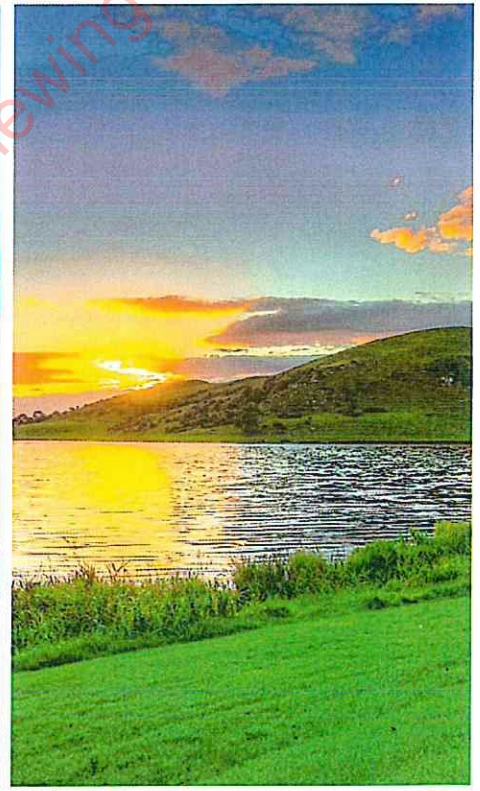


Rowan

Proposed Sand & Gravel Extraction Facility: Garrans, Stradbally, Co. Laois



Environmental Impact Assessment Report (Volume 1): Non-Technical Summary

Pat Booth

November 2020

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Laois County Council Planning Authority, Viewing Purposes Only

1. Non-Technical Summary

1.1 Preface

This document is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) addressing a proposed sand and gravel extraction facility at Garrans, Stradbally, Co. Laois.

Following extraction of the sand and gravel (aggregate), screening, washing and crushing (as required) will be undertaken to provide a range of aggregates of different sizes. These aggregates will be transported off-site for use in the construction, manufacturing and concrete processing industries.

2. The Project

2.1 Site Location

The site is located in the townland of Garrans, Co Laois, approximately 500m east from Garrans Cross Roads and the regional road R427. The site is approximately 12 hectares and is accessed by the local road, L7939 which is running west-east, towards the regional road, R428. The land is currently greenfield, made up of fields and hedgerows used for farming activities.

The site is bound to the north by a section of Coillte owned forestry. There is history of previous quarrying activities for sand and gravel to the north west of the Project, registered under Stradbally Quarries Ltd (QY05/74/1).

The site is largely surrounded by agricultural lands on the west, eastern and southern boundaries, with the Stradbally River located c. 300m south of the site. There is a tributary to the Stradbally River at c. 400m north of the site.

There are a number of one-off private residences located along the R427 at Garrans Cross Road and off the surrounding local roads.

Refer to Figure 1 for site location details.

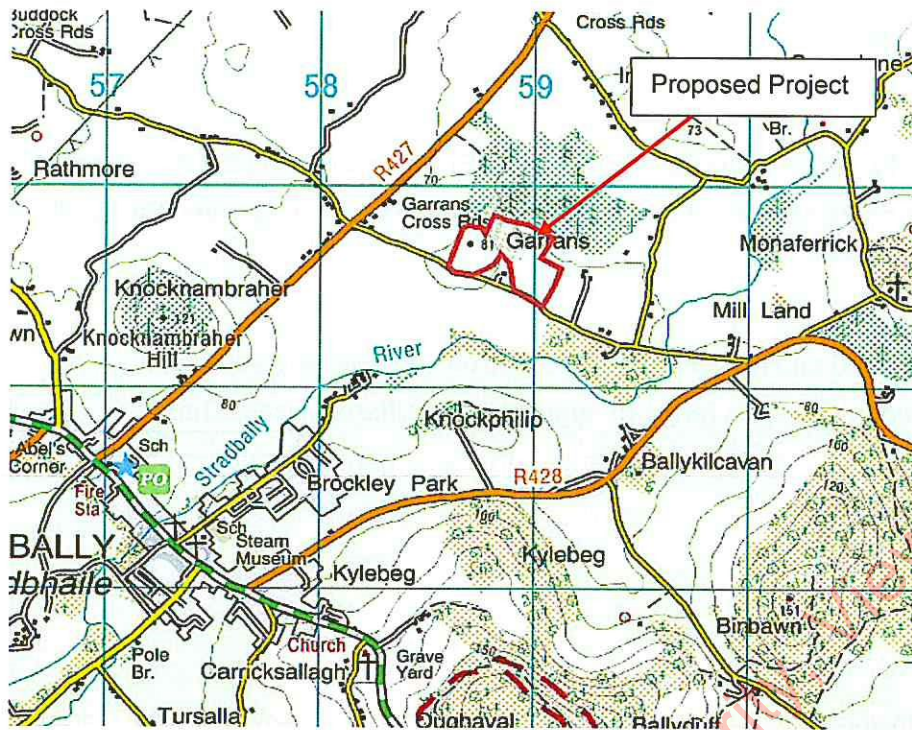


Figure 1a: Site Location Map

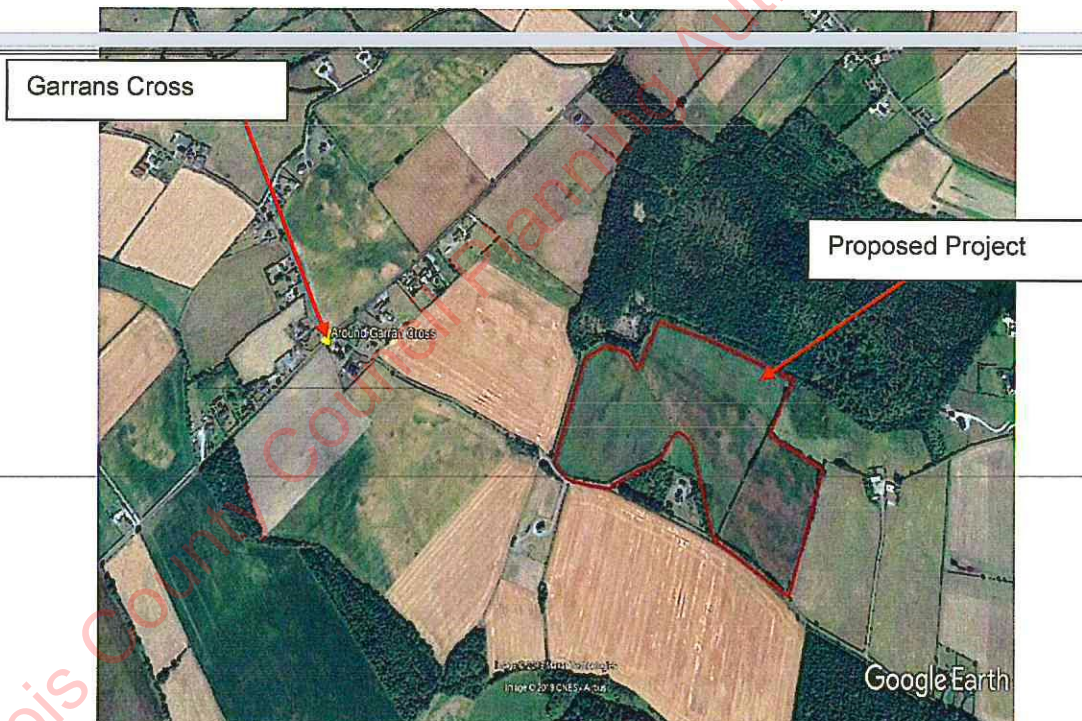


Figure 1b: Site Location Map

2.2 The Proposed Works

The proposed works will consist of the following:

- Quarry activities for the extraction of and processing of sand and gravel within a c. 12ha site at Garrans;
- On site processing of the material to include extraction, washing, sizing, screening and stockpiling;
- Intermittent crushing of oversized aggregate material;
- Dispatch of the processed materials off-site on Heavy Goods Vehicles (HGVs);
- Installation of site wheel wash, refuelling area, oil interceptors, sludge settlement ponds and storm water attenuation/settlement ponds;
- Development of a, 3No. lay-bys on the local road L7939, a new site entrance and internal site access road;
- Landscaping works to include a planted berm running next to the site entrance and southern boundary of the site;
- Provision of site office, welfare facilities and all ancillary development infrastructure; and
- Final restoration of the site.

No blasting will be undertaken at the site and site operations such as crushing, would be required intermittently. Crushing would be undertaken towards the rear of the site (at the northern boundary).

Sand and gravels will not be extracted from below the groundwater water table.

2.3 Proposed Project Programme

Overall it is estimated that in the region of 1.22million tonnes of sand and gravel will be extracted from the site over c. 20 years (61,000 tonnes/ annum). On this basis, assuming 300 working days per year, there would be an average extraction rate of c. 200 tonnes per day.

However, during peak times, the daily rate may increase to 350 tonnes per day (which equates to an average of 15 heavy good vehicles (HGV's) arriving and exiting the site daily). The 350 tonnes per day would allow for occasional extraction at a rate in excess of the typical average rate.

2.4 Site Access & Egress

The site will be accessed from the local road, L7939 with a turn left *in* and turn right *out* rule implemented at the site entrance.

HGV's will access the site from Garrans Cross off the regional road R427 and turning left into the site. HGV's leaving the site will turn right towards the R427.

There will be no access, turning towards or coming from the R428 and Ballykilcavan Bridge direction.

HGV's will leave the site, having passed through a wheel wash facility, to prevent dirt and debris being transported onto the local road network.

The Project will not generate significant volumes of site traffic, between the proposed site entrance and the junction with the R427 and 3No. lay-bys will be provided to support traffic movements on this stretch of the L7939.

2.5 Site Operations

2.5.1 Site Phasing

The operation of the Project has been designed to operate on a phased basis – Phases 1-4.

REFER TO FIGURE 2 BELOW.

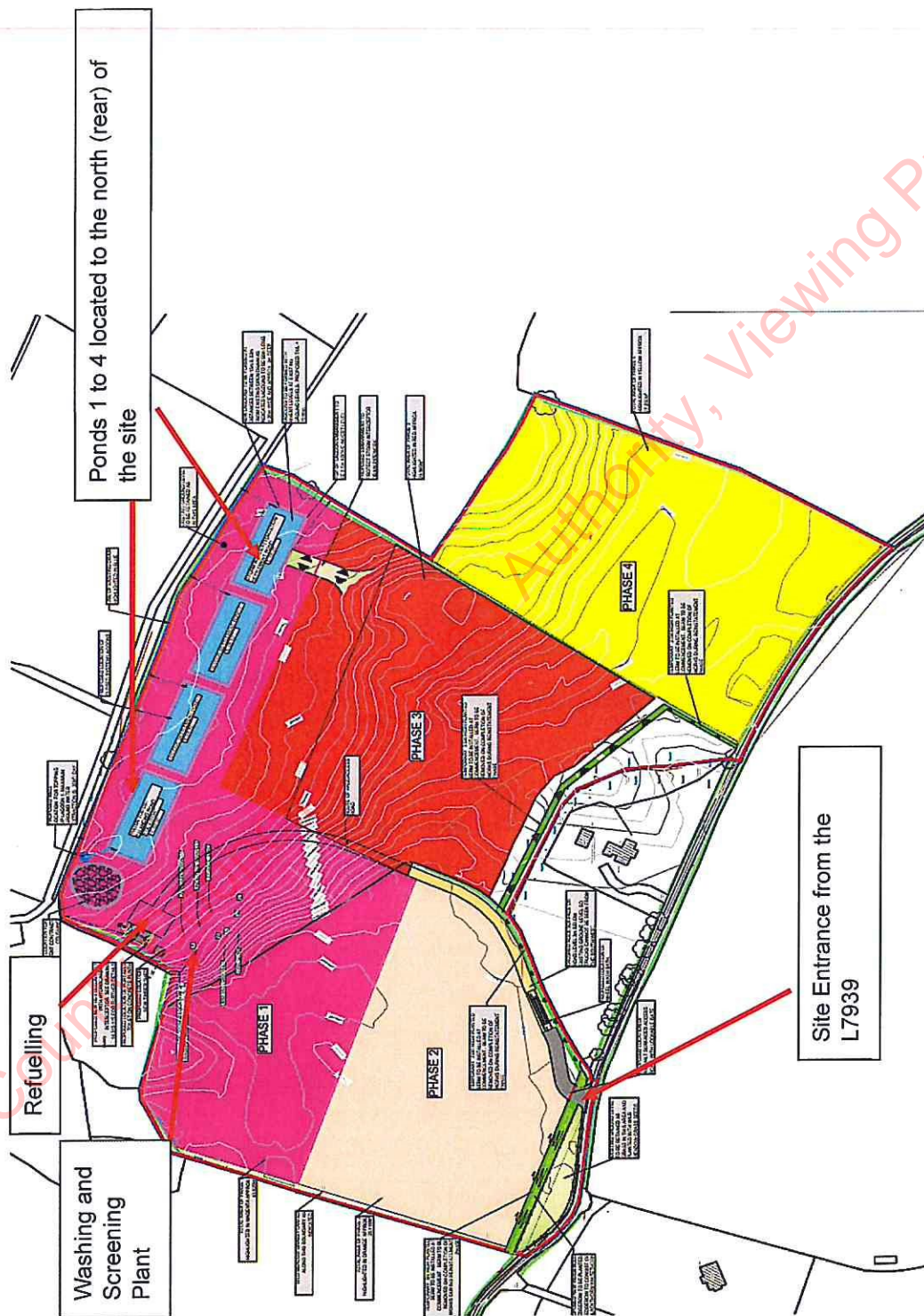


Figure 2: Site Layout Plan (Ref: For full details, refer to planning drawings)

The overall area of the site is c.12.84 hectares / 128,408m². The four phases incorporate the following areas:

- Phase 1 (Pink): 40,825 m²
- Phase 2 (Orange): 20,410 m²
- Phase 3 (Red): 29,995 m²
- Phase 4 (Yellow): 27,250 m²



Photograph 2.1: Image of a typical washing and screening plant

The site will be stripped of overburden (topsoils and subsoils) and extracted on a phase by phase basis (Phase 1 to Phase 4), with all aggregate material, removed from one phase before moving to the next.

The area to the north of the site i.e. surrounding the 4 ponds will not be stripped or excavated during the lifetime of the Project.

All extraction works will move in essentially a southerly direction towards the local road L7939.

The washing and screening plant will remain in location (in Phase 1, next to the hardstanding refuelling area) for the duration of the works on-site. All site vehicles and other mobile equipment will move and operate within the void of each individual phase.

2.5.2 Site Clearance

Vegetation clearance within the extraction areas will be undertaken outside of the bird nesting season (1st March to 31st August) or under the supervision of a suitably qualified ecologist.

2.5.3 Topsoil and Subsoils Stripping

Within each individual phase, the topsoils and subsoils will also be removed on a phased basis, to limit the area of the site that is exposed at any one time – i.e. the site will be stripped on a needs basis in line with the extraction activities.

2.5.4 Extraction Activities

All sand and gravel material will be removed from one phase before extraction begins in the next phase. There will be no extraction below groundwater levels and there will be no blasting associated with the Project.

The Project is estimated to hold approximately 1.22 million tonnes of aggregate material.

Once the topsoils and subsoils have been removed, the sand and gravel will be extracted with a wheeled front-end loader (30 tonne). It is envisaged that an average of 200 tonnes of material will be excavated daily and fed directly into the hoppers of the washing and screening plant. (Photograph 2.1 & 2.2).

Oversized material is tipped out of the plant at this initial stage.

The acceptable material is conveyed for screening, washing and sizing within the plant. The plant will convey material into various stockpiles. The plant will be electrically powered.



Photograph 2.2: Image of a typical washing and screening plant

Crushing of oversized material (larger than 20mm) will be undertaken intermittently, about once every three months, in the north west corner of the site. The mobile crushing equipment proposed for use will produce material of a size which is then suitable for feeding into the washing and screening plant.

2.5.5 Water Management (Drainage) Proposals for the Project

There will be no discharge of process wash waters from the site.

The site will discharge surface water run-off to an existing drain on the northern boundary, in line with the existing conditions of the site.

The water management system on-site will be based on a collection system that is focused on capturing and storing water within the site for use in the washing and screening plant. The collected water will also be used for dust suppression and in the wheel wash.

Collected water will be retained within the site through a series of pipes and within four lined ponds, that will be constructed to the north of the site.

The washing and screening plant is very efficient in that c. 80% of the water used, will be recycled through a water treatment plant (which is part of the washing and screening plant) and entered, straight back into the washing process.

The remaining 20% of process top-up water will be provided by:

- Recycled water from sludge settlement ponds (Ponds 2&3). These ponds will manage silt/silty water discharged from the washing and screening plant;
- Surface water run-off collected in the surface water pond (Pond 4);
- Recycled water from the stockpiled sand and gravels; and
- Groundwater abstraction from a water supply borehole, located close to the north western boundary.

This 20% of process top-up water will then be combined into the water balance pond (Pond 1). This pond will manage the water inputs and feed water into the washing and screening plant.

See Figure 3.

2.5.6 Aggregate Storage and Dispatch

As the material is washed, it will be stockpiled on site depending on the grade of the material. Material will be loaded from stockpiles onto heavy goods vehicles (HGV's) using the front-ended loader.

The extracted material will be used to support the demand mainly within the County Laois and County Kildare regions and is thereby supporting local and regional economic development and contributing towards the security of supply of local manufacturing products in the region.

An approximate breakdown of the volumes being dispatched from the site are as follows:

- 30% to Portlaoise Town;
- 20% to Stradbally;
- 20% to Portarlinton;
- 20% to Athy;
- 5% to South Kildare; and
- 5% to North County Laois Area.

The material will leave the Garrans site and is largely expected to be used within a 25km radius

2.6 Restoration of the Site

Once extraction activities are finished within each phase, restoration works for that phase will commence. It is not proposed that the voided areas would be infilled.

The voided lands would be graded and sloped to meet the existing levels at the site outline. See Figure 4.

The area will then be re-seeded with agricultural grass seed mixture native to the local area.

The perimeter fence will be stockproofed and secure.

To compensate for the loss of the internal hedgerow system, a Landscape Plan has been developed for the restoration phase. This Plan has specified the provision of new hedgerows within the site. These have been planned in such a way to mirror the historical field pattern according to Ordnance Survey 25 inch 1888-1913 & 1837-1842 maps.

In addition, the Landscape Plan also specifies additional tree planting on the site boundaries and areas of Irish meadow/wildflower mixture planting within the site.

3. The Need for the Project

There is a recognised need in Ireland for the future supply of aggregates.

Specifically, for the Midland region, the Irish Concrete Federation (ICF) warned in December 2019 *'of scarcities of some aggregates in the eastern and midland regions due to natural shortages, lack of forward planning...'*

The objective of the Project is to establish a sand and gravel extraction facility at Garrans, Stradbally, Co. Laois that will:

- Provide a secure supply of aggregate for the local region. The supply will be used primarily in Counties Laois and Kildare, in the local construction, manufacturing and concrete industries;
- Help meet the development commitments of the Government's National Planning Framework (NPF) 2040. To meet the needs of the NPF 2040, the Irish Concrete Federation has recently stated that the production of approximately 1.5 billion tonnes of aggregates will be required in Ireland. The Project is estimated to provide approximately 1.22 million tonnes of sand and gravel;

the emissions that would otherwise be emitted by vehicles travelling from sites elsewhere in County Laois or further afield. It is estimated that there would be a reduction of c. 200,000km per annum of road trips within the wider region, with the Garrans site in operation. This is based on a reduced dependency on sites, further afield that are currently servicing the Laois and Kildare. At 900gm of carbon dioxide per km, this would be 180 tonnes less carbon dioxide per annum being emitted, with the Garrans site in operation – c. 3,600 tonnes over the lifetime of the project.

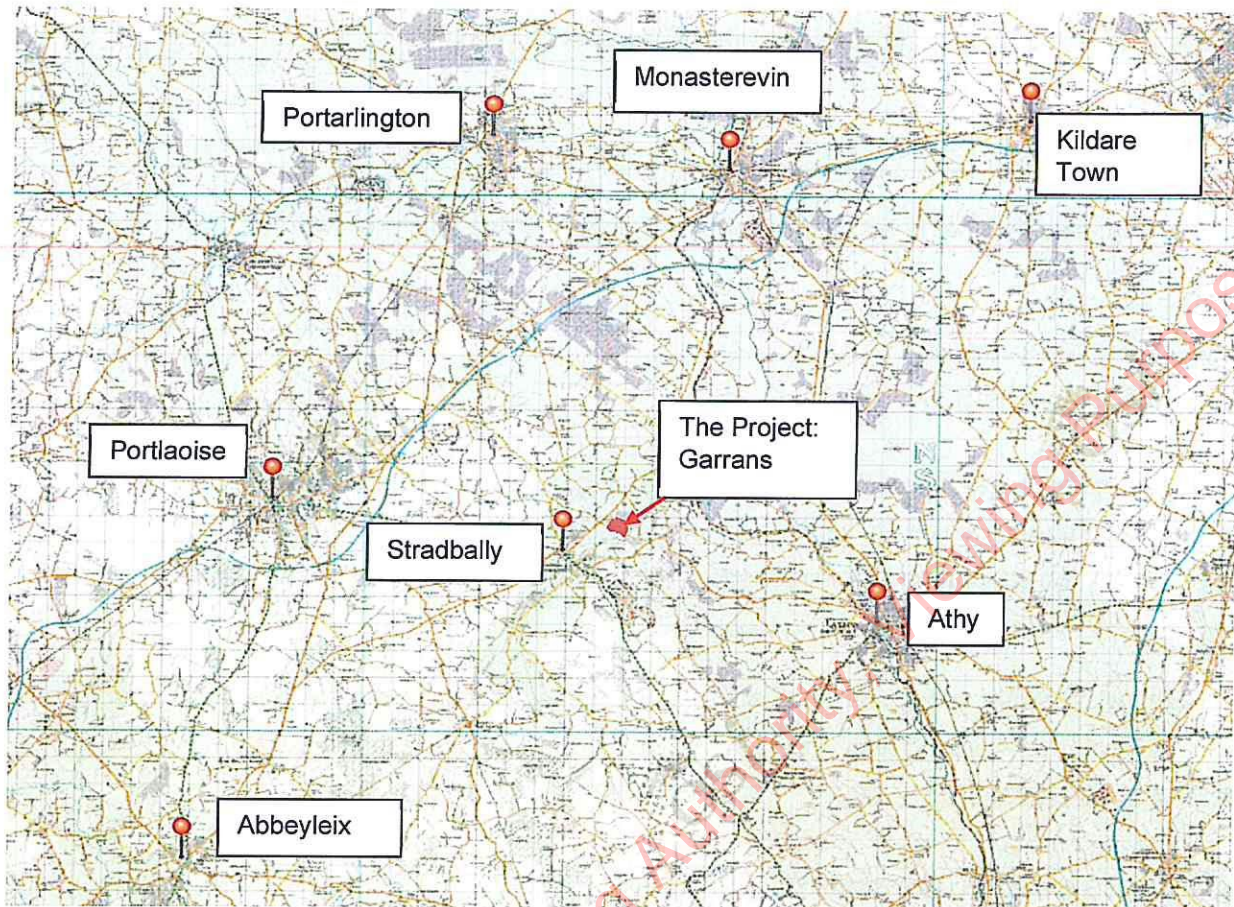


Figure 5: Location of Garrans relative to the surrounding area

- Support an improvement in traffic disruption and road safety in the surrounding region. The Garrans site in operation would reduce the dependency on other local extraction facilities in County Laois. The Garrans facility would be used to service facilities in Portlaoise, North County Laois and County Kildare, thereby potentially reducing the dependency on facilities from further afield. This would result in a reduction in the number of vehicles travelling through the County, to access the Portlaoise, North Laois and Kildare regions and thereby having a potential positive impact for traffic disruption and safety.

4. Environmental Impact Assessment

Environmental Impact Assessment (EIA) is the process for anticipating the effects on the environment caused by a proposed development or project at a particular site.

The EIAR is the document which reports the results of the environmental assessment work on the project.

This NTS provides details on the Project and also summarises the findings of the EIAR.

The EIAR documents have been divided into the following three volumes for ease:

- Volume 1: NTS;
- Volume 2: Main Report;
- Volume 3: Appendices.

5. Interaction of Environmental Aspects

The interaction of environmental aspects is a factor that occurs when the effect of one environmental aspect causes an indirect effect on another environmental aspect i.e. such as an impact on water quality then impacting local ecology.

It is an important factor which was considered in the full evaluation of the environmental impacts associated with the Project. These interactions were integrated and identified within the individual assessments in the EIAR.

6. Alternatives Considered

An assessment of alternatives was undertaken at the outset of the Project and is detailed in the Main Report of the EIAR. This included reviewing alternative locations, layouts and processes.

6.1 Alternative Locations

The consideration of alternative locations for anyone in the extractive industry, is limited to locations where the sufficient deposits of aggregate material are available and have the potential to provide for future extraction activities.

Considerations that supported the decision to proceed with proposed extraction activities at the Garrans site included:

- For the site, data from the Geological Survey of Ireland (GSI) mapped the presence of sand and gravels extending into the north west corner of the site and extending south eastwards and southwards.
- The site location is close to Portlaoise Town and offers safe and easy access onto the national road network and the surrounding region;

- The site location provides easy access to the Portlaoise, North County Laois and County Kildare areas, reducing dependency on other sites located further afield. This has benefits in terms of potential for reduced traffic disruption, reduced traffic levels and a lower carbon footprint, with vehicles travelling shorter distances to access their final sites;
- A simple phasing plan can be implemented at the site over the course of its lifetime. This phasing plan allows extracted sections of the site to be restored once the works are completed, resulting in only small sections of the site being exposed for periods of time.
- The site is enclosed, with Coillte owned forestry on the adjoining northern boundary and with mature, high hedgerows on the western and eastern boundaries. These will be retained during the course of the site works. The enclosed nature of the site was considered effective in limiting views into the site and thereby reducing impacts to the landscape and surrounding views.

On the basis of the above, the proposed site was deemed the appropriate location to progress with extraction activities.

6.2 Other Alternatives Considered

The other types of alternatives and the conclusions of the assessment is summarised in the Table below.

Alternative	Conclusion of the Alternatives Assessment
Alternative Layout	The proposed site layout and phasing plan was deemed the preferred solution, facilitating access to the extractive areas and available site capacity. The proposed layout also allows for the retention and maintenance of the mature perimeter hedgerow system on the site boundaries, which will assist with screening for the surrounding environment.
Alternative Processes	<p>It was concluded that the process of washing the extracted material on-site prior to transport off-site was the most appropriate process for the site.</p> <p>The other alternative would be to not wash the material. This would entail the transport of the extracted material to another site for washing.</p> <p>The 'not washing' on-site option was not considered further for the following reasons:</p>

Alternative	Conclusion of the Alternatives Assessment
	<ul style="list-style-type: none"> • Due to the significant additional transport movements generated on the local road network, to facilitate the washing of extracted material at another off-site source; • Costs associated with the additional handling, movement and washing of material at an off-site source; • Increased potential for environmental impacts such as on air quality (dust deposition and additional emissions from HGV's) and additional traffic movements on the local road network.
Site Entrance Options	<p>A number of site entrance options were considered.</p> <p>It was considered that a site entrance from the local road, L7939 was the most appropriate alternative as it allowed for the required sightlines in the proposed location.</p>

6.3 Restoration Alternatives

6.3.1 Infilling the Site

The potential to infill the site back to original ground levels and future agricultural use was considered. Whilst this scenario returns the lands to their original state and ground levels, there is potential from some impacts resulting from the infill process such as traffic movements, dust deposition, noise and water quality. When taken into consideration with the additional planning and permitting requirements, the scenario was not considered further.

6.3.2 Final Restoration Proposal

The final restoration proposal involves placing the dried sludge/silt from the sludge settlement ponds, topsoils and subsoils into the void, reseeding with an agricultural seed mix and grading and sloping the sides back towards the original ground levels in the surrounding environment. Stock proof fencing would be installed on the perimeter of the site and there would be no public access to the site. This option allows for the return of the lands to their original agricultural use, with no traffic accessing the site, minimal environmental disturbance and within a short timescale.

On this basis, the current restoration proposal was considered the most appropriate alternative to submit with this planning application.

7. Appropriate Assessment

Appropriate Assessment is the process for considering the possible effects of the Project on Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). These are sites designated under European legislation to protect certain habitats and species.

In accordance with these requirements, the potential impacts of the Project on the designated habitats and species of the River Barrow and Nore Special Area of Conservation (SAC) were assessed.

The Appropriate Assessment Stage 2 Natura Impact Statement (NIS) determined that with the implementation of mitigation, there will be no deterioration in water quality and no impacts on any of the designated habitats or species associated with the SAC.

It was concluded that the integrity of the SAC would not be adversely affected by the Project.

8. Traffic and Transport

This Chapter assessed the potential effects of the Project on the local traffic and transport network during the construction, operational and restoration phases.

A Traffic and Transport Assessment was undertaken to review existing traffic volumes and conditions on the local road network. The assessment also assessed the impacts of any additional traffic on the road network that will be generated by the Project.

Site access will be provided through a site entrance on the local road L7939 and 3 lay-bys will be provided on the L7939, back towards the junction at Garrans Cross on the regional road R427. All traffic accessing and exiting the site will use the junction at Garrans Cross (R427).

No site traffic will travel over the Ballykilcavan Bridge to access or exit the site.

The additional traffic generated as a result of the Project will result in some increases to traffic flows on the local road network. However, the additional traffic was considered to be of low volumes.

It was concluded that the existing junction at Garrans Cross, will have sufficient capacity with no queuing and can cater for the traffic increases in a safe and appropriate manner.

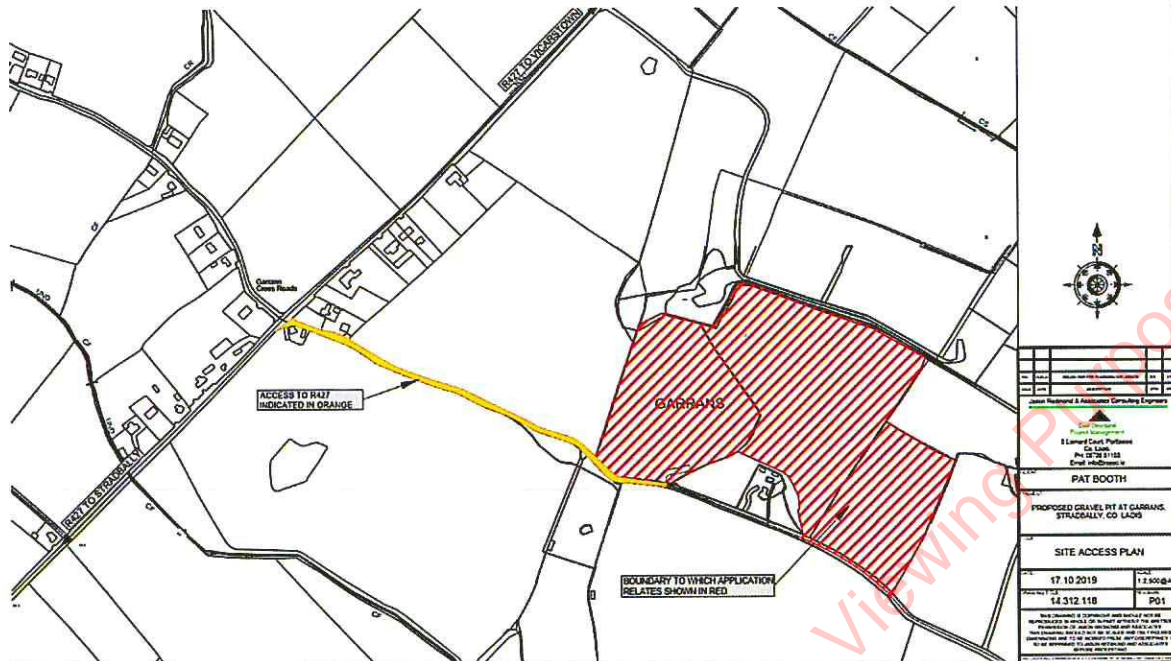


Figure 6: Access Route to/from the Project (extracted from planning drawings)

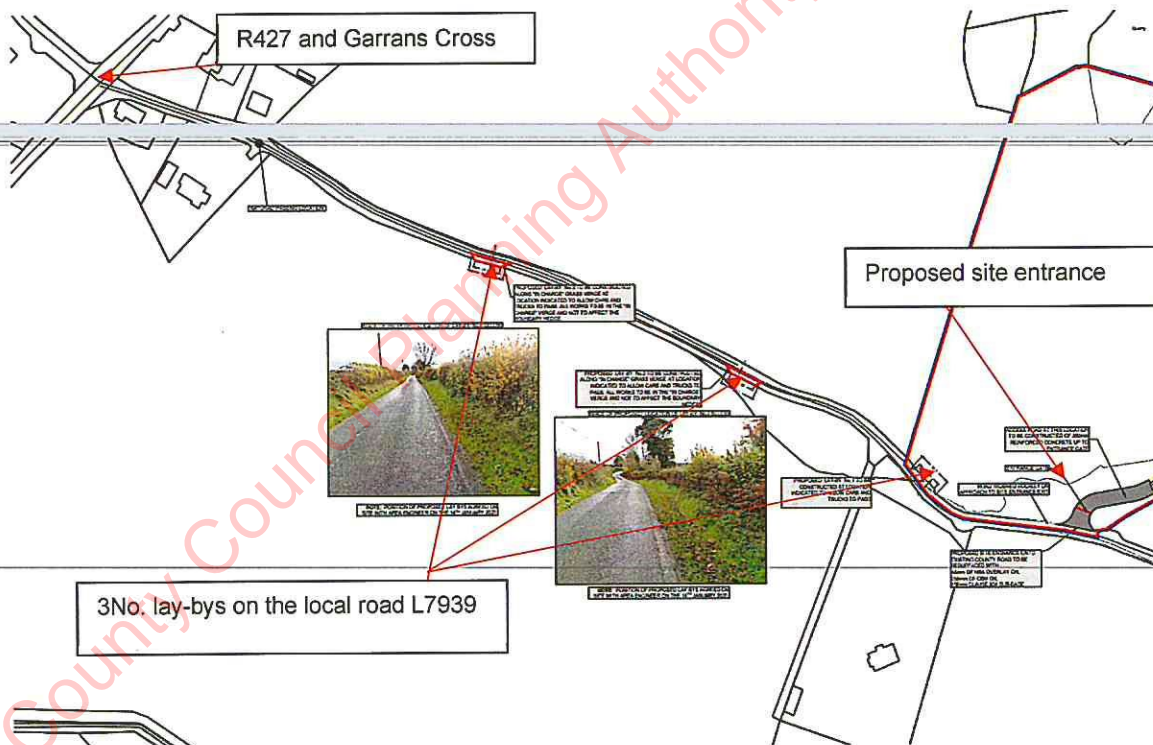


Figure 7: Proposed lay-bys on the local road L7939 (extracted from planning drawings)

9. Noise and Vibration

This assessment considered the noise and vibration impacts associated with the Project.

The assessment identified the noise sensitive locations i.e. local residences in the vicinity of the Project.

Impacts resulting from works on site would be associated with soil stripping, aggregate excavation, operation of the washing & screening plant, loading and stockpiling of aggregate material and transport of the material off-site.

Noise modelling was completed and has shown that the required noise levels can be met, with effects from the Project considered not significant.

In addition, increases in traffic noise to and from site, on the local road network will be minimal and the significance of any effects would be considered not significant.

A range of best practice noise management measures will be implemented through the Environmental Management Plan. This includes measures such as restricted speed limits on-site, regular maintenance of plant and switching off vehicles when not in use.

Additionally, soil berms will be constructed and planted at the outset of the Project to the west of the site entrance and along the southern boundary. The berms will result in reduced noise levels at the nearby noise sensitive locations.

10. Soils and Geology

This assessment considered the potential impacts on soils and geology resulting from the Project.

There are no designated geological heritage sites within 2km of the Project, with the closest sites, Poulastore and the Rock of Dunamase both being located c. 4.5km north west of the site.

The bedrock geology of the site is generally limestone based, with subsoils described as sand and gravels of glaciofluvial origin (when a glacier has melted). These sand and gravels extend back towards the alluvial subsoils and soils, associated with the tributary of the Stradbally River, to the north of the site.

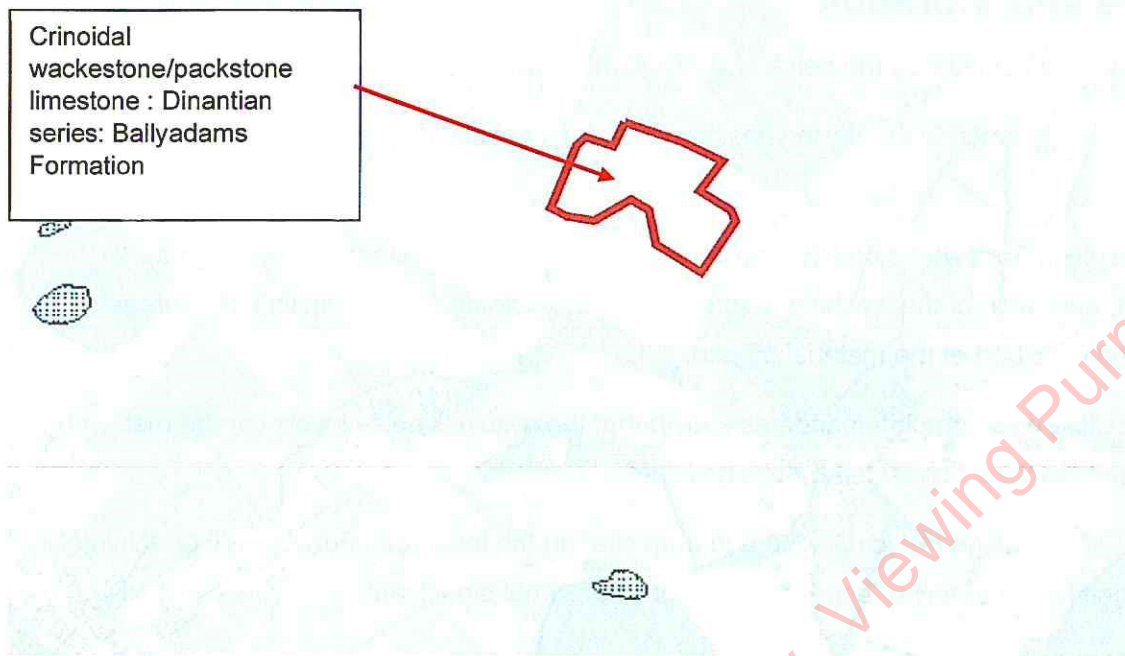


Figure 8: Bedrock geology at and in the vicinity of the Project.

No contaminated land concerns have been associated with the site or were identified during the course of site visits or survey works at the site.

Impacts to soils and geology that were considered in the assessment included the:

- Loss of topsoils and aggregate from the direct removal and processing of material at the site;
- Potential for soil erosion resulting in increased sediment runoff from the site; and
- Contamination of soils at the site due to spillages of fuels/chemicals.

With appropriate controls in place such as the phased extraction of the site, the implementation of good practice's (clean-up of spills and stockpile management) and the berming and reuse of topsoil, there were no predicted significant residual impacts on the soils and geology environment.

11. Hydrology (Flood Risk Assessment), Water Quality and Hydrogeology

This assessment considered the potential impacts that the Project may have on surface water and groundwater at and within proximity to the site during the construction, operational and restoration phases.

Impacts that were considered in the assessment included the potential:

- For impact on the surface water and groundwater systems that support the Stradbally River and the River Barrow and Nore Special Area of Conservation; and.
- For impact on the surrounding domestic and group water supplies.

The water management system on-site will be a collection system, that is focused on capturing and storing water within the site for use in the washing and screening plant. The washing and screening plant for the sand and gravels will recycle 80% of the water, straight back into the plant. The remaining 20% will be provided by:

- Collected water from sludge settlement ponds;
- Collected water from the stockpiled sand and gravels;
- Surface water run-off collected on the site, into a pond; and
- Groundwater abstraction from a water supply borehole, located close to the north western boundary.

The site will discharge surface water run-off to an existing drain, in line with the existing site conditions.

Groundwater supply is required as part of the site water requirements. The proposed abstraction will have no impacts on the quantity or level of water at surrounding group water and domestic water supplies. There is no groundwater flow from the site to these water supplies.

Mitigation measures related to the water environment include:

- The washing and screening plant will recycle 80% of the water, straight back into the plant;
- There will be no discharge of water from the washing and screening plant from the site. This water will be collected and sent back into the washing and screening plant;

- There will be no extraction of sand and gravels below the groundwater levels, with a minimum of 1m of material being left above the estimated highest winter groundwater level;
- Isolation of the sludge settlement and surface water ponds. There is no connection between these ponds to avoid the risk of sludgy/silty water being discharged to the surface water environment;
- The washing and screening plant will be electrically powered;
- An Environmental Management Plan (EMP) will be implemented on-site. This Plan will incorporate measures relating to the management of fuels, storage of flocculants, requirements for visual checks and emergency response (amongst others).

With the implementation of mitigation measures, there will be no significant residual impacts on the surface water and groundwater environment.

Stradbally River & River Barrow and Nore Special Area of Conservation

The potential impacts on the Stradbally River which supports the River Barrow and Nore Special Area of Conservation were considered.

The Project will collect surface water run-off within the site. The site will continue to discharge surface water run-off to the existing drain on the northern boundary, in line with the existing site conditions.

Some surface water run-off will be used on-site to help with washing sand and gravels. This volume is a very small proportion of the overall flow already in the Stradbally River. The site area of c. 12 hectares, is also very small when compared to the overall 10,400 hectare catchment, providing surface water run-off to the River. The loss of surface water will not impact surface water flows to the River or the SAC.

In terms of groundwater, the lands contributing water to supply the on-site borehole are confined within the site boundary. This loss of groundwater, to supply the borehole will not impact the groundwater flows to the River or the SAC.

The significance of any effects to the SAC, its catchment and the qualifying interests were considered imperceptible.

12. Air Quality and Climate

This assessment considered the potential air emissions including dust that would be generated by the Project and the impact that these would have on the surrounding environment.

The air quality in the area of the Project is described by the Environmental Protection Agency as Zone D, Rural Ireland. Taking into account the site's rural location and being within a Zone D, the air quality would be expected to be good for all air quality related pollutants.

The main activities associated with the Project and relevant to air quality include:

- The on-site processing of material which would include extraction of sand and gravel, washing, sizing, screening and stockpiling;
- Loading, movement and transport of the sand and gravel off-site;
- Erosion of stockpiles or exposed surfaces;
- Traffic movements; and
- Final restoration works associated with the site – movement of topsoil and seeding of soils.

The Environmental Management Plan for the Project details mitigation measures to reduce dust emissions from the site. These include:

- Vehicles delivering materials (to and from the site), with dust potential will be enclosed or covered with tarpaulin;
- All HGV's leaving the site will be directed through a wheelwash in order to prevent mud and soils being tracked onto public roads;
- Restricted speed limits will be implemented on site to reduce the generation of dust from moving HGV's within the site;
- All stockpiles on site will be monitored and treated with water to minimise dust emissions where required;
- Hard surfaces on-site will be swept to remove any mud or aggregate build up to minimise dust emissions;
- During prolonged dry or windy periods, any areas with the potential to generate dust will be watered, in particular areas next to the site entrance and at the excavation and storage locations;
- Material handling and stockpiling of materials will be designed and laid out to minimise the exposure to wind;

- Materials will not be moved on-site if they are too dry or when there is unusually windy or rainy weather conditions;
- Works shall be ceased during excessively high winds; and
- Planted screening mounds (from the stripped top soil) close to the site entrance and along the southern boundary;

It was concluded that the use of site plant, equipment and traffic movements will not generate significant emissions in terms of air quality.

With the implementation of dust control measures as outlined in the Environmental Management Plan, the Project will not have significant residual air quality impacts on the environment.

13. Landscape and Visual

This assessment considered the potential landscape and visual impacts which may be generated during the construction, operational and restoration phases of the Project.

Landscape impacts are associated with the change in topography of the site, the removal of hedgerows from the site and changes associated with the presence of the plant and equipment on the site.

All boundary hedgerows will be protected and remain in place. Their longevity will be increased with appropriate maintenance and management when the site is operational. During the restoration phase, new hedgerow planting will be undertaken within the site and this will reflect the historical landscape pattern evidenced in historical mapping for the area.

Visual impacts are associated with the extent of the area over which the Project would be visible and changes such as stripping of soils, the presence of plant and equipment and the construction of the new site entrance and access road.

Due to the site location, the intervening topography and screening from vegetation, it was concluded that the Project will have no visual impacts on designated scenic roads and viewpoints listed in the Laois County Development Plan 2017-2023 or on tourism routes or attractions within the County.

As part of the design process, the Project has included for the construction of berms at the site entrance and along the southern boundary. The construction, contouring and planting of these

berms reduces the impact of viewpoints in this area. Management of the hedgerow on the western boundary of the site will also support its function as a screen for viewpoints.

Mitigation for the landscape and visual assessment includes;

- Development of a Landscape Plan for the operational and restoration phases which outlines planting and maintenance requirements;
- Planting, shaping and contouring requirements for the constructed berms;
- The retention, strengthening and management of the boundary hedgerows; and
- Ultimate replacement of the internal site hedgerows in line with the historical field pattern.

There are no significant residual impacts associated with the landscape and visual assessment, with some impacts of a positive nature associated with the ultimate restoration of the historical field pattern within the landscape.

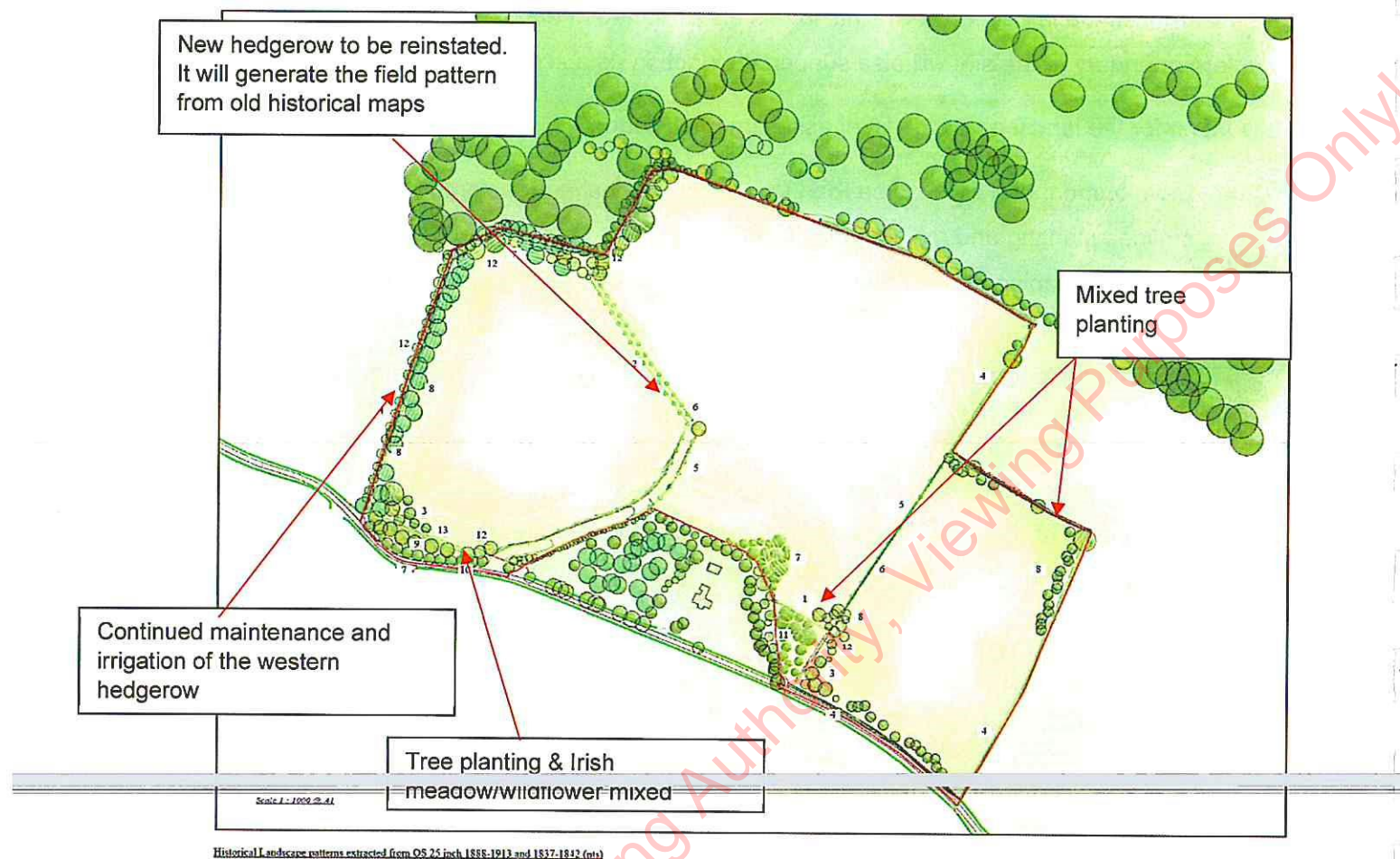


Figure 9: Landscape Plan for the restoration phase

14. Biodiversity

This assessment considered the potential biodiversity and ecological impacts which may be generated by the Project.

The Project is not within or directly adjacent to any European or national designated sites. The site is connected to the River Barrow and Nore Special Area of Conservation (SAC) through a man-made drain on northern boundary of the site. This drain ultimately flows to the Stradbally River and the Stradbally River meets the River Barrow and Nore SAC around 4.4km from the site.

The habitats on the site range from low- high value on a local basis. The treelines and hedgerows are important features, providing nesting sites and shelter for birds, bats and

badgers. Badger presence was detected on and in proximity to the site and some of the trees on site offer roosting and hibernating potential for bats.

Impacts are mainly associated with habitat loss, disturbance to the local wildlife from machinery and site activities and impacts to hedgerows and treelines in the event of damage to their root areas.

Key mitigation for biodiversity includes

- Setting up a root protection barrier to protect boundary hedgerows and treelines;
- Vegetation clearance will be undertaken outside of the bird nesting season (March – August inclusive) or under the supervision of a suitably qualified ecologist;
- Prior to the removal of any trees, it shall be checked for the presence of roosting bats. If bats are present, the tree will be removed under licence or when the bats are no longer using the tree;
- The site will be re-surveyed for badger activity prior to the commencement of each phase of quarrying;
- The badger sett in Phase 4 of the works will be resurveyed and excluded (if still present) prior to the commencement of works in this phase; and
- An Environmental Management Plan (EMP) will be implemented on-site. This Plan will incorporate measures relating to the management of fuels, storage of flocculants, requirements for visual checks and emergency response (to protect the quality of surface water and groundwaters).

With the implementation of mitigation measures, there will be no significant residual impacts on the surrounding biodiversity.

An Appropriate Assessment Natura Impact Statement was undertaken to review the River Barrow and Nore SAC. It concluded that the integrity of the SAC would not be adversely affected by the Project.

15. Population and Human Health

This assessment considered the effects on human beings in relation to population, economic and human health impacts. County Laois, including the Stradbally and Garrans Cross areas experienced increases in population from the Census 2011 to Census 2016.

The site is currently greenfield and encompasses approximately 12 hectares. The site is largely surrounded by agricultural or forestry lands on all boundaries, with the Stradbally River is located c. 300m south of the site. There are a number of tourism and amenity related assets in the surrounding area, including The Rock of Dunamase, the Grand Canal Waterway and Stradbally Hall, amongst others.

The development of the Project would have some benefits in terms of employment, with a small increase in direct employment at the site. More importantly, the provision of a secure supply of aggregate is critical to support the existing local manufacturing and processing industries. Aggregate from the Project will help sustain existing jobs and potentially grow employment levels within these local industries.

With the implementation of appropriate controls measures, dust, traffic and noise were not predicted to have significant effects on the local population. Control measures were outlined in the EIAR and also incorporated into the Environmental Management Plan which will be implemented on site during the all phases of work.

16. Cultural Heritage

This assessment considered the potential effects on archaeological, architectural and cultural heritage.

No records were found for archaeological and architectural heritage assets within the boundary of the site. A number of records exists for or in the direct vicinity.

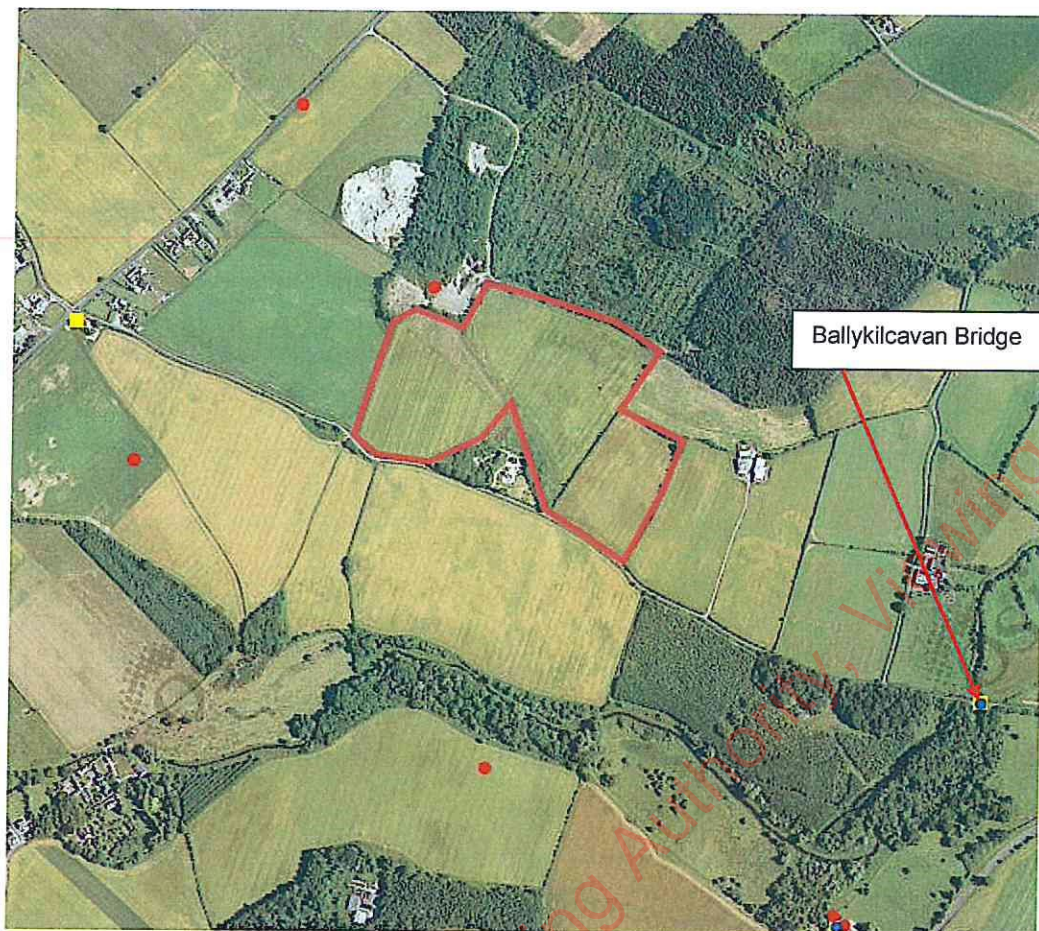


Figure 10: Records in the Vicinity of the Project Site Boundary

A walkover of the site was undertaken and did not reveal any surface remains of unrecorded archaeological monuments.

The closest archaeological record is for a 17th Century Mass House which was potentially located c. 60m to the north west of the Project site. The Mass House is included on the national Record of Monuments and Places.

With regard to architectural heritage, no designated structures are located within the site boundary, with the closest structure located c. 630m east of the site – the Ballykilcavan Bridge. This bridge is listed on the County Laois Record of Protected Structures and the National Inventory of Architectural Heritage.

In terms of mitigation, the following will be implemented:

- Archaeological testing will be undertaken at the site prior to any works commencing. This will allow for any potential unrecorded subsurface remains to be identified and recorded.
- All site traffic entering and leaving the site will travel via Garrans Cross and will not traverse the Ballykilcavan Bridge at any stage.
- In terms of visual impacts, the site is surrounded by mature hedgerows and these will be kept around the site boundary. This will reduce visibility of the site to the surrounding environment.

With the implementation of the mitigation, there will be no significant residual archaeological, architectural and cultural impacts.

17. Waste Management

The Project will generate only small volumes of waste streams during the course of site activities. The Environmental Management Plan details measures that will be implemented on site to minimise waste generation and manage waste materials effectively and to prioritise reuse and recycling opportunities at the site. Following restoration of the site for agricultural reuse, there will be no waste streams generated from this site.

There will be no significant residual impacts associated with waste management and the operation of the site.

18. Material Assets

The material assets considered as part of the assessment were in relation to any major utilities associated with the Project. The main utility associated with the Project will be the provision of an electricity connection into the site, to power the washing and screening plant. No other connections such as mains water, sewer, gas or telecommunications are proposed for the Project.

19. Cumulative Assessment

This assessment considered the potential for cumulative impacts arising from the Project in association with other projects or developments. A search was undertaken to identify other existing developments, including other quarrying developments.

The assessment concluded that no significant cumulative impacts will occur and on this basis, no additional mitigation above those already included in the EIAR and Environmental Management Plan were required.

Laois County Council Planning Authority, Viewing Purposes Only

