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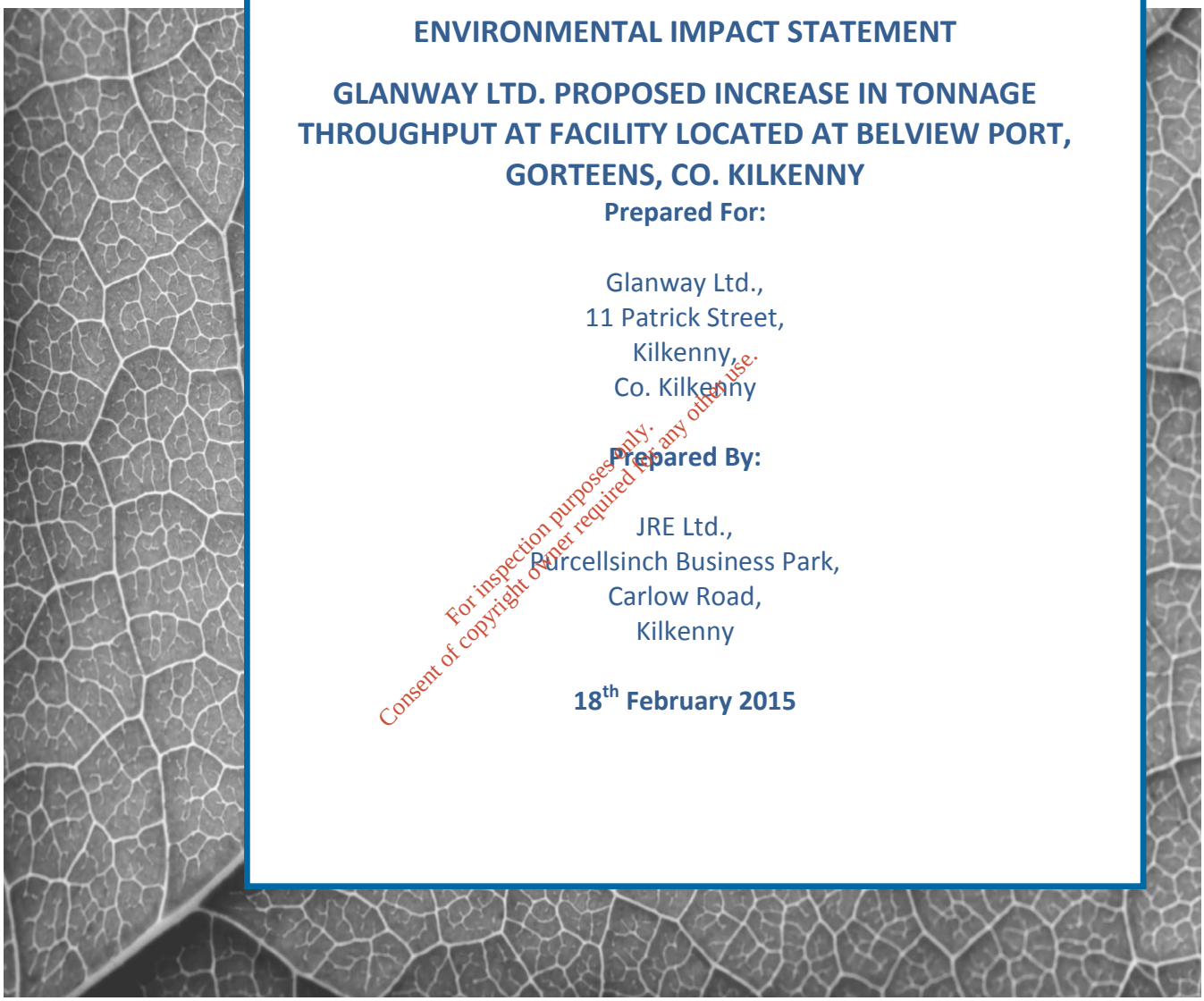

ENVIRONMENTAL IMPACT STATEMENT

GLANWAY LTD. PROPOSED INCREASE IN TONNAGE THROUGHPUT AT FACILITY LOCATED AT BELVIEW PORT, GORTEENS, CO. KILKENNY

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NON TECHNICAL SUMMARY

Introduction

This Environmental Impact Statement (EIS) was prepared for an increase in tonnage throughput at the existing waste baling facility operated by Glanway Ltd. (Glanway) at Belview Port, Co. Kilkenny. The facility is currently permitted by Kilkenny County Council (WFP-KK-14-0002-01) to bale up to 20,000 tonnes per annum for permitted municipal solid waste. Mixed municipal waste material (EWC Codes 19 12 10, 20 03 01 and 19 12 12) is delivered to the facility and baled for use as refuse derived fuel (RDF). The baled material is temporarily stored in the process shed and then shipped under Transfrontier Shipment of Waste requirements set out in Waste Management (Shipments of Waste) Regulations, S.I. 419 of 2007 from Belview Port for use as a fuel substitute at a combined heat and power facility in Europe which meets the requirements of the Waste Incineration Directive.

Overview of Glanway Ltd.

Glanway Ltd. is an Irish owned business that has been in operation since March 2014. The company currently operates a waste baling facility under a County Council waste permit for materials recovery and waste management. The company currently only has two waste management facilities (baling shed and quayside storage area for baled material), both located at Belview Port, Co. Kilkenny. The facility provides an alternative to landfill for waste companies operating in the southeast region and beyond and provides for recovery rather than disposal of those waste materials. The location of the existing facility in relation to the surrounding regional setting is shown on Figure 1.1.

The company's customer base encompasses waste collection companies collecting non-hazardous domestic and commercial waste in the southeast region and beyond. Current company operations are limited and involve only 4 staff (2 full-time and 2 part-time) managing and operating the facility. It is Glanway's objective to provide a Regional Recovery Facility for waste materials collected in the southeast region and beyond and to do that with respect to the surrounding environment and the best available technologies that can practicably be employed at the facility. The company's Headquarters are at 11 Patrick Street, Kilkenny.

Existing Site

The site is located in Belview Port industrial area at the terminus of the N29 national road and approximately 4km east of Waterford City. The facility has been operational since July 2014 and the process shed building (i.e., Building 5) operates under planning permission (P.11/397 and Ref. 12416) granted for Building 5 by Kilkenny Co. Co. which allows for bagging of materials up to 20,000 tonnes per annum. The existing facility consists of Buildings 4 and 5 (each with a floor area of 1,867 m^2). Buildings

4 and 5 are a steel portal frame design featuring 6.5m high reinforced concrete walls at the building base and dark grey galvanised steel purlins on a structural steel portal frame. The apex of the roof in each building is 15.7m above ground level. The facility is inside a security fenced area within Belview Port and internal access roads and yards exist to the east and southeast. To the south and north of the facility are similar constructed sheds for the storage of bulk port related goods (e.g., fertilizers and biomass).

Staff welfare (i.e., toilets, wash facilities and canteen) are currently located in a temporary site portakabin structure located immediately east of Building 5 while construction work is ongoing to neighbouring warehouses.

Waste deliveries enter Building 5 through a roller door located on the northern façade, trucks have adequate space to turn and then reverse into Building 5. The roller doors are only open when a delivery is taking place and the doors are closed immediately after a truck enters or leaves Building 5.
All trucks using the Glanway facility are weighed in and out on the main Belview Port weighbridge at the Port entrance. The buildings have no mains water connection and all water used inside Building 5 for odour control mist sprays is brought into the building in intermediate bulk containers (IBC). Welfare facilities (i.e., washing, toilets and canteen) are provided in a temporary portakabin structure and portaloo located immediately to the east of Building 5. Waste water from welfare facilities is emptied to the Port sewer system that discharges to the Waterford City Waste Water Treatment Plant. Facility offices are located in a newly constructed two storey office building located approximately 80m north of Building 5. The yard outside Buildings 4 and 5 are concrete and rainwater from the yard and building roofs is directed to the Port surface water drainage system located east of the facility and then runs northeast along the quayside to a surface water settlement tank via a petrol interceptor. The floor of Building 5 is an impermeable concrete surface and there are no releases to sewer or surface water from inside Building 5.

<u>Waste Baling Operations</u>

Building 5 is used to receive and process (i.e., bale) municipal solid waste into refuse derived fuel (RDF). There are also areas within Building 5 (approximately 1,350 m^2) designated for temporary storage of finished bales prior to shipment. The trucks delivering the waste material to the facility tip onto the facility floor at the reception area which is an area of approximately 180 m^2 within the process building and immediately adjacent to the baler feed hopper. The material is then fed into the baler feed hopper using a front end loader and is transferred along a conveyor to the Flexus baling system.

When on the conveyor, the waste is sprayed with an AquaClean ACF32 (AquClean) bacteria solution to help reduce potential odour and potency of any leachate produced. The Aquaclean solution is applied through a nozzle applicator connected to the baler feed system (i.e., between the hopper and baler). Details of the Aquaclean solution are provided in Attachment B.5. The waste is then compacted, shaped

and wrapped with 6 to 10 wraps of polythene with a 50% overlap to ensure full encapsulation of the waste. Each wrapped bale is approximately (1.2m diameter and 1.4m wide) and weighs approximately 1 tonne. The bales are then removed from the conveyor system by front loader grab and transferred to one of two temporary storage areas within Building 5 that can store up to 5,000 tonnes of bales safely at any one time.

The existing facility also includes a waste quarantine area for the removal of non-acceptable waste types that may be found in deliveries to the facility. Forty eight (48) DAX Airscience Maxi Thermal MT 1500 odour abatement system units are in place inside the process shed to control odours and bio-aerosols. The MT 1500 process uses the latest in thermal convection and U/V technology to kill up to 98% of pathogens in the air and on surfaces (see Chapter 10 and Attachment B.6 for further details on the DAX unit). The Flexus baling system currently in use in Building 5 has the capacity to bale a maximum of 25 tonnes per hour. However, based on the restricted tonnage throughput currently imposed by the waste permit for the facility it operates at approximately 3-4 tonnes per hour. Details of the Flexus Baling system are provided in Attachment B.4.

Four (4) people are currently employed at the facility comprising of equipment operators, general operatives, a Facility Manager and administrative staff. The current operational hours at the facility are 08:00 to 18:00 Monday to Friday and 08:00 to 13:00 on Saturdays.

Surrounding Land Use

The Glanway facility and most of the surrounding lands have been developed for industrial and commercial use. The facility is located in Buildings 4 and 5 in a series of seven commercial/industrial sheds concerned with Port related activities. To the south of Buildings 4 and 5 are three identical structures used for the bulk storage of fertilizers, biomass and animal feed. Further to the south and southeast is the O' Brien's Quay section of Belview Port used for loading and unloading bulk cargo and an industrial cement facility. To the east of the Buildings is a CIE railway line and then the Belview Port container shipping area where bulk containers are loaded and unloaded 24 hours per day, seven days per week.

To the north of Buildings 4 and 5 are newly constructed Buildings 6 and 7, beyond 6 and 7 is a carpark area, maintenance workshop, new office buildings and then the N29 National Primary Road and the entrance to Belview Port. Further north of the N29 are commercial storage buildings and other industrial facilities including Smartply. To the west of the facility buildings is agricultural land, mainly tillage and improved grasslands. The closest private residence to the facility is located 390m to the west and upwind (based on a southwest prevailing wind) of the facility. There are 2 private residences within a 500m radius of the facility and both are perceived upwind of the site.

Proposed Development

Glanway propose to increase the throughput of material at the baling facility in Building 5 to 300 tonnes per day (not exceeding 95,000 tonnes per annum) and to apply to the Environmental Protection Agency for an Industrial Emissions Licence to regulate the facility. The future licenced area will change from the current permit area (which includes Buildings 4 and 5) to include Buildings 5 and 6. The reasoning for including Building 6 into the facility footprint is to allow continued use of the roller door entrance on the northern façade of Building 5. Trucks will enter Building 6 and complete a turn manoeuvre within the eastern half of the Building to allow it to reverse into Building 5 for unloading. The eastern half of Building 6 will be kept clear to allow for free movement and a safe turning circle for access to Building 5. The western half of Building 6 will be used for storage purposes. It will be split with a dividing wall to allow potential storage of different materials (e.g., baled waste on one side and biomass on the other). It will be ensured that any bulk material that may be impacted by its storage in close proximity to the baled waste material (e.g., animal feed) will not be permitted.

It is envisaged that future operation of the facility will accept waste directly from waste collectors including from bin trucks, skip trucks, etc. it will also include new physical process lines for received waste material prior to baling. The proposed physical processing will include; bag shredding, magnets to separate ferrous and non-ferrous metals for recycling and trommelling, to remove the organic fines component of the waste. The screened organic fines material will be removed from site in enclosed trailers for aerobic stabilisation at an approved permitted or licensed facility. The removal of the organic fines component of the waste will reduce the moisture content of the baled material and improve the calorific value and quality of the fuel substitute product being shipped. The increased processing capability of the facility will allow the facility deal with a greater range of wastes such as bulky waste and skip waste improving the facilities capability to service the Greater South East Regions waste needs. The current hours for accepting waste at the facility under the existing waste permit are between 08:00 and 18:00 Monday to Friday and between 08:00 and 13:00 on Saturdays. Due to customer demands and changes to the collection patterns of their customers Glanway would propose to operate on a 24 hour basis based on the fact that the Port is also operational on a 24 hour basis and would not result in any added noise nuisance to neighbours. The increased flexibility in reception hours will allow for deliveries during off peak hours and spread out traffic using the facility over a longer period.

The increased throughput at Building 5 will allow for more frequent shipments of baled material from the facility and reduce the storage time for bales in the buildings and the potential for reduced environmental impact through the constant movement and export of material from the facility.

The proposed development will not include any construction works or extensions to the existing Buildings 5 and 6 and as such the potential environmental impact from construction works have not been included as part of the EIA study.

This Environmental Impact Statement (EIS) was prepared in order to investigate the potential environmental impacts based on increased tonnage throughput of waste material and the future introduction of limited physical treatment at the existing Glanway Ltd. facility located at Belview Port, Co. Kilkenny.

The facility is situated in an area of existing industrial development and in an area zoned for "Development of Port Facilities and Industry" under the Ferrybank / Belview Local Area Plan- 2009. The site area slightly slopes from west (6 m OD elevation at rear of facility sheds) to east (3.25 m OD elevation at quatside) towards the Port area and the Upper Suir estuary. The development is located just outside the Suir Estuary SAC. To the north are storage premises related to port activities and to the south is O'Briens Quay, a cement works and beyond that the Belview waste water treatment plant approximately 1km south of the facility. The existing hedgerows directly west of the facility buildings and the identical storage sheds constructed either side of the process facility ensure that the facility does not aesthetically impact the existing area as it is part of the existing port infrastructure.

Planning Policy & Context

Belview is situated approximately 5 Km from Waterford City and 60 Km from Kilkenny City, and incorporates 265 ha of zoned land, including the IDA land bank, the Marine Point Business Park and Belview Port. Belview Port is the nearest deep water Irish port to mainland Europe. Two thirds of the Irish domestic market lies within a 160 Km radius of Belview, with direct access to the national rail network.

Belview is situated in Co. Kilkenny and planning permission applications are administered by Kilkenny County Council. However, its close proximity to Waterford City and its environs mean that it also comes under the aegis of the Waterford County Development Plan and specifically the Ferrybank – Belview Local Area Plan (2009). The Glanway facility is located in Belview Port at the terminus of the N29 national road.

In January, 2012, Suir Shipping received planning permission (Ref. 11/397) to construct five bulk storage sheds for storage of Port Related Goods and in November 2012 planning was granted (Ref. 12416) for carrying out bagging of port related goods in building 5. In January, 2014 Glanway Ltd. met with the local planning authority to discuss the potential for using Buildings 4 and 5 for the baling and temporary storage of RDF material. The planning associated with building 5 included for bagging operations for up to 20,000 tonnes of port related goods per year and bagging operations was deemed to include wrapping and packaging port related goods. Because the final baled RDF material was being shipped from Belview Port it was deemed to be a Port Related Good. A planners report was completed in 2014 outlining the planning restrictions for operations in Buildings 4 and 5 and a copy of the planners report is included in Attachment A.3.

In 2014, planning permission was also sought for the construction of two additional storage sheds (Buildings 6 and 7). Planning permission was granted for the construction of the sheds in August 2014 (Ref. 13585). A copy of the planning report for Buildings 6 and 7 are also included in Attachment A.3.

In 2006 the local authorities of Carlow County, Kilkenny County, Waterford City and County, Wexford County, and South Tipperary County prepared a Joint Waste Management Plan for the South East (JWMPSE) as a joint approach for the following:

- Promote waste prevention and minimisation through source reduction, producer responsibility and public awareness.
- Provide a management plan for the recovery/recycling/disposal of waste arisings on a regional basis.

Section 3.4 of the JWMPSE assessed the planning and location of waste management facilities and it determined that it was important "*To provide adequately for waste management facilities, notwithstanding the zoning of land for the use solely or primarily of particular areas for particular purposes in development plans, or the absence of zoning provisions, approval for waste management facilities necessary for the proper implementation of the Plan shall be considered open for consideration in all areas*".

Section 7.4 of the JWMPSE set out proposals for energy recovery from waste as outlined in Table 7.6 of the policy as outlined below:

- support for an promotion of thermal treatment with energy recovery either for electricity generation or combined heat and power;
- support for and promotion of generation of refuse-derived fuel (RDF); and
- an integrated waste facility incorporating thermal treatment and energy recovery

Section 10.1.2 of the JWMPSE indicated that when the environmental burdens associated with the different waste management scenarios are examined for local impacts, options containing thermal treatment are preferred. In all environmental impact categories examined in the JWMPSE , the thermal treatment options resulted in avoided environmental burdens.

The inclusion of transport emission data and the recycling targets sensitivity analysis performed did not alter the ranking of the options. In scenario 3 of the conclusions in the JWMPSE, "*thermal treatment with ash and non-combustibles to landfill is the preferred option from an environmental prospective. Accordingly, it should form part of the integrated waste management approach (operating to Best Available Technology) and it is envisaged that residual waste collected in the Region would be directed to such a thermal treatment solution in order to ensure the viability of this integrated waste management approach in accordance with the policy set out in section 11.5"* of the JWMPSE.

The requirements of the JWMPSE indicated the need for thermal treatment and support for recovery of waste as RDF. It is considered that the proposed development fits well with the current and future requirements of the JWMPSE.

Need For the Development

Glanway's decision to increase the tonnage throughput at their existing facility is based on the need to meet market demands for waste recovery in the south east region and to meet the Joint Waste Management Plan for the South East and National Waste Management Policy to improve the quality of the fuel substitute product being shipped through the removal of ferrous and non-ferrous metals for recycling and the removal of organic fines from the waste stream for subsequent off site removal to a permitted or licensed biological treatment facility for stabilisation. The implementation of increased physical processing of the waste materials will allow for an improved recovered fuel product as well as recycling of metals.

The close proximity of the baling facility to the shipping port (i.e., 200-300m from quayside) reduces the requirement for double handling of materials from other baling facilities that may be located a further distance from the point of dispatch. This will reduce fuel costs and greenhouse gas emissions that would be produced from increased transportation of baled materials. It will also reduce the amount of waste being stored in and transported through heavily populated areas.

The provision of a waste recovery option within the southeast is an integral part of the Southeast Regional Waste Management Plan and its policy is to maximise recovery and minimise disposal.

The existing baling facility is suited for the pre-processing and recovery of mixed waste materials for the following reasons:

- There is an excellent road network connecting the facility to Waterford, Kilkenny and New Ross areas through National Primary routes (N25 and N29) and the M9 Motorway.
- The facility is located in an industrial setting and is not close to domestic sensitive receptors;
- The activities are compatible with existing operations taking place in the area (and is supported by the Port and many local business in the Port);
- The facility is located in very close proximity to the shipping area at Belview Port;
- The facility is a closed system with an impermeable concrete floor and no internal sewer or surface water connections. Any leaks or spillages that take place within the building cannot leave the building and will help protect the sensitive environmental receptors in the area.

If the project were not to proceed then it would result in the extended transportation of waste material from the greater Waterford area and the southeast region to other processing facilities or to landfill. Glanway would not be able to provide the level of service and support the current and anticipated market demands past 2015 and would not be competitive in the marketplace.

If this development were not to proceed for the increase in tonnage throughput , then it is likely that, ultimately, the facility would not be viable with the loss of a crucial infrastructural requirement for the area and loss of employment.

Environmental Controls

Because the material accepted at the facility is mixed municipal waste it has the potential to be odorous and attract vermin. Glanway have employed the services of a vermin control contractor to ensure that vermin control measures are in place and maintained on an ongoing basis a record of these inspections and any subsequent actions is maintained by the contractor and kept by Glanway on site. There are also routine inspections made by site staff for the presence of flies or vermin. Glanway strive to ensure that any accepted waste spends a minimal amount of time on the reception area floor and is baled and wrapped as soon as possible. This aids in reducing attractants and reduces vermin issues.

To control odours within the facility building and to control odour impacts on the surrounding area all waste loads are transported to the facility in enclosed trailers. The facility has employed a number of odour control measures within the facility building to control nuisance odours, including;

- Installation of DAX Odour control system
- Application of AquaClean Solution to waste as its being baled
- Installation of Odour control spray systems at the entry/exit door and at the extract fan
- Completion of regular sniff tests as part of daily site observations and consultation with neighbours on any odour impacts they experience

DAX Maxi Thermal (NT1500)

The MT1500 unit takes in contaminated air and purifies it using a unique dual lamp system. The dual ultraviolet light operates at the peak UVC wavelengths. One lamp makes ozone (O_3) and the second lamp coverts the ozone to hydroxyl radicals (OH) short-lived but powerful destroyers of the DNA of airborne pathogens. Specialist thermal convection smoothly moves air through the unit, and distribution of air over the dual lamp is controlled to increase exposure to the UV light providing maximum pathogen destruction both internally and around the internal space environment. Forty eight (48) MT1500 units are in place throughout the process building (building 5) and are continuously operating to reduce odours at source rather than treating them externally.

Application of AquaClean Solution to Baled Waste

A spray system has been retrofitted to the conveyor of the baling system to apply AquaClean solution to the waste prior to baling. AquaClean is a bactreia based solution which is non-toxic and biodegradeable, see Attachment B.5. When waste is baled, depending on pre-treatment, there are ranging levels of

residual organics left in the bale. Organics decompose in two ways: aerobically and anaerobically, the latter being highly odourous with the generation of sulphurous and ammonia gasses in particular. In baled waste, the wrapping seals out the air making the environment inside the bale anaerobic. The handling of the bale with bale clamps, further treats the bales like sponges, forcing the liquid (leachate) out of the matrix and to the bottom of the bale. The handling of baled waste therefore has two distinct challenges – the generation of odour and pooling of leachate (which is also odorous) which the AquaClean solution helps to considerably improve.

The addition of AquaClean™ bacteria helps prevent these problems in two ways:

Leachate: The bacteria break down the organics (BOD, Nitrogen and Phospherous) anaerobically as follows:
BOD + N + P CH4 + H2S + CO2 + Cells [CH4 being methane, H2S is Hydrogen sulphide]
As bacteria cells are 85% water the water is retained in the cell mass rather than released as leachate.

Odour Prevention: With the right diversity of bacteria the generation of malodourous sulphur compounds and ammonia can be significantly reduced. There are various sulphur and non-sulphur purple bacteria in AquaClean™ and trial bales assessed by the manufacturer have shown a significant change in the noticeable odour.

This is discussed further in Chapter 10 of the EIS.

Application of Nova-Q Hydrodor XC Solution in Mist Units Located on Roller door and Extract Fan

A spray bar system has been fitted to the sides and top of the entrance / exit door and the extract fan of Building 5 to control odour and dust emissions from the facility building. The application of the Nova-Q Hydrodor XC odour neutralising solution takes place during the entrance and exit of each truck delivering waste material to the facility building. The atomized odour neutralising spray is set to automatically switch on when the roller door is opened and it provides a mist curtain in the doorway to minimise the release of odour during material delivery and exit of empty trucks from the building.

Site Checks

Glanway personnel are pro-active in completing daily checks around the facility and liaising with neighbouring businesses on whether an odour issue is being experienced. Where an odour issue has been identified it is dealt with as soon as possible by implementing or assessing the effectiveness of aspects of the odour control mechanisms in place at the facility.

Existing Environment & Potential Impacts & Mitigation

Human Beings

The likely impacts on the human environment from the proposed development were assessed. Analysis of the effect of the proposed development on the human environment was completed in compliance with the requirements of "Guidelines on the Information to be contained in Environmental Impact Statements" (EPA, 2002) and "Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)" (EPA, 2003). Relevant information has been obtained from public bodies with regard to planning and development context, employment statistics, demographic statistics and community aspects. The primary bodies concerned were the Central Statistics Office (CSO), Waterford City Council and Kilkenny County Council.

The operation of the development with a higher throughput will result in the continued use of the existing shed buildings within the Belview Port area. The area and immediate environs will still be mainly industrial with bulk storage and Port Related activities to the south east and north and agriculture to the west. The development will result in the continuation of existing activity at the site building and will not have an impact on existing land use in the area. The operation of the development is predicted not to have any significant impact on the land use of the surrounding areas, be it for agricultural, commercial or residential purposes.

The proposed development will directly employ approximately 4 personnel in the short-term with an extension of operations increasing that number to 9 and will have a further positive impact on the local economy and employment in the area through increased throughput at the Port of Waterford that will result in the continued employment of port workers and the hauliers employed to deliver the waste material to the facility as well as other local businesses.

The operation of the facility must be carried out in accordance with good practice and Best Available Techniques (BAT) guidelines to ensure proposer operational controls and health and safety standards. Emissions from the development may include ambient odour emissions from open facility doors during the reception of waste and when trucks exit the facility building. There may also be some noise emissions from the facility operations but are not considered significant in the context of the facility setting (i.e., surrounded by port related operations with higher potential noise impacts than the facility operation within the process building). All discharges from the plant will comply with the relevant regulatory limits designed for the protection of human health and the environment.

There are no existing amenities in the immediate area of the proposed development and the proposed development will be located in existing buildings in an existing industrial area and will not have any impact on amenity in the area.

The N29 National Road already takes traffic to Belview Port and any increase in traffic volumes will be limited to that National Road route which is already used by Port traffic 24 hours per day, seven days per week. The new facility will add to the current traffic volume but is not expected to have any increased impact on the current tranquillity in the area or on approach to the facility.

Flora & Fauna

The ecological interests in the area of the proposed development at Belview Port, Co. Kilkenny were assessed to evaluate the likely impacts and, where necessary, determine mitigation measures to lessen any impacts on ecological receptors in the area. The aims of the ecological impact assessment were to:

- Establish baseline ecological data for the development site
- Determine the ecological value of the identified ecological features
- Assess the impact of the proposed development on ecological features of value
- Apply mitigation measures to avoid, reduce, remedy or compensate impacts
- Identify any residual impacts after mitigation

An Appropriate Assessment Screening was carried out by Ecofacts for the initial site permit submission to Kilkenny Co. Co. in April 2014. Copies of the Appropriate Assessment Screening report is included in Attachment F.1.

The site assessment found that the main habitat type in the immediate vicinity of the proposed development was 'Buildings and Artificial Surfaces (BL3)'. The area to the south and north of the facility consist of similar shed constructions to the facility itself. The area also has a concrete paved internal road running from the Port entrance to the shed units. To the south of the internal road is a railway line and then Belview Port quayside facility which consists of hard standing surface and does not support any habitats of importance. Artificial surfaces dominate the area around the facility. A habitat map, designated site map, is included in Attachment F.4.

Due to the fact that the facility already exists and operates, and is not impacting on sensitive ecological receptors due to the closed operations system in place whereby no leachate or excessive noise is released from the facility building it is not considered that the continued use of the facility will have a high potential for impact.

The facility and the majority of the surrounding area is developed with either buildings or hard standing surfaces which support little or no significant habitat for flora and fauna. The hedgerow and improved grasslands to the west have the potential to provide resources for mammals, birds or invertebrates but it is not considered that the continued use of the Glanway facility will have any negative impact in those areas. The facility location is close to the lower Suir Special Area of Conservation (SAC). However, due to

the building design (concrete floor and no discharge from the facility to sewer or surface water) and the operations mitigation measures currently in place at the facility, it is considered that any impacts on the SAC would be negligible.

Water

The existing water environment in the vicinity of the Glanway facility (i.e., surface water and groundwater) and the potential impacts and mitigation measures were assessed as part of the Water Chapter in the EIS. The assessment of waters at the site was completed with reference to the following:

- The EPA's Guidelines on the Information to be contained in Environmental Impact Statements, 2002; and
- The EPA's Advice Notes on Current Practice(in the preparation of Environmental Impact Statements), 2003;

In the assessment of water at the site the following published information and regional hydrological data was reviewed;

- Available information from the National Parks and Wildlife Service (NPWS) and Environmental Protection Agency with respect to water quality in the area;
- Available information for the area from the Geological Survey of Ireland.

Surface Water

The design of the proposed development buildings ensures that any potential leaks from process equipment or leachate from loose waste or wrapped bales are contained within the buildings and will not enter the surface water drainage system and the Suir River waterbody. Based on the current and projected operations within the facility buildings the impacts to surface water receptors is considered negligible

The use of Buildings 5 and 6 for the proposed development will not have a negative impact on surface water quality in the area. The buildings do not have an internal connection to the Belview Port surface water drainage system and no inputs from the buildings (e.g., spillages or limited wash water volumes) are permitted to be discharged to the surface water system. The only input to the Belview Port surface water drainage system from the proposed development will be from the building roofs. It is not considered that inputs from the proposed development roofs will have a negative impact on receiving surface water receptors. The location of the proposed development is outside the mapped areas for potential flood risk as determined by the Office of Public Works and the SEA assessment prepared for the amendment of the Ferrybank / Belview LAP.

Groundwater

The proposed development will be located within covered permanent buildings (buildings 5 & 6) that have impermeable concrete floor surfaces. The process building (5) has an in-built bund system around the floor and wall base that extends across all entrance and exit doors and ensure that spillages or leaks within the facility are contained and will not migrate to impact the underlying water table.

There will be potential for minor leakage of leachate from stored RDF bales within the building, however based on the existing operations the volume will be very low and the impermeable floor surface and the bunded nature of the entrance / exit doors is such that no liquids can migrate from the building to the surrounding environment. The current operating procedures within the facility also result in all observed leachate leaks being cleaned immediately. All free liquid on the facility floor is absorbed using sawdust and then fed into the baler hopper to be included as part of baled material. This system ensures a closed loop for any leachate leaks within the facility.

Below are the mitigation measures which are proposed to ensure that the operation of the proposed development does not result in a negative impact on the hydro-geological environment.

- The integrity of the building floors and the bunds around the entrance / exit doors should be regularly checked to ensure that they are not adversely damaged and could allow migration of leachate seepage from stored bales within the facility building or from deposited waste awaiting pre-treatment. No storage of loose waste material will take place outside the facility building 5.
- Refueling of facility equipment will be completed by means of a mobile fuel tanker, comprising integral double-skinned containment and operated by trained personnel. Refueling operations will only take place at a designated area on hard standing that is situated as far away as possible from potential receiving surface water bodies. A spill tray and an emergency response spill kit shall be available and maintained on-site with the mobile fuel tanker during refueling operations.
- Machinery operators on the site will be trained in the use of emergency spill kits with an emergency response spill kit situated in the facility for use in the event of an accidental spill during re-fuelling.
- Any spillages or leaks within the facility buildings will be dealt with immediately upon observation with continued use of sawdust absorbent material used for containment and clean-up of liquids. The absorbent material will then be added to the baler feedstock.

Although it is not anticipated that there will be any impacts from the facility operations on the underlying site groundwater or hydrogeology, the implementation of the mitigation measures along with the in place petrol interceptor on the stormwater drainage system will help ensure that potential for the migration of contaminants from the building surface into the underlying aquifer are negligible.

Soils & Geology

The Geological Survey of Ireland (GSI) Bedrock Map for South Wexford (Sheet 23) indicates that the subject site is largely underlain by the Campile Formation, belonging to the Duncannon Group. The Campile Formation comprises of siltstones and shales, with volcanic rock known as rhyolites (or rhyolitic tuffs/agglomerates) in grey and brown shales with occasional grey fine-grained volcanic rock. The geological formation belongs to the Ordovician Period.

The subject lands are not at risk of subsidence. A fault line was identified on the GSI mapping for the area running east of the proposed development in a southwest to northeast direction, but this is not considered to be of concern to the proposed development. There were no karst features identified at the site and the bedrock type is not conducive to karst formations.

A review of the Teagasc soils map for the area indicated that the soils in the area are mostly acid brown earths, with complexes of brown podzolics and gley soils, with the site itself being located in an area of Man-made ground that is part of Belview Port.

Soils in the area of the proposed development are described as "man-made ground" and have been developed on over that past number of years. Any potential impacts to groundwater quality also have the potential to impact on soils and geology in the area. The impermeable concrete floor of the development buildings and the bunded nature of the entrance / exit doors will ensure that any potential impacts on soils or geology are identified and cleaned up within the facility building. There are No construction works involved with the proposed development and so the potential impact from disturbance and potential impacts from excavation works is negligible.

The mitigation measures employed for the protection of groundwater will also serve to protect soils and geology ion the area (see previous section above).

Although it is not anticipated that there will be any impacts from the facility operations on the underlying site groundmass the implementation of the mitigation measures will help ensure that potential for the migration of contaminants from the building surface into the underlying soils and geology are negligible. The proposed development is situated in existing buildings in an industrial development in Belview Port. The proposed development will not require any construction works that could impact soils or geology. The proposed operations buildings have impermeable concrete floors that will act as a significant barrier against impacts to soils and geology from the facility operations. Based on these criteria it is not considered that operation of the proposed development would have a negative impact on soils or geology in the area.

Noise

The proposed development is located in an existing building in a developed industrial area (i.e., Belview Port). The port is operational on a 24 hour basis, receiving and dispatching truck shipments by road and loading / unloading container and bulk cargo from ships. A background assessment was completed to assess the potential impact of the proposed development in the overall context of the existing noise climate. There are no residential sensitive receptors in the immediate vicinity of the proposed development and any noise impacts from the development would be intermittent depending on the traffic volumes and location of all operational process equipment within the facility building with doorways closed.

The results of the baseline assessment indicated that there would be limited noise generated during the operational phase of the proposed development that will impact external receptors in the vicinity of the waste pre-treatment facility. All process equipment (i.e., baler, trommel or shredders) will be located inside the process building and noise impacts will therefore be contained to a large extent within the process building.

Transportation of waste material and the transport of baled material for shipping will result in increased traffic movements, however, in the overall context of traffic volumes entering and leaving the Port, any increased traffic movements associated with the Glanway facility will be minimal. Potential noise sources during the operational phase of the waste pre-treatment facility would be:

- Daily movements of approximately 24 waste delivery trucks for 6 days per week
- Operation of additional processing equipment inside the facility building that may be audible if doors are open;
- Movement of baled material for shipment at the quayside.
- Extraction fans for air exchanges within the facility building.

The current noise climate inside the process building with the baler, wrapper and telegrab in operation is 82.5 dBA. However, the equipment operations are largely in-audible at 10m from the facility door. The inclusion of the additional process equipment the future noise levels within building would be expected to raise the noise level inside the building to 92.5 dBA if all equipment is operating at the same time. When all equipment is operating it will be a requirement that operatives entering and working inside the facility building must have hearing protection.

To ensure that the local area remains unaffected by noise from future operations the following mitigation measures were suggested;

- All doors to Building 5 must be kept closed when processing operations are being completed;
- The roller door to the east of the building will not be opened for reception of waste and the concrete barrier in front of the door (acting as an acoustic barrier) will be maintained;
- Assessment of noise levels outside the facility should be monitored to identify potential sources.
- If trucks are delivering material and have to queue on the internal Port road for entry then they should not idle their engines, particularly at night.

The industrial nature of the Belview Port facility and the 24 hour operation of the Port will result in negligible noise impacts from increased traffic numbers using the proposed development. The operation of additional process equipment within the facility building will not have an adverse impact on the surround noise climate if the mitigation measures identified above are adhered to.

Air Quality

The main potential impact to air quality from the proposed development was considered to be from ambient odour from waste material processed and baled in the facility. The existing facility has a number of control measures in place to mitigate odours at the facility, including: *Installation of DAX Maxi Thermal (NT1500)* to control unpleasant odours and bacteria and viruses by unassisted thermal convection. The unit takes in contaminated air and purifies it using a unique dual lamp system, *Application of AquaClean Solution* to baled waste. A spray system has been retrofitted to the conveyor of the baling system to apply AquaClean solution to the waste prior to baling and *Application of AquaClean solution in spray bars located on entrance/exit roller door and extract fan.*

A baseline odour assessment was completed to assess existing odour impacts at the facility. The threshold results for the air samples collected at the facility during normal operating conditions indicated that the highest intensity odour is within the facility building during operation, as expected. The sample collected at the open door of the facility indicated a decreased odour unit concentration. It should be noted that the odour control spray was not in use at the roller door during the sampling period to provide a worst case scenario. Similarly, the reduced threshold level recorded for the northeast corner of the facility building downwind of the building extract fan was almost 70% less than the threshold level within the building indicating a significant dispersion of odour that is extracted from the building – note sprayer on fan was also off during this sampling period to provide a worst case scenario. Based on the results of the sniff test completed on the same day as the air sampling the odour detected at the northeast corner of the facility building was not detectable at the entrance to Belview Port, approximately 50m downwind.

Pollutant emissions from road traffic has the potential to cause impacts at both the local and national level. The National Roads Authority has produced a set of *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes,* 2011. The proposed development at Belview will not require any construction works (i.e., roads), and the proposed increase in traffic during the operational phase of the proposed development (i.e., from 6 trucks per day to approximately 24 trucks per day), the potential impact on air quality due to traffic emissions was considered low in the context of the already high volume of road traffic using Belview Port.

The proposed development will have the potential to emit ambient odours during future operations. The proposed tonnage of waste accepted at the facility will increase resulting in more frequent waste arrivals and increased requirement for opening the entrance / exit doors to the process shed (building 5). The change of the proposed development operations whereby access to Building 5 will be through Building 6 will act as a buffer for potential odours from the facility doors and it would be expected that odours to the outer environment will be reduced even further from current concentrations.

Continued use of the existing odour control systems will provide mechanisms to continue to process increased tonnages through the facility without increased odour impacts on the wider environment.

A DMRB model was used in previous EIS submissions for developments in the immediate area (i.e., Glanbia EIS, Project Purple 2, 2012) to calculate emissions from 14 road sections on the local county road L3412, the N29 road to Belview port, and the N25 for the closest sensitive receptor, the Lower Suir SAC. The emissions models were run for the existing and projected traffic increases (i.e., over 300 vehicles per day) and the results indicated no perceptible change in emissions of nitrogen oxides was found as a result of the proposed Glanbia development. Based on the limited scale of the Glanway proposed development it is not considered that the increase in traffic would have any impact on overall air quality or on sensitive receptors in the area.

Landscape & Visual Impact

The proposed development comprises of the continued use of existing industrial shed units for waste acceptance, pre-processing and temporary storage of baled RDF. The proposal includes the discontinued use of Building 4 and the inclusion of Building 6 along with Building 5 as the new process area. All of the industrial shed units in that section of Belview Port are of similar size, construction and colour and the continued use of two of the buildings in that area will not impact on the existing visual amenity or further impact on the landscape.

The facility is located in an area designated as Robust, meaning it is an area of existing development and infrastructure and new development reinforces existing desirable landuse patterns. The facility buildings are already constructed and are located in a series of buildings of similar, size construction and colour. Public views of the facility are limited to one location across the Suir River.

The impact on visual amenity for residential dwellings to the southwest of the facility is considered negligible. Overall, the facility buildings will result in a negligible impact on the existing landscape character and visual amenity.

Traffic

An assessment of the impact that the increased throughput of waste material (and the subsequent increase in traffic volumes) at the Glanway facility will have with respect to traffic considerations was completed. The assessment included assessment of the proposed development with relation to thresholds for the completion of Traffic Assessment Reports. Chapter 2 of the National Roads Authority (NRA) Traffic and Transport Assessment Guidelines (May, 2014) provides thresholds at which the production of a Traffic and Transport Assessment would be required. Table 1.4 of the Traffic Management Guidelines (DoT/DoEHLG/DTO, 2003) gives the thresholds above which a Transport Assessment is automatically required. The guidelines further outline the thresholds whereby a traffic assessment would be required for developments affecting national roads to ensure "*the strategic role of national roads and the need to ensure that the carrying capacity, efficiency and safety of the network is maintained*". Based on control indicated in the DOECLG's Spatial Planning and National Roads Guidelines for Planning Authorities where applications affect national roads a Transport Assessment should be requested if the thresholds are exceeded.

The assessment of the thresholds when compared to the Glanway proposed development are outlined below:

- The gross floor area of the proposed development is 3,734m^2 and below the threshold of 5,000m^2 for an industrial development. Therefore, the size of the industrial facility is below the threshold.
- The location of the proposed development is within Belview Port which is at the terminus of the N29 and in a rural area. Traffic using the proposed development will exit the Port directly onto the N29 (i.e., there are no junction turns onto the national road). Therefore, the threshold for traffic turning movements at junctions with National Roads (i.e., 10% traffic movements at junctions with National Roads or 5% if the location has the potential to be congested or sensitive) is not considered applicable for the Glanway facility.
- The estimated increase in traffic volumes from the proposed development is 25 truck movements per day to the facility and 4 car movements during peak times for office and operational personnel. This constitutes 50 truck movements and eight car movements on the National Road per day. The truck movements will be spread over the working day and will average 2 trucks per hour. Therefore, even at peak times (morning and evening) it is anticipated that there will be 8 truck movements (4 morning and 4 evening) and 8 car movements (4 morning and 4 evening) related to the proposed development. This is significantly below the

trip threshold outlined in Table 12.2 above (i.e., 100 trips in / out combined in the peak hours for the proposed development).

Based on the facility size, location and predicted traffic volumes it is not considered that the threshold level will be exceeded by the proposed development. Subject to planning permission, it is envisaged that the proposed development would operate on a 24 hours per day, seven days per week, basis. There is only one site access at the end of the N29 where it enters Belview Port. The access to Belview Port is already used by heavy goods vehicles loading and unloading at the quayside.

Existing Facility

To determine the volume of the existing traffic flows to Belview Port, JRE completed a Manual Classified Traffic Survey on 19/01/2015 at the Port facility entrance. This survey was carried out between the hours of 08.00 and 18.00 and distinguished between cars, light good vehicles and heavy good vehicles. The table below identifies the number of vehicles entering and exiting Belview Port and the trucks using the Glanway facility.

Belview Port Traffic Count – 19/01/2015

Time	HGV Entry	Van Entry	Car Entry	HGV Exit	Van Exit	Car Exit
08:00 – 09:00	40	15	5	37	6	5
09:00 – 10:00	43	7	7	32	9	3
10:00 – 11:00	36	8	4	34	8	9
11:00 – 12:00	33	6	7	32	7	8
12:00 – 13:00	41	6	9	31	7	2
13:00 – 14:00	31	9	5	42	12	1
14:00 – 15:00	37	11	5	44	9	3
15:00 – 16:00	36	8	3	39	7	5
16:00 – 17:00	42	11	8	36	11	6
17:00 – 18:00	46	16	6	39	10	15

On the day the traffic count was carried out (i.e., 19th January 2015 between 08:00 and 18:00), 6 HGVs entered the Glanway facility and 4 cars associated with the administration and operations were noted. Based on the daily traffic movements on the day of the traffic count Glanway traffic accounted for 6 (1.6%) HGV traffic movements into and out of Belview Port.

Proposed Development

The predicted traffic volumes included in the EIS assessment completed for Glanbia in 2012 were based on NRA automatic traffic counter data on the N25 Waterford Bypass, located west of Luffany Roundabout. Based on this data the estimated predicted 2015, 2020 and 2030 Annual Average Daily Traffic (AADT) volumes, on the link roads to the proposed development are provided in Table below.

Predicted Traffic Volumes on N29 and Link Roads

Road	Year	AADT Volumes	% HGV
N29	2015	2,550	29.6%
	2020	2,730	27.5%
	2013	3,180	25.0%
R711 (west)	2015	8350	3.8%
	2020	9,010	3.8%
	2013	10,910	3.3%
R711 (east)	2015	9,880	9.5%
	2020	10,600	9.3%
	2013	12,750	8.1%
N25 (Waterford bypass)	2015	5,380	19.2%
	2020	5,760	18.9%
	2013	6,820	16.7%
N25 (east New Ross)	2015	12,810	8.8%
	2020	13,760	8.6%
	2013	16,550	7.5%

The highest estimated AADT volume on the N29 is 3,180 vehicles, in 2030, which is significantly less than its link capacity of approximately 11,600 vehicles AADT, based on the NRA DMRB TD 9/12 Road Link Design document. Both sides of the N25 Waterford Bypass and the R711, between Slieverue Roundabout and Luffany Roundabout, would operate well within their link capacities of 52,000 and 42,000 AADT, respectively, based on the NRA DMRB TD 9/12 Road Link Design document, with AADT volumes of 6,820 vehicles and 12,750 vehicles, respectively, in 2030. The predicted traffic volumes include traffic associated with the Glanway facility.

A total maximum of 9 staff would be employed at the proposed facility (split between operations and administration). If the facility was operational on a 24 hour basis there would be a three-shift cycle of 6.00 a.m. to 2.00 p.m., 2.00 p.m. to 10.00 p.m. and 10.00 p.m. to 6.00 a.m. It is envisaged that staff would generate a total of up to 18 car trips per day. Two-way staff car trips would be approximately 4 vehicles during the morning peak hour (8.00 to 9.00 a.m.), ten vehicles during the off-peak hours and 4 vehicles during the evening peak hour (5.00 to 6.00 p.m.).

Daily heavy vehicle traffic volumes, generated by the proposed development, would be up to 25 vehicles. The vehicle movements would be spread over the working day and deliveries will try to void peak periods at the Port entrance. The daily throughput of waste material at the facility (i.e., 300 tonnes per day) will limit the numbers of truck movements to the facility. The proposed development will add to increased higher morning peak hour, off-peak hour and evening peak hour traffic volumes but are still considered very low when compared with predicted traffic volumes. The predicted highest increase in peak hour link traffic volumes is provided in the table below.

Predicted Highest Increase in Peak Hour & Off-Peak Hour Link Traffic Volumes with Proposed Development

Location	Morning Peak Hour (08:00 – 09:00)		Off Peak Hour (14:00 – 15:00)		Evening Peak Hour (17:00 – 18:00)	
	Total Vehicles	HGV	Total Vehicles	HGV	Total Vehicles	HGV
N29	+6	+3	+4	+3	+8	+3
R711 (west)	+3	+1	+1	+0	+2	0
R711 (east)	+3	+2	+3	+3	+6	+3
N25 (Waterford bypass)	+2	+2	+2	+2	+3	+2
N25 (east)	+1	+1	+1	+1	+3	+1

Based on the predicted traffic volumes for the N29 and surrounding link roads the increased traffic movement for the Glanway facility will be negligible.

Road Safety, Parking and Queueing

Signage will be displayed inside the Port facility immediately after the weighbridge warning other traffic entering the Port of a facility entrance. Existing signage in place on the N29 warning traffic of entrances from industrial facilities along the N29 and the Port Entrance at the N29 terminus are adequate to warn of traffic from the Glanway facility exiting and entering the Port entrance.

Parking

Adequate parking is provided at the facility and at the office complex located at the Port entrance to accommodate the expected number of employees and visitors. All staff will park at the existing office car park area to ensure a clear entry and exit for trucks delivering to the facility.

Traffic Queueing

The internal Port roadway from the Belview Port entrance to the facility entrance is approximately 100m long. Although it is not anticipated that the traffic volume at the facility will be such that queuing of trucks will be required there will be adequate space for queuing for 3-4 40ft trailers and 5-6 waste

trucks at any one time should it be necessary. This will avoid any queuing on the N29 and disruption to other traffic entering Belview Port.

Pedestrian and Cyclist Facilities

There are no pedestrian facilities in place on the N29 in the vicinity of the facility. As it is not expected that there will be any pedestrian activity to and from or within the facility, no pedestrian facilities are considered to be required.

There are currently no cycle facilities in place on the N29. Due to the nature and location of the facility, cycle lanes are not considered to be necessary.

Conclusions

The conclusions of the traffic assessment for the proposed development are as follows:

- Based on the facility size, location and predicted traffic volumes it is not considered that the threshold levels outlined in Chapter 2 of the National Roads Authority (NRA) Traffic and Transport Assessment Guidelines (May, 2014) will be exceeded by the proposed development.
- Subject to planning permission, it is envisaged that the proposed development would operate on a 24 hours per day, seven days per week, basis. There is only one site access at the end of the N29 where it enters Belview Port. The access to Belview Port is already used by heavy goods vehicles loading and unloading at the quayside.
- The entrance to the proposed development will continue to be through the existing Port of Waterford entrance at the terminus of the N29. The existing average heavy goods traffic movements related to Glanway traveling on the N29 and through the Port entrance (traffic count completed on 19/01/15) was 6 and was approximately 1.6% of traffic movements into and out of the Port on that day. The addition of increased traffic for the proposed development will increase the overall traffic volume from 6 per day to 25 trucks per day and will increase the traffic percentage associated to Glanway activities (based on traffic volumes on 19/01/15) to approximately 6% of Port traffic;
- The highest estimated AADT volume on the N29 is 3,180 vehicles, in 2030, which is significantly less than its link capacity of approximately 11,600 vehicles AADT, based on the NRA DMRB TD 9/12 Road Link Design document.
- Both sides of the N25 Waterford Bypass and the R711, between Slieverue Roundabout and Luffany Roundabout, would operate well within their link capacities of 52,000 and 42,000 AADT, respectively, based on the NRA DMRB TD 9/12 Road Link Design document, with AADT volumes of 6,820 vehicles and 12,750 vehicles, respectively, in 2030. The predicted traffic volumes include traffic associated with the Glanway facility.

Archaeology & Cultural Heritage

The archaeological implications of the proposed development at Belview Port were investigated by a study of the site and its immediate environs on the northwest bank of the River Suir and to the southwest of the confluence of the Suir and Barrow Rivers. The study area is located on the western bank of the River Suir, to the southwest of the confluence of the Suir and Barrow rivers. The main purpose of the study was to provide an assessment of the archaeological potential of the facility area and the implications for increasing throughput at the facility. It includes information on sites of archaeological interest within the environs of the facility site and assesses the overall impact on potential buried archaeological remains. There are no known archaeological sites on the lands in question but its location in a coastal environment close to the historic city of Waterford indicates that previously unrecorded archaeological features or finds may be uncovered, however, the site has already been developed and no recorded finds of archaeological interest were reported. The archaeological impact assessment outlines a desktop study and field inspection of the existing site and its immediate surroundings.

In order to fully understand the archaeological implications of the proposed works at Glanway, Belview Port, a desk based study and a site walk over were carried out.

The study utilised a number of sources in order to identify all known archaeological sites and other monuments of historical interest within the study area. The principal sources used for identifying archaeological monuments are listed below.

- Record of Monuments and Places for Co. Waterford (RMP)
- Record of Monuments and Places for Co. Kilkenny (RMP)
- Sites and Monuments Record for Co. Waterford (SMR)
- Sites and Monuments Record for Co. Kilkenny (SMR)
- National Museum of Ireland Topographical Files
- National Inventory of Architectural Heritage (NIAH)
- Kilkenny County Development Plan 2008-2014

The Record of Monuments and Places (RMP) is a list of archaeological sites known to the National Monuments Service of the Department of Environment, Heritage and Local Government (DEHLG) with accompanying RMP maps, based on OS 6" Sheets, which indicate the location of each recorded site. The list is based on the Sites and Monuments Record (SMR) files which are kept in the National Monuments Service and are updated on a regular basis. The Sites and Monuments Records (SMR) are lists with accompanying maps and files of all known archaeological sites and monuments mainly dating to before 1700AD.

The National Museum of Ireland Topographical Files is the national archive of all known antiquities recorded by the museum and consists of a catalogue of objects reported to that institution since 1928. These files mostly contain information on finds but there are also references to monuments and sites of archaeological significance. A record of all previous archaeological excavations undertaken in Ireland is also available from the National Museum. No information for the townland of Gorteens is recorded in the Topographical Files.

County and City Development Plans are made in accordance with the requirements of the Local Government and are an important source for identifying protected structures. The plans set out each council's policy for the conservation and enhancement of a county's natural and built environment and lists items of special environmental or archaeological interest. The Kilkenny Development Plan (2008-2014) and development plans for Waterford City and Belview were reviewed for this assessment. The plans include a Record of Protected Structures (i.e., a list of buildings which may not be altered or demolished without grant of permission under the Local Government (Planning and Development) Acts, 1963-1993).

Existing Environment

The existing facility consists of two existing shed structures (3,734 m^2 in an area) located in an area of Belview Port that historically had industrial facility buildings in place. To the east of the facility is a concrete yard and internal access road, a CIE rail line and then the main Belview Port quayside facility and the Lower Suir River. The site is bordered to the west by agricultural fields and to the north and south by industrial storage sites. A desk based study indicated that the only feature of archaeological interest in proximity to the site is an "unclassified castle" approximately 900 m to the west of the site.

Impacts from the Proposed Development

The area that will directly be impacted by the proposed increased throughput at the Glanway facility in Belview Port, is an area of "made" ground and neither the desk based study of the site or the walk over indicated any features of archaeological interest. Considering the lack of recorded features of archaeological interest above ground, the greatest threat to the archaeological landscape on this site is through the removal of topsoil and the exposure of features that have until this point been unrecorded. However, the area where the facility is located has already had earthworks take place and a hardcore surface put in place. No features of archaeological value were reported during the construction of the site.

The areas surrounding the site (i.e., the industrial sites and intensive agricultural lands do not contain or support any known features of archaeological interest that will be affected by the increased throughput at the Glanway facility in Belview Port.

Conclusion

The archaeological study has assessed the archaeological implications of developing IDA industrially zoned lands in Gorteens townland near Belview Port, Co. Kilkenny. A review of available reference documentation and a field walkover was completed to assess the likely impact of the site on recorded archaeological monuments in the area and to inspect the subject lands for unknown visible archaeological sites. The site walkover recorded that the site is a developed industrial site and did not reveal any traces of previously unrecorded archaeological monuments or features. Considering that the site is located on an area where previous earth works have taken place it is considered very unlikely that any features will be negatively impacted upon.

Material Assets

This section describes the material assests associated with the proposed development site including; archaeological, cultural heritage and architecture. Based on the available information on the site history and the existing site conditions (i.e., developed industrial) the assessment was confined to a desk study from the archaeological survey of Ireland (ASI) and the Kilkenny County Development Plan 2008-2014.

Projections of resource use for the proposed development were completed. No projections were required for construction as the facility buildings are already constructed. The resource use would be for extended operations only. Impacts on the local roads network are assessed in Chapter 12, while the socio-economic impacts are assessed in Chapter 5.

Land Use and Ownership

The proposed development site is owned by Suir Shipping and has been leased to Glanway Ltd. for use as a waste pre-processing facility. The existing facility is located in an industrial development area and has been in operation since June 2014.

The proposed development will have no impact on the existing land ownership or land use.

Local Settlement Patterns

The landuse in the immediate surrounding area is industrial, with lands to the west used for agriculture. The closest residence to the facility is 390 metres to the southwest. Neither the facility or its immediate environs have a significant leisure or amenity value.

The proposed development will have no impact on the existing land settlement pattern.

Local Infrastructure & Utilities

The increase in tonnage of waste accepted at the proposed development will result in an increase in traffic movements to and from the site. The traffic impact is addressed in Chapter 12 and has established that the increase in traffic in comparison to existing traffic volumes will be low and that the

existing road network has a significant capacity to accommodate that traffic volume increase. Because the traffic will enter straight onto the N29 there is no need for any road or access junction improvements. The overall impact of the increased traffic volume associated with the proposed development will be low.

The proposed development will result in a limited increase in traffic volumes on local roads. However, the design capacity of the local road network will be more than adequate to facilitate the increase.

Resource Consumption

The increase in the amount of waste accepted at the proposed development will result in additional electricity consumption associated with the waste processing equipment (i.e., baler, shredder, trommel screen), building lighting and operation of odour control systems.

The proposed development will also require an increase in diesel usage used by delivery trucks bringing material to the facility and for increased use of facility equipment. However, this will be offset by the savings on fuel consumption if that waste was brought to another RDF baling facility and then had to be re-transported to a quayside facility for shipping. The location of the Glanway facility will result in net reduction in fuel usage per tonne of material processed due to its close proximity to the shipping outlet.

The increased tonnage throughput at the proposed development will increase energy consumption by the fixed and mobile equipment.

Archaeology and Cultural Heritage

The ASI have an inventory of archaeological monuments in Ireland. There are no records of any archaeological features or monuments either at, or immediately adjacent to the site.

A protected structure is considered to be one that is of special interest from an architechtural, historical, archaeological, artistic, cultural, scientific, social or technical view point. The Record of Protected Structures in the Kilkenny County Development Plan does not include any structures at or in the immediate vicinity of the proposed development.

There are no records of any archaeological features or monuments or protected structures either at, or immediately adjacent to the site.

Assessment of Impact

The proposed development will have no impact on local amenity value and have a negligible impact on the local road network.

There will be an associated resource usage increase with the proposed development to operate the fixed and mobile equipment and the increased truck movements (i.e., increase in diesel usage used by delivery trucks bringing material to the facility). However, the increased resource usage will be offset by the savings on fuel consumption if that waste was brought to another RDF baling facility and then had to be re-transported to a quayside facility for shipping. The location of the Glanway facility will result in net reduction in fuel usage per tonne of material processed due to its close proximity to the shipping outlet.

The proposed development will have no impact on the archaeology, architecture or cultural heritage in the vicinity of the proposed development.

Cumulative Impacts and Interaction Between Factors

A review was completed to assess the significance of the actual and potential direct, indirect and cumulative effects of the proposed development based on interaction between receptors. Only those receptors between which there is an identifiable existing or potential relationship are addressed.

Human Beings / Air

Waste activities have the potential to impact on human beings from odours, dust and air emissions from vehicle emissions. Effective mitigation measures are in place at the existing facility and they will be extended to building 6 of the proposed development to further reduce potential release of nuisance emissions from the proposed development. There will be a limited increase in exhaust gases from the additional vehicle movements, but this will have a negligible impact on human beings.

Human Beings / Traffic

The proposed development will result in a limited increase in traffic to and from the facility. The existing road network has significant design capacity to handle the traffic related to the facility and the increase in traffic will have a negligible impact on residents or the public.

Human Beings / Landscape

The proposed development buildings are already constructed and are located within the Belview Port area. The buildings are not visible from public areas on the west side of the Suir River and are not visible from private residences. The only view of the proposed development building is from across the Suir River from Faithlegg where it is screened by the existing Port facility and is considered in-keeping with

the industrial nature of the buildings that exist in the immediate vicinity. The overall impact of the proposed development on the landscape is considered negligible due to its location.

Ecology / Water

The location of the proposed development in close proximity to the Lower Suir SAC would be a potential for concern. However, there are no discharges from inside the proposed development buildings to surface water or sewer thereby negating potential impacts from leachate from waste material on a sensitive ecological receptor. The only potential discharge to surface water would be from the roofs of the facility buildings which would be directed to the existing Belview Port surface water drainage system is not considered to be a potential impact source.

Ecology / Air

A DMRB model was used in previous EIS submissions for developments in the immediate area (i.e., Glanbia EIS, Project Purple 2, 2012) to calculate emissions from 14 road sections on the local county road L3412, the N29 road to Belview port, and the N25 for the closest sensitive receptor, the Lower Suir SAC. The emissions models were run for the existing and projected traffic increases (i.e., over 300 vehicles per day) and the results indicated no perceptible change in emissions of nitrogen oxides was found as a result of the proposed Glanbia development. Based on the limited scale of the Glanway proposed development it is not considered that it would have any impact on sensitive receptors.

Noise / Ecology / Human Beings

The current operations are not considered to be having an impact on the surrounding area or on noise sensitive receptors. Due to the industrial nature of the area at Belview Port and the 24 hour activity within the Port it is not expected that the proposed development will have any significant impact on the noise climate of the area. However, the implementation of the mitigation measures outlined in chapter 9 will ensure that the local area remains unaffected by future operations.

Cumulative Effects

The assessment of impacts took into consideration the existing facility and the proposed development to increase waste throughput to 300 tonnes per day. None of the impacts assessed had the potential to have significant impacts on the environment. The only impact that could contribute to cumulative impacts in the area would be from increased traffic movements and associated exhaust emissions. However, the traffic review indicated that the increase in traffic associate with the facility would have a negligible impact on the local road network and the air quality assessment indicated that air emissions from increased exhaust output would be negligible.

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1.0 INTRODUCTION

This Environmental Impact Statement (EIS) was prepared to address the potential environmental impacts of the increased throughput of waste material through the Glanway Ltd. waste baling facility located at Belview Port, Gorteens, Slieverue, Co. Kilkenny, see Figure 1.1. The proposed development will consist of continued baling of refuse derived fuel (RDF) within Buildings 5 and the proposed future introduction of additional physical treatment technologies including a bag shredding system and a screening trommel to pre-treat material before baling and increase the calorific value of the RDF. Building 6 will be used as an access to Building 55 and will also provide potential additional storage capacity for baled RDF awaiting shipping from the Port. The proposed development will not involve any construction works and all activities will be completed within existing building structures. A site layout drawing of the proposed development is provided in Attachment A.1.

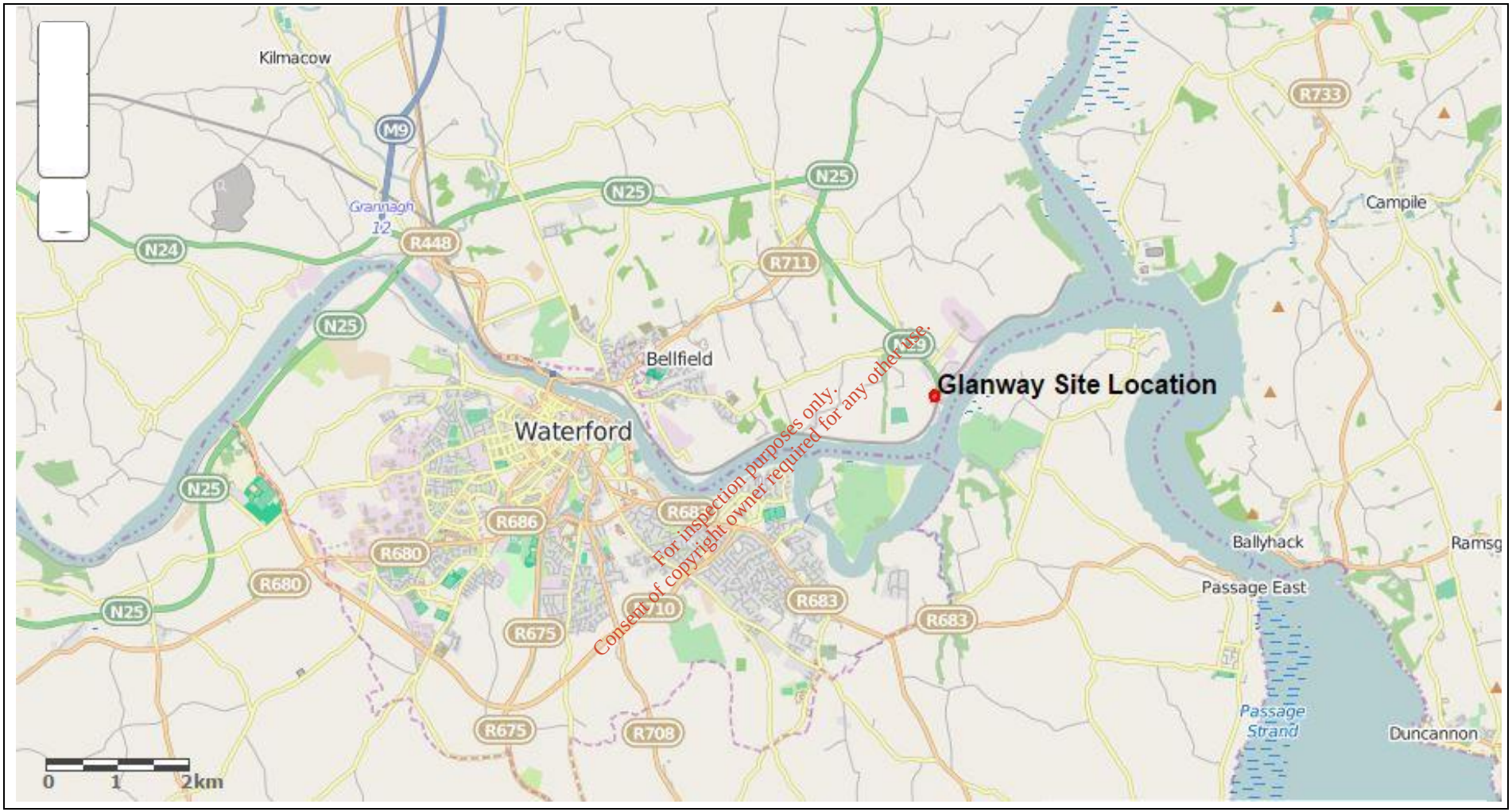
1.1 The Applicant

Glanway is a sister company of Foras Fuels Ltd which was established in June 2012 and works with Waste-to-Energy facilities in Europe & further afield to provide them with waste derived alternative fuels. These alternative fuels are used to replace fossil fuels in their plants thus reducing their carbon emissions and dependency of volatile fossil fuel prices. Foras have set up some of the largest shipments of waste derived alternative fuels out of the Ireland including a 4,400 tonne shipment of waste tyres.

Glanway was established in February 2014 to source waste in the South East Region and further afield currently going for landfill and divert it to more sustainable energy recovery facilities. Thereby helping local authorities meet their landfill diversion targets while simultaneously creating sustainable jobs and exports in Belview Port.

Belview Port was identified as being the ideal location for Glanway's facility due to the fact that it has superb road access to the National Road & Motorway infrastructure. Belview Port currently (in bulk shipping terms) and import destination with cement, slag, fertilizer, animal feed, etc. being imported in bulk but with little bulk materials being export from Belview and as a result Glanway's business offers a lot of synergies to the Port. Glanway Ltd. is an Irish owned business that has been in operation since March 2014. The company currently operates a waste baling facility under a County Council waste permit for materials recovery and waste management. The facility provides an alternative to landfill for waste companies operating in the southeast region and beyond and provides for recovery rather than disposal of those waste materials.

The company's customer base encompasses waste collection companies collecting non-hazardous domestic and commercial waste in the southeast region and beyond. Current company operations are



JRE Environmental Consulting	CLIENT: **GLANWAY LTD.**	LOCATION: **BELVIEW PORT, SLIEVERUE, CO. KILKENNY**	DATE: 20/01/15
			DWN: JER
	TITLE: **SITE LOCATION – REGIONAL SETTING**	DRAWING REF: **FIGURE 1.1**	REV: 0
			SCALE:

limited and involve only 4 staff (2 full time and 2 part-time) managing and operating the facility. It is Glanway's objective to provide a recovery outlet for waste materials collected in the southeast region and beyond and to do that with respect to the surrounding environment and the best available technologies that can practicably be employed at the facility. The company's Headquarters are at 11 Patrick Street, Kilkenny. A copy of the company certificate of incorporation is provided in Attachment A.2.

1.2 Facility Overview

Existing Facility

The Glanway baling facility is located at Belview port, four km east of Waterford City. The site is accessed via the N29 off the N25 Rosslare to Waterford/Cork road. The site is bounded to the east by the Waterford to Rosslare Railway line, to the west and south by farmland and to the north by the main entrance into Belview Port. Belview port contains loading/unloading facilities as well as areas of warehousing associated with the port. The facility has been operational since June 2014 and the process shed building (i.e., Building 55) constructed under planning permission Ref. P.11/397 and permission for a bagging and palletising plant and associated works installed in Store No 5 (P11/397) was granted by Kilkenny Co. under Planning Ref. 12416. Materials bagged were restricted to port related goods only in Building 55 by Kilkenny Co. Co. which allows for bagging of materials up to 20,000 tonnes per annum. The existing facility consists of Buildings 4 and 55 (each with a floor area of 1,867 m^2). Buildings 4 and 55 are a steel portal frame design featuring 6.5m high reinforced concrete walls at the building base and dark grey galvanised steel purlins on a structural steel portal frame. The apex of the roof in each building is 15.7m above ground level. Building 55 is the process shed where waste material is delivered, tipped, baled and stored. Building 4 is a buffer building between the baling facility and Buildings B1, B2 and B3. No waste activities take place in building 4.

Building 55 is used to receive and process (i.e., bale) municipal solid waste into refuse derived fuel (RDF). There are also areas designated for temporary storage within Building 55 prior to shipment. The trucks delivering the waste material to the facility tip onto the facility floor at the reception area which is approximately 185 m^2 within the closed building and immediately adjacent to the baler feed hopper. The material is then fed into the baler feed hopper using a front end loader and is transferred along a conveyor to the facility Flexus Balasystem baler. The baler is a round baling system for waste fractions, capable of processing capacities up to 25 tonnes per hour.

Four (4) people (2 part time and 2 full time) are currently employed at the facility comprising of equipment operators, general operatives, a Facility Manager and administrative staff. The current operational hours at the facility are 08:00 to 18:00 Monday to Friday and 08:00 to 13:00 on Saturdays.

Proposed Changes

Glanway propose to increase the throughput of material at the baling facility in Building 55 to 300 tonnes per day (not exceeding 95,000 tonnes per annum) and to apply to the Environmental Protection Agency for an Industrial Emissions Licence to regulate the facility. The future licenced area will change from the current permit area (which includes Buildings 4 and 55) to include Buildings 55 and 6. The reasoning for including Building 6 into the facility footprint is to allow continued use of the roller door entrance on the northern façade of Building 55. Trucks will enter Building 6 and complete a turn manoeuvre within the eastern half of the Building to allow it to reverse into Building 55 for unloading.

The eastern half of Building 6 will be kept clear to allow for free movement and a safe turning circle for access to Building 55. The western half of Building 6 will be used for storage purposes. It will be split with a dividing wall to allow potential storage of different materials (e.g., baled waste on one side and biomass on the other). It will be ensured that any bulk material that may be impacted by its storage in close proximity to the baled waste material (e.g., animal feed) will not be permitted.

It is envisaged that future operation of the facility will accept waste directly from waste collectors including from bin trucks, skip trucks, etc. it will also include new physical process lines for received waste material prior to baling. The proposed physical processing will include; bag shredding, magnets to separate ferrous and non-ferrous metals for recycling and tromelling to remove the organic fines component of the waste. The screened organic fines material will be removed from site in enclosed trailers for aerobic stabilisation at an approved permitted or licensed facility. The removal of the organic fines component of the waste will reduce the moisture content of the baled material and improve the calorific value and quality of the fuel substitute product being shipped. The increased processing capability of the facility will allow the facility deal with a greater range of wastes such as bulky waste and skip waste improving the facilities capability to service the Greater South East Regions waste needs.

The current hours for accepting waste at the facility under the existing waste permit are between 08:00 and 18:00 Monday to Friday and between 08:00 and 13:00 on Saturdays. Due to customer demands and changes to the collection patterns of their customers Glanway would propose to operate on a 24 hour basis based on the fact that the Port is also operational on a 24 hour basis and would not result in any added noise nuisance to neighbours. The increased flexibility in reception hours will allow for deliveries during off peak hours and spread out traffic using the facility over a longer period.

1.3 Site Planning History

The Belview Port industrial area has existing water and utility services which are necessary to attract and retain large and medium scale manufacturing and services industries to the Belview Port area. Belview is situated approximately 5 Km from Waterford City and 60 Km from Kilkenny City, and incorporates 265 ha of zoned land, including the IDA land bank, the Marine Point Business Park and Belview Port. Belview Port is the nearest deep water Irish port to mainland Europe. Two thirds of the Irish domestic market lies within a 160 Km radius of Belview, with direct access to the national rail network.

Belview is situated in Co. Kilkenny and planning permission applications are administered by Kilkenny County Council. However, its close proximity to Waterford City and its environs mean that it also comes under the aegis of the Waterford County Development Plan and specifically the Ferrybank – Belview Local Area Plan (2009). The Glanway facility is located in Belview Port at the terminus of the N29 national road, see Figure 1.1. The existing facility consists of Buildings 4 and 55 each consisting of a floor area of 1867 m2 each.

In January, 2012, Suir Shipping received planning permission (Ref. 11/397) to construct five bulk storage sheds for storage of Port Related Goods and in November 2012 planning was granted (Ref. 12416) for carrying out bagging of port related goods in building 5. In January, 2014 Glanway Ltd. met with the local planning authority to discuss the potential for using Buildings 4 and 5 for the baling and temporary storage of RDF material. The planning associated with building 5 included for bagging operations for up to 20,000 tonnes of port related goods per year and bagging operations was deemed to include wrapping and packaging port related goods. Because the final baled RDF material was being shipped from Belview Port it was deemed to be a Port Related Good. A planners report was completed in 2014 outlining the planning restrictions for operations in Buildings 4 and 5 and a copy of the planners report is included in Attachment A.3.

In 2014, planning permission was also sought for the construction of two additional storage sheds (Buildings 66 and 7). Planning permission was granted for the construction of the sheds in August 2014 (Ref. 13585). A copy of the planning report for Buildings 66 and 7 are also included in Attachment A.3.

The introduction of the Environmental Protection Agency (Industrial Emissions)(Licensing) Regulations 2013 affect the permitted waste activities currently carried out by Glanway Ltd. and to ensure compliance with the Regulations Glanway Ltd. are corresponding with the planning department in Kilkenny Co. Co. to increase the acceptable tonnage that can be processed in Building 5 and to remove Building 4 from future operations and include Building 6 instead. This EIS has been prepared as part of that planning application.

1.4 EIA Structure

Environmental Impact Assessment (EIA) is a process for anticipating the potential environmental effects of a development. EIA requirements arise from the European Communities Directive 85/337/EEC, as amended, on the assessment of the effects of certain public and private projects on the environment. The approach adopted in the Directive is that EIA is mandatory for all projects listed in Annex I of the Directive, i.e. those which will always have significant environmental effects, while projects listed in Annex II of the Directive are determined on a case-by-case basis.

The EC Directive is implemented in Ireland by the European Communities (Environmental Impact Assessment) Regulations, 1989 to 2001. In addition to implementing the mandatory requirements of Annex I, these Regulations set thresholds for each of the project classes in Annex II. The Irish EIA system is implemented primarily through integration of the requirements into the land-use planning consent system.

Schedule 5 of the Planning and Development Regulations, 2001, SI No. 600 of 2001, sets out a comprehensive list of project types and development thresholds that are subject to Environmental Impact Assessment. It has been determined that the proposed development falls within the scope of the European Communities (Environmental Impact Assessment) Regulations, 1989 to 2001, and Part 10 of the Local Government (Planning and Development) Regulations, 2007. The minimum information that must be contained in an EIS is specified in Part 10 of the Planning and Development Act, 2000 and Schedule 6 of the Planning and Development Regulations, 2001. The structure and content of this EIS has been based on the legislative requirements as set out in Part 10 of the Planning and Development Act, 2000 and Part 10 of the Planning and Development Regulations, 2001 and the guidance documents published by the Environmental Protection Agency.

Under the Planning and Development Regulations, 2001 (Schedule 5, Part 2, 11(b)) and the EIA Regulations 1989 (as amended), the proposed development, being an “Installation for the disposal of waste with an annual intake greater than 25,000 tonnes”, requires an Environmental Impact Statement (EIS). The function of the EIS is to:

- Establish the existing environmental characteristics of the proposed site;
- Provide details on the proposed development, its emissions and discharges; and
- Predict the likely significant effect(s) of the development on the environment.

This EIA has taken into account the Best Available Technology (BAT) Guidance Notes issued by the EPA “Final Draft BAT Guidance Note on Best Available Techniques for the Waste Sector: Waste Transfer and Materials Recovery”, 2011.

A listing of the BAT notes reviewed and deemed applicable to the proposed development as part of the operational requirements as an Industrial Emissions facility are provided in Attachment A.4.

The Environmental Impact Assessment process and results are outlined in an Environmental Impact Statement (EIS) and Non-Technical Summary. The emphasis of the study is on prevention of impacts, with the resulting information taken into account by the appropriate planning authority when forming their judgements on whether the development should proceed. The EIS contains information on the scale and nature of the proposed development, a description of the existing environment, impact assessment of the proposed development and mitigation measures to control and/or reduce the impact on the receiving environment.

The structure and content of this Environmental Impact Statement has been based on the following Guidance publications; "Advice Notes on Current Practice in the preparation of Environmental Impact Statements, EPA (2003)", and "Guidelines on the information to be contained in Environmental Impact Statements, EPA (2002).

To allow for a consistent and simplistic approach to the EIS document when addressing the various components of the environment a systematic structure was adopted for the main section of the EIS, known as a "Grouped Format". The structure was used for each particular environmental aspect outlined below. The EIS is presented in four volumes:

- Volume I: Non-Technical Summary;
- Volume II: Environmental Impact Statement;
- Volume III: Drawings;
- Volume IV: Attachments;

A breakdown of the EIS sections is outlined in Table 1.1.

Table 1.1 – EIS Document Outline

EIS Section	Description
Volume I – Non Technical Summary	This document provides an overview and summary of the main EIS using non-technical terminology. It is a means for non-professionals to review the information included in the main EIS document. It is a stand-alone document and provides a clear and concise summary of the existing environment, characteristics of the development and mitigation measures for the development.
Volume II – Main EIS Document	To allow for ease of presentation and consistency when considering the various elements of the environment, a systematic structure will be adopted for the main body of the statement.
Chapter 1	Provides an introduction and a brief background to the project, the legislative requirements under which the document is prepared, EIS consultation and scoping the layout of the EIS.
Chapter 2	Detailed description of the existing site infrastructure, facility operations, nuisance controls, environmental sampling and monitoring and facility management.
Chapter 3	Detailed description of the proposed development, site infrastructure, facility operations, nuisance controls, environmental sampling and monitoring and facility management.
Chapter 4	Details the alternatives to the development accounting for planning, development plans and waste management policies.
Chapter 5	Human Beings/Socio-Economic Impacts
Chapter 6	Flora and Fauna
Chapter 7	Water
Chapter 8	Soils/Geology and Hydrogeology
Chapter 9	Noise
Chapter 10	Air Quality and Climate
Chapter 11	Landscape and Visual Impact
Chapter 12	Traffic
Chapter 13	Archaeology & Cultural Heritage
Chapter 14	Material Assets
Chapter 15	Interaction of the Foregoing
Volume III - Drawings	All referenced drawings are provided in Volume III of the EIS.
Volume IV - Attachments	Supporting documentation and references

1.5 Scoping of the Environmental Impact Assessment

As part of the EIA process, Glanway Ltd. contacted the Kilkenny Co. Co. Planning Department (Planning Authority) and a formal pre-planning meeting was held on February 4th, 2015 to discuss the scope and extent of the proposed development.

On the 14th January 2015 a meeting was held between Glanway Ltd. and the Environmental Protection Agency (EPA). JRE Ltd. and Glanway Ltd. met with Mr. Brian Meaney of the EPA to discuss the proposed development and the requirement for the application for an Industrial Emissions Licence for the site.

JRE, in consultation with Glanway Ltd., also undertook a process of consultations with various statutory and interested parties. In accordance with Section 4 of the Advice Notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003), the consultation process consisted of consultation with competent bodies, statutory bodies and interested parties. The primary objective of involving competent bodies, statutory bodies and interested parties in the Environmental Impact Assessment process is to aid scoping of the Environmental Impact Assessment and to allow all parties to highlight issues of concern. A copy of correspondence sent to and received from Consultees is included in Attachment A.5. Table 1.2 lists the various parties consulted during the preparation of the Environmental Impact Assessment.

Table 1.2 List of Consultees contacted during EIA

Consultees	Department
Kilkenny County Council	Planning
	Environment
	Roads
Inland Fisheries Ireland	
Geological Survey of Ireland	
Waterways Ireland	
Birdwatch Ireland	
Environmental Protection Agency	
Coras Iompair Eireann	
Department of Agriculture, Fisheries and Food	
National Parks and Wildlife Service	
Port of Waterford	
The Heritage Council	
An Taisce	
Department of Communications, Energy and Natural Resources	
Department of the Environment, Community and Local Government	
Waterford County and City Council	
Wexford County Council	

1.6 Technical Difficulties and Availability of Data

No significant technical difficulties or lack of data were experienced in preparing the Environmental Impact Statement for the proposed development.

1.7 Study Team & Contributors

JRE has completed this EIA with inputs from Odour Spectrum Lab, Gradko and Glanway Ltd.

1.8 Governing Strategy and Policy

This section describes the planning policy statements that affect the increased throughput at the facility and describes how it is consistent with national and regional planning and waste management objectives. It is based on the Kilkenny County Development Plan 2008 - 2014, the Joint Waste Management Plan for the Southeast 2006 – 2011, and National waste policy and regulations.

1.8.1 National Spatial Strategy

The National Spatial Strategy 2002-2020 (NSS) is a 20-year planning framework for all parts of Ireland. It aims to achieve a better balance of social, economic and physical development between regions. Its focus is on the relationship between people and the places where they live and work. The Strategy seeks ways to unlock potential for progress, growth and development in a more balanced way across Ireland, supported by more effective planning. Balanced regional development is fundamental to the programme for Government.

The commitment to prepare the spatial strategy was included in the National Development Plan 2000 – 2006. Structures and mechanisms to integrate the Strategy into planning and activities at government, departmental, state agency, regional and local levels have been put in place. The Strategy has been rolled out through regional and local authorities, starting with the preparation and adoption of regional planning guidelines. Integrated planning frameworks will be put in place to set the foundations for the process of strengthening, consolidating and developing new and existing gateways and hubs.

A key policy link between national development priorities and local planning was put in place with the adoption in mid-2004 of Regional Planning Guidelines. At County and City level, Integrated Planning Frameworks are in place for almost all gateways.

The National Development Plan identified Dublin, Cork, Limerick/Shannon, Galway and Waterford as existing gateways. The NSS affirms that development of these cities as engines of growth must continue to be supported and encouraged. Building on the growing strength of Cork, Limerick/Shannon, Galway, and Waterford offers the most immediate prospects of making a strong start to the process of achieving more balanced regional development. In the southeast region, it is envisaged that critical mass will be enhanced through Waterford performing as a gateway, supported by Kilkenny and Wexford as hubs and the three together forming a nationally strategic growth triangle.

1.8.2 Regional Planning Guidelines

Under the Regional Planning Guidelines, 2004, "the provision of first class infrastructure and facilities in the Hubs and County town locations within the southeast region will help in development of 'critical mass' in the region and the achievement of the nationally strategic 'growth triangle' referred to in Section 4 of the National Spatial Strategy between Kilkenny, Wexford and Waterford City.

1.8.3 Planning and Land Use Transportation Study (PLUTS)

The Waterford Planning and Land Use Transportation Study (PLUTS) sets out a strategy that aims to provide guidance as to the general scale and location of growth in Waterford so that the city and its environs can be developed in a balanced, sustainable, transport-friendly and attractive way to provide a high quality of life and opportunities for all its citizens over the next 20 years. It recognises that significant development will take place in the environs of Waterford City and in county Kilkenny into the future as Waterford grows into its role as the Regional Gateway under the NSS. The PLUTS has been adopted by Kilkenny County Council, along with Waterford City and County Councils.

The PLUTS identifies Belview as one of four key locations for future employment for Waterford City. Section 5.2.2, of the Kilkenny County Development Plan 2008-2014 states "The port at Belview is a strategic national, regional and country asset with good road and rail links". The CDP calls for the role and status of the port nationally and regionally to be strengthened in line with the NSS. The port has excellent road connections to the National Road Network via the N29 and N25 routes and Waterford Bypass.

- Policy ED11 of the CDP is; "to develop that national role of the Port at Belview and the Belview industrial zone"; and
- Policy ED13 of the CDP is;"to ensure that sufficient and suitable land is zoned for port and industrial development at Belview".

1.8.4 Kilkenny County Development Plan 2008 – 2014

The Kilkenny County Development Plan 2008 – 2014 sets out Kilkenny County Council's policies and objectives for the proper planning and sustainable development of the county from 2008 – 2014. Part II of the Planning and Development Act 2000 requires a planning authority to prepare a development plan for its functional area every 6 years. Thus, the review of the County Development Plan 2002 – 2008 began in 2006 and resulted in the current plan. A review of the current plan was also completed in 2012 to inform the next Kilkenny County Development Plan and Kilkenny City & Environs Development Plan 2014 – 2020.

In preparing the County Development Plan (CDP) 2008 – 2014, Kilkenny County Council had regard to the relevant national and regional regulations, plans, policies and strategies which relate to the proper planning and sustainable development of the area, including:

- The Planning and Development Act 2000 (as amended)
- The Joint Waste Management Plan for the South East 2006 - 2011
- The National Spatial Strategy 2002 – 2020
- The National Development Plan 2007 – 2013
- Ministerial Guidelines and Directives
- South East Regional Planning Guidelines 2004 – 2020
- Waterford Planning and Land Use Transportation Study (PLUTS); and
- Strategy for Economic, Social and Cultural Development 2002 – 2012

The CDP allowed for the preparation of separate local area plans (LAPs) for a number of areas, including Waterford City Environs, which includes the Belview area. These LAPs commenced in 2007 and were issued under different timeframes from the CDP. The Ferrybank / Belview LAP is described in Section 1.8.5 below.

1.8.5 Local Area Plan

The Ferrybank-Belview Local Area Plan (2009) contains an overall strategy setting out:

- the future development of the area,
- land use zonings promoting particular use in appropriate locations,
- policies and objectives with the intent of guiding development , and
- development guidelines which will be applied to future planning applications in the area.

This will ensure that such development occurs in a planned and orderly manner. It addresses:

- The need to accommodate the future growth of Waterford city
- The need to protect the heritage and distinct environmental quality of the study area
- The need for increased community services and facilities, such as schools, community halls, sport and recreation facilities, health facilities, etc.
- The need to provide the above services and facilities in conjunction with, and close to, new housing
- The need for adequate economic and employment opportunities in the area
- The need to provide various types of open space to meet the demands of a growing community, e.g. playgrounds, playing fields and public parks.

1.8.6 Zoning

According to Section 2.10.8 of the Ferrybank-Belview Local Area Plan, the area around the facility has been zoned PFI: Development of Port Facilities and Industry, see zoning map provided in Attachment A.6. The following is an extract from the Ferrybank- Belview Local Area Plan which was published by Kilkenny County Council in March 2009, in relation to the area where the facility is located.

"The proximity of the Wastewater Treatment Plant at Gorteens, the ready availability of water, land, energy, as well as good infrastructural links are the key elements which make these lands ideal for industry".

1.8.7 Strategic Environmental Assessment (SEA)

A Strategic Environmental Assessment (SEA) was completed as part of the Local Area Plan (LAP) to evaluate environmental quality within the area. The SEA aimed to integrate sustainability objectives into the decision making process, identify objectives for the LAP and develop sustainability criteria for the area.

The SEA was conducted by Openfield Ecological Services in March 2009 on behalf of Kilkenny County Council. Baseline data was collected on the indicators described in the SEA Directive, which correspond with the indicators used in this EIS. The SEA found that the Ferrybank-Belview area contains areas of important semi-natural habitats, which must be safeguarded if the region is to develop in a sustainable fashion. The SEA concluded that the LAP had only one major potential negative impact on biodiversity, and that was the cumulative impacts of removal of hedgerows and treelines, some of which are hundreds of years old. Doing nothing might also be an impact where alien invasive species are not controlled (e.g. cherry laurel, Japanese knotweed).

1.9 Waste Management

Section 9.12 of the Kilkenny Development Plan 2009 discusses the objectives for waste management in Kilkenny with reference to the Joint Waste Management Plan for the South East, 2006 - 2011. The joint waste management plan was developed by the local authorities of Carlow County, Kilkenny County, Waterford City and County, Wexford County, and South Tipperary County prepared a joint approach to the following:

- Promote waste prevention and minimisation through source reduction, producer responsibility and public awareness.
- Provide a management plan for the recovery/recycling/disposal of waste arising on a regional basis.

The development and operation of the proposed facility and the need for the project with relation to the Joint Waste Management Plan for the South East, 2006 – 2011 is discussed in more depth in section 1.10 below.

1.9.1 National Waste Management Policy

A number of National waste management policies have been implemented since the initial national waste management policy document "Changing Our Ways" was issued by the Department of the Environment and Local Government in 1998. The policy was linked to the EU waste management hierarchy and was supported by EU legislation (i.e., EU Landfill Directive 99/31/EC) that set targets for reducing volumes of biodegradeable waste based on 1995 figures. The targets were:

- Minimum 25% reduction by 2010 (4 year derogation);
- Minimum 50% reduction by 2013 (4 year derogation); and
- Minimum 65% reduction by 2016.

The follow up Policy statement in 2002 "Preventing and Recycling Waste – Delivering Change" looked at initiatives to achieve targets in the Waste Hierarchy and achieve increased recycling rates nationally.

In 2004 the document "Waste Management – Taking Stock and Moving Forward " identified and acknowledged the improved recycling rates being achieved in Ireland since 1998 and that increased efforts were also required.

The EU Waste Framework Directive 2008/98/EC was introduced to ensure coordination on waste management within Member States to limit waste generation and optimise waste management and treatment options. The Directive was transposed into Irish law by the European Communities (Waste

Directive) Regulations 2011. Under the requirements of the Directive Member Stares must reuse or recycle 50% of certain household wastes and reuse, recover or recycle 70% of C&D waste by 2020.

The most recent Waste Policy Statement "A Resource Opportunity- Waste Management Policy in Ireland 2012" is also based on the original EU waste hierarchy and includes requirements for waste prevention, reuse, recycling, recovery and disposal. The document includes ways that the Country can reduce reliance on finite resources, almost entirely reduce dependence on landfill and minimise the impact of waste management on the environment. A key objective of the policy is that when waste is created the maximum value should be extracted from it by ensuring that it is recycled, reused or recovered.

1.9.2 Joint Waste Management Plan for the South East 2006-2011

In 2006 the local authorities of Carlow County, Kilkenny County, Waterford City and County, Wexford County, and South Tipperary County prepared a Joint Waste Management Plan for the South East (JWMPSE) as a joint approach to promote the following:

- Promote waste prevention and minimisation through source reduction, producer responsibility and public awareness.
- Provide a management plan for the recovery/recycling/disposal of waste arisings on a regional basis.

Section 3.4 of the JWMPSE assessed the planning and location of waste management facilities and it determined that it was important "*To provide adequately for waste management facilities, notwithstanding the zoning of land for the use solely or primarily of particular areas for particular purposes in development plans, or the absence of zoning provisions, approval for waste management facilities necessary for the proper implementation of the Plan shall be considered open for consideration in all areas*".

Section 7.4 of the JWMPSE set out proposals for energy recovery from waste as outlined in Table 7.6 of the policy as outlined below:

- support for an promotion of thermal treatment with energy recovery either for electricity generation or combined heat and power,
- support for and promotion of generation of refuse-derived fuel (RDF); and
- an integrated waste facility incorporating thermal treatment and energy recovery

Section 10.1.2 of the JWMPSE indicated that when the environmental burdens associated with the different waste management scenarios are examined for local impacts, options containing thermal treatment are preferred. In all environmental impact categories examined in the JWMPSE , the thermal treatment options resulted in avoided environmental burdens.

The inclusion of transport emission data and the recycling targets sensitivity analysis performed did not alter the ranking of the options. In scenario 3 of the conclusions in the JWMPSE, "*thermal treatment with ash and non-combustibles to landfill is the preferred option from an environmental prospective. Accordingly, it should form part of the integrated waste management approach (operating to Best Available Technology) and it is envisaged that residual waste collected in the Region would be directed to such a thermal treatment solution in order to ensure the viability of this integrated waste management approach in accordance with the policy set out in section 11.5"* of the JWMPSE.

The requirements of the JWMPSE indicated the need for thermal treatment and support for recovery of waste as RDF. It is considered that the proposed development fits well with the current and future requirements of the JWMPSE.

1.10 Need for the Project

Glanway's decision to increase the tonnage throughput at their existing facility is based on the need to meet market demands for waste recovery in the south east region and to meet the Joint Waste Management Plan for the South East and National Waste Management Policy to improve the quality of the fuel substitute product being shipped through the removal of ferrous and non-ferrous metals for recycling and removal of organic fines and subsequent off site removal to a permitted or licensed facility for stabilisation. The implementation of increased physical processing of the waste materials will allow for an improved recovered fuel product.

The close proximity of the baling facility to the shipping port reduces the requirement for double handling of materials from other baling facilities that may be located a further distance from the point of dispatch. This will reduce fuel costs and greenhouse gas emissions that would be produced from increased transportation of baled materials.

The provision of a waste recovery option within the southeast is an integral part of the Southeast Regional Waste Management Plan and its policy is to maximise recovery and minimise disposal.

The existing baling facility is suited for the pre-processing and recovery of mixed waste materials for the following reasons:

- There is an excellent road network connecting the facility to Waterford, Kilkenny and New Ross areas through National Primary routes (N25 and N29) and the M9 Motorway.
- The facility is located in an industrial setting and is not close to domestic sensitive receptors;
- The activities are compatible with existing operations taking place in the area;
- The facility is located in very close proximity to the shipping area at Belview Port;

- The facility is a closed system with an impermeable concrete floor and no internal sewer or surface water connections. Any leaks or spillages that take place within the building cannot leave the building and will help protect the sensitive environmental receptors in the area.

If the project were not to proceed then it would result in the extended transportation of waste material from the greater Waterford area and the southeast region to other processing facilities or to landfill. Glanway would not be able to provide the level of service and support the current and anticipated market demands past 2015 and would not be competitive in the marketplace. If this development were not to proceed for the increase in tonnage throughput , then it is likely that, ultimately, the facility would not be viable with the loss of a crucial infrastructural requirement for the area and loss of employment.

1.11 Conclusions

The proposed development is consistent with current land zoning use. The proposed changes will not constitute a significant impact and an increase in tonnage throughput will allow for further consistency with the national and regional waste policy objectives. It will allow the southeast region to achieve the maximum value from the waste and will help meet national and regional recovery targets.

2.0 EXISTING FACILITY

2.1 Introduction

This chapter describes the existing facility and current activities. It outlines the environmental controls in place at the facility and used on a daily basis during operations. Where relevant, other chapters of the EIS are referenced where they contain more detailed descriptions or evaluations of impacts or control measures.

2.2 The Applicant

Glanway Ltd. is an Irish owned business that has been in operation since March 2014. The company currently operates a waste baling facility under a County Council waste permit for materials recovery and waste management. The company currently operates a waste baling facility at Building 4 and 5 at Belview Port Co. Kilkenny for the production of refuse derived fuel (RDF) from municipal solid waste material. The facility provides an alternative to landfill for waste companies operating in the southeast region and provides for recovery rather than disposal of those waste materials.

The company's customer base encompasses waste collection companies collecting non-hazardous domestic and commercial waste in the southeast region and beyond. Current company operations are limited and involve only 4 staff (2 full time and 2 part-time) managing and operating the facility. It is Glanway's objective to provide a recovery outlet for waste materials collected in the southeast region and beyond and to do that with respect to the surrounding environment and the best available technologies that can practicably be employed at the facility. The company's Headquarters are at 11 Patrick Street, Kilkenny. A copy of the company certificate of incorporation is provided in Attachment A.2.

2.3 Current Facility Overview

The Glanway facility is located at Belview port, four km east of Waterford City. The site is accessed via the N29 off the N25 Rosslare to Waterford/Cork road. The site is bounded to the east by the Waterford to Rosslare Railway line, to the west and south by farmland and to the north by the main entrance into Belview Port. Belview port contains loading/unloading facilities as well as areas of warehousing associated with the port. The existing facility consists of Buildings 4 and 5 (each with a floor area of 1,867 m2). Buildings 4 and 5 are a steel portal frame design featuring 6.5m high reinforced concrete walls at the building base and dark grey galvanised steel purlins on a structural steel portal frame. The apex of the roof in each building is 15.7m above ground level. The facility is inside a security fenced area within Belview Port and internal access roads and yards exist to the east and southeast.

To the south and north of the facility are similar constructed sheds for the storage of bulk port related goods (e.g., fertilizers and biomass).

Staff welfare (i.e., toilets, wash facilities and canteen) are located in a temporary portakabin structure located immediately east of Building 5 while construction work is ongoing to neighbouring warehouses.

Building 5 is used to receive and process (i.e., bale) municipal solid waste into refuse derived fuel (RDF). There are also areas to within Building 5 (approximately 1,350 m^2) designated for temporary storage of finished bales prior to shipment. The trucks delivering the waste material to the facility tip onto the facility floor at the reception area which is an area of approximately 180 m^2 within the process building and immediately adjacent to the baler feed hopper. The material is then fed into the baler feed hopper using a front end loader and is transferred along a conveyor to the Flexus baling system.

When on the conveyor, the waste is sprayed with an AquaClean ACF32 (AquClean) bacteria solution to help reduce potential odour and potency of any leachate produced. The Aquaclean solution is applied through a nozzle applicator connected to the baler feed system (i.e., between the hopper and baler). Details of the Aquaclean solution are provided in Attachment B.5. The waste is then is then compacted, shaped and wrapped with 6 to 10 wraps of polythene with a 50% overlap to ensure full encapsulation of the waste. Each wrapped bale is approximately 1.2m x 1.35m and weighs approximately 1 tonne. The bales are then removed from the conveyor system by front loader grab and transferred to one of two temporary storage areas within Building 5 that can store up to 5,000 tonnes of bales safely at any one time. The existing facility also includes a waste quarantine area for the removal of non-acceptable waste types that may be found in deliveries to the facility.

Bales in the designated storage areas are inspected on a daily basis to assess the condition of the wrap and ensure there are no breaches that would allow waste, odour or leachate to migrate. Any bales with minor breaches are repaired as per the site SOP for dealing with damaged bales (See Attachment B.3). Bales that are considered to be beyond repair are re-wrapped as soon as possible after discovery.

A DAX Airscience Maxi Thermal MT 1500 odour abatement system units to control odours and bio-aerosols in the process shed. The MT 1500 process uses the latest in thermal convection and U/V technology to kill up to 98% of pathogens in the air and on surfaces (see Chapter 10 and Attachment B.6. for further details on the DAX unit). The Flexus baling system currently in use in Building 5 has the capacity to bale a maximum of 25 tonnes per hour. However, based on the restricted tonnage throughput currently imposed by the waste permit for the facility it operates at approximately 3-4 tonnes per hour. Details of the Flexus Baling system are provided in Attachment B.4. An outline of the existing flow process at the Glanway facility is illustrated in Figure 2.1 below.

STORAGE AREA

STORAGE BAY

STORAGE BAY

Quarantine Area

RECEPTION AREA

2. - Truck Tips in Reception Area

1. - Truck Reverses into Building 5 from Building 6

Truck Exits Facility

3. - Waste is Loaded to Feed Hopper

4. - Waste is Transferred on Conveyor and Sprayed with Aquaclean Solution

5. - Waste is Compacted & Baled

6. - Baled is Wrapped with LDPE

7. - Wrapped Bale is Transferred to Storage Areas

STORAGE AREA

BUILDING 5

TEMPORARY WELFARE FACILITY

BUILDING 6

JRE Environmental Consulting

CLIENT:	LOCATION:	DATE: 20/01/15
GLANWAY LTD.	**BELVIEW PORT, SLIEVERUE, CO. KILKENNY**	DWN: JER
TITLE:	DRAWING REF:	REV: 0
RDF BALE STORAGE LAYOUT	**FIGURE 2.1**	SCALE: 1:110

Four (4) people are currently employed at the facility comprising of equipment operators, general operatives, a Facility Manager and administrative staff. The current operational hours at the facility are 08:00 to 18:00 Monday to Friday and 08:00 to 13:00 on Saturdays.

2.3.1 Services

There is an ESB electrical substation controlled by Electric Ireland at the Port and to the north of building 5. There is mains water supplying the Port and surrounding businesses, however there is no connection to the baling facility buildings and any water used in the process is stored in IBCs within the building. There are no sewer or surface water discharges from inside the facility building. Surface water runoff from the building roofs and the surrounding yards are directed to the Belview Port surface water drainage system. Sewage from the welfare portakabin are stored in a tank and removed off-site to the City of Waterford Waste water Treatment Plant located in Gorteens approximately 1.5 km from the facility.

2.3.2 Surrounding Land Use

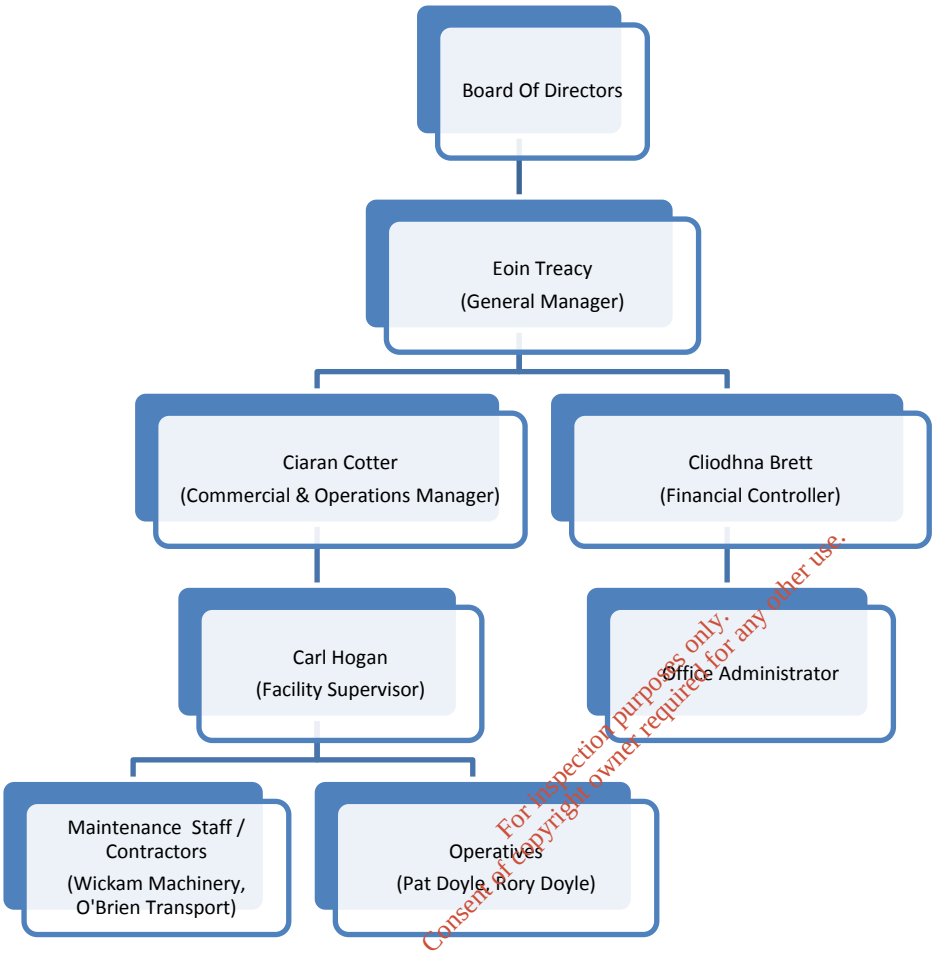
The Glanway facility and most of the surrounding lands have been developed for industrial and commercial use. The facility is located in Buildings 4 and 5 in a series of seven commercial/industrial sheds concerned with Port related activities. To the south of Buildings 4 and 5 are three identical structures used for the bulk storage of fertilizers, biomass and animal feed. Further to the south and southeast is the O' Brien's Quay section of Belview Port used for loading and unloading bulk cargo and an industrial cement facility. To the east of the Buildings is a CIE railway line and then the Belview Port container shipping area where bulk containers are loaded and unloaded 24 hours per day, seven days per week.

To the north of Buildings 4 and 5 are newly constructed Buildings 6 and 7, beyond building 7 is a carpark area, maintenance workshop, new office buildings and then the N29 National Primary Road and the entrance to Belview Port. Further north of the N29 are commercial storage buildings and other industrial facilities including Smartply. To the west of the facility buildings is agricultural land, mainly tillage and improved grasslands. The closest private residence to the facility is located 390m to the west and upwind (based on a southwest prevailing wind) of the facility. There are 2 private residences within a 500m radius of the facility and both are perceived upwind of the site.

2.3.3 Site Management Structure

The site management structure for Glanway Ltd. is outlined in Figure 2.2 below. The experience and training of the main facility management personnel is also proved.

Figure 2.2 – Glanway Ltd. Management Structure



The Glanway General Manager: Eoin Treacy holds a BE in Civil & Environmental Engineer from UCD with an MBS in Project Management from UCD Smurfit Business School. He has 5 years Project Management experience in Construction and 5 years working in waste industry of with 18 months International Business Development Management experience with a privately owned waste management company and 3.5 years with Foras Group brokering & trading waste derived alternative fuels. He has been general manager at Glanway facility in Belview for the past 12 months and is a member of CIWM (Chartered Institute of Waste Management) and currently applying to become a Chartered Waste Manager with CIWM.

The Glanway Operations & Commercial Manager: Ciaran Cotter holds a Bcomm from UCC and then completed an MSc in Marketing Practice in UCD Michael Smurfit Graduate Business School. He has worked in a number of sectors including time with an alternative energy start-up Heatricity, marketing roles with the Irish Dairy Board in Ireland and the UK working with the world renowned Kerrygold brand. At the beginning of 2012 Ciarán established the export operation for household waste for a private waste management company building up to over 120,000t by the end of 2013. Ciarán oversaw all aspects of the business from operations, to administration, to logistics and contract negotiations. He has been working with Glanway for the last 12 months as Commercial & Operations Manager.

The Glanway Operations Supervisor, Carl Hogan worked for nearly 10 years with Veolia and then Greenstar as their Operations Supervisor at their facility in Six Cross Roads. Carl has been working with Glanway for the past 6 months.

2.3.4 Operational Hours

The facility currently operates between 08:00 and 18:00 from Monday to Friday and 08:00 to 13:00 on Saturdays.

2.3.5 Waste Types & Quantities

The existing waste permit for the facility imposes a cap of 20,000 tonnes of waste that can be pre-processed in Building 5, this tonnage is a mix of the materials included in Table 2.1;

Table 2.1: Current Waste Types Processed at Glanway Facility

European Waste Catalogue (EWC) Code	Description
19 12 10	Combustible waste (refuse derived fuel)
20 03 01	Mixed municipal waste (or Mixed Dry Recyclables)
19 12 12	Other waste (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11.

2.3.6 Waste Acceptance Procedure

All wastes accepted at the facility will be in line with the existing waste acceptance procedures as developed in line with the Waste Permit. The Standard Operating Procedures for Waste Acceptance is provided in Attachment B.1.

Waste is delivered to the facility by suitably permitted waste contractors and is not accepted from members of the public or waste collection contractors that do not have a contract with Glanway. Waste deliveries are delivered in closed trailer containers. All deliveries must weigh in at the entrance to Belview Port and any accompanying documentation is checked, see Attachment B.2.

Prior to gaining access to the site the vehicle operator is required to provide the necessary information, such as the waste type, source of the waste, vehicle type, vehicle operators name, and any other relevant information deemed necessary by the weighbridge operator. The load information will be verified and logged prior to the shipment being accepted. Deliveries are visually inspected prior to acceptance by the facility operator to ensure that the waste type is allowed to be accepted under the requirements of the Waste Permit. Any loads found to contain unsuitable wastes will be rejected, see Attachment B.3.

2.3.7 Waste Handling

The vehicle operator is directed to the facility entrance and the roller door is raised immediately prior to the truck reversing to the designated tipping area inside the building, where its load is deposited. Once inside the building the roller door is closed to reduce odour and noise impacts. If an inspection of the load identifies non-conforming waste materials, the vehicle operator will be required to remove the entire load from the facility, prior to exiting the site. If the material conforms with the accepted waste streams for the facility the material is tipped in the designated reception area and the truck exists through the roller door. The door is opened immediately before the truck exits and immediately after it leaves the facility building.

Once the waste has been tipped on the reception area of the facility floor it is visually inspected prior to being loaded into the hopper for feeding to the on-site baler. This is to ensure that all non-conforming, or dangerous (e.g., compressed gas cylinders), are removed from the waste load, and deposited to the waste quarantine area. The removed material is stored in the quarantine area pending removal off site by the waste producer. In the event of the producer refusing to remove the waste, or the source of the waste is unknown, Glanway Ltd. will ensure that it is removed off site and disposed of at an appropriately licensed facility as soon as possible. Glanway Ltd. will maintain records of the waste type, quantity, and ultimate disposal/treatment facility.

The baler used at the facility is a Flexus Baler that can bale a maximum of 25 tonnes of waste per hour for municipal waste streams, and produces a bale size of approximately 1.2m high and 1.35m wide weighing approximately 1 tonne. Finished bales are removed from the conveyor using a front end grab and bales are stored in designated areas within building 5.

2.3.8 Facility Equipment

The current processing activities only involve the baling of mixed municipal waste to create a wrapped RDF bale. The equipment used within the facility for the processing and movement of material and product are provided below:

- **Flexus Baler system** – Consists of a feed hopper, conveyor and compaction round baler. Each bale then enters the wrapper where it is wrapped in LDPE to envelope the waste.
- **New Holland Tele-handler** – The tele-handler is equipped with a grab at the front-end for handling the finished RDF bales without compromising the integrity of the wrap envelope. The tele-handler is used to remove finished wrapped bales and transferring them to the designated storage areas in the facility. It is also used for loading bales on to transfer trucks for movement to the quayside for shipment.
- **Wheeled excavator** – Excavator is used for transferring waste material deposited in the waste reception area within the building to the baler feed hopper.

Details of the baler system is provided in Attachment B.4.

2.3.9 Transport & Deliveries

The facility is accessed via the N29 National Road that services the Port of Waterford and currently has approximately 6 to 8 truck movements per day at the site. Vehicles delivering waste materials to the facility cross the main weighbridge that services the Port, a standard operating procedure (SOP) for vehicles arriving at the weighbridge is provided in Attachment B.2. Once trucks are weighed in they then turn right before the railway crossing to access the process shed via a sealed surfaced internal road. Loads are accepted in bulk sealed trailers to reduce odours and allow for efficient deposit of waste onto the facility floor with approximately 6 to 8 waste deliveries per day. There is adequate room for queuing approximately 3 vehicles outside the facility on the internal road without impacting traffic on the N29, Belview Port entrance or access to the other bulk storage sheds in the area. To date there has been no need for trucks to queue to access the facility.

On days when shipments take place whereby finished bales are transported from the building to the quayside there can be up to 70 trailer loads of bales transferred between the building and the quayside over a 2 day period. All transfers are completed by 2-3 trucks completing the transfer inside the port facility and does not impact on the general high volume daily truck movements within the port. The transfer of bales to the quayside currently takes place approximately every 6 weeks.
Vehicles accessing other buildings adjacent to the facility (i.e., buildings 1 through 3) are not affected by Glanway traffic. When shipments are taking place, baled material is moved from the process building to the quayside by truck and trailer vehicles that shuttle over and back inside the Port facility, so there is no queuing of vehicles carrying outbound material for export.

2.3.10 Fuel / Chemical Storage

There are no hazardous materials stored at the facility and no storage of fuels takes place. All fuelling of facility machines is completed using a mobile tanker provided by Unecol that also services the Port site equipment. The facility equipment is fuelled on the concrete pad outside the building twice per week.

The only liquid stored at the facility is water in IBCs and a non-hazardous bacteria additive used in the baling process and the additive also used in spray systems at the facility door and at an extract fan for the reduction of odours from the building. The details of the AquaClean and Nova-Q additives are provided in Attachment B.5.

2.3.11 Surface Water

Surface water runoff from the roofs and paved roads and yard surrounding the facility is collected in the Belview Port surface water drainage system and directed to a settlement tank and petrol interceptor located at the northern end of Belview quay prior to discharge to the Suir at the northern end of the Port of Waterford quay.

Because the material received at the facility is in covered trailers there is minimal potential for any leachate to discharge outside the facility and enter the surface water system. In the unlikely event of an outside spillage at the facility it will be immediately cleaned up using absorbent material and added to the feedstock for the baler. There are no links to the surface water drainage system from inside the facility buildings.

2.3.12 Sewer

There is no wastewater produced from the pre-processing activities in the facility building. The floor of Building 5 is regularly scraped and brushed to keep it clean and there is no sewer discharge from the building. Sanitary and sink wastewater from the site welfare facilities is held in a portaloo storage tank and is emptied by tanker and discharged to the Port foul sewer system that is connected to the Waterford City Waste Water Treatment Plant located in Gorteens to the south of the facility. Glanway occupy office space in a new office complex to the north of the facility and this building is connected to the main sewer system that discharges to the Waterford City Waste Water Treatment Plant.

2.3.13 Waste Generation

The facility only generates small quantities of office wastes and where possible, wastes are separated and recycled. All equipment maintenance is completed by contractors. All facility equipment is rented and all equipment maintenance is completed under the contracts, this includes for the removal and appropriate disposal of any wastes arising from maintenance works (e.g., hydraulic oil, engine oil, batteries etc.). There is no residual waste created by the baling process and any small leachate leaks on the facility floor are absorbed using sawdust and then added to the baling feedstock.

2.3.14 Nuisance Control

Because the material accepted at the facility is mixed municipal waste it has the potential to be odorous and attract vermin.

Glanway have employed the services of a vermin control contractor to ensure that vermin control measures are in place and maintained on an ongoing basis. Vermin control contractor conducts regular visits and schedule is maintained of his actions and vermin activity at each visit. There are routine inspections made by site staff for the presence of flies or vermin. Glanway strive to ensure that any accepted waste spends a minimal amount of time on the reception area floor and is wrapped as soon as possible. This aids in reducing attractants and reduces vermin issues.

To control odours within the facility building and to control odour impacts on the surrounding area all waste loads are transported to the facility in enclosed trailers. The facility has employed a number of odour control measures within the facility building to control nuisance odours, including;

- Installation of DAX Odour control system
- Installation of Odour control spray systems at the entry/exit door and at the extract fan
- Installation of Nova-Q Hydrodor XC Solution in Mist Units Located on Roller door and Extract Fan
- Completion of regular sniff tests as part of daily site observations and consultation with neighbours on any odour impacts they experience.

DAX Maxi Thermal (NT1500)

The MT1500 unit takes in contaminated air and purifies it using a unique dual lamp system. The dual ultraviolet light operates at the peak UVC wavelengths. One lamp makes ozone (O_3) and the second lamp coverts the ozone to hydroxyl radicals (OH) short-lived but powerful destroyers of the DNA of airborne pathogens. Specialist thermal convection smoothly moves air through the unit, and distribution of air over the dual lamp is controlled to increase exposure to the UV light providing maximum pathogen destruction both internally and around the internal space environment. Forty eight (48) MT1500 units are in place throughout the process building (building 5) and are continuously operating to reduce odours at source rather than treating them externally, see Attachment B.6.

Application of AquaClean Solution to Baled Waste

A spray system has been retrofitted to the conveyor of the baling system to apply AquaClean solution to the waste prior to baling. AquaClean is a bactreia based solution which is non-toxic and biodegradeable, see Attachment B.5. When waste is baled, depending on pre-treatment, there are ranging levels of residual organics left in the bale. Organics decompose in two ways: aerobically and anaerobically, the latter being highly odourous with the generation of sulphurous and ammonia gasses in particular. In baled waste, the wrapping seals out the air making the environment inside the bale anaerobic. The handling of the bale with gripping forklifts, further treats the bales like sponges, forcing the liquid (leachate) out of the matrix and to the bottom of the bale. The handling of baled waste therefore has two distinct challenges – the generation of odour and pooling of leachate (which is also odorous).

The addition of AquaClean™ bacteria helps prevent these problems in two ways:

Leachate: The bacteria break down the organics (BOD, Nitrogen and Phospherous) anaerobically as follows:
BOD + N + P CH4 + H2S + CO2 + Cells [CH4 being methane, H2S is Hydrogen sulphide]
As bacteria cells are 85% water the water is retained in the cell mass rather than released as leachate.

Odour Prevention: With the right diversity of bacteria the generation of malodourous sulphur compounds and ammonia can be significantly reduced. There are various sulphur and non-sulphur purple bacteria in AquaClean™ and trial bales assessed by the manufacturer have shown a significant change in the noticeable odour.

Application of Nova-Q Solution in Mist Units Located on Roller door and Extract Fan

A spray bar system has been fitted to the sides and top of the entrance / exit door and the extract fan of Building 5 to control odour and dust emissions from the facility building. The application of the Nova-Q solution takes place during the entrance and exit of each truck delivering waste material to the facility building. The atomized spray is set to automatically switch on when the roller door is opened and it provides a mist curtain in the doorway to minimise the release of odour during material delivery and exit of empty trucks from the building.

Site Checks

Glanway personnel are pro-active in completing daily checks around the facility and liaising with neighbouring businesses on whether an odour issue is being experienced. Where an odour issue has been identified it is dealt with as soon as possible by implementing or assessing the effectiveness of aspects of the odour control mechanisms in place at the facility.

2.3.15 Site Security

The facility is located within Belview Port and is surrounded by security fencing. Access to the facility is through the main Belview Port entrance which is staffed 24 hours a day. A CCTV surveillance system is also in place at the Port entrance and yard lighting is in place throughout the Port facility during night time hours.

2.3.16 Safety & Hazard Control

Glanway are preparing a fire safety plan for the process building which is incorporated into the facility storage plan for storing baled material within the facility building. The plan was not yet complete at the time of this document submission.

3.0 PROPOSED DEVELOPMENT

3.1 Introduction

This chapter describes the proposed changes, including process changes and the inclusion of Building 6 as part of the proposed facility and the removal of Building 4 from the licensable area. It provides details of the proposed infrastructure, equipment and operation activities at the facility. It also describes the emission control measures that will be used at the facility to effectively mitigate environmental impacts.

3.1.1 Facility Development

The proposed development will not include any construction works or extensions to existing Buildings 5 and 6 and as such the potential environmental impact from construction works have not been included as part of this study.

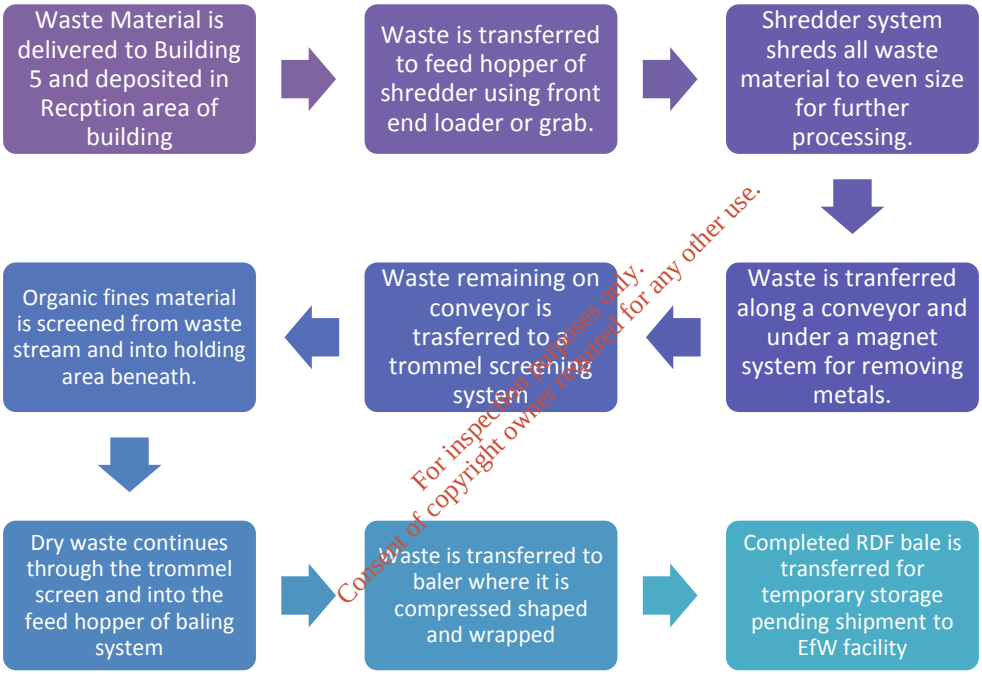
Glanway propose to increase the throughput of material at the baling facility in Building 5 to 300 tonnes per day (not exceeding 95,000 tonnes per annum) and to apply to the Environmental Protection Agency for an Industrial Emissions Licence to regulate the facility. The future licenced area will change from the current permit area (which includes Buildings 4 and 5) to include Buildings 5 and 6. The reasoning for including Building 6 into the facility footprint is to allow continued use of the roller door entrance on the northern façade of Building 5. The facility will continue to accept similar waste types to those already handled and processed at the site.

Trucks will enter Building 6 and complete a turn manoeuvre within the eastern half of the Building to allow it to reverse into Building 5 for unloading. The eastern half of Building 6 will be kept clear to allow for free movement and a safe turning circle for access to Building 5. The western half of Building 6 will be used for storage purposes. It will be split with a dividing wall to allow potential storage of different materials (e.g., baled waste on one side and biomass on the other). It will be ensured that any bulk material that may be impacted by its storage in close proximity to the baled waste material (e.g., animal feed) will not be permitted.

It is envisaged that future operation of the facility will include new physical process lines for received waste material prior to baling. The proposed physical processing will include; shredding, ferrous and non-ferrous magnets to remove metals for recycling and tromelling, to remove the organic fines component of the waste which will reduce the moisture content of the material and improve the calorific value of the fuel product being shipped. The shredding system will shred waste to allow a great range of waste be processed (e.g. bulky waste, skip waste, etc.) for the removal of organic material inadvertently placed in bags by householders, and the recovery of poorly combustible materials that

could be recycled (e.g., metals). The screening process will result in organic fines material being removed from the mixed waste stream and will be removed from site in an enclosed trailers for aerobic stabilisation at an approved permitted or licensed facility. The removal of the organic fines and metals component of the waste will reduce the moisture content and non-combustible element of the baled material and improve the calorific value and quality of the fuel substitute product being shipped. An outline of the proposed flow process at the Glanway facility is illustrated in Figure 3.1 below.

Figure 3.1: Waste Material Flow for Proposed Development



The removal of the organic fines and metals will allow for the production of a cleaner fuel substitute with a higher calorific value. Organic fines will be collected in an area located beneath the trommel screen that will allow for easier handling and removal of the material. The fines will be removed from the process building on a regular basis to reduce nuisance odour inside the building as much as practicable. The fines will be transferred off site in closed trailers to a licensed or permitted compositing facility for stabilisation. Metals will be removed and stored in a dedicated container pending removal from site to an appropriately licensed or permitted scrap metal facility.

3.1.2 Operational Hours

To provide flexibility to waste collection contractors supplying the facility Glanway would propose to operate on a 24 hour basis based on the fact that the Port is also operational on a 24 hour basis and would not result in any added noise nuisance to neighbours. The increased flexibility in reception hours

will allow for deliveries during off peak hours and spread out traffic using the facility over a longer period. This would be subject to approval from planning and the EPA.

3.1.3 Waste Types

The proposed increase in throughput tonnage at the proposed development will be for processing of approximately 300 tonnes of waste per day up to a maximum of 95,000 tonnes per year. The anticipated waste types that will be accepted are outlined in Table 3.1 below:

Table 3.1: Waste Types to be accepted at the Proposed Development

European Waste Catalogue (EWC) Code	Description	Maximum (Tonnes Per Annum)
19 12 10	Combustible waste (refuse derived fuel)	1,000
20 03 01	Mixed municipal waste	80,000
19 12 12	Other waste (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11.	500
15 01 01	Paper and Cardboard Packaging	100
20 01 01	Paper and Cardboard	100
19 12 01	Paper and Cardboard	100
15 01 06	Mixed Packaging	100
15 01 02	Plastic Packaging	100
17 02 03	Plastic	100
20 01 39	Plastics	100
15 01 04	Metallic Packaging	100
15 01 09	Textile Packaging	100
20 01 10	Clothes	100
20 01 11	Textiles	100
16 01 03	End-of-life Tyres	500
20 03 01	Dry Mixed Recyclables	100
20 01 08	Biodegradable kitchen & canteen waste	100
15 01 03	Wooden Packaging	100
15 01 07	Glass Packaging	100
17 01 07	Mixture of concrete, bricks, tiles & ceramics	100
20 03 07	Bulky Waste	100
19 12 12	Combustible Waste	100
17 09 04	Mixed construction & demolition waste	11,000
17 08 02	Gypsum based construction materials	100
20 01 02	Glass	100

3.1.4 Site Services

There will be no additional services supplied to Buildings 5 and 6. The only additional demand with the proposed facility will be on electricity during extended operations for running the baling system and there will also be additional demand when the additional shredding and screening processes are introduced. Extended operational times will also require additional power for lighting inside the Buildings.

The volume of water used in the process facility will be minimal (e.g., dust / odour suppression on building entrance/exit roller door). It is estimated that currently the water usage per completed bale is 1 litre, this includes addition of AquaClean solution on baler and odour and dust suppression systems on the entrance/exit door and extract fan.

Although there is no mains water supply to the buildings there are connections to fire hydrants located on the access road running along the east of the facility buildings that can be accessed for fire suppression in case of an emergency. Building 5 is also bunded around its base and across all doors so that in the unlikely event of fire suppression being required the fire water could be contained in the base of the building footprint.

3.1.5 Surface Water

There will be no change to the surface water drainage system. Rainwater from buildings 5 and 6 will be directed to the existing surface water drains. The existing surface water drainage system is designed to accept rainwater from the entire Belview Port site which includes the roofs of Buildings 5 and 6, see Drawing 603 in Attachment A.1.

3.1.6 Sewer

There will be no connection to the foul sewer from the proposed development (Buildings 5 and 6). Welfare facilities will continue to be based in the existing temporary site office with temporary portaloo. Once construction work is completed on buildings 6 and 77 the temporary site office will be relocated north of the new weighbridge and connected to Port sewage system. Even with an increase in operatives working at the facility from 4 (2 full time and two part-time) to 9 (5 full time and 4 part-time) the existing facilities will be adequate to provide for the increased usage.

3.1.7 Waste Acceptance Procedure

Glanway already have a documented waste acceptance standard operating procedure (see Attachment B.3) for the current operations on site. Because the nature of the waste materials being accepted at the proposed development will not differ to the current waste streams at the facility, and no hazardous wastes will be accepted at the facility, the existing waste acceptance procedures will continue to be implemented at the proposed development.

3.1.8 Waste Handling

Because the nature of the waste materials being accepted at the proposed development are not different to the current waste streams at the facility the waste handling procedures will be broadly similar to those currently used in the existing process. Material accepted at the facility will be baled on the day of arrival where possible or at least within 12 hours of arrival at the facility.

The exception to the current handling procedures will be when the shredding, metals removal and trommeling processes are implemented at the proposed development. The reception area will need to be moved to accommodate feeding material to the shredder prior to trommel screening and baling. The production of residual organic fines material will also require changes in waste handling and storage within the building to ensure that the fines material is collected, stored and transported off site as efficiently as possible.

Fines will be transferred to a collection area located beneath the trommel screen for efficient and clean collection of the material. A revision of waste handling standard operating procedures will be implemented to include handling and storage of organic fines when the new process is introduced.

3.1.9 Facility Equipment

The proposed development will include additional physical processing of waste prior to baling. The equipment proposed to be used within the facility for the processing and movement of material and product are provided below:

Existing Equipment

- **Flexus Baler system** – Consists of a feed hopper, conveyor and compaction round baler. Each bale then enters the wrapper where it is wrapped in LDPE to envelope the waste.
- **New Holland Tele-handler** – The tele-handler is equipped with a grab at the front-end for handling the finished RDF bales without compromising the integrity of the wrap envelope. The tele-handler is used to remove finished wrapped bales and transferring them to the designated storage areas in the facility. It is also used for loading bales on to transfer trucks for movement to the quayside for shipment.
- **Wheeled excavator** – Excavator is used for transferring waste material deposited in the waste reception area within the building to the baler feed hopper.

Proposed Additional Equipment

- **Metso M&J 4000 shredder System -** The M&J 4000S stationary shredder is designed to meet the needs of plants in which the incoming material is extremely varied in both size and composition, and may also contain unpredictable components. The combination of a large cutting table and a twin-shaft shredding system makes it possible to shred almost all types of material. Depending on the machine configuration capacities of 10-100 Tonness/hours are achievable. The system will be fitted with a magnet system for the removal of ferrous metals.
- **Powerscreen Galaxy Range Trommel -** The Galaxy range is ideally suited to system engineered plant. The large drum diameter can facilitate high throughput volumes, ideal for large scale treatment of commercial and household waste as well as mixed construction waste

Details of similar process equipment to that which may be used in the proposed development (i.e., trommel, magnets and shredder) are provided in Attachment C.1.

3.1.10 Transport & Deliveries

The facility will continue to be accessed via the N29 National Road that services the Port of Waterford and it is proposed that the number of trucks delivering to the facility on a daily basis will increase from 6 to 8 trucks per day to approximately 20 trucks per day. Vehicles delivering waste materials to the facility will be mainly enclosed trailer units with some waste collection trucks also delivering directly to the facility. Delivery trucks will continue to cross the main weighbridge that services the Port, and the existing standard operating procedure (SOP) for vehicles arriving at the weighbridge will be adhered to for all deliveries, see Attachment B.4. The increase in traffic delivering to the facility is not considered to be excessive and will not result in queuing on the public road or in the Port entrance. The internal Port road leading to the facility buildings is approximately 50 metres long and will easily allow adequate room for queuing of up to three to four 40 foot container trucks. There is adequate room for queuing approximately 3 to 4 large vehicles or 5-6 waste collection trucks outside the facility on the internal road without impacting traffic on the N29, Belview Port entrance or access to the other bulk storage sheds in the area. To date there has been no need for trucks to queue to access the facility.

The frequency of shipments will increase based on the increased throughput of material. On days when shipments take place whereby finished bales are transported from the building to the quayside there can be up to 70 to 80 trailer loads of bales per day transferred between the building and the quayside over a 2 day period. All transfers are completed by 2-3 trucks completing the transfer inside the port facility and does not impact on the general high volume daily truck movements within the port. The transfer of bales to the quayside may increase from approximately every 6 weeks to every 2 weeks.

Vehicles accessing other buildings adjacent to the facility (i.e., buildings 1 through 4 and building 7) will not be adversely affected by the proposed development traffic. When shipments are taking place, baled material will be moved from the process building to the quayside by truck and trailer vehicles that shuttle over and back inside the Port facility, so there is no queuing of vehicles carrying outbound material for export.

Some additional traffic movements will be related to the proposed additional pre-treatment activities (i.e., shredding and trommel screening). It is proposed that the organic fines material removed during the screening process will be transferred off site to a licensed or permitted composting facility on a weekly basis to avoid odour issues. This will result in 1 additional truck movement into and out of the facility each week. The metals removed from the waste using the magnet unit located on the shredder system will be bulked and transferred off site once every three weeks (depending on the volumes collected).

3.1.11 Nuisance

The main perceived nuisance associated with the development will be odours from increased volumes of waste material delivered to the facility. However, the reduced retention time for waste material and completed bales (reducing timeframe whereby wastes can degrade and create odours) may reduce potential odour impacts. Glanway have existing odour control measures in place that they feel will allow them to continue at a higher throughput without increasing nuisance to the surrounding environment. Details of the odour control measures at the proposed facility are outlined below:

- **DAX Maxi Thermal (NT1500)** – The MT1500 unit takes in contaminated air and purifies it using a unique dual lamp system. The dual ultraviolet light operates at the peak UVC wavelengths. One lamp makes ozone (O_3) and the second lamp coverts the ozone to hydroxyl radicals (OH) short-lived but powerful destroyers of the DNA of airborne pathogens. Specialist thermal convection smoothly moves air through the unit, and distribution of air over the dual lamp is controlled to increase exposure to the UV light providing maximum pathogen destruction both internally and around the internal space environment. Forty eight (48) MT1500 units are in place throughout the process building (building 5) and are continuously operating to reduce odours at source rather than treating them externally.
- **Application of AquaClean solution to baled waste** - A spray system has been retrofitted to the conveyor of the baling system to apply AquaClean solution to the waste prior to baling. AquaClean is a bactreia based solution which is non-toxic and biodegradeable, see Attachment B.5. When waste is baled, depending on pre-treatment, there are ranging levels of residual organics left in the bale. Organics decompose in two ways: aerobically and anaerobically, the latter being highly odourous with the generation of sulphurous and ammonia gasses in

particular. In baled waste, the wrapping seals out the air making the environment inside the bale anaerobic. The handling of the bale with gripping forklifts, further treats the bales like sponges, forcing the liquid (leachate) out of the matrix and to the bottom of the bale. The handling of baled waste therefore has two distinct challenges – the generation of odour and pooling of leachate (which is also highly odorous). The addition of AquaClean™ bacteria helps prevent these problems in two ways:

Leachate: The bacteria break down the organics (BOD, Nitrogen and Phospherous) anaerobically as follows:

BOD + N + P CH_4 + H_2S + CO_2 + Cells [CH_4 being methane, H_2S is Hydrogen sulphide]
As bacteria cells are 85% water the water is retained in the cell mass rather than released as leachate.

Odour Prevention: With the right diversity of bacteria the generation of malodourous sulphur compounds and ammonia can be significantly reduced. There are various sulphur and non-sulphur purple bacteria in AquaClean™ and trial bales assessed by the manufacturer have shown a significant change in the noticeable odour.

- **Application of Nova-Q solution in spray bars located on entrance/exit roller door and extract fan** - A spray bar system has been fitted to the sides and top of the entrance / exit door and the extract fan of Building 5 to control odour and dust emissions from the facility building. The application of the Nova-Q solution takes place during the entrance and exit of each truck delivering waste material to the facility building. The atomized spray is set to automatically switch on when the roller door is opened and it provides a mist curtain in the doorway to minimise the release of odour during material delivery and exit of empty trucks from the building. Similarly, a mist spray system containing Nova-Q is in place at the extract fan to provide treatment of extracted air from the facility building and reduce the emission of odour and dust from the process building.

The location of the spray system is provided on Drawing 3184-001 in Attachment A.1.

Glanway also has a proactive vermin control system in place for control of flies and other vermin including rodents. Because the process is completed within a closed building it is not anticipated that birds would be a nuisance at the facility.

3.1.12 Resource Consumption

The proposed development operations will involve the increased use of fuel and electricity and small volumes of water. Electricity & Fuel consumption will increase pro-rata based on increased throughput of material in the facility. Installation and operation of the additional processing equipment will approximately increase electrical consumption by 3 to 4 times the current level.

3.1.13 Emergency & Fire Control

A Fire Management & Storage Plan is currently being completed by Glanway but was not available at the time of submission of the EIS.

Leachate Spills & Leaks

Small volumes of leachate that are produced from tipped loose waste or from fresh baled material stored in the process building will be cleaned up immediately upon discovery using sawdust to absorb the liquid. The sawdust will then be added to the baler feedstock and incorporated into a waste bale. The impermeable nature of the concrete floor and the bunding system at the facility doors means there will be no liquid discharge from inside the process building to the environment.

A site Closure Restoration and Management Plan was completed for the Glanway facility with reference to EPA guidance document "Guidance on assessing and costing environmental liabilities, 2014". The closure plan is included in Attachment C.2.

Similarly, an Environmental Liabilities Risk Assessment (ELRA) was also prepared for the facility with reference to EPA guidance document "Guidance on assessing and costing environmental liabilities, 2014". The ELRA is included in Attachment C.3.

4.0 ALTERNATIVES CONSIDERED

4.1 Introduction

This Chapter describes the alternatives to the proposed development.

4.2 Alternatives to the Waste Processing Facility

The Glanway facility is located in an area already zoned for industrial use, is serviced by a National Primary Road with no transportation through residential areas and in a facility that is already operational on a 24 hour basis (i.e., Belview Port). The alternatives to waste being pre-processed at the facility would be costly transportation to other processing facilities or disposal at landfill. The closest similar processing facility to the proposal is located at Six Cross Roads in Waterford. To use this facility, waste contractors in the greater Waterford area and southeast region would deliver waste to that facility, the material would be baled, stored externally on site close to heavily populated areas and then transported by road through heavily populated areas to quayside for shipment to an Energy from Waste facility in Europe. This would result in double transportation of waste along the road network and increase costs and potential environmental liabilities from increased transportation. The other alternative would be disposal at landfill which is considered the lowest alternative on the EU waste Hierarchy.

4.3 Site Selection and Other Options Considered

The facility is already operating in the proposed facility building and it is located in an area of industrial development and in very close proximity to the shipping facilities required to transport the baled material to the receiving EfW facility in Sweden. The facility is not located close to sensitive domestic receptors and has only had complaints in the initial start-up phase prior to the DAX systems being installed. However, since additional odour control measures have been put in place at the facility there have been no complaints in the past number of months, see Chapter 10 on Air Quality.

4.4 Alternative Locations in the Area

Other locations within the area were looked at as alternative locations for the proposed development. However, the facility already exists in Building 5 and has been operating successfully since June 2014. Other buildings considered in the area (i.e., Buildings B1 and B2), although they have a similar structure have not been bunded around the doors and are more challenging in terms of internal traffic flow. They are only located a short distance from the existing facility and so would not provide any benefit from a potential environmental impacts perspective.

5.0 HUMAN BEINGS

5.1 Introduction

This chapter describes the existing human environment in the vicinity of the proposed development in terms of population, employment and land-use. The likely impacts on the human environment from the proposed development are assessed. The impacts of other human related environmental aspects associated with the proposed development such as noise, traffic and air quality are discussed in the relevant chapters of the EIS.

5.2 Methodology

Analysis of the effect of the proposed development on the human environment was completed in compliance with the requirements of "Guidelines on the Information to be contained in Environmental Impact Statements" (EPA, 2002) and "Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)" (EPA, 2003). Relevant information has been obtained from public bodies with regard to planning and development context, employment statistics, demographic statistics and community aspects. The primary bodies concerned were the Central Statistics Office (CSO), Waterford City Council and Kilkenny County Council.

Desktop information reviewed in the process of information gathering are outlined below:

- CSO data, including the censuses for 2006 and 2011; the Quarterly National Household Register; Live Register figures;
- Kilkenny and Waterford County Development Plans and the Ferrybank - Belview LAP;
- Site visits on 20th January 2015 to inform the EIA with respect to land use, development and change.

5.3 Existing Environment

The existing human environment in relation to the planned development comprises those residing and working in the immediate vicinity of Belview Port and also the wider community in Slieverue, Waterford City and South Kilkenny County.

5.3.1 Local Residents and Businesses

The N29 National Road runs west to east and connects directly to the entrance of Belview Port. The Port entrance is located approximately 66 meters north of the entrance door of the process shed (shed 5) and an internal road runs north-south from the Port entrance to the sheds.

Other businesses that exist in the immediate area of the existing Glanway facility are Store-All Warehousing located 250 metres northwest of the facility, Marine Point offices for the Port of Waterford located 500 metres northwest of the facility, Belview Bulk Storage (270 m northeast of Building 5) of the proposed development.

The closest residential property to the existing facility and proposed development is located approximately 395 meters to the southwest. It is these residents that may be most directly affected by the proposed development. Additional residencies in the vicinity include private houses located 580 meters southwest and 440 metres west of the site and are accessed from the Rathculliheen Road (L3412).

5.3.2 The Greater Community

In order to assess the potential effects of the project on the wider community it was necessary to establish the demography of the population. Attributes of the population which are examined in this chapter include population, age profile including dependency, employment profile and social class. Data on these elements have been compiled from the 2006 & 2011 censuses, as well as some information from Quarterly National Household Surveys, all of which are compiled by the CSO.

5.3.2.1 Census Data

The most recent census of population was carried out in April 2011 and April 2006 by the CSO. Census data is compiled for the State as a whole, as well as smaller areas including counties, cities, towns and electoral divisions. Given the location of the proposed development the census information on population, age profile, employment and social class, has been analysed with respect to County Kilkenny and Waterford City.

5.3.2.2 Population

The proposed development is located in south Kilkenny, approximately 5km from Waterford city, and as such the population statistics for both counties Kilkenny and Waterford and Waterford City were considered relevant for the demographic catchment of the proposed facility. County Wexford lies approximately 5Km to the east as the crow flies, but on the opposite side of the river Barrow: the nearest river crossings to County Wexford are the road bridge New Ross, approximately 17 Km by road from the site, and the ferry at Passage East, accessible by a 20 Km journey by road. Table 5.1 outlines the population of counties Kilkenny, Waterford and Wexford and Waterford city in the last two censuses, 2006 and 2011.

Table 5.1: Population Changes in Kilkenny, Waterford and Wexford Counties and Waterford City between the 2006 and 2011 Censuses

Location	2006 Census Population	% Change since 2002 Census	2011 Census Population	% Change since 2006 Census
Kilkenny County	43,295	+ 8.8%	47,631	+ 10%
Waterford County (excluding City)	30,903	+ 10.1%	33,520	+ 8.5%
Wexford County	65,679	+ 12.4%	73,411	+ 11.8%
Waterford City	23,126	+ 1.4%	23,811	+ 3.0%

5.3.2.3 Quarterly National Household Survey

The Quarterly National Household Survey (QNHS) is a large-scale, nationwide survey of households in Ireland in which 39,000 households are surveyed each quarter. It is designed to produce quarterly labour force estimates that include the official measure of employment and unemployment in the State. The most recent Quarterly Survey for which results have been published was undertaken in Quarter 3 (Q3) of 2014.

Main Results

In the State as a whole there were 1,926,900 persons in employment and 245,500 unemployed in Q2, 2014 making up a labour force of 2,172,400. This represents an increase in employment of 1.7% between Q3 2013 and Q3 2014.

The latest available comparable figures for all EU-28 (28 EU member states) and Irish employment figures are for Quarter 3 (Q3) of 2014. The employment rate in Ireland increased by 1.7%, over the year to Q4 2012 while the employment rate in the EU-28 declined by 0.4% over the same period.

5.3.2.4 Employment

The most recent data related to specific County and City levels of employment and unemployment were gathered from the 2006 and 2011 census information available through the central statistics office (CSO). The data from 2006 and 2001 is presented in Table 5.2.

Table 5.2: Employment Changes in Kilkenny, Waterford and Wexford Counties and Waterford City between the 2006 and 2011 Censuses

Location	2006 Unemployment Rate (%)	2011 Unemployment Rate (%)	% Change between 2006 and 2011 Census
Kilkenny County	7.5%	19.4%	- 11.9%
Waterford County (excluding City)	8.1%	21.6%	-13.5%
Wexford County	9.3%	23.9%	-14.6%
Waterford City	12.5%	25.1%	-12.6%

The rate of unemployment in the area increased significantly between 2006 and 2011 with the national economic downturn.

Kilkenny, Waterford and Wexford are located in the South-East region[2]. The most recently available employment figures for the South-East region and the State from the Quarterly National Household Survey (QNHS) are presented in Table 5.3[3]. The figures for the European Union are from the Eurostat website[1].

Table 5.3: QNHS Employment Figures (Quarter 3 2014)[3]

Region Area	Labour Force	Employed	Unemployed	Unemployment Rate (%)	Change in Unemployment Rate since Q3 2013
South East	234,800	202,600	32,200	13.7%	+ 2.9%
Nationally	2,172,400	1926,900	245,500	11.3%	+1.7%

[1] - NUTS2 (Nomenclature of Territorial Units) classifications, as proposed by the Irish Government and agreed by Eurostat in 1999, are groupings of the Regional Authorities

[2] - The unemployment rate represents unemployed persons as a percentage of the labour force based on International Labour Office (ILO) definition. The labour force is the total number of people employed and unemployed. Unemployed persons comprise persons aged 15 to 74 who:
- are without work during the reference week;
- are available to start work within the next two weeks;
- and have been actively seeking work in the past four weeks or had already found a job to start within the next three months

It is clear that there has been an increase in employment in the southeast region in the 12 months up to Quarter 3 2014. Although there has been an improvement in the numbers of unemployed in the southeast region they are still behind the National average in terms of persons in full employment.

The unemployment rate in the southeastern region is higher than the national or EU28 rates and the total number of persons employed in the agriculture, forestry and fishing sector in Ireland in Q3 2014 was 109,700, a decrease of 900 over the year since Q3 2013. Currently the direct employment at the Glanway site is for 5 employees with a projected increase to between 8-10 employees if the development is approved. However, the majority of employment to be generated by the proposed development will be indirectly through use of local transportation contractors, provision of local

facilities to local area waste management companies and through increased throughput and operations at the Port of Waterford.

5.4 Existing Environment

5.4.1 Health & Safety Management

The health and safety of site personnel will be proactively managed at the existing facility and proposed development. This is achieved by identifying the hazards associated with site activities, assessing the risk associated with the hazards and implementing measures to eliminate and/or minimise the risks, e.g. staff training, procedural control and engineering measures.

The air emissions, traffic, noise, effluent and wastes generated on site will not give rise to a significant impact on the environment and are not considered to be hazardous to the health of the local population. These topics are dealt with individually in the relevant sections of the EIS.

5.4.2 Amenities and Tourism

There is no immediate local amenity in the vicinity of the proposed development. Land in the immediate vicinity is predominantly port related industrial activity to the east, north and south of the existing facility and privately owned agricultural land to the west. These lands do not have significant amenity value for members of the general public.

There are walkways and designated protected views on the southern bank of the Suir River in County Waterford. Because the proposed development will not change the existing visual impact from the site it is not envisaged that the continued operation of the site will result in any added negative aesthetic impact on the surrounding area. Visual images have been generated as part of this EIS to show the existing impact of the facility on these areas and no perceptible impacts have been found – refer to Chapter 11 of this EIS. Co. Kilkenny and Waterford City have a well-developed tourist industry with heritage locations, festivals and amenities.

5.5 Operational Impacts

5.5.1 Land Use & Zoning

The operation of the development with a higher throughput will result in the continued use of the existing shed buildings within the Belview Port area. The area and immediate environs will still be mainly industrial with bulk storage and Port Related activities to the south east and north and agriculture to the west. The development will result in the continuation of existing activity at the site building and will not have an impact on existing land use in the area. The operation of the development

is predicted not to have any significant impact on the land use of the surrounding areas, be it for agricultural, commercial or residential purposes in the surrounding areas.

5.5.2 Employment

The proposed development will directly employ approximately 4 personnel in the short-term with an extension of operations increasing that number to 9. The roles will comprise managerial, technical, administrative and operations workers. Accordingly, the development will have a positive impact on employment in the area. The direct expenditure on employee salaries will have a multiplier effect on employment, household income, government income and Gross National Product (GNP). Goods and services required during the operation of the plant will be sourced locally where possible which will have a further positive impact on the local economy and employment in the area. The operation of the development will also result in increased throughput at the Port of Waterford that will result in the continued employment of port workers and the hauliers employed to deliver the waste material to the facility.

5.5.3 Health & Safety

The proposed development will continue to operate in such a way as to minimise environmental impacts as far as practicable. The operation of the facility will be carried out in accordance with good practice and Best Available Techniques (BAT) guidelines. Emissions from the development may include ambient odour emissions from open facility doors during the reception of waste and when trucks exit the facility building. There may also be some noise emissions from the facility operations but are not considered significant in the context of the facility setting (i.e., surrounded by port related operations with higher potential noise impacts than the facility operation within the process building).

There will be no discharge to groundwater, sewer or surface water from the facility operations. The potential impacts of environmental emissions discharges are discussed in other chapters of this EIS, Air and Climate. All discharges from the plant will comply with the relevant regulatory limits designed for the protection of human health and the environment. Therefore, the operation of the development will not have a significant impact on human health. The site lies in a high radon area and workers at the proposed facility will be potentially exposed to high levels of radon should levels not be monitored and managed. Radon levels at the operational facility should be tested for radon following the guidance of the RPII booklet *Planning Radon Surveys in Workplaces – Guidance Notes*, 2008. The National Reference Level for radon in workplaces is 400 becquerels per cubic metre (Bq/m^3) measured over a 3 month period. This Reference Level is specified by law in S.I. No. 125 of 2000. If radon concentrations above 400 Bq/m^3 are found, the employer must protect the health of workers, usually by reducing the radon levels present. The proposed development will not impact on the existing levels within the general area.

5.5.4 Amenities

There are no existing amenities in the immediate area of the proposed development. Walks along the eastern shore of the Suir River are already impacted by the presence of the Belview Port facility and supporting infrastructure (e.g., metal clad bulk storage sheds including the proposed facility, container loading area and bulk loading areas) on the quayside and in the immediate environs. The proposed development will be located in existing buildings in an existing industrial area and will not have any additional impact on amenity in the area.

Note that the current N29 National Road already takes traffic to Belview Port and any increase in traffic volumes will be limited to that National Road route which is already used by Port traffic 24 hours per day, seven days per week. The new facility will add to the current traffic volume but is not expected to have any increased impact on the current tranquillity in the area or on approach to the facility.

5.6 Conclusions

No significant impact is predicted to occur due to continued use of the development, albeit at a greater tonnage throughput and therefore no specific mitigation measures are required. Best practice operation practices will be employed to ensure that the operation does not have a significant impact to the human environment. The mitigation measures identified in the air, noise, landscape, water chapters of this EIS will ensure that the operational phase will not have a significant impact on the human environment.

6.0 FLORA & FAUNA

6.1 Introduction

This Chapter of the EIS describes the ecological interests in the area of the proposed development at Belview Port, Kilkenny. Likely impacts are evaluated and where necessary mitigation measures are outlined to lessen any impacts. The aims of this Ecological Impact Assessment were to:

- Establish baseline ecological data for the development site
- Determine the ecological value of the identified ecological features
- Assess the impact of the proposed development on ecological features of value
- Apply mitigation measures to avoid, reduce, remedy or compensate impacts
- Identify any residual impacts after mitigation

An Appropriate Assessment Screening was carried out by Ecofacts for the initial site permit submission to Kilkenny Co. Co. in April 2014. A Copy of the Appropriate Assessment Screening report is included in Attachment F.1.

6.2 Methodology

6.2.1 Relevant Legislation and Policy Guidelines

The assessment of the likely impacts of the proposed development on ecological resources was completed with regard to the following legislation, policy documents, and guidelines:

National and International Legislation

- The Planning and Development (Amendment) Act 2010, as amended
- Wildlife Act, 1976 and Wildlife (Amendment) Act (2000) (as amended); hereafter collectively referred to as the Wildlife Acts
- European Communities (EC) (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011 (as amended); hereafter the 'Birds and Habitats Regulations'
- EU Birds Directive 2009/147/EEC
- EU Habitats Directive 92/43/EEC (as amended)

- Flora (Protection) Order, 1999

Relevant Policies and Plans

- National Biodiversity Plan 2011 – 2016
- Kilkenny County Development Plan 2008-2014
- Ferrybank / Belview Loacal Area Plan 2009-2015

Relevant Guidelines

- Advice Notes on Current Practice (in preparation of Environmental Impact Statements) (EPA, 2003)
- Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2002)
- Guidelines for Ecological Impact Assessment in the United Kingdom (IEEM, 2006).
- Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011)
- A Guide to Habitats in Ireland (Fossitt, 2000)
- Bat Mitigation Guidelines for Ireland (National Parks and Wildlife Service, 2006)

6.3 Desk Study

In addition to those listed in the References section, key resources included:

- Previous ecological survey of subject lands (Ecofacts Appropriate Assessment, 2014)
- Ordnance Survey Ireland mapping available online at http://www.osi.ie/Home.aspx
- Data on rare/protected/threatened species and designated sites held online by the National Park and Wildlife Service (NPWS) ; and National Biodiversity Data Centre
- British Trust for Ornithology and Birdwatch Ireland Bird Atlas 2007-2011 Data

6.4 Field Survey Methodology

6.4.1 Habitats and Flora Survey

The existing site buildings and surrounding areas were surveyed on the 16th September, 2014 in calm conditions. All habitat types were classified using the Guide to Habitats in Ireland (Fossitt, 2000). Within each habitat dominant and abundant plant species, indicator species and/or species of conservation interest were recorded. Plant nomenclature follows that of the Checklist of the Flora of Britain & Ireland (BSBI, 2007).

6.4.2 Fauna Survey

Fauna were surveyed through the detection of field signs such as tracks, markings, feeding signs, and droppings, and by direct observation. Habitats on site were assessed for signs of usage by protected/rare fauna species, and for their potential to hold these species. Because of the industrial and developed nature of the site and the area to the south, north and east of the development buildings, only the hedges, tillage and grassland areas to the west were searched for signs of badger and other protected species. There was also note taken of the proximity of the facility with relation to the Upper Suir SAC and the potential for impacts to fish and other aquatic and benthic species from the continued operation of the process with increased tonnage throughput.

6.5 Ecological Evaluation & Impact Assessment

6.5.1 Site Evaluation Criteria

The criteria used to assess the ecological value and significance of habitats follows Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009a and is consistent with the Guidelines for Ecological Impact Assessment (IEEM, 2006).

6.5.2 Physical and Data Limitations

Vegetation surveys were undertaken in September at the optimal time of year. Mammal surveys are best conducted in winter when vegetation dieback affords unhindered views of field signs and potential breeding/resting places. However, the hedgerow, tillage field and grasslands to the west of the facility were surveyed for potential mammal activity. The walkover was also completed to identify birds in the area but because of the time of year it could not be determined if the birds observed had nested in the area.

6.6 Description of Existing Environment

6.6.1 Site Overview

The facility is located in existing constructed sheds on the western fringe of Belview Port and marginally outside the Upper Suir SAC. The site is located in a developed area of the Port within an area zoned for Industrial Use located south of the Port Weighbridge and serviced by the N29 National road. The facility has large storage sheds immediately to the north and south, concrete surfacing, rail tracks and then the main Belview Port container and bulk materials loading facility to the south and a scrub hedgerow and agricultural lands to the west and southwest of the facility.

The area where the facility exists is developed and used for industrial purposes including the storage of bulk goods (e.g., fertilizer) for shipment from Belview Port and supports no areas of natural value. The site is separated from arable farmland to the west by a hedgerow consisting mainly of *Ulex* spp., *Salix* spp., *Acer pseudoplatanus* and *Cretaceous major*. The site to the north, south and east is surrounded by other industrial areas including Belview Port. Approximately 60m to the east of the facility (beyond the Port Facility) is the River Suir Port Dock.

6.6.2 Protected Areas

Special Areas of Conservation (SAC) are designated under the EC Habitats Directive (92/43/EEC) as amended, which is transposed into Irish law through a variety of legislation including the Birds and Habitats Regulations and the Planning and Development Acts. The legislation enables the protection of certain habitats (listed on Annex I of the Directive) and/ or species (listed on Annex II). Special Protection Areas (SPAs) are designated under the Birds Directive (2009/147/EC). This allows for the protection of protected bird species listed on Annex I of the Directive, regularly occurring populations of migratory species (such as ducks, geese or waders), and areas of international importance for migratory birds.
National Heritage Areas (NHAs) are designations under the Wildlife Acts in order to protect habitats, species or geology of national importance. Many of the NHAs in Ireland overlap with Natura 2000 sites. Although many NHA designations are not yet fully in force under this legislation (referred to as 'proposed NHAs' or pNHAs), they are offered protection in the meantime under planning legislation which requires that planning authorities give due regard to their protection in planning policies and decisions. The extents of the Lower River Suir SAC (site code: 001237) and the River Barrow & Nore SAC (site code: 002162) with relation to the proposed development is provided in Attachment F.2.

6.6.3 Site Mitigation Measures

The facility is not designated but is located close to the Lower River Suir SAC (site code: 001237) and the River Barrow & Nore SAC (site code: 002162) is located approximately 2.8km further north. The facility buildings are constructed with impermeable concrete floors and the process building is bunded along the lower extents of the building wall.

The buildings have no floor drains and there is no discharge to surface water or sewer from inside the building that could result in leachate migration from the facility to protected areas. Surface water from the surrounding yard and roads associated with Belview Port are directed to a central surface water drainage system that flows through an on-site petrol interceptor and then to an on-site surface water settlement tank located at the northern area of the Port quay. The tank is for the settlement of solids washed into the surface drain prior to discharge. The Appropriate Assessment Screening completed for the process building in April 2014 assessed Qualifying Interests, their threats, and their underpinning conditions for all European sites and concluded there would be no adverse impacts to

site integrity of any European Sites as a result of the facility, affected by the facility, either alone or in combination with other plans or projects, see Attachment F.1. Designated sites within the potential 'Zone of Influence' of the proposed development are outlined in Table 6.1.

Table 6.1: Designated Sites within Potential 'Zone of Influence' of Facility

Designated Site and Code	Distance from Facility	Potential Source-Pathway –Receptor Link	Qualifying Interests Potentially Impacted
Lower River Suir SAC (site code: 001237)	100 metres east	No surface water or sewer link between proposed development buildings and SAC receptor. Noise from proposed development will not have significant impact on existing environment given the existing noise levels from Port activities.	No qualifying interests considered to be impacted
Barrow & Nore SAC (site code: 002162)	2.8 km north	No surface water or sewer link between proposed development buildings and SAC receptor.	No qualifying interests considered to be impacted

6.6.4 Records of Protected and/or Rare Flora & Fauna Species

A search of records of Red Data Book and protected species held by the NPWS and the National Biodiversity Data Centre was completed as part of the site assessment. Records were also obtained from the online database of the National Biodiversity Centre on www.biodiversityireland.ie in January 2015, see Attachment F.5. The data review concentrated on a 10km grid in which the facility is located and indicated protected plant species including Meadow Barley (*Hordeum secalinum)*, Divided Sedge (*Carex divisa)*, Borrer's Saltmarsh-Grass (*Puccinellia fasciculate)* and Betony (*Stachys officinalis)*. Records for protected fauna included Common Frog (*Rana temporaria)*, Smooth Newt (*Lissotriton vulgaris)*, Irish Stoat (*Mustela erminea subsp. Hibernica)*, Badger (*Meles m*eles), Otter (*Lutra lutra)*,Hedgehog (*Erinaceus europaeus)*, Twaite Shad (*Alosa fallax),* Allis Shad (*Alosa alosa) and* Sea Lamprey (*Petromyzon marinus)*. The results of the data review are provided in Tables 6.2 and 6.3 below.

Table 6.2: Protected and Red Data Book Flora within 10km Grid of Site

Name	Protection	Status
Chives - *Allium schoenoprasum*	Flora Protection Order	Vulnerable
Divided Sedge - *Carex divisa*	Flora Protection Order	Regionally extinct
Meadow Barley - *Hordeum secalinum*	Flora Protection Order	Endangered
Sharp-leaved Fluellen - *Kickxia elatine*	None	Endangered
Weasel's snout - *Misopates orontium*	Flora Protection Order	Endangered
Borrer's Saltmarsh-grass - *Puccinellia fasciculata*	Flora Protection Order	Vulnerable
Dark Green Fritillary - *Argynnis aglaja*	None	Vulnerable
Small Heath - *Coenonympha pamphilus*	None	Near Threatened

Table 6.3: Records of Protected, Rare and other Notable Fauna within 10km Grid of Site

Name	Protection
Smooth Newt - *Lissotriton vulgaris*	WA
Common Frog - *Rana temporaria*	WA, HD Annex V
Birds	
Black Headed Gull - *Chroicocephalus ridibundus*	Red List
Curlew – *Numenius arquata*	Red List
Herring Gull – *Larus argentatus*	Red List
Kingfisher - *Alcedo atthis*	Red List
Yellowhammer- *Emberiza citrinella*	Red List
Sky Lark - Alauda arvensis	WA, Amber List
Common Sandpiper - *Actitis hypoleucos*	Amber List
Coot - *Fulica atra*	Amber List
Cormorant – *Phalacrocorax carbo*	Amber List
Grasshopper Warbler – *Locustella naevia*	Amber List
Great Blackbacked Gull - *Larus marinus*	Amber List
House Martin - *Delichon urbica*	Amber List
House Sparrow – *Passer domesticus*	Amber List
Kestrel – *Falco tinnunculus*	Amber List
Lesser Black-backed Gull - *Larus fuscus*	Amber List
Linnet – *Carduelis cannabina*	Amber List
Little Grebe - *Tachybaptus ruficollis*	Amber List
Oystercatcher – *Haematopus ostralegus*	Amber List
Sandwich Tern – *Sterna sandvicensis*	Amber List
Shelduck - *Tadorna tadorna*	Amber List
Snipe – *Gallinago gallinago*	Amber List
Starling- *Sturnus vulgaris*	Amber List
Stock Dove - *Columba oenas*	Amber List

Name	Protection
Swallow - *Hirundo rustica*	Amber List
Swift - *Apus apus*	Amber List
Dunlin - *Calidris alpina*	Green List
Little Egret - *Egretta garzetta*	Green List
Mammals	
Hedgehog - Erinaceus europaeus	
Pygmy shrew - Sorex minutus	
Lesser Horseshoe Bat - Rhinolophus hipposideros	
Natterer's bat - Myotis nattereri	
Daubenton's bat - Myotis daubentoni	
Common pipistrelle - Pipistrellus pipistrellus	
Irish hare - Lepus timidus	
Brown hare - Lepus europaeus	
Red squirrel - Sciurus vulgaris	
Otter - Lutra lutra	
Badger - Meles meles	
Stoat - Mustela erminea	

Although the protected species outlined in Tables 6.1 and 6.2 exist within the 10km grid of the facility, due to the industrial nature of the area surrounding the facility (i.e., Belview Port) and the fact that the facility buildings already exist, there is no perceived impact to protected species from the proposed development.

6.7 Field Survey Results

6.7.1 Habitats

The main habitat types identified in the immediate environs of the facility are outlined in Table 6.4 and are included on the Habitat Map (Attachment F.3) which outlines the extent of all habitat types present within the environs of the facility.

Table 6.4: Habitats Recorded in Vicinity of Glanway Facility

Habitats Located in The Environs of Glanway Facility	
Habitat Type*	**Relation to Facility**
Improved Agricultural Grasslands (GA1)	Lands to the south and west of the proposed development, beyond the surrounding hedgerow.
Scrub (WS1)	Within the hedgerow immediately west and northwest of the proposed development.
Hedgerows (WL1)	Immediately west and northwest of the proposed development.
Treelines (WL2)	Within the hedgerow immediately west and northwest of the proposed development.
Buildings and Artificial Surfaces (BL3)	The facility itself and the areas to the south, east and north

*- Based on Fossitt, 2000.

Improved Agricultural Grassland (GA1)

The majority of the area to the west of the facility is dominated by Improved Agricultural Grassland (GA1) traversed with Hedgerows (WL1) and Treelines (WL2). Perennial Rye-grass *Lolium perenne* was the dominant species along with Daisy *Bellis perennis*, Ribwort Plantain *Plantago lanceolata* and White Clover *Trifolium repens*.

Depositing / Lowland river (FW2)

The Suir River is located outside the site boundary but included due to potential impacts on this habitat from the proposed development. The lower Suir River is a Special Area of Conservation (SAC) and located to the east of the site. The site buildings have no direct link to the river but surface water run-off from the surrounding yards and the Port Quayside discharge to the Suir at the northern end of Belview Port quayside. Water data for the Lower Suir was assessed by National Parks and Wildlife Service and determined to need protection but was of good quality, see Attachment G.1.

Treelines (WL2)

The hedgerow to the west of the facility has a mix of mature/unmanaged hedgerows forming a treeline made up mainly of *Ulex* spp., *Salix* spp., *Acer pseudoplatanus* and *Cretaceous major* which is most probably an unmanaged field boundary. It is not considered that the hedgrerow provides an important link through the area and surrounding habitats. These treelines, including their earth banks are rated as being of only local value

Buildings and Artificial Surfaces (BL3)

The area to the south and north of the facility consist of similar shed constructions to the facility itself. The area also has a concrete paved internal road running from the Port entrance to the shed units. To the south of the internal road is a railway line and then Belview Port quayside facility which consists of

hard standing surface and does not support any habitats of importance. Artificial surfaces dominate the area around the facility.

6.8 Potential Impacts of the Proposed Development

Likely significant impacts have been assessed for Sensitive Ecological Receptors, as listed in Table 6.1. An impact is considered to be ecologically significant if it is predicted to affect the integrity or conservation status of a Sensitive Ecological Receptor at a specified geographical scale. Due to the fact that the facility already exists and operates, and is not impacting on sensitive ecological receptors due to the closed operations system in place whereby no leachate or excessive noise is released from the facility building it is not considered that the continued use of the facility will have a high potential for impact.

6.9 Mitigation Measures

The following mitigation measures should be put in place to ensure continued protection of sensitive ecological receptors:

- The facility has a concrete bunded floor in place at the process facility which results in no discharge to sewer or surface water drains that could potentially impact sensitive receptors. This mitigation measure will continue for all future operations and no outputs to sewer or surface water drains from inside the facility will take place.
- All leaks and spills of leachate will be absorbed using sawdust or similar absorbent material and then added to the baling feedstock for inclusion in the RDF bale.
- All operations will continue to take place within the facility sheds with no tonal noise output from the building (see Chapter 9 of this EIS).
- Rodent control will be restricted to inside the facility building and in appropriately designed receptacles to avoid potential for other fauna to be affected by potential ingestion of poisons used for controlling vermin.
- Refueling of machinery, will be carried out on concrete surfaced designated areas that are drained to an oil/water separator system.
- An emergency response plan must be set up to deal with any emergency that has the potential to impact on protected species or habitats.

6.10 Residual Impacts

If all mitigation is properly and fully implemented there are no foreseen residual impacts from the facility.

6.11 Conclusions

The facility and the majority of the surrounding area is developed with either buildings or hard standing surfaces which support little or no significant habitat for flora and fauna. The hedgerow and improved grasslands have the potential to provide resources for mammals, birds or invertebrates but it is not considered that the continued use of the Glanway facility will have any negative impact in those areas. The location of the facility to the lower Suir SAC is noted and providing the operations mitigation measures currently in place at the facility continue there is considered to be a minimal potential for impacts.

7.0 WATER

7.1 Introduction

JRE have prepared this section of the EIS, which assesses the impact of the proposed development on the water environment due to the increased operation of the existing processing facility and addresses the potential sources of impact and the controls required to mitigate those impacts, if required. The surface water flow from the existing shed roofs is to the existing Port surface water drainage system located to the east of the buildings (see Drawing 603). There are no sewers, drains or pits within the proposed development buildings that could result in release of produced leachate to the environment.

7.2 Methodology

This chapter describes the existing water environment in the vicinity of the Glanway facility in the Belview Port area and the potential impacts resulting from the proposed development (i.e., increased facility operations). It also outlines the potential surface water and hydrogeological impacts from the development and the controls and mitigation measures to be implemented during various phases of the development where required. The assessment of waters at the site was completed with reference to the following:

- The EPA's Guidelines on the Information to be contained in Environmental Impact Statements, 2002; and
- The EPA's Advice Notes on Current Practice(in the preparation of Environmental Impact Statements), 2003;

This section describes the hydrological and hydrogeological setting of the site and outlines the information collected from a number of public and published sources.

The information contained in this section has been divided into sub-sections, so as to describe the various aspects related to the water environment. In the preparation of this section the site was assessed using published information and regional hydrological data including;

- Available information from the National Parks and Wildlife Service (NPWS) and Environmental Protection Agency with respect to water quality in the area;
- Available information for the area from the Geological Survey of Ireland.

7.3 Surface Water

7.3.1 Existing Environment

The exiting Glanway facility, and proposed development is located in Belview Port in the townland of Gorteens, Slieverue, Co. Kilkenny approximately 5 km east of Waterford City. The site is serviced by the N29 National Primary Road that runs directly to Belview Port.

The total existing facility and proposed development area is 3,734 m^2. The topographic elevation of the site ranges from approximately 6m OD to approximately 3.35m OD. The overall slope of the site is to the south and east towards Belview Port. The subject site comprises primarily of a process and storage shed (Building 5) and a truck entrance, turning area and storage area in Building 6. One small stream located approximately 2km to the southwest of the site flows in a west to east direction and flows into the River Suir approximately 1.3km downstream (south) of Belview Port. Due to location and distance, the site has no impact on this stream.

The Lower River Suir, which is located approximately 100m south of the site, covers a stretch of 6.5 Km of the Suir Estuary that extends from Ballynakill on the periphery of Waterford city, to Cheekpoint, where the Suir and Barrow Rivers meet. The Lower Suir Estuary is considered a Transitional Water Body (i.e. surface water in the vicinity of a river mouth, which is partly saline in character as a result of its vicinity to coastal waters, but which is substantially influenced by freshwater flows) under the Water Framework Directive (Directive 2000/60/EC).

The Water Framework Directive (WFD) requires measures to ensure that waters achieve at least "Good Status" by 2015and that the current status does not deteriorate. The objectives for particular watercourses are based on Pressure and Impact assessments of human activity, including point sources (e.g., wastewater treatment plants) and diffuse sources (e.g., fertiliser land spreading), landuse (e.g. quarrying, mining and turf harvesting) and morphological conditions (e.g., river depth, width, substrate of river bed etc.) on surface waters to identify those water bodies that are at risk of failing to meet the WFD objectives.

The River Suir Estuary area is covered by the South Eastern River Basin District (SERBD). According to the South Eastern RBD, the Suir Estuary is failing in chemical status due to breaches of standards for brominated diphenlyethers, endosulfan, pentachlorobenzene and polyaromatic hydrocarbons. The extent of the problem with dangerous substances has not yet been fully assessed. The Lower Suir River Water Body Status Report indicates that the overall status of the river downstream of Belview Port is "Good", see Attachment G.1, with parts as of yet with no designated status. Details of the surface water status is provided in Attachment G.1.

The existing surface water inputs to the Suir from the Belview Port operations has not adversely affected the surface water quality in the river. The only input to the surface water system from the existing facility and proposed development is runoff from the building roofs and runoff from the adjacent concrete surfaced roads and yard which are connected to the existing Belview Port surface water collection system, see Drawing 603 in Attachment A.1.

7.3.2 Flood Risk

The existing facility building roofs, the roofs of the buildings surrounding the facility and the hard standing surface yard and roads in the vicinity of the facility are connected to the main surface water collection system for Belview Port.

A flood risk assessment was completed as an appendix to the Strategic Environmental Assessment Screening of Amendment No. 1 to the Ferrybank / Belview Local Area Plan, see Attachment G.2. The initial flood risk assessment identified areas in Belview and Gorteens (i.e., Area 6 and 7 in Section 2.2 of the report) as areas of potential flood risk. However, no change was proposed to zoning in either area under the amendment. The location of the proposed development is located just northwest of the mapped flood risk areas and the area has not been known to have been subject to flooding in the past.

Fluvial Flood Risk

The main potential source of dlooding for the proposed facility is from the Suir river. The river has been dredged and continues to be dredged under licence (S0012-02) to allow for use as a deep water port area. This alleviates the potential for lateral flooding onto the adjacent lands during heavy input events. There is no history of flooding in the area of the proposed development.

7.3.3 Impacts from the Proposed Development

The design of the proposed development buildings ensures that any potential leaks from process equipment or leachate from loose waste or wrapped bales are contained within the buildings and will not enter the surface water drainage system and the Suir River waterbody. Based on the current and projected operations within the facility buildings the impacts to surface water receptors is considered negligible

7.3.4 Mitigation Measures

Due to the existing mitigation measures in place at the facility no further mitigation measures are considered necessary to protect surface water receptors.

7.3.5 Conclusions

The use of Buildings 5 and 6 for the proposed development will not have a negative impact on surface water quality in the area. The buildings do not have an internal connection to the Belview Port surface water drainage system and no inputs from the buildings (e.g., spillages or limited wash water volumes) are permitted to be discharged to the surface water system. The only input to the Belview Port surface water drainage system from the proposed development will be from the building roofs. It is not considered that inputs from the proposed development roofs will have a negative impact on receiving surface water receptors. The location of the proposed development is outside the mapped areas for potential flood risk as determined by the Office of Public Works and the SEA assessment prepared for the amendment of the Ferrybank / Belview LAP.

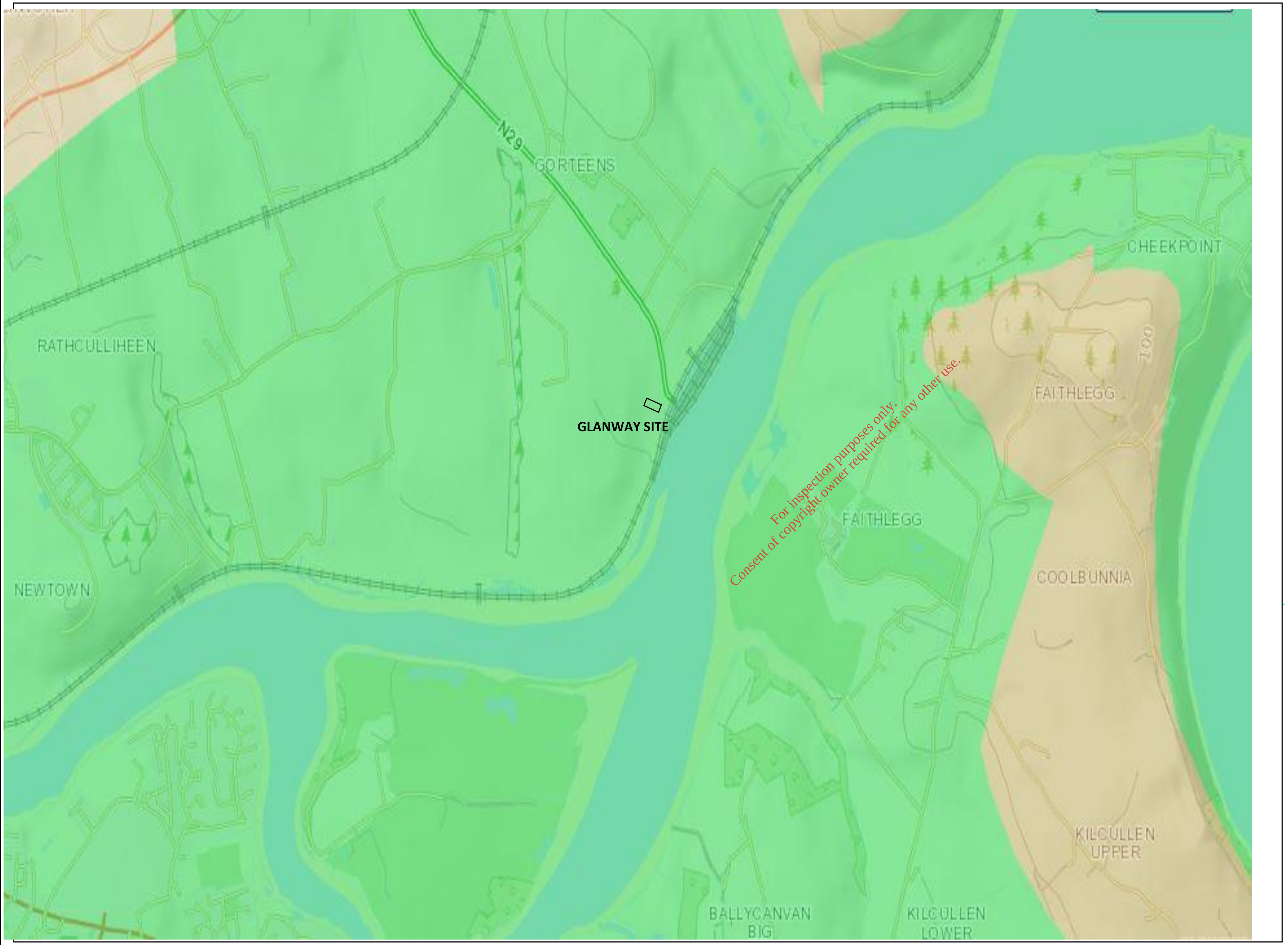
7.4 Hydrogeology

7.4.1 Existing Environment

No groundwater investigation was completed as part of the EIA, however, a study conducted in 2007 by Brian P. O'Connor and Associates indicated that the groundwater flow in the area is generally in a south-southeasterly direction, towards the direction of the River Suir and generally in the same direction as the regional topography. Well card data from the GSI Well Card Database (a record of wells drilled in Ireland) shows a number of wells within a 3 km radius of the proposed development site. From these records, the underlying bedrock in the area has been shown to be capable of yields ranging from moderate (40 – 100 m^3 /day) to excellent (>400 m^3 /day). Review of the GSI mapping or the Belview area indicated that the closest groundwater wells were a borehole in Maypark Housing Estate (GSI Ref. 2611SWW009) located approximately 3.1 km west of the proposed development.

7.4.2 Aquifer Classification

In Ireland, aquifer potential is divided into three broad categories, including: Regionally Important, Locally Important, and Poor. Based on the GSI Guidelines on Aquifer Classification and Vulnerability, the bedrock aquifer beneath the proposed development is considered to be a Regionally Important Aquifer in productive fissured bedrock. The site is located within an area of permeable till subsoil underlain by shale and siltstone where the groundwater vulnerability is classified as extreme. A copy of the GSI aquifer map is provided in Figure 7.1.



EGEND

GLANWAY SITE
MINE LOCATIONS
KARST FEATURES
QUARRIES(ACTIVE)
BEDDING OR MAIN FOLIATION, OLD GSI DATA
STRIKE AND DIP OF BEDDING, RIGHT WAY UP
STRIKE AND DIP OF FIRST
FAULT
SYNCLINAL
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REGIONALLY IMPORTANT AQUIFER – BEDROCK IS MODERATELY PRODUCTIVE ONLY IN LOCAL ZONES
LOCALLY IMPORTANT AQUIFER - BEDROCK WHICH IS MODERATELY PRODUCTIVE ONLY IN LOCAL ZONES

NOTES

1. COORDINATE SYSTEM: TM65 IRISH GRID.
2. GEOLOGICAL LAYERS PROVIDED BY GEOLOGICAL SURVEY OF IRELAND (GSI).
3. TOPOGRAPH IC BASEMAP LAYER PROVIDED BY BING, 2013.

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN BY	CHK

0 320 640 1,280 1,920 2,560 Metres

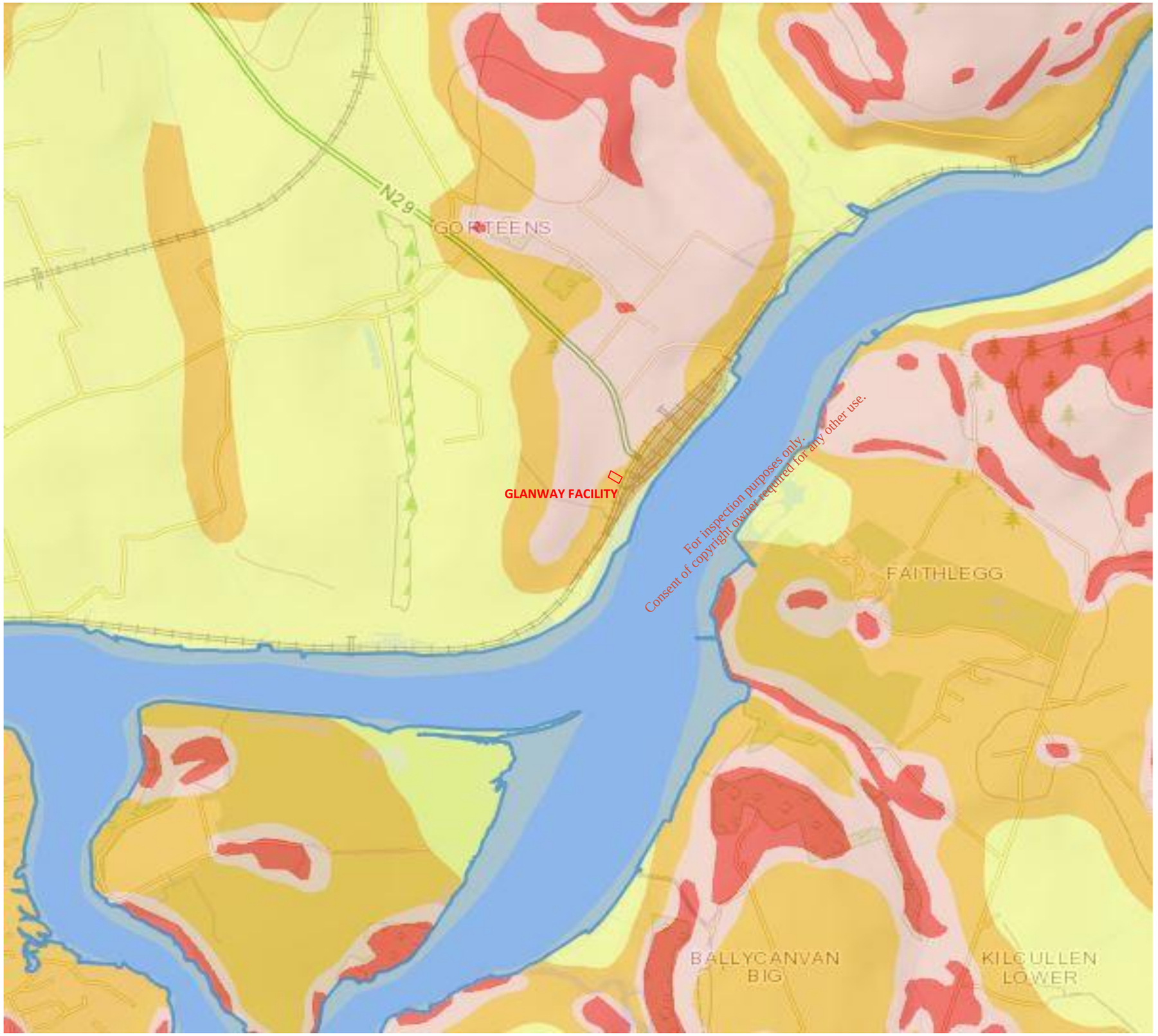
JRE Environmental Consulting

CLIENT: GLANWAY LTD

PROJECT LOCATION: BELVIEW PORT

TITLE: AQUIFER CLASSIFICATION - GLANWAY FACILITY

DWG No. JM	DRN BY CB	DATE 2015 01 05	FIG No. 7.1	REV 0
XX	APP BY XX	DWG No. FIGURE 7.1		11x17



LEGEND

- GLANWAY SITE
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- BEDROCK AT OR NEAR SURFACE OR KARST
- HIGH
- MODERATE

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DWG No.	DATE	DESCRIPTION

REVISIONS

REV	DATE	DESCRIPTION	DRN BY	CHK

0 320 640 1,280 1,920 2,560 Metres

JRE Environmental Consulting

CLIENT	PROJECT LOCATION
GLANWAY LTD	BELVIEW PORT

TITLE

GROUNDWATER VULNERABILITY IN VICINITY OF THE GLANWAY FACILITY

DES BY	JM	DRN BY	CB	DATE	2015 01 05	FIG No. **7.2**	REV 0
CHK BY	XX	APP BY	XX	DWG No.	**FIGURE 7.2**		11x17

Path: J:\Current Projects\Ireland\Ireland\3162 - Clare Co. Doora Groundwater Assessment\GIS\Drawing\P3162-H-08-E-006 (GEOLOGY)_A3_V2.mxd

The European Communities Environmental Objectives (Groundwater) Regulations 2010 was passed into law to protect, enhance and restore all bodies of groundwater and to ensure a balance between abstraction and recharge of groundwater. The objective is for achieving ''good groundwater status'' by 2015. The regulations provide specific threshold values for a variety of parameters such as, ammonia, nitrate, sulphate, lead etc. to provide criteria for calculating the groundwater chemical status. The regulations also provide % criteria for calculating the quantitative status of groundwater by comparing abstraction from a groundwater body against the recharge of the groundwater body.

It is intended that water used at the proposed facility (i.e., toilets and offices) will be provided through the existing Kilkenny Co. Co. water mains supply and not from the underlying aquifer.

7.4.3 Groundwater Vulnerability

The GSI classifies groundwater vulnerability into four general categories: Extreme, High, Moderate, and Low. The classification system is further divided into bedrock and sand/gravel aquifers. This classification system is based on the permeability and thickness of the soil overlying the aquifer. In principle, thicker layers of fine grained soils overlying an aquifer would generally provide more protection to the aquifer and such a setting would tend towards a low vulnerability rating. Outcropping bedrock aquifers would tend towards an extreme vulnerability rating.

The GSI identifies the proposed site as being located on an extreme vulnerability aquifer, implying that surface pollutants would move relatively quickly from the ground surface into the underlying aquifer. A copy of the GSI aquifer vulnerability map is provided in Figure 7.2.

7.4.4 Groundwater Resource Receptor

Groundwater is considered a receptor when it is being used or can be used for either public or private water supply. This assessment is divided into two groups: existing abstractions and potential abstractions.

JRE reviewed the GSI records for groundwater abstraction wells in the vicinity of the proposed development and no registered wells we identified in the immediate environs. To help protect groundwater abstractions, the GSI and the EPA define Source Protection Areas (SPA) around known wells. The SPA's are created to provide a buffer around groundwater sources (e.g., regional, group or individual drinking water sources and industrial abstraction sources) and limit the types of developments and activities completed within or immediately surrounding the zone of contribution (ZOC) of any groundwater source to ensure that groundwater quality is maintained. The ZOC is divided into two areas:

1. Inner Protection Area (SI) – the SI is designed to protect groundwater quality from immediate impacts from human activities. The SI area in non-karst areas is delineated based on a 100 day time of travel for groundwater (and or associated contaminants) from the source defined from the groundwater velocity and hydrogeological gradient or from a fixed radius distance of 300m from the source.

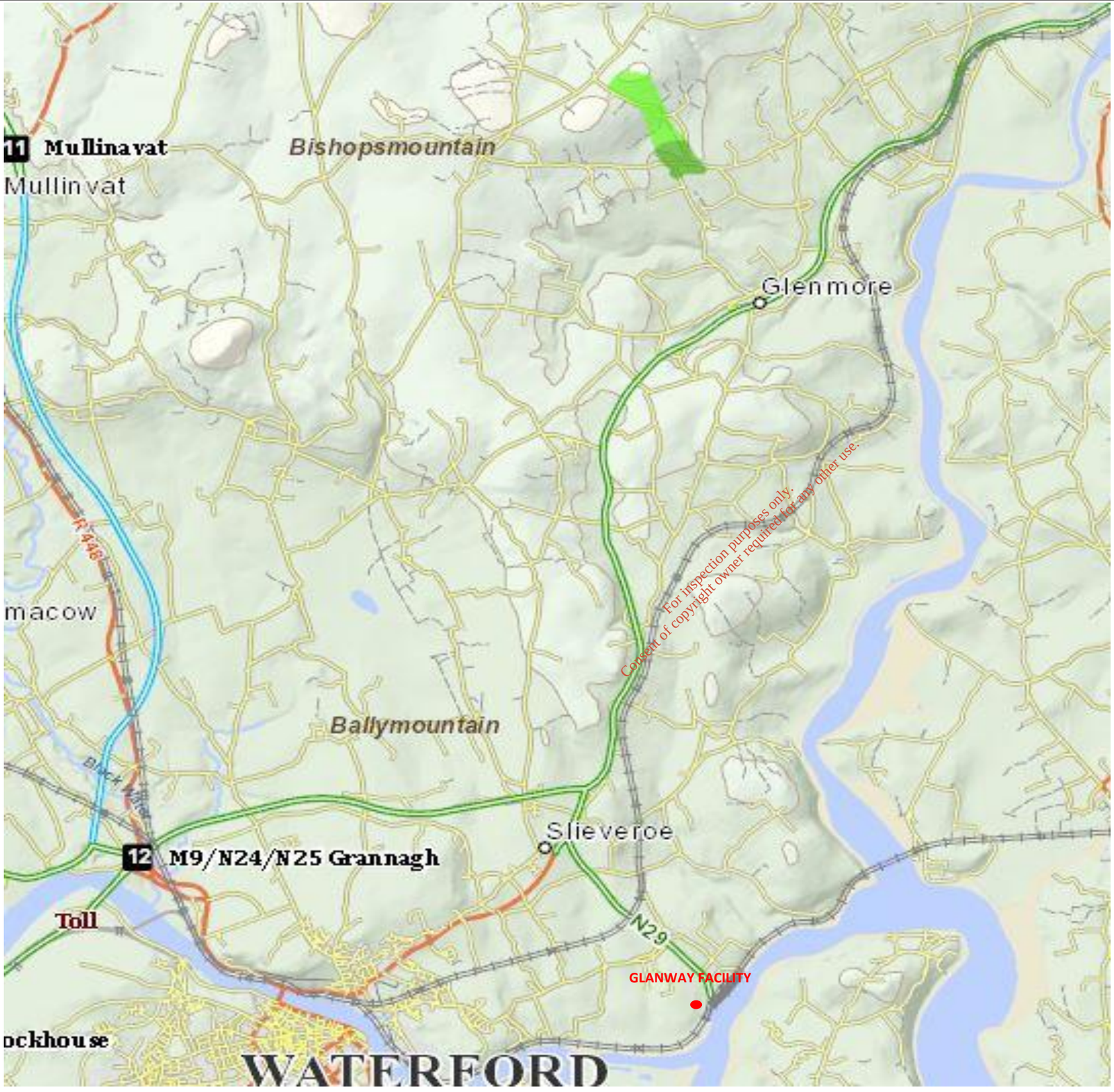
2. Outer Protection Area (SO) - The SO covers the whole catchment area of a groundwater source and is defined by the GSI as "the area needed to support an abstraction from long-term groundwater recharge (i.e. the proportion of effective rainfall that infiltrates to the water table)". A conservative factor can be used to calculate the SO where the maximum daily abstraction rate is increased (usually by 50%) to allow for possible future increased abstraction rates and for extension of ZOC in dry weather periods. A flow direction variation has also been included by the GSI (i.e. ±10-20°) when estimating ZOC area to take account of the heterogeneity of Irish aquifers and possible errors in estimating groundwater flow direction. An arbitrary radius distance approach from source of approximately 1000m can also be used in the absence of technical hydrogeological data.

The GSI have mapped groundwater abstraction wells and their SPAs in the vicinity of the proposed site (Figure 7.3). The closest Source Protection Area to the proposed development is located north of Glenmore to the north where the SO is 12.1km and the SI is 11.7km up-gradient from the proposed development.

Potential Groundwater Abstraction

Under EPA (2011), potential abstraction is assessed with the aquifer potential rating and the aquifer vulnerability rating (i.e. the pathway assessment). For the proposed facility, the underlying aquifer is considered to be of high vulnerability to pollutants. However, the design of the buildings are such that they have impermeable concrete floors to ensure that the potential for discharge from the facility to ground is as low as practicable.

Where applicable, a series of suitable mitigation measures has been listed. Adherence to these mitigation measures and the best practice construction methods presented herein will ensure that no potential negative impact from migration of contaminants from the facility buildings that could impact site hydrogeology will take place during the operation phase.



185,000

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GLANWAY LTD	BELVIEW PORT

TITLE

GROUNDWATER ABSTRACTION IN VICINITY OF THE GLANWAY FACILITY

DES BY	JM	DRN BY	CB	DATE	2015 01 05	FIG No.	**8.5**	REV	0
CHK BY	XX	APP BY	XX	DWG No.	**FIGURE 7.3**			11x17	

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7.4.5 Impacts from the Proposed Development

The proposed development will result in the pre-treatment of increased tonnages of waste material (e.g., waste baling) in the existing building 5 from 20,000 tonnes per annum to 300 tonnes per day. The proposed process operation will be similar in nature to the existing operations albeit with an increased throughput and the future inclusion of additional pre-processing equipment including a shredding system for opening bagged waste and a trommel screen for the removal of organic fines material of off-site aerobic treatment at an appropriately permitted or licensed facility. The proposed increase in tonnage throughput is not expected to have a direct impact on the underlying groundwater table due to the existing controls in place at the facility. The proposed development will be located within covered permanent buildings (buildings 5 & 6) that have impermeable concrete floor surfaces. The process building (5) has an in-built bund system around the floor and wall base that extends across all entrance and exit doors and ensure that spillages or leaks within the facility are contained and will not migrate to impact the underlying water table.

There will be potential for minor leakage of leachate from stored RDF bales within the building, however based on the existing operations the volume will be very low and the impermeable floor surface and the bunded nature of the entrance / exit doors is such that no liquids can migrate from the building to the surrounding environment. The current operating procedures within the facility also result in all observed leachate leaks being cleaned immediately. All free liquid on the facility floor is absorbed using sawdust and then fed into the baler hopper to be included as part of baled material. This system ensures a closed loop for any leachate leaks within the facility.

7.4.6 Mitigation Measures

Below are the mitigation measures which are proposed to ensure that the operation of the proposed development does not result in a negative impact on the hydro-geological environment.

- The integrity of the building floors and the bunds around the entrance / exit doors should be regularly checked to ensure that they are not adversely damaged and could allow migration of leachate seepage from stored bales within the facility building or from deposited waste awaiting pre-treatment. No storage of loose waste material will take place outside the facility building 5.
- Refueling of facility equipment will be completed by means of a mobile fuel tanker, comprising integral double-skinned containment and operated by trained personnel. Refueling operations will only take place at a designated area on hard standing that is situated as far away as possible from potential receiving surface water bodies. A spill tray and an emergency response spill kit shall be available and maintained on-site with the mobile fuel tanker during refueling operations.

- Machinery operators on the site will be trained in the use of emergency spill kits with an emergency response spill kit situated in the facility for use in the event of an accidental spill during re-fuelling.
- Any spillages or leaks within the facility buildings will be dealt with immediately upon observation with continued use of sawdust absorbent material used for containment and clean-up of liquids. The absorbent material will then be added to the baler feedstock.

Although it is not anticipated that there will be any impacts from the facility operations on the underlying site groundwater or hydrogeology, the implementation of the mitigation measures will help ensure that potential for the migration of contaminants from the building surface into the underlying aquifer are negligible.

7.4.7 Residual Impacts

If the mitigation measures are adhered to there are no anticipated residual impacts as a result of the proposed development.

7.4.8 Conclusions

The proposed development is situated in existing buildings in an industrial development in Belview Port. The proposed development will not require any construction works that could impact groundwater quality. The proposed operations buildings have impermeable concrete floors that will act as a significant barrier against impacts to groundwater from the facility operations. Based on these criteria it is not considered that operation of the proposed development would have a negative impact on groundwater quality in the area.

8.0 SOILS AND GEOLOGY

8.1 Introduction

This chapter describes the existing soils and geology in the vicinity of the proposed development in the Belview Port area and the potential impacts resulting from the construction works and facility operations. It also outlines the potential geological and hydrogeological impacts from the development and the controls and mitigation measures to be implemented during various phases of the development where required. The assessment of soils and geology of the site was completed with reference to the following:

- The EPA's Guidelines on the Information to be contained in Environmental Impact Statements, 2002;
- The EPA's Advice Notes on Current Practice(in the preparation of Environmental Impact Statements), 2003; and
- The Institute of Geologists of Ireland's guidance document, Geology in Environmental Impact Statements – A Guide, 2002

8.2 Existing Environment – Geology

8.2.1 Site Description

The subject site for the proposed development consists of two existing sheds currently being used for the baling and temporary storage of refuse derived fuel (RDF). The surrounding area to the south, east and north is part of the Port of Waterford facility and similar structures (i.e., bulk storage sheds) exist to the north and south of the proposed development for the storage and transportation of port related goods. The Port of Waterford Quayside and ancillary area surface consists of mainly concrete hard standing. The area to the west of the facility is agricultural pasture land and tillage land and is physically separated from the Port area by a hedgerow (see Chapter 6 of this EIS). The increased throughput of material in the proposed development will not require any additional excavation, construction or development works that could impact underlying soils or geology.

The topography of the area is gently sloped from west to east with the back of the site elevation at 6.0m OD and the edge of the Port of Waterford Quayside at an elevation of 3.6m OD. There were No visible bedrock outcrops at the site that may indicate shallow bedrock in the area.

A review of the Kilkenny County Development Plan 2008-2014 did not indicate any designated geological sites of interest at the site location.

8.2.2 Bedrock Geology

The Geological Survey of Ireland (GSI) Bedrock Map for South Wexford (Sheet 23) indicates that the subject site is largely underlain by the Campile Formation, belonging to the Duncannon Group. The Campile Formation comprises of siltstones and shales, with volcanic rock known as rhyolites (or rhyolitic tuffs/agglomerates) in grey and brown shales with occasional grey fine-grained volcanic rock. The geological formation belongs to the Ordovician Period. The bedrock geology of the site is shown on Figure 8.1.

8.2.2.1 Land Subsidance

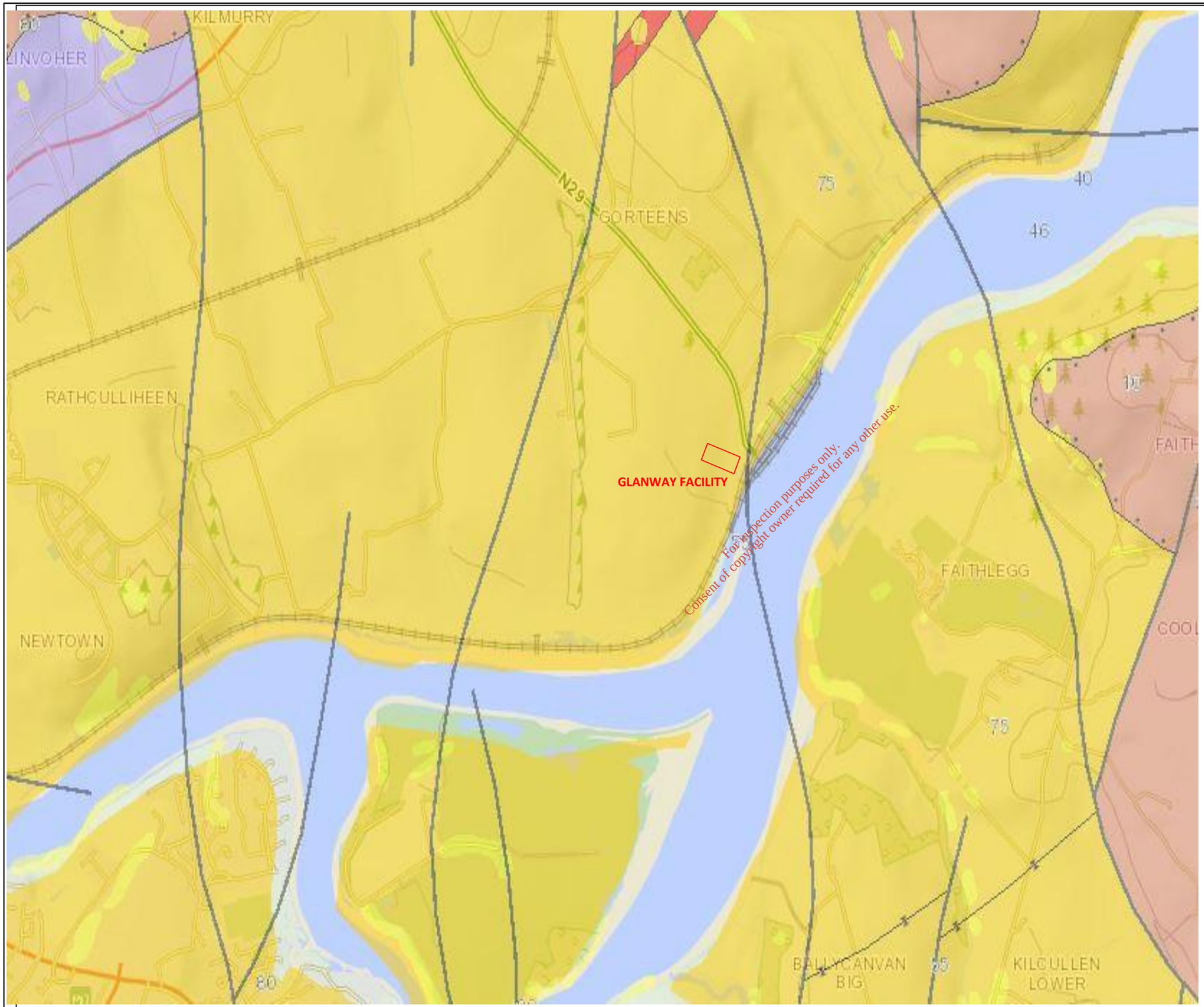
The subject lands are not at risk of subsidence. A fault line was identified on the GSI mapping for the area running east of the proposed development in a southwest to northeast direction, but this is not considered to be of concern to the proposed development.

8.2.2.2 Karst Features

There were no karst features identified at the site and the bedrock type is not conducive to karst formations.

8.2.3 Soils

A review of the Teagasc soils map for the area indicated that the soils in the area are mostly acid brown earths, with complexes of brown podzolics and gley soils (Association 14). The underlying geology is derived from Ordovician, Silurian and Cambrian shale, and glacial till. Figure 8.2 below indicates that the proposed development is located on an area of Man-made ground that has been created in the Belview Port.



LEGEND

- GLANWAY SITE
- MINE LOCATIONS
- KARST FEATURES
- QUARRIES(ACTIVE)
- BEDDING OR MAIN FOLIATION, OLD GSI DATA
- STRIKE AND DIP OF BEDDING, RIGHT WAY UP
- STRIKE AND DIP OF FIRST
- FAULT
- SYNCLINAL
- UNCONFORMITY
- ORDOVICIAN METASEDIMENTS
- ORDOVICIAN VOLCANICS
- NAMURIAN UNFIFFERENTIATED
- UP DEV-LR CARB ORS WAULSORTIAN
- DEVONIAN OLD RED SANDSTONE

NOTES

1. COORDINATE SYSTEM: TM65 IRISH GRID.
2. GEOLOGICAL LAYERS PROVIDED BY GEOLOGICAL SURVEY OF IRELAND (GSI).
3. TOPOGRAPH IC BASEMAP LAYER PROVIDED BY BING, 2013.

REFERENCE DRAWINGS

DWG No.	DATE	DESCRIPTION

REVISIONS

REV	DATE	DESCRIPTION	DRN BY	CHK

0 320 640 1,280 1,920 2,560 Metres

JRE Environmental Consulting

CLIENT	PROJECT LOCATION
GLANWAY LTD	BELVIEW PORT

TITLE

ROCK UNIT GEOLOGY IN THE VICINITY OF THE GLANWAY FACILITY

DES BY	JM	DRN BY	CB	DATE	2015 01 05	FIG No. 8.1	REV 0
CHK BY	XX	APP BY	XX	DWG No.	**FIGURE 8.1**		11x17

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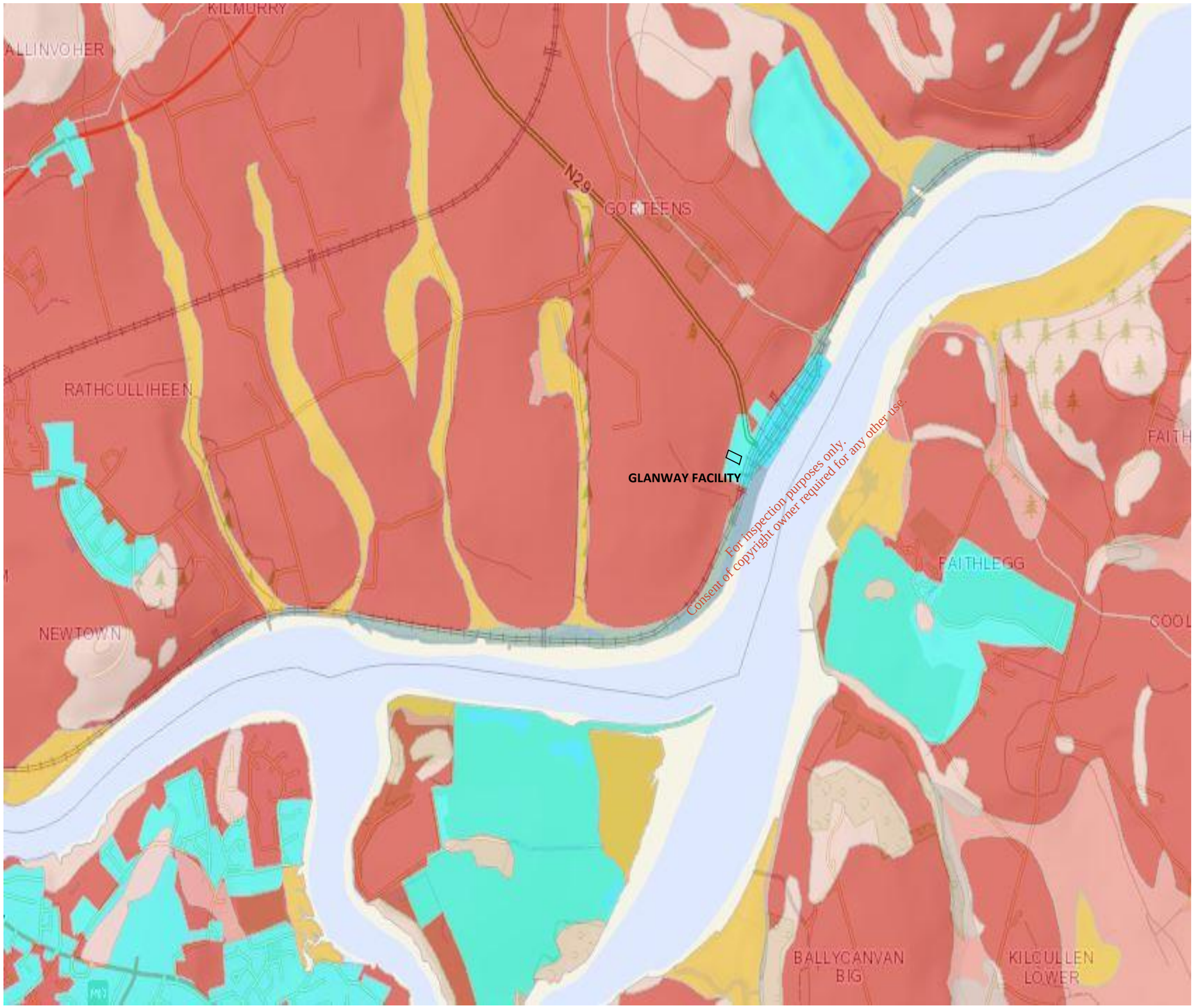

LEGEND

- GLANWAY SITE
- MINE LOCATIONS
- KARST FEATURES
- QUARRIES(ACTIVE)
- BEDDING OR MAIN FOLIATION, OLD GSI DATA
- STRIKE AND DIP OF BEDDING, RIGHT WAY UP
- STRIKE AND DIP OF FIRST
- FAULT
- SYNCLINAL
- UNCONFORMITY
- DERIVED FROM NON-CALCAREOUS MATERIAL
- MINERAL ALLUVIUM
- MAN MADE GROUND
- MADE / BUILT LAND

NOTES

1. COORDINATE SYSTEM: TM65 IRISH GRID.
2. GEOLOGICAL LAYERS PROVIDED BY GEOLOGICAL SURVEY OF IRELAND (GSI).
3. TOPOGRAPH IC BASEMAP LAYER PROVIDED BY BING, 2013.

REFERENCE DRAWINGS

DWG No.	DATE	DESCRIPTION

REVISIONS

REV	DATE	DESCRIPTION	DRN BY	CHK

0 320 640 1,280 1,920 2,560 Metres

JRE Environmental Consulting

CLIENT	PROJECT LOCATION
GLANWAY LTD	BELVIEW PORT

TITLE

SURFACE SOIL TYPES IN THE VICINITY OF THE GLANWAY FACILITY

DES BY	JM	DRN BY	CB	DATE	2015 01 05	FIG No. 8.2	REV 0
CHK BY	XX	APP BY	XX	DWG No.	**FIGURE 8.2**		11x17

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8.4 Impacts from the Proposed Development

The proposed development will result in the pre-treatment of increased tonnages of waste material (e.g., waste baling) in the existing building 5 from 20,000 tonnes per annum to 300 tonnes per day. The proposed process operation will be similar in nature to the existing operations albeit with an increased throughput and the future inclusion of additional pre-processing equipment including a shredding system for opening bagged waste and a trommel screen for the removal of organic fines material of off-site aerobic treatment at an appropriately permitted or licensed facility. The proposed increase in tonnage throughput is not expected to have a direct impact on the underlying soil or geological environment due to the existing controls in place at the facility. The facility is located within covered permanent buildings (buildings 5 & 6) that have impermeable concrete floor surfaces. The process building (5) has an in-built bund system around the floor and wall base that extends across all entrance and exit doors and ensure that spillages or leaks within the facility are contained and will not migrate to impact the underlying groundmass.

There will be potential for minor leakage of leachate from stored RDF bales within the building, however based on the existing operations the volume will be very low and the impermeable floor surface and the bunded nature of the entrance / exit doors is such that no liquids can migrate from the building to the surrounding environment. The current operating procedures within the facility also result in all observed leachate leaks being cleaned immediately. All free liquid on the facility floor is absorbed using sawdust and then fed into the baler hopper to be included as part of baled material. This system ensures a closed loop for any leachate leaks within the facility.

8.5 Mitigation Measures

Below are the mitigation measures which are proposed to ensure that the operation of the proposed development does not result in a negative impact on the soil and geological environment.

- The integrity of the building floors and the bunds around the entrance / exit doors should be regularly checked to ensure that they are not adversely damaged and could allow migration of leachate seepage from stored bales within the facility building or from deposited waste awaiting pre-treatment. No storage of loose waste material will take place outside the facility building 5.
- Refueling of facility equipment will be completed by means of a mobile fuel tanker, comprising integral double-skinned containment and operated by trained personnel. Refueling operations will only take place at a designated area on hard standing that is situated as far away as possible from potential receiving surface water bodies. A spill tray and an emergency response spill kit shall be available and maintained on-site with the mobile fuel tanker during refueling operations.

- Machinery operators on the site will be trained in the use of emergency spill kits with an emergency response spill kit situated in the facility for use in the event of an accidental spill during re-fuelling.
- Any spillages or leaks within the facility buildings will be dealt with immediately upon observation with continued use of sawdust absorbent material used for containment and clean-up of liquids. The absorbent material will then be added to the baler feedstock.

Although it is not anticipated that there will be any impacts from the facility operations on the underlying site soils, geology or hydrogeology, the implementation of the mitigation measures will help ensure that potential for the migration of contaminants from the building surface into the underlying soils and geology are negligible.

8.6 Residual Impacts

If the mitigation measures are adhered to there are no anticipated residual impacts as a result of the proposed development.

8.7 Conclusions

The proposed development is situated in existing buildings in an industrial development in Belview Port. The proposed development will not require any construction works that could impact soils or geology. The proposed operations buildings have impermeable concrete floors that will act as a significant barrier against impacts to soils and geology from the facility operations. Based on these criteria it is not considered that operation of the proposed development would have a negative impact on soils or geology in the area.

9.0 NOISE

9.1 Introduction

This chapter describes the potential noise and vibration impacts resulting from the construction works and operations associated with the proposed development. A noise impact assessment of the current operations including an assessment of potential impacts of noise from the increased traffic and increased pre-treatment of waste materials was completed and details of the measured noise levels are provided in Attachment I.1 along with calibration records of the sound pressure level equipment used.

The continued use of building 5 for processing activities and the addition of building 6 as part of the proposed development (for entry exit and potential bale storage) has been examined to assess which activities have the potential to result in noise impacts. The noise impacts from the delivery of waste material and the operation of the pre-treatment facility within buildings 5 and 6 are longer term, however there are no residential sensitive receptors in the immediate vicinity of the facility and any noise impacts may be intermittent depending on the traffic volumes and the position of pre-treatment equipment and facility building doorways. These impacts will be assessed in the context of the Glanway site operations within an operational port facility that is receiving and transporting goods on a 24 hour basis.

Where applicable, a series of suitable mitigation measures has been listed. Strict adherence to these mitigation measures and the best practice construction methods presented herein will ensure that any potential negative impact from noise and vibration is kept to a minimum. There will be no significant noise and vibration impacts as a result of the operation of the proposed development.

9.2 Methodology

The followings sections of this chapter outline the methodology used and the criteria addressed in the impact assessment. The potential sources of noise resulting from the operation of the proposed development are also described. The methodology for the assessment of potential noise impacts from operations at the proposed development included the following:

- A desktop review of the relevant codes, standards and guidelines.
- Identification of noise sensitive receptors using aerial photography and a site visit to the site and surrounding area. A noise sensitive location is defined by the Environmental Protection Agency (EPA), “Environmental Noise Survey Guidance Document, 2003,” as “any dwelling house, hotel

or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels". Designated conservation sites are also considered to be sensitive noise receptors.

- Site screening was completed to assess if the proposed facility is a "Quiet Area" or an area of "Low Background Noise" as designated in Section 4 of the EPA Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4); and

- Baseline noise monitoring (Section 9.3.3) was undertaken in accordance with EPA Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4).

In total, four (4) representative noise monitoring locations (NSL 1-NSL 4) were chosen in the area of the proposed facility; at two (2) noise sensitive locations (dwelling) to the northwest of the proposed facility and at 2 locations at the facility boundaries around the Port (e.g., office buildings) that could be impacted by operations equipment or traffic related to the proposed development.

A baseline survey was undertaken at each selected location to determine existing ambient noise levels as part of the process to describe the existing noise environment in the area and set appropriate noise criteria for the site based on the outcome of the initial screening process. The monitoring included the following:

- Day-time baseline 30 minute noise measurements at the 4 selected locations during a typical working day (i.e., between 09.00 and 17.00) to assess day-time noise climate in the vicinity of the existing Glanway site during normal operations;

- Evening baseline 30 minute noise measurements at the 4 selected locations to assess the typical evening noise climate in the vicinity of the existing Glanway site; and

- Night time measurements (i.e., after 23.00 hrs) at the 4 selected locations to assess the typical night-time noise climate in the vicinity of the existing Glanway site when the site is not operational;

The selected noise monitoring locations are illustrated on Figure 9.1.

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NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED ON SITE. NOT ALL UTILITIES MAY BE SHOWN.

REFERENCE DRAWINGS

–	–	–
DWG. NO.	DATE	DESCRIPTION

REVISIONS

0	–	–	–	–
REV.	DATE	DESCRIPTION	BY	CHK

0 10 30
METRES

CLIENT NAME: Glanway Ltd

PROJECT LOCATION: Belview Port, Waterford

TITLE: SITE PLAN – Noise Measurement Locations

DWN BY: JER	SCALE: NTS	DATE: 02/01/2015	DWG No: REV.: 0
CHK'D:	PLOT: 20100528.1439	CADFILE: 132761R01	FIGURE 9.1

9.3 Existing Environment

9.3.1 Quiet Area Screening

Before completing the baseline noise monitoring survey a screening assessment was completed to determine if the site was located in a 'Quiet Area' to ascertain the noise criteria and noise monitoring approach that would be applicable in the area of the site. The screening was conducted as per the EPA guidance ''Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4). The results of the initial screening are provided in Table 9.1 below.

Table 9.1: Quiet Area Screening Results

	Yes	No
Is the site >3km away from urban areas with a population >1,000 people?		x
Is the site >10km away from urban areas with a population >5,000 people?		x
Is the site >15km away from urban areas with a population >10,000 people?		x
Is the site >3km away from any local industry?		x
Is the site >10km away from any major industry centre?		x
Is the site >5km away from any national primary route		x
Is the site >7.5km away from any motorway or dual carriageway		x
QUIET AREA?		x

Based on the results of the screening assessment, the site is not located in a "Quiet Area"

9.3.2 Previous Noise Monitoring

Waterford Port Authority had an environmental noise assessment completed (two 24 hour readings at Gorteens and Faithlegg) in April 2014 to determine noise levels at those identified noise sensitive receptors in the vicinity of Belview Port. The report was reviewed to determine noise levels at the noise sensitive receptors to provide a comparison with the results of the baseline assessment completed by JRE Ltd. A copy of the environmental noise assessment completed by Acoustic Design Ltd. is provided in Attachment I.2. The main results of the assessment are provided in Table 9.2 below;

Table 9.2: Hourly Noise Data Results at Gorteens

Time (Hrs)	L_{A10}	L_{A90}	L_{Aeq}
15:00	44.2	36.3	45.3
16:00	43.3	35.7	48.2
17:00	41.1	35.0	40.8
18:00	44.9	35.0	41.4
19:00	49.4	41.1	46.5
20:00	49.1	36.1	45.4
21:00	44.4	35.5	45.8
22:00	45.6	36.4	51.9
23:00	40.7	36.0	38.7
00:00	44.7	37.8	41.8
01:00	45.2	39.4	42.8
02:00	43.8	38.5	41.6
03:00	45.6	39.7	43.2
04:00	44.2	38.5	41.8
05:00	42.5	38.0	40.7
06:00	49.6	41.1	47.2
07:00	49.9	42.2	56.5
08:00	51.5	43.9	48.9
09:00	50.5	43.0	48.4
10:00	50.9	43.9	48.5
11:00	52.3	43.9	50.3
12:00	49.5	42.0	46.9
13:00	45.8	39.8	45.8
14:00	47.6	40.5	46.0

The assessment results indicated that the noise levels at the Gorteens measurement location was less than the daytime and night-time limit even during port operations. The noise levels from the port activities was considered to be significantly less than other local noise sources (e.g., bird song, people talking and dogs barking).

Table 9.3: Hourly Noise Data Results at Faithlegg

Time (Hrs)	L_{A10}	L_{A90}	L_{Aeq}
15:00	54.0	35.6	48.8
16:00	41.2	33.1	39.3
17:00	43.6	32.6	44.1
18:00	50.0	34	50.0
19:00	55.8	34.4	52.2
20:00	49.9	37.8	49.1
21:00	46.2	41.4	50.3
22:00	46.1	42.5	44.5
23:00	47.8	43.5	46.0
00:00	47.6	44.0	46.0
01:00	49.6	45.3	47.6

Time (Hrs)	L_{A10}	L_{A90}	L_{Aeq}
02:00	50.3	45.9	48.4
03:00	48.4	43.4	46.3
04:00	46.1	42.1	44.3
05:00	47.2	40.5	45.1
06:00	54.3	41.2	51.7
07:00	58.0	39.9	53.5
08:00	52.6	38.0	48.7
09:00	53.4	38.0	50.3
10:00	48.2	39.7	46.0
11:00	45.4	39.7	44.1
12:00	45.8	39.3	44.2
13:00	44.7	38.3	43.5
14:00	51.0	41.0	48.3

Similar to the Gorteens noise assessment, measurements at the east side of the Suir River at Faithlegg also indicated that the noise levels were less than the daytime and night-time limit even during port operations.

The report indicated that overall the noise from normal operation of the Port of Waterford does not exceed the daytime and night-time limits at noise sensitive receptors and is not causing nuisance.

9.3.3 Baseline Monitoring

A description of the receiving noise environment based on the results of the completed baseline noise monitoring survey is outlined in the following sections.

The primary measurement parameter used to establish the background noise climate in the area was the equivalent continuous A-Weighted Sound Pressure level ($L_{Aeq,T}$) for the duration of the monitoring survey. A statistical analysis of the measurement results was also completed so that the percentile levels, LAN, T, for N = 90% and 10% over the measurement intervals were also recorded. The percentile levels represent the noise level in dB(A) exceeded for N% of the measurement time and outlined below:

- L_{A10} values during daytime, evening and night-time periods to account for and describe intermittent, high-energy noise events such as passing traffic;
- L_{A90} values during daytime, evening and night-time periods that were representative of background noise levels; and
- 1/3rd octave band analysis at each location for the day and night time scenarios

A glossary of noise related terms, including L_{Aeq}, L_{A10}, L_{A90} is included as Attachment I.3.

9.3.4 Background Noise Monitoring

The background noise survey completed in the vicinity of the proposed facility was completed to determine the contribution of natural (e.g., birds, vegetation, people) and anthropogenic (e.g., traffic and Port activities) to the existing noise climate in the area during the day, evening and night-time periods. Monitoring was completed using a calibrated Casella CEL -120/1 sound pressure level meter. The calibration certificates are provided in Attachment I.1. The limits against which results were assessed were those outlined in section 4.3 of the "*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4), EPA 2012*", outlined in Table 9.4 below.

Table 9.4 – Typical Limit Values for Noise from licensed Sites

Measurement Period	Timeframe	Limit
Daytime	07:00 – 19:00	55dB $L_{Ar, T}$
Evening	19:00 – 23:00	50 $L_{Ar, T}$
Night-time	23:00 – 07:00	45 $L_{Ar, T}$

In general the main contributing noise sources included intermittent traffic, wind borne noise, birdsong, gantry crane activities, loading and unloading activities in the Port and traffic using the N29 National Primary Road. The noise from port related activities was mainly audible at the 2 site boundary locations. The closest residence (noise sensitive receptor) is located approximately 400 metres to the northwest of the facility and measurement locations were situated at sensitive receptors, i.e. residences, and consequently near local access roads, traffic noise impacted on the noise level to varying extents. Table 9.5 outlines the locations where traffic is estimated to currently have the most impact. L_{A90}, (average) gives a good indication of the noise level without the contribution of traffic.

The background monitoring was completed with reference to the EPA Guidance document NG4. Noise readings were recorded over daytime, evening and night-time periods at the selected monitoring locations, see Figure 9.1. The noise monitoring was conducted on the 26th and 27th of January 2015 in accordance with the ISO 1996: Acoustics- Description and measurement of environmental noise and the EPA Guidance Note – Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4). The monitoring survey schedule was completed with reference to NG4 and is outlined in Table 9.5 below.

Table 9.5 – NG4 Noise Survey Schedule

Period	Minimum Survey Duration
Daytime (07:00 to 19:00hrs)[1]	4 hour survey with a minimum of 3 sampling periods at each noise monitoring location.
Evening (19:00 to 23:00hrs)[1]	2 hour survey with a minimum of 1 sampling period at each noise monitoring location.
Night-time (23:00 to 07:00hrs)[2]	3 hour survey with a minimum of 2 sampling periods at each noise monitoring location.

[1] Sampling period is to be the time period T stated within the relevant licence. Typically this will be either 15 minutes or 30 minutes in duration. This applies to day, evening and night time periods.
[2] Night-time measurements should normally be made between 23:00hrs and 04:00hrs, Sunday to Thursday, with 23:00hrs being the preferred start time.

Noise Monitoring Locations

Noise monitoring locations selected for the background monitoring survey are detailed on Table 9.6

Table 9.6 – Noise Monitoring Locations

Noise Monitoring Location	Location Description	Grid Reference
NSL 1	Offices Located North of Building 7	
NSL 2	Site Boundary – East of Building 5	
NSL 3	All Store Warehousing – North east of Facility	
NSL 4	Gorteens Road Close to Residential Property	

9.3.5 Baseline Broadband Noise Monitoring Results

The results for the baseline environmental noise monitoring at each selected noise monitoring location is provided in Tables 9.7 to 9.10.

Table 9.7 – NSL 1 daytime, Evening and Night-time Monitoring Results

Monitoring Period	Monitoring Location	Time	L_{Aeq} (dBA)	L_{Amax} (dBA)	L_{A10} (dBA)	L_{A90} (dBA)
Daytime	NSL 1 A	09:55 – 09.25	60.3	87.1	63.5	44.0
	NSL 1B	11:00 – 11:30	59.7	86.6	61.8	45.1
	NSL 1C	11:30 – 12:00	61.7	88.3	66.0	45.2
Evening	NSL 1D	21:30 – 22:00	47.8	64.1	52.5	35.5
Night time	NSL 1E	23:00 - 23:15	45.7	75.0	46.0	34.0
	NSL 1F	01:15 – 01:30	37.9	59.0	40.0	26.0

Table 9.8 – NSL 2 daytime, Evening and Night-time Monitoring Results

Monitoring Period	Monitoring Location	Time	L_{Aeq} (dBA)	L_{Amax} (dBA)	L_{A10} (dBA)	L_{A90} (dBA)
Daytime	NSL 2A	10:30 – 11:00	59.4	66.2	60.5	58.0
	NSL 2B	12:00 – 12:30	56.7	65.8	61.0	52.8
	NSL 2C	12:30 – 13:00	57.2	67.3	62.1	50.5
Evening	NSL 2D	21:00 – 21:30	49.2	62.8	54.0	37.7
Night time	NSL 2E	23:15 – 23:30	46.5	61.8	55.2	35.5
	NSL 2F	23:00 – 00:00	44.8	75.0	45.5	33.6

Table 9.9 – NSL 3 daytime, Evening and Night-time Monitoring Results

Monitoring Period	Monitoring Location	Time	L_{Aeq} (dBA)	L_{Amax} (dBA)	L_{A10} (dBA)	L_{A90} (dBA)
Daytime	NSL 3A	14:00 – 14:30	53.3	80.8	46.0	31.0
	NSL 3B	14:30 – 15:00	56.4	89.1	51.5	30.5
	NSL 3C	15:00 – 15:30	47.7	80.3	46.0	30.5
Evening	NSL 3D	20:00 – 20:30	50.9	65.3	55.0	42.0
Night time	NSL 3E	00:30 – 00:45	38.5	59.1	41.5	27.5
	NSL 3F	00:45 – 01:00	39.4	59.9	41.5	26.5

Table 9.10 – NSL 4 daytime, Evening and Night-time Monitoring Results

Monitoring Period	Monitoring Location	Time	L_{Aeq} (dBA)	L_{Amax} (dBA)	L_{A10} (dBA)	L_{A90} (dBA)
Daytime	NSL 4A	16:00 – 16:30	65.0	90.6	64.5	32.5
	NSL 4B	16:30 – 17:00	48.1	74.3	48.0	32.5
	NSL 4C	17:00 – 17:30	45.2	59.4	47.0	28.0
Evening	NSL 4D	20:30 – 21:00	49.2	64.5	53.5	39.0
Night time	NSL 4E	23:00 – 23:15	40.3	58.6	43.5	28.5
	NSL 4F	00:00 – 00:15	40.8	63.8	43.5	28.0

The measurement timelines and graphs for the recorded noise levels are provided in Attachment I.1.

9.3.6 Baseline Frequency Analysis

A frequency analysis was carried out at each monitoring location to assess the spectrum of noise levels with respect to the frequencies (Hz) at which they occurred. A one-third octave frequency analysis was

completed which included the calculation of an average noise level to represent the frequencies within each third of an octave. The recorded noise levels were compared with levels for the adjacent one-third octave bands to determine if a significant tonal impact was taking place at a particular frequency. The levels that would constitute a significant tonal component between frequencies are outlined in Table 9.11.

Table 9.11 – Frequencies and Noise Levels that would Constitute a Tonal Impact

Frequency (Hz)	Noise Level difference that would constitute a tonal impact (dB)
Low K frequency one third octave bands (25Hz to 125Hz)	15 bB
Middle K frequency bands (160Hz to 400Hz)	8 dB
High K frequency bands (500Hz to 10,000Hz	4dB

No discernible tonal impact was identified at any measurement location during the noise assessment. The full spectrum graphs for the measurements recorded are provided in Attachment I.4.

9.4 Operational Phase Impacts

There will be limited noise generated during the operational phase of the proposed development that will impact external receptors in the vicinity of the waste pre-treatment facility. All process equipment (i.e., baler, trommel or shredders) will be located inside the process building and noise impacts will therefore be contained to a large extent within the process building.

Transportation of waste material and the transport of baled material for shipping will result in increased traffic movements (see Chapter 12). However, in the overall context of traffic volumes entering and leaving the Port, any increased traffic movements associated with the Glanway facility will be minimal. Potential noise sources during the operational phase of the waste pre-treatment facility are:

- Daily movements of approximately 24 waste delivery trucks for 6 days per week
- Operation of additional processing equipment inside the facility building that may be audible if doors are open;
- Movement of baled material to external storage area at the quayside.
- Extraction fans for air exchanges within the facility building.

The current noise climate inside the process building with the baler, wrapper and telegrab in operation is 82.5 dBA. However, the equipment operations are largely in-audible at 10m from the facility door. The manufacturers approximate noise levels for additional processing equipment that will be located inside Building 5 are outlined below:

- Trommel Screen – 89 dBA
- Shredder system – 90 dba

The current operations inside the building are 82.5 dBA, with the inclusion of the additional process equipment the future noise levels within building would be expected to be 92.5 if all equipment is operating at the same time. When all equipment is operating it will be a requirement that operatives entering and working inside the facility building must have hearing protection

9.5 Mitigation Measures

The current operations are not considered to be having an impact on the surrounding area or on noise sensitive receptors. Due to the industrial nature of the area at Belview Port and the 24 hour activity within the Port it is not expected that the proposed development will have any future impact on the noise climate of the area. However, to ensure that the local area remains unaffected by future operations the following mitigation measures should be maintained on site;

- All doors to Building 5 must be kept closed when processing operations are being completed;
- The roller door to the east of the building will not be opened for reception of waste and the concrete barrier in front of the door (acting as an acoustic barrier) will be maintained;
- Assessment of noise levels outside the facility should be monitored to identify potential sources.
- If trucks are delivering material and have to queue on the internal Port road for entry then they should not idle their engines, particularly at night.

9.6 Conclusions

The industrial nature of the Belview Port facility and the 24 hour operation of the Port will result in negligible noise impacts from increased traffic numbers using the proposed development. The operation of additional process equipment within the facility building will not have an adverse impact on the surround noise climate if the mitigation measures identified above are adhered to.

10.0 AIR QUALITY & CLIMATE

10.1 Introduction

JRE completed ambient air assessment at the existing Glanway Ltd. facility to assess the potential impact of atmospheric emissions from the proposed new Glanway operations with increased tonnage throughput and traffic movements to the facility located at the Belview Port, Co. Kilkenny. The proposed development is located in existing commercial / industrial area of Belview Port with the immediate area to the west/northwest being mainly rural in nature with the Belview Port facility immediately to the east and industrial units located to the south and north and a cement plant and waste water treatment plant located approximately 270 metres and 1.1km respectively to the south of the facility. The purpose of the assessment was to ensure that the proposed facility does not result in a contravention of the applicable regulatory Air Quality Standards (AQSs) as set out by the EU and Ireland. The main air quality impacts are considered to be from increased traffic movements related to the increased operation of the facility and potential odour impacts from the proposed development.

To determine the baseline air quality and assess the potential impact of the operational phase of the proposed development, the following approach was followed:

- Identification of potential air pollutants.
- Monitoring of identified pollutants of concern to assess the current baseline air quality levels in the vicinity of the existing facility.
- Investigation of the potential impact to air quality during the operation of the proposed development; and
- Mitigation measures to minimise against potential impacts to air quality.

The majority of the traffic derived pollutants (Oxides of Sulphur and Nitrogen, Volatile Organic Compounds, PM_{10}), Odour, and the generation of dust are considered the main potential pollutants that may impact on the air quality during the operation of the facility. The emission of air pollutants is one of the largest pressures on the global environment, with a major component of this pressure coming from traffic emissions. There are a variety of pollutants, principally oxides of nitrogen, carbon monoxide, volatile organic compounds and particulates that may be emitted to atmosphere from vehicles. The environmental effects of each identified potential air pollutant is provided below:

Oxides of Nitrogen (NO & NO_2) - Refers predominately to nitrogen oxide (NO) and nitrogen dioxide (NO_2) are formed when nitrogen combines with oxygen at the high temperatures generated by fossil fuel combustion. Nitric oxide has no colour, odour, or taste and is non-toxic. In the atmosphere it is rapidly oxidized to nitrogen dioxide by reaction with ozone. Nitrogen dioxide is a reddish-brown gas that has a pungent, irritating odour and is one of the main components of smog.

Nitrogen oxides occur from both natural (e.g., bacterial processes, biological growth and decay, forest and grassland fires) and anthropogenic activities (e.g., Road traffic). Road traffic is the principal source of anthropogenic nitrogen oxides and is responsible for approximately half the emissions in Europe (Ireland's Environment – A millennium Report', EPA, 2000). Nitrogen oxide is the most common form of NO_x emitted. The amount of nitrogen dioxide emitted varies with the temperature of combustion, as the temperature increases, so does the level of nitrogen dioxide. NO_2 has a variety of environmental impacts. At high concentrations, nitrogen dioxide is potentially toxic to plants, reducing growth which, in turn, reduces crop yield. In the presence of sunlight, it reacts with hydrocarbons to produce photochemical pollutants such as ozone. In addition, under specific conditions nitrogen oxides may be easily converted to nitric acid, which is in turn removed from the atmosphere by direct deposition to the ground, or transfer to aqueous droplets (e.g. cloud or rainwater), thereby contributing to acid rain.

Volatile Organic Compounds (VOC's) - are released in vehicle exhaust gases either as unburned fuels or as combustion products, and may also be emitted by the evaporation of motor fuels. Certain VOC's are important because of the role they play in the photochemical formation of ozone in the atmosphere. The predominant VOC's associated with transport related activities are included in the measurement programme. Four compounds were selected as indicators of pollution from these source, and include; benzene, toluene, ethylbenzene and xylene (BTEX) isomers.

Particulate Matter – Airborne particulate matter varies widely in its physical and chemical composition, source and particle size. Particles are often classed as either primary (those emitted directly into the atmosphere) or secondary (those formed or modified in the atmosphere from condensation and growth). Particulate matter arises from both man-made and natural sources. Natural sources include wind-blown dust, sea-salt and biological particles e.g. pollen. Man-made sources include large carbon particles from incomplete combustion, ash, dust particles from quarrying and construction activities and road traffic generated dust. In general large particles do not stay in the atmosphere for long and are deposited close to their source, whereas small particles can be transported long distances. Particles, which are deposited to ground, give rise to problems such as soiling of buildings and other materials and also cause a general nuisance. The Technical Instructions on Air Quality Control TA Luft - 1986 recommended guideline value for dust emissions is 350 mg/m^2/day.

In recent years, interest has focused on the levels of particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}) which have been shown to have health implications at elevated levels, due to their ability to penetrate into the trachea-bronchial system. A major manmade source of fine primary particles is combustion processes, primarily road transport and coal burning activities. However, road transport is estimated to be the single biggest primary manmade source of PM_{10} in most EU countries. Of particular concern is diesel combustion, where transport of hot exhaust vapour into a stack can lead to spontaneous nucleation of 'carbon' particulates before emission.

Odour - The main air emissions impact from the proposed development will be odours from waste material deposited and baled within the facility building. Because the development operations will be similar to those currently completed at the existing Glanway facility the baseline odour assessment completed at the Glanway facility was considered reflective of the current and future odour impacts at the facility. However, it is noted that the proposed increase in tonnage throughput at the facility will increase the frequency that facility doors are open to accept waste materials for pre-processing.

10.2 Air Quality Legislation

Air Quality Standards for the protection of human health and the environment have been developed at European level and implemented into Irish legislation for a number of air emissions. Air Quality Standards (AQSs) set limit values for Ground Level Concentrations (GLCs) of certain emissions for both the short term (hourly, daily) and long term (annual averages). Limit values are often expressed as percentiles (e.g. 98%ile of mean hourly values).

Based on the existing National and European regulatory regime, the following Air Quality Legislation is considered applicable for air quality assessment in Ireland:

- EU Directive 2000/76/EC on the incineration of waste. The Directive sets emission limit values and monitoring requirements for pollutants to air such as dust, nitrogen oxides (NOx), sulphur dioxide (SO_2), hydrogen chloride (HCl), hydrogen fluoride (HF), heavy metals and dioxins/furans.
- EU Directive 2008/50/EC ambient air quality and cleaner air for Europe which merges most of the existing legislation (i.e., Directives 96/62/EC, 1999/30/EC, 2000/69/EC and 2002/3/EC) into a single directive with no change to existing air quality objectives. However the Directive does set out new air quality objectives for $PM_{2.5}$
- Statutory Instrument No. 58 2009 Arsenic, Cadmium, Mercury, Nickel, and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009. This statutory instrument brings into force the EU Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. It sets the target values to be attained, from 31 December 2012, for concentrations of arsenic, cadmium, nickel and benzo(a)pyrene and also specifies monitoring requirements for mercury and other polycyclic aromatic hydrocarbons.
- Air Quality Standards Regulations, 2011 (S.I. 180 of 2011) implements Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe and introduces fine particulate matter targets limits and the requirements for ambient air quality management.

Emissions to the atmosphere from the operation of the proposed facility will potentially include some of the emissions covered in the air quality legislation outlined above, these include;

- **Oxides of Nitrogen (NO_2 & NO_x)** – NO_2 98%ile hourly air quality standard of 200 µg/m^3 and an NO_2 (Human Health) Annual target of 40 µg/m^3 under S.I. 180 of 2011. NO_x Annual target of 30 µg/m^3 for vegetation protection under S.I. 180 of 2011

- **Particulate Matter** – Annual PM_{10} and $PM_{2.5}$ targets of 40 µg/m^3 and 25 µg/m^3 respectively. 24 Hour 90.4%ile target of 50 µg/m^3 - all targets are outlined under S.I. 180 of 2011.

- **Carbon Monoxide** – 8 Hour target limit of 10,000 µg/m^3 under S.I. 180 of 2011.

Odour

Odour is the property of a substance that activates the human sense of smell and that experience is unique to each individual and it varies with each person's perception of a particular smell. Since smell is subjective some people will be hypersensitive and some will be less sensitive (anosmia). Therefore, the sense of smell is the most useful detection technique available for assessing odorous compounds.

10.3 Existing Environment

The EU Air Framework Directive requires Member States to identify 'Zones' and 'Agglomorations' for air quality assessment purposes. In Ireland, four main zones (A, B, C and D) are defined in the Air Quality Standards (AQS) Regulations, 2011 (SI No. 180 of 2011) and are outlined below;

- Zone A – Dublin Conurbation
- Zone B – Cork Conurbation
- Zone C – Large Towns with a Population .15,000
- Zone D – Remaining Area of Ireland

The Glanway proposed development is located in close proximity to Waterford City (large town with population >15,000) and has been included as part of a Zone C area. The EPA completed air monitoring for Waterford City (ESB premises in Waterford City) between January 2007 and February 2008 and this data was used to assess background air quality. During the monitoring period the following pollutants were monitored and assessed:

- Carbon Monoxide (CO)
- Sulphur Dioxide (SO_2)
- Nitrogen Dioxide (NO_2) and Oxides of Nitrogen (NO_x)
- Particulate Matter (PM)
- Lead and Other Metals

The results for the relevant parameters outlined above are outlined below.

10.3.1 Carbon Monoxide

Concentrations of CO were all below the relevant Air Quality Standard (AQS) of 10mg/m^3. The results for CO concentrations measured are included in Table 10.1.

Table 10.1: Background Carbon Monoxide Concentrations for Waterford City

Averaging Period	Results (mg/m^3)
Max Hourly Value	4.41
98 Percentile for Hourly Values	1.26
Mean Hourly Value	0.52
Max 8-Hour Mean	2.07
98%ile for 8-Hour Mean	1.25

10.3.2 Nitrogen Dioxide and Oxides of Nitrogen

Concentrations of NO_2/NO_x were all below the relevant AQS of 200µg/m3 for hourly values. The results for NO_2/NO_x concentrations measured are included in Table 10.2.

Table 10.2: Background NO_2/NO_x Concentrations for Waterford City

Averaging Period	Results (mg/m^3)
Max Hourly Value (NO_2)	90.7
98 Percentile for Hourly Values (NO_2)	58.8
Mean Hourly Value (NO_2)	18.5
Mean Hourly Value (NO_x)	29.6

10.3.3 Particulate Matter

The 24 hour limit for the protection of human health was exceeded on seven occasions during the monitoring period. The Directive stipulates that the limit should not be exceeded more than 35 times in a calendar year. Therefore the monitoring shows that air quality in terms of PM is within the AQSs for PM. The following were the results for PM for the monitoring period:

Table 10.3: Background Particulate Matter Concentrations for Waterford City

Averaging Period	Results (mg/m^3)
Max Daily Value	122.3
98 Percentile for Daily Values	49.5
Mean Daily Value	25.5

10.4 Baseline Ambient Air Sampling

A baseline ambient air quality assessment was completed by JRE Ltd. at the Belview facility between December 19th, 2014 and January 20th, 2015. The sampling was completed to assess the baseline concentrations of air pollutants in the air around the site boundaries. The main sources identified included; the facility, adjacent bulk storage sheds, construction works on buildings 6 and 7, Belview Port quayside surface and engine emissions from trucks and trains. The analytes sampled as part of the ambient air sampling programme were:

- Dust Deposition;
- PM10; and
- Benzene, toluene, ethyl benzene and xylene (BTEX); and
- Oxides of Nitrogen

The ambient air samples were collected at the locations outlined in Table 10.4 to provide background information on air quality in the vicinity of the existing facility and proposed development.

Table 10.4: Ambient Air Sampling Locations

Sample ID	Location
5-AS1	Entrance to Belview Port
5-AS2	Turn off on Internal Road to Glanway facility
5-AS3	Opposite Building 5
5-AS4	South of Building 1

The detailed methodology and results for the baseline ambient air assessment are included in Attachment J.1.

The analysis results for the baseline ambient air sampling are presented in Tables 10.5 through 10.8 below.

Table 10.5: Dust Deposition Monitoring Results

Sample ID	Result ($mg/m^2/day$)	Waste Licence Limit ($mg/m^2/day$)
5-AS2	18.12	350
5-AS3	278.2	350
5-AS4	299.8	350

Table 10.6: PM_{10} Monitoring Results

Sample ID	Result ($\mu g/m^3$)	Regulatory Limit ($\mu g/m^3$)
5-AS2	<40.7	50
5-AS3	33.9	50

Table 10.7: Ambient BTEX Monitoring Results

Sample ID	Parameter	Result ($\mu g/m^3$)	Regulatory Limit ($\mu g/m^3$)
5-AS1-01	Benzene	0.27	5
	Toluene	0.25	N/A
	Ethyl Benzene	<0.28	N/A
	Xylene	<0.28	N/A
5-AS2-01	Benzene	0.23	5
	Toluene	<0.23	N/A
	Ethyl Benzene	<0.28	N/A
	Xylene	<0.28	N/A
5-AS3-01	Benzene	<0.22	5
	Toluene	0.38	N/A
	Ethyl Benzene	<0.28	N/A
	Xylene	<0.28	N/A

Table 10.8: Ambient Oxides of Nitrogen Monitoring Results

Sample ID	Parameter	Result ($\mu g/m^3$)	Regulatory Limit ($\mu g/m^3$)
5-AS1-01	NO	-	N/A
	NO_2	-	40
	NO_x	47.8	30
5-AS2-01	NO	6.24	N/A
	NO_2	9.36	40
	NO_x	8.15	30
5-AS3-01	NO	4.46	N/A
	NO_2	10.96	40
	NO_x	8.05	30

The results of the PM_{10} and dust deposition monitoring programme completed at the Glanway site in December 2014 and January 2015 indicated that the dust deposition concentrations at all monitoring locations (i.e., 5-AS2, 5-AS3 and 5-AS4) were all less than the TA Luft limit of 350 mg/m^2/day and PM_{10}

concentrations at 5-AS2 and 5-AS3 were less than the 50 µg/m^3 24-hour limit in 1999/30/EC SI 271 of 2002. Ambient concentrations of BTEX and oxides of nitrogen were also less than the regulatory limit for all samples collected and analyzed.

10.5 Baseline Odour Assessment

A baseline odour assessment was completed by JRE Ltd. at the Glanway facility in January 2015 to assess existing odour impacts at the facility. The main aims of the odour assessment were to use a combination of odour assessment at potentially sensitive receptors (both residential and commercial) using human smell (sniff test) data and the assessment of source areas in and at the facility through the collection of air samples and subsequent olfactory panel analysis of the samples. The main tasks completed are outlined below:

- Review existing sniff test results and odour complaints for the facility since June 2014;
- Complete a sniff test at identified sensitive receptors with reference to AG5 guidance;
- Perform an odour assessment on the ambient air outside the facility exhaust fan, within the facility and at the open roller door in accordance with EN13725:2003 (olfactometry odour threshold determination using dynamic dilution and forced choice method); and
- Review the existing odour control systems currently used at the facility;

The methodology and results for the baseline odour assessment are included in Attachment J.2.

10.5.1 Review of Facility Site Inspection Sheets

Glanway personnel complete daily site inspections and "sniff test" at three main locations at the perimeter of the facility where it was considered there could be odour impacts from the operation of the facility. The results of the sniff tests completed by Glanway are included in Table 10.9.

Table 10.9: Glanway Personnel Sniff Test Results

Date	Location	Wind Direction	Observation
02–30 /07/2014	East, west & north perimeter of Facility	Mainly from SW – towards the Belview weighbridge and across the Suir River.	Intermittent Odour detected some days prior to installation of Dax System
31/07-12/08/ 2014	East, west & north perimeter of Facility	Mainly from SW – towards the Belview weighbridge and across the Suir River.	Slight Intermittent Odour Noted some days during loading out of bales
19/08–01/09/2014	East, west & north perimeter of Facility	Mainly from SW – towards the Belview weighbridge and across the Suir River.	No Odour Noted
02-30/09/14	East, west & north perimeter of Facility	Mainly from SW – towards the Belview weighbridge and across the Suir River.	No Odour Noted
01/10-31/10/2014	East, west & north perimeter of Facility	Mainly from SW – towards the Belview weighbridge and across the Suir River.	No Odour Noted
01/11 – 30/11/2014	East, west & north perimeter of Facility	Mainly from SW – towards the Belview weighbridge and across the Suir River.	No Odour Noted
01/12 – 12/12/2014	East, west & north perimeter of Facility	Mainly from SW – towards the Belview weighbridge and across the Suir River.	No Odour Noted

Glanway personnel also visited all the neighbouring businesses in the Port of Waterford providing each business with contact details of staff in case of detection of odour at their business premise. Glanway visited and provided its number to:

- Suir Shipping – located 150m from Glanway facility - no complaints ever received from this business, employees or occupants
- Port of Waterford Company Weighbridge – located 75m from Glanway facility - no complaints ever received from this business, employees or occupants
- Celtic Shipping – located 50m from Glanway facility (in old Port Offices now demolished) – two complaints made to KCC in first week of operation prior to Glanway meeting all neighbouring businesses and prior to installation of Dax System thereafter no complaints from this business, employees or occupants
- Noel O'Brien Cement Weighbridge – located 150m from Glanway facility - no complaints ever received from this business, employees or occupants

- Target Fertilizer – located 400m from Glanway facility - one complaint received from this manager again prior to Dax System installation thereafter no complaints from this business, employees or occupants
- South East Port Services (BBS Weighbridge) – located 250m from Glanway facility – 3 complaints received from Manager in relation to odours being detected when doors open prior to installation of mist system to doors thereafter no complaints from this business, employees or occupants.

10.5.2 Facility Sniff Test

On January 19th 2015, JRE completed a sniff test at the Glanway facility during normal operations. During the sniff test it was noted that 2 waste deliveries were received at the facility that involved opening the facility building door and potentially releasing odours to the wider environment.

Results of the sniff test were recorded on an Odour Investigation Field Record Sheet from Annex A of the AG5 guidance document, see Attachment J.2. The sniff test was completed on a cold day when there were light winds from the southwest and three (3) potential commercial / industrial sensitive receptor locations were identified and assessed. In addition, the assessment was also completed at two locations in the vicinity of the process shed. An overview of the results are provided in Table 10.10 below.

Table 10.10 – Glanway Sniff Test Assessment Results

Date	Location	Upwind / Downwind of Facility	Description / Comment
19/01/15	Port of Waterford Entrance	Downwind	No Odour observed
19/01/15	On road outside Belview Bulk Storage	Downwind	No Odour observed
19/01/15	Outside Store All Warehousing	Downwind	No Odour observed
19/01/15	Below Extract Fan at Northeast corner of Building 5	Downwind	Intermittent Odour Observed
19/01/15	Outside Building 2 (Bulk Storage Shed)	Upwind	Odour from bulk storage of fertilizer and biomass observed

Although there was some observed odour from the extract fan at the northeast corner of building 5 this was not detectable approximately 50m downwind of the facility indicating that the odour had significantly dispersed. Note, Glanway mist system was not in use on day of Sniff Test to provide worst case scenario.

10.5.3 Air Sampling & Olfactory Assessment

Air bag samples were collected at the Glanway facility in January 2015 during normal operations within the process shed. The results of the olfactory panel assessment on the collected air samples are outlined in Table 10.11 below:

Table 10.11: Odour Threshold at Air Sample Locations at Glanway Facility

Sample Location	Result (OU_E/m^3)
Northeast Corner of Building 5 at air downwash from extractor fan in Building 5	739
Inside Baling Facility Building during Normal Operations	2,370
At open entrance / exit roller door at northern façade of Building 5	1,764

The threshold results for the air samples collected at the facility during normal operating conditions indicated that the highest intensity odour is within the facility building, as expected. The sample collected at the open door of the facility indicated a decreased odour unit concentration. It should be noted that the odour control spray was not in use at the roller door during the sampling period to provide a worst case scenario. Similarly, the reduced threshold level recorded for the northeast corner of the facility building downwind of the building extract fan was almost 70% less than the threshold level within the building indicating a significant dispersion of odour that is extracted from the building. It should be noted that the odour control spray was not in use at the extract fan during the sampling period to provide a worst case scenario. Based on the results of the sniff test completed on the same day as the air sampling the odour detected at the northeast corner of the facility building was not detectable at the entrance to Belview Port, approximately 50m downwind.

10.6 Odour Control System

Glanway have a number of odour control measures in place at the facility that they would intend to continue using as part of the proposed development. The odour control measures are:

DAX Maxi Thermal (NT1500) – The MT1500 eliminates unpleasant odours and controls harmful bacteria and Viruses both in the airworks by unassisted thermal convection. The unit takes in contaminated air and purifies it using a unique dual lamp system. The dual ultraviolet light operates at the peak UVC wavelengths. One lamp makes ozone (O_3) and the second lamp coverts the ozone to hydroxyl radicals (OH) short-lived but powerful destroyers of the DNA of airborne pathogens. Specialist thermal convection smoothly moves air through the unit, and distribution of air over the dual lamp is controlled to increase exposure to the UV light providing maximum pathogen destruction both internally and around the internal space environment.

Forty eight (48) MT1500 units are in place throughout the process building (building 5) and are continuously operating to reduce odours at source rather than treating them externally. Details of the DAX MT1500 unit is included in Attachment B.6.

Application of AquaClean solution to baled waste - A spray system has been retrofitted to the conveyor of the baling system to apply AquaClean solution to the waste prior to baling. AquaClean is a bactreia based solution which is non-toxic and biodegradeable, see Attachment B.5. When waste is baled, depending on pre-treatment, there are ranging levels of residual organics left in the bale. Organics decompose in two ways: aerobically and anaerobically, the latter being highly odourous with the

generation of sulphurous and ammonia gasses in particular. In baled waste, the wrapping seals out the air making the environment inside the bale anaerobic. The handling of the bale with gripping forklifts, further treats the bales like sponges, forcing the liquid (leachate) out of the matrix and to the bottom of the bale. The handling of baled waste therefore has two distinct challenges – the generation of odour and pooling of leachate (which is also highly odorous). The addition of AquaClean™ bacteria helps prevent these problems in two ways:

Leachate: The bacteria break down the organics (BOD, Nitrogen and Phospherous) anaerobically as follows:

BOD + N + P → CH_4 + H_2S + CO_2 + Cells [CH_4 being methane, H_2S is Hydrogen sulphide]

As bacteria cells are 85% water the water is retained in the cell mass rather than released as leachate.

Odour Prevention: With the right diversity of bacteria the generation of malodourous sulphur compounds and ammonia can be significantly reduced. There are various sulphur and non-sulphur purple bacteria in AquaClean™ and trial bales assessed by the manufacturer have shown a significant change in the noticeable odour.

Application of Nova-Q Hydrodor XC solution in spray bars located on entrance/exit roller door and extract fan - A spray bar system has been fitted to the sides and top of the entrance / exit door and the extract fan of Building 5 to control odour and dust emissions from the facility building. The application of the Nova-Q Hydrodor XC odour neutralising solution takes place during the entrance and exit of each truck delivering waste material to the facility building. The atomized spray is set to automatically switch on when the roller door is opened and it provides a mist curtain in the doorway to minimise the release of odour during material delivery and exit of empty trucks from the building.
Similarly, a mist spray system containing Nova-Q odour neutraliser is in place at the extract fan to provide treatment of extracted air from the facility building and reduce the emission of odour and dust from the process building. All details of the Nova-Q solution are provided in Attachment B.5.

10.7 Odour Emissions from Proposed Development

Air Emissions from the proposed development will be from extended operation of the existing facility. Emissions from the operation of the facility will be on-going as long as the facility is accepting and processing waste material. Emissions from the proposed development are discussed below. The proposed development processes as described in Chapter 3 of this EIS will result in ambient odour emissions from the entrance / exit roller doors and the air extract fan. Also, there will be engine combustion emissions from the increased traffic associated with the proposed development.

10.7.1 Traffic Emissions

Pollutant emissions from road traffic has the potential to cause impacts at both the local and national level. The National Roads Authority has produced a set of *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes,* 2011. The proposed development at Belview will not require any construction works (i.e., roads), and the proposed increase in traffic during the operational phase of the proposed development (i.e., from 6 trucks per day to approximately 25 trucks per day), the potential impact on air quality due to traffic emissions was considered low in the context of the already high volume of road traffic using Belview Port.

A DMRB model was used in previous EIS submissions for developments in the immediate area (i.e., Glanbia EIS, Project Purple 2, 2012) to calculate emissions from 14 road sections on the local county road L3412, the N29 road to Belview port, and the N25 for the closest sensitive receptor, the Lower Suir SAC. The emissions models were run for the existing and projected traffic increases (i.e., over 300 vehicles per day) and the results indicated no perceptible change in emissions of nitrogen oxides was found as a result of the proposed Glanbia development. Based on the limited scale of the Glanway proposed development it is not considered that it would have any impact on sensitive receptors.

10.7.2 Odour Emissions

The proposed development will have the potential to emit ambient odours during future operations. However, the increased throughput at the proposed development will result in more frequent shipments of waste and less residence time for waste and baled material on site which may benefit odour production. The proposed tonnage of waste accepted at the facility will increase resulting in more frequent waste arrivals and increased requirement for opening the entrance / exit doors to the process shed (building 5). The change of the proposed development operations whereby access to Building 5 will be through Building 6 will act as a buffer for potential odours from the facility doors and it would be expected that odours to the outer environment will be reduced even further from current concentrations.

Continued use of the existing odour control systems will provide mechanisms to continue to process increased tonnages through the facility without increased odour impacts on the wider environment.

10.8 Climatic Impacts

EPA Guidance states that a development may have an influence on global climate where it represents “a significant proportion of the national contribution to greenhouse gases”. Based on the nature and size of the proposed development, greenhouse gas emissions will not be significant in terms of the national CO2 emissions and Ireland’s agreed limit under the Kyoto Protocol. Thus the impact of the proposed development on climate is predicted to be negligible.

10.9 Mitigation Measures

The results of the baseline assessment indicated negligible potential impacts from the increase in traffic volumes from the current number of trucks entering the facility (i.e., 6 per day) and the predicted number of trucks that will service the proposed development (i.e., approximately 20 trucks per day. Any increase in emissions from increased truck numbers will be off-set by the close proximity of the facility to the shipment quay and the reduction in double handling and transport that would be required if the facility were based elsewhere. Therefore No mitigation measures are considered necessary from a traffic impact perspective.

The control of odours from the facility will be the main air quality requirement for the proposed development. The following mitigation measures are recommended to keep odour impacts as low as practicable at the facility;

- Continued operation of DAX MT1500 odour control units in building 5 and consideration to be given to installation in Building 6 to treat any fugitive emissions from building 5 to building 6.
- Continued use of the spray mist system at the roller door and air fan extraction in Building 5.
- Extension of the spray mist system to the entry door to building 6 to ensure double containment of odours within the facility.
- Waste material will only be deposited from trucks inside building 5 and only when the roller shutter door is closed.

10.10 Residual Impacts

Because there are no significant impacts predicted for the proposed development, there are no predicted significant residual impacts as a result.

10.11 Conclusions

The proposed development has the potential to have ambient odour impacts on the surrounding area. However, the closest residential receptor is located 390m upwind of the site and the main receptors downwind are commercial and industrial developments. The implementation and maintenance of existing odour mitigation controls will help to maintain low odour impacts on the surrounding area. The proposed development will provide double containment of odours when traffic is entering and existing the facility due to the position of building 6 in relation to the entrance / exit roller door and the installation of an additional odour control mist system on the entrance and exit doors of building 6.

The air impacts from the increased traffic movements related to the proposed development are considered negligible in the overall context of traffic movements on the N29 and the traffic volumes using Belview Port facility.

11.0 LANDSCAPE & VISUAL IMPACT

11.1 Introduction

This chapter examines the visual impact of the Glanway waste baling facility located at Belview Port, Gorteens, Co. Kilkenny. The assessment includes a map to indicate the location of existing views of the facility, as well as photosheets to illustrate these views. The Glanway facility is located in two of a series of seven identical storage sheds located within Belview Port. Key measures to ameliorate any identified visual impacts related to the facility buildings and aid the integration of the buildings into the existing surroundings are assessed, where identified.

11.2 Methodology

The assessment on landscape and visual impact of the facility was completed with reference to the guidelines included in the document entitled 'Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities' published by the Department of the Environment and Local Government in June 2000. Terminology used in the assessment for the description of the quality of visual impacts are outlined below:

• **Landscape Effects** – The likely nature and scale of changes to landscape elements and charateristics and the effect on the landscape character and quality resulting from the development; and

• **Visual Effects** – The change in the character of the views resulting from the development and the change in the visual amenity of its receptors (i.e., those viewing the area).

In considering the significance of the visual and landscape changes due to the development the following elements were also considered;

- The sensitivity of the view, taking into account the public accessibility of the land where views are possible and the likely sensitivity of that view given the distance, intervening vegetation and land use;
- The quality and value of the existing landscape at Visual Reference Points;
- The degree to which the proposal will be visible within the surrounding area; and
- Any other changes in the existing landscape

The study area was determined based on the visibility of the facility and analysis of public view points. Because the facility is already constructed it was possible to achieve a real-time assessment of the impact of existing structures on the landscape and views from public viewpoints including private residences, key vantage points across the Suir River and from the N29 National Primary Road.

11.3 Existing Environment

11.3.1 Surrounding Land Use

The Glanway facility and most of the surrounding lands have been developed for industrial and commercial use. The facility is located in Buildings 4 and 5 in a series of seven commercial/industrial sheds concerned with Port related activities. To the south of Buildings 4 and 5 are three identical structures used for the bulk storage of fertilizers, biomass and animal feed. Further to the south and southeast is the O' Brien's Quay section of Belview Port used for loading and unloading bulk cargo and an industrial cement facility. To the east of the Buildings is a CIE railway line and then the Belview Port container shipping area where bulk containers are loaded and unloaded 24 hours per day, seven days per week.

To the north of Buildings 4 and 5 are newly constructed Buildings 6 and 77, beyond buildings 6 and 7 is a carpark area, maintenance workshop, new office buildings and then the N29 national Road and the entrance to Belview Port. Further north of the N29 are commercial storage buildings and other industrial facilities including Smartply. To the west of the facility buildings is agricultural land, mainly tillage and improved grasslands. The closest private residence to the facility is located 390m to the northwest and upwind of the prevailing wind in the area. There are 2 private residences within a 500m radius of the facility.

11.3.2 Existing Facility

The existing facility consists of Buildings 44 and 5 (each with a floor area of 1,867 m^2). Buildings 44 and 5 are a steel portal frame design featuring 6.5m high reinforced concrete walls at the building base and dark grey galvanised steel purlins on a structural steel portal frame. The apex of the roof in each building is 15.7m above ground level. The facility is inside a security fenced area within Belview Port and internal access roads and yards exist to the east and southeast.

To the south and north of the facility are similar constructed sheds for the storage of bulk port related goods (e.g., fertilizers and biomass). The facility has an industrial appearance given the layout, design, colour and nature of the construction materials used for construction. The existing facility buildings are connected to the south and north by buildings of similar character, colour, size and nature. There is also a small portakabin structure on the eastern side of building 5 that provides toilet, washing and a canteen area for operatives.

11.3.3 Proposed Development

The proposed development consists of Buildings 5 and 6 (each with a floor area of 1,867 m^2). And are visibly identical to the existing facility Buildings 4 and 5 (i.e., steel portal frame design featuring 6.5m high reinforced concrete walls at the building base and dark grey galvanised steel purlins on a structural steel portal frame).

11.4 Landscape Character

Landscape Character Zones (LCZ) are areas of the landscape that are geographically specific and have their own character. Each has its own distinct character based on patterns of geology, landform, land use, culture, history and ecology. Appendix C of the Kilkenny County Development Plan 2008-2014 identified eight primary LCZs within County Kilkenny, these are outlined below:

- Steep Slopes and Upland Areas
- Upland Ridges, Peaks and Prominence
- Upland Enclosures
- Upland Plateau
- Foothills / Lower Slopes
- Lowland Areas
- River Valleys
- Transition Lowlands

Character Units are distinguished throughout the landscape where there is visual distinctiveness and identity through a continuation of similar characteristics (such as slope, landuse and vegetation). As the landscape appearance and sensitivity within each Character Unit are similar, the units are very useful for the consistent and clear application of policy, as the effects of development will be relatively consistent within each of these areas. A copy of Appendix C of the Kilkenny County Development Plan is included in Attachment K.1.

The facility is located within an established and developed industrial zone within Belview Port and is not in an area designated as highly sensitive and is not overlooked by any designated views or prospect areas as outlined in Appendix F of the Kilkenny County Development Plan 2008-2014, see Attachment K.2.

11.5 Landscape Sensitivity

The landscape factors for each of the Landscape Character Units helps to identify the landscape sensitivity and development absorption capacity of landscapes. In terms of development, the sensitivity of a landscape is determined by its resilience sustain its character when under the pressure of change. Within Appendix C of the Kilkenny Development Plan 2008-2014, landscape sensitivity has been categorised using a Sensitivity Zoning Key as outlined below:

Key	Description
1 = Degraded	Areas characterised by breakdown of natural processes or pollution (e.g. cut over bogs, old mineral waste areas)
2 = Robust	Areas of existing development and infrastructure. New development reinforces existing desirable landuse patterns.
3 = Normal	A common character type with a potential to absorb a wide range of new developments.
4 = Sensitive	Distinctive character with some capacity to absorb a limited range of appropriate new developments while sustaining its existing character.
5 = Vulnerable	Very distinctive features with a very low capacity to absorb new development without significant alterations of existing character over an extended area.

*- Reference from Appendix C of Kilkenny County Development Plan 2008-2014

Based on the key included in the County Development Plan the facility is based in an area of existing development which is level 2 (Robust).

11.6 Public View Points

The only public view points for the facility are from across the Suir River. Views of the existing facility and the proposed development buildings are shown in Photographs 11.1 and 11.2 in Attachment K.3.

11.7 Potential Visual Impacts

The proposed development comprises of the continued use of existing industrial shed units for waste acceptance, pre-processing and temporary storage of baled RDF. The proposal includes the discontinued use of Building 4 and the inclusion of Building 6 along with Building 5 as the new process area. All of the industrial shed units in that section of Belview Port are of similar size, construction and colour and the continued use of two of the buildings in that area will not impact on the existing visual amenity or further impact on the landscape.

11.8 Mitigation Measures

The purpose of mitigation is to avoid, reduce and potentially remedy any significant negative effects arising from the development. Because the facility buildings are already constructed and are consistent with similar industrial units in the immediate area, and the facility is located in an area of industrial development with low visual amenity value, it is not considered that any mitigation measures are required to offset visual impact from the facility.

11.9 Conclusion

The facility is located in an area designated as Robust, meaning it is an area of existing development and infrastructure and new development reinforces existing desirable landuse patterns. The facility buildings are already constructed and are located in a series of buildings of similar, size construction and colour. Public views of the facility are limited to one location across the Suir River as outlined in Photographs in Attachment K.3. The impact on visual amenity for residential dwellings to the southwest of the facility is considered negligible. Overall, the facility buildings will result in a negligible impact on the existing landscape character and visual amenity.

12.0 TRAFFIC

12.1 Introduction

In January 2015, JRE completed a traffic count at Belview Port entrance as part of the requirements of the Environmental Impact Statement (EIS) for the proposed development at Belview, Co. Kilkenny. In this chapter, the effect of traffic on the local road network due to the proposed development is assessed, to establish the potential impact that increased operations traffic may have on the surrounding road network.

12.2 Objectives

The objective of this section of the EIS is to assess the impact that the increased throughput of waste material (and the subsequent increase in traffic volumes) at the Glanway facility will have with respect to traffic considerations. This section will calculate the expected volume of traffic that will be generated by the extended throughput of material and assess the impact that this traffic will have on the operational capacity of the road network in the vicinity of the development. In this case the existing entrance to Belview Port and the facility is assessed. Road safety conditions are also considered as part of this section.

12.3 Methodology

The baseline study for traffic impacts related to increases in the Glanway proposed development has been prepared mainly on the basis of site visits, traffic counts and document reviews. The assessment was completed with reference to a number of best practice guidance documents, including:

- The National Roads Authority (NRA) Traffic and Transport Assessment Guidelines (May, 2014);
- The Department of the Environment and Local Government (DoELG),
- Traffic Management Guidelines (DoELG, DTO and DoT, 2003);
- The NRA Design Manual for Roads and Bridges (DMRB);
- Kilkenny County Development Plan 2008-2014; and
- The Department of Environment, Community & Local Government Spatial Planning and National Roads – Guidelines for Planning Authorities (January, 2012).

12.4 Traffic Assessment Thresholds

Chapter 2 of the National Roads Authority (NRA) Traffic and Transport Assessment Guidelines (May, 2014) provides thresholds at which the production of a Traffic and Transport Assessment would be required. Table 1.4 of the Traffic Management Guidelines (DoT/DoEHLG/DTO, 2003) gives the thresholds

above which a Transport Assessment is automatically required. The thresholds concerned are reproduced in Table 12.1 below.

Table 12.1 Traffic Management Guidelines Thresholds For Transport Assessments

Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road.
Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists or the location is sensitive.*
Residential development in excess of 200 dwellings.
Retail and leisure development in excess of 1,000m^2.
Office, education and hospital development in excess of 2,500m^2.
Industrial development in excess of 5,000m^2
Distribution and warehousing in excess of 10,000m^2.

* In locations that experience particularly heavy congestion and when traffic flows from a proposed development are less than 5% of the traffic flows on the adjoining road, a Transport Assessment may still be required. When in doubt, the requirement for a Transport Assessment should always be scoped with the relevant local authority

The guidelines further outline the thresholds whereby a traffic assessment would be required for developments affecting national roads to ensure "*the strategic role of national roads and the need to ensure that the carrying capacity, efficiency and safety of the network is maintained*". Based on control indicated in the DOECLG's Spatial Planning and National Roads Guidelines for Planning Authorities where applications affect national roads a Transport Assessment should be requested if the thresholds in Table 12.2, below, are exceeded.

Table 12.2 Advisory Thresholds for Traffic and Transport Assessment Where National Roads are Affected

Vehicle Movements	100 trips in / out combined in the peak hours for the proposed development	
	Development traffic exceeds 10% of turning movements at junctions with and on National Roads.	
	Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.	
Size	Retail	1,000m^2 Gross Floor Area.
	Leisure facilities including hotels, conference centres and cinemas.	1,000m^2 Gross Floor Area.
	Business	2,500m^2 Gross Floor Area.
	Industry	5,000m^2 Gross Floor Area.
	Distribution and warehousing	10,000m^2 Gross Floor Area.
	Hospitals and education facilities	2,500m^2 Gross Floor Area.
	Stadia	1,500 person capacity.
	Community Facilities including places of worship, community centres.	1,000m^2 Gross Floor Area.
	Housing	50 dwellings within urban areas with a population less than 30,000. 100 dwellings within urban areas with a population equal to or greater than 30,000.
Parking Provided	100 on-site parking spaces.	

The proposed thresholds that may apply to the proposed Glanway development are highlighted in Tables 12.1 and 12.2 above. The assessment of the thresholds in Tables 12.1 and 12.2 when compared to the Glanway proposed development are outlined below:

- The gross floor area of the proposed development is 3,734m^2 and below the threshold of 5,000m^2 for an industrial development. Therefore, the size of the industrial facility is below the threshold.
- The location of the proposed development is within Belview Port which is at the terminus of the N29 and in a rural area. Traffic using the proposed development will exit the Port directly onto the N29 (i.e., there are no junction turns onto the national road). Therefore, the threshold for traffic turning movements at junctions with National Roads (i.e., 10% traffic movements at junctions with National Roads or 5% if the location has the potential to be congested or sensitive) is not considered applicable for the Glanway facility.
- The estimated increase in traffic volumes from the proposed development is 25 truck movements per day to the facility and 4 car movements during peak times for office and operational personnel. This constitutes 50 truck movements and eight car movements on the National Road per day. The truck movements will be spread over the working day and will average 2 trucks per hour. Therefore, even at peak times (morning and evening) it is anticipated that there will be 8 truck movements (4 morning and 4 evening) and 8 car movements (4 morning and 4 evening) related to the proposed development. This is significantly below the trip threshold outlined in Table 12.2 above (i.e., 100 trips in / out combined in the peak hours for the proposed development).

Based on the facility size, location and predicted traffic volumes it is not considered that the threshold level will be exceeded by the proposed development. To provide a backup to the traffic volumes and the potential percentage of traffic that will be related to the proposed development, a traffic count was completed and the results are provided in 12.6.

12.5 Site Location

The Glanway waste baling facility is located at Belview Port in the townland of Slieverue, Co. Kilkenny. The facility is located in the Belview Port complex approximately 4km east of Waterford City and approximately 2km south of Slieverue village. Access to the facility is provided by the N29 National primary road that extends right to the Belview Port entrance, Figure 12.1 below shows the location of the facility.

12.5.1 Description of Existing and Proposed Development

The Glanway facility has been in operation since June 2014. The facility is located in two existing industrial sheds within Belview Port and consist of a process shed and an entrance / storage shed. Trucks from third party waste management firms deliver waste to the baling facility in closed containers via the Belview Port entrance where they are weighed and then turn directly right and proceed along an

internal Port road for approximately 50 metres to the Glanway buildings. Currently the facility has a permit to pre-process 20,000 tonnes of municipal solid waste for shipment to an energy from waste facility in Europe. The scope of the proposed development is to increase the volume of material processed to approximately 300 tonnes per day (approximately 24 truck deliveries).

The traffic, on the road network to Belview Port (N29) is steady due to the shipment and reception of container and bulk cargo to and from Belview Port and the existing industrial enterprises in the immediate environs of the facility location. However, it is not considered that the traffic volumes on the N29 primary road are near the design capacity. An internal traffic management plan for the facility inside Belview Port is provided in Attachment L.

12.5.2 Existing Road Network

The facility is located within the Belview Port area immediately at the termination of the N29 National Road with a typical carriageway width of 7 metres with road centre line markings. The N29 extends approximately 3.0 kms, from the R711 Regional Road at Slieverue Roundabout to Belview Port, where the facility is located. The four-arm Slieverue Roundabout is located approximately 6.0 kms north east of Waterford City. West of Slieverue Roundabout, the R711 is the former N25, and is a wide single carriageway road with hard shoulders and an 80 km/h speed limit.

Approximately 800m to the northeast of the Slieverue Roundabout, the R711 forms a four-arm roundabout junction with the N25 National Primary Road, at Luffany Roundabout. Between these roundabouts, the R711 is a 2 lane road on either side with a central median, hard shoulders, street lighting and a 100 km/h speed limit. To the west of Luffany Roundabout, the N25 Waterford bypass is a 2 lane road on either side with a central median and hard shoulders, while east of the roundabout, the N25 to New Ross has a wide single carriageway and hard shoulders.

The N25 (Waterford Bypass) extends from Luffany Roundabout, to the south west of Waterford City. North of the bridge the N25 has an exit to the N9 at Grannagh Junction Roundabout. The double lane N9 extends from Grannagh Junction Roundabout, to the M9/N24 Quarry Roundabout.

The M9 extends north, from Quarry Roundabout, to the M7 in Co. Kildare. The N10 links the M9 with Kilkenny City. The N24 extends west, from Quarry Roundabout, to Limerick city. The N25 extends from Cork City, in the west, to Rosslare, via New Ross, in the east.

12.6 Existing and Proposed Traffic Conditions

A traffic assessment was completed in 2012 by Nationwide Data Collection for the Glanbia EIS in Belview. The results of the traffic counts for weekday link traffic are provided in Table 12.3

Table 12.3 – Peak Traffic Volumes - 2012

Location	Morning Peak Hour (08:00 – 09:00)		Off Peak Hour (14:00 – 15:00)		Evening Peak Hour (17:00 – 18:00)	
	Total Vehicles	% HGV	Total Vehicles	% HGV	Total Vehicles	% HGV
N29	225	29.8%	193	37.8%	205	20.5%
R711 (west)	652	4.8%	594	4.2%	872	3.2%
R711 (east)	835	10.3%	710	13%	950	6.5%
N25 (Waterford bypass)	592	16.7%	322	28.3%	443	16.0%
N25 (east New Ross)	1,168	8.1%	854	11.9%	1,230	7.7%

The estimated 2012 AADT volume on the N29 is 2,350 vehicles, which is significantly less than its link capacity of approximately 11,600 vehicles Annual Average Daily Traffic (AADT), based on the NRA DMRB TD 9/12 Road Link Design document. The N29 has the highest proportion of heavy vehicle volumes, at 29.2% of AADT volumes, due to Belview Port.

In 2012, both the N25 Waterford Bypass and the R711, between Slieverue Roundabout and Luffany Roundabout, were operating well within their link capacities of 52,000 and 42,000 AADT, respectively, based on the NRA DMRB TD 9/12 Road Link Design document, with AADT volumes of 5,100 vehicles and 9,400 vehicles, respectively.

The NRA, document "Project Appraisal Guidelines Unit 5.5 Link-Based Traffic Growth Forecasting, 2011", predict that light vehicle traffic would increase by an annual growth factor of up to 1.015, during the period up to 2025, based on their medium growth scenario. Thereafter, the NRA envisages that light vehicle traffic would increase by an annual average factor of up to 1.025, to 2040, for their medium growth scenario. The equivalent annual growth factors, envisaged by the NRA for heavy vehicle traffic, are up to 1.010 and 1.001, respectively.

The NRA Traffic and Transport Assessment Guidelines identify the opening year and future years, five and 15 years after the opening year, for considering the impact of a proposed development. In this case, the opening year for the proposed development is 2015, and the future years are 2020 and 2030.

The predicted traffic volumes included in the EIS assessment completed for Glanbia were based on NRA automatic traffic counter data on the N25 Waterford Bypass, located west of Luffany Roundabout.

Based on this data the estimated predicted 2015, 2020 and 2030 Annual Average Daily Traffic (AADT) volumes, on the link roads to the proposed development are provided in Table 12.4.

Table 12.4: Predicted Traffic Volumes on N29 and Link Roads

Road	Year	AADT Volumes	% HGV
N29	2015	2,550	29.6%
	2020	2,730	27.5%
	2013	3,180	25.0%
R711 (west)	2015	8350	3.8%
	2020	9,010	3.8%
	2013	10,910	3.3%
R711 (east)	2015	9,880	9.5%
	2020	10,600	9.3%
	2013	12,750	8.1%
N25 (Waterford bypass)	2015	5,380	19.2%
	2020	5,760	18.9%
	2013	6,820	16.7%
N25 (east New Ross)	2015	12,810	8.8%
	2020	13,760	8.6%
	2013	16,550	7.5%

The highest estimated AADT volume on the N29 is 3,180 vehicles, in 2030, which is significantly less than its link capacity of approximately 11,600 vehicles AADT, based on the NRA DMRB TD 9/12 Road Link Design document. Both sides of the N25 Waterford Bypass and the R711, between Slieverue Roundabout and Luffany Roundabout, would operate well within their link capacities of 52,000 and 42,000 AADT, respectively, based on the NRA DMRB TD 9/12 Road Link Design document, with AADT volumes of 6,820 vehicles and 12,750 vehicles, respectively, in 2030. The predicted traffic volumes include traffic associated with the Glanway facility.

Current traffic volumes associated with the facility are limited. Table 12.5 outlines the traffic impacts on the N29 and other link roads to Belview Port.

Table 12.5: Traffic Associated with Current Glanway Facility on Road Network

Location	Morning Peak Hour (08:00 – 09:00)		Off Peak Hour (14:00 – 15:00)		Evening Peak Hour (17:00 – 18:00)	
	Total Vehicles	HGV	Total Vehicles	% HGV	Total Vehicles	% HGV
N29	+6	+3	+2	+2	+5	+2
R711 (west)	+1	+1	0	0	+1	0
R711 (east)	+5	+2	+2	+2	+4	+2
N25 (Waterford bypass)	+4	+1	+1	+1	+3	+1
N25 (east)	+1	+1	+1	+1	+1	+1

To determine the volume of the existing traffic flows to Belview Port, JRE completed a traffic count on 19/01/2015 at the Port facility entrance. This survey was carried out between the hours of 08.00 and 18.00 and distinguished between cars, buses, light good vehicles and heavy good vehicles. Details of the results of this survey are provided in Table 12.7.

Table 12.7: Belview Port Traffic Count – 19/01/2015

Time	HGV Entry	Van Entry	Car Entry	HGV Exit	Van Exit	Car Exit
08:00 – 09:00	40	15	5	37	6	5
09:00 – 10:00	43	7	7	32	9	3
10:00 – 11:00	36	8	4	34	8	9
11:00 – 12:00	33	6	7	32	7	8
12:00 – 13:00	41	6	9	31	7	2
13:00 – 14:00	31	9	5	42	12	1
14:00 – 15:00	37	11	5	44	9	3
15:00 – 16:00	36	8	3	39	7	5
16:00 – 17:00	42	11	8	36	11	6
17:00 – 18:00	46	16	6	39	10	15

On the day the traffic count was carried out (i.e., 19th January 2015 between 08:00 and 18:00), 6 HGVs entered the Glanway facility and 4 cars associated with the administration and operations were noted.

Based on the daily traffic movements on the day of the traffic count Glanway traffic accounted for 6 (1.6%) HGV traffic movements into and out of Belview Port. This figure corresponds closely with the figures outlined in Table 12.3.

12.6.1 Proposed Network Improvements

Because the facility is serviced by the N29 National Primary Road and the internal Port roads are designed for HGV traffic, there are no road network improvements proposed.

12.7 Proposed Development Operational Phase

Subject to planning permission, it is envisaged that the proposed development would operate on a 24 hours per day, seven days per week, basis. There is only one site access at the end of the N29 where it enters Belview Port. The access to Belview Port is already used by heavy goods vehicles loading and unloading at the quayside.

A total maximum of 9 staff would be employed at the proposed facility (split between operations and administration). If the facility was operational on a 24 hour basis there would be a three-shift cycle of 6.00 a.m. to 2.00 p.m., 2.00 p.m. to 10.00 p.m. and 10.00 p.m. to 6.00 a.m. It is envisaged that staff

would generate a total of up to 18 car trips per day. Two-way staff car trips would be approximately 4 vehicles during the morning peak hour (8.00 to 9.00 a.m.), ten vehicles during the off-peak hours and 4 vehicles during the evening peak hour (5.00 to 6.00 p.m.).

Total two-way daily heavy vehicle traffic volumes, generated by the proposed development, would be up to 25 vehicles. The vehicle movements would be spread over the working day and deliveries will try to void peak periods at the Port entrance. The daily throughput of waste material at the facility (i.e., 300 tonnes per day) will limit the numbers of truck movements to the facility. The proposed development will generate increased higher morning peak hour, off-peak hour and evening peak hour traffic volumes but are still considered very low when compared with predicted traffic volumes. The predicted highest increase in peak hour link traffic volumes is provided in Table 12.6.

Table 12.6: Predicted Highest Increase in Peak Hour & Off-Peak Hour Link Traffic Volumes with Proposed Development

Location	Morning Peak Hour (08:00 – 09:00)		Off Peak Hour (14:00 – 15:00)		Evening Peak Hour (17:00 – 18:00)	
	Total Vehicles	HGV	Total Vehicles	HGV	Total Vehicles	HGV
N29	+6	+3	+4	+3	+8	+3
R711 (west)	+3	+1	+1	+0	+2	0
R711 (east)	+3	+2	+3	+3	+6	+3
N25 (Waterford bypass)	+2	+2	+2	+2	+3	+2
N25 (east)	+1	+1	+1	+1	+3	+1

To assess the potential increase to existing traffic volumes on the supporting road network and their potential impact, a traffic count was completed at the Belview Port facility on January 19, 2015. An assessment of traffic volumes associated with the Glanway facility and those associated with the Belview Port operations was completed to determine the percentage traffic entering the Port that was related to the Glanway facility only.

12.8 Road Safety, Parking & Queueing

Signage will be displayed inside the Port Facility immediately after the weighbridge warning other traffic entering the Port of a facility entrance. Existing signage in place on the N29 warning traffic of entrances from industrial facilities along the N29 and the Port Entrance at the N29 terminus are adequate to warn of traffic from the Glanway facility exiting and entering the Port entrance.

12.8.1 Parking

Adequate parking is provided at the facility and at the office complex located at the Port entrance to accommodate the expected number of employees and visitors. All staff will park at the existing office car park area to ensure a clear entry and exit for trucks delivering to the facility.

12.8.2 Traffic Queueing

The internal Port roadway from the Belview Port entrance to the facility entrance is approximately 100m long. Although it is not anticipated that the traffic volume at the facility will be such that queuing of trucks will be required there will be adequate space for queuing up to three 40ft moving floor trailer trucks at any one time should it be necessary. This will avoid any queuing on the N29 and disruption to other traffic entering Belview Port.

12.8.3 Pedestrian & Cyclist Facilities

There are no pedestrian facilities in place on the N29 in the vicinity of the facility. As it is not expected that there will be any pedestrian activity to and from or within the facility, no pedestrian facilities are considered to be required.

There are currently no cycle facilities in place on the N29. Due to the nature and location of the facility, cycle lanes are not considered to be necessary.

12.9 Conclusions

The conclusions of the traffic assessment for the proposed increased material throughput at the Glanway facility are as follows:

- Based on the facility size, location and predicted traffic volumes it is not considered that the threshold levels outlined in Chapter 2 of the National Roads Authority (NRA) Traffic and Transport Assessment Guidelines (May, 2014) will be exceeded by the proposed development.
- Subject to planning permission, it is envisaged that the proposed development would operate on a 24 hours per day, seven days per week, basis. There is only one site access at the end of the N29 where it enters Belview Port. The access to Belview Port is already used by heavy goods vehicles loading and unloading at the quayside.
- The existing average heavy goods traffic movements related to Glanway traveling on the N29 and through the Port entrance (traffic count completed on 19/01/15) was 6 and was approximately 1.6% of traffic movements into and out of the Port on that day. The addition of increased traffic for the proposed development will increase the overall traffic volume from 6 per day to 25 trucks per day and will increase the traffic percentage associated to Glanway activities (based on traffic volumes on 19/01/15) to approximately 6% of Port traffic;
- The highest estimated AADT volume on the N29 is 3,180 vehicles, in 2030, which is significantly less than its link capacity of approximately 11,600 vehicles AADT, based on the NRA DMRB TD 9/12 Road Link Design document.

Both sides of the N25 Waterford Bypass and the R711, between Slieverue Roundabout and Luffany Roundabout, would operate well within their link capacities of 52,000 and 42,000 AADT, respectively, based on the NRA DMRB TD 9/12 Road Link Design document, with AADT volumes of 6,820 vehicles and 12,750 vehicles, respectively, in 2030. The predicted traffic volumes include traffic associated with the Glanway facility.

13.0 ARCHAEOLOGY & CULTURAL HERITAGE

13.1 Introduction

The archaeological implications of the proposed Glanway facility at Belview Port were investigated by JRE. The study area is located on the northwest bank of the River Suir and to the southwest of the confluence of the Suir and Barrow Rivers.

The study area is located on the western bank of the River Suir, to the southwest of the confluence of the Suir and Barrow rivers. The main purpose of the study was to provide an assessment of the archaeological potential of the facility area and the implications for increasing throughput at the facility. It includes information on sites of archaeological interest within the environs of the facility site and assesses the overall impact on potential buried archaeological remains. There are no known archaeological sites on the lands in question but its location in a coastal environment close to the historic city of Waterford indicates that previously unrecorded archaeological features or finds may be uncovered, however, the site has already been developed and no recorded finds of archaeological interest were reported. The archaeological impact assessment outlines a desktop study and field inspection of the existing site and its immediate surroundings.

13.2 Methodology

In order to fully understand the archaeological implications of the proposed works at Glanway, Belview Port, a desk based study and a site walk over were carried out.

This is a document and cartographic survey utilising a number of sources in order to identify all known archaeological sites and other monuments of historical interest within the study area. The principal sources used for identifying archaeological monuments are listed below.

- Record of Monuments and Places for Co. Waterford (RMP)
- Record of Monuments and Places for Co. Kilkenny (RMP)
- Sites and Monuments Record for Co. Waterford (SMR)
- Sites and Monuments Record for Co. Kilkenny (SMR)
- National Museum of Ireland Topographical Files
- National Inventory of Architectural Heritage (NIAH)
- Kilkenny County Development Plan 2008-2014

The Record of Monuments and Places (RMP) is a list of archaeological sites known to the National Monuments Service of the Department of Environment, Heritage and Local Government (DEHLG) with accompanying RMP maps, based on OS 6" Sheets, which indicate the location of each recorded site. The list is based on the Sites and Monuments Record (SMR) files which are kept in the National Monuments Service and are updated on a regular basis. The Sites and Monuments Records (SMR) are lists with

accompanying maps and files of all known archaeological sites and monuments mainly dating to before 1700AD.

The find spots of artefacts can provide valuable information on the archaeological potential of an area. The National Museum of Ireland Topographical Files is the national archive of all known antiquities recorded by the museum and consists of a catalogue of objects reported to that institution since 1928. These files mostly contain information on finds but there are also references to monuments and sites of archaeological significance. A record of all previous archaeological excavations undertaken in Ireland is also available from the National Museum. No information for the townland of Gorteens is recorded in the Topographical Files.

County and City Development Plans are made in accordance with the requirements of the Local Government and are an important source for identifying protected structures. The plans set out each council's policy for the conservation and enhancement of a county's natural and built environment and lists items of special environmental or archaeological interest. The Kilkenny Development Plan (2008-2014) and development plans for Waterford City and Belview were reviewed for this assessment. The plans include a Record of Protected Structures (i.e., a list of buildings which may not be altered or demolished without grant of permission under the Local Government (Planning and Development) Acts, 1963-1993).

13.3 Existing Environment

The existing facility consists of two existing shed structures (3,734 m^2 in an area) located in an area of Belview Port that historically had industrial facility buildings in place. To the east of the facility is a concrete yard and internal access road, a CIE rail line and then the main Belview Port quayside facility and the Lower Suir River. The site is bordered to the west by agricultural fields and to the north and south by industrial storage sites. A desk based study indicated that the only feature of archaeological interest in proximity to the site is an "unclassified castle" approximately 900 m to the west of the site.

13.4 Site Visit

The site visit was completed on December 21st 2014. The objective of the site walkover was to walk the study area and inspect the area for previously unrecorded visible archaeological monuments andfeatures. It is noted that at the time of the walkover that the study site and the lands to the south north and east were already developed and had either building structures or concrete surfacing in place. The only area bounding the site that could be inspected was the field directly west of the site buildings.

13.5 Impacts from the Proposed Development

The area that will directly be impacted by the proposed increased throughput at the Glanway facility in Belview Port, is an area of "made" ground and neither the desk based study of the site or the walk over

indicated any features of archaeological interest. Considering the lack of recorded features of archaeological interest above ground, the greatest threat to the archaeological landscape on this site is through the removal of topsoil and the exposure of features that have until this point been unrecorded. However, the area where the facility is located has already had earthworks take place and a hardcore surface put in place. No features of archaeological value were reported during the construction of the site.

The areas surrounding the site (i.e., the industrial sites and intensive agricultural lands do not contain or support any known features of archaeological interest that will be affected by the increased throughput at the Glanway facility in Belview Port.

13.6 Mitigation Measures

No features of archaeological interest were recorded at the site and no archaeological features were reported during previous construction works carried out on the site. It is not thought that the expansion of Glanway will affect any features of archaeological interest on site or in the surrounding environs and as such no mitigation measures are considered necessary.

13.7 Conclusion

The archaeological survey has assessed the archaeological implications of developing IDA industrially zoned lands in Gorteens townland near Belview Port, Co. Kilkenny. Review of available reference documentation and a field walkover was completed to assess the likely impact of the site on recorded archaeological monuments in the area and to inspect the subject lands for unknown visible archaeological sites. The site walkover recorded that the site is a developed industrial site and did not reveal any traces of previously unrecorded archaeological monuments or features. Considering that the site is located on an area where previous earth works have taken place it is considered very unlikely that any features will be negatively impacted upon.

14.0 MATERIAL ASSETS

14.1 Introduction

This chapter describes the material assets associated with the proposed development site including; archaeological, cultural heritage and architecture. Based on the available information on the site history and the existing site conditions (i.e., developed industrial) the assessment was confined to a desk study from the archaeological survey of Ireland (ASI) and the Kilkenny County Development Plan 2008-2014.

Projections of resource use for the proposed development were completed. No projections were required for construction as the facility buildings are already constructed. The resource use would be for extended operations only. Impacts on the local roads network are assessed in Chapter 12, while the socio-economic impacts are assessed in Chapter 5.

14.2 Land Use & Ownership

The proposed development site is owned by Suir Shipping and has been leased to Glanway Ltd. for use as a waste pre-processing facility. The existing facility is located in an industrial development area and has been in operation since June 2014.

14.3 Local Settlement Patterns

The landuse in the immediate surrounding area is industrial, with lands to the west used for agriculture. The closest residence to the facility is 390 metres to the southwest. Neither the facility or its immediate environs have a significant leisure or amenity value.

14.4 Local Infrastructure & Utilities

The increase in tonnage of waste accepted at the proposed development will result in an increase in traffic movements to and from the site. The traffic impact is addressed in Chapter 12 and has established that the increase in traffic in comparison to existing traffic volumes will be low and that the existing road network has a significant capacity to accommodate that traffic volume increase. Because the traffic will enter straight onto the N29 there is no need for any road or access junction improvements. The overall impact of the increased traffic volume associated with the proposed development will be low.

14.5 Resource Consumption

The increase in the amount of waste accepted at the proposed development will result in additional electricity consumption associated with the waste processing equipment (i.e., baler, shredder, trommel screen), building lighting and operation of odour control systems.

The proposed development will also require an increase in diesel usage used by delivery trucks bringing material to the facility and for increased use of facility equipment. However, this will be offset by the savings on fuel consumption if that waste was brought to another RDF baling facility and then had to be re-transported to a quayside facility for shipping. The location of the Glanway facility will result in net reduction in fuel usage per tonne of material processed due to its close proximity to the shipping outlet.

14.6 Archaeology & Cultural Heritage

The ASI have an inventory of archaeological monuments in Ireland. There are no records of any archaeological features or monuments either at, or immediately adjacent to the site.

A protected structure is considered to be one that is of special interest from an architechtural, historical, archaeological, artistic, cultural, scientific, social or technical view point. The Record of Protected Structures in the Kilkenny County Development Plan does not include any structures at or in the immediate vicinity of the proposed development.

14.7 Impacts

14.7.1 Land Use and Ownership

The proposed development will have no impact on the existing land ownership or land use.

14.7.2 Land Settlement

The proposed development will have no impact on the existing land settlement pattern.

14.7.3 Local Infrastructure

The proposed development will result in a limited increase in traffic volumes on local roads. However, the design capacity of the local road network will be more than adequate to facilitate the increase.

14.7.4 Resource Consumption

The increased tonnage throughput at the proposed development will increase energy consumption by the fixed and mobile equipment.

14.7.5 Archaeological, Cultural Heritage and Architectural

There are no records of any archaeological features or monuments or protected structures either at, or immediately adjacent to the site.

14.8 Mitigation

On-going reviews of energy resource consumption will be completed by Glanway to monitor resource usage with a view to potentially minimising resource usage at the facility.

14.9 Assessment of Impact

The proposed development will have no impact on local amenity value and have a negligible impact on the local road network.

There will be an associated resource usage increase with the proposed development to operate the fixed and mobile equipment and the increased truck movements (i.e., increase in diesel usage used by delivery trucks bringing material to the facility). However, the increased resource usage will be offset by the savings on fuel consumption if that waste was brought to another RDF baling facility and then had to be re-transported to a quayside facility for shipping. The location of the Glanway facility will result in net reduction in fuel usage per tonne of material processed due to its close proximity to the shipping outlet.

The proposed development will have no impact on the archaeology, architecture or cultural heritage in the vicinity of the proposed development.

15.0 INTERACTION OF THE FOREGOING

15.1 Introduction

Earlier chapters have described the existing facility and site characteristics, the environmental impacts associated with the proposed development and mitigation measures to minimise impacts to sensitive receptors. This chapter discusses the significance of the actual and potential direct, indirect and cumulative effects of the proposed development based on interaction between receptors. Only those receptors between which there is an identifiable existing or potential relationship are addressed.

15.2 Human Beings / Air

Waste activities have the potential to impact on human beings from odours, dust and air emissions from vehicle emissions. Effective mitigation measures are in place at the existing facility and they will be extended to building 6 of the proposed development to further reduce potential release of nuisance emissions from the proposed development. There will be a limited increase in exhaust gases from the additional vehicle movements, but this will have a negligible impact on human beings.

15.3 Human Beings / Traffic

The proposed development will result in a limited increase in traffic to and from the facility. The existing road network has significant design capacity to handle the traffic related to the facility and the increase in traffic will have a negligible impact on residents or the public.

15.4 Human Beings / Landscape

The proposed development buildings are already constructed and are located within the Belview Port area. The buildings are not visible from public areas on the west side of the Suir River and are not visible from private residences. The only view of the proposed development building is from across the Suir River from Faithlegg where it is screened by the existing Port facility and is considered in-keeping with the industrial nature of the buildings that exist in the immediate vicinity. The overall impact of the proposed development on the landscape is considered negligible due to its location.

15.5 Ecology / Water

The location of the proposed development in close proximity to the Lower Suir SAC would be a potential for concern. However, there are no discharges from inside the proposed development buildings to surface water or sewer thereby negating potential impacts from leachate from waste material on a sensitive ecological receptor. The only potential discharge to surface water would be from the roofs of

the facility buildings which would be directed to the existing Belview Port surface water drainage system is not considered to be a potential impact source.

15.6 Ecology / Air

A DMRB model was used in previous EIS submissions for developments in the immediate area (i.e., Glanbia EIS, Project Purple 2, 2012) to calculate emissions from 14 road sections on the local county road L3412, the N29 road to Belview port, and the N25 for the closest sensitive receptor, the Lower Suir SAC. The emissions models were run for the existing and projected traffic increases (i.e., over 300 vehicles per day) and the results indicated no perceptible change in emissions of nitrogen oxides was found as a result of the proposed Glanbia development. Based on the limited scale of the Glanway proposed development it is not considered that it would have any impact on sensitive receptors.

15.7 Noise / Ecology / Human Beings

The current operations are not considered to be having an impact on the surrounding area or on noise sensitive receptors. Due to the industrial nature of the area at Belview Port and the 24 hour activity within the Port it is not expected that the proposed development will have any significant impact on the noise climate of the area. However, the implementation of the mitigation measures outlined in chapter 9 will ensure that the local area remains unaffected by future operations.

15.8 Cumulative Effects

The assessment of impacts took into consideration the existing facility and the proposed development to increase waste throughput to 300 tonnes per day. None of the impacts assessed had the potential to have significant impacts on the environment. The only impact that could contribute to cumulative impacts in the area would be from increased traffic movements and associated exhaust emissions. However, the traffic review indicated that the increase in traffic associate with the facility would have a negligible impact on the local road network and the air quality assessment indicated that air emissions from increased exhaust output would be negligible.