

Cerys Jones

From: Philip Forster
Sent: 30 November 2016 09:39
To: planning_admin
Subject: FW: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

NRW response

From: Philip Forster
Sent: 30 November 2016 09:38
To: 'North Planning'
Subject: RE: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Hello Gareth,

Yes that's absolutely fine.

Phil

From: North Planning [mailto:NorthPlanning@cyfoethnaturiolcymru.gov.uk]
Sent: 30 November 2016 09:16
To: Philip Forster
Subject: RE: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Hello Phil,

Looks like we'll probably need more time on this application, before I get all internal consultee responses back. Any chance of an extension from Monday 5th December until Friday, 9th December?

Regards,

Gareth Thomas
NRW
0300 065 3786

----- Original Message -----

From: Philip Forster
Received: 23/11/2016
To: North planning; North Planning Mailbox Queue
Subject: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Hello Gareth,

My apologies, it hadn't been selected to go onto the web. It should be there now or in the next hour when the system refreshes.

Phil

From: North Planning [<mailto:NorthPlanning@cyfoethnaturiolcymru.gov.uk>]
Sent: 23 November 2016 09:43
To: Philip Forster
Subject: FW: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Hi Phil,

Thanks for the formal consultation on this application on Monday. The agents sent through information to us directly in emails dated 3rd and 8th November. That information is not on the WCBC website. Could you please confirm if you also wish for the emails of the 3rd and 8th November and the information contained to be considered within this consultation, in addition to the ecological information added to your website.

Thanks,

Gareth

From: Thomas, Gareth
Sent: 08 November 2016 15:46:37 (UTC+00:00) Dublin, Edinburgh, Lisbon, London
To: Philip Forster
Subject: RE: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Noted, thanks Phil,

Gareth

From: Philip Forster [<mailto:Philip.Forster@wrexham.gov.uk>]
Sent: 08 November 2016 15:40
To: Thomas, Gareth <Gareth.Thomas@cyfoethnaturiolcymru.gov.uk>
Subject: RE: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Hello Gareth,

Leave this one with me to sort out the paperwork and then I will formally write to you with a reconsultation request. Hold off for now.

Cheers

Phil

From: Thomas, Gareth [<mailto:Gareth.Thomas@cyfoethnaturiolcymru.gov.uk>]
Sent: 08 November 2016 13:33
To: Philip Forster
Cc: Dave@plattwhite.co.uk; North Planning
Subject: FW: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Dear Philip,

Could you please confirm whether you consider the information within Dave Lamb's email today, and previous email on 3rd November to be formal consultation by WCBC with NRW, further to our previous response dated 26th July 2016?

Regards,

Gareth

Gareth Thomas

Ymgynghorydd Cynllunio Datblygiad / Development Planning Adviser

Cyfoeth Naturiol Cymru / Natural Resources Wales

Ffôn/Tel: (0300) 065 3786 **Siaradwr Cymraeg / Welsh Speaker** 

E-bost/E-mail:

Gareth.Thomas@cyfoethnaturiolcymru.gov.uk Gareth.Thomas@naturalresourceswales.gov.uk

cyfoethnaturiol.cymru / naturalresources.wales

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Croesewir gohebiaeth yn y Gymraeg a'r Saesneg / Correspondence welcomed in both Welsh and English.

From: Dave Lamb [<mailto:Dave@plattwhite.co.uk>]

Sent: 08 November 2016 11:00

To: Philip Forster <Philip.Forster@wrexham.gov.uk>

Cc: Thomas, Gareth <Gareth.Thomas@cyfoethnaturiolcymru.gov.uk>

Subject: P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Philip

Scaill assessment attached, I have copied to Gareth at NRW.

This is the final piece of information

Regards

Dave

From: Dave Lamb

Sent: 03 November 2016 10:58

To: 'Philip Forster' <Philip.Forster@wrexham.gov.uk>

Cc: 'Gareth.Thomas@cyfoethnaturiolcymru.gov.uk' <Gareth.Thomas@cyfoethnaturiolcymru.gov.uk>

Subject: P/2016/0590 - P/2016/0590 - ADJACENT TO RACKERY COTTAGE, LAND OFF RACKERY LANE, LLAY - NRW Response NRW:00960676

Philip

See below for responses to the requirements of NRW

I have spoken to Gareth At NRW and copied him.

The only outstanding piece of info is the SCAIL assessment (requirement 5) and I will send this as soon as I receive it which should be in the next 2-3 days

Regards

Dave

Requirement 1

The maximum number of birds that will be placed at the site is 20000 (3333 / shed). This is significantly below the stocking density allowed under Defra codes of recommendations which is 28800 based on the available floor area.

Requirement 2

The design of the treatment system has been based on the characterisation of the stored combined wash-off and Klargesten discharge as:

BOD 106mg/l

Phosphorus 47mg/l

Ammonia 161mg/l

Levels of nitrogen recorded at similar installations have been generally found to be 'low' – for example see analysis sheet dated 22/05/07 which is typical of the stored waters, where the nitrate nitrogen level was 20mg/l.

Given the design of the wetland used a 95% reduction rate for all the above parameters based on a loading of 3gBOD/m²/day, the anticipated effluent would be approximately:

BOD 5mg/l

Phosphorus 2mg/l

Ammonia 8mg/l

Nitrate nitrogen 1mg/l.

However, these figures are based on the microbiological degradation and physical adsorption of the pollutants within the wetland cells and do not take account of the passive aeration systems that are integrated into the treatment area, including stepped aeration at a number of points within the wetland. This would therefore lead to improved discharge quality over that indicated above.

It should be also kept in mind that the delivery of the wastewater to the wetland is at a very low rate thereby allowing a long retention time for treatment within the wetlands. In addition, because the wetland is currently defined as operating for only 4 months of the seven months treatment cycle the opportunity exists for recirculation of the effluent from outlet to inlet should there be any concern that the effluent standard is not appropriate. When the wetland is being operated in the summer months there may be occasions of zero discharge, and during winter months if the effluent is not sufficiently treated then recirculation of the water would be adopted.

All these factors together provide for a robust system to ensure effluent from the wetland has minimum potential environmental impact.

Reference has been made to the issue of hazardous substances in the stored wash water and the risk of their discharge into the environment. We are assuming this relates to the use of the disinfectant Virkon LSP. This disinfectant is used on a 7 month cycle after the accumulated litter has been removed and the rearing pens

have been washed down with detergent. The disinfectant is applied to the dry surfaces until they are completely saturated. During the following 7 months the disinfectant compounds will naturally degrade and the residual materials are washed-off (and diluted) during the wash down period, the runoff being contained within the storage tank. The critical disinfectant constituents which could be hazardous in the environment are phenolic substances and associated acids. Analysis of the wash water has shown levels of phenol ranging from 0.13mg/l to <0.1mg/l. Once stored within the tank there would be a 4 month period when the combined wash waters and effluent from the Klargestar are pumped to the treatment wetlands at a rate of around 1.08m³/day. This could create a loading of phenol to the treatment wetland of 0.14g/day. Wetland treatment systems are capable of degrading phenols and research by Kadlec and Srinivasan (1995 – Wetland Treatment of Oil and Gas Well Wastewaters Final Report DOE/MT/92010-90, US Department of Energy) has established a treatment rate of 0.55g/m²/day. Given the wetland treatment footprint would be in the order of 117m² then there is sufficient capacity within the system to effectively degrade any residual phenolic wastes. The treatment wetland also has the advantage of being able to accelerate the volatilisation of phenols via the stepped aeration system within both the reedbed and wet woodland cells. Routine analysis of the combined wash waters and Klargestar discharge has shown that the phenols in the water breaks down during storage in the tank giving yet further reductions to phenols in the water that would be treated in the wetland system.

In terms of residual acids from the disinfectants it would appear from sample analysis that these are buffered-out by other substances in the wash waters and Klargestar discharge. There is a consistent record pH values at or around 7.

Requirement 3

With wetland treatment systems it is normal to produce a detailed management plan once the wetland is commissioned. In this way it is possible to ensure that operational characteristics of the system are accounted for in the routine maintenance programme. However, it is possible to provide an outline of the operations and timings that would be appropriate for this particular system, these would include the following:

- During the first month of operation the wetland would be visited once a day to inspect all inlet, outlet and control systems to ensure clear, unobstructed flow; water levels across the reedbeds and willow beds would be checked and adjusted as appropriate; reed growth and willow growth would be noted and should die-back occur in more than 10% of the reed or willow, replanting of the gaps would be considered.
- During the first month the effluent disposal system would be checked daily (the disposal rate would range from a minimum of 17 litres/hour to a maximum of 89 litres/hour depending on the time of year the 4 month operating cycle occurs. These rates are very low and may be even less if recirculation is adopted.
- During the first 4 months' operational cycle water quality samples would be taken every 14 to 17 days (based on the retention calculations for the system). The results from these samples would be used to adjust the operation of the system.

Once the first 4 month cycle has been completed the management plan would be modified in light of the response of the system. Then a further management plan would be implemented that is likely to include the following elements:

- Weekly check and adjustment, as appropriate on flow control systems and water depth in reedbeds and willow beds. This would include ensuring that algal build up on aeration steps and water level control pipes is cleared and that any evidence of 'short-circuiting' especially in the willow beds is corrected.
- Weekly checks would also be made on plant growth and any die-back, chlorosis (leaf yellowing) or infestations reported.
- Special reporting sheets would be provided for these above operations.
- At the end of each 4 month operational cycle the wetland would be maintained by controlled flows from the surface runoff system from the site. In addition, should the effluent from the wetland during the 4

months operational cycle have been disposed of to spray irrigation or soakaway, these systems would be checked and any issues about their operation reported.

- Each year the effluent from the treatment system would be sampled and analysed on two occasions within the treatment cycle. This information would be reported to the site manager and appropriate adjustments made to the management plan.
- Each year both the reeds and willow would be cut should they begin to spread beyond the operational cells. Any weed growth within the wetlands would be removed; weed growth/grass etc would be removed from around control structures and embankments to the wetlands. All control chambers, aeration steps, water levels control devices would be cleaned and de-silted.
- Each year any die-back of plants would be investigated and replanted as appropriate.
- Each year, outside of the operational cycle the wetlands would be allowed to 'dry out', i.e. receive no additional flows other than rainfall. This will allow oxidation of any sludge build up and retain the subsurface flow conditions of the reedbeds. This also allows for increased degradation of ammonia and nitrate in the wetlands. This process would 'condition' the system ready for the next treatment cycle.

On a five year cycle consideration would be given to the zoned cutting of the willow beds and possibly the reedbeds depending how they have developed in response to the treatment of flows. At this five year review consideration would be given to the replacement of the phosphorus filter zone materials in the willow bed.

At twenty years a major overhaul of the wetland would be considered including the removal and replacement of the gravels and reeds and the de-sludging of the willow beds.

This is only an outline guide of the management approach to the wetlands and when completed the system would have a dedicated maintenance plan with checklist and reporting systems.

Requirement 4

Please see notes under Requirement 2 above.

Requirement 5

Awaited

General comment on wetland system.

The wetland is likely to be built and commissioned at least 7 months before the first need to use it to process the wash water. This is more than adequate for the reedbeds and the willow beds to establish a microbiological assemblage required to allow the beds to operate. In fact it would be part of the commissioning plan that wastewater from the Klargestest would be run into the wetland to provide a 'seed' source of the appropriate microbes necessary for treatment of the combined wastewater from the tank. It is also worth noting that phosphorus adsorption does not rely on the reeds or the willow (although both do absorb/take-up significant amounts of phosphorus) because the phosphorus will be adsorbed onto the surfaces of the clay/brick filter and the soils within the willow bed.



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