Purpose of this Non-Technical Summary

This summary presents, in non-technical language, the findings of a detailed Environmental Impact Assessment (EIA) that has been undertaken in connection with a proposal by Gwynedd Council to construct a leachate treatment plant (LTP) at the closed Cilgwyn landfill near Carmel.

Water from below the existing Cilgwyn landfill is presently drained by an adit, which exits the landfill to the south at the base of an existing slate waste slope. Water from this adit then flows overland as a stream before disappearing into the ground.

A surface water discharge consent is in place for the flow from the adit. Recent rising concentrations of ammoniacal nitrogen indicate that the conditions of the consent are being exceeded on occasions; this likelihood will increase as a result of the capping and restoration of the landfill site which will take place during 2011. The Environment Agency Wales require that the discharge is treated and this is a condition of the Closure Plan for the landfill. The proposed Cilgwyn Leachate Treatment Plant (LTP) facility will be designed to treat part of the flow currently being discharged from the landfill through the adit into the existing stream.

The full EIA report, known as an Environmental Statement (ES), has been submitted with a planning application, which is also accompanied by a Planning Statement which provides more information on the reasons for the proposal.

Location

The location of the proposed Cilgwyn LTP facility is shown on the figure opposite. The site is at the bottom of an existing slate waste slope associated with historical quarrying operations in the area. The nearest settlements, Cilgwyn, Talysarn, Y Fron and Nantlle are located ~0.6 km northwest, ~0.8 km southwest, ~0.9 km northeast and ~0.8 km southeast respectively.

The existing landfill site is entered via the B4418. The location of the proposed LTP is centred at Grid Reference 249930, 353620 and is accessed via an existing track on the slate waste slope.

The Site

The site of the proposed LTP development covers an area of ~0.5 ha in total and is primarily located on disturbed ground associated with former slate workings and slate tipping operations. In the main, the site consists of slate waste and does not contain any vegetation, although there are some more mature trees and vegetation in the area of the receiving watercourse at the southern periphery of the proposed site. The LTP facility itself would be located on a relatively flat area of ground near the bottom of the existing rough access track which winds down from the former landfill site at the top of the slate waste slope, and which would be retained as an access road for maintenance of the LTP.

The majority of the proposed application site, and the entirety of the access road, are in the ownership of Gwynedd Council, though a small area of land outside the ownership of the Council will be required as part of the scheme. Negotiations will be undertaken with the landowner to acquire the necessary land or an easement to construct and maintain an overland flow cascade across this land.
The Development Proposals

Overview

Final details of the development will be confirmed upon commission of the construction engineers. For the purposes of the Environmental Impact Assessment, the worst case scenario in terms of scale has been assessed, including the following elements:

- Crushed slate surfaced access track along line of the existing track from the landfill to the adit;
- Underground electrical and telemetry cables from the existing gas control compound to the LTP site and inlet pumping station;
- Package Leachate Treatment Facility on a concrete slab measuring approximately 26 m x 14 m, including process vessels of up to 4 m in height with associated skid mounted air blowers;
- Balance tank and pipework manifolds;
- Small GRP control room and electrical kiosk;
- 2.5 m high slate filled gabion wall in front of the LTP facility;
- Fencing and gates to side and rear;
- Buried leachate interception structure at the adit;
- Buried pumping chamber;
- Pipeline (buried) from adit to the LTP facility;
- Pipeline (buried) from LTP facility to low point of access track; and
- Overland gabion basket cascade from slate waste slope to receiving watercourse.

The tallest element of the proposed development would be the top of the treatment vessels at a maximum 4.0 m above slab level. The tanks would be partially screened by a slate filled gabion wall approximately 2.5 m in height.

Alternatives

The ES includes details of alternatives to the development considered by Gwynedd Council. In this context, the applicant has considered:

- Alternative locations for the proposed Cilgwyn Leachate Treatment Plant; and
- Alternative technologies to the proposed leachate treatment process.

Key

- Application site boundary
- Indicative area for temporary welfare/material store
- Cilgwyn Landfill

Proposed Site Layout
The proposed development provides the optimum solution for treating leachate from the site having considered environmental, economic and practical criteria. Based on the leachate generation at the site and the issues of remoteness and location it was decided that package biological treatment would offer the most effective solution for the adit discharge. The proposed location also provides the optimum solution with the lowest potential for adverse environmental effects.

Environmental Impact Assessment

Because of the nature of the development, an EIA has been undertaken for the proposed Cilgwyn Leachate Treatment Plant. The purpose of the EIA is to identify how people and the environment could be affected by the proposals and to put forward measures (often referred to as mitigation) that will avoid, minimise or offset any negative effects. To achieve this, an ES has been prepared following a consultation (or scoping) exercise, involving the Planning Service of Gwynedd Council and other key organisations. Details of the proposals were widely circulated and responses received were used to inform the scope and content of the EIA. Experts in a wide range of disciplines carried out the following environmental studies and the findings are summarised below.

Surface Water

Cilgwyn Landfill and the site of the proposed LTP lie within the catchment of the principal watercourse in the area, Afon Llyfni, which drains east to west and is located approximately 700 m to the south of the landfill. The drainage to the south of the landfill is complex, in an area that has been affected by the excavation of several slate quarries and the disposal of quarry wastes. This comprises a complex network of drains, issues and sinks interspersed with flooded, abandoned slate quarries and areas of slate wastes.

Hydrogeological receptors are not considered to be of relevance in this area, where there are no groundwater abstractions, the majority of the local strata are classified as non aquifers and the dominant water resource is surface water.

Construction and operation of the leachate treatment plant will have a significant beneficial effect on surface water quality near to the landfill, since contaminated water diverted from the stream to the plant for treatment will be returned to the watercourse after treatment with its quality much improved and within discharge consent quality limits. Whilst there have been no adverse impacts from the landfill discharge further downstream within the sensitive catchment of the Afon Llyfni, the proposed plant will provide additional long term protection to local water quality.

Biodiversity

Biodiversity relates to the ecology of the site and also a consideration of ecology in the surrounding area. The assessment has had regard to relevant ecological legislation and guidelines, including national, regional and local policies and comments received from organisations, including Cyngor Cefn Gwlad Cymru (Countryside Council for Wales), Gwynedd Council Biodiversity Officers and the Environment Agency (Wales).

There are no statutorily designated sites within a 2 km radius of the site. The Glynllifon Special Area of Conservation (SAC), which has been designated for lesser horseshoe bats, is located approximately 2.7 km north west of the site. The site is adjacent to and partially within a large unnamed candidate Wildlife Site. The part of the development that will be within the candidate Wildlife Site is the open channel cascade that will discharge treated effluent into a watercourse which is also situated within the candidate Wildlife Site. There will be direct loss of approximately 137 m2 of the candidate Wildlife Site that is more than 4 km2 in area. Due to the very small amount of the candidate Wildlife Site to be lost and the availability of similar habitats in the wider area, the loss of this habitat is not likely to be significant in EIA terms.

Ecological surveys have been carried out within the proposed site and have concluded that none of the habitats present are of any more than local conservation value, either because of their degraded nature, low diversity or poor structure. Surveys of protected species have concluded that, following the implementation of mitigation measures, the proposed development would not result in significant adverse effects on protected species, including lesser horseshoe bats.
The improvement in local water quality as a result of the proposed development may also benefit flora and fauna in the long term.

**Landscape**

The landscape assessment has looked at landscape character and any effects on local landscape designations, in this case the nearby Snowdonia National Park and the South Arfon and Dyffryn Nantlle Landscape of Outstanding Historic Interest. The predicted landscape effects of the proposed development are relatively limited and it is considered that no potential landscape receptors would sustain significant effects. This is because:

- The scale of the proposed development is small within the setting of the surrounding slate slope landscape;
- The use of materials which compliment the surrounding slate landscape features in colour and tone will limit the magnitude of change to the setting of the local landscape character and designations;
- The landscape elements that would be lost to accommodate the proposed development would be minimal and are a common feature within the local landscape character as the area has a history of industrial activity, including quarrying and landfill activities.

**Views of the Site**

A site visit, walkover and survey of the surrounding receptors within an approximate 2 km study area established a visual envelope and potential visual receptors. The figure below illustrates the study area and approximate visual envelope.

Within this zone eight viewpoints were selected for detailed assessment. The assessment concluded that the predicted visual effects of the proposals will be relatively limited and will not be significant.

Specifically, the following broad conclusions were drawn:

- Existing vegetation blocks and slate mounds will screen some close-middle distance views and the presence of built form restricts views from within settlements such as Cilgwyn, Nantlle and Talysarn;
- The majority of views of the lower parts of the proposed LTP facility will be screened by the proposed 2.5 m slate filled gabion wall. As the majority of visual receptors

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**Key**

- Site boundary
- 2km study area
- PRoW
- Roads
- Settlements
- Visual receptor and photomontage locations (Refer to figures 9.2-9.3, 9.6-9.7)
- Predicted potential views of the proposed development
- Predicted area with no views of the proposed development

**Potential Visual Receptors and 2km Zone of Visual Influence**
are at least 0.5 km from the proposed development it is anticipated that the gabion wall will visually blend into the slate slopes due to the use of slate material to fill the gabions and therefore not be visually imposing; and

- The degree of visual change due to the development will be reduced by the design of the facility which will utilise existing material resources in keeping with the surrounding landscape character and use of materials which will blend in with the existing grey tones of the slate slope.

**Cultural Heritage**

No designated features (i.e. scheduled monuments and listed buildings) lie within the application site and none would therefore be directly affected by the proposed development. There are a number of scheduled monuments in the vicinity, the nearest of which is Blaen y Cae (CN 202) at c. 35 m to the west of the site boundary. Other nearby scheduled quarries are Clodfa’r Lôn Slate quarry (CN 302) located approximately 250 m to the south southeast of the acquisition site boundary and Dorothea (CN 199) at c.350 m to the south of the site. In total, there are six scheduled monuments within 1 km of the site.

The site also lies within the South Arfon and Dyffryn Nantlle Landscape of Outstanding Historic Interest. Consultation with CCW however has determined that the proposed development would “not have more than a local impact” on the South Arfon and Dyffryn Nantlle Landscape of Outstanding Historic Interest due to its proposed location and scale.

It has been concluded that the proposed development will not affect any scheduled monuments or listed buildings due to the small scale of the proposed development and use of slate gabion walls for screening purposes. The following features within the site boundary associated with Cilgwyn quarry have the potential to be affected:

![Existing View](image1.jpg)

![Proposed Development Site](image2.jpg)

![Proposed View](image3.jpg)

*Simulated Views of the Proposed Development from Public Right of Way South of Nantlle*
• The adit and headwall;
• The Launder Pillar; and
• Cilgwyn Waterwheel.

Any anticipated loss of or damage to any of these structures is likely to require mitigation but would not be significant in EIA terms. However, it is considered that any effects can be mitigated through sensitive construction practices including the following:

• Demarcation of a safe working area physically separating works from any features;
• The use of light plant wherever possible;
• Monitoring of features potentially subject to effects during works;
• The use of a banksman to monitor plant movement; and
• Definition of spoiling areas away from features potentially subject to effects.

Some unknown sub-surface archaeological have the potential to be subject to limited direct effects. Preservation by record and careful excavation practices, where it proves necessary, will represent sufficient compensation for any loss or damage to these features.

Other Environmental Issues

There are a number of other environmental issues that have not been the subject of detailed assessment in the Environmental Statement as it is considered that the proposed development will not have a significant effect on (or be affected by) such issues. These include the following:

Noise

Night-time background noise level measurements from a previous noise survey conducted on 1st October 2009 were used in the assessment to specify an Environmental Noise Criterion (ENC), to ensure no undue disturbance to local residents. A site boundary ENC of 71 dB(A) was calculated for the development. Compliance with the ENC will be a requirement of the contract let for the detailed design and installation of the LTP.

Air Quality and Climate

It is not anticipated that the proposed development will have a significant effect on air quality. The natural nitrification process does not result in odour release, and the process would result in the release of insignificant amounts of N2O and CO2. Standard mitigation will be incorporated during construction so that dust emissions are insignificant.

Traffic

Traffic to be generated by the proposed development will be limited to that associated with site clearance and construction, and once operational with the day to day maintenance of the facility, which will entail visits once or twice per week.

Soil Resources

The proposed site of the LTP is primarily located on disturbed ground associated with former slate workings and slate tipping operations. In the main, the site consists of slate waste and does not contain any natural soils or vegetation, although there are some more mature trees and vegetation in the area of the receiving watercourse at the southern periphery of the proposed site. However this area has also been the subject of past quarrying activities and the quality of the soil is considered to be of little agricultural value. In this context, it is considered that the in EIA terms the proposed development would not have a significant adverse effect on soils.

Conclusions

It has been predicted that the proposed development will lead to a number of environmental effects, however, none of these are predicted to be significantly adverse. In fact, it is considered that the development will result in a significant beneficial effect on local water quality.

What Happens Next?

Prior to making a decision on the planning application, Gwynedd Council Planning Department will seek advice from the Environment Agency (Wales), Cyngor Cefn Gwlad Cymru (Countryside Council for Wales), the Welsh Assembly Government and other consultees and will make the full Environmental Statement available for examination by members of the public at the Council’s offices.