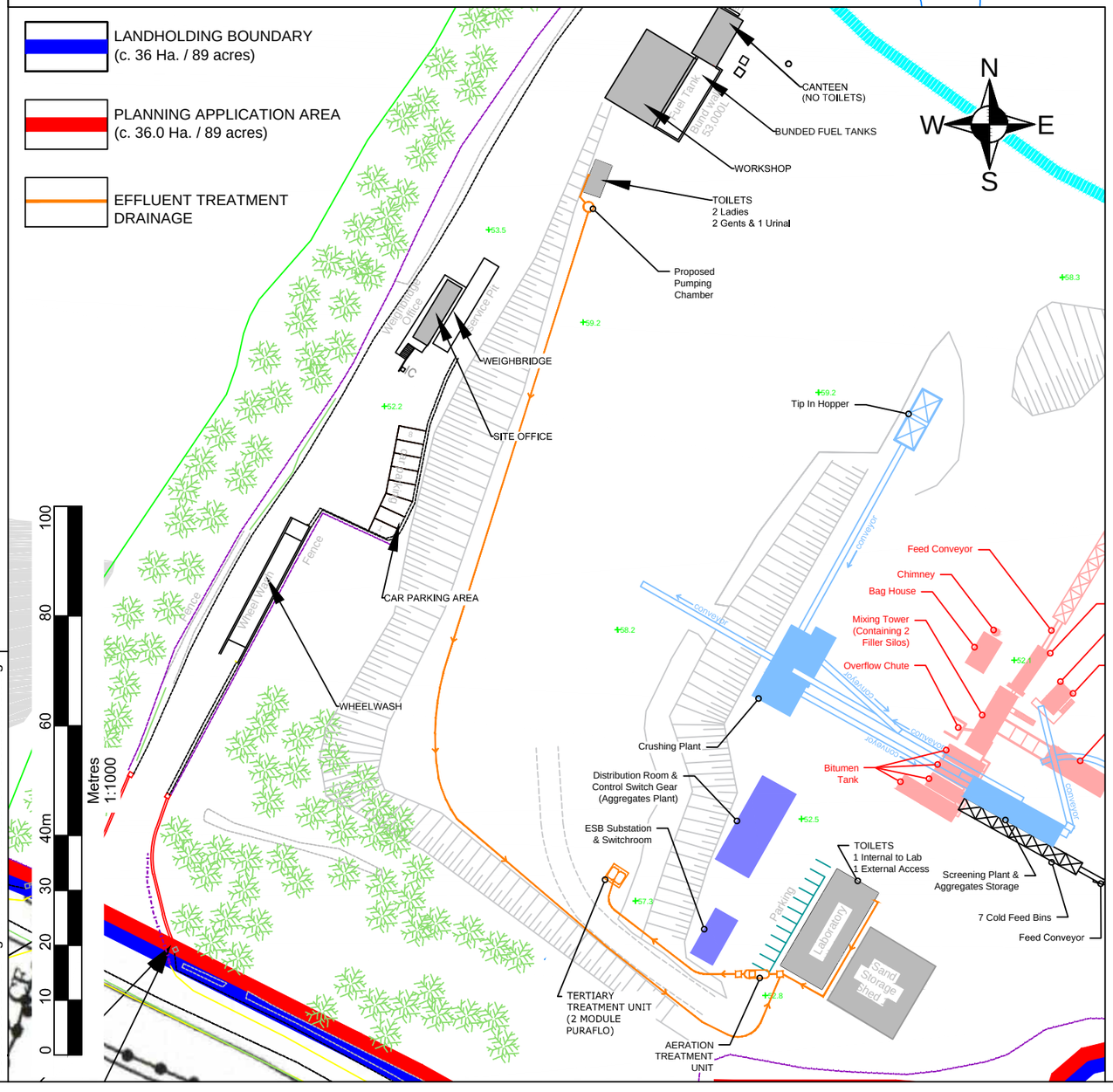
CONTROL PANEL/PUMP ALARM UNIT

GROUND LEVEL 52.8m AOD

INFLUENT

PUMPING CHAMBER

Part Concrete Backfill



0 1 2m 3 4 5

Metres
1:50

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KILSARAN CONCRETE
RFI RESPONSE

BALLINCLARE QUARRY,
KILBRIDE (N11), CO. WICKLOW

SITE LAYOUT PLAN & EFFLUENT TREATMENT SYSTEM

DRAWING RFI 4

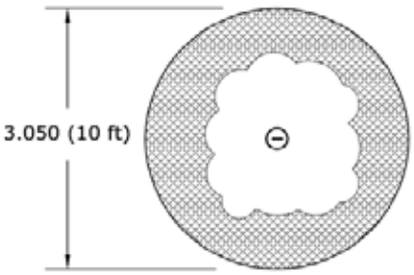
Scale: 1:50 @ A3

Date: JUNE 2015

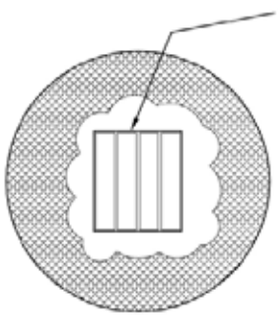
00036.00026.0.Dwg RFI 4.Effluenttreatment Location.R0.dwg

Carlow Concrete Tanks
Tel: + 353 (0)59 9159100
Fax: + 353 (0)59 9159831
UK Mobile: + 44 (0) 7540 564 276
Email: sales@carlowtanks.com

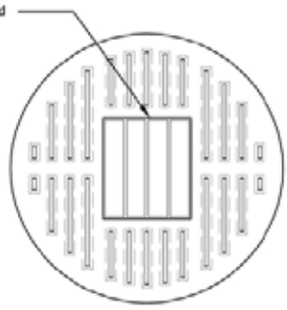
2500 GALLON (11.36 cubic metre) TANK



Lid with 9" pot

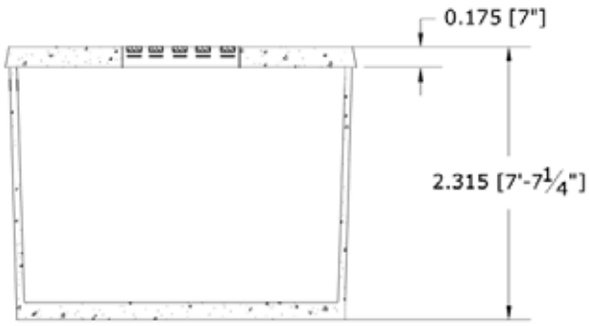


Lid with Standard Safety Manhole

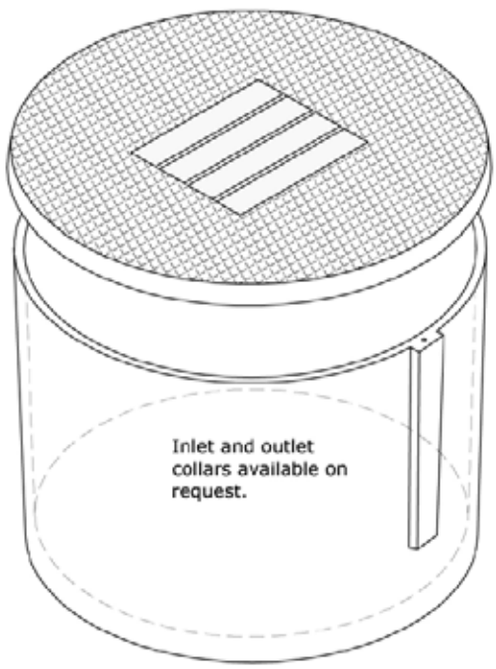


Lid with Slatted Cover with Standard Safety Manhole

Lid Plan Options



SECTION



3D VIEW

1. Select lid suitable to your application.
2. Select inlet and outlets location if desired, mark location and size of these on the drawing.
3. Fill out the farm order confirmation with drawings and post it to out office.

Tanks require a level, well compacted base of CI 804, thickness of which will depend on site conditions typically 150mm thick (1/2ft).

Lorry must be able to reverse to the edge of the excavation.

Tank is then installed by a crane at the rear of the lorry.

After installation we recommend filling the tank with water to prevent flotation until backfilling is complete (only in high water table areas).

Site with a high water table may require a hoop of concrete with rebar at the base of the tank to prevent flotation.

Tank should be backfilled with material free of boulders and large stones.

Weight of base 5.5 Te Weight of Lid 2.85 Te

Solid lids can carry 5.8 Te wheel load

Slatted lids can carry 4 Te wheel load