



18324-08/06/2018-Environmental Impact

Environmental Impact Assessment Report - Non Technical Summary

REG No.
PLANNING(WEST) DEPARTMENT
- 8 JUN 2018
CORK COUNTY COUNCIL

Carbery Milk Products
Cheese Diversification Planning Phase
IE0312276-22-RP-0004, Issue: A

Document Sign Off

Environmental Impact Assessment Report - Non Technical Summary

Carbery Milk Products
Cheese Diversification Planning Phase
IE0312276-22-RP-0004, Issue A

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CURRENT ISSUE					
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 NORTON HOUSE, SKIBBEREEN, CO. CORK

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1 Introduction

This is a summary, in non-technical language, of the findings of the Environmental Impact Assessment Report (EIAR). It is presented under the same chapter headings as the EIAR main document.

Carbery Food Ingredients Ltd. is proposing to construct a new cheese plant, along with related utility and ancillary works, at their existing facility in Ballineen Co. Cork. The site location is shown in Figure 1.1.



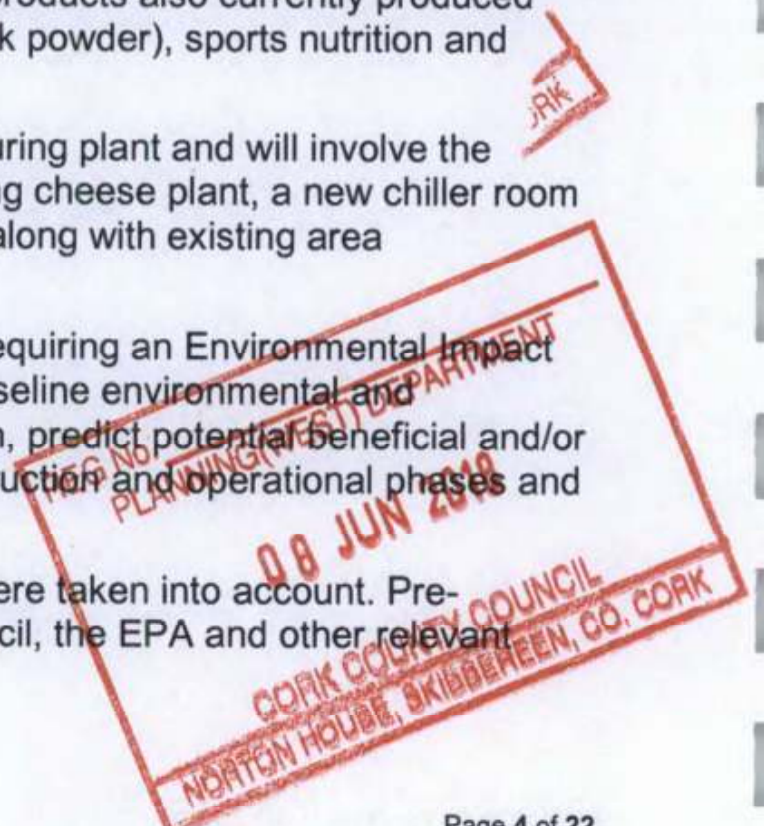
Figure 1.1 Site Location – Ballineen, Co. Cork (Source: Open Street Map, Inset Map – Google Maps 2018)

Established in 1965, Carbery Food Ingredients Ltd. (t/a Carbery Group) is a leading international manufacturer of cheese, food ingredients, alcohol and flavours. The company's facility at Ballineen is one of the largest single cheese producing plants in Ireland and the UK and commenced production in 1968. Products include the "Dubliner" brand of cheddar. The existing facility produces approximately 50,000 metric tonnes of cheese annually. Other products also currently produced include protein ingredients used in infants formula (skimmed milk powder), sports nutrition and clinical nutrition along with ethanol and food flavours.

The proposed development comprises a new cheese manufacturing plant and will involve the construction of new buildings to the south and east of the existing cheese plant, a new chiller room to the north of the site, expansion of the existing loading docks along with existing area refurbishments and internal expansions.

The proposed development falls within the list of project types requiring an Environmental Impact Assessment (EIA). The primary objective of EIA is to identify baseline environmental and socioeconomic conditions in the area of the proposed expansion, predict potential beneficial and/or adverse effects of the proposed development during both construction and operational phases and propose appropriate mitigating actions where necessary.

In preparing this EIAR, all relevant regulations and guidelines were taken into account. Pre-application consultation has taken place with Cork County Council, the EPA and other relevant consultees during the production of the EIAR.



PM Group has fulfilled the role of Lead Consultant and Project Coordinator for the preparation of the EIAR with a team of suitably competent experts.

An Appropriate Assessment has been carried out to assess the potential to affect the integrity of the Natura 2000 network. The Appropriate Assessment Screening Report is included as part of the planning application. The report concluded that a Natura Impact Statement is not required for the proposed development.

2 Description of the Proposed Development

The Carbery facility at Ballineen consists of three areas (see Figure 2.1), namely:

- (1) the main site of approximately 19 acres where milk and whey processing, production and support activities occur;
- (2) an Anaerobic plant to the south of the public road (R586); and
- (3) the Waste Water Treatment Plant (WWTP) for the site, which is approximately 1km to the east of the main site.



Figure 2.1 Overview of Carbery's facility (Source of Image: Google Earth Pro)

2.1.1 Existing Site

The main buildings and their uses are shown in Figures 2.2 and 2.3.

The Production Buildings are:

- Cheese Production Buildings
- Taste Ingredients Production Building
- Alcohol Production Building
- Protein Ingredients Production Buildings

The site has four boilers and a Combined Heat and Power (CHP) plant. The boilers and CHP plant are natural gas fuelled with two of the boilers having dual fuel capability of natural gas and biogas.





Figure 2.2 Main Carbery Site - Current Building Uses



Figure 2.3 Aerial view of Main Carbery Site

The Anaerobic plant includes two digesters that generate the biogas used to fuel two of the site's boilers (along with natural gas). Hydrogen sulphide (H₂S) may come out of the solution as the effluent leaves the digesters. To prevent the H₂S from causing malodours, a scrubber system is used to remove the H₂S.

2.1.2 Proposed Project Overview

The project entails the installation of a new cheese plant to facilitate the diversification of milk throughput into alternative cheese products. Figure 2.4 provides an overview of the existing site and the proposed development (coloured areas). The plant will produce up to 7.2 tonne/hr of cheese and will have a milk processing capacity of 65,000 litres/hr in order to meet this required output.

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Figure 2.4 Existing and Proposed Buildings

It is envisaged that the proposed development will add approximately 14 employees to the current workforce when operational.

It is also envisage that an average of 30-40 construction jobs will be created over the 17 month period. Table 2.1 shows the project milestones.

Table 2.1 Project Milestones

Activity	Start	End	Duration
Basic Design	Q2 2018	Q3 2018	2 months
Planning Application Approval (assuming no issues/ RFIs)	Q2 2018	Q3 2018	3 months
Detailed Design	Q3 2018	Q4 2018	5 months
Construction	Q4 2018	Q1 2020	17 months
Commissioning & Qualification	Q3 2019	Q4 2019	4 months
Commencement of Production	Q1 2020		

2.1.3 Description of the Production Process

The site's production operates 24 hours a day, 6.5 days a week and 52 weeks per year. Cleaning-In-Place (CIP) of processing equipment occurs 4 hours on a daily basis.

Currently, the milk intake to the existing facility is used in cheddar cheese and skimmed milk powder. Concentrated whey is also supplied to the existing facility. Figure 2.5 illustrates these processing streams.



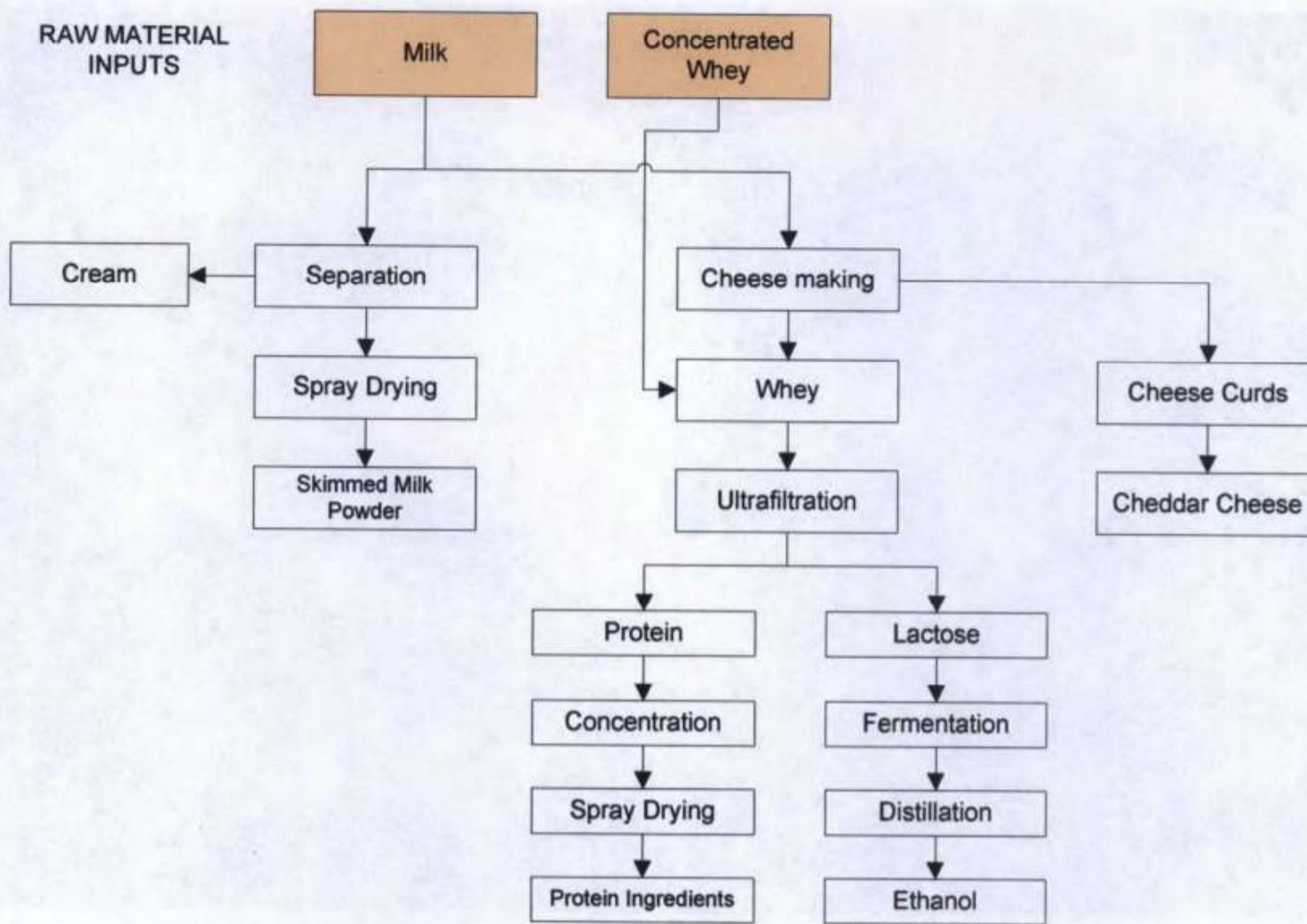


Figure 2.5 Existing Facility Processing Streams

The process block flow diagram associated with the cheese manufacturing expansion is illustrated in Figure 2.6.

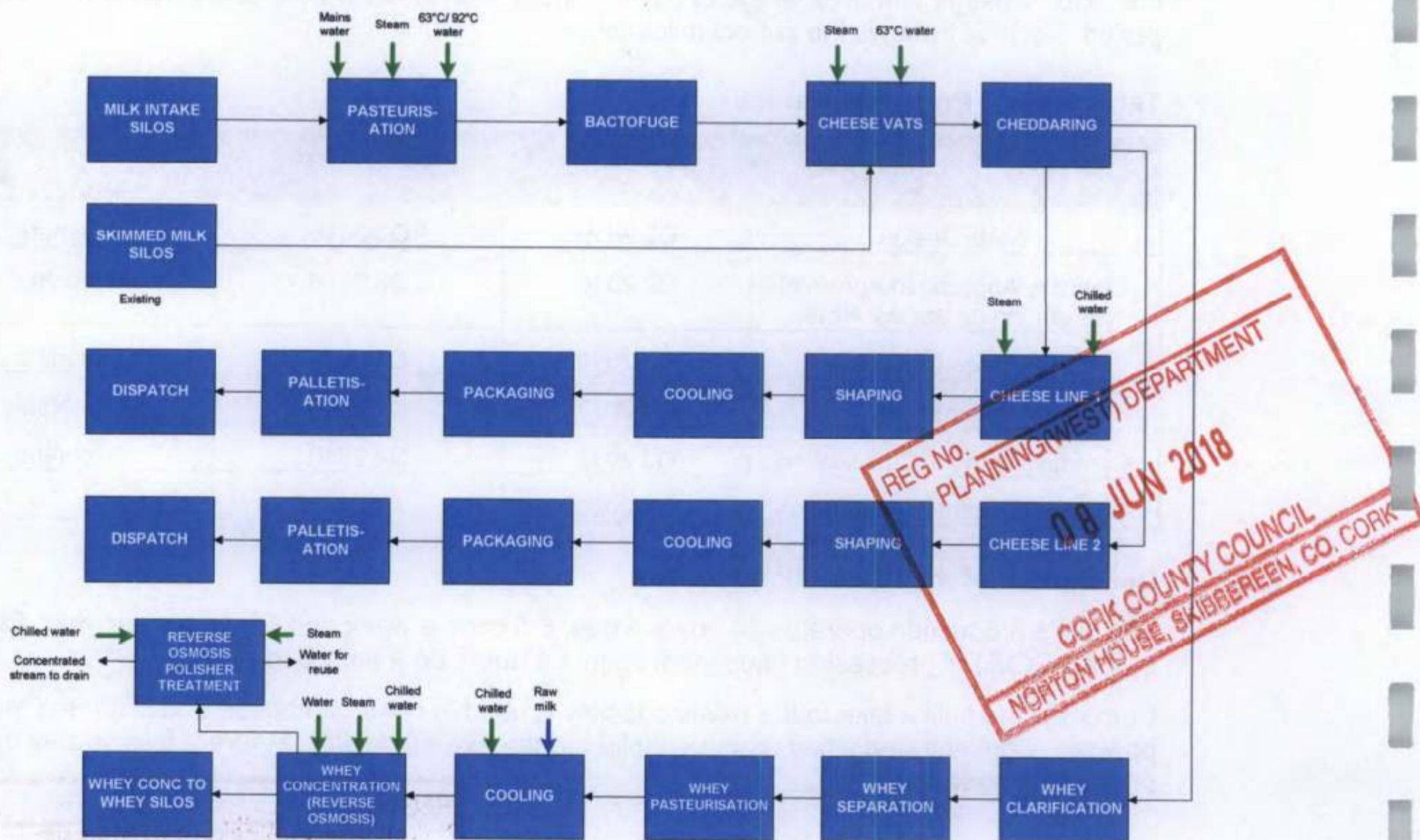


Figure 2.6 Proposed Development – Process Block Flow Diagram

2.1.4 Description of the Proposed Buildings

The proposed development is a mixture of new buildings, existing area refurbishment and internal expansion. The principal new building structures (as shown in Figure 2.4) are:

- Building south of existing cheese manufacturing plant to accommodate Cheese Vats, Salt Room, Alfamatic/Cheddaring machine, Cheese Clarifier Room and Cheese Additive Room
- Building west of existing cheese manufacturing building (towards the South side of the site) for Starter Tanks & Pasteuriser
- Rapid cool room, vacuum pump room, plant room, blower room, cheese pilot plant, cheese grading room, link corridor and expansion of loading docks (including overhead office space) onto the existing south side building curtilage
- Extension of the existing East West spine corridor, which will connect the existing production spaces with future production capacity as well as the Warehouse area
- Ammonia compressor room to the north of the site
- New weigh bridge office

New process and utility equipment will also be accommodated in existing building structures, which will be upgraded prior to equipment installation. The new building structures will be a combination of precast concrete and structural steel, with composite roofs and mixture of masonry / composite cladding external walls.

2.1.5 Utilities

Plant Steam

The existing site has four boilers and a 5MW CHP plant that produces plant steam.

There are no additional boilers associated with the proposed development. Steam will be used in the new cheese plant however no additional steam usage is predicted.

Combined Heat and Power Plant

The site has a CHP plant that simultaneously produces electricity and steam. The CHP plant consists of a Gas Fired Turbine (GT) and a Heat Recovery Steam Generator. The turbine is capable of generating 5 MWhr of electricity. The GT is interconnected with the ESB National Grid and both are synchronised to supply power to Carbery. Therefore the site can import power from the grid or export power to the grid as the need arises.

Process and Potable Water

The water supply for the site comes from the River Bandon (from a pipe south west of the site) and is treated by a conventional sand based filter and ultrafiltration system. The site has a water storage capacity of 4,000 m³. The current water demand for the site is 300 m³/hr, 24 hours a day and 6.5 days per week.

There is no increase in water usage due to the proposed development. It is anticipated that there will be a reduction in water usage due to water recovery being incorporated into the design of the new Cheese plant.

Cooling Tower Water

There are 10 existing cooling towers onsite. No new cooling towers are being installed for the proposed development.

Chilled Water

A new ammonia chiller will be installed as part of the proposed development to expand the existing chilled water system. A new ammonia chiller room will be installed adjacent to the existing chiller room on the north-west side of the site.



Compressed Air

There are 12 air compressors used on the main site, the Anaerobic plant and the WWTP. There is no requirement to install any additional compressors as a result of the proposed development. Compressed air will be supplied to the new expansion from the existing distribution network.

Electricity

The existing design load for the site is 7MW and the proposed development will add 2.5 MW. A 38KV Sub-station is located on the North West of the site with an ESB compound directly north of same. The cables will enter at this point.

Natural Gas

Natural gas is used to fuel the existing CHP plant and four steam boilers. The supply pipeline enters from the north-east of the site and is routed towards the CHP plant and on to the Boiler room located in the centre of the site.

It is expected that there will be a minimal increase in the gas load to the site as a result of the proposed development as the design strategy is to maximise heat recovery and minimise any additional steam/heat load.

2.1.6 Site Infrastructure

The main entrance to the site, from the R586 road, is directly in front of the site's milk intake area. There is a service yard access at the eastern end of the site and it is proposed that this will become the main contractor access area.

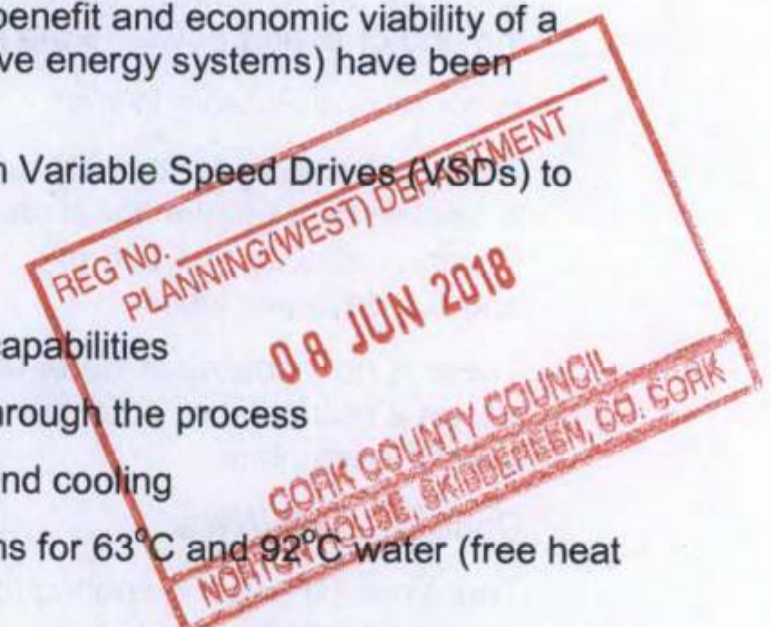
As part of the proposed development the visibility sightline (easterly) at the eastern service yard will be improved, which will involve demolishing the existing boundary retaining wall and office building to the east of the service yard, along with the removal of planting. The easterly visibility sightline at the main entrance will also be improved by removal of railings and planting.

The main car-parking area is to the west of the main site entrance. There is also a car-park opposite the main entrance, to the south of the R586 road and to the west of the R&D building (overflow car park). There will be no expansion of car-parking spaces associated with the proposed development.

2.1.7 Sustainability

As part of the design developed to date the environmental benefit and economic viability of a number of sustainable design measures (including alternative energy systems) have been considered. These include:

- Installation of energy efficient motors fully equipped with Variable Speed Drives (VSDs) to optimise power requirements
- Fully automated plant design
- Energy efficient refrigeration plants with heat recovery capabilities
- Maximising regeneration of heating and cooling loads through the process
- Utilising heat recovery sources on site and for heating and cooling
- Efficient pasteurisation plants with heat recovery sections for 63°C and 92°C water (free heat on site)
- Polishing of whey Reverse Osmosis permeate – gain of water for use across site as boiler feed water and CIP water
- Optimisation of CIP recovery of final rinses
- Maximise natural light - Installation of Low Energy LED Lighting
- Landscaping



Ultimately, the facility is being designed to incorporate the following resource efficiency and sustainable measures:

- The site proposes to use clean natural gas fuel only for steam generation.
- 10% of gas requirements on site are generated from onsite anaerobic digestion plant which generates 100% renewable biogas for use on site. Ultimately Carbery is planning on ensuring that the Ballineen facility will be carbon neutral in the not too distant future, therefore decarbonisation of the natural gas utilised will be critical to achieving that goal.
- As of June 2018 all electricity procured and imported to the Ballineen facility will be 100% renewable in-keeping with Carbery's Green Procurement Policy.

2.1.8 Construction Works

Subject to planning permission, the construction works are scheduled for 17 months from Q4, 2018 to Q1, 2020. The peak construction month will be June-July 2019.

The proposed core construction hours are 8.00 a.m. to 6.00 p.m. Monday to Friday and 8.00am to 2.00pm on Saturdays unless otherwise agreed with Cork County Council.

An outline Construction Environmental Management Plan (CEMP) has been prepared as part of the planning application. The CEMP sets out the responsibilities, environmental standards and requirements for the duration of the construction phase of the project. The document includes the necessary environmental controls and mitigation measure to prevent/mitigate any potential impact on the surrounding environment. The document will be updated prior to commencement of the construction phase.

3 Alternatives Considered

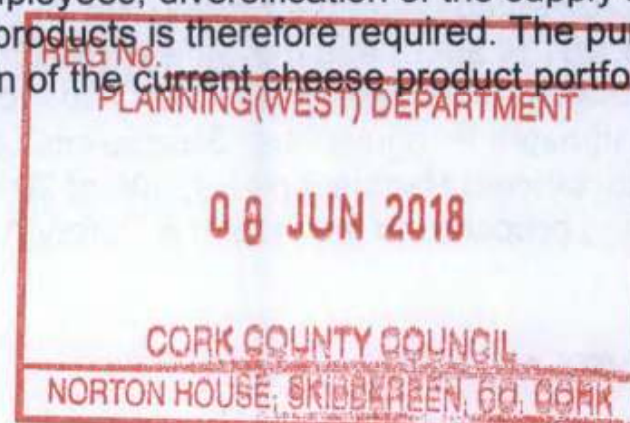
It is a fundamental requirement of the EIA process that viable alternatives to the key project decisions have been evaluated in the context of environmental impact.

Development of the proposals has involved the following key project decisions:

- Why build this facility?
- Selection of the preferred site/location for the expansion development
- Selection of the preferred manufacturing process and technology
- Selection of the preferred arrangement of the proposed buildings

The driving force for this project is the imminent departure of the United Kingdom from the European Union and the associated EU customs union and Internal Market, which is generally referred to as "Brexit". In Ireland approximately 60% of cheese is exported to the United Kingdom with the remaining 40% going to the rest of the world, therefore any restrictions in trading conditions between Ireland and the UK will negatively impact these exported products along with other products more generally. In terms of Carbery's current product portfolio, there is an even greater exposure as a much greater percentage of the company's cheese goes to the UK market, representing greater than 50% of Carbery's route to market through the UK. In the event of World Trade Organisation tariffs being introduced, which is a possibility should the UK leaves the EU customs union, Carbery will be severely disadvantaged in the UK market. Even the introduction of reduced trade tariffs will have a serious effect on the company.

To help mitigate against the effects of "Brexit", thereby protecting the 1,300 farming family enterprises Carbery supports along with its 250 employees, diversification of the supply milk pool (worth €150m to the local economy) to alternative products is therefore required. The purpose of the proposed development is to allow diversification of the current cheese product portfolio, which will reduce the dependence upon the UK market.



Selection of the Preferred Site/Location for the Development

The preferred location for the development is Carbery's existing facility at Ballineen, Co. Cork. This location was selected as the preferred location as staff at Ballineen has built up considerable expertise in the manufacture of cheese. The most efficient manner to avail of this knowledge and experience is to co-locate the new cheese plant on the same site as the existing cheese manufacturing. In addition the existing utility infrastructure of the Ballineen site can be used to service the proposed Cheese Plant with minimal additional capacity being installed as the project involves the diversification of the existing milk intake.

Selection of the Preferred Manufacturing Process

The proposed process for the new Cheese plant is based upon the latest best available process techniques for cheese manufacture with LEED (Leadership in Energy and Environmental Design) principles to the forefront of design.

Selection of the Preferred Arrangement of the Proposed Buildings

The layout of the existing Carbery facility and production process dictated the preferred arrangement of the proposed new buildings. Currently the existing facility includes several buildings and uses dispersed across the site. The primary production and warehouse buildings are located adjacent to each other and are all linked by a longitudinal spine corridor.

The planned expansion areas are the only viable locations due to process adjacencies. Notwithstanding these, a number of alternative options were assessed regarding the proposed arrangement of the new buildings and infrastructure.

Following a review of 4 different layout options a preferred option for the proposed development was selected for further design development. It represents an optimal, efficient, and sustainable process and facility layout that is adaptable in terms of facilitating product manufacturing, together ensuring the facility is operational friendly and easily maintained. The scale and form of the proposed buildings have been designed to be read as a series of smaller developments reducing the impact when seen from the public road.

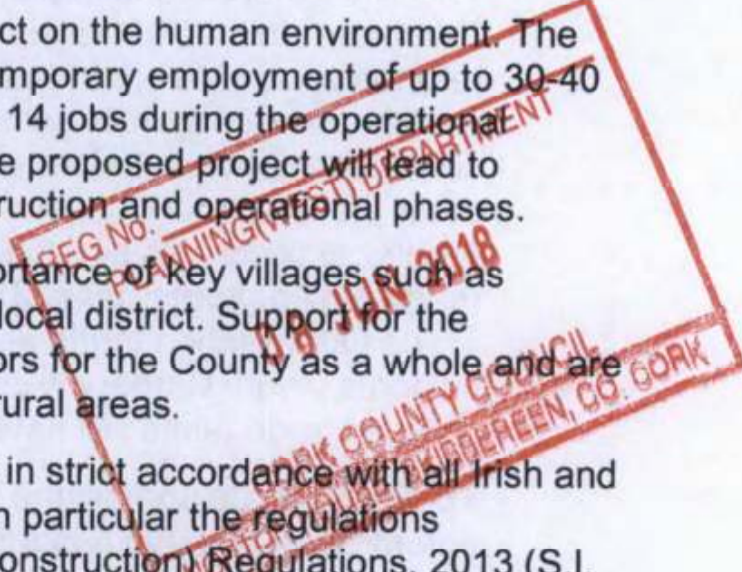
4 Population and Human Health

The likely impacts on the human environment arising from the proposed development are assessed under the headings of local residences and businesses; the wider community; zoning and land use; health and safety; and local amenities and tourism. The impact on human health in terms of air quality and noise are assessed under the respective chapters of the EIAR. An assessment of the risk of major accidents and/or disasters is included as an appendix to the EIAR.

The project is not predicted to have a significant adverse impact on the human environment. The development will have a positive impact in terms of creating temporary employment of up to 30-40 jobs at peak construction and permanent employment of up to 14 jobs during the operational phase. In addition to direct employment it is anticipated that the proposed project will lead to indirect employment via related services during both the construction and operational phases.

The Cork County Development Plan 2014 recognises the importance of key villages such as Ballineen/Enniskeane in terms of employment sources for the local district. Support for the agricultural and food sectors which are important, growth sectors for the County as a whole and are critical to the economy and employment base of the County's rural areas.

The operation of the proposed development will be carried out in strict accordance with all Irish and European regulations governing safety in the work place and in particular the regulations implemented under the Safety, Health and Welfare at Work (Construction) Regulations, 2013 (S.I. No. 291 of 2013) and the Safety, Health and Welfare at Work Act, 2005 during the construction and operational phases, respectively. Due to the nature of the existing facility's operations, it is designated as a lower tier Seveso site under EC (Control of Major Accidents Involving Dangerous Substances) Regulations S.I. 208 of 2015 (COMAH Regulations) and a notification is currently being prepared to the Health & Safety Authority.



5 Landscape and Visual

This chapter assesses the effects of the proposed development on the landscape and visual environment. The proposed development consists of extensions to the existing Carbery milk processing plant, which is a large scale factory in a largely rural landscape.

The landscape and visual effects of the proposed development will be greatest on road users on the R586 Ballineen to Dunmanway road, where there will be localised close range views of the factory. There will be also be medium range (1-4km) views of portions of the proposed building extensions on from the south of the site. These views are within an existing dairy factory within an intensive agricultural and rural landscape. Within this context the landscape has the capacity to absorb the proposed development with minimal impact.

In consultation with Cork County Council a complementary building and landscape layout design have been prepared to minimise the visual effects of the scheme.

The proposed building colour and materials as well as the proposed landscape development will complement and help to integrate the development into the landscape and visual environment.

6 Traffic & Transportation

Trafficwise Ltd. prepared the Traffic and Transport Assessment for the proposed development at the existing Carbery facility. There is no proposed overall increase in the volume of milk received and processed at the plant and no increase in the volume of products accordingly it is unlikely that the development will give rise to significant additional HGV traffic generation over the exiting scenario.

The traffic assessment involves classification and analysis of the performance and carrying capacity of the existing and future receiving road network and determination of the potential incremental impact of additional sources traffic arising directly from increased staff numbers at the proposed development. The traffic assessment includes for reassignment of existing traffic turning movements due to proposed and likely future alterations in the site access regime and evaluates site access performance under existing and forecast future traffic flows. Future traffic flow scenarios are based upon forecasts of traffic generation arising at the proposed development whilst future network traffic flows on the R586 are forecast based upon the application of various published growth factors applied to comprehensive traffic count data recorded at the development and on the adjoining road network.

The proposed development includes physical measures to improve site accessibility (increasing access sight-lines) which improve the character of the adjacent receiving road network and mitigate potential impacts upon road network capacity and safety.

The main existing site access is a priority arrangement augmented with a ghost island right turn lane which facilitates vehicles arriving from the Bandon direction. There is separate priority access to two existing service yards located east of the main access. To the west of the main access is a staff car park egress. Opposite the main car park egress there is an entrance to a separate car park on the southern side of the R586.

Classified turning count surveys and automatic traffic counter surveys on the public road network were undertaken in the vicinity of the site in February 2018. The data is validated against longer term records as representative of typical weekday traffic flows on the road network and typical average traffic generation at the exiting Carbery facility.

The volume of traffic generation arising from the export of products is relatively constant throughout the year. Milk production subject to seasonal fluctuation which gives rise to fluctuations in HGV traffic generation. Such fluctuations are considered in the upper value based traffic assessments.

The detailed capacity assessments show that the potential impact of the proposed development on the adjoining public roads infrastructure during the operational phase is likely not to increase materially from the current regime under existing product mix being manufactured. There is likely to be no increase in HGV traffic generation and the increase arising from staff travel is likely to be

practically imperceptible even to those currently working at the facility. The incremental impact arising from the proposed development will be within normal daily fluctuations in traffic on the network. It follows that the proposed development will have an imperceptible impact upon the capacity of the receiving road environment of the R586. The analyses indicate that under normal average and upper value flow conditions the existing access arrangements have satisfactory capacity to serve the future traffic demands of the existing and proposed development.

The assessments conclude that it is unlikely that the forecast increase in HGV traffic arising during construction will be perceptible by existing drivers on the R586 and further concludes that construction traffic is unlikely to have a material impact upon the carrying capacity of the R586. A Construction Management Plan outlines measures to mitigate against the effects of construction addressing issues such as traffic management, hours of working, delivery times and methods of prevention of noise and dust, reinstatement of damaged roadways, footways and grass verges, and the accommodation of construction and staff parking within the development during the construction period.

The traffic surveys undertaken at the site accesses enable accurate parking accumulation assessments which show that the existing and proposed development has a satisfactory number of parking spaces to provide for demand. Demand for parking during the construction period will be satisfied through the provision of temporary parking within the site or on the applicants lands on the opposite side of the R586.

It is proposed to close the existing entrance to the building at the Cheese Cold Store (centrally located along R586 road frontage). There will be no vehicular access from the building at this point. Vehicles currently using this entrance are predominantly associated with the export of products from the facility. Under the current proposal, existing Cheese Cold Store traffic will be redirected to use the existing Eastern Service Yard which uses the most easterly direct access to R586. Sightlines to the east of the existing service yard access are sub-standard and it is proposed to set-back the existing site boundary wall to the east to facilitate the improvement of visibility sightlines at the entrance. The resulting improved sightline distance is commensurate with a Design Speed equal to the speed limit of 100km/h. The proposed works will effect a corresponding improvement in forward visibility for mainline traffic along the R586.

Visibility sightlines at the existing Main Site Access will be improved in the easterly direction through proposed modifications to the exiting site boundary wall and rails.

With the agreement of the Planning Authority it is proposed to augment or replace the existing advance warning signing on the R586 to provide a standardised advance warning regime to mainline traffic.

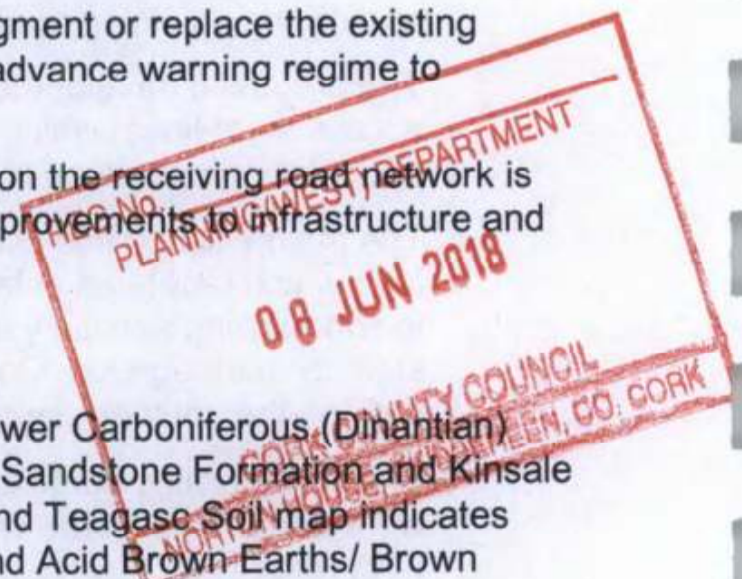
The overall predicted traffic impact of the proposed development on the receiving road network is considered to be short-term positive arising from the proposed improvements to infrastructure and long-term neutral.

7 Soils, Geology and Hydrogeology

The regional geology of the area comprises folded and faulted Lower Carboniferous (Dinantian) sandstones and mudstones, which are divided into the Old Head Sandstone Formation and Kinsale Formation (interbedded sandstones and mudstones). The EPA and Teagasc Soil map indicates that the soils underlying the site comprise primarily of Alluvium and Acid Brown Earths/ Brown Podzolics.

Reference to the Geological Survey Ireland (GSI) National Bedrock Aquifer Map for the site indicates that it is underlain by a 'locally important' bedrock aquifer. There is no gravel aquifer present in the site area. The GSI has classified the majority of the site as High groundwater vulnerability.

The current status of the groundwater under the site is classified as "Good" according to the Water Framework Directive classifications. There are no Source Protection Areas on, or in the immediate vicinity of, the site, according to the GSI national database. A Source Protection Area is a land area that contributes groundwater to a borehole or spring. Condition C.6.2 of the site's Industrial



Emissions Licence (Licence No. P0390-04) requires biannual monitoring of groundwater at the site's 7 licenced monitoring wells to ensure there is no impact from the site on the surrounding groundwater environment. Results indicate there is no history of contamination from the site.

There are no recorded Geological Heritage sites, karst features and recorded mineral sites on or in the vicinity of the site.

The earthworks aspects of the proposed development will include the excavation of approximately 33,000m³ of material to create a level base (to the required formation levels) for the proposed development. A process of "cut and fill" will be employed within the site so that the excavated material will be reused in landscaping and in a berm located along the eastern boundary.

The key potential impacts of the construction phase are as follows:

- Unavoidable soil removal from below the site in localised areas.
- Inappropriate handling and storage and/or spillage of fuels, chemicals and concrete used during construction
- Runoff containing large amounts of silt could migrate vertically and impact on the groundwater quality underlying the site.
- Localised dewatering.

The primary mitigation measures which will be put in place in response to the potential impacts identified above are as follows:

- Excavated material will be retained on site and reused as fill material (if suitable).
- All excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours.
- Oil and fuel storage tanks will be stored in designated areas, and these areas will be bunded.
- Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (where possible) of the site, which will be away from surface water gulleys or drains.
- Concrete will be mixed off-site and imported to the site. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite.

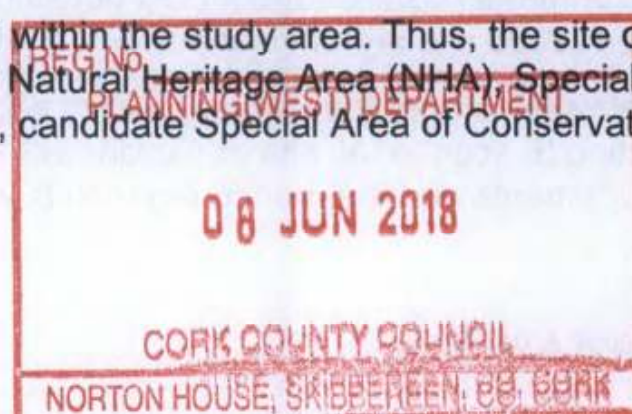
An outline Construction Environmental Management Plan (CEMP) has been prepared for the proposed development and is included as part of this planning application. This CEMP will ensure effective soils and water management during the construction phase. All relevant personnel working on the site will be trained in the implementation of the CEMP. Construction of the proposed development will take place within the current IE licence boundary and as such will be undertaken within current IE Licence requirements.

The site-wide mitigation measures and spill control programme that is proposed in accordance with EPA requirements for licensed activities will apply during the operational phase. This will include on-going bund integrity and drain testing programme, environmental monitoring and management procedures for potentially polluting materials, in accordance with the site's IE Licence.

8 Biodiversity

Dixon Brosnan Environmental Consultants prepared this chapter with respect to the proposed development and its potential impacts on terrestrial and aquatic ecology. Potential impacts on designated Natura 2000 sites are specifically addressed in an AA Screening Report.

There are no environmental designations located within the study area. Thus, the site of the proposed development does not form part of any Natural Heritage Area (NHA), Special Protection Area (SPA), Special Area of Conservation (SAC), candidate Special Area of Conservation (cSAC), Nature Reserve, or National Park.



The proposed development site is located within 15km of a number of designated sites. The closest pNHA is located 5.78km from the proposed development, with eight pNHA's in total within 15 km of the proposed development site.

Given the lack of hydrological connections and/or distances involved no potential impact on pNHAs with the exception of the Bandon valley West of Bandon have been identified. The Bandon valley West of Bandon is located downstream of the proposed development and thus there is a hydrological connection, however given the distance involved (11.98km) and the limited scope for impacts during construction or operation, the impacts on this pNHA will be imperceptible.

The terrestrial and aquatic habitats within or adjacent to the proposed development site was classified using the classification scheme outlined in the Heritage council publication A Guide to Habitats in Ireland (Fossitt, 2000) and cross referenced with Annex 1 Habitats where required. No rare species were noted during the site inspection. Whilst it is acknowledged that the survey took place outside the ideal growing season, the habitats noted on site are common and the presence of rare flora is considered highly improbable.

Most of the site is composed of buildings and artificial surfaces. These man-made structures and artificial surfaces have minimal value for wildlife. No impact on habitats outside the main facility is expected to occur. The proposed development is located within an existing industrial site and will impact directly on an area of hard standing and amenity grassland habitat. The proposed development will result in no increase in emissions to WWTP or to air and no changes to the existing IE licence limits are proposed.

At the primary effluent discharge point the river was recorded at 1m depth and approximately 25m wide at its widest point. The bed of river is characterised by combinations of boulder, cobble and gravels in fast flowing areas, with finer sediments and silt deposits in slower flow areas. The channel morphology is good and the flow type is categorised as a pool-riffle-glide system. Banks are between 0m – 2m in height, and largely composed of earth and stone and undercut in places. Habitats flanking both sides of the river, largely consist of agricultural grassland. There are some riparian treelines to the east and west which do provide shade for the outer margins of the river.

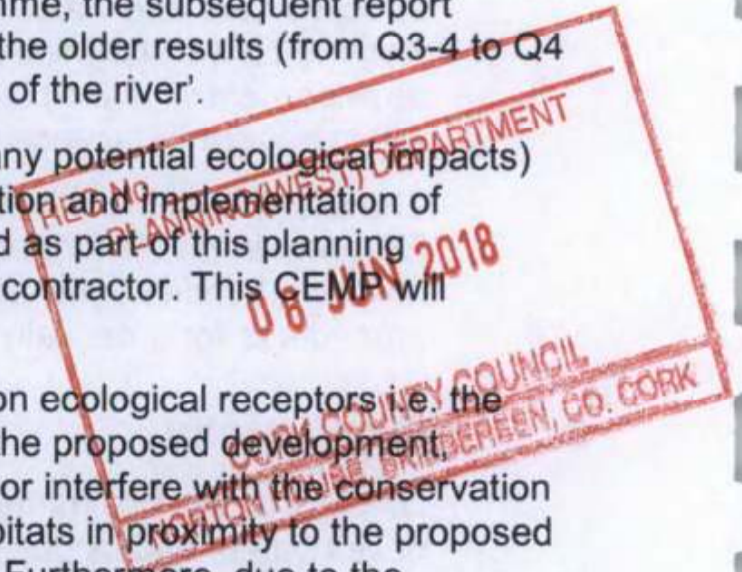
The Environmental Protection Agency carries out a biological assessment of most river channels in the country on a regular basis. The 2004 to 2016 biological monitoring results from the River Bandon indicate that water quality was unpolluted (Q4) at the closest monitoring sites upstream and downstream from the Carbery facility primary discharge. The results indicate that the current discharge from the facility is not significantly impacting on Q values in the Bandon River.

Biological monitoring was also carried out at five sites (one upstream of the facility and four downstream) in 2017 as part of the IE licence monitoring programme, the subsequent report concluded that 'the EPA Q-value for all sites remains identical to the older results (from Q3-4 to Q4 level) and indicates satisfactory condition in the Ballineen section of the river'.

Construction best practice measures (of relevance in respect of any potential ecological impacts) will be implemented throughout the project, including the preparation and implementation of detailed method statements. An outline CEMP has been prepared as part of this planning application. A detailed CEMP will be developed by the appointed contractor. This CEMP will comprise all of the construction mitigation measures.

Given the limited potential for impacts from aqueous discharges on ecological receptors i.e. the Bandon River, during the construction and operational stages of the proposed development, therefore, the development will not impact surface water quality nor interfere with the conservation objectives of the Bandon River SAC. There are no high value habitats in proximity to the proposed works and that the Bandon River SAC is located over 6km away. Furthermore, due to the environmental controls measures detailed within the project plan no significant impacts on this Natura 2000 site are envisaged.

All emissions from the Carbery facility will continue to be regulated under the conditions of the existing IE licence. All site emissions will continue to be monitored in accordance with IE licence requirements and the monitoring results will be reported annually to the EPA.



No adverse impact on designated sites, their qualifying interests or their conservation objectives will occur. Similarly given the distances involved, the scale of development and/or the lack of a hydrological connection no impact on pNHAs has been identified.

9 Noise and Vibration

The primary noise-generating sources during the construction phase will be short-term and intermittent. During the construction phase a variety of items of plant will be in use, such as excavators, lifting equipment, dumper trucks, compressors and generators. A feature of this activity type is the intermittent and highly changeable nature of the sound pressure level and its characteristics. Impulsive-type noise will be limited as far as possible.

It is proposed that the following practices be adopted during the construction phase and included in the construction environmental management plan for the proposed development;

- Machinery and equipment is to be appropriately maintained and operated in accordance with the manufacturer's recommendations and switched off when not in use with preferable selection of plant with lower inherent potential for generation of noise and/or vibration;
- All construction equipment used will be required to comply with the relevant regulations on plant and equipment noise;
- Minimisation of impulsive noise sources and activities, including reduction of material drop heights, minimising hammering activities;
- Keeping all site access roads even so as to mitigate the potential for vibration from HGV movements.
- Establishing channels of communication between the Principal Contractor / Developer and residents.
- Appointing a site representative responsible for matters relating to noise and vibration.

The sound emitting source changes resulting from the proposed development are:

- chilled water plant expansion comprising a new ammonia compressor; and
- new electrical transformers.

All other source changes resulting from the proposal are internal sources, with potential to emit via structural breakout only.

Sound pressure level emissions from the site will be controlled under the existing Industrial Emission licence from the EPA. The site's operational noise levels are expected to comply with the licence boundary limits and significant adverse impacts are not predicted at the noise sensitive locations. Specific operational mitigation measures are, however, as follows:

- Design, procurement and installation of equipment to relevant industry standards (IS, EN etc.);
- Specification of maximum noise limit criteria for equipment in procurement contracts, including the absence of tonal/ impulsive components in external equipment emissions;
- Inspection and maintenance of equipment as part of the site's preventive maintenance programme to ensure continued normal operation and minimisation of any noise issues occurring and;
- Restricting any specific noisy activities which could impact on ambient noise levels (e.g. testing of equipment) to daytime hours only.

With the employment of the mitigation measures as detailed above for operational phase, and given the temporary nature and mitigation measures detailed for the construction phase, it is not expected that the proposed development will have any significant adverse residual noise or vibration impact on the local environment during the construction or operational phases.

10 Waste and Wastewater

This chapter addresses the identification and assessment of any potential impacts on water quality and/or flooding arising from the generation and discharge of effluent / waste water, and/or changes in the volume and characteristics of storm water run-off from the site arising from the proposed development.

The main hydrological feature in the area is the River Bandon, located c. 60m to the south of the site. The site is located 1km downstream of the junction of the River Blackwater and the River Bandon. A local stream also joins the River Bandon to the east of the development.

There is a population of Freshwater Pearl Mussels approximately 4 km upstream of the discharge from the Carbery facility. This population of pearl mussels is not located in a designated freshwater pearl mussel catchment and therefore falls outside the scope of the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009. This population of pearl mussels is also not located within a Special Area of Conservation (SAC).

The existing on-site storm water drainage network currently covers the entire site (including the proposed development location) and collects rainwater runoff from the car park areas and building roofs. Although some modification will be undertaken for the proposed development the overall discharge will be similar to the current storm water discharge in terms of flow and quality. There will also be no increase in water abstraction.

There are currently two storm water emissions points from the site. SW2 which consists of cooling water (originally abstracted from the River Bandon) combined with storm water from clean hard surface areas and SW3 which consists of storm water collected from the car park.

JBA Consulting undertook a detailed Flood Risk Assessment for the proposed development. This report is included as a separate document in the planning application package. This flood risk assessment confirms that the development resides in Flood Zone A and that suitable mitigation measures are installed; as such the development is in line with the core principals of the Guidelines.

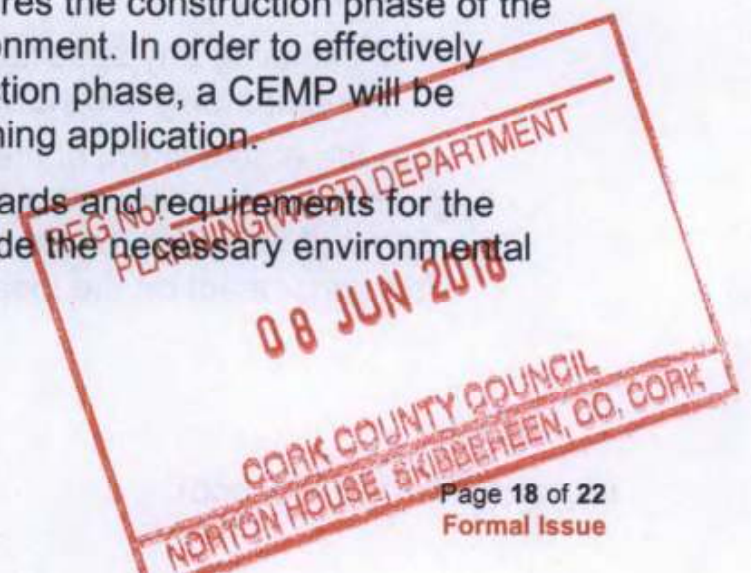
In accordance with Condition 3.9 of the sites IE Licence firewater retention facilities are required to be maintained at the facility, this specific condition was based on a fire water risk assessment and retention study report submitted to the EPA in September 2000. The proposed development will be included under the existing IE Licence thus Condition 3.9 will also apply for the proposed development.

All process and sanitary effluent are treated at the off-site WWTP (under Carberys ownership). Effluent from the alcohol production process undergoes Dissolved Air Flootation (DAF) and anaerobic treatment. This waste water then joins with dairy and factory effluent where it is balanced and split between the aerobic treatment plants, the 'dairy' plant and the 'alcohol' plant. These emission points combine prior to licensed discharge¹ to the Bandon River through an outfall pipe. Denitrification occurs within the waste water treatment plant and phosphorus is removed by chemical precipitation. The existing development currently (June 2018) complies with the requirements of the IE licence in terms of final treated effluent discharge at SW1. The WWTP design capacity is 6,000m³/day and current usage is well within operational capacity. The WWTP will be utilised for the proposed development however no increase in emission limit values is required.

In the absence of adequate management and mitigation measures the construction phase of the development could have an adverse impact on the water environment. In order to effectively manage all potential environmental impacts during the construction phase, a CEMP will be implemented. An outline CEMP is included as part of this planning application.

The CEMP will set out the responsibilities, environmental standards and requirements for the duration of the construction phase of the project. This will include the necessary environmental

¹ Discharge at SW1 licensed under EPA IE Licence No. P0390-04



controls and mitigation measures to prevent/mitigate any potential impact on the water environment.

The following mitigation measures will, at a minimum, be implemented during the construction phase;

- Oil and fuel storage tanks will be stored in designated areas, and these areas will be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area(s) (plus an allowance of 30 mm for rainwater).
- Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (where possible) of the site, which will be away from surface water gulleys or drains
- Concrete will be mixed off-site and imported to the site. The pouring of concrete will take place within a designated area to prevent concrete runoff into the site surface water drainage network. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite.
- Silt traps will be installed on the surface water drainage system for the duration of the construction works.

During the operational phase in the absence of adequate management and mitigation measures the proposed development could have an adverse impact on the water environment in the event of:

- Excessive demand on the on-site WWTP and/or the sewer delivery system
- An uncontained spillage or discharge of domestic/foul, process or utilities waste water
- An uncontained spillage of polluting materials stored and used on site.
- Risks to the quality of the surface water leaving the site relate to the potential for polluting materials to enter the surface water drainage system and be conveyed to the River Bandon.

The site-wide mitigation measures and spill control programme currently in place are part of the existing IE Licence requirements and will apply during the operational phase of the proposed development. This will include on-going bund integrity and drain testing programme, environmental monitoring and management procedures for potentially polluting materials.

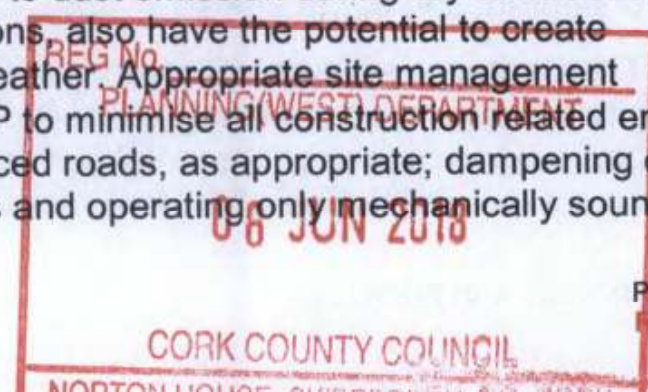
As the proposed wastewater discharge will remain within the limit values defined in the existing IE Licence it can be concluded that the proposed discharge will not cause the limits of the Surface Water Regulations to be exceeded and the effluent discharge associated with the combined discharges included as part of the proposed development will have negligible impact on the River Bandon water quality status.

The existing development currently has a Flood Protection Procedure in place. The procedure will be updated to incorporate the proposed development.

11 Air Quality and Climate

The existing air quality environment has been described with reference to EPA air monitoring data for Ireland. The EPA produces an annual report on air quality, which details the results from monitoring stations throughout the various Air Quality Zones within Ireland. The proposed development site is within Air Quality Zone D: Rural Ireland. Air quality in the area is good when compared against air quality standards set out in Irish and European Law.

The construction phase of the proposed expansion will involve excavation and earthmoving activities, existing concrete/tarmac surface breaking along with the temporary stockpiling of excavated materials. These activities could give rise to dust emission during dry conditions. Construction vehicles, in addition to exhaust emissions, also have the potential to create occasional dust emissions, particularly during dry weather. Appropriate site management procedures will be implemented as part of the CEMP to minimise all construction related emissions to air. These will include the sweeping of hard-surfaced roads, as appropriate; dampening of site roads as necessary; vehicle wheel-washing facilities and operating only mechanically sound



vehicles that are switched off when not in use. These mitigation measures, will lead to a low residual impact of dust emissions due to construction activities.

There are no new main or boiler emission points to air associated with the proposed development. The site's existing boilers and CHP plant will supply plant steam to the proposed cheese manufacturing equipment. The increase in plant steam usage is expected to be minor as the new cheese plant will involve diversification of existing milk intake. The existing boilers and CHP plant emit carbon monoxide, carbon dioxide, sulphur dioxide and nitrogen oxides to air, which are controlled and monitored under the site's IE license. Also associated with the existing site are four main IE Licensed emission points to air from the site's existing dryers, which emit particulates. Minor emissions to air from the proposed development include, when operational, vents from process vessels, which contain milk, cream and whey along with operating and breathing losses from CIP vessels.

Air dispersion modelling confirmed that atmospheric emissions from the existing facility will not result in ground level concentrations of nitrogen dioxide, sulphur dioxide, or particulates exceeding the relevant air quality standards for the protection of human health and the environment. Therefore it is predicted that the impact to ambient air quality and climate change from the proposed expansion will be negative, long-term imperceptible.

12 Waste Management

A review of the current operational wastes types generated from the existing facility was undertaken. This data was used to estimate waste types that will be generated from the operational phase of the proposed development. In addition cognisance is taken of National Waste Policies and Strategies, Codes of Practice and Guidelines, Southern Region Waste Management Plan 2015-2021 and Cork County Development Plan 2014 in relation to construction and operational waste management requirements.

The overall construction phase will take place over a period of approximately 17 months and will typically result in the generation of a range of waste materials including excavated material, rubble, steel, metal decking, cladding, insulation materials, timber, plastics, cardboard packaging, office waste, canteen waste, and small quantities of hazardous waste (e.g. resins, adhesives, waste oils and paint containers).

It has been established that approximately 33,000m³ of excavated material will be generated and will be reused on site within the proposed new landscaped berm.

A site specific CEMP will be implemented for the proposed development and will include a Construction & Demolition Waste Management Plan (C&D WMP) in accordance with Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects, 2006 by the then Department of Environment, Climate and Local Government. An outline CEMP is included as part of the planning application. In the event that planning permission is granted the outline CEMP will be updated prior to commencement of construction when the contractor is appointed.

Anticipated non-hazardous wastes are similar to the existing facility will include a range of wastes such as mixed and plastic packaging, paper and cardboard packaging, WWTP sludge, biodegradable canteen and kitchen waste, general non-hazardous waste (e.g. wooden pallets, scrap metal, etc.) and mixed municipal waste. Where possible these wastes will be sent off site for re-use, recycling or recovery. As part of the Origin Green initiative Carbery has committed to a reduction of waste to landfill per unit product output by 15% from 2016 levels

As part of the proposed development, the central waste storage area will remain at the same location to provide both for increasing level of waste materials and to provide for enhanced levels of segregation of materials.

The Carbery Facility is licensed by the EPA under the Industrial Emissions licensing system. The site's Environmental Management Programme (EMP), an IE Licence requirement, ensures that improvements in environmental performance are encouraged in the EMP by setting a series of objectives and targets commonly associated with reducing and minimising resource/material use

and waste production generally. A summary of these objective and targets are submitted to the EPA annually within the site's Annual Environmental Report (AER). All wastes leaving the site are tracked and controlled and only removed by permitted operators/facilities in accordance with IE licence requirements.

13 Material Assets

The material assets, which have been identified as being within and adjacent to the site and which may be directly affected by the proposed development, are addressed in terms of existing environment, potential impacts of the proposed expansion and mitigation measures.

In consultation with all the relevant utility providers it was confirmed that there are sufficient supplies of electricity and telecommunications services available to serve the requirements of the construction and operational phases of the proposed development.

The proposed development is being designed to incorporate the following resource efficiency and sustainable measures:

- The site proposes to use clean natural gas fuel only for steam generation.
- 10% of gas requirements on site are generated from onsite anaerobic digestion plant which generates 100% renewable biogas for use on site. Ultimately Carbery is planning on ensuring that the Ballineen facility will be carbon neutral in the not too distant future, therefore decarbonisation of the natural gas utilised will be critical to achieving that goal.
- As of June 2018 all electricity procured and imported to the Ballineen facility will be 100% renewable in-keeping with Carbery's Green Procurement Policy.

The overall predicted impact of the proposed expansion on material assets is considered to be long-term neutral.

14 Archaeology, Architectural Heritage & Cultural Heritage

The study area is located in the townland of Dromidclogh West, Parish of Kinneigh and Barony of Carbury, 1.6km west of Ballineen. The surrounding landscape is characterised by fertile agricultural land fed by the River Bandon which flows c. 60m to the south. The site lies at c. 140m OD with the ground rising steeply to the north. There are no recorded monuments located within the proposed development area, although 11 are located within a 1km radius. The nearest of these comprises a country house (CO108-018002), ringfort (CO108-018001) and standing stone (CO108-036) located c. 375–455m to the north and southeast.

The existing plant is situated within the former parkland associated with Carrimore House and although much of the original demesne character has been altered in this area the main house (protected structure no. 00694) is present c. 130m to the west. The house and stables are well screened by dense tree cover and vegetation and are only partially visible from the site. The historic 1840 OS map shows the former avenue for Carrimore House crossing the western half of site and the eastern perimeter is under woodland. By the turn of the 20th century a gate lodge has been erected on the roadway, within the site boundary, although there is no remains of this building now. The site is substantially built up since the mid-20th century the entire site has been subject to some form of ground works or landscaping. The current landscape does not retain any elements of archaeological, cultural or built heritage potential.

There are no recorded monuments or sites of archaeological potential recorded within the proposed development area. Given that the site has been subject to large scale disturbance and development, no negative impacts are predicted upon the archaeological resource as a result of the proposed development going ahead. No mitigation measures are deemed applicable.

No negative impacts are predicted upon the cultural heritage resource as a result of the proposed development going ahead. No mitigation measures are deemed applicable.

There are no predicted cumulative impacts on the archaeological, architectural or cultural heritage resource caused by the surrounding proposed developments.

15 Interactions and Cumulative Impacts

The introduction section of each chapter in the EIAR highlights the interactions with the other chapters such as the interaction of traffic with noise or air quality or the excavation and movement of soil and interaction with biodiversity and surface water environment. It is concluded that there are no significant interactive impacts identified for any environmental media. This conclusion is based on the nature of the proposed development and the successful implementation of all construction and operational mitigation measures detailed within each chapter of the EIAR.

The potential cumulative impacts between the various environmental media examined during the EIA and the different stages of both the construction and the operational phases have been examined where relevant in the individual chapters of the EIAR.

Chapters 4-14 of the EIAR contain specific sections on the cumulative impacts associated with each environmental topic.

The nearest development with the greatest potential to cumulatively add to the potential emissions associated with the construction phase of the proposed development (proposed 5MW Solar Farm development by Amarenco Solar Ltd. (Cork County Council Planning Application No. 17724)) has outlined mitigation measures in its planning documentation to minimise emissions to air during the respective construction phases. No potential cumulative impacts to the environment are anticipated as a result of these mitigation measures taken together with the mitigation measures outlined in the EIAR. Solar developments are inherently low noise impact and there is no cumulative operational impact expected.

The main cumulative impact of the proposed development on the local population will be a positive economic and employment effect, contributing to the local economy.

A number of indirect cumulative impacts are likely to arise e.g. the proposed development will mitigate against the worst effects of "Brexit", thereby protecting the on-going viability of Carbery, its 250 employees, the 1300 farming families enterprises that support it along with the spin-off employment in the local economy.

Based on the implementation of the CEMP and all mitigation measures outlined in the EIAR, there are no significant residual impacts foreseen.

The potential for cumulative impacts as a result of emissions during the operational phase of the proposed development and other development proposals has been assessed. No significant impacts are considered likely to occur.

