











## 7. Phosphorus mitigation calculations - worked example

Calculations based on British Water Code of Practice “Flows & Loads - Sizing Criteria, Treatment Capacity for Sewage Treatment Systems” -

[http://www.britishwater.co.uk/publications/Publications\\_and\\_Technical\\_Guides.aspx](http://www.britishwater.co.uk/publications/Publications_and_Technical_Guides.aspx)

(P.E = Person equivalent)

Background	
Average amount of water per person per day	= 10 litres
Primary treatment (septic tank - standard discharge)	= 10 mg P/litre
Daily discharge of phosphorus (per person) from primary treatment	= 1,00 mg P
Secondary treatment (package treatment plant)	= 5 mg P/litre
Daily discharge of phosphorus (per person) from secondary treatment	= mg P
Proposed Development *	
3-bedroom house	= 5 P.E.
Secondary treatment to be installed	= 5mgP/l
Daily discharge of phosphorus = 900 mg P x 5 P.E.	= <b>3,750 mg P / day</b>
Phosphorus Mitigation**	
Mitigation requires a reduction of 125% of the amount of phosphorus to be discharged from the new development = 125% x 4,500mg P / day	= <b>4,688 mg P / day</b>
Mitigation is proposed by upgrading a septic tank for a named existing 5-bedroom property to a secondary treatment plant.	
5-bedroom house	=7 P.E.
Existing discharge = 1,800 mg P x 7 P.E.	=1,00 mg P / day
Discharge after upgrade = 900 mg P x 7 P.E.	=, mg P / day
Mitigation offered is 12,600 – 6,300	= <b>5,250mg P / day</b>
in excess of the requirements	

\*If a system discharges at lower than 5mg then maintenance arrangements will need to be in place.

Please note that evidence of regular maintenance contracts must be provided as part of a Water Use Licence from SEPA.

\*\*Mitigation calculations should not be based on percentile figures.

## 8. Why 125%?

Bearing in mind the Precautionary Principle and the fact that the measurement of potential phosphorus output is not an exact science, then mitigation measures must seek to exclude from the catchment area in excess of the phosphorus likely to be generated by the proposed development in order to be sure that there is no net increase.



## 9. SEPA authorisation

SEPA regulates discharges to water and land under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR). Please note that additional authorisation for development activities adjacent to, and in the vicinity of watercourses may be required under the Controlled Activities Regulations. A higher level of licence protection may be required for activities that may impact on the loch SPA, such as engineering works in inland waters, water abstraction, impoundment or discharge to land and water. Any such authorisation will also need to first consider the effects on the SPA.

Details on all these activities are available via the following links:

[http://www.sepa.org.uk/water/water\\_publications.aspx](http://www.sepa.org.uk/water/water_publications.aspx)

Information on CAR licence requirements:

[http://www.sepa.org.uk/customer\\_information/water.aspx](http://www.sepa.org.uk/customer_information/water.aspx)

Activities should also ensure compliance with SEPA's Pollution Prevention Guidelines, available at:

[http://www.sepa.org.uk/about\\_us/publications/guidance/ppgs.aspx](http://www.sepa.org.uk/about_us/publications/guidance/ppgs.aspx)

## 10. Once Planning Permission is granted

Before the development can commence you must:

- Obtain a CAR licence(s) under the Water Environment (Controlled Activities)(Scotland) Regulations 2011 for the foul water discharge associated with the development.
- submit copies of these to the Planning Authority and
- Have a receipt for the above documentation from the Planning Authority.

If the phosphorus mitigation measures are to be delivered at a location separate from the development site then before the development can commence:

- The phosphorus mitigation measures must be installed – and approved by Building Standards (if a building warrant has been required) or for watercourse discharge SEPA responsible for inspection of outfall from treatment plant.

Before the completion certificate will be accepted and the new development can be occupied:

- The new drainage infrastructure installation at development site must be approved by Building Standards as part of building warrant process. (For watercourse discharge SEPA responsible for inspection of outfall from treatment plant.)



## 11. Further information required

Although this guidance is specifically for the water quality of Loch Leven SPA and Ramsar site, there may be other natural heritage interests such as protected species affected by development proposals which also need to be considered. Further information is available in the Scottish Planning Policy: <http://www.scotland.gov.uk/Publications/2010/02/03132605/0>

Further information may need to be provided on **other habitats and species** in the immediate vicinity in support of your application (e.g. water voles, bats, and otters). Perth & Kinross Council or SNH can advise on further surveys required.

There may also be a requirement for **additional information** depending on the nature of the development.

## 12. Further details

More information on Loch Leven including its conservation objectives can be found on the SNH website via [www.snh.org.uk/snhi/](http://www.snh.org.uk/snhi/):

SNH, SEPA and Perth and Kinross Council are working closely to protect the interests of Loch Leven SPA and Ramsar site by reducing phosphorus loading on the loch. Perth & Kinross Council are happy to assist you, where required, in submitting your application, including pre-application discussion.

In addition to any planning consents that may be required, any development which includes an element of drainage will require building warrant approval. This process includes a requirement to submit detailed plans and specifications for the entire drainage system to show compliance with the Building (Scotland) Regulations 2004.

## 12. Contacts

### Perth and Kinross Council

Website: [www.pkc.gov.uk](http://www.pkc.gov.uk)

Email:

[DevelopmentManagement@pkc.gov.uk](mailto:DevelopmentManagement@pkc.gov.uk)

for planning enquiries

Email: [BuildingStandards@pkc.gov.uk](mailto:BuildingStandards@pkc.gov.uk) for building warrant enquiries

### Scottish Natural Heritage

Website: [www.snh.gov.uk](http://www.snh.gov.uk)

Email: [Tayside\\_Grampian@snh.gov.uk](mailto:Tayside_Grampian@snh.gov.uk)

### Scottish Environment Protection Agency

Tel: 0800 807060

Website: [www.sepa.org.uk](http://www.sepa.org.uk)

Email: [planning.perth@sepa.org.uk](mailto:planning.perth@sepa.org.uk)

### Scottish Water

Call Centre tel: 0845 600 8855