

Caulmert Limited

Engineering, Environmental & Planning
Consultancy Services

**COG MOORS WASTEWATER TREATMENT WORKS,
CARDIFF ROAD, DINAS POWYS**

**PROPOSED DEVELOPMENT OF AN ADVANCED ANAEROBIC
DIGESTION PLANT**

SUPPORTING PLANNING STATEMENT

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1. INTRODUCTION

- 1.1 Caulmert Ltd has been appointed by Dwr Cymru Welsh Water (DCWW) to prepare this Supporting Planning Statement.
- 1.2 The Statement relates to an application for full planning permission for the change of use of land as an extension to the existing wastewater treatment works site and to provide compensatory dormouse habitat and for the construction of an Advanced Anaerobic Digestion (AAD) Plant, together with associated landscaping and mitigation measures and the formation of a temporary construction compound at Cog Moors Wastewater Treatment Works (WwTW), Cardiff Road, Dinas Powys (Application Ref: 2017/01203/FUL).
- 1.3 The planning application was validated by Vale of Glamorgan Council on 13th November 2017, but has been amended, subsequently, to include proposals for the provision of compensatory dormouse habitat, following confirmation of the discovery of one dormouse nest on the application site.
- 1.4 The planning application for the proposed development is accompanied by a Landscape and Visual Impact Assessment (LVIA), a Transport Statement, a Noise Impact Assessment, an Air Quality Assessment, an Odour Assessment, a Flood Consequences Assessment, an Arboricultural Assessment, a Drainage Statement, a Construction Traffic Management Plan, a Waste Planning Assessment and a Project Environmental Management Plan, together with various Ecology Reports.
- 1.5 In summary, the above-mentioned documents indicate that the majority of the environmental effects of the proposed development are unlikely to be significant and can be mitigated satisfactorily. Dormouse is a European Protected Species and the loss of dormouse habitat is potentially significant, however, this loss can be mitigated by the provision of compensatory habitat.
- 1.6 The proposed development fell within Category 11(b) of Schedule 2 of the former Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2016 and exceeded the screening thresholds for that Category of development.
- 1.7 A formal Screening Opinion was requested from Vale of Glamorgan Council, as Local Planning Authority.
- 1.8 The Local Planning Authority adopted a Screening Opinion on 23rd March 2017 (Ref: P/DC/2017/00162/SC1), concluding that, from the information submitted, *“the project is not a significant development of more than local importance, that is proposed for a particularly environmentally sensitive or vulnerable location, nor does it have unusually complex and potentially hazardous environmental effects. As such, whilst information regarding certain environmental issues will undoubtedly be required for any planning application, it is*

considered that there is no requirement for a formal Environmental Impact Assessment to be submitted.”

- 1.9 The nature of the proposed development and its anticipated environmental impacts have not changed materially since the Screening Opinion was adopted.

2. DESCRIPTION OF THE APPLICATION SITE

- 2.1 Cog Moors WwTW is situated to the east of the A4055 Cardiff Road, approximately 2km east of Barry and 1km south of Dinas Powys.
- 2.2 The WwTW site contains both concrete and steel process tanks, together with a series of process and control buildings and associated items of plant and equipment.
- 2.3 Vehicular and pedestrian access to the site is gained via a private road (Green Lane), which runs in a south easterly direction from its priority junction with the A4055.
- 2.4 The planning application site boundary has been extended to incorporate an area of grazing land on the northern side of Green Lane
- 2.5 The WwTW site is located within a gently undulating landscape, characterized by small fields separated by ditches and enclosed by hedgerows and trees.
- 2.6 The land rises more steeply to the north of the WwTW site (Pop Hill) and is intermittently wooded.
- 2.7 The nearest residential properties to the WwTW site are located, at Downs Farm, approximately 230m to the east and Brook Cottage on Sully Road, approximately 290m to the south east. Other residential properties are located, at distances of more than 0.5km, on Ashby Road to the south, along Cross Common Road to the north east and along Sully Road and Cog Road to the east and south, respectively.
- 2.8 Downs Farm is a Grade II listed building,
- 2.9 The WwTW is well screened in the surrounding landscape, and from most of the surrounding roads and properties, by the localised topography and by existing hedgerows and trees. Views of the WwTW are available from nearby public footpaths.

3 THE PROPOSED DEVELOPMENT

Background

- 3.1 Wastewater treatment processes typically produce a treated liquid effluent (which is normally discharged to either a river or to the sea, in accordance with an appropriate discharge consent) and a sewage sludge (which is normally disposed of to agricultural land, following treatment).
- 3.2 At Cog Moors WwTW, the sewage sludge that results from the treatment of wastewaters is currently treated by anaerobic digestion. The digestion process releases biogas, which is used to generate electricity on site, whilst the sewage sludge, following digestion, (referred to as “sludge cake”) is then disposed of to farmland as a soil improver and fertiliser. The residual liquors, following digestion, are returned to the WwTW inlet works for treatment.
- 3.3 Over recent years, advanced anaerobic digestion (AAD) technologies, involving thermal hydrolysis, have become well established and enable the overall digestion process to operate more efficiently, producing both increased volumes of biogas and an improved fertiliser.
- 3.4 As part of its sustainability strategy, DCWW is seeking to reduce its carbon footprint, as an effective contribution to the wider effort within Wales. It is intended that this will be achieved, in part, through improved energy efficiency and carbon reduction measures, particularly through investment in advanced anaerobic sewage sludge digestion.
- 3.5 AAD plants have been installed and are fully operational at both Afan and Cardiff WwTW and the proposed development of an AAD plant at Cog Moors WwTW would further support DCWW’s sustainability strategy.

Justification for the Proposed Development

- 3.6 Additional sewage sludge treatment capacity is required in order to deal with increased volumes of sewage sludge generated as a result of both population growth and improvements to wastewater treatment processes which enhance the quality of the treated effluent.
- 3.7 Additional capacity is also required to increase both flexibility and resilience, in the event planned maintenance shutdowns or the unexpected unavailability of DCWW’s sludge treatment facilities elsewhere.
- 3.8 The sludge strategy for South Wales is for all sludge produced across the region to receive treatment at an AAD facility.
- 3.9 The AAD facilities would treat the indigenous sewage sludge produced at the WwTW where the facility is located and would also receive sludge imports from “satellite” sites across South Wales.
- 3.10 De-watering would take place at the “satellite” sites, in order to reduce the volumes of sludge to be transported and, thereby, the number of traffic movements required.

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- 3.11 The current AAD facilities at Cardiff and Afan WwTW's do not have sufficient capacity to accept the entire quantity of sewage sludge requiring treatment and an additional AAD facility is, therefore, needed.

Site Selection

- 3.12 Consideration was given, firstly, to expanding the existing AAD Plants at Cardiff and Afan WwTW's, but there is insufficient space available at either site to accommodate the additional plant and equipment that would be required.
- 3.13 Consideration was then given to constructing a third AAD facility at other sites across South Wales, however, the range of alternative sites which are potentially available to accommodate the additional AAD sludge treatment capacity is limited by the ability of the host WwTW to accept and treat the resultant sludge processing liquors.
- 3.14 Consequently, the number of potential sites that could reasonably accommodate the third AAD facility was reduced to three, comprising Cog Moors WwTW, Eign WwTW and Rotherwas (the latter two sites are near Hereford).
- 3.15 A whole-life cost analysis was undertaken at each of these three sites and concluded that Cog Moors was the most cost-effective location for the AAD facility. The cost benefits of building at Cog Moors mostly derived from the availability of a number of existing assets that could be re-used and that Eign and Rotherwas would each require a costly additional treatment plant because of the sensitivity of the receiving water (River Wye).
- 3.16 Cog Moors WwTW is one of DCWW's major WwTW in South Wales and serves a large geographic catchment which includes Barry, Dinas Powys, Penarth, Cardiff West, and Sully. In treating the wastewaters that arise from this catchment, the Cog Moors WwTW generates a substantial volume of sewage sludge.
- 3.17 The sewage sludge that is generated at Cog Moors is treated on-site by existing anaerobic digestion facilities. The proposed AAD process that DCWW wishes to introduce would operate in conjunction with the existing digesters at Cog Moors WwTW (which would be refurbished), thereby making full use of the existing infrastructure and the investment that has taken place previously at the site.
- 3.18 Cog Moors WwTW has sufficient capacity to accept and treat the residual liquors that would be produced by the digestion of both indigenous and imported sludge by means of the AAD process.
- 3.19 The provision of an entirely new AAD plant, including digesters and sludge handling equipment at an alternative WwTW site, other than Cog Moors, would not make the best use of existing infrastructure, would result in unnecessary duplication and expenditure and would require the transfer, by road tanker, of large quantities of untreated sewage sludge presently generated at Cog Moors to the alternative site.
- 3.20 In addition, the existing anaerobic digestion facilities at Cog Moors WwTW have operated for a number of years and DCWW has assembled a trained local workforce at the site with a wealth of experience in operating the digestion processes. This trained and experienced workforce could be lost, if the proposed AAD plant was to be developed elsewhere

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- 3.21 For the reasons outlined above, DCWW proposes to develop the proposed AAD plant at Cog Moors WwTW, to accept and treat both indigenous sewage sludge and some of the dewatered sewage sludge arisings from other “satellite” WwTW sites in South Wales, in accordance with the Company’s Sludge Strategy.
- 3.22 Sludge from the “satellite” sites will be transported to either Afan, Cardiff or Cog Moors WwTW. The actual site chosen will generally be based on the shortest distance (to minimise the effect of vehicle movements) but during short, infrequent periods of plant maintenance at Cog Moors, Afan or Cardiff, when that site is out of service, sludge will be transported to the nearest available site.
- 3.23 The traffic movements associated with the transfer of sludge by road tanker from “satellite “ sites to Cog Moors WwTW are addressed in the Transport Statement that forms part of the current planning application.
- 3.24 The proposed development will result in sustainability benefits and economies of scale in both capital and operational costs. As a not-for-profit company without shareholders, DCWW passes these economic benefits on to its customers, in terms of reduced water charges and re-investment back into the business for further service improvements.

The Proposed AAD Plant

- 3.25 The proposed AAD plant will operate in conjunction with the existing sewage sludge treatment facilities and is located, therefore, on the eastern side of the existing Cog Moors WwTW, adjacent to the existing sewage sludge treatment infrastructure.
- 3.26 Part of the proposed AAD plant would be located within the existing operational area of the WwTW. The balance of the proposed development would be sited immediately to the east of the existing operational area, on an area of woodland, scrub and ruderal vegetation.
- 3.27 As the engineering design of the proposed AAD plant has progressed mitigation measures have been incorporated to reduce the potential impact of the proposed development on the surrounding area.
- 3.28 A compact layout has been adopted, in order to avoid the loss of individual trees located along the north eastern boundary of the site, which are the subject of a Tree Preservation Order (TPO), and to minimize the loss of an area of woodland immediately to the east and south east, which is also the subject of a TPO.
- 3.29 The height of the proposed tanks and other structures has been reduced commensurate with process requirements, in order to minimize their landscape and visual impacts.
- 3.30 In addition, DCWW has had regard to comments received from local councilors and other consultees and, following further pre-application consultations with Natural Resources Wales, the height of the proposed combined CHP/boiler stack has been reduced significantly, whilst still ensuring that predicted emissions are well below UK Government and EU Regulation objectives which are set to protect human health.
- 3.31 The proposed development will provide for:
- Additional digestion capacity;

- Conditioning of the sludge generated on the site, (dewatering and removal of contaminating rags and plastic);
- Reception facilities for sludge imported to the site from satellite WwTWs;
- Blending of the indigenous sludge and imported sludge;
- A thermal hydrolysis plant (THP), which uses steam to increase the temperature and pressure in a reaction vessel to pre-treat the sludge;
- A siloxane plant to remove contaminants from the biogas generated;
- A combined heat and power (CHP) plant to generate useable heat and electricity, which can be used on site, exported to the grid, or both.
- A UV plant to treat some of the final effluent water from the WwTW, in order to provide process water for the THP sludge preparation;
- Tanks to hold sludge and liquor, resulting from the thickening and dewatering processes;
- A cake storage silo;
- Odour control equipment;
- New internal site access roads and drainage;
- Site clearance and earthworks and new fencing;
- New MCC equipment and control kiosks; and
- Appropriate mitigation planting and ecological mitigation measures;

3.32 The dimensions of the proposed development are indicated in the tables below:

Proposed Building Structure	Dimensions (m) *
Indigenous Dewatering Building	23.0(l) x 14.5(w) x 12.7(h)
Boiler House	19.5(l) x 13.7(w) x 8.0(h)
Final Dewatering Building	30.5(l) x 14.5(w) x 12.7(h)
Disinfected FE Building	15.0(l) x 10.0(w) x 5.0(h)
MCC1 Kiosk	15.0(l) x 5.0(w) x 4.5(h)
HV Switchgear Building	10.0(l) x 4.0(w) x 6.6(h)
LVDB and MCC3 Building	20.0(l) x 6.0(w) x 6.6(h)
Natural Gas Meter Kiosk	3.0(l) x 2.0(w) x 2.4(h)
Wash Water Booster Kiosk	3.2(l) x 3.2(w) x 2.8(h)
Wheel Wash Control Kiosk	4.0(l) x 4.0(w) x 2.9(h)

Proposed Plant and Machinery	Dimensions (m) *
SAS Tanks A and B	2No – 12.5(d) x 11.3(h)
Primary Strainpress	8.5(l) x 6.0 (w) x 12.6(h)
SAS Strainpress	9.0(l) x 6.5(w) x 12.1(h)
Centrifuge Feed Pumps	11.5(l) x 6.0(w) x 1.5(h)
Centrifuge Feed Tanks	2No – 10.0(d) x 13.2(h)
Cake Imports Facility	20.0(l) x 13(w) x 5.2(h)
THP Feed Silos A and B	2No – 7.0(d) x 15.4(h)
THP Plant	24.0(l) x 14.0(w) x 8.8(h)
Cooling Plant	19.0(l) x 9.0(w) x 3.1(h)
Secondary Digester Tanks C and D	2No – 15.0(d) x 12.5(h)
Gas Holder	18.0(d) x 14.0(h)
Flare Stack	6.5(l) x 4.0(w) x 8.6(h)
Siloxane Plant	10.0(l) x 8.0(w) x 3.2(h)

CHP Plant	17.0(l) x 12.5(w) x 2.8(h)
Post Digestion Tank	16.5(d) x 5.7(h)
Wash Water Tank	5.0(d) x 8.3(h)
Final Effluent Holding Tank	8.5(d) x 12.2(h)
Disinfected FE Storage Tank	8.5(d) x 12.5(h)
Liquor Balance Pumping Station	4.0(d) x 0.3(h)
Transformers	10.0(l) x 5.0(w) x 2.9(h)
Export Silos A and B	2No – 10(d) x 14.9(h)
Odour Control Unit A	15.0(l) x 10.0(w) x 5.0(h)
Odour Control Unit C	19.5(l) x 14.0(w) x 4.8(h)
Stack	3.5(d) x 18.0(h)
Polymer Silos	15.0(l) x 10.0(w) x 6.5(h)
Weighbridge	18.0(l) x 2.5(w) x 0.1(h)
FE Feed Pumping Station	5.0(l) x 3.0(w) x 0.3(h)

* Height indicated is measured from ground level. (NB Scheme drawings show heights Above Ordnance Datum (AOD)).

- 3.33 The proposed development will not involve the use of any hazardous substances in notifiable quantities.
- 3.34 Prior to digestion, raw sludge from the storage tanks would be filtered through strainpresses, where screenings such as leaves, sticks and other inert material would be separated and discharged to a skip. A total of four strainpresses are proposed along with a maximum of four associated skips.
- 3.35 Following filtering, via the strainpresses, the sludge will be moved to Blending Tanks and dewatered by means of a centrifuge; the dewatered indigenous sludge will then be mixed with imported sludge in the THP Feed Silos.
- 3.36 The combined sludge will be transferred to the THP unit where it will be heated to approximately 165 degrees Celsius and pressurised to 6 bar for 20 to 30 minutes before undergoing anaerobic digestion.
- 3.37 The biogas produced by the proposed AAD plant will be used by a combined heat and power (CHP) plant and boiler, to generate heat and renewable electricity, for use on site or for export to the electricity grid.
- 3.38 The residual liquors, following digestion, would be returned to the WwTW inlet works for treatment.
- 3.39 The sludge cake would be recycled to farmland as a high-value and sustainable fertilizer.
- 3.40 The sludge cake at Cog moors will be stored in a cake silo before off-site recycling. A silo is a contained tank under which a sludge tanker is driven. Sludge is dropped from the silo directly into the vehicle, via a sliding door mechanism, and taken to agricultural land.
- 3.41 The colours of the proposed buildings and structures have been carefully selected in response to the semi-rural landscape context of the proposed development and the appearance of the existing structures and colours, with the use, predominantly, of muted green and grey colours for building/structure exteriors.

- 3.42 Areas of landscape that are temporarily disturbed during construction would be restored on completion. In order to accommodate the proposed scheme within the local landscape, the following mitigation measures are proposed;
- New woodland planting in the south east of the proposed development,
 - Small pocket of individual tree planting near site entrance, and
 - Minimise lighting spill on new structures by;
 - i. There will be no change of lighting features on existing structures;
 - ii. There will not be any permanently lit flood lighting of the stack. An access platform on the stack will be used for routine maintenance and will have the appropriate task lighting installed, but this will usually be once a year activity;
 - iii. Use of latest lighting technology to reduce light spill;
 - iv. Emergency lighting will only be used at night when necessary, and
 - v. The intelligent exterior lighting would normally be switched off between 7pm and 7am, subject to routine maintenance/emergency works/operational need and the lighting activation would be linked to motion sensors to maximise efficiency.
- 3.43 Odour control measures will be included as part of the proposed development and will serve to mitigate any potential impact to the local community.
- 3.44 Noise attenuation measures will be included as part of the design to ensure that noise disturbance does not arise at the nearest sensitive receptors.
- 3.45 Emissions from the proposed stack will be carefully controlled to ensure that air quality standards are satisfied.
- 3.46 Ecological mitigation measures, including the provision of compensatory habitat and habitat management, will be implemented in order to offset any potential harm to flora and fauna of nature conservation importance and, where appropriate, will be subject to licence controls exercised by Natural Resources Wales. A biodiversity strategy will be adopted and a habitat management plan will be implemented.
- 3.47 Temporary construction compounds would be sited on an area of mown grassland, immediately adjacent to the existing final settlement tanks, and on an area of grassland to the east of the proposed AAD plant. The temporary construction compound sites would be re-instated, in accordance with an agreed scheme, upon completion of the development.
- 3.48 Vehicular access to the proposed development would continue to be gained from the A4055 via Green Lane.
- 3.49 An AAD plant produces a significantly reduced volume of sludge cake from a similar volume of sewage sludge than a standard anaerobic digester. Consequently, once operational, the proposed development would result in a minor numerical increase only in HGV movements, notwithstanding the import of dewatered sludge from “satellite” sites.

4 THE DEVELOPMENT PLAN AND OTHER MATERIAL CONSIDERATIONS

The Development Plan

- 4.1 The statutory Development Plan for the area within which the application site is located comprises the Vale of Glamorgan Local Development Plan 2011 – 2026 (“the LDP”), which was adopted on 28th June 2017.
- 4.2 The application site is unallocated on the LDP Proposals Map and is situated in an area of open countryside outside of the settlement boundaries of both Dinas Powys and Sully.
- 4.3 A Site of Importance for Nature Conservation (SINC 299) extends around the eastern and southern boundaries of the WwTW and includes part of the application site.
- 4.4 A second Site of Importance for Nature Conservation (SINC 154) is situated at Pop Hill, immediately to the north of the WwTW site.
- 4.5 The Cog Moors Site of Special Scientific Interest (SSSI), is located immediately to the south and west of the application site.
- 4.6 The application site is located within a wider area which comprises Sand and Gravel Category 2 area. In addition, the rising ground to the east of the WwTW is situated within a Limestone Category 2 area.
- 4.7 Strategic Policy SP9 acknowledges the local and regional need for the provision of a continuous supply of minerals and confirms that this will be achieved by, inter alia, safeguarding known resources of limestone and sand and gravel (where these occur outside settlements).
- 4.8 Strategic Policy SP10 deals with the Built and Natural Environment and states that;
“Development proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including:
1. The architectural and / or historic qualities of buildings or conservation areas, including locally listed buildings;
2. Historic landscapes, parks and gardens;
3. Special Landscape Areas;
4. The Glamorgan Heritage Coast;
5. Sites designated for their Local, National and European nature conservation importance; and
6. Important archaeological and geological features. “
- 4.9 Managing Growth Policy MG20 relates to nationally protected sites and species and confirms that:
“Development likely to have an adverse effect either directly or indirectly on the conservation value of a Site of Special Scientific Interest will only be permitted where it is demonstrated that:
1. There is no suitable alternative to the proposed development; and
2. It can be demonstrated that the benefits from the development clearly outweigh the special interest of the site; and

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3. *Appropriate compensatory measures are secured; or*
 4. *The proposal contributes to the protection, enhancement or positive management of the site.*

Development proposals likely to affect protected species will only be permitted where it is demonstrated that:

1. *The population range and distribution of the species will not be adversely impacted;*
2. *There is no suitable alternative to the proposed development;*
3. *The benefits of the development clearly outweigh the adverse impacts on the protected species; and*
4. *Appropriate avoidance, mitigation and compensation measures are provided.”*

- 4.10 Managing Development Policy MD7 addresses Environmental Protection and states that: *“Development proposals will be required to demonstrate they will not result in an unacceptable impact on people, residential amenity, property and/or the natural environment from either:*

1. *Pollution of land, surface water, ground water and the air;*
2. *Land contamination;*
3. *Hazardous substances;*
4. *Noise, vibration, odour nuisance and light pollution;*
5. *Flood risk and consequences;*
6. *Coastal erosion or land stability;*
7. *The loss of the best and most versatile agricultural land; or*
8. *Any other identified risk to public health and safety.*

Where impacts are identified the Council will require applicants to demonstrate that appropriate measures can be taken to minimise the impact identified to an acceptable level. Planning conditions may be imposed or legal obligation entered into, to secure any necessary mitigation and monitoring processes.

In respect of flood risk, new developments will be expected to avoid unnecessary flood risk and meet the requirements of TAN 15. No highly vulnerable development will be permitted within Development Advice Map (DAM) Zone C2. Development will only be permitted in areas at risk of flooding where it can be demonstrated that the site can comply with the justification and assessment requirements set out in TAN 15”.

- 4.11 Policy MD8 deals with the protection of the Historic Environment and confirms that development proposals must preserve and enhance the character of listed buildings and their setting.

- 4.12 Managing Development Policy MD19 relates to low carbon and renewable energy generation and indicates that

“Proposals for the generation of low carbon and renewable energy will be permitted where it can be demonstrated that there is no unacceptable impact on the interests of:

- *Best and most versatile agricultural land;*
- *Aviation safeguarding;*
- *Electrical, radio or other communication systems;*
- *Landscape importance;*

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- *Natural and cultural heritage;*
 - *Nature conservation;*
 - *Residential amenity; and*
 - *Soil conservation.*

In assessing such proposals, the cumulative impacts of renewable energy schemes will be an important consideration. Where necessary, proposals should be informed by a landscape and visual impact assessment.

Favourable consideration will be given to proposals that provide opportunities for renewable and low carbon energy and / or heat generation to be utilised within the local community.”

- 4.13 The explanatory text to Policy MD19 states that *“Policy MD19 seeks to favour low carbon and renewable energy schemes, where appropriate. These technologies include onshore wind, landfill gas, energy crops, efficient energy from waste processes, anaerobic digestion, sewage gas, hydropower, biomass, solar energy, combined heat and power and buildings with integrated renewable sources e.g. solar power”*.
- 4.14 Policy MD20 deals with the assessment of waste management proposals and confirms that development proposals for waste management facilities will be permitted, inter alia, where:
- The proposal has regard to the waste hierarchy, proximity principle and the requirements of the waste framework directive;
 - It is demonstrated that the development would not result in unacceptable harm to health, the environment or to the amenity of neighbouring land uses; and
 - Where the principal road network has adequate capacity, to accommodate the transport movements associated with the proposal.

Planning Policy Wales

- 4.15 Planning Policy Wales (Edition 9) (“PPW”) was updated most recently in November 2016 and sets out the land use policies of the Wales Government.
- 4.16 PPW confirms that there should be a presumption in favour of sustainable development in taking decisions on individual planning applications, in order to ensure that social, economic and environmental issues are balanced and integrated.
- 4.17 PPW confirms that *“tackling climate change is a fundamental part of delivering sustainable development. Climate change is one of the most important challenges facing the world and the Welsh Government has made a commitment to tackling climate change, resolving that the Government and people of Wales will play the fullest possible part in reducing its carbon footprint”*.
- 4.18 PPW advises that local planning authorities should facilitate the development of all forms of renewable and low carbon energy to move towards a low carbon economy to help to tackle the causes of climate change. In determining planning applications for renewable and low carbon energy development and associated infrastructure, local planning authorities are required to take into account, inter alia:

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- The wider environmental, social and economic benefits and opportunities from renewable and low carbon energy development;
 - The impact on the natural heritage and the Historic Environment;
 - The need to minimise impacts on local communities to safeguard quality of life for existing and future generations;
 - Ways to avoid, mitigate or compensate identified adverse impacts; and
 - The capacity of and effects on the transportation network relating to the construction and operation of the proposal.

4.19 PPW also confirms that the Welsh Government wishes to encourage Combined Heat and Power (CHP) schemes as part of the imperative to reduce carbon emissions.

Towards Zero Waste

4.20 Towards Zero Waste was published in June 2010 and is the Wales Government's overarching Strategy Document for Waste.

4.21 The Strategy sets out a long term framework for Wales that describes the social, economic and environmental outcomes that resource efficiency and waste management will achieve and how they will contribute to a sustainable future.

4.22 The Towards Zero Waste Progress Report, published in July 2015, acknowledges the contribution that anaerobic digestion can make in reducing waste and greenhouse gas emissions

Technical Advice Note 5 on Nature Conservation and Planning (TAN5)

4.23 TAN5 was published in 2009 and confirms that biodiversity conservation and enhancement is an integral part of planning for sustainable development.

4.24 It is acknowledged that the use and development of land can pose threats to the conservation of natural features and wildlife but, equally can also present significant opportunities to enhance wildlife habitats and the enjoyment and understanding of the natural heritage.

4.25 When deciding planning applications that may affect nature conservation, TAN5 advises that local planning authorities should, inter alia:

- pay particular attention to the principles of sustainable development, including respect for environmental limits;
- contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems;
- promote the conservation and enhancement of statutorily designated areas;
- ensure that appropriate weight is attached to designated sites of international, national and local importance;
- protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action;

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- ensure that the range and population of protected species is sustained; and,
 - adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation.

Technical Advice Note 8: Planning for Renewable Energy (TAN8)

- 4.26 TAN8 was published in 2005 and addresses the land use planning considerations of renewable energy.
- 4.27 With regard to anaerobic digestion, TAN8 acknowledges that the siting of biogas plant and the associated energy generation equipment is dependent upon the source of the digestate and that, in the case of sewage, the plant is almost certain to be within a wastewater treatment works.
- 4.28 TAN8 confirms that planning applications will need to be carefully assessed and planning permissions adequately conditioned to ensure good practice is followed and nuisance avoided.
- 4.29 Nevertheless, local planning authorities are advised to adopt policies for larger wastewater treatment works to include anaerobic digestion facilities with a positive utilisation of the methane fuel.

Technical Advice Note 11: Noise (TAN11)

- 4.30 TAN11 was published in 1997 and:
- Outlines the considerations, relating to noise, to be borne in mind when determining planning applications for both developments which will generate noise and those that will be noise sensitive;
 - Presents the Noise Exposure Category (NEC) method of determination for residential developments; and,
 - Advises on the use of conditions and measures that could be implemented to minimise noise impacts.
- 4.31 TAN11 states the following with regard to development that has the potential to generate noise:
- “Local planning authorities must ensure that noise generating development does not cause an unacceptable degree of disturbance. They should also bear in mind that if subsequent intensification or change of use results in greater intrusion, consideration should be given to the use of appropriate conditions.”*

Technical Advice Note 15: Development and Flood Risk (TAN15)

- 4.32 TAN15 was published in 2004 and provides a framework within which risks arising from both river and coastal flooding, and from additional run-off from development in any location, can be assessed.

- 4.33 The guidance indicates that less vulnerable development should be subject to both a Justification Test and consideration of the acceptability of the flood consequences of the proposal.

Technical Advice Note 21: Waste (TAN21)

- 4.34 TAN21 was published in 2014 and provides guidance on the role of land use planning in the management and control of waste.
- 4.35 TAN21 emphasizes the importance of the waste hierarchy, with priority being given firstly to waste prevention, followed by re-use, recycling, energy recovery and, finally, to disposal.
- 4.36 Local planning authorities are encouraged to support the development of appropriate energy recovery options for the optimal recovery of energy from residual waste. In particular, local planning authorities are advised that combined heat and power, and heat only options, should be considered favourably where they meet high energy efficiencies.

5 REVIEW OF THE PLANNING ISSUES

- 5.1 The principle of the proposed development is fully supported by the provisions of Planning Policy Wales, which seek to promote renewable energy as part of the Welsh Government's overarching objectives regarding sustainability and climate change, and by TAN8 and Policy MD19 of the Vale of Glamorgan LDP.
- 5.2 The proposed development provides for the recycling of waste through the production of a high quality fertilizer and soil improver, and the recovery of renewable energy from waste. Thus, the proposed development accords with the waste hierarchy and is supportive of the Welsh Government's "Towards Zero Waste" strategy, the provisions of TAN21 and LDP Policy MD20.
- 5.3 The noise assessment that forms part of the planning application demonstrates that, with the application of appropriate mitigation measures, the noise generated by the proposed AAD facility would not be considered detrimental to the amenity of the nearest noise sensitive receptor locations. The proposed development, accords, therefore, with the guidance contained in TAN11.
- 5.4 The Odour Assessment that forms part of the planning application indicates that the receptors which are located closest to the site, are expected to experience an improvement in odour emissions from sludge works with the proposed Scheme in operation, whilst other receptors located within 1km of the site are expected to experience an imperceptible change in odour concentrations. Overall, the proposed development is predicted to slightly improve odour concentrations from the site.
- 5.5 The Air Quality assessment that forms part of the planning application indicates that that the proposed AAD plant will not lead to exceedances of air quality objectives at human receptors, and that pollutant concentrations are expected to be well below air quality objectives with the operation of the proposed development. There are therefore expected to be no significant air quality effects at human receptors as a consequence of the proposed development.
- 5.6 The Air Quality assessment also considered air quality effects at ecological receptors, including Cog Moors Site of Special Scientific Interest (SSSI), which is located adjacent to the WwTW. The impacts of the operation of the proposed AAD plant on air quality and nitrogen and acid deposition at ecological receptors are not expected to be significant.
- 5.7 The Flood Consequences Assessment that forms part of the planning application classifies the proposed development as "less vulnerable development". The majority of the Cog Moors WwTW site is located in Flood Zone C2, however, a large portion of the proposed development has been located within the lower risk Flood Zone B. It is considered that the proposed development would satisfy the Justification Test, since it requires a location adjacent to the existing sludge treatment facilities and would result in significant sustainability and climate change benefits. In addition, the consequences of flooding at the site are considered to be negligible. Consequently, the proposed development is considered to satisfy the requirements of TAN15.

- 5.8 The lighting of the proposed development will be carefully controlled to ensure that lighting spill is minimised, commensurate with health and safety requirements and good working practices.
- 5.9 Thus, the proposed development will not result in an unacceptable impact on people, residential amenity, property and/or the natural environment from surface water, the air, hazardous substances, noise, odour, light pollution or flood risk and is, therefore, compliant with the requirements of LDP Policy MD7.
- 5.10 The Ecological Assessments that have been submitted as part of the planning application demonstrate that, subject to appropriate mitigation and management, the proposed development is unlikely to have a significant adverse long term impact on designated sites of nature conservation importance. In addition, compensatory dormouse habitat will be established on land top the north of Green Lane in order to mitigate potential adverse impacts on this protected species. Consequently, the proposed development accords with the provisions of TAN5 and LDP Policy MG20.
- 5.11 The Landscape and Visual Impact Assessment that forms part of the planning application notes that existing vegetation cover and built form in the local landscape are such that the proposed development is anticipated to be primarily visible from properties, Public Rights of Way, and roads within 0.5km.
- 5.12 Due to the presence of existing woodland and hedgerows, the majority of the proposed infrastructure would be apparent from limited vantage points within the locality, with only the exhaust stack being visible beyond this. This results in there being minor visual impacts from the majority of viewpoints, with moderate/major impact occurring from the viewpoints closest to the proposed development.
- 5.13 In addition, the Assessment concludes that existing vegetation and proposed planting would serve to strengthen existing landscape characteristics, and help to integrate the proposals within the surrounding landscape. Overall, the landscape and visual effects of the proposed development are considered to be moderate adverse during construction and operation.
- 5.14 Downs Farm is a Grade II listed building and is situated approximately 230m to the east of the proposed development. At this distance, it is considered that the proposed development is unlikely to materially affect the setting of Downs Farm and is, therefore compliant with LDP Policy MD8.
- 5.15 There are other Grade II listed buildings located at Cog Road and Swanbridge Road (Cog Farm and Nicells) and, whilst parts of the proposed development may be visible from these properties, its impact upon the setting of those listed buildings is not considered to be significant
- 5.16 The Glamorgan–Gwent Archaeological Trust has previously advised DCWW that *“an archaeological watching brief was conducted by GGAT Contracts during the construction of the Treatment Works in 1996. The watching brief monitored both topsoil stripping and the large-scale excavation of the site and encountered no archaeologically significant remains.*

As a result, it is our opinion that it is unlikely there will be a significant impact on the buried archaeological resource by the proposed development”.

- 5.17 Thus, the proposed development will safeguard the built and natural environment and heritage of the Vale of Glamorgan, including listed buildings, sites of local and national importance for nature conservation and will not have any impact upon any conservation areas, historic landscapes, parks and gardens, Special Landscape Areas, the Glamorgan Heritage Coast or important archaeological and geological features. Consequently, the proposed development is considered to be compliant with LDP Strategic Policy SP10 and Policy MD19.
- 5.18 Although the proposed development will encroach slightly into the Sand and Gravel and Limestone safeguarding zones, the quantity of mineral resource that would be sterilised is relatively small. In addition, the limited sterilisation of the mineral resource is far outweighed by the sustainability, renewable energy and climate change benefits that would flow from the proposed development. Consequently the proposed development is considered to be acceptable under Strategic LDP Policy SP9.

6. CONCLUSIONS

- 6.1 The proposed AAD Plant will facilitate the generation of renewable energy and will make a positive contribution towards the reduction of climate change.
- 6.2 The development is fully in accordance with the provisions of Planning Policy Wales, the Towards Zero Waste strategy, relevant Technical Advice Notes and the statutory Development Plan for the area.
- 6.3 The proposed development will include a range of mitigation measures, including the provision of compensatory dormouse habitat, and will not result in material harm to interests of acknowledged importance.
- 6.4 The local planning authority is requested, therefore, to grant planning permission for the change of use of land as an extension to the existing wastewater treatment works site and to provide compensatory dormouse habitat and for the construction of an Advanced Anaerobic Digestion (AAD) Plant, together with associated landscaping and mitigation measures and the formation of a temporary construction compound at Cog Moors Wastewater Treatment Works (WwTW), Cardiff Road, Dinas Powys (Application Ref: 2017/01203/FUL).

