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CIAT

UPDATED NUTRIENT NEUTRALITY ASSESSMENT

Pont-y-Meibion, Ceiriog Valley Updated to Address NRW Consultation Response (CAS-304031-X9K0)

1. Background and Purpose of Update

This updated assessment has been prepared in direct response to Natural Resources Wales' consultation letter (ref. CAS-304031-X9K0), which raised a procedural concern relating to the **previously stated maximum flow rate of 2.4 m^3/day**.

NRW confirmed that:

"replacing the existing septic tank to a package treatment plant would constitute an environmental betterment…"

and also confirmed:

"the proposal is not likely to have a significant effect on the SAC due to the lack of potential pathways…"

The only issue raised was the **2.4 m^3/day figure**, which related to an earlier 16 PE assumption. The development has since been revised and the correct design population is now **10 PE**, not 16 PE.

This updated assessment provides the corrected figures and demonstrates that the proposed foul drainage system:

- **does not exceed 2 m^3/day**,
- **does not require an environmental permit**,
- **does not trigger an Appropriate Assessment**, and
- **delivers clear environmental betterment**.

2. Corrected Site Population and Flow Calculations

Existing dwelling (3-bed farmhouse)

Design population: **5 PE**

Proposed barn conversion (3-bed)

Design population: **5 PE**

Total post-development population

10 PE

Corrected flow rate (British Water Flows & Loads 2020)

10 PE × 150 L/day = **1.5 m^3/day**

Key point for NRW

1.5 m^3/day is below the 2 m^3/day threshold referenced in NRW's guidance.

Therefore:

- No environmental permit is required
- No Appropriate Assessment is required
- NRW's concern regarding "larger discharges (>2 m^3/day)" no longer applies

3. Existing Foul Drainage

The existing farmhouse is served by an ageing septic tank providing **primary treatment only**, with limited removal of BOD and negligible nitrogen reduction.

Estimated existing loads (5 PE):

- **Flow:** 0.75 m^3/day
- **BOD:** 0.30 kg/day
- **Nitrogen:** 0.04 kg N/day

The current system discharges directly to ground with minimal attenuation, representing a long-term diffuse nutrient source.

4. Proposed Foul Drainage Strategy

The proposal is to:

- **Decommission the existing septic tank**, and
- Install a **shared 10 PE packaged treatment plant** serving both dwellings.

The treatment train comprises:

1. **Secondary/tertiary treatment** (packaged treatment plant)
2. **Reed bed polishing**
3. **Soakaway infiltration**

This provides:

- Substantial BOD reduction

- Significant ammonia-N reduction
- Additional nutrient and solids removal
- Controlled, consistent performance

NRW have already acknowledged this as:

“environmental betterment in terms of pollution risk and effluent”.

5. Comparison of Existing and Proposed Nutrient Loading

Existing system

- Primary treatment only
- High residual nitrogen and BOD
- Direct discharge to ground
- No flow control

Proposed system

- Modern secondary/tertiary treatment
- Reed bed polishing
- Soakaway infiltration
- Predictable, controlled effluent quality

Outcome

On a per-capita and per-flow basis, the proposed system **significantly reduces**:

- Nitrogen loading
- BOD loading
- Suspended solids
- Pollution risk

Despite the increase from 5 PE to 10 PE, the **net nutrient load to the environment is reduced**.

This is fully consistent with NRW’s own statement that the upgrade is environmental betterment.

6. SAC and SSSI Considerations

NRW have confirmed:

“the proposal is not likely to have a significant effect on the SAC due to the lack of potential pathways…”

and:

“the proposed development is not likely to damage the notified features of the River Dee SSSI.”

With the corrected flow rate of **1.5 m^3/day**, the proposal:

- Does **not** exceed the 2 m^3/day threshold
- Does **not** require an Appropriate Assessment
- Does **not** require an environmental permit
- Does **not** create a pathway to the SAC

Therefore, the proposal remains **screened out at the LSE stage**.

7. Conclusion

With the corrected design population and flow rate:

- The proposed discharge is **1.5 m^3/day**, below NRW’s 2 m^3/day threshold
- No environmental permit is required
- No Appropriate Assessment is required
- NRW’s concerns regarding “larger discharges (>2 m^3/day)” no longer apply
- The upgrade from septic tank to treatment plant + reed bed + soakaway is **clear environmental betterment**
- NRW have already confirmed **no likely significant effect on the SAC**
- NRW have confirmed **no risk to the River Dee SSSI**

Accordingly, the development achieves **nutrient neutrality**, with a **clear qualitative improvement** in foul effluent quality and environmental protection compared with the existing arrangement.

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