4.8 LANDSCAPE

4.8.1 INTRODUCTION

This section is essentially an overview of the landscape and visual amenity within the vicinity of the proposed development, coupled with an assessment of the potential impact, if any, of the proposed development on the existing environment in respect of these issues. The section addresses the landscape and visual impacts with respect to the proposed continued operation of a Waste Recovery Facility (WRF) at the Clashford quarry site. All aspects of our natural, built and cultural heritage come together in the landscapes we experience every day. Landscapes are an important part of people's lives, giving individuals a sense of identity and belonging, contributing to our well-being. Sensitive development and conservation of this resource is an essential underpinning of the rural economy and quality of life.

The application site is located within the Townland of Naul, County Meath, c. 300m north across the Delvin River from the village of Naul, Co. Dublin. The site has direct access to Regional Road R108, and is located c. 5km from junction 6 on the M1, and c. 7km from Balbriggan, via the R122, which renders the WRF well positioned to deliver recovery of inert soil and stone and construction and demolition waste from a large catchment area. The site location is highlighted on EIAR Figure A 1.0, Rev. A whilst on EIAR Figure B 2.1 - Rev C, the applicants land holding is shown edged blue, and the existing WRF site, which covers an area of c. 24.2 ha, is shown edged red.

The landscape consists of the visible characteristics of an area or region, including those elements that are physiographic (e.g., mountains and rivers), biological (e.g., vegetation and animals), transient (e.g., weather and climate), and human (e.g., built structures and land use). Landscapes variously combine human cultural influences superimposed on nature, creating places of unique character and identity, and by contributing to individual and social wellbeing and quality of life, is important in human fulfilment and in reinforcement of identity. Landscape also constitutes a resource favourable to economic activities, particularly tourism.

Meath possesses a diverse range of landscapes, including coastline, drumlins in the north, rich pastures, tracts of peatland and raised bog in the southwest, and the central upland area that includes Tara - the ancient capital of Ireland. These landscapes intrinsically constitute an invaluable element of Meath's natural resource base. The sensitive development and conservation of this resource is essential to the underpinning of a strengthened rural economy and quality of life.

The European Landscape Convention 2000 states that landscape is "an area as perceived by people, whose visual features and character are the result of the action of natural and / or cultural (that is human) factors…landscapes evolve through time as a result of being acted upon by natural forces and human beings".

EPA (2015) offers guidance on the description of the landscape in terms of context, character, significance and sensitivities, the analysis of the potential impacts on the landscape, and any proposed mitigation measures. This section also indicates the associated sections within the EIAR that consider these impacts and any proposed mitigation measures.

The assessment of the landscape and visual impacts of the WRF has been prepared in accordance with the Advice Notes for preparing Environmental Impact Statements, Draft (EPA, 2015). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, Draft (EPA, 2017) were also consulted.

4.8.2 METHODOLOGY

4.8.2.1 Baseline Study Methodology

The landscape and visual baseline study comprised a desktop study with follow-up field survey in the vicinity of the site. Although closely linked, landscape and visual impacts are assessed separately.

Landscape Impact Assessment (LIA) is concerned with changes in the physical landscape brought about by the proposed development, which may alter its character and how this is experienced. This requires a detailed analysis of the individual elements and characteristics of the landscape, which combine to form the overall landscape character. By assessing the quality of the elements in the landscape and identifying the key sensitivities, it is possible to assess the ability of the landscape to absorb the type and scale of change associated with the proposed development, without causing unacceptable adverse changes to its character.

Visual Impact Assessment (VIA) is concerned with changes in the composition of views produced by changes to the landscape, how these are perceived and the effects on visual amenity. Visual impacts are measured on the basis of: (1) visual obstruction due to partial or intermittent blocking of a view; or (2) visual intrusion due to interruption of a view without blocking.

Analysis of the visual baseline information was used to identify the extent and nature of the existing views of the site from the principal representative viewpoints, and the nature and characteristics of the visual amenity of the potentially sensitive visual receptors.

In the EIAR assessment, consideration is given to both the importance of an attribute and the magnitude of the potential environmental impacts as a result of the proposed development. The impact ratings are in accordance with impact assessment criteria provided in guidance from the EPA (EPA, 2017) (See also Appendix 5.2. General Guidance on Baseline Environment & Impacts).

4.8.2.1.1 Methodology for Assessment of Landscape Aspects

Landscape effects consist of the changes in the landscape, its character and quality that might result from development. The effect that these changes have on the landscape reflects the sensitivity of that landscape to change and the magnitude of that change.

The assessment methodology was conducted in accordance with Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, Draft (EPA, 2017). During the assessment, consideration was given to both the importance of an attribute and the magnitude of the potential environmental impacts of the proposed activities on that cited attribute. These impact ratings are in accordance with impact assessment criteria provided in

guidance from the EPA (EPA, 2017) (See also Appendix 5.2. General Guidance on Baseline Environment & Impacts).

For the purpose of assessment a matrix has been developed (Refer to Table 4.8-2) to define the significance of the landscape impacts. In completing the matrix the landscape resource is considered in terms of magnitude of change in landscape characteristics and sensitivity of the landscape to accommodate change or intervention without suffering unacceptable effects to its character and values. The significance of impact is the relationship between magnitude and sensitivity.

The sensitivity of the area was devised by consideration of designations such as Special Protection Areas, Natural Heritage Areas, by reference to Ordnance Survey 1:50:000 discovery sheet mapping, aerial photography and any distinctive features of interest within the study area.

4.8.2.2 Methodology for Assessment of Visual Aspects

Visual impact is the result of a change in view from receptors such as residences, prospects, public pathways and roads with views of the site. The magnitude of impact is assessed according to the scale of the effect, which will depend largely upon the size and type of the development and the distance of the receptor from the site.

Residential properties are considered the most sensitive receptors to changes in view whereas road users are the least sensitive as their experience is transient. The significance of visual impact depends upon the sensitivity of the receptor and the magnitude and duration of the effect.

The visual study consisted of a number of steps:

1. Examination of the Meath County Development Plan (CDP) 2013-2019 and supporting documentation including the Meath Landscape Character Assessment was undertaken.
2. Ordnance Survey Ireland (OSi) Discovery Series 1:50,000 and OSi 1:5,000 raster mapping and aerial photography were examined (Refer to Figures A 1.0 Rev. A and B 2.2 – Rev. C).
3. Visual impacts are best assessed from specific viewpoints. Principal viewpoints were mapped and these views illustrated by photographs with annotations to describe any important characteristics, and the changes that have arisen as a result of the development (Refer to Figure 4.8.1 and Plates 4.8.1 to 4.8.6).
4. For the purpose of assessment a matrix has been developed (Refer to Table 4.8-3) to define the significance of the visual impact with respect to the principal viewpoints identified.

4.8.2.3 Policy & Legislation

There are two main documents that deal with long-term national and regional development strategies, and these underpin the direction of spatial development at the strategic level in the

County. Firstly, at the national level, the National Spatial Strategy, and secondly at the regional level, the Greater Dublin Area Regional Planning Guidelines.

The 2002 National Spatial Strategy (NSS) was designed to provide a framework for balanced social, economic and physical development between the regions for the next 20 years (DoELG, 2002). It therefore provided the strategic planning context for government policies and investment in housing, water services, transport, communications, energy, health and education infrastructure. The NSS was revoked in 2013, but its legacy persists in the Regional Planning Guidelines and County Development Plans.

In early, 2018, the government published "Project Ireland 2040", the new overarching public policy initiative, which consists of the National Planning Framework to 2040 and the National Development Plan 2018-2027 (DoHPLG, 2018), which will replace the revoked NSS and the Infrastructure and Capital Investment Plan 2016-2021, respectively. This represents an alignment of the investment strategy with the strategic planning policy, to create a unified and coherent plan, which will drive the long-term economic, environmental and social progress across all parts of the country over the next ten years. This will ultimately feed into the planning processes when incorporated into the new Regional Spatial and Economic Strategies (RSES) that will replace the Regional Planning Guidelines in early 2019.

Currently, the Regional Planning Guidelines (RPGs) extend the implementation of the NSS down to the regional and local levels, by linking national spatial policy with planning by local authorities. The RPGs are influenced by a wide range of international, national and regional level plans, programmes and legislation, and in turn form a framework for lower level plans and programmes (e.g., County Development Plans, Local Area Plans, etc.). The Greater Dublin Area Regional Planning Guidelines 2010-2022 are currently in force (DMERA, 2010).

Local authorities create their County Development Plans (CPDs) based on these regional strategies and guidelines. Thus, the plans must be consistent with longer term planning and sustainable development objectives, including those set out in the National Spatial Strategy and any Regional Planning Guidelines. A County Development Plan sets out a strategic framework for the proper planning and sustainable development of the administrative area of the local authority, over a six year period. The Meath Landscape Character Assessment (Meath County Council, 2007) constitutes part of the Meath County Development Plan (CDP) 2013-2019 (Meath County Council, 2013).

4.8.2.3.1 Planning Policy

The European Landscape Convention (ELC), to which Ireland is a signatory, was adopted in 2000, and requires signatories to recognise landscapes in law and establish policies aimed at their protection, management and planning. The ELC aims to encourage public bodies to adopt policies and measures at national, regional and local level to protect, manage and plan landscapes. Under the convention, landscape means "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors", and can include high quality natural areas, rural lands, urban areas, peri-urban areas, degraded areas and everyday spaces.

Planning legislation and national guidelines, such as the Draft Guidelines on Landscape and Landscape Assessment (DoEHLG) indicate that conservation of the landscape in all its contexts must now be integrated into all aspects of planning policy. The guidance requires Development Plans to include objectives for the preservation of landscape, views and prospects and the amenity of places and features of beauty.

The Greater Dublin Area Regional Planning Guidelines (RPG) 2010-2022 recognise the European Landscape Convention (ELC), which aims to encourage public bodies to adopt policies and measures at national, regional and local level to protect, manage and plan landscapes. The convention requires each party to "recognise landscapes in law, to establish and implement landscape policies, to establish policies for the participation of the public in the definition and implementation of policies and to integrate landscape policies with regional and town planning policies". The RPG also acknowledges that Landscape Character Assessment (LCA) offers the potential to establish a coherent strategy for integrating landscape and land use and transportation policies as well as economic, energy policies, etc.

The RPG stipulates the following policy and recommendation:

GIP5 Strategic Policy

Adopt policies and measures at county level to protect, manage and plan landscapes through the provision of Landscape Classification and Character Assessments in accordance with adopted European (and contemporary National) Landscape Guidance Documents such as 'Guidelines for the Implementation of the European Landscape Convention, February 2008'.

GIR25 Strategic Recommendation

Develop a shared methodology and classification for Landscape Classification and Character Assessments (LACCA) in the Greater Dublin Area, through a multi-disciplinary approach, identify short-comings in existing landscape character assessments and GIS mapping data and update accordingly, carefully consider landscape character issues in the planning process and use LACCA to inform Historic Landscape Character Assessments (HLCA).

The Draft Landscape Character Assessment County Meath (Meath County Council, 2007), which constitutes part of the Meath County Development Plan (CDP) 2013-2019 (Meath County Council, 2013), identifies and describes the landscape character of the entire County. It also evaluates the capacity of different areas to accept change, without disproportionate effects and proposes a series of policies to guide developments in each type of landscape. The Landscape Character Assessment (LCA) established five Landscape Character Types (LCT), representing generic areas of distinctive character such as uplands or river corridors. These LCT's are sub-divided into 20 Landscape Character Areas (LCA's) which are geographically specific. The boundaries of the LCAs reflect both physical and aesthetic characteristics, including types of land uses and vegetation, topography, extent and nature of views, hydrology and landscape condition. Generally, no single landscape element is overriding in its importance and individual elements, for example topography, may be similar across adjoining LCA's whilst the overall character varies.

The LCA methodology involved an evaluation of each landscape character type in terms of its Landscape Value, Sensitivity, Importance and Potential Capacity. The Value of each Character Type refers to the contribution the area makes to the inherent character of County Meath. Value takes account of scenic quality, tranquillity, remoteness, rarity, cultural associations, history, conservation, recreational interests and broader social, economic and environmental aspects. The Sensitivity of each character type is defined its overall resilience to sustain its character in the face of change and its ability to recuperate from loss or damage to its components. While all landscapes are different and important, particularly to those people who live, work and visit them for leisure purposes, the Importance of a landscape character type can be rated as Local, County, National, or International. The Potential Capacity of each LCA is based on indicative types of development that are likely to occur within the study area. The Capacity is the ability that the landscape has to absorb specific types of development. It is a more advanced analysis of sensitivity which takes into account the design of likely development. Capacity is defined on a case-by-case basis, because it will vary according to the type and form of development, its location within the landscape character area and its visibility from it.

The LCA will inform decision making in relation to the protection of the environment, natural resources and heritage and will be used to guide development. It will assist in the achievement of sustainable development by promoting an robust approach to landscape planning and management. The capacity of each landscape character type to absorb new development will largely depend on the sensitivity of the landscape type. Developments which are likely to create a significant environmental and particularly visual impact will best be absorbed in areas where the landscape is robust, i.e. has the capacity to absorb development without significantly changing its character. All developments should be assessed on a site by site basis to avoid, minimise or mitigate any potential environmental or visual impact.

4.8.2.3.1.1 Landscape Protection

It is a goal of the Meath County Development Plan "To protect the landscape character, quality and local distinctiveness of County Meath" (Refer to CDP Section 2.5).

Key Objectives:

a) *To improve the understanding of Co. Meath's landscape in terms of its inherent and unique character and to recognise what elements should be preserved, conserved or enhanced;*
b) *To predict the broad pattern of future changes and devise policies and objectives as guidance to planners and other parties which will ensure that change is complimentary to landscape character. Sensitivity and capacity of the landscape should be given due consideration in all aspects of decision-making, and;*
c) *To assist in the achievement of sustainable development, the underlying principle of all current planning practice and legislation will be adhered to by promoting a unified approach to landscape planning and management which links policies and recommendations for landscape character to existing planning policies.*

The following development plan policies and objectives are considered relevant with respect to the landscape and views and prospects:

It is the strategic policy of Meath County Council:

LC SP1 *To protect the landscape character, quality, and local distinctiveness of County Meath in accordance with relevant government policy and guidelines and the recommendations included in Meath Landscape Character Assessment (2007) in Appendix 7.*

It is the policy of Meath County Council:

LC POL1 *To support and implement the provisions of the National Landscape Strategy.*

LC POL2 *To require that any necessary assessments, including landscape and visual impact assessments, are provided when undertaking, authorising, or approving development.*

It is an objective of Meath County Council:

LC OBJ1 *To seek to ensure the preservation of the uniqueness of all landscape character types, and to maintain the visual integrity of areas of exceptional value and high sensitivity.*

LC OBJ 2 *To assess development proposals having regard to the recommendations contained in the Meath Landscape Character Assessment 2007.*

LC OBJ5 *To preserve the views and prospects and the amenity of places and features of natural beauty or interest listed in Appendix 12 and shown on Map 9.5.1 from development that would interfere with the character and visual amenity of the landscape.*

Insofar as the current regime of landscaping, screening and phased restoration at the quarry site, which encloses the WRF site is being operated and restored using imported inert soils under the terms and conditions imposed under P.A. Reg. Ref.QY36, QC 17.QC2085 and P.A. Reg. Ref. 85/512, PL.17/5/72181, sections of Parts 10 and 11 of the CPD dealing with extractive industries are relevant.

Part 10 of the Meath CDP sets out the rural settlement strategy that will be applied by Meath County Council to ensure the continued vitality and viability of the rural area. The Council's goal in terms of Rural Development is "to encourage the continued sustainable development of rural communities without compromising the physical, environmental, natural and heritage resources of the County". In section 10.12, the Council acknowledges the need for extractive industries, but also notes that the industry can cause detrimental environmental and residential amenity effects including traffic generation, vibration, dust, noise, water pollution, visual intrusion and loss of ground water supplies. The goal in respect of extractive industries and building materials production is:

To facilitate adequate supplies of aggregate resources to meet the future growth needs of the County and the wider region while addressing key environmental, traffic and social impacts and details of rehabilitation.

On issues relating to the landscape, it is the policy of the Council:

RD POL22 *To facilitate the exploitation of the county's natural resources and to exercise appropriate control over the types of development taking place in areas containing proven deposits, whilst also ensuring that such developments are carried out in a manner which would not unduly impinge on the visual amenity or environmental quality in the area.*

RD POL23 *To support the extractive industry where it would not unduly compromise the environmental quality of the county and where detailed rehabilitation proposals are provided.*

RD POL24 *To seek to ensure that the extraction of minerals and aggregates minimise the detraction from the visual quality of the landscape and do not adversely affect the environment or adjoining existing land uses.*

RD POL26 *To ensure that all existing workings shall be rehabilitated to suitable land uses and that all future extraction activities will allow for the rehabilitation of pits and proper land use management. The biodiversity value of the site should be considered in the first instance when preparing restoration plans. Where land filling is proposed, inert material is the preferred method. Each planning application shall be considered on a case by case basis and, where relevant, will be dealt with under the relevant regional Waste Management Plan.*

RD POL27 *To ensure that development for aggregates / mineral extraction, processing and associated processes does not significantly impact in the numerous areas, including sensitive landscapes.*

Part 11 of the Meath CDP sets out development management guideline that will be applied by Meath County Council to ensure that future development is in accordance with established principles and best practice guidelines and to ensure that proposals are carried out in a manner which supports the policies and objectives of the Plan. While the Council recognises the importance of the extractive industry in the economic life of the County, extractive developments should not adversely affect the environmental, tourism, local communities, residential qualities and/or any adjoining existing land uses in the area, Natura 2000 sites or any protected species or habitat. Section 11.14 of the Meath CDP sets out the development management guidelines with respect to extractive industries.

Development proposals for extractive industries are required to address numerous issues, of which the following pertain to landscape:

- Rehabilitation and landscaping which must be in phase with extraction (suitable proposals in this regard must accompany all planning applications);
- Impact on the quality of the landscape, particularly sensitive landscapes and protected views

4.8.2.3.1.2 Views and Prospects

County Meath contains many vantage points from which views and prospects of great natural beauty may be obtained over both seascape and rural landscape. This scenery and landscape of the county are of enormous amenity value to residents and tourists, constitute a valuable economic asset, and contribute greatly to the quality of life. There is a need, therefore, to protect and conserve views and prospects adjoining public roads and from publicly accessible places throughout the County for the benefit of future generations. In assessing the potential impacts on views and prospects of development proposals, it is not intended or proposed that this effectively becomes a prohibition on development in these locations. Rather such development, where permitted, should not hinder or obstruct these views and prospects and should be designed and located so as not to be intrusive in the landscape as seen from these vantage points. Notably, the Plan does not identify specific Scenic Routes consisting of important and valued views and prospects.

The following development plan policies and objectives are considered relevant with respect to protection of views and prospects. It is an objective of the plan:

LC OBJ 5: Views and Prospects

To preserve the views and prospects and the amenity of places and features of natural beauty or interest listed in Appendix 12 and shown on Map 9.5.1 from development that would interfere with the character and visual amenity of the landscape.

4.8.2.4 Designations

The quarry site at Clashford, which includes the site of the WRF, is not included in any area with an ecological designation (pNHA, cSAC or SPA).

The only Natura 2000 sites within 15km of Naul are the Laytown Dunes/Nanny Estuary cSAC (Site Code 0554), the River Nanny and Shore SPA (Site Code 4158) and the Skerries Island SPA (Site Code 4122).

Screening for Appropriate Assessment was carried out with respect to the proposed development and a copy of this was submitted to the EPA on 11/04/2014. The findings of the assessment, were, in view of best scientific knowledge, it is concluded that the activity, individually or in combination with other plans or projects is not likely to have a significant effect on the Natura 2000 network, and the conservation objectives of the sites. A Stage 2 Appropriate Assessment is therefore not required.

The nearest pNHA site is the Bog of the Ring (Site Code 001204), Ring Commons, Co. Dublin at c. 3km, whilst Cromwell's Bush Fen pNHA (Side Code 001576), Greenanstown, Co. Meath is c. 4.5 km. There will no direct or indirect impact on these sites as a result of the continued operation of the WRF at Clashford.

The proposed continuation of the WRF was the subject of an assessment that involved the investigation of the cultural heritage including the archaeological, structural and historical background of both the application area and the surrounding area (i.e., 1km radius) using a wide range of existing information as well as a field assessment (Refer to EIAR Section 4.9).

The site of an unclassified megalithic tomb (RMP ME034-012) is recorded within the proposed development area. This monument or possible associated archaeological features no longer survives above or below ground. There are no Protected Structures, Architectural Conservation Areas, NIAH structures or NIAH historic gardens or designed landscapes within the proposed development area. As a result there will be no direct or indirect construction impact on the recorded or unrecorded archaeological, architectural or cultural heritage resource.

There will be no construction or operational visual impact on the archaeological, architectural or cultural heritage resource. There will be no construction noise impact on the archaeological, architectural or cultural heritage resource. There will be a negligible operational noise impact on the archaeological and architectural resource.

4.8.2.5 Field Study

Site visits were undertaken on 30/05/2014, 22/07/2014 and 03/08/18. The purpose of the site visits was to become familiar with the site, establish the general landscape character of the area and identify principle representative viewpoints including residences, prospects, public pathways and roads with views of the site. The actual extent of visibility was also checked in the field due to the localised screening effects of buildings, walls, fences, trees, hedgerows and banks. Potential seasonal screening effects were also identified where necessary and recorded.

The visual survey also includes and is supported by a comprehensive photographic record from the principal and other relevant viewpoints. The photographs were taken at eye level (i.e., 1.6 metres above ground level) at the point of interest towards the development area using a digital camera. A panoramic image was produced by the careful 'stitching' together of single-frame images for each identified view.

The analysis of the visual baseline information identifies the extent and nature of the existing views of the site from the principal representative viewpoints, and the nature and characteristics of the visual amenity of the potentially sensitive visual receptors.

Principal viewpoints were mapped and these views illustrated by photographs with annotations to describe any important characteristics, and the changes that have arisen as a result of the development (Refer to Plates 4.8.1 to 4.8.6).

4.8.3 BASELINE DESCRIPTION OF RECEIVING ENVIRONMENT

As part of the assessment an examination of the Meath County Development Plan (CDP) 2013-2019 and supporting documentation including the Meath Landscape Character Assessment was undertaken. Ordnance Survey Ireland (OSi) Discovery Series 1:50,000 and OSi 1:5,000 raster mapping and aerial photography were examined (Refer to Figures A1.0 Rev. A and B 2.2 – Rev. C, *Section 6*).

A topographical survey of the existing site was carried out and modelled using digital terrain modelling software (Refer to Figure B 2.1 – Rev C, *Section 6*), from which cross sections were produced (Refer to Figure B 2.5 Rev. C, *Section 6*). The desktop study was used to determine the nature of the visual amenity of the area, along with the approximate visibility of the

development, which is determined through topographic analysis of map data. Potential receptors of visual effects, including residents and visitors through the area were also identified.

Visual impacts are best assessed from specific viewpoints. Principal viewpoints were mapped within the study area and these views illustrated by photographs with annotations to describe any important characteristics, and the changes that have arisen as a result of the development (Refer to Figure 4.8.1 and Plates 4.8.1 to 4.8.6).

4.8.3.1 Landscape Baseline Conditions

4.8.3.1.1 Site Area Description

The site of Clashford quarry and WRF is located in a rural area in the townland of Naul, c. 300m north of the village of Naul. The site of the WRF occupies a subordinate footprint of c. 24.2 ha, located within a landholding of 33.4 ha. The site is located on lands immediately east of, and with direct access to, the R108 Regional Road. This location, with access directly onto the R108, and via the R122, is c. 5km from junction 6 on the M1, and c. 7km from Balbriggan, which renders the WRF well positioned to deliver recovery of inert soil and stone from a large catchment area. The site location is highlighted on Figure 4.8.1 at a scale of 1:50,000.

Topography

The Clashford area is located in the Delvin River valley. The Delvin River flows roughly SW-NE and flanks the southern boundary of the site, whilst an unnamed tributary stream of the Delvin River flanks the northern boundary of the site, and joins the river at the northeastern terminus of the quarry site. The surrounding landscape is defined by the valley of the Delvin River, separating two sets of hills, the Four Knocks Hills to the northwest (max. elev. 159m), and the Naul Hills to the southeast (max. elev. 176m). The river valley descends onto the coastal plain to the northeast and drains into the Irish Sea north of Balbriggan.

The site for the WRF relates to a subordinate site co-located within the Clashford quarry site. The quarry has been developed on a c. 1km long mound of sand and gravel within a southwest-northeast oriented ribbon of glacial deposits that extends from the Townland of Tobeen (i.e., c. 2km further up valley) down the river valley to the coastal plain. The topography of the quarry site is thus elevated above the valley floor, and occurs at approximately 60-80m AOD (See EIAR Figure B.2.1 - Rev C, *Section 6*). There are a few other dis-used quarry faces within the river valley, reflecting a history of sand and gravel extraction.

The Naul Hills are defined as of the High Lying Landscape Character Type (LCT), and are an upland area affording panoramic views, and containing ridgelines visible over a wide area of Fingal and Meath. These uplands contain a mixture of pasture and arable farming combined with strong hedgerows in a rolling landscape that are scenic and of high value. South of Naul and the Naul Hills, the landscape changes on the broad coastal plain of County Dublin, drained by the Dodder, Liffey, Tolka, Ward, Broad Meadow and Ballyboughil Rivers, and abruptly terminated to the south by the Dublin Mountain section of the Leinster Massif. This area occupies much of Fingal, and is defined as of the Low Lying LCT. It is characterised by a mix of pasture and arable farming with few protected views or prospects, and has a modest value.

Furthermore, it has an open character combined with large field patterns, few tree belts and low roadside hedges.

To the west the landscape changes to the Lowland LCT, which due to the high quality of the land, is primarily agricultural, with extensive areas of mixed woodland and parkland bounded by original stonewalls. Much of the lowlands have an enclosed character with well-treed road corridors, dense hedgerows, parkland and areas of woodland. Views of landmarks within the landscape and of the surrounding upland areas are a characteristic of this area. To the north are the Four Knocks Hills, which are part of the Bellewstown Hills, and which is defined as of the Hills and Uplands LCT. These uplands afford panoramic views of the lowlands and beyond, whilst many of the summits are prominent by virtue of landmarks at their summit, and are of high value.

To the east, the landscape changes to the Coastal Areas LCT, which is traversed by several well wooded river corridors, including the Delvin River valley, which themselves are defined as the River Corridor and Estuaries LCT. The Nanny and Delvin Rivers have largely undeveloped river corridors, and with their associated wetlands, sand bars, mudflats and coastal areas are diverse habitats, are of high ecological value. Both estuaries are densely wooded, and as such have remained relatively undisturbed and are very sensitive.

The unrestored quarry area is dominated by bare, exposed ground and scrub with fragments of grassland and scrub at the edges and undeveloped areas. Overburden stripped to access sand and gravel resource has been used for restoration of completed sections of the excavation. Planted mixed broadleaf forest fringe the eastern half of the quarry site, while the other boundaries are largely maintained with hedgerows and stock fencing.

Hedgerows are perhaps the most characteristic feature of the Meath landscape and provide valuable refuges for biodiversity in a landscape dominated by large tracts of intensive agriculture. Hedgerows also tend to create enclosed landscapes, where views are restricted. In the vicinity of the Clashford, the WRF is well screened from public view on the R108 by existing hedgerow on the roadside and intervening boundaries of properties on the east side of the R108. Mature broadleaf woodland and hedgerow fringes the Delvin River to the south of the landholding, and along the tributary to the north of the landholding, whilst a broad swathe of planted mixed broadleaf forest fringes the eastern half of the quarry site.

However, because the deposit occurs as a topographic high in the valley floor, peripheral screening with hedgerows and forest plantings is ineffective at screening views from open viewpoints on elevated ground. Backfilling work to reinstate the original topographic profile increases the visibility of the operation temporarily, until such time as the land is restored and returned to agricultural use. In particular, large stockpiles of topsoil and subsoil intended for capping purposes are visible from elevated viewpoints, and in most cases are the most prominent feature of the WRF (Refer to Plates 4.8.1 to 4.8.3)

The potential viewshed of the WRF site principally arises from its occurrence in a river valley overlooked by elevated ground on hills to the north and southeast. In addition, the domed topographic profile of the site exposes the backfilling and capping work of the restoration within the WRF site, whereas unrestored ground, where backfilling has yet to commence, is screened within the quarry void (i.e., Phase 3). The viewshed from elevated ground to the north on the R108, and on roads and lanes off it, is intermittent in nature, where views are

typically only afforded by gaps in hedgerows. Thus, the view of the site from the north is largely screened by intervening topography and mature and generally well-managed hedgerows (Refer to Plates 4.8.1 to 4.8.3).

The site is screened from the west and southwest, including the vast bulk of the village of Naul, by intervening topography and mature woodland and hedgerows. There are rare views of the site from the R122 approximately 250m east of the Square, and a largely uninterrupted viewshed of the WRF site from the R122 near the village limits (c. 400m east of the Square), continuing east approximately 700m to Naul House (Refer to Figure 4.8.1 and Plates 4.8.4 to 4.8.6).

Land Use

Clashford is located in southeastern County Meath c. 7km west of Balbriggan. The site straddles a N-S trending line from roughly Naul to Moat Hill, which separates two landscape areas, namely the Coastal Plain (i.e., Type 7) and Bellewstown Hills (i.e., Type 9), as shown in Figure 4.8-2 (Meath County Council, 2013). The 2012 Corine Map (EPA, 2018) shows that the land use only differs slightly between these two landscapes. Type 9 dominated by pasture and subordinate tillage, with minor land principally occupied by agriculture with areas of natural vegetation. Type 7 is dominated by tillage and subordinate pasture, minor land given over to complex cultivation patterns, and progressively more discontinuous urban fabric due to urban sprawl emanating from Dublin (Refer Figure 4.8-3).

The land-use in the Clashford area is characterised by a patchwork of agricultural fields that are designated as non-irrigated arable land and pasture (See Figure 4.8-3), reflecting medium-high intensity agricultural, with very low levels of forest cover, restricted largely to river valleys and hedgerows. These agricultural lands are characterised in general by well managed mature hawthorn hedges with some deciduous trees. There are no significant areas of afforestation established in the area, except for the broadleaf forest plantings associated with the quarry restoration.

The unrestored quarry areas are largely dominated by bare, exposed ground with fragments of grassland and scrub on undeveloped ground at the edges. The boundaries of the landholding are largely maintained with hedgerows and stock fencing, whilst a broad swathe of broadleaf forest fringes the eastern half of the landholding (Refer to Site Plan Figure B.2.1 – Rev C, *Section 6)*. The site of the WRF coincides with the unrestored sections of the quarry, and thus has a smaller footprint (i.e., c. 24.2ha) within the landholding (i.e., c. 33.4ha).

The area has an established history of sand and gravel working, and these activities have co-existed with other predominantly agricultural land uses in the area, principally medium-high intensity farming. Prior to the commencement of quarrying in the 1980's, the site lands had been kept in agriculture. The predominant land use within the WRF site, which is to be co-located within the quarry site, is by definition that of quarrying activities and associated operations.

On completion of site activities, the site of the quarry and WRF will be decommissioned and reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape. Thus, the land use will revert to agricultural use, primarily as arable and grassland.

Drainage & Geology

Drainage within the area is discussed in more detail in Section 4.4 - Water. The nearest watercourse to the site is the Delvin River, which flows roughly SW-NE immediately south of the landholding. Furthermore, an unnamed tributary flows W-E along the northern boundary of the landholding, and drains into the Delvin River at the northeastern terminus of the landholding.

Details with respect to the local bedrock geology and soils are provided within Section 4.3 – Soils and Geology. Reference to the 1:100,000 scale map of the Geology of Meath (Sheet 13) (McConnell et al., 2001) indicated that the WRF site straddles the faulted contact between the Balbriggan Inlier and the North Dublin Basin, and is predominantly underlain by: (1) mudstones and siltstones with interfingering sheets of andesite of the Clashford House Fm. (70%); (2) Mudbank Limestone (20%); and (3) limestones with minor chert and shale of the Naul Fm. (10%). The latter two units are restricted to the southwest corner of the site. The area is heavily faulted, and two faults traverse the site: (1) a roughly ENE-WSW oriented fault brings the Mudbank Limestone lithology into contact with the Clashford House Fm.; and (2) an E-W oriented fault brings the Mudbank Limestone into contact with the Naul Fm. The bedrock of the area including the site, is shown in Figure 4.3.3: Bedrock Geological Map of Clashford Area.

The dominant subsoil occurring at the Clashford WRF site is described as Lower Palaeozoic sandstone and shale sands and gravels, and prior to quarrying operations covered the entire application site. Because a large portion of the quarry site has been restored or is in the process of being restored, visual assessment of the undisturbed subsoil on site was not undertaken. However, previous visual examinations of the subsoil on site confirmed the classification of sand and gravel, and that the subsoil thickness was of the order of 10-15m.

Tourism

Meath is named after the ancient Kingdom of Meath, and is colloquially known as the “Royal County”. Meath contains a rich array of cultural and heritage assets, such as the World Heritage Site of *Bru Na Boinne*, *Hill of Tara*, the seat of the High Kings, *Loughcrew Cairns*, the *Battle of the Boyne* site, *King John’s Castle,* Trim, *Bective Abbey*, and the *Kells Crosses.* With its numerous ancient monuments, ruins, castles, battlefields and Landed Estates (or Demesnes) with their Great Houses, Meath is a county steeped in history. Meath County Council has identified cultural tourism as a potentially significant driver of the county’s modern economy, and positioned itself as the *‘The Heritage Capital’* of Ireland.

Clashford is located in County Meath c. 300m north of the village of Naul. The village and its environs are also steeped in history and have a wealth of historical and archaeological sites. In particular, the passage graves at Four Knocks c. 2km northeast of Naul date back 5,000 years. Within the village, there are also the ruins of a stone tower known as Black Castle on the cliff overlooking the Delvin River, and the ruins of the Church of Ireland Chapel with Cross. The Seamus Ennis Cultural Centre attracts many tourists and the Square in the village is used for the Fingal Traditional Music Festival, held annually in October. Sports are actively pursued in the area and include soccer, golfing, hillwalking, fishing, horse riding and swimming. The Delvin River is popular with anglers.

Naul benefits from the myriad amenities and attractions located within the Meath and Fingal local authority areas, as well as being within easy reach of the vibrant Capital City of Dublin. Just some of the heritage attractions in Fingal include: castles at Ardgillan, Malahide, Swords and Howth; a Round Tower at Swords; the 12th Century St. Doulagh's Church, Kinsealy; Newbridge House, and numerous Martello Towers along the coastline. Parks and gardens are available at Ardgillan Castle Demesne, Malahide Castle Demesne, Howth Castle Demesne, Newbridge House Demesne, and Ward River Valley. Other visitor attractions include: the National Transport Museum, Howth; Dunsink Observatory; Newbridge Farm Museum, Donabate; and the Skerries Mill, a complex of water and wind powered mills. There are numerous walking and cycling trails, including several on Howth Head, and "Slí na Sláinte" in Swords, whilst boat trips and cruises of Fingal coastline and islands are available. There are also many prime locations for sea angling, whilst fresh water angling is concentrated on the Liffey and Tolka Rivers and the Royal Canal.

Heritage attractions in Meath include: the World Heritage Site and visitor centre at Bru na Boinne; Hill of Tara; Loughcrew Cairns; Kells Round Tower and High Crosses; King John's Castle, Trim; Battle of the Boyne Site, Oldbridge; Slane Castle; Ardbraccan House; and many more. Meath also offers many other tourist attractions, including: Tower of Lloyd, Kells; numerous heritage trails, walking and hiking trails; angling on the famous Boyne and Blackwater Rivers; golfing; horse racing; and numerous festivals such as Moynalty Steam Threshing; Tattersalls International Horse Trials and County Fair; and the Slane Castle Music Festival.

Golf enthusiasts visiting the area can enjoy a wide choice of excellent golf courses within short driving distance, including numerous links and heathland courses. The nearest course is at Hollywood (c. 4km to the south), whilst there are over twenty courses in Fingal alone, including the fabled Championship Course at Portmarnock, and more nearby in Meath, such as at Gormanstown, Ashbourne and Bellewstown.

Located c. 7.5 km from the east coast, water sports are also popular in the region, such as swimming, windsurfing and sailing, where the latter is served by several yacht / sailing clubs in Skerries, Malahide, Sutton and Clontarf. Water sports are also available at the National Aquatic Centre, Blanchardstown, at Rathbeggan Lakes, and on the miles of sandy beaches at Bettystown-Laytown.

Horse racing is also popular at the annual Laytown Beach Races in September, at the Bellewstown racecourse, and at Fairyhouse, the home of the Irish Grand National. There are equestrian activities at numerous nearby equestrian centres in the area

There are two protected views and prospects near the site, of which one will be affected in the short term by continued WRF operations. The Protected View and Prospect designated as 71, is on a county road off the R108 at Snowtown north of the site (Refer to Figure 4.8-4 and Plate 4.8.1). The view is to the southeast, and is described as "at gate along hedgerow of extensive tillage landscape, visible settlement and infrastructure".

Residential

The nearest large residential settlement close to the site is village of Naul, located c. 300m to the south across the Delvin River. Further afield, Stamullin is c. 5km to the northeast,

Balbriggan is c. 7km to the east, Ashbourne is c. 11km to the southwest, Lusk is c. 11km to the southeast, and is Skerries C. 11km to the east.

Residential development consists of isolated farm dwellings and of owner occupied bungalow/houses along public roads; occasionally in clusters and graigs, such as at Moonlane. Roads are of a local character and typical of a rural location.

There are a number of established individual residences within a 500m radius of the site, particularly in the village of Naul, as shown on EIAR Figures B 2.1 – Rev C and B 2.2 – Rev C. There are no dwellings on the site or landholding, although several dwellings are located to the immediate west of the site on the R108, and across the Delvin River on the R122.

4.8.3.1.2 Landscape & Landscape Character Assessment

This section is based mainly on the Meath Landscape Character Assessment 2007, without explicit referencing within the text.

Ireland ratified the European Landscape Convention in 2002 and agreed to implement national measures to promote landscape planning, protection and management. The Planning and Development Act 2000 requires every planning authority to include objectives in their Development Plan for the preservation of the character of the landscape insofar as proper planning and sustainable development of the area requires it, including the preservation of views and prospects and the amenities of places and features of natural beauty or interest.

A detailed Landscape Character Assessment of County Meath was carried out by Soltys Brewster Consulting on behalf of Meath County Council in 2007. The purpose of the study was to objectively describe, map and classify the landscape character of each part of the County. Importantly, defining landscape character enables an understanding of the inherent value and importance of individual landscape elements and processes that may alter landscape character in the future. The capacity of each area to accept change, without disproportionate effects, was evaluated and a series of policies and recommendations to guide development in each type of landscape was proposed. Another objective of the study was to drive sustainable development, the principle underlying current planning legislation, by promoting a unified approach to landscape planning and management.

Meath presents a wide range of landscapes. These range from: the scrubby rolling lowlands of the coastal plain; to the drumlins of Teerverchur uplands; to enclosed well-wooded river corridors; to the flat farmland of the central lowlands with numerous large estate landscapes and associated parkland; to raised bogs in the southwest lowlands, to the steeply rolling hills of the Bellewstown Hills of managed pasture and arable farmland with well wooded hedgerows creating an enclosed landscape. The site at Clashford lies on the boundary between LCA 7: Coastal Plain and LCA 9: Bellewstown Hills, although it has characteristics more closely related to, and is contiguous with the latter (See EIAR Figure 4.8-2).

The baseline landscape character of each LCA is rated using three parameters: value, importance and sensitivity. The value of each LCA refers to the contribution the area makes to the inherent character of the county. Scenic quality, tranquility, remoteness, rarity, cultural associations, history, conservation, recreational interests and broader social, economic and environmental aspects are all considered in deriving a rating for value.

The sensitivity of an LCA is defined as its overall resilience to sustain its character despite change and its ability to recuperate from loss or damage. Sensitivity is based on the interaction of individual components such as landform, amount of evident historical features and distribution of viewers, as well as its general condition. A highly sensitive landscape is likely to be vulnerable, fragile and susceptible to change, whereas a low sensitivity landscape is likely to be more resilient of change. Landscape sensitivity mapping as applied to development control aids awareness and identification of the potential for disproportionate visual prominence. The existence and significance of a landscape sensitivity and its relevance to the specifics of the proposed development must be assessed. Sensitivity is thus a critically important parameter in assessing the impact of any proposed development.

The key characteristic for this LCA that have a bearing on the relative sensitivities or resilience to development are as follows:

- ***Geology & Soils***

• Greywacke and shale with imbedded limestone and sandstone form the Bellewstown Hills and create a mixture of deep and shallow well-draining mineral soils that have been developed for agriculture.

• Ground conditions suit those trees that thrive in free draining soil such as beech, oak, ash and lime.

- ***Land Use***

• Mix of medium - large pasture and arable fields.

• Well-managed hedgerows

• A number of large quarries

- ***Ecology & Habitat***

• No designations

• Bellewstown Uplands is a former Area of Scientific Interest (ASI)

• Well-managed hedgerows and gorse in uplands.

- ***History & Culture***

• Long established mixed scale farmland.

• Bellewstown Uplands

- ***Tourism***

• Bellewstown Racecourse has a variety of race meetings throughout the season.

• Bellewstown Golf Club.

• Bellewstown uplands provide panoramic views over the lowlands and the Meath coastline.

- ***Settlements & Culture***

• Bellewstown, a small village, is the largest settlement.

• Settlement type predominantly small villages/graigs including Ardcath and Clonalvy.

• *Settlements have many vernacular buildings.*

• *Built development consists of vernacular buildings and in attractive landscape setting.*

- ***Description of Key Settlements***

• *Bellewstown: Is a small village comprising ribbon development with panoramic views over the lowland.*

- ***Forces for Change***

• *Any built development could alter the remote character of the area.*

• *Development in bordering County Fingal.*

The Bellewstown Hills LCA roughly corresponds to that part of the geological terrane known as the Balbriggan Inlier that is not included within the coastal plain or occurs in Fingal (Refer to EIAR Section 4.3.3.3 Bedrock Geology). The differential resistance to erosion of these rocks relative to the surrounding bedrock, mostly limestones, has given rise to this prominent feature within the lowlands of the east Meath.

The LCA consists of a large remote area of steeply rolling hills, which is intensively managed with well wooded hedgerows, creating an enclosed environment. Built development consists of mix of scattered detached dwellings and ribbon development along rural roads. This LCA is a prominent feature when viewed from the lowlands of the east Meath, and offers excellent views over the lowlands and coastline. The landscape in the uplands is open and well managed, comprising large pasture and arable fields with extensive clipped hedgerows. At the foot of the upland areas, such as at Clashford, field patterns are smaller and the hedgerows are more wooded.

The landscape of LCA 9 is described as generally in good condition, and is rated as being of very high value and of regional importance, whilst the sensitivity of the LCA is rated as being medium. It is noteworthy that the Coastal Plain LCA, in which the site is also partially assigned, has high landscape sensitivity. The designations assigned to the landscape characteristics for LCA 9 are:

Very High Value

Areas which have particularly high value by nature of their dramatic scenic quality, unspoilt beauty, conservation interests, historic, cultural or other associations that influence landscape value.

Regional Importance

The landscape is afforded importance by a regionally recognised element or elements within it. These may relate to history, culture, geology or other associations. Such elements may be designated within the County Development Plan or may comprise smaller elements which are not designated but together form an important characteristic of an area, which is recognisable or distinct within the County or Province.

Medium Sensitivity

A landscape that can accommodate a certain amount of change without affecting the overall character. There are unlikely to be large numbers of people using or viewing this landscape.

Several recommendations pertaining to LCA 9 that have a potential bearing on the current proposal are:

Recommendations

- *Maintain the ecological value of designated sites within a network of habitats formed by farmland trees and hedgerows.*
- *Continue existing management practices to sustain well-managed farmland in this LCA.*
- *Implement a strategy to protect border areas of the county from potential development in the adjacent County Fingal.*

The potential capacity of each LCA's is determined based on indicative types of development, and estimates the ability of the landscape to absorb specific types of development. The capacity of LCA 9 to absorb most indicative developments was determined to be medium to low. Interestingly, low potential capacity indicates high sensitivity to the type of proposed development, which could have detrimental effect on landscape character or value, such as forestry in LCA 9 (See below). Unfortunately, the capacity of each LCA for quarrying, mineral extraction and landfill, nor for a WRF, was not determined. Two potentially relevant capacities are:

Potential Capacities

- *Medium potential capacity to accommodate large-scale agricultural buildings as farming in this area is generally large scale. However, many locations are likely to be visually prominent so careful siting of such development away from prominent ridges and hillsides will be important to avoid significant visual impact.*
- *Low potential capacity to accommodate biomass and forestry as it would be out of character with the existing pastoral character of this LCA.*

Corine Land Cover (CLC) is a map of the European environmental landscape based on interpretation of satellite images. Land cover is the observed physical cover, as seen from the ground or through remote sensing, including natural or planted vegetation and human constructions (buildings, roads, etc.) which cover the earth's surface. Water, ice, bare rock or sand surfaces count as land cover.

A map showing the CLC in the vicinity of the site has been produced (Refer to Figure 4.8-3). The map shows that the Clashford area is characterised by a relatively simple land use pattern, dominated by pasture and non-irrigated land, with some urban fabric due to the village of Naul. Whilst the Delvin River corridor traverses the area, there are no areas of bog or fen within the landscape. Although not shown in the CLC map, there are a few areas of afforestation at Harbourstown (c. 25ha), in Naul Townland c. 1.5km northwest of Clashford (c. 4ha), and as part of the quarry restoration scheme at the Clashford site. There is also remnant parkland associated with Herbertstown House, c. 2km northwest of site, whilst a restored Roadstone quarry at Denhamstown occurs c. 4.5km to the northwest. Thus, the site of the quarry and WRF is surrounded by land that is principally, but not exclusively, occupied by agriculture.

The application pertains to an existing and active WRF within a quarry, that has slight to moderate potential to create significant short term impacts on the existing landscape

character. As the WRF is co-located within the existing quarry, it is considered that the WRF will not result in any adverse change in land cover, but rather reinstate disturbed and degraded quarry workings to agricultural land.

Meath has many vantage points that offer views and prospects of great natural beauty. The landscape and scenery are of amenity and economic value to residents and tourists, and contribute to the quality of life, such that views and prospects adjoining public roads and from publicly accessible places must be protected. In assessing the potential impacts of development proposals on these views and prospects, there is a need that developments do not obstruct the views and prospects, and should be designed and located to avoid visual intrusion in the landscape when viewed from these vantage points. Although there are no designated Scenic Routes within the general area (i.e., <5km radius) of Clashford, there are two protected views and prospects in the Clashford area, one of which is oriented across the WRF site (Refer to Figure 4.8.3). The two views are:

View No. 70.

Location: R108 between Naul and Mullaghteelin.

Direction: East

Description: Extensive view to east and sea from junction of local road with R108.

Significance: Regional

View No. 71.

Location: County road off R108 at Snowtown

Direction: South East

Description: View at gate along hedgerow of extensive tillage landscape, visible settlement and infrastructure.

4.8.3.1.3 Characteristics of the Development

The nature of the development is the continued phased restoration of a sand and gravel pit using imported inert soil and stone, and recovery of inert construction and demolition waste. As such most of the necessary infrastructure in relation to the operation of the WRF is in place. The location of all activities, buildings and facilities at the Recovery Facility are shown on the Site Plan Figure B 2.1 - Rev C.

Clashford Recovery Facilities Ltd has recently submitted a planning application (P.A. Ref. AA180893) for permission for development at this site, within part of a sand and gravel pit (P.A. Reg. Ref. QY36, QC 17.QC2085) which is currently under restoration at Clashford, Naul, Co. Meath. The development will consist of the recovery of construction and demolition waste to produce secondary aggregates. The existing site office including welfare facilities will be replaced including provision of septic tank and percolation area. The wheelwash will be upgraded and relocated towards the site entrance. A weighbridge, hard standing area with drainage to oil interceptor, semi-mobile crushing and screening plant and other ancillaries will be provided. The hard standing area will be used for quarantine/inspection of the incoming C&D waste to be recovered. Skips will be provided for removal of deleterious material (i.e.

steel, timber, plastic). A hard standing area will be provided for stockpiling of processed secondary aggregates (Refer to Figure B 2.1 Rev C).

In the vicinity of the Clashford, the WRF is well screened from public view on the R108 by existing hedgerow on the roadside and intervening boundaries of properties on the east side of the R108. Mature broadleaf woodland and hedgerow fringes the Delvin River to the south of the landholding, and along the tributary to the north of the landholding, whilst a broad swathe of planted mixed broadleaf forest fringes the eastern half of the quarry site.

However, because the deposit occurs as a topographic high in the valley floor, peripheral screening with hedgerows and forest plantings is ineffective at screening views from open viewpoints on elevated ground. Backfilling work to reinstate the original topographic profile increases the visibility of the operation temporarily, until such time as the land is restored and returned to agricultural use.

Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed. A hay, straw and farm machinery storage shed, horse stables, dungstead and soiled water tank (P.A. Ref. AA161106) are currently being constructed on part of the lands restored under Phase 2. (Refer to Plates 4.8.1 to 4.8.3).

The potential viewshed of the WRF site principally arises from its occurrence in a river valley overlooked by elevated ground on hills to the north and southeast. In addition, the domed topographic profile of the site exposes the backfilling and capping work of the restoration within the WRF site (Phase 2), whereas unrestored ground, where backfilling has yet to commence, is screened within the quarry void (i.e., Phase 3). The viewshed from elevated ground to the north on the R108, and on roads and lanes off it, is intermittent in nature, where views are typically only afforded by gaps in hedgerows. Thus, the view of the site from the north is largely screened by intervening topography and mature and generally well-managed hedgerows. (Refer to Plates 4.8.1 to 4.8.3).

The site is screened from the west and southwest, including the vast bulk of the village of Naul, by intervening topography and mature woodland and hedgerows. There are rare views of the site from the R122 approximately 250m east of the Square, and a largely uninterrupted viewshed of the WRF site from the R122 near the village limits (c. 400m east of the Square), continuing east approximately 700m to Naul House (Refer to Figure 4.8.1 and Plates 4.8.4 to 4.8.6).

The area has an established history of quarry working, and these activities have co-existed with other predominantly agricultural based land uses. Co-location of the WRF within the quarry is a synergistic integration of two complementary and mutually beneficial processes, and a requirement to complete restoration of the quarry and full reinstatement of the land.

4.8.3.2 Visual Baseline Conditions

As detailed above the desktop study was used to determine the nature of the visual amenity of the area along with the approximate visibility of the development, which is determined through topographic analysis of map data. Potential receptors of visual effects, including residents and visitors through the area were also identified. The desk study provided the basis

for subsequent field surveys and was used to delineate the likely zone of visual influence, identify the principal viewpoints and highlight sensitive visual receptors.

For the purpose of this assessment refer to Figure 4.8.1, which highlights the study area delineated as the likely zone of visual influence, principal viewpoints and sensitive visual receptors identified.

Site visits were undertaken on 30/05/2014, 22/07/2014 and 03/08/2018. Principal viewpoints were mapped and these views illustrated by photographs with annotations to describe any important characteristics, and the changes that have arisen as a result of the development (Refer to Figure 4.8.1 and Plates 4.8.1 to 4.8.6).

4.8.4 ASSESSMENT OF IMPACTS

The following Impact Assessment matrix provides an indication of the significance of potential effects arising during the life cycle of the development not accounting for any mitigation measures.

Table 4.8-1 Landscape - Impact Matrix

'Do Nothing' Impacts		●	
Factors	**Construction**	**Operation**	Decommissioning
Direct Impacts	●	●	X
Indirect Impacts	X	X	X
Cumulative Impacts	X	X	X
Residual Impacts	X	X	X
`Worst Case' Impacts	X	X	X

None/imperceptible: X; Slight: ●; Moderate: ●; Significant/Very significant: ●.
Refer to Appendix 5.2 for definition of Significance

4.8.4.1 'Do Nothing' Impacts

The Clashford site would remain as a partly unrestored, degraded quarry site, without the backfilling generated by the proposed WRF. As the quarry area to be restored is currently inactive and well screened, the absence of the proposed WRF would have no significant impact on the landscape.

4.8.4.2 Direct Impacts

The landscape of the Clashford area has medium sensitivity, and thus a limited capacity to absorb development, which can have a disproportionate visual impact. This arises from the limited capacity of this landscape of rolling hills of pastoral or rural character to physically or visually absorb development. Sensitive development and conservation of the landscape resource is essential to the underpinning of the rural economy and quality of life of the area. However, it is recognised that areas where there is existing development probably have a high potential to absorb new development. Thus, the WRF is more readily absorbed by the pre-existence of, and co-location within the quarry. Phase 2 is currently being reinstated as part of the quarry restoration scheme, and is located centrally within the domed landform of the quarry site. Phase 2 is substantially completed and the existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed. The remaining unrestored quarry void (Phase 3) is screened by intervening topography and vegetation.

Summary of Potential Landscape Impacts

The principal attributes (and impacts) to be assessed include *inter alia* the following:

- Change of landform from a 'degraded', disused section of quarry to restored agricultural land
- Change of land use from quarrying/extraction to restored agricultural land
- The loss of ecological habitat as a result of the quarry activity
- The loss if any of cultural heritage features to the quarry activity
- Views of stockpiles up to 5m high of intake material, subsoil and topsoil from distant viewpoints
- Views of broadleaf forest planting in a pastoral landscape

The results of the impact assessment are presented in Table 4.8-2 below

Table 4.8-2 Landscape Impact Assessment Matrix

Topic area	Description of impact	Magnitude[1]	Sensitivity[1]	Level of importance[1]					Quality[2]			Duration[2]					Significance[2]	Mitigation
				I	N	R	C	L	Positive	Neutral	Negative	ST	MT	LT	P	T		
Landform	Change of landform from a 'degraded', disused section of quarry to restored agricultural land	MH	H														Slight to Moderate	Area will be reinstated back to original land profile as improved agricultural land/woodland on completion of operations
Land use	Change of land use from quarrying/extraction to restored agricultural land	MH	H														Slight	The final restoration of the entire quarry site will return the WRF site to agricultural use with significant woodland habitat
Loss of ecological habitat	WRF is sited within previously quarried area and as such there will be no direct impact on the ecological habitat	N	N														Imperceptible	At a landscape scale the restoration will be beneficial as it is creating a nucleus of woodland with links to the existing similar habitat in the Delvin River valley.
Loss of cultural heritage	No direct impacts on known archaeological or architectural heritage	N	N														Imperceptible	As the WRF will have no direct or indirect impact on the archaeological, architectural or cultural heritage resource, it is considered mitigation measures are not required.
Views of stockpiles	Views of stockpiles up to 5m high of intake material and subsoil and topsoil from distant viewpoints	MH	M														Moderate	Phase 2 is under final landscaping and cultivation. The existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.
Views of forest planting	Views of broadleaf forest screening on boundary of eastern side of site from distant viewpoints	H	L														Slight	Broadleaf forest planting will tend to blend with wooded copses and stands in river corridors of the Delvin River and tributary.

Key

Level of importance I = International; N = National; R = Regional; C = County; L = Local

Magnitude and sensitivity N = Negligible; VL = Very Low; L = Low; ML = Medium–Low; M = Medium; MH = Medium–High; H = High; VH = Very High

Notes

1 Criteria used based on The Landscape Institute with the Institute of Environmental Management & Assessment, (2005) Guidelines for Landscape and Visual Impact Assessment - 2nd Ed.

2 The terminology used based on Table 3.3 EPA (2017) Guidelines on the Information to be contained in an Environmental Impact Assessment Report, Draft, Environmental Protection Agency (EPA) Wexford.

Table 4.8-3 PREDICTED VISUAL IMPACTS WITH MITIGATION

NATURE OF IMPACT			Level of importance[1]					Quality[2]			Duration[2]					Magnitude[1]	Receptor Sensitivity[1]	Significance[2]	Mitigation
Viewpoint Plate	Location	Description	I	N	R	C	L	Positive	Neutral	Negative	ST	MT	LT	P	T				
4.8.1	View from north (c. 825m)	Protected View and Prospect designated as 71 on a county road off the R108 at Snowtown north of the site. The view is to the southeast, and is described as "at gate along hedgerow of extensive tillage landscape, visible settlement and infrastructure". View shows previous restored lands including Phase 1. Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.														H	H	Moderate	Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.
4.8.2	View from north north west (c. 620m)	Intermittent passing view from R108. View shows previous restored lands including Phase 1. Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.														MH	MH	Moderate	Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.
4.8.3	View from north north west (c. 300m)	View shows previous restored lands including Phase 1. Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.														M	M	Moderate	Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.
4.8.4	View from Delvin Banks Estate in Naul Village (c. 170m).	Limited partial view towards final phase 3 of lands to be restored. View of existing quarry largely screened by intervening vegetation. Pit floor not open to view and progressive restoration of Phase 3 will enhance view further.														ML	M	Slight	View of existing quarry largely screened by intervening vegetation. Pit floor not open to view and progressive restoration of Phase 3 will enhance view further.
4.8.5	View from Regional Road R122 (c. 345m).	View shows previous restored lands including Phase 1, Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.														ML	M	Slight to moderate	Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.
4.8.6	View from south east of entrance to field along Regional road R122 (c. 490m)	View largely screened by intervening topography and vegetation. Phase 1 completely restored. Phase 2 under restoration. Existing topsoil/subsoil mounds visible are to be used to complete restoration during next earthworks season and area grassed.														L	L	Slight	Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.

Key

Level of importance I = International; N = National; R = Regional; C = County; L = Local

Magnitude and sensitivity N = Negligible; VL = Very Low; L = Low; ML = Medium–Low; M = Medium; MH = Medium–High; H = High; VH = Very High

Notes

1 Criteria used based on The Landscape Institute with the Institute of Environmental Management & Assessment, (2005) Guidelines for Landscape and Visual Impact Assessment - 2nd Ed.

2 The terminology used based on Table 3.3 EPA (2017) Guidelines on the Information to be contained in an Environmental Impact Assessment Report, Draft, Environmental Protection Agency (EPA) Wexford.

Visual Impacts

The results of the visual field survey have shown that due to intervening topography, screening, and vegetation, views towards the WRF site are generally limited to restricted views from elevated ground to the north and southeast. The quarry and WRF are open to partial views from distant viewpoints from gaps in hedgerows and some residences on elevated ground along Regional road R108 and R122, and on roads and lanes off these (Refer to Figure 4.8.1 and in Table 4.8.3 and Plates 4.8.1 to 4.8.6).

4.8.4.3 The Indirect Impacts

There are no indirect impacts associated with the proposed development and the surrounding areas.

4.8.4.4 Cumulative Impacts

There are several commercial enterprises on the R108, including the adjacent Kilsaran concrete plant immediately south of the site (Refer to Figures No. A1.0 Rev A and B2.2 Rev C for site location details).

There will be no significant in combination landscape impacts resulting from this project, and other local existing developments, quarries, projects and plans (Refer to (Refer to Figure 4.8.1 and Plates 4.8.1 to 4.8.6).

The interaction of the quarry and proposed WRF is seen as 'symbiotic' and positive, with no negative cumulative impacts on the landscape.

4.8.4.5 Residual Impacts

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of Landscape.

4.8.4.6 'Worst Case' Impacts

The site is well screened from outside views along the R108 by well-established planting and screening berms (Refer to Site Plan Figure B 2.1 - Rev C and B.2.5 - Rev. C). As such mitigation measures with respect to visual impact are already in place and the worst-case impact due to the restoration of the pit by backfilling will be imperceptible to slight.

4.8.5 MITIGATION MEASURES

Mitigation measures include avoidance, reduction, compensation and remedy of potential impacts. The primary means of mitigation involves an efficient design and layout for the WRF that optimises use of existing infrastructure and plant, screening using berms and trees, and the full restoration of WRF and quarry site, once operations at the site cease.

The objective of the restoration scheme is to ensure visual amenity and to restore the excavation to a beneficial after-use. This would be in accordance with the proper planning and sustainable development of the area.

Because the WRF will be co-located within the Clashford quarry site, it will benefit from existing mitigation measures. The quarry is not a skyline feature, occupying a low field of view from distant receptors; with field boundaries and trees forming the background. The views are mostly obscured by intervening topography, hedgerows and forestry (See EIAR Figure B 2.1 – Rev. C, *Section 6*).

In the vicinity of the Clashford, the WRF is well screened from public view on the R108 by existing hedgerow on the roadside and intervening boundaries of properties on the east side of the R108. Mature broadleaf woodland and hedgerow fringes the Delvin River to the south of the landholding, and along the tributary to the north of the landholding, whilst a broad swathe of planted mixed broadleaf forest fringes the eastern half of the quarry site.

The existing restored quarry lands to the west and Phase 1 to the south along the banks of the Delvin have significantly improved the visual amenity of the locality and also act as a substantial buffer to the current restoration works.

The viewshed from elevated ground to the north on the R108, and on roads and lanes off it, is intermittent in nature, where views are typically only afforded by gaps in hedgerows. Thus, the view of the site from the north is largely screened by mature and generally well-managed hedgerows. The site is screened from the west and southwest, including the majority of the village of Naul, by intervening topography and mature woodland and hedgerows. There are rare views of the site from the R122 within the village limits, and a largely uninterrupted viewshed of the WRF site from the R122 near the village limits and continuing east approximately 700m to Naul House.

Backfilling work to reinstate the original topographic profile increases the visibility of the operation temporarily, until such time as the land is restored and returned to agricultural use. Phase 1 of the quarry restoration is complete. Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed (Refer to Plates 4.8.1 to 4.8.3). This will result in a significant improvement with respect to the visual amenity of the locality in a relatively short time frame. The final phase 3 of the restoration works will largely be screened from outside views by intervening topography and vegetation.

The restoration plan involves the progressive backfilling of the quarry void on a phased basis, with natural inert soil and stone sourced externally and imported. Once the topsoil is re-instated it will be seeded with a suitable mix of grasses suitable for pasture in order to quickly stabilise the topsoil. After the grass sward has become established, the restored farmland can be kept either as grassland for livestock grazing (pasture), hay meadow, and/or woodland. The final contours and topography for the site is shown by the Restoration Plan Figure B 2.4 - Rev C and Figure B 2.5 - Rev C (Cross Sections).

The applicant is an experienced earthmoving contractor. Soils will be handled in accordance with accepted guidelines and good practice (Refer to EIAR Sections 3.4.1 & 4.3.5.

4.8.5.1 Proposed Measures

The restoration plan involves the progressive backfilling of the quarry void on a phased basis, with natural inert soil and stone sourced externally and imported. Topsoil will be seeded and the area returned to useable agricultural grassland for livestock grazing with substantial wooded habitat (Refer to Figure B 2.4 Rev C– Site Restoration Plan).

4.8.6 REFERENCES

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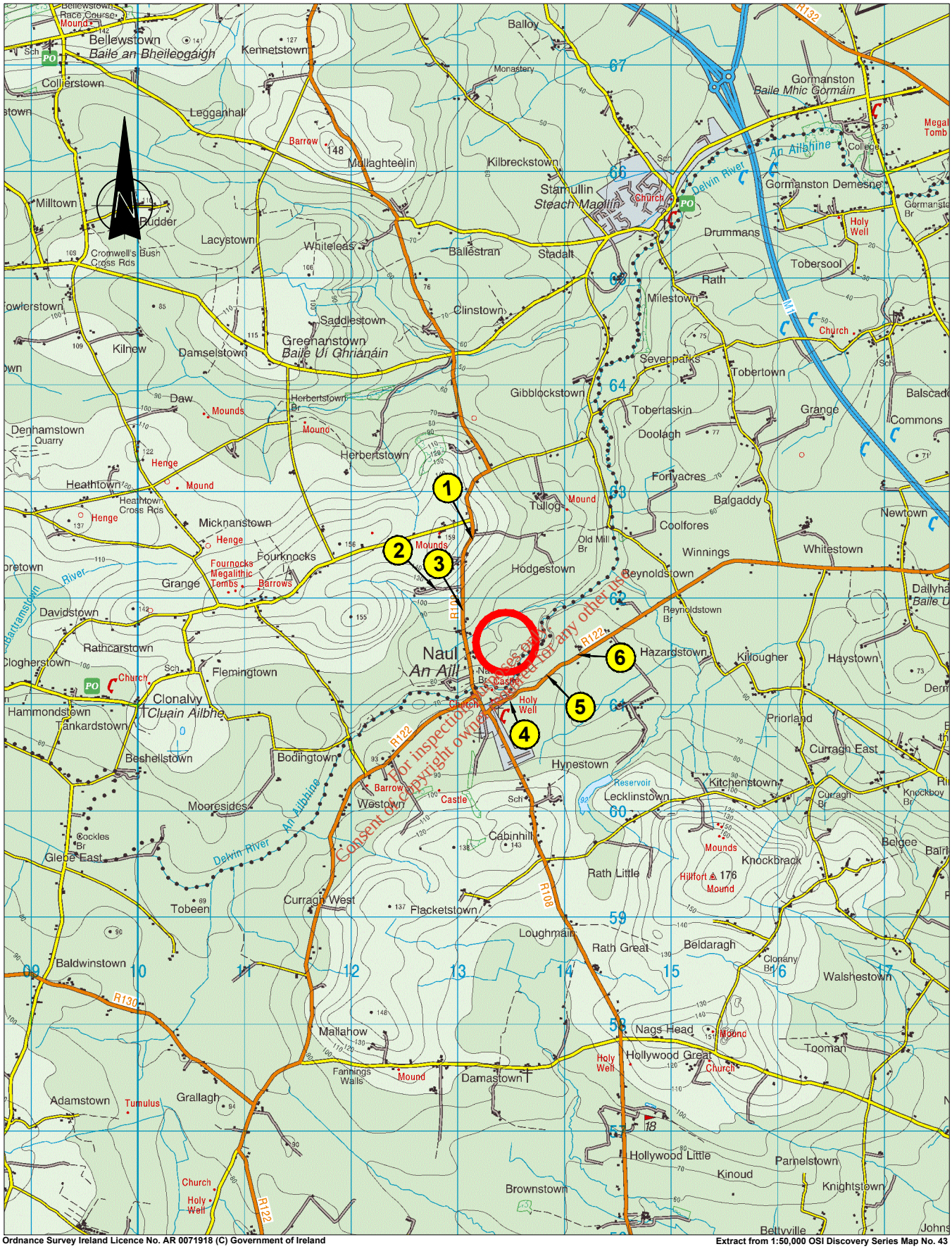
http://www.epa.ie/ Environmental Protection Agency (EPA)

http://gis.epa.ie/Envision Envision Geoportal, Environmental Protection Agency (EPA)

https://www.google.ie/maps Google Maps

4.8.7 FIGURES



Extract from 1:50,000 OSI Discovery Series Map No. 43

Scale: 1:50,000

0m 500m 1km 2km

Legend

Site Location

1 View Points

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Visual Impact Assessment
Clashford Recovery Facility
Naul
Co. Meath

Author: John Sheils	Job No. JSPE 170	
Date: 23/08/18	Ref No. 3.8.1	Rev. A

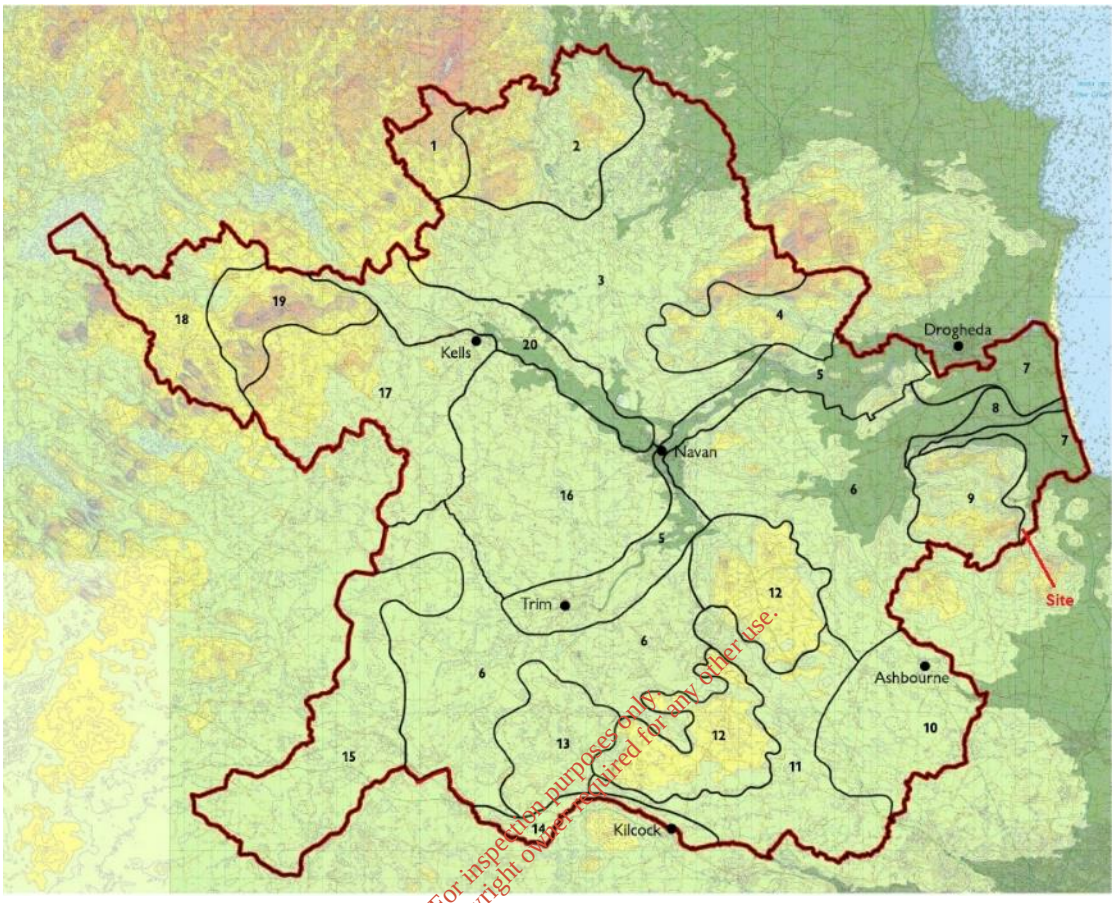

Figure 4.8-2 Landscape Character Areas (LCAs) of County Meath

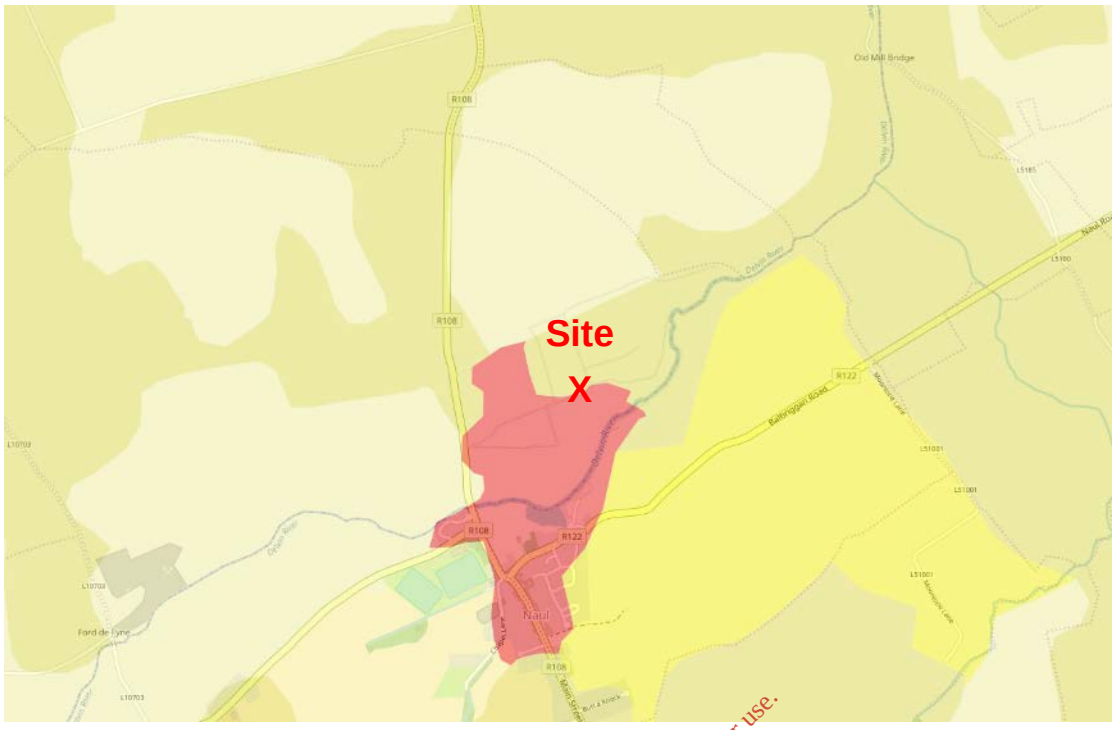

Figure 4.8-3 Corine Landcover (2012) Mapping

Medium green: pasture; light green: non-irrigated land (i.e., arable); Yellow: Complex Cultivation; Dark red: mineral extraction site (i.e., quarry); Light red: discontinuous urban fabric. Site indicated by X. Scale: Field width = c. 3.5km.

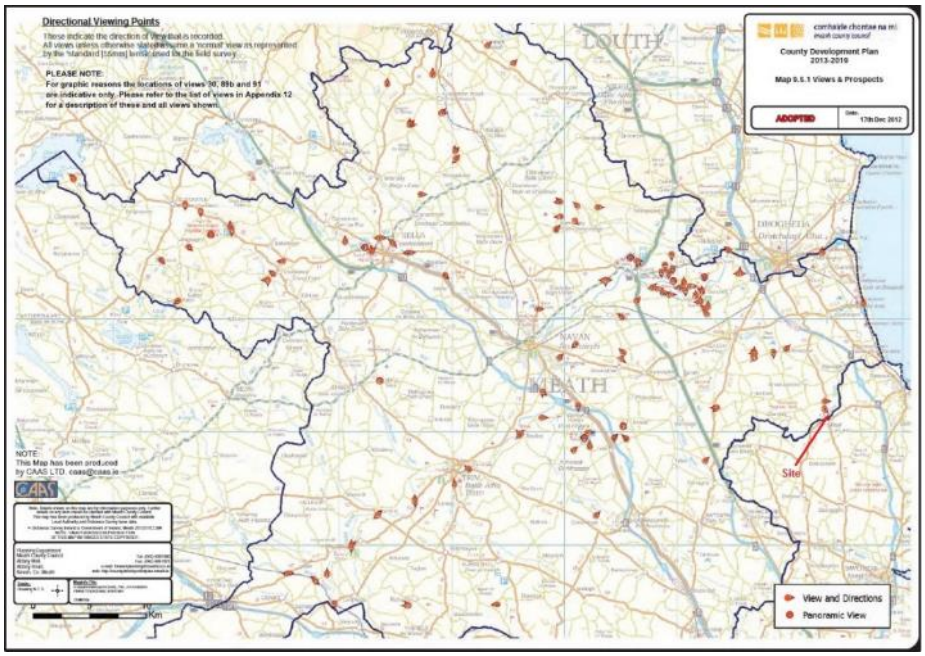

Figure 4.8-4 Views and Prospects of County Meath

Note that there are two views and prospects in the vicinity of the Clashford, one of which is oriented towards the site. Redrawn from Meath County Council (2013).

4.8.8 PLATES

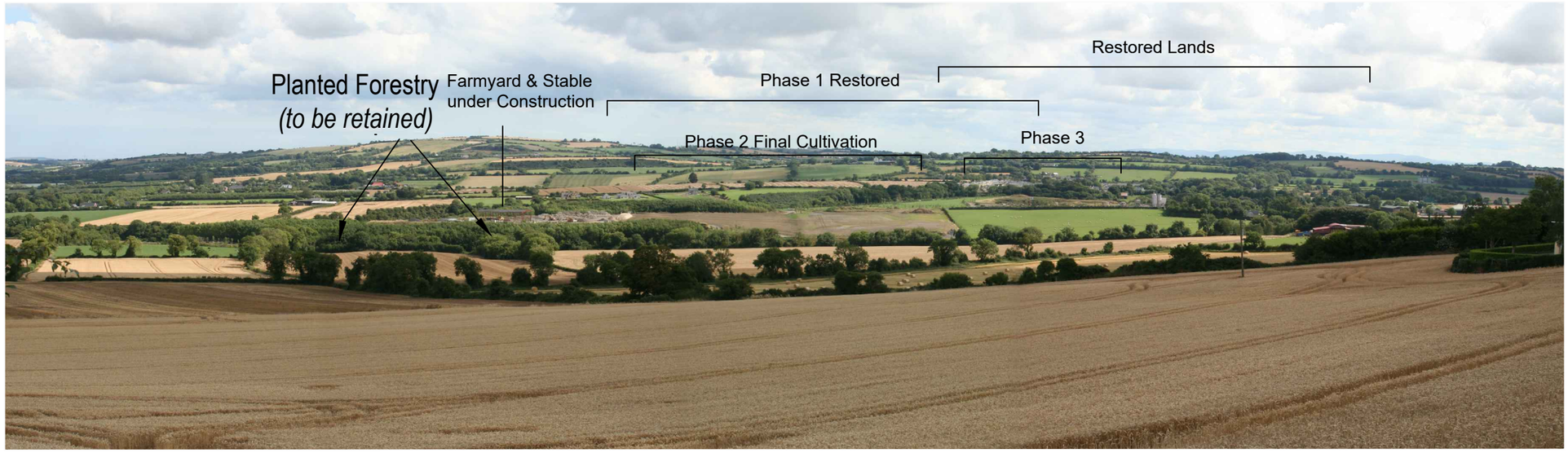

Plate 4.8.1 - Viewpoint 1

Location: View from north - Protected View & Prospect No.71 (c. 825m).

Description: View shows previous restored lands including Phase 1, Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.

Mitigation: Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.

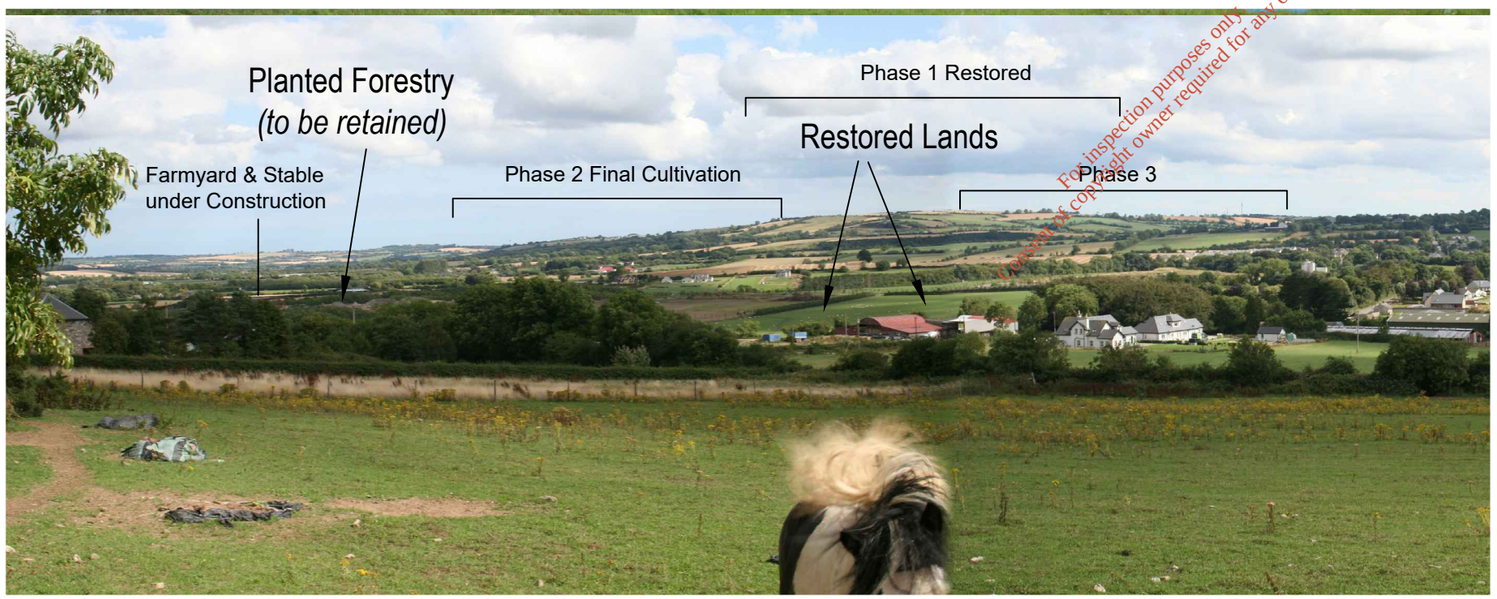

Plate 4.8.2 - Viewpoint 2

Location: View from north north west (c. 620m)

Description: View shows previous restored lands including Phase 1, Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.

Mitigation: Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.

Date of Visual Survey: 3/08/2018

Weather: Dry bright day.

Notes: Refer to Figure 3.8.1 for locations of Principle Viewpoints.

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Plate 4.8.3 - Viewpoint 3

Location: View from north north west (c. 300m)

Description: View shows previous restored lands including Phase 1, Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.

Mitigation: Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.

Plate 4.8.4 - Viewpoint 4

Location: View from Delvin Banks Estate in Naul Village (c. 170m).

Description: Limited partial view towards final phase 3 of lands to be restored.

Mitigation: View of existing quarry largely screened by intervening vegetation. Pit floor not open to view and progressive restoration of Phase 3 will enhance view further.

Date of Visual Survey: 03/08/2018

Weather: Dry bright day.

Notes: Refer to Figure 3.8.1 for locations of Principle Viewpoints.

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Plate 4.8.5 - Viewpoint 5

Location: View from Regional Road R122 (c. 345m).

Description: View shows previous restored lands including Phase 1, Phase 2 is under final landscaping and cultivation. Existing visible topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.

Mitigation: Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.

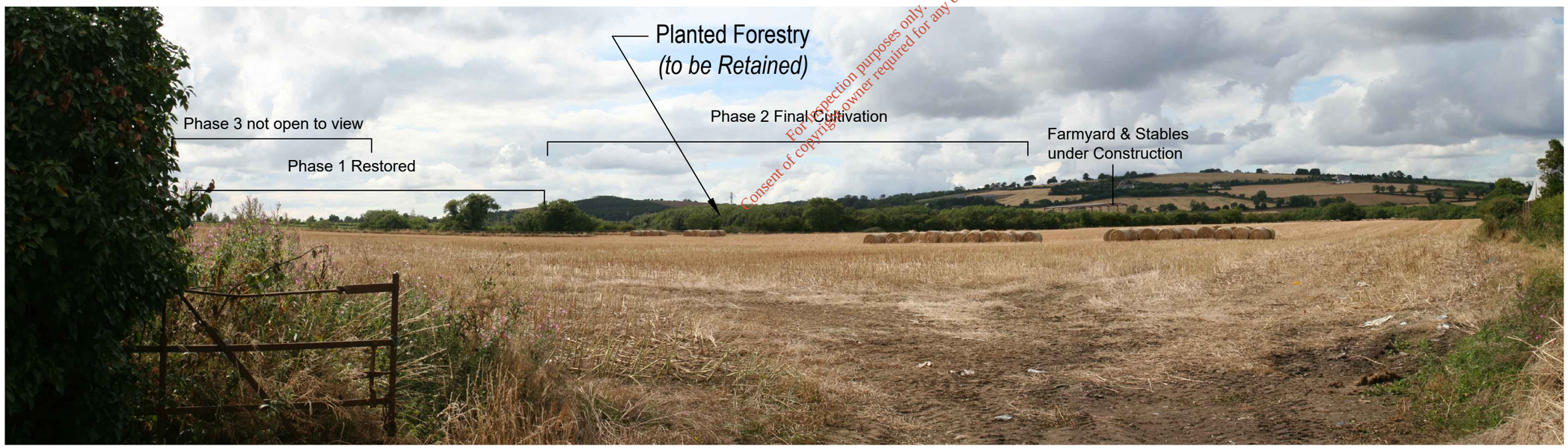

Plate 4.8.6 - Viewpoint 6

Location: View from south east of entrance to field along Regional road R122 (c. 490m)

Description: View largely screened by intervening topography and vegetation. Phase 1 completely restored. Phase 2 is under final landscaping and cultivation. Existing topsoil/subsoil mounds are to be used to complete restoration during next earthworks season and area grassed.

Mitigation: Phase 2 final landscaping and cultivation to be completed by year end. Final Phase 3 is screened by intervening topography and vegetation.

.

Date of Visual Survey: 03/08/2018

Weather: Dry bright day.

Notes: Refer to Figure 3.8.1 for locations of Principle Viewpoints.

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4.9 CULTURAL HERITAGE

4.9.1 INTRODUCTION

This report has been prepared on behalf of Clashford Recovery Facility Ltd. in order to assess and define the impact, if any, on the archaeological, architectural and cultural heritage resource of the continued operation of a Waste Recovery Facility (WRF) at Naul townland, County Meath (OS Sheet 034, Figure 4.9.1). The report has been prepared by Dermot Nelis (See EIAR Section 1.9).

The proposed development is located in the Townland of Naul, c. 300m north of Naul village, and immediately north of the Delvin River, which is the county boundary between Meath and Dublin. The site is lies on the east side of Regional Road R108, which connects with the R122 in village of Naul, which connects with the M1 (Dublin-Drogheda-Dundalk) motorway c. 5km to the east, and to the town of Balbriggan c. 7km to the east.

It is proposed to continue the phased restoration of a sand and gravel pit using imported inert soils and stone; and recovery of inert construction and demolition waste to produce secondary aggregates (figure 4.9.2).

The existing site office including welfare facilities will be replaced including provision of septic tank and percolation area. The wheelwash will be upgraded and relocated towards the site entrance. The existing palisade fence at the entrance is to be replaced with a stone wall and separate entrance gate provided for access to the site office. A weighbridge, hard standing area with drainage to oil interceptor, semi-mobile crushing and screening plant and other ancillaries will be provided. The development will be subject to the requirements of a waste management licence (Reg. No. W0265_01) which is currently under consideration by the Environmental Protection Agency (EPA).

The total application area including the site infrastructure includes the quarry and WRF on a landholding of c. 33.4 ha (Refer to Figure B 2.1 Site Plan Rev C).

This desk-based study will determine, as far as is reasonably possible from existing records, the nature of the cultural heritage resource within the proposed development area using appropriate methods of study.

The study involved interrogation of the archaeological and historical background of the proposed development area. This included information from the Record of Monuments and Places (RMP) of Counties Meath and Dublin, Topographical Files of the National Museum of Ireland, Meath County Development Plan 2013-2019 and Fingal Development Plan 2011-2017, cartographic sources, documentary records and aerial photographs. A field inspection was carried out on 26th May 2014 in an attempt to identify any previously unrecorded features and/or portable finds within the proposed development area. A study area of 1km has been imposed around the area of land take.

An impact assessment and mitigation strategy has been prepared. The impact assessment is undertaken to outline potential adverse impacts the proposed development may have on the archaeological, architectural or cultural heritage resource, while the mitigation strategy is designed to avoid, reduce or offset such adverse impacts.

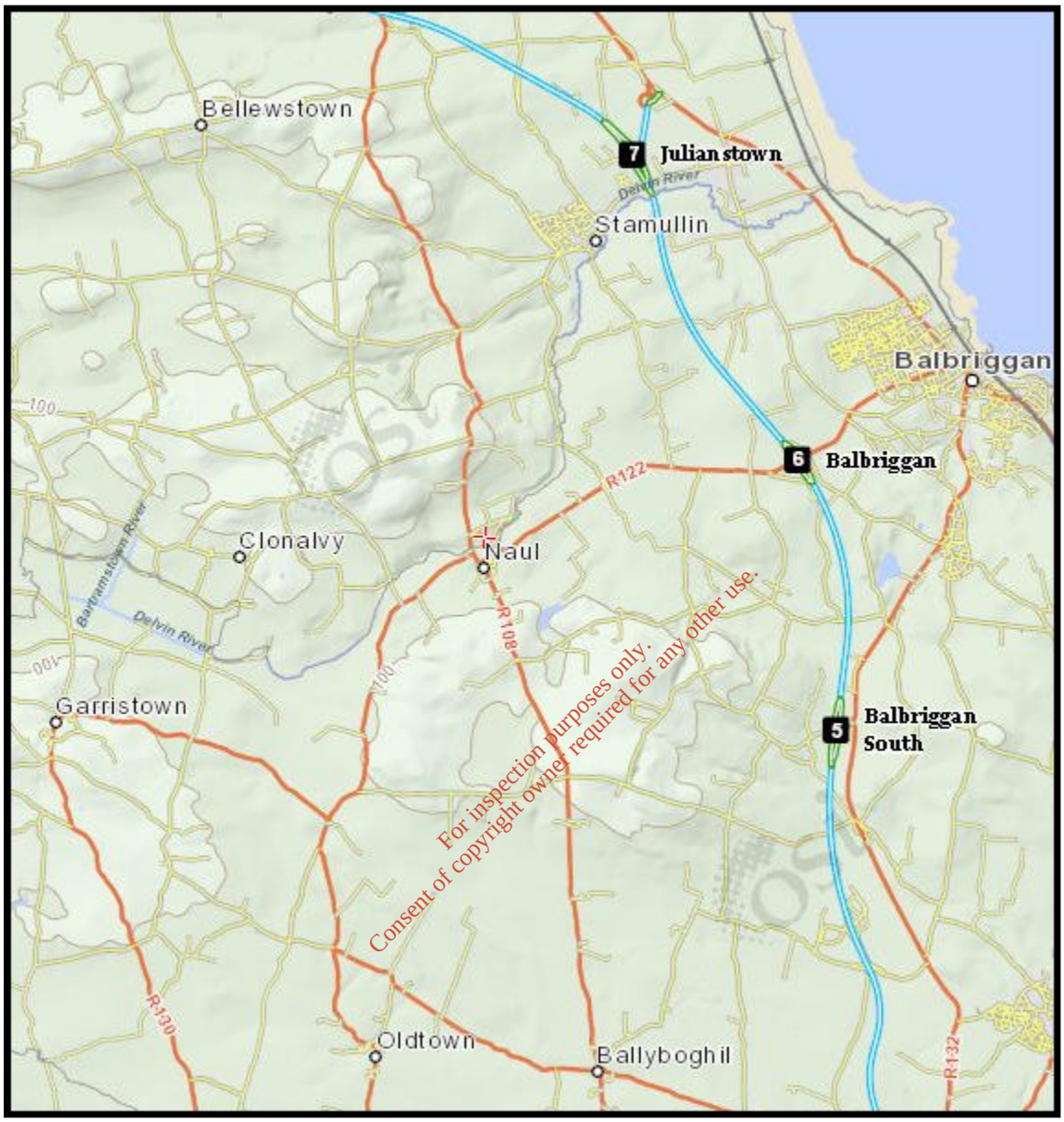

Figure 4.9-1 Site Location at centre (marked with a cross).

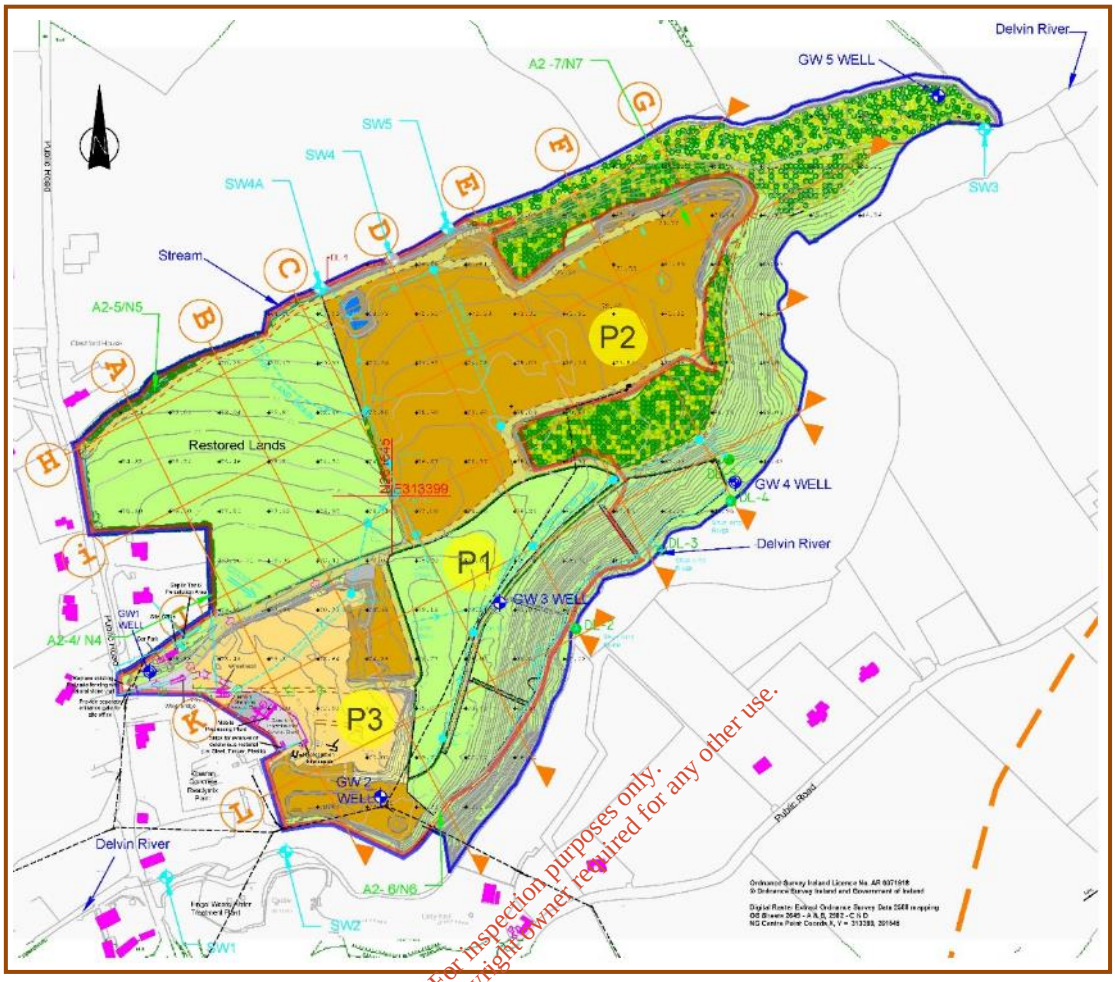

Figure 4.9-2 Site Layout

4.9.2 METHODOLOGY

Research has been undertaken in two phases. The first phase comprised a desktop survey of archaeological, historical and cartographic sources. The second phase involved a field inspection of the proposed development area.

4.9.2.1 Desk Study

4.9.2.1.1 Sources of Information

The following sources were examined, and a list of sites and areas of archaeological, architectural or cultural heritage potential was compiled:

- Record of Monuments and Places of Counties Meath and Dublin;
- Topographical Files of the National Museum of Ireland;
- Cartographic and documentary sources relating to the study area;
- Aerial photographs of Ordnance Survey Ireland and Bing aerial photography;

- Meath County Development Plan 2013 – 2019 and Fingal Development Plan 2017-2023;
- National Inventory of Architectural Heritage.

Record of Monuments and Places is a list of archaeological sites known to the National Monuments Service. Back-up files of the Sites and Monuments Record (SMR) provide details of documentary sources and field inspections where these have taken place.

Topographical Files of the National Museum of Ireland is the national archive of all known finds recorded by the National Museum. This archive relates primarily to artefacts, but also includes references to monuments and unique records of previous excavations. The find spots of artefacts are important sources of information on the discovery of sites of archaeological significance.

Cartographic sources are important in tracing land use development within the area of proposed land take, as well as providing important topographical information on sites and areas of archaeological potential. Cartographic analysis of relevant maps has been made to identify any topographical anomalies that may no longer remain within the landscape.

Documentary sources were consulted to gain background information on the historical and archaeological landscape of the proposed development area.

Aerial photographic coverage is an important source of information regarding the precise location of sites and their extent. It also provides initial information on the terrain and its potential to contain previously unidentified archaeological remains.

Meath County Development Plan 2013-2019 and **Fingal Development Plan 2017-2023** contain Policies and Objectives on the preservation and management of archaeological, architectural and cultural heritage features. They were consulted to obtain information on sites within the proposed development area and the 1km study area.

National Inventory of Architectural Heritage (NIAH) is a section within the Department of Culture, Heritage, and the Gaeltacht (DoCHG). The work of NIAH involves identifying and recording on a non-statutory basis the architectural heritage of Ireland from 1700 to the present day. The NIAH website (www.buildingsofireland.ie) also contains a non-statutory register of historic gardens and designed landscapes in Meath and Fingal, and this was assessed to look for the presence of any such features within the proposed development area and the 1km study area.

4.9.2.1.2 Policy & Legislation

4.9.2.1.2.1 The Archaeological Resource

The National Monuments Act, 1930 to 2004 and relevant provisions of the National Cultural Institutions Act, 1997 are the primary means of ensuring the satisfactory protection of archaeological remains, which includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes.

A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Record of Monuments and Places, the Register of Historic Monuments, the placing of Preservation Orders and Temporary Preservation Orders on endangered sites and National Monuments in the Ownership or Guardianship of the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs or a Local Authority.

The Minister may acquire National Monuments by agreement or by compulsory order. The State or the Local Authority may assume Guardianship of any National Monument (other than dwellings). The owners of National Monuments (other than dwellings) may also appoint the Minister or the Local Authority as Guardian of that monument if the State or Local Authority agrees. Once the site is in ownership or Guardianship of the State, it may not be interfered with without the written consent of the Minister.

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic Monuments and archaeological areas present on the Register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the Register is illegal without the permission of the Minister. Two months notice in writing is required prior to any work being undertaken on or in the vicinity of a Registered Monument. The Register also includes sites under Preservation Orders and Temporary Preservation Orders. All Registered Monuments are included in the Record of Monuments and Places.

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs to establish and maintain a Record of Monuments and Places where the Minister believes that such monuments exist. The Record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the State. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994.

Section 12(3) of the 1994 Act provides that:

> *"where the owner or occupier (other than the Minister for Arts, Heritage and the Gaeltacht) of a monument or place included in the Record, or any other person,*

proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage and the Gaeltacht to carry out work and shall not, except in the case of urgent necessity and with the consent of the Minister, commence the work until two months after the giving of notice".

4.9.2.1.2.2 Architectural and Built Heritage Resource

The main laws protecting the built heritage are the Architectural Heritage (National Inventory) and Historic Properties (Miscellaneous Provisions) Act, 1999 and the Planning and Development Act, 2000 (Amended 2010). The Architectural Heritage Act requires the Minister to establish a survey to identify, record and assess the architectural heritage of the country. The National Inventory of Architectural Heritage (NIAH) records all built heritage structures within specific counties in Ireland. As inclusion in the Inventory does not provide statutory protection, the document is used to advise Local Authorities on compilation of a Record of Protected Structures (RPS) as required by the Planning and Development Act, 2000.

The Planning and Development Act, 2000 requires Local Authorities to establish a Record of Protected Structures to be included in the County Development Plan. This Plan includes objectives designed to protect the archaeological, architectural and cultural heritage resource during the planning process. Buildings recorded in the RPS can include Recorded Monuments, structures listed in the NIAH, or buildings deemed to be of architectural, archaeological or artistic importance by the Minister. Sites, areas or structures of archaeological, architectural or artistic interest listed in the RPS receive statutory protection from injury or demolition under the 2000 Act. Damage to or demolition of a site registered on the RPS is an offence. The RPS list is not always comprehensive in every county.

The Local Authority has the power to order conservation and restoration works to be undertaken by the owner of a Protected Structure if it considers the building in need of repair. An owner or developer must make a written request to the Local Authority to carry out any works on a Protected Structure and its environs, which will be reviewed within 12 weeks of application. Failure to do so may result in prosecution.

4.9.2.1.2.3 Meath & Fingal County Development Plans

The County Development Plans not only represent the principal public policy documents by which protection is extended to cultural heritage via the planning process, but also represent a public record of the monuments, structures, areas of conservation, etc.

The Meath and Fingal County Development Plans were assessed to identify any monuments, protected structures, architectural conservation areas, and/or historic gardens and designed landscapes within the 1km study area.

Meath County Development Plan 2013-2019

The Meath County Development Plan 2013-2019 outlines an overall strategy for the proper planning and sustainable development of County Meath over the timescale of the Plan. The following details the policy objectives within the County Development Plan that are of relevance to the proposed quarry development at Clashford in respect of Cultural Heritage.

It is an Objective (CH OBJ 7) of Meath County Council to:

> *"protect archaeological sites and monuments, underwater archaeology, and archaeological objects, which are listed in the Record of Monuments and Places, and to seek their preservation in situ (or at a minimum, preservation by record) through the planning process*" (Meath County Council 2013, 218).

It is an Objective (CH OBJ 13) of Meath County Council to:

> "*protect all structures (or, where appropriate, parts of structures) within the county which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest and which are included in the Record of Protected Structures*" (*ibid*., 221).

Appendix 8 of the Meath County Development Plan (*ibid*., 393–520) contains the *Record of Protected Structures*. There are no Protected Structures recorded in the Meath County Development Plan within the proposed development area or the 1km study area.

Appendix 9 of the Meath County Development Plan (*ibid*., 522–540) contains a list of *Architectural Conservation Areas*. There are no Architectural Conservation Areas recorded in the Meath County Development Plan within the proposed development area or the 1km study area.

Appendix 11 of the Meath County Development Plan (*ibid.,* 547–556) contains the *National Monuments in State Care* and the *Register of Historic Monuments*. There are no National Monuments or Registered Monuments recorded in the Meath County Development Plan within the proposed development area. There are no National Monuments recorded within the 1km study area. There is one Registered Monument recorded within the 1km study area.

Fingal Development Plan 2017-2023

Part of the 1km study area extends in to County Dublin, and as a result the Fingal Development Plan (2017-2023) was assessed to look for the presence of any statutorily protected archaeological, architectural or cultural heritage features within the study area.

It is an Objective (CH03) of Fingal County Council to:

> "*Protect all archaeological sites and monuments, underwater archaeology, and archaeological objects, which are listed in the Record of Monuments and Places and all sites and features of archaeological and historic interest discovered subsequent to the publication of the Record of Monuments and Places, and to seek their preservation in situ (or at a minimum, preservation by record) through the planning process.*" (Fingal County Council 2017, 346).

The closest RMP site in County Dublin is located approximately 50m south of the proposed development area (RMP DU004-045003- holy well). There are ten RMPs within the 1km study area recorded in Appendix 3 of the Fingal Development Plan:

SMR No.	Description	Townland	Distance from proposed development
DU004-041-	Mill - unclassified	Reynoldstown	c. 900m
DU004-043001-	Castle tower house	Westown	c. 1km
DU004-043002-	Building	Westown	c. 1km
DU004-045002-	Castle - tower house	Naul	c. 100m
DU004-045003-	Ritual site - holy well	Naul	c. 75m
DU004-045004-	Church	Naul	c. 175
DU004-045005-	Graveyard	Naul	c. 160m
DU004-045009-	Enclosure	Naul	c. 100m
DU004-047----	Church	Reynoldstown	c. 900m
DU004-061-	Enclosure	Naul	c. 325m

It is an Objective (CH19) of Fingal County Council to:

> "*Review the Record of Protected Structures on an on-going basis and add structures of special interest as appropriate, including significant elements of industrial, maritime or vernacular heritage and any twentieth century structures of merit*" (*ibid*., 350).

There are ten Protected Structures recorded within the 1km study area in Appendix 2 of the Fingal Development Plan:

RPS No.	Description	Townland	Distance from proposed development area
34	Road bridge over River Delvin	Coolfores	*c*. 1km
101	Reynoldstown House	Reynoldstown	c. 750m
102	Naul House	Naul	*c*. 470m
104	Remains of small chapel dated 1710 and graveyard	Naul	*c.* 160m
105	Remains of stone tower, known as “The Black Castle”	Naul	*c.* 80m
106	Stone road bridge over River Delvin	Naul	*c.* 150m
107	Former Naul Mill complex converted and subdivided into apartments	Naul	*c.* 160m
108	Seamus Ennis centre. Curved eight-bay thatched structure	Naul	*c.* 260m
109	Early 19th century Roman Catholic Church	Westown (Naul)	*c.* 400m
898	Killian’s Pub; 18th century former coaching inn with Dutch styled curvilinear gable	Westown (Naul)	*c.* 250m

Chapter 10 of the Fingal Development Plan (*ibid*., 352) contains a list of *Architectural Conservation Areas*. Naul is recorded in the Fingal Development Plan as an Architectural Conservation Area, and it is located south of the proposed development area.

4.9.2.1.3 Designations

Naul is recorded in the Fingal Development Plan as an Architectural Conservation Area, and it is located c. 300m south of the proposed development area (See Appendix 6 of the Fingal Development Plan 2011-2017, 215-216).

4.9.2.2 Field Study

Field inspection is necessary to determine the extent, character and condition of archaeological, architectural and cultural heritage remains, and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information.

4.9.3 BASELINE DESCRIPTION OF RECEIVING ENVIRONMENT

4.9.3.1 Archaeological & Historical Background

4.9.3.1.1 General

During the Mesolithic period (*c*. 7,000–4,000 BC) people existed as hunters/gatherers, living on the coastline, along rivers and lakesides. They used flint and other stones to manufacture sharp tools, and locating scatters of discarded stone tools and debris from their manufacture can sometimes identify settlements. Their impact on the landscape was minimal, and the limited amount of evidence includes the remains of timber houses and primitive stone tools. In Meath, the Rivers Boyne and Blackwater were the most important means of travel and Mesolithic period settlements were concentrated on their banks (Meath County Council 2013, Volume 2, Appendix 7, 11).

In 1998 excavation at Moynagh Lough, Brittas, County Meath focused on an area of Late Mesolithic activity sealed beneath an Early Medieval crannog. Artefactual evidence included three polished stone axeheads, six spearheads of slaty sandstone, five elongated pebbles, nine hammerstones and two polishing stones. Approximately 2,000 pieces of chert, flint and other stone were recovered from the site. A single shallow pit exposed in isolation during archaeological testing in 2001, at Kilsharvan, County Meath, had upon analysis a radiocarbon determination *c*. 5,060–4,800 BC, dating it to the later Mesolithic (www.excavations.ie). Late Mesolithic conical, woven basketry fish-traps were discovered during archaeological excavations at Clowanstown, County Meath (Clancy 2009, 40-41). A Mesolithic fishing platform and Neolithic burnt mounds were revealed near the centre of a former Lough. Five mounds were located at the western edge of a raised bog and a mooring was identified by the position of six substantial stakes around the landward side of the former lough. This possibly provided a structure to fish from as well as a potential mooring for a dugout. Radiocarbon determinations from wood samples returned a date range of between 5,000–4,000 cal BC (www.excavations.ie).

The population became more settled during the Neolithic period (*c*. 4,000-2,400 BC) with a subsistence economy based on crop growing and stock-raising. This period also saw changes in burial practices, and a tradition of burying the dead collectively and carrying out of cremations emerged. Neolithic monuments from County Meath include portal, passage and wedge tombs. Some of the most recognisable Neolithic monuments in Ireland are located at Brú na Bóinne, County Meath. The megalithic tombs, which date from *c*. 3,000 BC, belong to the Neolithic period and are classified as passage tombs. They occupy the high ground on ridges in an area densely covered by archaeological remains. This archaeological zone is to a large extent bounded by the River Boyne to the south and to the north by its tributary, the River Mattock.

The site of Fourknocks is located approximately 2km north west of the proposed development area. These passage graves are decorated with abstract art and bear the first depiction of a human face found in prehistoric art in Ireland. Three earthen mounds were excavated by the National Museum in 1950-1952. The contents of one of the monuments contained fragmentary human remains representing dozens of bodies of all ages and sexes. These were accompanied by grave offerings (stone beads and miniature hammer pendants, bone pins *etc*.) in the three side chambers.

The Bronze Age (*c*. 2,400-600 BC) is characterised by the introduction of metalworking technology to Ireland and coincides with many changes in the archaeological record, both in terms of material culture as well as the nature of the sites and monuments themselves. Though this activity has markedly different characteristics to that of the preceding Neolithic period, including new structural forms and new artefacts, it also reflects a degree of continuity. During this period knowledge of metalworking was acquired resulting in changes in material culture such as the introduction of metal tools and artefacts as well as the introduction of a highly decorated pottery called Beaker pottery. In addition to changes in material culture, there were changes in burial rite from communal megalithic tombs to single burial in cists. These communities were responsible for the vast communal burial grounds such as the famous passage graves to be found at the Bend of the Boyne and the 30 cairns scattered over two hills at Slieve na Calliagh dating from *c*. 3,500 BC. Bronze Age monuments from County Meath include standing stones, stone pairs, cairns, barrows and *fulachta fiadh,* which are one of the most numerous monument types in Ireland with over 4,500 examples recorded (Waddell 2005, 174). The number and importance of prehistoric structures in County Meath is considered to exceed that of any other part of Ireland; high quality remains are most in evidence in the Boyne Valley, Hill of Tara and Loughcrew Hills.

The site of an unclassified megalithic tomb (RMP ME034-012) is located within the proposed development area. It is recorded as an earthwork on Duncan's map of 1821 and there is a local tradition of a mound with a passage (www.archaeology.ie). This feature no longer survives within the landscape.

Two ring-ditches are recorded within the 1km study area. RMP ME034-023 is located in Herbertstown townland, approximately 1km north west of the proposed development area. It is recorded as a circular ring-ditch visible as a crop mark on an aerial photograph (www.archaeology.ie). RMP ME034-026 is located in Tullog townland, approximately 700m north east of the proposed area of land take. It is also recorded (www.archaeology.ie) as a circular ring-ditch visible as a crop mark on an aerial photograph.

A mound barrow (RMP ME034-005) is recorded in Herbertstown townland, approximately 950m north west of the proposed development area. It is noted as being a circular mound measuring 21m in diameter x 1.8m in height (www.archaeology.ie). A mound (RMP ME033-033) is located approximately 1km west of the proposed area of land take in Naul townland. It is an oval mound, recorded as a barrow, measuring 15m in length north/south x 12m in width east/west x 2m in height (www.archaeology.ie).

During the Iron Age (*c*. 600 BC-400 AD) new influences came into Ireland which gradually introduced the knowledge and use of iron, although for several centuries bronze continued to be widely used. The Iron Age in Ireland however is problematic for archaeologists as few artefacts dating exclusively to this period have been found, and without extensive excavation

it cannot be determined whether several monument types, such as ring-barrows or standing stones, date to the Bronze Age or Iron Age. Most knowledge for this period stems from Irish folklore, the epic poems and legends of warrior kings and queens that are traditionally believed to be Celtic in origin.

The Early Medieval period (*c*. 400-1169 AD) is depicted in the surviving sources as entirely rural, characterised by the basic territorial unit known as *túath.* Walsh (2000, 30) estimates that there were at least 100, and perhaps as many as 150, kings in Ireland at any given time during this period, each ruling over his own *túath.* Many sites in County Meath are said to have specific associations with St. Patrick. In particular the Hill of Slane was the site of the lighting of the first Paschal Fire by St Patrick in 432 AD, in defiance of King Leoghaire and pagan tradition. A number of St. Patrick's followers established churches and monasteries throughout County Meath, such as that founded by St. Erc at Slane and that at Trim by St. Loman. St. Patrick placed St. Cianan over the first Church in Duleek in the 5th century, and prior to his death in 489 AD he was credited with building the first stone church in Ireland. The first monastery said to have been founded by St. Patrick was that at Donaghmore (Meath County Council 2013, Volume 2, Appendix 7, 13).

The new religious culture brought changes in settlement and agricultural patterns. The ringforts and associated field patterns of the Early Medieval period indicate a life largely based on grazing. During this turbulent period roughly circular defensive enclosures known as ringforts were constructed to protect farmsteads. They were enclosed by an earthen bank and exterior ditch, and ranged from approximately 25m to 50m in diameter. The smaller sized and single banked type (univallate) was more than likely home to the lower ranks of society, while larger examples with more than one bank (bivallate/trivallate) housed the more powerful kings and lords. They are regarded as defended family homesteads and the extant dating evidence suggests they were primarily built between the 7th and 9th centuries AD (Stout 1997, 22-31). The ringfort is considered to be the most common indicator of settlement during the Early Medieval period. The most recent detailed study (*ibid*., 53) has suggested that there is an approximate total of 45,119 potential ringforts or enclosure sites throughout Ireland.

Enclosure sites belong to a classification of monument whose precise nature is unclear. Often they may represent ringforts, which have either been damaged to a point where they cannot be positively recognised, or are smaller or more irregular in plan than the accepted range for a ringfort. An Early Medieval date is in general likely for this site type, though not a certainty.

There are three enclosures recorded within the 1km study area. RMP ME034-011 is located in Naul townland, approximately 130m north of the proposed development area. Remains of an enclosure are recorded on a map dated to 1825, and the field is known locally as the "*ringfield*" (www.archaeology.ie). There is no further information supplied on this site on the RMP database. RMP ME034-027 is recorded in Tullog townland approximately 900m north east of the proposed development area. It is recorded (www.archaeology.ie) as a sub-circular enclosure visible as a crop mark on an aerial photograph. An enclosure (RMP DU004-061) is recorded approximately 350m south east of the proposed development area in Naul townland, County Dublin. The site has been identified as a circular cropmark on an aerial photograph (www.archaeology.ie). There is no further information supplied on this site on the RMP database.

The Early Medieval period is also characterised by the foundation of a large number of ecclesiastical sites throughout Ireland in the centuries following the introduction of Christianity in the 5th century. The early churches tended to be constructed of wood or post-and-wattle. Between the late 8th and 10th centuries mortared stone churches gradually replaced the earlier structures. Many of the sites, some of which were monastic foundations, were probably originally defined by an enclosing wall or bank similar to that found at coeval secular sites. This enclosing feature was probably built more to define the sacred character of the area of the church than as a defence against aggression. An inner and outer enclosure can be seen at some of the more important sites; the inner enclosure surrounding the sacred area of church and burial ground and the outer enclosure providing a boundary around living quarters and craft areas. Where remains of an enclosure survive it is often the only evidence that the site was an early Christian foundation.

A church (RMP DU004-045004) is located approximately 160m south of the proposed development area in Naul townland, County Dublin. It is situated in an elevated position in a graveyard, and is a plain rectangular building (internal dimensions 9.70m x 5.10m) orientated east north east/west south west. The north wall is missing. According to a wall plaque the church was built in 1710, but it retains earlier features indicating the re-use of a Medieval building. The Civil survey (1654-6) described the Medieval parish church in Naul as ruinous with only "*the walles of ye parish church*". The interior is lit by a double-light ogee-headed window with transom in the east wall and a plain double-light window in the south wall. It is entered through a pointed-arched west doorway with cable-moulding and pocked dressing. A cross (RMP DU004-010002) is located in the interior of the church. It is recorded (www.archaeology.ie) as being monumental in nature and probably commemorative in function, and possibly dates to the 19th century.

The church is surrounded by a walled graveyard which is square in plan and measures 34m in diameter (RMP DU004-045005). The interior is raised above the surrounding ground level and falls away to the north. The oldest graveslabs are in the west and south of the graveyard and are 18th and 19th century in date (www.archaeology.ie).

A holy well (RMP DU004-045003) is recorded in Naul townland, County Dublin, approximately 50m south of the proposed development area. It is located at the bottom of a ravine, south east of the River Delvin (www.archaeology.ie). The site is poorly preserved and is no longer venerated. Holy Wells are often found associated with early ecclesiastical sites. Although most have no artificial features associated with them, it is clear that the veneration of wells is a very ancient tradition within Ireland and more generally Europe (Lacy 1983, 301).

It is believed that the illustrious religious house at Kells was founded in 804 AD by monks from St. Columcille's foundation at Iona, who were seeking a safe location during the Viking invasions. Reliquaries of the Saint were relocated there in 877 AD and even though the monastery suffered successive sackings, the Book of Kells, now in Trinity College Dublin, was preserved. Apart from the churches and round towers, other important visible remains from this period are the numerous high crosses such as those at Kells, Duleek and Castlekeeran (Meath County Council 2013, Volume 2, Appendix 7, 13).

The commencement of Viking raids at the end of the 8th century and their subsequent settlement during the following two centuries marked the first ever foreign invasion of Ireland. Viking settlement evidence is scarce and has been found in Dublin and Waterford, however,

excavations there have revealed extensive remains of the Viking towns. Outside these towns understanding of Viking settlement is largely drawn from documentary and place-name evidence. In addition to Dublin and Waterford, documentary sources provide evidence for the Viking foundation of the coastal towns of Limerick, Wexford and Cork (Edwards 2006, 179). Other indirect evidence which suggest Viking settlement, or at least a Norse influence in Ireland, is represented by upwards of 120 Viking-age coin hoards, possible votive offerings of Viking style objects and the assimilation of Scandinavian art styles into Irish design. Whilst the initial Viking raids would have been traumatic, the wealth and urban expansion brought into the country as a result of Viking trading would have eventually benefited the Gaelic Irish and the cultural assimilation in some parts would have been significant.

In the 9th century County Meath suffered from invasions by the Danes. Turgesius sailed up the River Boyne in 838 and after a period of devastation, often directed at the church, set up his regime and rule near Tara. The Danes however continued their attacks until 980 when they were defeated at Tara. During their period of power the Viking invaders promoted a more commercial and urbanised lifestyle, and the founding of towns and villages grew apace after the Norman invasion (Meath County Development Plan 2013, Volume 2, Appendix 7, 13).

The arrival of the Anglo-Normans in Ireland towards the end of the 12th century caused great changes during the following century. Large numbers of colonists arrived from England and Wales and established towns and villages. They brought with them new methods of agriculture which facilitated an intensification of production. Surplus foods were exported to markets all along Atlantic Europe which created great wealth and economic growth. Results of this wealth can be seen in the landscape in the form of stone castles, churches and monasteries.

The county of Meath was granted to Hugh de Lacy, by Henry II, to hold by the service of 50 knights. Under the Normans the system of landownership was a manorial one with towns and villages established around castles. The town of Trim was the centre of Norman power in County Meath. Kells was also prominent as a Norman fortification, although most of the remains from that period have not survived.

The political structure of the Anglo-Normans centered itself around the establishment of shires, manors, castles, villages and churches. In the initial decades after the Anglo-Norman invasion a distinctive type of earth and timber fortification was constructed- the motte and bailey. Mottes were raised mounds of earth topped with a wooden or stone tower while the bailey was an enclosure, surrounded by an earthen ditch with a timber palisade, used to house ancillary structures, horses and livestock. There are 24 motte and baileys recorded in County Meath (www.archaeology.ie).

In certain areas of Ireland however Anglo-Norman settlers constructed square or rectangular enclosures, now termed moated sites. Their main defensive feature was a wide, often water-filled, fosse with an internal bank. As in the case of ringforts, these enclosures protected a house and outbuildings usually built of wood. They appear to have been constructed in the latter part of the 13th century, although little precise information is available. There are 22 moated sites recorded in County Meath (www.archaeology.ie).

More substantial stone castles followed the motte and bailey and moated sites in the 13th and 14th centuries. Tower houses are regarded as late types of castle and were erected from the 14th to early 17th centuries. Their primary function was defensive, with narrow windows and a tower often surrounded by a high stone wall (bawn). An Act of Parliament of 1429 gave a

subsidy of £10 to "*liege*" men to build castles of a minimum size of 20ft in length, 16ft in breadth and 40ft in height (6m x 5m x 12m). By 1449 so many of these £10 castles had been built that a limit had to be placed on the grants. The later tower houses were often smaller, with less bulky walls and no vaulting. There are 58 tower houses recorded in County Meath (www.archaeology.ie).

A tower house (RMP DU004-045002) is recorded in Naul townland, County Dublin, approximately 80m south of the proposed development area. It is located on the eastern edge of a ravine on the south bank of the River Delvin (www.archaeology.ie). The remains comprise the north end of an oblong three-storey tower house. The southern end of the building, containing the staircase, collapsed in the 1960s. It is built of coursed limestone masonry. There are remains of a double barrel-vault over the ground floor. The second and third floors were originally of timber. There is a featureless doorway in the west wall and a single-light ope with a splayed embrasure in the east wall of the ground floor. Putlog holes are visible in the south and east walls. Traces of a possible bawn wall project from the north east corner.

The site of an unclassified castle (RMP ME034-010) is located approximately 250m west of the proposed development area in Naul townland. Remains of "Whitecastle or Snowtown castle" were incorporated into Naul Park House. The original castle is thought to have been built by Richard Caddell in the 13th century. The Caddell family were evicted by Cromwell's General De Fyne in 1649. Naul Park House was built adjoining the east of the castle in approximately 1800 AD. The house was demolished in the 1980s although ground floor footings remain (www.archaeology.ie).

The present tower at Trim Castle was completed by William Peppard in 1220 AD. Combined with the massive curtain walls, gates and associated buildings, it is the largest castle in Ireland. More modest than Trim were the baronial castles of Dardistown, Killeen and Dunsany (Meath County Council 2013, Volume 2, Appendix 7, 15).

The 14th century throughout north west Europe is generally regarded as having been a time of crisis, and Ireland was no exception. Although the Irish economy had been growing in the late 13th century, it was not growing quickly enough to support the rapidly expanding population, especially when Edward I, was using the trade of Irish goods to finance his campaigns in Scotland and Wales. When the Great European Famine of 1315-17 AD arrived in Ireland, brought about by lengthy periods of severe weather and climate change, its effects were exacerbated by the Bruce Invasion of 1315-18 AD. Manorial records which date to the early 14th century show that there was a noticeable decline in agricultural production. This economic instability and decline was further worsened with the onset of the Bubonic Plague in 1348 AD.

Before the Tudors came to the throne the kings of England were also the kings of western France and so, during the 14th and 15th centuries, the various lords who ruled in Ireland were largely left to themselves. The Tudor conquest however brought a much greater interest in the affairs of Ireland. They wanted to put a stop to the raids of the Gaelic Irish on the areas under English rule. To do this, they ruthlessly put down any rebellions and even quashed inter-tribal feuds. English settlers were then brought in to settle their lands. The first of these plantations occurred in the mid-16th century in what is now Laois and Offaly. After the Desmond rising in Munster in 1585 AD came another plantation, and parts of south western Tipperary were planted at that time.

From 1593 AD until 1603 AD, there was a countrywide war between the Gaelic Irish, who were supported by the French, and the Elizabethan English. The Irish were finally defeated and with the "*Flight of the Earls*" from Rathmullan, County Donegal in 1607, Ulster, which had previously been independent of English rule, was planted.

Expansion in the agricultural sector following a period of economic growth in Ireland from the mid-1730s led to rising prices and growth in trade. This increase in agricultural productivity resulted in growth in related industrial development throughout the country.

A mill (RMP ME034-009) is recorded in Naul townland, approximately 40m south west of the proposed development area. There is no further information recorded on this site in the RMP database (www.archaeology.ie).

A bridge (RMP DU004-045008) is recorded in Westown townland, approximately 160m west of the proposed area of land take. The Down Survey map (1655-6) shows "*Naul Bridge*" on the main route north from Swords through Rathbeale via Roganstown, Naul and Dardistown to Drogheda. At present the river Delvin is crossed by a double-arched bridge which occupies the site of the earlier bridge. This has round segmental arches and dressing on the stonework (www.archaeology.ie).

An 18th/19th century house (RMP DU004-042) is recorded in Westown townland, County Dublin, approximately 280m south of the proposed development area. It is shown on John Rocque's map of 1760 (www.archaeology.ie). It is attached to the north side of Killian's public house in Naul village, and is a two-storey stone-building with a gabled and slated roof. The latter was reconstructed and gables raised to give a Dutch Billy effect in the 1940s. The chimney projects mid-way along the north side of the building.

The proposed development area is located in Naul townland, which is in barony of Duleek Upper and parish of Clonalvy. Lewis (1837, Vol. II, p. 420) notes that:

> "*agriculture is not in a forward state: the principal crops are wheat, oats and potatoes; limestone is raised from quarries in the parish*".

Lewis also notes (1837, Vol. I, p. 348) that the parish of Conalvy contained:

> "*1055 inhabitants. It comprises 4928 statute acres, of which 1661 are applotted under the tithe act: the land is in a high state of cultivation, being almost equally divided between arable and pasture . . . About 50 cotton-looms are employed by the Dublin and Drogheda manufacturers*".

Figure 4.9-3 R MP Sites within the 1km study area

4.9.3.1.2 Summary of Previous Fieldwork in the Study Area

Reference to Summary Accounts of Archaeological Excavations in Ireland (www.excavations.ie) revealed that no fieldwork projects have been carried out within the proposed development area.

Twenty six test trenches were excavated as part of an extension to a quarry in 2008 (2008:972), located at Ford de Fine in the south west corner of Naul townland. A number of archaeological features, including a curved ditch containing charcoal and animal bone, were revealed beneath a proposed berm and were preserved *in situ*.

Three fieldwork exercises are recorded as having been carried out in the vicinity of Naul village. None of these programmes revealed archaeological features or artefacts.

4.9.3.1.3 Topographical Files of the National Museum of Ireland

Information on artefact finds and excavations from Counties Meath and Dublin is recorded by the National Museum of Ireland (NMI). Location information relating to such finds is important in establishing prehistoric and historic activity in the study area.

There were three entries recorded in the Topographical Files for Naul townland, County Meath.

No NMI reference. A tiny fragment of cremated bone was noted in the side of a "*mound*". The mound was noted as being oval in shape and somewhat denuded. It had a maximum height of 2m and was 19.9m in length x 12.9m in width. No further information is supplied in the Topographical File.

NMI reference:P.1950:32. A Bann type flake (Late Mesolithic) was found on the surface of a garden in an orchard. The garden soil was noted as being "*made ground*" and came from a farm in Naul townland. No further information is supplied in the Topographical File.

NMI reference:1972:345-353. Nine flint flakes are recorded as surface finds in a destroyed cairn (passage grave?). No further information is supplied in the Topographical File.

In addition, two entries were recorded for Naul, County Dublin.

NMI reference:1883:12. A bronze chisel. No further information is supplied in the Topographical File.

NMI reference:2270:W31. A stone object. No further information is supplied in the Topographical File.

4.9.3.1.4 Cartographic Analysis

Ordnance Survey Map First Edition 1:10,560 1842 (Figure 4.9.4)

Clashford House is recorded immediately north of the north west boundary of the proposed development area on the First Edition Ordnance Survey map. The area of land take consists of four fields and an irregular shaped east/west oriented area on the OS map. A mill pond and a flour mill are recorded south of the proposed development area. Four structures are shown south west of the development area. A possible quarry is recorded in the middle of the proposed area of land take.

The development area is located north of a townland, parish, barony and county boundary. Research suggests that:

> "*hoards and single finds of Bronze Age weapons, shields, horns, cauldrons and gold personal objects can all be shown to occur on boundaries*" (Kelly 2006, 28).

There are no archaeological, architectural or cultural heritage features recorded on the First Edition 1:10,560 map within the area of proposed land take.

Figure 4.9-4 Extract from First Edition 1:10,560 OS map (1837) showing development area

Ordnance Survey Map Third Edition 1:10,560 1907-1911 (Figure 4.9.5)

The Third Edition OS map records a generally similar landscape within the area of proposed land take as the First Edition map. A bench mark is recorded south west of the proposed area of land take.

There are no archaeological, architectural or cultural heritage features recorded on the Third Edition 1:10,560 map within the area of proposed land take.

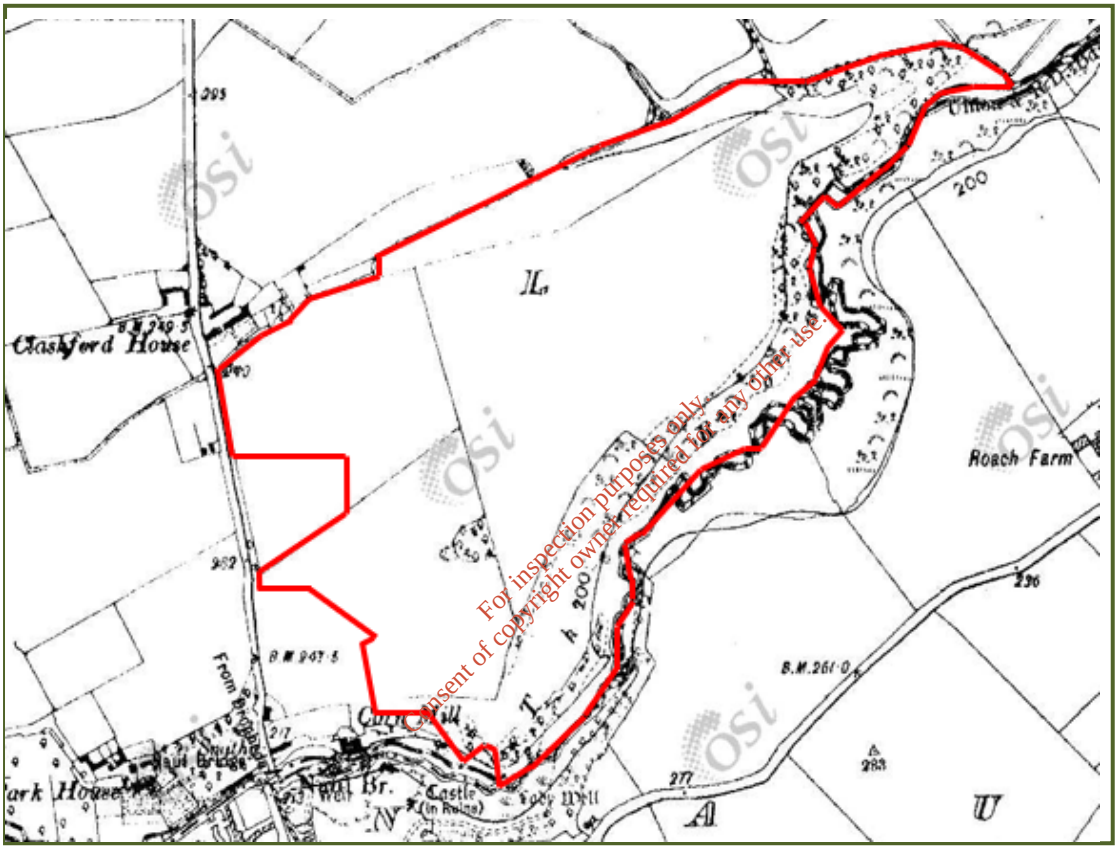

Figure 4.9-5 Extract from Third Edition 1:10,560 OS map (1907-1911) showing development area

Ordnance Survey Map First Edition 1:2,500 1908-1911 (Figure 4.9.6)

The First Edition 1:2,500 OS map records the proposed development area as being generally unchanged from the time of the two earlier map editions.

There are no archaeological, architectural or cultural heritage features recorded on the First Edition 1:2,500 map within the area of proposed land take.

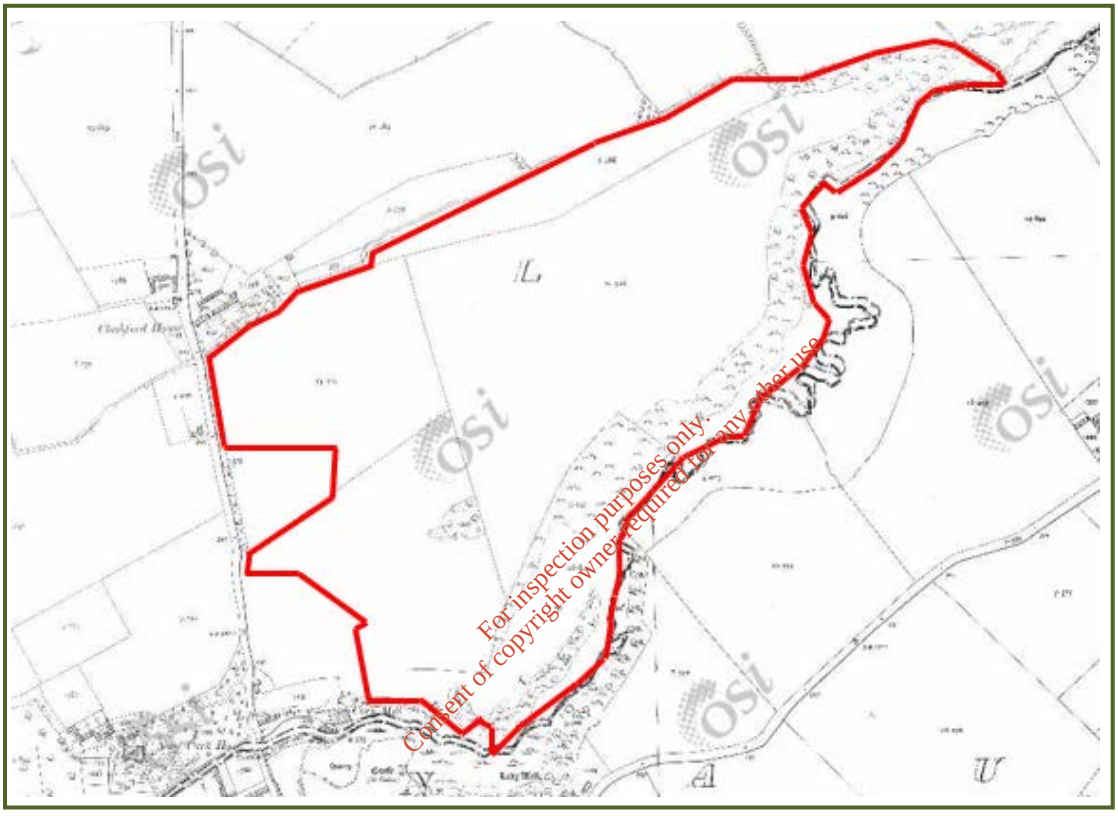

Figure 4.9-6 Extract from First Edition 1:2,500 OS map (1908-1911) showing development area

4.9.3.1.5 Aerial Photographs

Aerial photographs held by Ordnance Survey Ireland (www.maps.osi.ie) were consulted to look for the presence of archaeological or architectural remains within the proposed development area.

The 2000 and 2005 photographs record a broadly similar landscape to that which was noted during the walkover survey (See 4.9.3.4 below), with an active pit and a restored area being noted.

The proposed development area is also recorded as an excavated pit and a restored area on more recent aerial photography (www.bing.com/maps).

There was no evidence of any archaeological, architectural or cultural heritage features recorded on aerial photographs within the land take of the proposed development area.

4.9.3.1.6 National Monuments

The Department of Culture, Heritage, and the Gaeltacht maintains a database on a county basis of National Monuments in State Care. The term National Monument is defined in Section 2 of the National Monuments Act (1930) as:

> "*a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto*" (www.archaeology.ie).

There are no National Monuments in State Care recorded in the Meath County Development Plan within the proposed development area or the 1km study area. There are no Registered Monuments recorded in the Meath County Development Plan within the proposed development area. There is one Registered Monument recorded in the Meath County Development Plan within the 1km study area:

Historic Monument Record Number	Townland	Description	RMP Number	Distance from proposed development area
HM01834	Herbertstown	Barrow- mound barrow	ME034-005	*c*. 950m

There are no sites with Preservation Orders or Temporary Preservation Orders in County Meath within the proposed development area or the 1km study area.

There are no National Monuments in State Care, Registered Monuments or sites with Preservation Orders recorded in the Fingal Development Plan within the 1km study area.

There are no World Heritage Sites or Candidate World Heritage Sites within the proposed development area or the 1km study area.

4.9.3.2 ARCHITECTURAL HERITAGE

4.9.3.2.1 Designated Architectural Heritage

National Inventory of Architectural Heritage (NIAH) maintains a non-statutory register of buildings, structures, *etc*. recorded on a county basis. There are no entries recorded on the NIAH building survey within the proposed development area. There are nine entries recorded within the 1km study area:

Table 4.9-1 NIAH Building Survey

NIAH Number	Townland	Description	Rating	Distance from proposed development area
11303001	Coolfores	Bridge	Regional	*c*. 1km
11308001	Naul	Church/chapel	Regional	c. 400m
11308002	Naul	Mill	Regional	c. 160m
11308003	Naul	Bridge	Regional	c. 150m
11308004	Naul	Graveyard/cemetery	Regional	c. 160m
11308005	Naul	Water pump	Regional	c. 250m
11308006	Reynoldstown	House	Regional	*c*. 750m
11308007	Hazardstown	Post box	Regional	c. 900m
11308008	Reynoldstown	House – Gate lodge	Regional	c. 930m

NIAH also maintains a non-statutory register of historic gardens and designed landscapes recorded on a county basis. There are no such features within the proposed development area. There are three entries recorded within the 1km study area:

NIAH Number	Name of Site	Description	Distance from proposed development area
DU-43-O-127602	Westown House	Main features unrecognisable- peripheral features visible	*c*. 180m at its nearest point
DU-43-O-144619	Reynoldstown House	Main features substantially present- peripheral features unrecognisable	*c*. 600m at its nearest point
ME-43-O-119632	Herbertstown House	Main features unrecognisable- peripheral features visible	*c*. 1km at its nearest point

4.9.3.2.2 Toponyms

Townland names are an important source in understanding the archaeology, geology, land-use, ownership and cultural heritage of an area.

Naul, the location of the proposed development, translates from the Irish *An Aill* as "*the cliff*" (www.logainm.ie).

4.9.3.3 Field Inspection

The field inspection sought to assess the site, its previous and current land use, the topography and any additional environmental information relevant to the report. The inspection took place on 26th May 2014 and weather conditions were wet.

Area P1 (Figure 4.9.2, Plate 4.9.1) has been backfilled, covered with topsoil and reinstated into a flat greenfield zone which is currently used for sheep grazing. It measures approximately 300m x 230m in length.

Area P2 (Plate 4.9.2) is divided into two Zones. Zone 1 is located to the east and is a rectangular area measuring approximately 300m x 130m. It has been backfilled and planted with deciduous trees. A gravel roadway defines this area on its northern, southern and western sides. Zone 2 is currently being backfilled and reinstated, and measures approximately 200m x 100m. Sections of the quarry pit are still visible within the northern section. Gravel roadways are located on its northern, southern, eastern and western sides.

Area P3 (Plate 4.9.3) was noted as containing an active quarry, and measures approximately 230m x 200m. The area contains offices, storage areas, fuel tanks, settlement lagoons, machinery and inspection areas. A working vehicle wheel wash system is located centrally within the P3 area.

No archaeological, architectural or cultural heritage features were revealed within any areas of proposed land take as a result of carrying out the walkover survey.

Plate 4.9-1 Area P1, looking east.

Plate 4.9-2 Area P2, looking south, prior to backfilling

Plate 4.9-3 Area P3, looking east

4.9.4 ASSESSMENT OF IMPACTS

The following Impact Assessment matrix provides an indication of the significance of potential effects arising during the life cycle of the development not accounting for any mitigation measures.

Table 4.9-2 Cultural Heritage - Impact Matrix

'Do Nothing' Impacts	X		
Factors	**Construction**	**Operation**	Decommissioning
Direct Impacts	X	X	X
Indirect Impacts	X	X	X
Cumulative Impacts	X	X	X
Residual Impacts	X	X	X
`Worst Case' Impacts	X	X	X

None/imperceptible: X; Slight: ●; Moderate: ●; Significant/Very significant: ●.
Refer to Appendix 5.2 for definition of Significance

4.9.4.1 'Do Nothing' Impacts

The proposed development will involve the continued importation of inert waste material into part of an existing quarry from which the soils and underlying sand and gravel deposits have been excavated. As such there will be no impact on the archaeological, architectural or cultural heritage resource.

4.9.4.2 Direct Impacts

The proposed development will involve the importation of inert waste material into part of an existing quarry from which the soils and underlying sand and gravel deposits have been excavated. As a result of carrying out this Environmental Impact Assessment, the following potential archaeological, architectural and cultural heritage impacts have been identified:

The site of an unclassified megalithic tomb (RMP ME034-012) is recorded within the proposed development area. This monument or possible associated archaeological features no longer survives above or below ground. There are an additional 16 RMP sites within the 1km study

area. There are no Protected Structures, Architectural Conservation Areas, NIAH structures or NIAH historic gardens or designed landscapes within the proposed development area.

There are no National Monuments within the proposed development area or the 1km study area. There are no sites with Preservation Orders within the proposed development area or the 1km study area. There are no Registered Monuments within the proposed development area. There is one Registered Monument within the 1km study area. There are no World Heritage Sites or Candidate World Heritage Sites within the proposed development area or the 1km study area. There are no Protected Structures recorded in the Meath County Development Plan within the 1km study area. There are 10 Protected Structures recorded in the Fingal Development Plan within the 1km study area. There is one Architectural Conservation Area within the 1km study area. There are nine entries recorded on the NIAH building survey within the 1km study area. There are three NIAH historic gardens or designed landscapes within the 1km study area. Reference to Summary Accounts of Archaeological Excavations in Ireland revealed that no fieldwork projects have been carried out within the proposed development area. There were three entries recorded in the Topographical Files for Naul townland, County Meath. In addition, two entries were recorded for Naul, County Dublin. There are no archaeological, architectural or cultural heritage features recorded on the Ordnance Survey maps within the area of proposed land take. There was no evidence of any archaeological, architectural or cultural heritage features recorded on aerial photographs within the proposed development area. No archaeological, architectural or cultural heritage features were revealed within the area of proposed land take as a result of carrying out the walkover survey.

In summary, there is the site of one Recorded Monument within the proposed development area. This monument or possible associated archaeological features no longer survives above or below ground. There are no Protected Structures, Architectural Conservation Areas, NIAH structures or NIAH historic gardens within the proposed development area.

There will be no direct construction impact on the archaeological, architectural or cultural heritage resource.

There will be no construction or operational visual impact on the archaeological, architectural or cultural heritage resource.

There will be no construction or operational noise impact on the archaeological, architectural or cultural heritage resource.

4.9.4.3 Indirect Impacts

There will be no indirect construction or operational impacts on the archaeological, architectural or cultural heritage resource.

4.9.4.4 Cumulative Impacts

There will be no cumulative impacts on the archaeological, architectural or cultural heritage resource.

4.9.4.5 Residual Impacts

There will be no residual impacts on the archaeological, architectural or cultural heritage resource.

4.9.4.6 'Worst Case' Impacts

As the proposed development is within the worked-out area of a sand and gravel pit no mitigation measures are required and there will be no impact on the archaeological, architectural or cultural heritage resource.

4.9.5 MITIGATION MEASURES

There will be no direct or indirect construction impact on the archaeological, architectural or cultural heritage resource. As such, no mitigation measures are required.

There will be no construction or operational visual impact on the archaeological, architectural or cultural heritage resource. As such, no mitigation measures are required.

There will be no construction or operational noise impact on the archaeological, architectural or cultural heritage resource. As such, no mitigation measures are required.

There are no mitigation measures available to offset the negligible operational noise impact on the archaeological and architectural resource.

Please note that all recommendations are subject to approval by National Monuments Service- Department of Culture, Heritage and the Gaeltacht.

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www.buildingsofireland.ie	National Inventory of Architectural Heritage
www.excavations.ie	Database of Irish Excavation Reports
www.fingalcoco.ie	Fingal County Council
www.logainm.ie	Placenames Database of Ireland
www.maps.osi.ie	Ordnance Survey Ireland aerial photographs
www.meath.ie	Meath County Council

4.9.7 APPENDICES

There are a number of Appendices that have been included In Section 5.4 of this report i.e.

5.4 Cultural Heritage

5.4.1 RMP Sites Within the Study Area

5.4.2 Impact Assessment and The Archaeological Resource

5.4.3 Mitigation Measures and The Archaeological Resource

4.10 MATERIAL ASSETS

4.10.1 INTRODUCTION

This section of the EIAR is essentially an overview of the material and amenity resources within the vicinity of the proposed development, coupled with an assessment of the potential impact, if any, of the development on the existing environment in respect of these assets.

The assessment of economic assets tends to be concerned with ensuring their equitable and sustainable use, whereas the assessment of cultural assets tend to be concerned with securing their integrity and continuity, and their necessary context. Key issues of residential development, amenity, land use, roads and utility services are addressed. Natural resources of economic value (Refer to Table 4.10-1 below) which are also considered as material assets, are dealt with where necessary in their respective EIAR sections (EPA, 2015).

Material Assets is considered to include architectural and archaeological heritage and cultural heritage. For the purpose of this EIAR an assessment of the potential impact, if any of the development on the existing environment with respect to these assets is considered in EIAR Section 4.9 Section - Cultural Heritage.

Material assets may be defined as resources that are valued and that are intrinsic to specific places, and may be either human or natural origin, and the value may arise from either economic or cultural reasons (EPA, 2003, 2015). The developments utilisation of, or proximity to, the area's material assets, can directly and indirectly result in potential environmental impacts. Therefore, the objective of this assessment is to identify the material assets of the area, determine the potential impacts of the Waste Recovery Facility (WRF) on these assets, and propose mitigation measures where necessary to ensure that they are addressed in an appropriate manner. This section also indicates the associated sections within the EIAR that consider these impacts and any proposed mitigation measures.

4.10.2 METHODOLOGY

The assessment of material assets has been prepared in accordance with the Advice Notes for Preparing Environmental Impact Statements, Draft, published by the EPA (EPA, 2015). Table 4.10-1 outlines the categories of assets, which the EPA suggests may need to be examined as part of the material assets study.

On the basis of categories in Table 4.10-1 and the nature of the proposed development, the material assets which potentially could be impacted by the WRF, and which have been identified for assessment are: (1) non-renewable resources (minerals, soils); (2) settlement - residential development; (3) land use; (4) transport infrastructure; (5) built services; (6) waste management infrastructure (7) cultural assets - archaeological, historic and architectural heritage; and (8) landscape and natural heritage. Most of these assets have been considered elsewhere within other sections of the EIAR, as indicated below:

- Non-renewable resources (minerals, soils) & Agronomy (Soil Management) are discussed in Section 4.3 – Land, Soils and Geology

- Settlement, Commercial & Industrial Development, Property, Tourism & Recreational Infrastructure and land use are discussed in Section 4.1 – Population & Human Health
- Roads, as a component of Transport Infrastructure, are discussed in Section 4.11 – Traffic & Roads
- Cultural assets are discussed in Section 4.9 - Cultural Heritage
- Natural Heritage is discussed in Section 4.2 – Biodiversity
- Landscape is discussed in Section 4.8 - Landscape

Table 4.10-1 EPA's Classification of Types of Material Assets

Asset Type	
Economic Assets - Natural Origin	- Assimilative capacity (air, water) - Non-renewable resources (minerals, soils) - Renewable resources
Economic Assets - Human Origin	- Cities, towns, villages and settlements - Transport infrastructure (roads) - Major utilities (water, sewage, power, telecommunications) - Ownership and access Agronomy Commercial & Industrial Development Property, Tourism & Recreational Infrastructure
Cultural Assets – Physical Type	- Archaeology - Architecture - Settlements - Monuments, features and landmarks - Historic sites and structures - Landscape - Geological heritage
Cultural Assets – Social Type	- Language and dialects - Folklore and tradition - Religion and belief - Literary and artistic association

4.10.2.1 Desk Study

The study essentially involved a virtual, but comprehensive, aerial examination of the study area and surrounding region using Google Maps and available OSI maps to identify all the material assets. All assets identified during this survey were interrogated, described and evaluated in terms of scale and significance prior to inclusion in the study.

4.10.2.1.1 Sources of Information

The main sources of information are listed in section 4.10.6 References.

4.10.3 BASELINE DESCRIPTION OF RECEIVING ENVIRONMENT

4.10.3.1 Non-Renewable Resources

The Meath County Development Plan (CDP) 2013-2017 recognises that there are unparalleled natural resources in the county. The potential of the resources to underpin construction output and provide employment and economic growth in the local and regional economy is also recognised, as is the need to exploit such resources in an environmentally sound and sustainable manner.

Meath has significant resources in terms of aggregates, a resource that had come under pressure due to increased demand prior to the collapse of the construction industry in 2008. Since aggregates can only be worked where they occur, it is important to identify the location of these resources with a view to safeguarding them. Thus, it is the aim of the plan to safeguard areas of significant resources from incompatible developments to ensure the continued viability of the extractive industry, whilst ensuring that environmental, rural, scenic and residential amenities are protected.

It is an objective (RD Pol 26) in the Meath CDP *"to ensure that all existing workings shall be rehabilitated to suitable land uses and that all future extraction activities will allow for the rehabilitation of pits and proper land use management. The biodiversity value of the site should be considered in the first instance when preparing restoration plans. Where land filling is proposed, inert material is the preferred method. Each planning application shall be considered on a case by case basis and, where relevant, will be dealt with under the relevant regional Waste Management Plan".*

No geological heritage sites lie within or near the site of the quarry and proposed co-located WRF at Clashford. The nearest site, Laytown to Gormanstown (Site Code: MH008; Theme: IGH7 Quaternary) is situated c. 5km to the northeast, and is listed by GSI (2018) and Meath County Council (2013) as an area of Geological Interest or Heritage. The Laytown to Gormanstown sandur is a flat to gently undulating glacial outwash plain, comprising glaciofluvial and glaciolacustrine sands and gravels deposited by outwash/meltwater flowing from the leading edge of a glacier. Measuring c. 5 km east-west by 7 km north-south, a sandur is commonly wider than it is long, as seen here. Sandpits to the south as well as numerous exposed cliff faces along the beach show good cross-sectional views of the internal structures within this sandur and a lower sequence of two separate facies of Irish Sea Tills.

The area around Clashford has a history of sand and gravel working, with extraction from the glacial deposits (most probably glaciofluvial outwash) within the Delvin River valley (See Figure 4.8.3. These activities, including the existing quarry and adjacent concrete manufacturing facilities, have co-existed with other land uses in the area mainly agriculture. Neither Meath nor Fingal local authorities recognise geological heritage sites within or near the site of the quarry and co-located WRF at Clashford.

Clashford Recovery Facilities Ltd is an established small family run business based in Naul, Co Meath. Clashford Recovery Facilities Ltd employs four people directly and a number of others indirectly, with the majority of the employees being local people. An additional two temporary staff are hired occasionally. The WRF will require one person operating a bull-dozer/back-hoe excavator, one general foreman to monitor and inspect the quality and suitability of imported materials being brought to the site for recovery/sorting/transfer, and two other general site operatives. Thus, the WRF will help sustain employment in the local area while beneficially restoring the quarry back to agricultural use.

4.10.3.2 Settlement

There are no dwellings on the site or landholding, although several dwellings are located to the immediate west of the site on the R108, and across the Delvin River on the R122. There are numerous established individual residences within a 500m radius of the site, particularly in the village of Naul. The village. with a population of 200, lies c. 300m south of the proposed WRF site. Residential development generally consists of isolated farm dwellings and of owner occupied bungalow/houses along public roads, while there are several clusters of residences or hamlets/graigs within 1km. For example, there is also a suburban style graig or hamlet on Moonlone Lane off the R122, c. 1.5km east of Naul (Refer to Figures No. A1.0 Rev A and B2.2 Rev C for site location details).

Beyond the village of Naul, there are no large residential settlements close to the site, with Stamullin c. 5km to the northeast, Balbriggan c. 7km to the east, Garristown C. 7km to the west, Oldtown c. 7.5 km to the south southwest, Ballyboughal c. 7.5km to the south, Ashbourne c. 11km to the southwest, Lusk c. 11km to the southeast, and Skerries c. 11km to the east.

With the exception of the N-S oriented R108 and the E-W oriented R122 Secondary National Road, the roads in the area are of a local character and typical of a rural location. The M1 motorway lies c. 5km to the east, whilst the Dublin-Belfast mainline railway runs along the coast at Balbriggan c. 7.5km to the east.

Adequate fencing, signage and other barriers have been erected around the site for the safety of the general public and to prevent livestock straying into the development area, albeit livestock is availing of some of the restored lands. Large lockable gates are in place to guard against unauthorised and unsupervised entry to the site outside of working hours.

4.10.3.3 Land Use

Although technically located within Meath, Clashford is, for many purposes, essentially located on the Meath-Dublin border, c. 7km west of Balbriggan. The Clashford site is located c. 300m

north of the village of Naul, across the Delvin River in County Dublin (Refer to Figure A 1.0, Rev A - *Section 6*). The Delvin River flows roughly SW-NE and flanks the southern boundary of the site, whilst an unnamed tributary stream of the Delvin River flanks the northern boundary of the site, and joins the river at the northeastern terminus of the landholding. The western boundary of the quarry site is defined by the R108 and the party boundary with several residential properties on the east side of the R108.

The surrounding landscape is defined by the valley of the Delvin River, known as Roche Valley (elev. c. 60-90m OAD), separating two sets of hills; the Fourknocks Hills (or Cold Hills) to the northwest (max. elev. 159m) and the Naul Hills (or Man of War Hills) to the southeast (max. elev. 176m). The quarry has been developed on a c. 1km long mound of sand and gravel within a southwest-northeast oriented ribbon of glacial deposits that extends from the Townland of Tobeen (i.e., c. 2km up river) down the river valley to the coastal plain.

Prior to the commencement of quarrying in the 1980s, the lands had been kept in medium intensity agriculture. The land-use in the area consists of a patchwork of agricultural fields that are designated as non-irrigated arable land and pasture (See Figure 4.8.3), reflecting medium-high intensity agricultural, with very low levels of forest cover, restricted largely to river valleys and hedgerows. Outside of the immediate environs of the village of Naul, the settlement pattern can be described as medium- to low-intensity rural settlement.

The Clashford area is described as lying in Landscape Character Area LCA7, the Coastal Plain, as well as LCA 9, the Bellewstown Hills (Meath County Council 2007), with which it seems more closely related (See Figure 4.8.2). The latter consists of a large remote area of steeply rolling hills, which is intensively managed with well wooded hedgerows, and in which the rolling landscape creates an enclosed environment. Land use is described as a mix of medium to large pasture and arable fields with well managed hedgerows, and with some large quarries. Generally, gorse occurs in the uplands, whilst mixed broadleaf woodland occurs in river valleys.

Meath and Dublin Counties are both counties with <5% forest cover, and the 2012 Corine Map indicates no forest cover in the Clashford and wider area (EPA 2014). However, aerial photography shows considerable broadleaf woodland in the Delvin River valley and within the village of Naul and its environs, as well as on the eastern side of the landholding due to restoration and forestation (Google Maps 2014). Timber production is the principal objective and economic benefit of forestry, although carbon sequestration is a significant environmental benefit of forestry. Forests represent an important renewable resource and contribute to sustainable rural economic development. However, broadleaf woodland and forests are only a very minor land use in the wider local area, but together with hedgerows and rolling hills, contribute to an enclosed pastoral landscape.

The applicants land holding of c. 33.4 ha is shown edged blue, whilst the existing WRF site, which covers an area of c. 24.2 ha, is shown edged red on EIAR Figure B 2.1 – Rev C, *Section 6.* Prior to the commencement of quarrying in 1980s, the lands had been kept in agriculture land for pasture and arable. Ultimately, the site will be reclaimed in accordance with the approved quarry restoration scheme, and thus undergo a change of land use back to agricultural land with some broadleaf forestation.

As the WRF is already co-located within the existing quarry, it is considered that the proposed continuation of the WRF will result in a change in land cover, on completion of the restoration of the quarry and its return to agricultural land with woodland habitat.

4.10.3.4 Transport Infrastructure

The Clashford site is located within the Townland of Naul, c. 300m north of the village of Naul, on the east side of Regional Road R108 (Refer to Figure A 1.0, Rev A *Section 6*). The N-S oriented R108 connects with the E-W oriented R122 in village of Naul, which connects with the M1 (Dublin-Drogheda-Dundalk) motorway at Junction 6 c. 5km to the east, and to the town of Balbriggan c. 7km to the east. Dublin lies c. 25km to the south, whereas Drogheda lies c. 15 km to the north. The Dublin-Belfast mainline railway runs along the coast at Balbriggan c. 7.5km to the east. West of Naul, the R122 turns south and connects with Oldtown c. 7.5km

Dublin is the only Gateway within the GDA, whilst within the north central sector, which includes all of Meath and the wider area around Clashford and Naul, there are three Primary Development Centres identified, namely Drogheda and Balbriggan on the M1, and Navan on the M3, and the County Town of Meath (DoEHLG 2002). These centres are strategically located, dynamic, urban centres on major transport corridors where development should be concentrated. The Four Knocks and Bellewstown Hills have given rise to a large tract of Meath between the N-S oriented R108 and the R152, and the M1 and M2 outside of these, where the road network is underdeveloped and is lacking an E-W oriented regional road between Garristown (R130) and Duleek (R150). Thus, because of the anisotropic connectivity of the road network in the area, and consideration of proximity, Clashford falls within the natural catchment of Balbriggan, Drogheda and Dublin, but not Navan.

The significant roads in the region include:

- M1 is the motorway joining Ireland's two capital cities, Dublin and Belfast and comprises the bulk of the N1 National Primary Road in the Republic. It is also designated European route E01, from Larne to Rosslare on the island of Ireland. It is one of the principal transport linkages along the strategic Dublin-Belfast Corridor as identified in the National Spatial Strategy (DoEHLG 2002).
- N2 is a Primary National Road, of which a small section between The Ward and Ashbourne North is motorway (M2), and connects Slane to Ashbourne and Dublin along a strategic radial corridor.
- R108 Regional Road is oriented N-S, and is the historic Dublin to Drogheda road, connecting Drogheda to Naul, Ballyboughal and ultimately Dublin, whilst by-passing c. 2.5km east of Stamullin.
- R122 Regional Road is oriented E-W, and connects Balbriggan to Naul, where it turns south to Oldtown, St. Margaret's and Finglas.
- R152 Regional Road is N-S oriented, and connects Drogheda to Duleek and the N2 at Kilmoon Cross.
- R130 Regional Road is E-W oriented, and connects the R122 with Garristown and the N2 north of Ashbourne

- R150 Regional Road is E-W oriented, and connects Laytown to Julianstown, Duleek and Kentstown, traversing the M1 and N2 on route.
- R132 Regional Road is oriented N-S, and is the old N1 connecting Drogheda to Julianstown, Balbriggan, Lusk, Swords and Dublin.

Balbriggan is serviced by main line railway service on Iarnrod Eireann's Dublin to Belfast line. Dublin is identified as the nearest designated Gateway (DoEHLG 2002), and Dublin Airport is the nearest airport at c. 20km due south of the site. The town of Drogheda is the nearest port at c. 15km.

The R108 Regional road is an unaligned two lane 6m surface dressed single carriageway with 2 No. 1m sloping grass verges in the vicinity of the Waste Recovery Facility entrance. Overall right of way width is 8 m. The width between fences is approximately 10m.

Traffic entering and leaving the site will use the existing established quarry site access. The road servicing the site is generally in good condition. The site entrance has been adequately set-back and splayed in accordance with P. Reg. 86/349 to the satisfaction of the Planning Authority. The site access road has been surfaced for a distance of c. 70m, whilst the provision of a wheelwash to all exiting traffic mitigates any mud and debris being carried out on to the public road.

With the exception of the R108 and R122, roads in the area are of a local character and typical of a rural location, generally penetrating only as far as to service several houses or farmsteads.

The traffic impact of the quarry is at present considerably less than it was at full production in the period prior to 2008. During that period the traffic generated by the quarry had no adverse effect on traffic movement on the surrounding road networks. The traffic arising from the proposal to continue operating the WRF and importing soil and stone into the quarry will not increase traffic above the 2008 levels. The traffic impact of the WRF and quarry on the surrounding road network, including the R108 and R122, is considered minimal.

Further details with respect to the road networks and the impact and mitigation of traffic are contained within this report (Refer to Section 4.11).

4.10.3.5 Built Services

4.10.3.5.1 Electricity Network

Power to local residences is provided by overhead lines, which form part of ESB's country-wide, medium and low voltage, electricity distribution network. The ESB distribution line and Eir telephone line run along the western boundary of the quarry site with the R108 Regional Road.

The transmission grid in the area of east Meath and Fingal consists of five HV lines, all of which are running essentially N-S through the area, although the 220kV line running along the M1 motorway reservation from Swords, turns east south of Junction 6 to supply Balbriggan. The next nearest HV lines are a 110kV line passing through the outskirts of Garristown, whilst another 110kV line crosses the N2 between Ashbourne and Kilmoon Cross. The remaining two lines are 220kV lines, but run further to the west at Kentstown and just east of Navan (See Figure 4.10.1).

EirGrid, the national electrical transmission operator (TSO) has recently completed development of the 400kV 500MW East-West Interconnector from Deeside, Wales which makes landfall at Rush, County Dublin and runs essentially E-W to Woodland near Dunshaughlin, Co. Meath. Eirgrid has also rolled out a grid development strategy called GRID25, which governs development of the transmission infrastructure to ensure that grid reinforcements enable connection of significant amounts of renewable energy generation. Eirgrid has planned a second interconnector with the UK, namely the 400kV 500MW North-South Interconnector from Tyrone to Woodland near Dunshaughlin. Neither interconnector is planned to approach within c. 10km of Clashford and Naul.

4.10.3.5.2 Gas Network

Bord Gais have two subsea gas pipeline interconnectors with Scotland that come ashore near Gormanstown, Co. Meath and Loughshinny, County Dublin. These pipelines connect into the network, which in the east of Ireland consists of a main line running from Cork to Dublin and up the east coast to N. Ireland, with multiple spurs to supply towns on route. One spur supplies nearby Stamullin and Gormanstown, another supplies Duleek, Navan and Trim, whilst the main E-W pipeline to Galway supplies Ashbourne, Ratoath and Dunshaughlin (See Figure 4.10.2). There are no gas pipelines in the vicinity of Clashford and Naul (i.e., none within c. 5km).

4.10.3.5.3 Water Supply Infrastructure

The mains water supply runs along the R108 roadway and is sourced from the Hollywood Reservoir c. 4km south of Naul. There are also houses in the area served by bored wells. Most rural houses are serviced by septic tank systems and proprietary effluent treatment systems.

4.10.3.5.4 Telecommunications Network

There are numerous mobile masts or base stations for the transmission and reception of mobile telecommunication in the region around Clashford. These masts house both point to point microwave links and cellular technologies used in the provision of telecommunication services. The nearest cell masts to the Clashford site are located at Four Knocks, c. 2km to the NW, at Knockbrack, c. 2.5km to the SE, at Hollywood c. 4km to the SSE, and on the outskirts of Balbriggan c. 6km to the ENE.

4.10.3.5.5 Sewerage System

The existing site office including welfare facilities will be replaced including provision of septic tank and percolation area (Refer to EIAR Figure D.1.1 – Rev C).

The result of the site characterisation has shown that the site is suitable for a septic tank system (septic tank and percolation area).

The installation and of the septic tank and percolation area will be in compliance with the EPA (2010), COP: Wastewater Treatment and Disposal Systems Serving Single Houses (p.e. < 10).

4.10.3.6 Waste Management Infrastructure

The Waste Recovery Facility at Clashford is an established operation with the necessary plant and machinery, site infrastructure in place to facilitate the continued phased restoration of a sand and gravel pit using imported inert soil and stone, and recovery of inert C&D waste.

The existing site office including welfare facilities will be replaced including provision of septic tank and percolation area. The wheelwash will be upgraded and relocated towards the site entrance. The existing palisade fence at the entrance is to be replaced with a stone wall and separate entrance gate provided for access to the site office. A weighbridge, hard standing area with drainage to oil interceptor, semi-mobile crushing and screening plant and other ancillaries will be provided. The hard standing area will be used for quarantine/inspection of the incoming C&D waste to be recovered. The proposed facility site layout is shown by EIAR Figures D.1.1 & D.1.2 – Rev C.

4.10.3.7 Cultural Assets

The proposed development was the subject of an assessment that involved the investigation of cultural heritage including the archaeological, structural and historical background of the application area and the surrounding area using a wide range of existing information, as well as a field assessment (Refer to EIAR Section 4.9).

The site of an unclassified megalithic tomb (RMP ME034-012) is recorded within the proposed development area. This monument or possible associated archaeological features no longer survives above or below ground. There are no Protected Structures, Architectural Conservation Areas, NIAH structures or NIAH historic gardens or designed landscapes within the proposed development area.

The WRF will also have no direct or indirect impact on items of cultural heritage, archaeological sites or monuments, protected structures or non-designated structures of heritage value in the vicinity of the application site. The Naul Bridge, the Watermill, Black Castle, Lady Well (Holy Well) and Church of Ireland Chapel with Cross are just some of the cultural assets within close proximity of the site. But despite this proximity, the proposed continued operation of the WRF will lead to the restoration of the lands and an improvement in the amenity of the area.

4.10.3.8 Landscapes & Natural Heritage

The immediate landscape of the Clashford/Naul area is defined by the valley of the Delvin River, known as Roche Valley, separating two sets of hills; the Fourknocks Hills (or Cold Hills) to the northwest and the Naul Hills to the southeast. The Delvin River has a largely undeveloped river corridor and as such has high ecological value.

The Clashford area is described as lying in the Coastal Plain, although it borders the Bellewstown Hills (Meath County Council 2007), with which it seems more closely related. The latter consists of a large remote area of steeply rolling hills, which is intensively managed with well wooded hedgerows, and in which the rolling landscape creates an enclosed environment.

The landscape is characterised by medium to large pasture and arable fields with well managed hedgerows, whilst gorse thrives in the open space of the uplands, and mixed broadleaf woodland is largely restricted to river valleys. The area is under considerable development pressure, which threatens to alter the remote character of the area. The enclosed landscape has a medium capacity to absorb most development, as the enclosed landscape can physically or visually absorb development, mitigating the visual impact on the landscape. Nonetheless, sensitive development and conservation of the landscape resource is essential to the underpinning of the rural economy and quality of life of the area.

The quarry site at Clashford, which includes the application site, is not included in any area with an ecological designation (NHA, cSAC or SPA; See NPWS 2014). The only Natura 2000 sites within 15km of Naul are the Laytown Dunes/Nanny Estuary cSAC (Site Code 0554), the River Nanny and Shore SPA (Site Code 4158) and the Skerries Island SPA (Site Code 4122).

Screening for Appropriate Assessment was carried out with respect to the proposed development and a copy of this was submitted to the EPA on 11/04/2014. The findings of the screening for Appropriate Assessment were that in view of best scientific knowledge, it is concluded that the activity, individually or in combination with other plans or projects is not likely to have a significant effect on the Natura 2000 network, and the conservation objectives of the sites. A Stage 2 Appropriate Assessment is therefore not required.

The nearest pNHA site is the Bog of the Ring (Site Code 001204), Ring Commons, Co. Dublin at c. 3km, whilst Cromwell's Bush Fen pNHA (Side Code 001576), Greenanstown, Co. Meath is c. 4.5 km. There will no direct or indirect impact on these sites as a result of the continued operation of the WRF at Clashford.

The impact of inert waste recovery will be considerable in local terms, but will not result in any loss of heritage values in the locality. The changes will be both positive (gain of woodland) and negative (loss of open habitats). The surrounding habitat has a low level of ecological interest except in the valley of the Delvin River and the continuance of infill and re-afforestation will have a significant positive impact on it. Sediment control measures will prevent any impact on the nearby river.

The locality is noted for amenities/activities such as fishing, walking, cycling and other outdoor pursuits. There is one Protected View and Prospect, on a county road off the R108 at Snowtown north of the Clashford site (Meath County Council 2013). The view is to the South East across the WRF, and is of the "extensive tillage landscape, visible settlement and infrastructure". The visual impact of the WRF is discussed in more detail in Section 4.8 - Landscape.

On completion of waste recovery activities at the WRF, the entire site will be reinstated in accordance with the approved quarry restoration scheme. Therefore in the short term, the site will be assimilated back into the landscape in a planned manner, with the attendant improvement to the visual amenity of the area.

4.10.4 ASSESSMENT OF IMPACTS

The following Impact Assessment matrix provides an indication of the significance of potential effects arising during the life cycle of the development not accounting for any mitigation measures.

Table 4.10-2 Material Assets - Impact Matrix

'Do Nothing' Impacts	🟡		
Factors	**Construction**	**Operation**	Decommissioning
Direct Impacts	🟢	🟢	X
Indirect Impacts	X	X	X
Cumulative Impacts	X	X	X
Residual Impacts	X	X	X
`Worst Case' Impacts	🟢	🟢	X

None/imperceptible: X; Slight: 🟢; Moderate: 🟡; Significant/Very significant: 🔴.
Refer to Appendix 5.2 for definition of Significance

The proposed continued operation of the WRF at Clashford arises from: (1) the continued generation of large volumes of inert C&D waste, including soil and stone; and (2) the requirement to restore land, previously disturbed by sand and gravel extraction at the Clashford quarry, through backfilling with recovered inert soil and stone. The recycling and recovery of C&D waste is essential to reduce resource utilisation and divert reusable inert waste from disposal in landfill, as required under the Waste Framework Directive 2008 (2008/98/EC), and the European Communities (Waste Directive) Regulations, 2011 (S.I. 126 of 2011).

The location of the Clashford site with access directly onto regional road R108, and c. 5km from junction 6 on the M1, and c. 7km from Balbriggan, via the R122, renders the WRF well positioned to deliver recovery of inert soil and stone from a large catchment area. There is a preference for the deposition of soil and stone to be underpinned by a beneficial use in order to be considered waste recovery. Consequently, co-location of a waste recovery facility at Clashford quarry, has significant positive impacts, and is thus environmentally preferred.

The impact on material assets resulting from the proposed continuation of the WRF is assessed here, and possible mitigation measures proposed to reduce any significant impacts. It is expected that the potential negative impacts on material assets of the area arising from the WRF, will relate primarily to nuisance from noise, dust and traffic. Indirect or cumulative impacts associated with other similar developments within the area are dealt with where necessary under the respective topic in the EIAR.

4.10.4.1 'Do Nothing' Impacts

If the proposed development did not proceed, recovery of inert waste at the WRF would not occur and result in the failure to divert these volumes from disposal in landfill, as required under the Waste Framework Directive 2008. The Clashford site would remain as a partly unrestored, degraded quarry site, without the backfilling generated by the proposed WRF. As the quarry area to be restored is currently inactive and well screened, the absence of the proposed WRF would have no significant impact on the material assets within the area.

4.10.4.2 Direct Impacts

As stated above, the WRF will allow the recovery of inert soil and stone from a large catchment area, diverting greater volumes of waste from disposal in landfill. It is expected that the potential negative impacts on material assets of the area arising from the WRF, will relate primarily to nuisance from noise, dust and traffic.

The potential impacts associated with the proposed development and any proposed mitigation measures in relation to the material assets described above are covered under relevant sections of the EIAR (see below).

Table 4.10-3 Material Assets – Potential Impacts & Mitigation

Ref.	Material Asset	Relevant EIAR Section
4.10.3.1	Non-Renewable Resources	3.4.1, 4.3
4.10.3.2	Settlement - Residential Development	3.2.1, 4.6, 4.7, 4.8, 4.11
4.10.3.3	Land Use	3.2.1, 3.3.1.1, 4.1, 4.2, 4.3, 4.8
4.10.3.4	Transport Infrastructure	3.3.3.2.3, 3.3.3.2.12, 4.1, 4.11
4.10.3.5	Built Services	3.3.3.2
4.10.3.5	Waste Management Infrastructure	3.3.3.2
4.10.3.6	Cultural Assets	4.9
4.10.3.7	Landscape & Natural Heritage	4.1, 4.2, 4.6, 4.7, 4.8

Human health risks will be managed by preventing public access to the site and having appropriate health and safety measures in place for staff working on the site.

On completion of site activities, the site of the quarry and WRF will be decommissioned and left safe and secure. Furthermore, the site will be reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape with the attendant improvement to the visual amenity of the area.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of material assets. The restoration of the site to beneficial after-use will result in a permanent significant positive effect in the medium term.

4.10.4.3 Indirect Impacts

Indirect impacts are dealt with where necessary under the respective topic in the EIAR.

4.10.4.4 Cumulative Impacts

Cumulative impacts associated with other developments within the area are dealt with where necessary under the respective topic in the EIAR.

The interaction of the quarry and proposed WRF is seen as 'symbiotic' and positive, with no negative cumulative impacts on material assets identified.

4.10.4.5 Residual Impacts

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of material assets.

4.10.4.6 'Worst Case' Impacts

There are no large residential settlements close to the site, with nearest large population centre being the town of Ballincollig c. 5.5 km to the east. The village of Farran is situated 2km to the west along the N22, while the village of Killumney is 2km to the southeast. Residential development consists of isolated farm dwellings and of owner occupied bungalow/houses along public roads (Refer to Figures No. A1.0 Rev A and B2.2 Rev C for site location details).

The site is well screened from outside views by well-established planting (Refer to EIAR Site Plan Figure B 2.1 Rev C).

It is expected that in the absence of mitigation measures (primarily noise and dust) that there will be slight negative effects with respect to local amenity and residential receptors as a result of the development of an WRF at Clashford.

4.10.5 MITIGATION & MONITORING

Clashford Recovery Facilities Ltd will implement an EMS for the facility subject to granting of the Waste Licence. The EMS will address such matters as Emergency Preparedness & Response in dealing with accident and emergency situations resulting in effects on the environment (Refer to EIAR Section 3.3.3.4.1.6).

Clashford Recovery Facilities Ltd. has established an on-going environmental monitoring programme on site. This programme will allow on-going monitoring of environmental emissions (noise, dust, water) from the site, thereby assisting in ensuring compliance with any future requirements or regulations. The results of this monitoring will be made available to the EPA and the Local Authority on a regular basis, where members of the public may examine it. The future monitoring programme will be revised accordingly, subject to compliance with any conditions attached to a decision to grant a Waste Management License.

The boundaries of the site are secure being established hedgerows and stock proof fencing. The site also benefits from being bounded to the north by a small stream and deep ditch, with the Delvin River forming a natural barrier to the south and east of the site. The site entrance gates remain locked outside of normal working hours and public warning notices are posted at appropriate locations along the site boundary. The site is also monitored with CCTV at the entrance. There is ongoing monitoring to ensure that site boundaries are maintained in a proper manner, and these include thickening of hedgerows, fencing of the landholding, provision and maintenance of quarry signage, routine cleaning/housekeeping and the removal of unsightly features.

The development can be controlled and regularised in accordance with the scheme as outlined in this document, through continued environmental monitoring and by conditions imposed by the relevant regulatory authority. The development does not have a significant impact on lands, property or amenity within the area and hence there will be no significant effect on material assets.

4.10.6 REFERENCES

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http://www.eirgridgroup.com/ Eirgrid

http://www.epa.ie/ Environmental Protection Agency

https://www.esb.ie/ Electricity Supply Board (ESB)

http://www.fingalcoco.ie/ Fingal County Council

http://www.gsi.ie/Mapping.htm Geological Survey of Ireland Map Viewer

http://www.garda.ie/Controller.aspx?Page=5416&Lang=1 An Garda Síochána

https://www.google.ie/maps Google Maps

http://www.hse.ie/eng/ Health Service Executive (HSE)

https://www.water.ie/ Irish Water

http://www.meath.ie/ Meath County Council

http://www.buildingsofireland.ie/ National Inventory of Architectural Heritage

https://www.npws.ie/ National Parks & Wildlife Service

http://www.anpost.ie/AnPost/at+your+local+Post+Office.htm Post Office Locator

http://www.schooldays.ie/ Schooldays

4.10.7 FIGURES

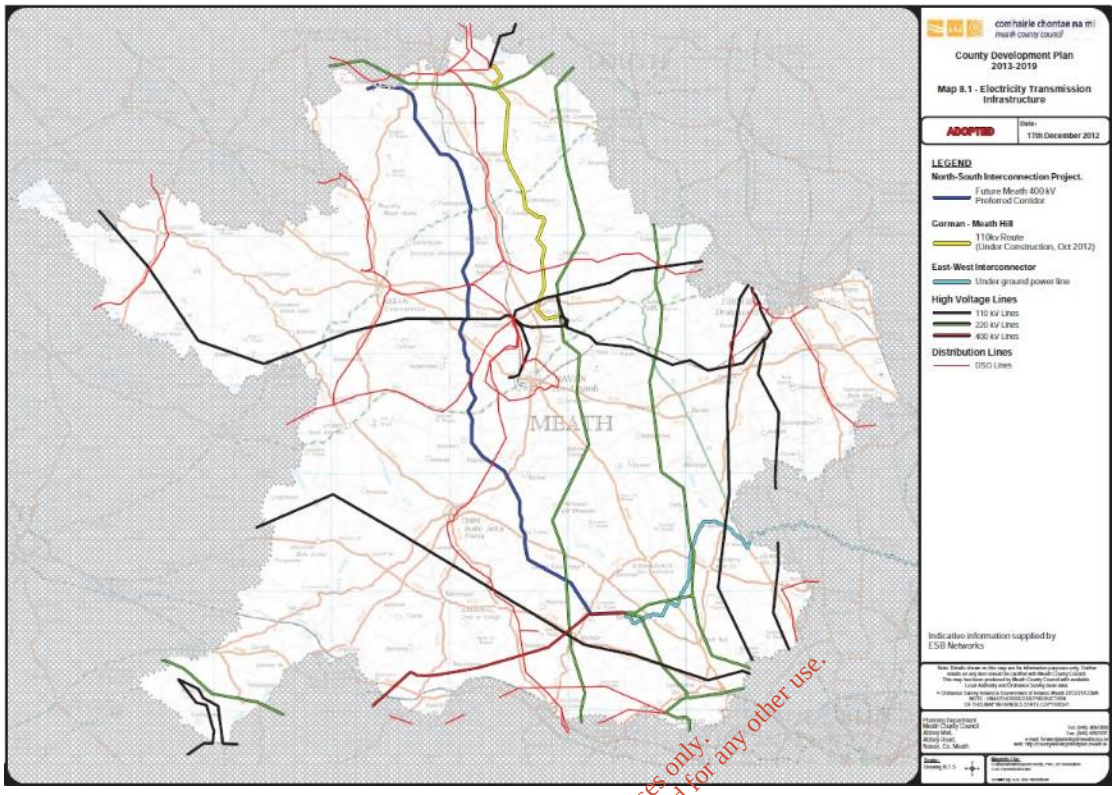

Figure 4.10-1 Electricity Transmission Grid in County Meath.

Note the four HV lines in east Meath; two 100kV lines (black) and two 220kV lines (green) all running essentially N-S. Redrawn from Meath County Council (2013).

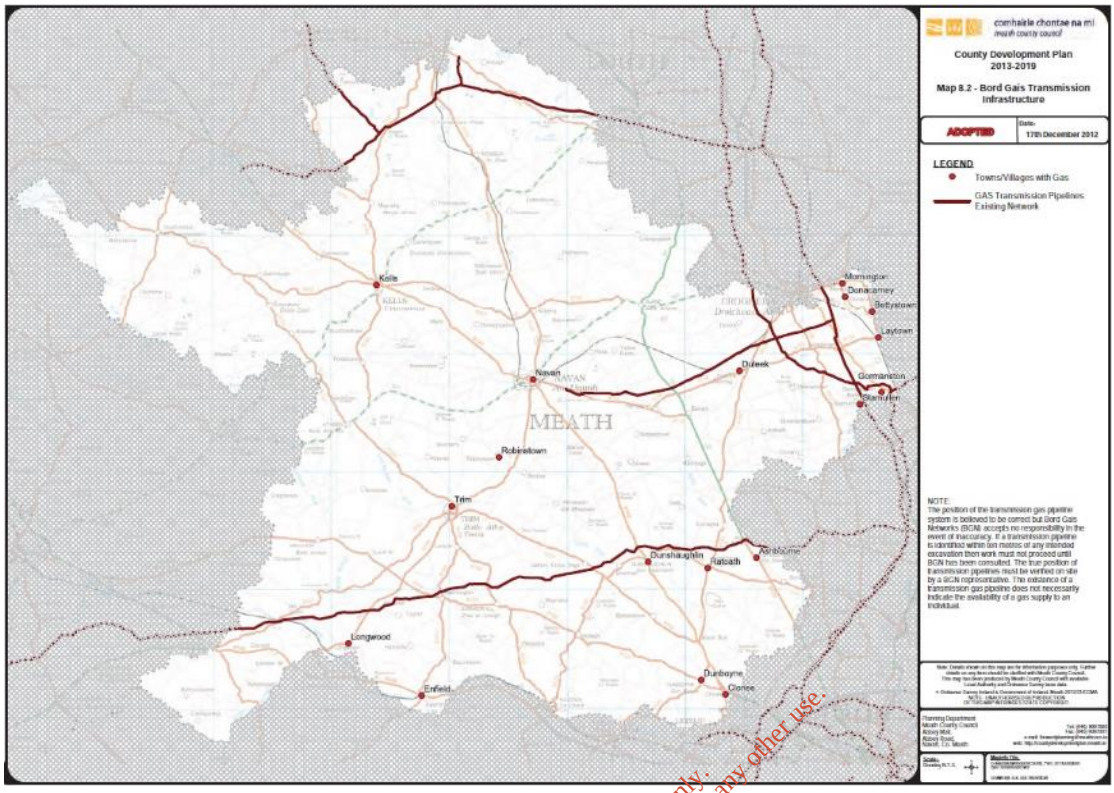

Figure 4.10-2 Bord Gais Pipeline Network in County Meath.

Redrawn from Meath County Council (2013).

4.11 ROADS & TRAFFIC

4.11.1 INTRODUCTION

The proposal is to continue the phased restoration of a sand and gravel pit using imported inert soils, stone and the import of inert Construction and Demolition waste to produce secondary aggregates (to be exported from the site).

It has been calculated that there is c. 348,000 tonnes of available void space capacity remaining. Assuming a fil rate of 80,000 to 140,000 tonnes per annum this will give a life of 3 to 5 years for the backfilling operations.

It is also proposed to import up to 20,000 tonnes per annum of inert construction and demolition waste for production of secondary aggregates (to be exported from the site). It is proposed that this activity will be extended beyond the life of the backfill operations to meet Clashford Recovery Facilities ongoing need for a facility to recover C&D waste for the production of secondary aggregates.

The future continued use of the facility as it exists will continue to generate traffic at a lower level than previously experienced at the height of the economic boom.

This report examines the traffic issues pertaining to the site and its development as a C&D recovery material facility.

This section of the EIAR has been prepared by Tony J. McNulty B.E, F.I.E.I. Chartered Engineer (See Section 1.9).

4.11.1.1 Objectives

The objectives of this chapter is to examine the existing traffic receiving environment. The generation of traffic by the current proposal and its assignment to the existing road network. To examine the impacts this assignment of traffic will have on the receiving road networks

4.11.2 METHODOLOGY

4.11.2.1 Desk Study

4.11.2.1.1 Sources of Information

The chief sources of information were

a) The current Meath County Development Plan (CDP) 2013-2019.
b) TII Automatic Traffic Counters to the east and west of the site.
c) Traffic counts carried out in May 2014 and updated traffic counts in April 2018.

The approach undertaken for the assessment is described in this section.

Included are the details of all surveys undertaken, technical references used, and assumptions made in the study. Traffic flows on the R108 and the Recovery Facility access junction were obtained by surveys carried out on 20th & 21st May 2014 and 11th April 2018. The traffic volumes using the Recovery Facility and direction distribution at peak production pre-2008

have been obtained from the Recovery Facility owner. These results are shown in Table 4.11-1 below.

4.11.2.1.2 County Development Plan

To ascertain the parameters within which the development proposed would be assessed for the granting of permission an examination of the current Meath County Development Plan (CDP) 2013-2019 was carried out. The relevant Traffic and Transportation policies and objectives contained in this plan were used to ascertain the feasibility of the project.

The sections relevant to the R108 in the vicinity of the proposed development have been abstracted and detailed below.

The relevant sections in relation to development and road infrastructure are contained in Volume 3 and Map 6.3 Road Upgrades. National and Regional Road Network.

There are no specific proposals for improvements proposed for the R108 (Naul – Drogheda).

4.11.2.2 Field Study

The field study consisted of various studies of the existing road networks, existing site access, traffic movements and traffic volumes.

4.11.3 BASELINE DESCRIPTION OF RECEIVING ENVIRONMENT

4.11.3.1 Site Location

The land the subject to this study is situated in the townland of Naul, Co. Meath. The lands subject to this study is situated in County Meath 1km. to the North of the village of Naul and immediately north of the Meath/Fingal county boundary. The entrance is located off the east side of the R108 Regional Route.

4.11.3.2 Existing Road Network

4.11.3.2.1 Network Description

The R108 is a north/south traffic artery in the area, providing access to Drogheda to the North and Naul to the south. Naul in turn provides access to the M1 and beyond to the east. There is a junction of the R122 situated between the site entrance and village of Naul which leads west to Garristown.

The access to the Recovery Facility is from the R108 Regional Route. The Proposed facility has an existing entrance located on the east of side of the R108. This access serves as a dual entrance. On the northside is the entrance to the Recovery Facility and on the southside is the entrance to Kilsaran concrete facility. A short 25m paved concrete access road leads Eastwards to both entrances from the Regional road.

The Recovery Facility access road forms an 90º at grade junction with R108 Regional Road within the 60km/hr. speed limit zone. The access road has a gradient of 0.25% towards the R108. This access road surface is paved with a concrete slab.

The R108 at the recovery facility entrance is an unaligned two lane 6m surface dressed single carriageway with 2 No. 1m Sloping Grass verges in the vicinity of the Waste Recovery Facility entrance. Overall Right of way width is 8 m. The width between fences is approximately 10m.

Inside the entrance of the Recovery Facility the access road leads to the inspection area and the placement areas. The Recovery Facility proper contains an office at the entrance gate with a parking area for cars and vehicle parking. A separate wheel wash facility is located on the exit roadway within the site.

The cross section of the R108 Regional is shown in Figure 4.11-1 below.

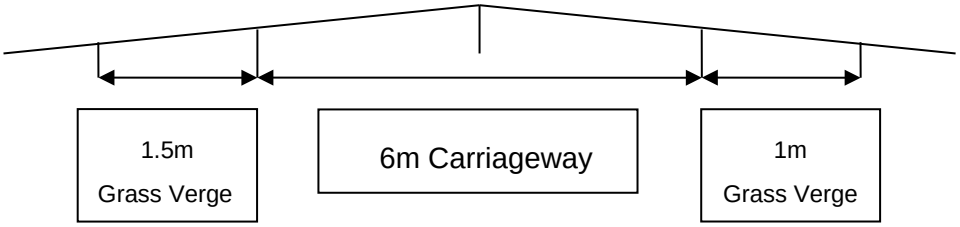

Figure 4.11-1 Regional Road R108 Cross Section

4.11.3.2.2 Access Visibility from Access

The R108 Regional road in the vicinity of the Recovery Facility entrance is unaligned. The access is located within the 60 km/hr speed limit. The access sight distances are set out in the TII DMRB TD 41- 42/11 and Meath County Council Development Plan 2013 – 2019 for development in this speed area. The 'y' distance required is 90m and the 'x' distance 2m. The junction of the Recovery Facility entrance with the R108 Regional has full access visibility requirements as set out in the TII DMRB TD 41- 42/11 and the Meath County Council Development Plan 2013 -2019. The Recovery Facility access road approaches the R108 Regional at right angles thus fulfilling the need for stopping distance and junction form recognition. The gradient of the access towards the Regional road is 0.25%.

4.11.3.2.3 Access Visibility and recognition from Regional Road

Travelling northwards the site access is located on a straight uphill section of the R108 with a hill crest and a slight bend westwards to the north of the access. Travelling southwards the site access is located just over a hill crest after a slight bend westwards to the north of the access. The forward visibility adjacent to the site access is assessed in accordance with TII publications DN-GEO-03031 April 2017 Rural Road Link Design and DN-GEO-03060 April 2017 Geometric Design of Junctions. The bends are of a measured radius of 450m. The advised minimum radius is 720m for 60kph. However, with a one-step relaxation the allowable radius of 510m.

The Forward Stopping Sight Distance on this bend required for this road location is a Desirable Minimum of 215m. Drivers in either direction have this minimum visibility of the site access.

The measured existing access sight distances available at the site access are a 'y' distance along the R108 of 250m northwards and 215m southwards at an 'x' distance 3m back from hard shoulder edge. The 'y' distance required is 90m at the 'x' distance 2m to either side of the access.

The entrance is constructed to a high standard with a 5.6m. gated entrance set back 17.6m from the rear edge of the public road edge. There is a splayed palisade fence to the north side of this gate to the road edge. The area between the road edge, gate and the wing fence is paved with a concrete slab with a gradient of 0.25% away from the Regional road.

4.11.3.3 Existing Traffic Flow Conditions

Manual counts carried out at the site on 20th & 21st May 2014 and updated counts on Wednesday 11th April 2018.

There was little pedestrian and pedal cycle traffic observed in the immediate area.

The flows on the R108 are shown in Table 4.11-1 below.

The existing traffic volumes on the road network in the vicinity of the Recovery Facility were lower in 2014 than the peak flow volumes in 2007/2008. but this stabilised and had slightly increased in 2013. The figures obtained in 2018 shows an increase in line with the surrounding networks.

Table 4.11-1 Traffic Volume Survey on R108/Waste Recovery Facility Access (Vehicles)

Traffic Count Summary on R108 Recovery Facility/Kilsaran Access												
	2014								2018			
Hour Ending	9.00		10.00		17.30		18.00		11.00		13.00	
Movement No.	HGV	Total	HGV	Total	HGV	Total	HGV	Total	HGV	Total	HGV	Total
1	2	22	11	43	1	39	1	57	3	58	3	36
2	4	5	9	12	11	11	14	14	14	16	2	26
3	8	8	4	4	7	7	8	10	8	37	3	36
4	0	0	0	0	1	1	1	1	1	9	0	0
5	0	1	0	0	1	1	1	1	1	9	0	0
6	3	69	1	41	0	27	3	33	2	57	2	25
Total Two-Way flow	17	105	25	100	21	86	28	116	29	186	10	123
AADT	1400		1613		1075		1247		3400		2196	
Average	1464								2798			

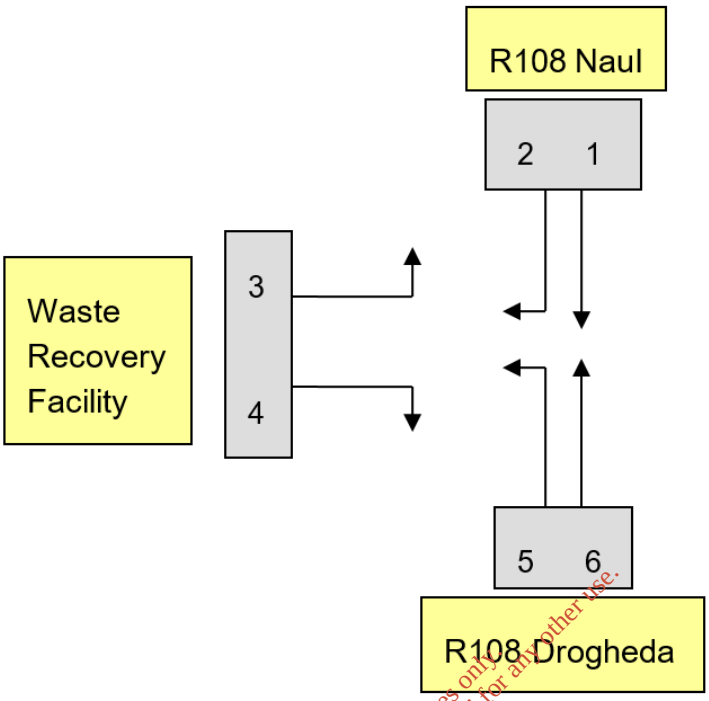

Figure 4.11-2 Junction Movements Diagram

Table 4.11-2 Calculated Daily Traffic Volumes - R108 Manual Counts

	Peak Hour AM Traffic Northbound	Peak Hour PM Traffic Southbound	Total Peak Hour Traffic	Average Annual Daily Traffic
Flow 2014	**63**	**72**	**116**	**1464**
Flow 2018	**95**	**101**	**196**	**2798**
% HGV				**4.0**
Peak Hour			17.00 – 18.00hrs	

The morning and evening peak flows at the TII Automatic counters were found to be 7.00-8,00 hrs. and 16.00-17.00 hrs. on the M1 south of Balbriggan and N2. and 7.00-8,00 hrs and 17.00-18.00hrs on the M2 south of Ashbourne. It is therefore likely that these are replicated on the adjacent road networks and will be used as the morning and evening peak flow times. The

evening peak traffic generates the greatest flows. The R108 traffic data was obtained by a traffic count on the 20th & 21st May 2014 and 11th April. This gave a 2018 AADT of 2798 with a 1.6% HGV content on the junction.

Table 4.11-3 Peak Hour Flows in 2018 (Vehicles)

Link	AADT	Peak Hour Flow
R108	2798	196
Waste Recovery Facility/Kilsaran Access	N/A	26

There are two permanent TII Automatic Traffic counters in the vicinity of the site. Counter M01.020.0N is situated on the motorway M1 between Jn04 Donabate North and Jn05 Balbriggan South. Counter M02.020.0N is between Jn02 St. Margarets and Jn03 Ashbourne South. The counts available on these sites are from May 2013 to the present.

The data available from these counters were analysed as a comparison to the R108. Traffic counts show an imperceptible increase in traffic between 2013 and 2014. However, they show a steady increase to 2018 of 4.27% and 2.87% per annum.

Table 4.11-4 Counts Obtained from the TII Counters

Counts Available
Average hourly AM and PM Counts
Peak Hourly 2 Way Counts
Average Annual Daily Traffic (AADT)
Peak hours

Information that was obtained from the counters were as shown in Table 4.11-5 below The Average Annual Daily Traffic (AADT) on the date of the Manual traffic count M1 (11th April 2018) was 60095 vehicles with a 6.8% HGV content and M2 was 31828 vehicles with an 8.2% HGV content.

Table 4.11-5 Average Daily Traffic Volumes on M1 and M2 from TII Counters M01-020-0N And M02-010-0N for 2017

		Peak Hour Traffic	Peak Hour	Average Annual Daily Traffic
Flow	**M01-020-0N**	5261	16.00-17.00hrs	**60095**
% HGV				**6.8**
Flow	**M02-010-0N**	3034	17.00-18.00hrs	**31828**
% HGV				**8.2**

There is a change in the Peak Hours AM and PM at the TII Counters. However, on the R108 the PM peak 17.00-18.00 hrs is the higher value and is the one to be used in the analysis. There was no pedestrian traffic and some pedal cycle traffic observed in the immediate area.

The morning peak hour was determined as 08.00 – 09.00 hrs and the evening peak hour 17.00-18.00 hrs. The volume of peak hour traffic is the determining factor of the impact the development will have on existing traffic. The evening peak hour will be the volume to be considered.

The growth in volumes of traffic along the R108 has occurred in the past number of years after a period of negative growth or static growth. This growth is shown in Table 4.11-6.

Table 4.11-6 Annual Traffic Growth R108

Year	2014	2018	Growth %
Vehicles	1464	2798	117
% HGV	4	12.5	33

Assuming the traffic growth levels off and assuming a date of opening of the facility is 2018 the figure of 26 for the peak flow is to be used in the analysis.

4.11.3.4 Proposed Trip Distribution

It has been calculated that there is c. 348,000 tonnes of available void space capacity remaining. Assuming a fil rate of 80,000 to 140,000 tonnes per annum this will give a life of 3 to 5 years for the backfilling operations. For the purpose of this assessment we will assume the worst-case scenario i.e. a fill rate of 140,000 tonnes per annum for a period of three years.

It is also proposed to import up to 20,000 tonnes per annum of inert construction and demolition waste for production of secondary aggregates (to be exported from the site). It is proposed that this activity will be extended beyond the life of the backfill operations.

The traffic generated by the Waste Recovery Facility therefore falls into a number of categories: -

a) Soil and stone imported to site for a period of 3 to 5 years to complete the restoration of the lands. This will be typically by means of 6 x 4 Rigid trucks with maximum weight of 20 tonnes.
b) C&D Material import haulage traffic entering laden and leaving empty the development onto the public road network. This will be typically by means of 6 x 4 Rigid trucks with maximum weight of 20 tonnes.
c) Recovered material export haulage traffic entering empty and leaving laden the development onto the public road network. This will be typically by means of 6 x 4 Rigid trucks and with maximum weight of 20 tonnes.
d) Employees cars. (5 employees)

e) Delivery Vehicles

The maximum importation period for the Waste Recovery Facility was in 2007/2008. According to the Waste Recovery Facility operators the importation at this time was 248,000 tonnes. This resulted in the following daily generated traffic based on the Waste Recovery Facility operator's information.

Table 4.11-7 Peak Daily Waste Recovery Facility Traffic 2008

Vehicle Type	Number	Average	Peak Hour
HGV	90	90	23
Cars	3	3	3

As construction activity has reduced since 2008 the present traffic generated by the Waste Recovery Facility is reduced.

The future continued use of the facility as it exists will continue to generate traffic at a lower level than previously experienced at the height of the economic boom.

The proposal is to import material for recovery which will generate import and export traffic as shown in Table 4.11-8 below.

Table 4.11-8 Summary of Proposed Project Traffic Generation (Vehicles) 2018.

Material	Load Type	Total Import/ Annum	Total Export/ Annum	Number of Loads per Annum	Number of Trips per Annum	Number of Trips per Day
Soil and stones	20T loads	140,000		7,000	14,000	51
C&D Waste		20,000		1,000	2,000	8
Secondary Aggregates			20,000	1,000	2,000	8
Employees						10
Delivery Vehicles						2
Total				9,000	18,000	79

Table 4.11-9 Peak Hour Flows on R108 in 2018 (Vehicles)

LINK	AADT	PEAK HOUR FLOW
R108	2798	196

Table 4.11-10 Proposed Project Traffic Generation Peak Hour Flows on R108 in 2018 (Vehicles)

Link	Vehicles	Peak Hour Flow
R108	2798	196
Proposed Recovery facility Traffic	79	26

Table 4.11-11 Peak Daily Proposed Facility Traffic 2018

Vehicle Type	Number of Trips	Peak Hour
HGV	69	21
Cars	10	5

The significant effect of the facility traffic will be along the R108. The 2018 projected volume of traffic on the R108 generated by the Recovery facility will be an increase of 2.8% on total traffic volume and 13.3% on Peak Hour volume.

The R108 cross section at the facility entrance would be classified a Type 3 Single Carriageway roadway. This has a theoretical two-way capacity of 5000 AADT at Level of Service D. The current AADT of 2798 and with a growth rate of 17%, The existing R108 is operating at a capacity below the theoretical capacity for a Level of Service D. The addition of 79 more vehicles i.e. average 26 vehicles per peak hour (or 2.8% on total traffic volume and 13.3% on Peak Hour volume) to the volumes will have little effect on current capacity especially as it will be spread throughout the day. The proposed peak traffic to/from the Recovery Facility will be outside the peak hour on the R108 and therefore, the current capacity of the R108 will be able to absorb the extra traffic from the facility. However, this analysis combines the highest values of the peak hour on the R108 with the peak value traffic generated by the facility to model the worst-case scenario. The facility entrance is located within a 60 kph speed zone.

It is predicted that the proposed traffic entering/leaving proposed recovery facility will have a traffic split of 90% via the R108 from and to the south and 10% via the R108 from and to the north (local needs only). The effect of the peak hour traffic associated with the proposed recovery facility on the existing R108 traffic will be: -

a) Traffic exiting onto the R108 from Proposed Recovery facility travelling south (15)

b) Traffic exiting onto the R108 from the Proposed Recovery facility northwards (2)

c) Traffic exiting the R108 northbound into the Proposed Recovery facility (8)

d) Traffic exiting the R108 southbound into the Proposed Recovery facility (1)

The effect on the R108 traffic of (a) above will be from time to time to slow mainline traffic as the trucks exiting from the Proposed Recovery facility onto the R108 accelerate to operating speed.

The effect on the R108 traffic of (b) above will be occasionally to slow mainline traffic as the trucks exiting onto the R108 accelerate to operating speed.

The effect on the R108 traffic of (c) above will be to slow northbound mainline traffic as the truck decelerates/stops to turn right into the facility.

The effect on the R108 traffic of (d) above will be to slow southbound mainline traffic as the truck accelerates.

The peak hour proposed recovery facility traffic will not necessarily coincide with the AM and PM peaks on the R108. However, by applying the peak hour figures for the R108 which is the PM peak flow to the predicted traffic generated by the proposed recovery facility activity calculated above it will result in the most robust analysis of the traffic assessment.

4.11.3.5 Traffic Flow Analysis

After considering all the available information from the TII counters and the Manual counts the figures to be used for the assessment will be as outlined in Table 4.11-10 & Table 4.11-11 above. The years to be considered for maximum operation is 2018-2022.

The peak vehicle movements on the R108 were calculated. The increase in traffic volumes were calculated for 2018 and the percentage increase factor used to predict forward the volumes to be considered. The peak hourly movements of traffic at the R108/facility junction are the combination of the Proposed Recovery facility movements plus the R108 movements. The results are shown in Table 4.11-9, Table 4.11-10 and Table 4.11-11 above.

4.11.3.6 Traffic Assignment

The Regional road R108 has sufficient capacity to cater for the 2.8% increase in proposed traffic generated by the Recovery facility. It is therefore proposed to examine the effect the proposed recovery facility generated traffic will have on the Facility/R108 junction. This section assesses the traffic impacts of the proposed development on the road network adjacent to the proposed Recovery facility. The traffic assessed is the traffic generated by the Proposed Recovery facility, the traffic independent of the Proposed Recovery facility and the interaction of both.

The existing Access from the Proposed Recovery Facility has sufficient capacity to cater for projected peak hour traffic to use the facility. The proposed turning movements at the R108/Access junction are of sufficient low volume not to cause any major interference in the free movement of traffic flow on the R108.

The generated volume split of Proposed Recovery facility related traffic will be 10% Northwards along the R108 and 90% Southwards along the R108. The resulting assignment of the generated two-way traffic by the Proposed Recovery facility activity along the R108 is shown in Table 4.11-12: -

Table 4.11-12 Assignment of Average Daily Proposed Recovery Facility (Vehicles/Day) to R108 In Year 2018

Direction	Vehicle Type		
	Car/LGV	HGV	Total
To R108 North from Proposed Recovery facility 10%	1	3	4
To R108 South from Proposed Recovery facility 9890%	4	31	35
Total	5	34	39
To Proposed Recovery facility R108 from North 10%	1	3	4
To Proposed Recovery facility R108 from South 98%	4	31	35
Total	5	34	39

4.11.3.7 Peak Hour Traffic

The Proposed Recovery facility opening hours are 0800 to 1800 hrs. Monday to Friday and 0800 to 14.00 hrs on Saturday. The traffic generated during the morning and evening peak was calculated. The traffic using the R108 in the evening peak was found to be the greatest and will be used for the traffic assignment. When this is added to the other vehicle daily average it yields an evening peak flow to the Proposed Recovery facility of 9 vehicles inward and 17 outwards.

Table 4.11-13 Assignment of Evening Peak Hour Proposed Facility Traffic (Veh/hr)

Direction	Vehicle Type V/H		
	LGV/Car	HGV	Total
Proposed facility to R108	5	12	17
R108 to Proposed facility	0	9	9
Total	5	21	26

The peak hour additional Proposed Recovery facility traffic would increase the R108 movements by 2.8 %.

4.11.3.8 Junction Operation

An assessment of the R108/ proposed recovery facility access was carried out and it was found that there would be an increase of 2.8% in overall traffic using the junction and 13.3% of the peak hour traffic. The traffic on the proposed facility leg of the junction is predicted to increase by 26 vehicles in the evening peak hour. The major effect and traffic delay will be on

the Facility leg of the junction where there will be delay for traffic seeking gaps in the R108 mainline traffic to proceed towards Drogheda. The above results show the maximum traffic generated by the proposed recovery facility development has a negligible effect on the operation of the junction and the R108.

4.11.4 ASSESSMENTS OF IMPACTS

The following Impact Assessment matrix provides an indication of the significance of potential effects arising during the life cycle of the development not accounting for any mitigation measures.

Table 4.11-14 Traffic - Impact Matrix

'Do Nothing' Impacts	X		
Factors	**Construction**	**Operation**	Decommissioning
Direct Impacts	X	🟢	X
Indirect Impacts	X	X	X
Cumulative Impacts	X	X	X
Residual Impacts	X	X	X
`Worst Case' Impacts	X	X	X

None/imperceptible: X; Slight: 🟢; Moderate: 🟡; Significant/Very significant: 🔴.
Refer to Appendix 5.2 for definition of Significance

4.11.4.1 'Do Nothing' Impacts

The 'do nothing' impacts will be none or imperceptible as the site of the proposed Recovery area will continue to operate as a waste Recovery Facility as it has done so under successive waste permits since 2001.

4.11.4.2 Direct Impacts

The proposed Recovery area will continue to operate as a waste Recovery Facility as it has done so under successive waste permits since 2001.

The proposed recovery facility development will have no impact at construction phase as the proposal does not involve any significant construction just the filling of an existing void area and the processing of secondary aggregates.

The operation impact of the proposed development will have the effect of increasing the traffic movements on the R108 by 2.8%. during peak hour following recommencement of waste recovery operations at this location. The extent of the impact from increased traffic is detailed above.

The decommissioning impact of the proposed development will be self-contained within the site as the proposal is to cap the area when the recovery of material is complete.

4.11.4.3 Indirect Impacts

The indirect impacts from a traffic perspective of the proposed recovery facility development will be an increase of traffic movements on the Regional R108 to the south of the access to the development at Clashford following recommencement of waste recovery operations at this location.

There will be no indirect impacts during the construction phase as the proposal does not involve any significant construction just the filling of an existing void area.

The operation impact of the proposed development will have the effect of increasing the traffic movements on the R108 to the south of the site by 13.3 %. during peak hour during this phase of the proposal. The extent of the impact from increased traffic is detailed above.

There will be no indirect impacts during the decommissioning phase of the development. The impact of the proposed development will be self-contained within the site as the proposal is to cap the area when the recovery of material is complete.

4.11.4.4 Cumulative Impacts

The cumulative impact with respect to the continued operation of the waste recovery facility and the traffic associated with the adjoining Concrete Batching Plant operated by Kilsaran and other road users on the R108 has been taken into consideration with respect to assessment of impact of the proposed development.

The future continued use of the facility as it exists will continue to generate traffic at a lower level than previously experienced at the height of the economic boom.

4.11.4.5 Residual Impacts

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of Roads and Traffic.

4.11.4.6 'Worst Case' Impacts

The maximum importation period for the Waste Recovery Facility was in 2007/2008. According to the Waste Recovery Facility operators the importation at this time was 248,000 tonnes. As construction activity has reduced since 2008 the present traffic generated by the Waste

Recovery Facility is reduced. The future continued use of the facility as it exists will continue to generate traffic at a lower level than previously experienced at the height of the economic boom.

4.11.5 MITIGATION MEASURES

The wheelwash will be upgraded and relocated towards the site entrance. Trucks leaving the site are required to pass through the existing wheel wash facility leaving the site. It will be utilised throughout the life of the operation, with due maintenance and upgrading as required. This will reduce the risk of material being transported from the development onto the public road. In the unlikely event that a spillage occurs, the applicant will ensure that spilled material is removed from the road surface in a safe and timely manner, as soon as they become aware of it, or are notified that a spillage has arisen.

Traffic direction signs, warning signs, speed limit signs are established throughout the site.

A weighbridge will be provided.

The existing palisade fence at the entrance is to be replaced with a stone wall and separate entrance gate provided for access to the site office.

The parking requirements for the proposed recovery facility operation mainly relate to the facility employees and visitors. There is provision of sufficient spaces within the proposed facility for employees and visitors will be allocated. If the maximum number of employees will be 4. Therefore, a car park provision of 4+ 25% for visitors (say 5 spaces) will be provided. A dedicated car-park for employees and visitors is to be provided adjoining the new site office location and access to the site office will be by a separate entrance gate which will have the benefit of separating cars from the HGV traffic associated with the Waste Recovery Facility.

Existing Hard stand areas within the existing quarry to be maintained as rest up areas for trucks.

There is the availability of visibility splays 90 x 2m on either side of the proposed facility entrance. These will be maintained from vegetative growth on a regular basis.

The traffic impact of the Waste Recovery Facility is at present considerably less than it was at full production prior to 2008. The following are the conclusions of the analysis of the traffic impact of Waste Recovery Facility:

I. The traffic generated by Waste Recovery Facility had little adverse effect on traffic movements on the surrounding road networks. The continued use of the Waste Recovery Facility at the predicted level will not increase the traffic over the present level.
II. The level of turning movements at the R108/Waste Recovery Facility Access junction are of a low volume within the total capacity of the road network and the proposed Waste Recovery Facility traffic represents 2.8 % average of these low volume movements.
III. The R108 is an unaligned single carriageway road with verges stretching to the north and south of the Waste Recovery Facility Access junction with the R108. The quality

of the R108 pavement in the vicinity of the Waste Recovery Facility entrance is at present in good condition.

IV. The R108 and the adjacent road receiving network is of a medium quality but is capable to cater for the Waste Recovery Facility generated traffic.

4.11.6 REFERENCES

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4.12 INTERACTION OF THE FOREGOING

4.12.1 INTRODUCTION

Schedule 6 of the Planning and Development Regulations 2001 (S.I. 600/2001) sets out the requirement to consider the interrelationships of certain aspects of the environment as part of the EIA process. All environmental factors are inter-related to some extent, and this section draws attention to significant interaction and interdependencies in the existing environment.

Interactions are usually highly complex, and a change in any one factor, such as land-use or water quality, could affect all of the other interrelated factors. Although almost all environmental aspects are inter-related to some degree only the significant interactions are usually considered in an assessment.

The interactions of the impacts and mitigation measures between one topic and another, where applicable, are discussed under the respective sub-sections within Section 4, rather than in a specific "Interactions" section. Because an EIAR is typically prepared by a number of specialist consultants it is important that the interactions between the various disciplines are also considered. This section draws attention to significant interaction and interdependencies in the existing environment.

The following matrix has been generated to show where possible interactions (top of matrix) may result between the various environmental factors including brief details (bottom of matrix). For details of any interactions refer to the relevant sections of the EIAR.

In terms of protecting the environment, the impacts of the proposed development of a Waste Recovery Facility (WRF) at Clashford have been assessed and where required, appropriate mitigation measures provided to remedy any significant adverse effects on the environment.

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Table 4.12-1 Interaction Matrix Table

Factors (Interaction)	4.1 Population & Human Health		4.2 Biodiversity		4.3 Land, Soils & Geology		4.4 Water		4.5 Climate		4.6 Air Quality		4.7 Noise & Vibration		4.8 Landscape		4.9 Cultural Heritage		4.10 Material Assets		4.11 Traffic	
	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.
4.1 Population & Human Health			X	●	X	●	X	●	X	X	X	●	X	●	X	●	X	X	X	●	X	●
4.2 Biodiversity	The impact of inert waste recovery on this site will be considerable in local terms but will not result in any loss of heritage values in the locality. The changes will be both positive (gain of woodland) and negative (loss of open habitats).				X	●	X	●	X	X	X	●	X	X	X	●	X	X	X	X	X	X
4.3 Land, Soils & Geology	The groundwater vulnerability rating after the fill will be improved as the additional fill will provide additional aquifer protection at the site.		Recovery of soil and stone for land improvement, specifically reinstatement of a quarry, is considered a beneficial use.				X	●	X	X	X	X	X	X	X	●	X	X	X	X	X	X
4.4 Water	the potential impact to groundwater quality due to the deposition of inert infill material is an indirect, negative, imperceptible, long term, low probability impact before appropriate mitigation measures are considered.		There is the potential for sediment and/or chemical loss to surface waters, but this will be minimised by the existing and planned control measures, by the local drainage gradient and by the distance to surface waters. The restoration of the site will result in a moderate positive effect in the medium term.		The groundwater vulnerability rating after the fill will be improved as the additional fill will provide additional aquifer protection at the site.				X	X	X	X	X	X	X	X	X	X	X	●	X	X
4.5 Climate	X		X		X		X				X	●	X	X	X	X	X	X	X	X	X	X
4.6 Air Quality	The impacts of any dust deposition from the operations will be direct, of short duration, temporary and largely confined to the site area.		It is expected that there will be imperceptible neutral impact with respect to local amenity and residential receptors as a result of the development.		X		X		During dry weather the haul roads and tipping area will be sprayed with water to dampen any dust blows.				X	X	X	●	X	X	X	●	X	●
4.7 Noise & Vibration	Noise monitoring has shown that noise levels due to site activity are within acceptable thresholds. Given that site activity will in general be further removed from the nearest noise sensitive locations the overall impact with respect to noise will be further reduced with respect to the continuance of operations.		X		X		X		X		X				X	X	X	X	X	●	X	●
4.8 Landscape	The restoration of the site to beneficial after-use will result in a permanent significant positive effect in the medium term.		The impact of inert waste recovery on this site will be considerable in local terms but will not result in any loss of heritage values in the locality. The changes will be both positive (gain of woodland) and negative (loss of open habitats).		The restoration of the site to beneficial after-use will result in a permanent significant positive effect in the medium term.		X		X		There may be an associated visual impact with fugitive dust generation. This impact will be minimised by the dust mitigation measures proposed.		X				X	X	X	●	X	X
4.9 Cultural Heritage	X		X		X		X		X		X		X		X				X	X	X	X
4.10 Material Assets	The restoration of the site to beneficial after-use will result in a permanent significant positive effect in the medium term.		X		X		The groundwater vulnerability rating after the fill will be improved as the additional fill will provide additional aquifer protection at the site.		X		It is expected that there will be imperceptible neutral impact with respect to local amenity and residential receptors as a result of the development.		Noise levels due to site activity are within acceptable thresholds. Given that site activity will in general be further removed from the nearest noise sensitive locations the overall impact with respect to noise will be further reduced with respect to the continuance of operations.		The restoration of the site to beneficial after-use will result in a permanent significant positive effect in the medium term.		X				X	●
4.11 Traffic	The continued use of the Waste Recovery Facility at the predicted level will not increase the traffic over the present level.		X		X		X		X		During dry weather the haul roads and tipping area will be sprayed with water to dampen any likely dust blows.		The main noise sources in the area are from the R108 Regional Road and an adjacent concrete batching plant.		X		X		The continued use of the Waste Recovery Facility at the predicted level will not increase the traffic over the present level.			

Con	Construction Phase
Op	Operational Phase
x	No Interaction

●	Weak Interaction
●	Some Interaction
●	Strong Interaction