APPENDIX 1 AGRICULTURAL DEVELOPMENT INPUT TEMPLATE

This document provides input tables for the current baseline of your farm set up (pre-application status of farm) and any changes expected under the proposed development. Data provided within this document will be used as part of the agricultural planning application to assess the changes to nutrient outputs from the proposed development, as well as a guide to mitigation measures.

To use this document please follow the sections as applicable below:

Farmscoper Create tool inputs:

- Section A1.1: Fill in information for all fields
- Section A1.2: Fill in applicable fields
- Section A1.3: Fill in applicable fields
- Section A1.4: Fill in applicable fields
- Section A1.5: Fill in applicable fields

Farmscoper Evaluate tool inputs:

- Section A1.6: Fill in applicable fields

Farmscoper Evaluate tool outputs:

- Section A2.1: Fill in information for applicable fields (Stage 1 and Stage 2 for all applications, Stage 3 where additional mitigation measures are required)

SECTION A1.1: INFORMATION ON THE PROPOSED PLANNING APPLICATION

Part 1. Describe the proposed planning application including details of associated changes to farming activities within the boxes below. This provides further information on the development and how the proposal will influence the wider activities on the farm and impact nutrient inputs and potential losses. This helps capture the elements that should be considered within the Farmscoper and planning application assessments but does not form part of the farmscoper input values.

Briefly describe the planning application

Describe the development type (animal house/barn/cubicle, slurry store, parlour, cereals store, etc.)

Describe the scale of the development in m^2

Are you planning to increase the number of animals? (Please tick) Yes ☐ No ☐

If yes, please provide further details below

SECTION A1.2: GENERAL FARM INFORMATION

Part 1. Fill in the relevant farm information within the tables below. This forms part of the information to be input to the farmscoper 'Control' tab in the initial Farmscoper Create file. This data will remain the same throughout the stages.

Note: for soil status, if selecting either 'Drained for Arable Use' or 'Drained for Grassland Use' then 'Other' will need to be selected in the 'Soil type' box.

Annual rainfall (Tick one option)		**Corresponding CEH website annual rainfall**
< 600mm	☐	508 - 600mm
600-700mm	☐	600.1 – 700mm
700-900mm	☐	700.1 – 900mm
900-1200mm	☐	900.1 – 1200mm
1200-1500mm	☐	1,200.1 – 1,400mm
> 1500mm	☐	1,400.1 – 1,600mm

Soil type (Tick one option)	
Free draining	☐
Other (drained)	☐

If you selected 'Other (drained)' as the soil type above, please now select the drain status (Tick one option)	
Drained for Arable Use	☐
Drained for Grassland Use	☐

Part 2. Fill in the relevant farm information within the tables below. This forms part of the information to be input to the farmscoper 'Farm' tab from cells A1 to L32.

Farm type	**Current baseline (Tick all applicable options)**	**Under proposed scenario (Tick all applicable options)**
Dairy	☐	☐
Beef	☐	☐
Sheep	☐	☐
Indoor Pigs	☐	☐
Outdoor Pigs	☐	☐
Poultry	☐	☐
Imported Manure	☐	☐
Cropping	☐	☐

General farm information	Percentage under current baseline (%)	Percentage under proposed development (%)
Fields on farm next to watercourses		
Area of organic soils (e.g. peat)		

Soil P Indices	Percentage under current baseline (%)	Percentage under proposed development (%)
Low (Index 2 or less)		
Moderate (Index 3)		
High (Index 4 of higher)		

Please note this should provide a combined total of 100%.

Connectivity	Percentage under current baseline (%)	Percentage under proposed development (%)
Runoff: Free draining fields (Surface run-off)		
Runoff: Drained fields (Fields with at least one drainage ditch along one side, connected to a watercourse)		
Drain flow (In field water flowing into a drain or other subsurface lateral flow connected to a watercourse)		

Please note these percentage values are unconnected and can each total up to 100%.

The connectivity table represents the proportion of run-off (and potential pollution) that could reach watercourses. For example surface run-off on free-draining fields typically has to travel some distance overland, so the proportion to reach the watercourses could be expected to be lower unless located next to a river. On drained fields with a drainage ditch connected to the river, the percentage connectivity would generally be expected to be higher. Water flowing through drains could also be expected to be high (a default of 90% could be assumed for well-maintained drainage channels, though this might be lower for old or poorly maintained drains).

Field boundary types	Percentage under current baseline (%)	Percentage under proposed development (%)
Hedge		
Wall		
Fence		
Other		

Please note this should provide a combined total of 100%.

Dirty water options	Current baseline (Tick one option)	Change under proposed development (Tick one option)
Minimal dirty water collected and sent to dirty water store	☐	☐
Yard runoff and parlour washing sent to dirty water store	☐	☐
Yard runoff and parlour washings sent to slurry store	☐	☐

Farm grazing type	Current baseline (Tick one option)	Change under proposed development (Tick one option)
Intensive grazing	☐	☐
Extensive grazing	☐	☐
Other/Not applicable	☐	☐

Grazing options	Current baseline (Tick all applicable options)	Change under proposed development (Tick all applicable options)
Livestock have access to watercourses whilst grazing	☐	☐
Livestock cross water between fields and yard	☐	☐

SECTION A1.3: ANIMAL PRODUCTION ON THE FARM

Part 1. Fill in the relevant farm information within the tables below, if not applicable leave cells blank. This forms part of the information to be input to the farmscoper 'Farm' tab from cells D35 to D71.

Livestock type	Livestock subcategory	Count (number of heads) under current baseline	Count (number of heads) under proposed development
Dairy	Dairy Cows and Heifers		
	Dairy Heifers in Calf (2 years +)		
	Dairy Heifers in Calf (< 2 years)		
Beef	Bulls (2 years +)		
	Beef Cows and Heifers		
	Beef Heifers in Calf (2 years +)		
	Beef Heifers in Calf (< 2 years)		
	Other Cattle (2 years +)		
	Other Cattle (1 - 2 years)		
	Other Cattle (< 1 year) & Calves		
Sheep	Sheep		
	Lambs (< 1 year)		
Poultry	Layers (Caged)		
	Layers (Uncaged)		
	Pullet		
	Broilers		
	Turkeys		
	Breeding Birds		
	Other Poultry		

Livestock type	Livestock subcategory	Count (number of heads) under current baseline	Count (number of heads) under proposed development
Indoor pigs	Sows in Pig & Other Sows		
	Gilts in Pig & Barren Sows		
	Gilts Not Yet in Pig		
	Boars		
	Other Pigs (> 110kg)		
	Other Pigs (80 - 110kg)		
	Other Pigs (50 - 80kg)		
	Other Pigs (20 - 50kg)		
	Other Pigs (< 20kg)		
Outdoor pigs	Sows in Pig & Other Sows		
	Gilts in Pig & Barren Sows		
	Gilts Not Yet in Pig		
	Boars		
	Other Pigs (> 110kg)		
	Other Pigs (80 - 110kg)		
	Other Pigs (50 - 80kg)		
	Other Pigs (20 - 50kg)		
	Other Pigs (< 20kg)		

SECTION A1.4: CROP PRODUCTION ON THE FARM

Part 1. Fill in the relevant crop information under the current baseline within the tables below, if not applicable leave cells blank. Please note percentages for each column should total 100%. This forms part of the information to be input to the farmscoper 'Farm' tab from cells D81 to M101.

		Fertilisers applied			Manure received					
Crop type	**Area (ha)**	**N (kg/ha)**	**P2O5 (kg/ha)**	**Plant protection products (%)**	**Cattle Slurry (%)**	**Cattle & Sheep FYM (%)**	**Pig Slurry (%)**	**Pig FYM (%)**	**Poultry Muck (%)**	**Dirty water (%)**
Permanent Pasture										
Rotational Grassland										
Rough Grazing		-	-		-	-	-	-	-	-
Winter Wheat										
Winter Barley										
Spring Barley										
Winter OSR										
Maize										
Potatoes										
Sugar Beet										
Peas										
Beans										
Fodder Crops										
Other Crops										
Vegetables (Brassica)										
Vegetables (Other)										
Orchards										
Soft Fruit										
Bare Fallow		-	-	-	-	-	-	-	-	-
Set Aside		-	-	-	-	-	-	-	-	-
Woodland		-	-	-	-	-	-	-	-	-

Part 2. Fill in the relevant crop information under the proposed development within the tables below, if not applicable leave cells blank. Please note percentages for each column should total 100%. This forms part of the information to be input to the farmscoper 'Farm' tab from cells D81 to M101.

Crop type	Area (ha)	Fertilisers applied		Plant protection products (%)	Manure received					Dirty water (%)
		N (kg/ha)	P2O5 (kg/ha)		Cattle Slurry (%)	Cattle & Sheep FYM (%)	Pig Slurry (%)	Pig FYM (%)	Poultry Muck (%)	
Permanent Pasture										
Rotational Grassland										
Rough Grazing		-	-		-	-	-	-	-	-
Winter Wheat										
Winter Barley										
Spring Barley										
Winter OSR										
Maize										
Potatoes										
Sugar Beet										
Peas										
Beans										
Fodder Crops										
Other Crops										
Vegetables (Brassica)										
Vegetables (Other)										
Orchards										
Soft Fruit										
Bare Fallow		-	-	-	-	-	-	-	-	-
Set Aside		-	-	-	-	-	-	-	-	-
Woodland		-	-	-	-	-	-	-	-	-

SECTION A1.5: MANURE MANAGEMENT

Manure produced on farm

Part 1. Fill in the relevant farm information within the tables below, if not applicable leave cells blank. This forms part of the information to be input to the farmscoper 'Farm' tab from cells E35 to E55.

Please note within the farmscoper entry cells manure 'Managed at FYM' is already set at 100%. The percentage included in the 'Managed as slurry' boxes presented below, will reduce the total slurry managed as FYM, so that slurry and manure management total 100% together.

Livestock type	Livestock subcategory	Percentage of manure managed as slurry under current baseline (%)	Percentage of manure managed as slurry under proposed development (%)
Dairy	Dairy Cows and Heifers		
	Dairy Heifers in Calf (2 years +)		
	Dairy Heifers in Calf (< 2 years)		
Beef	Bulls (2 years +)		
	Beef Cows and Heifers		
	Beef Heifers in Calf (2 years +)		
	Beef Heifers in Calf (< 2 years)		
	Other Cattle (2 years +)		
	Other Cattle (1 - 2 years)		
	Other Cattle (< 1 year) & Calves		
Sheep	Sheep		
	Lambs (< 1 year)		
Indoor pigs	Sows in Pig & Other Sows		
	Gilts in Pig & Barren Sows		
	Gilts Not Yet in Pig		
	Boars		
	Other Pigs (> 110kg)		

	Other Pigs (80 - 110kg)		
	Other Pigs (50 - 80kg)		
	Other Pigs (20 - 50kg)		
	Other Pigs (< 20kg)		

Imported Manure

Part 2. Fill in the relevant farm information within the tables below, if not applicable leave cells blank. This forms part of the information to be input to the farmscoper 'Farm' tab from cells D74 to F77.

Imported Manure	**Imported slurry under current baseline (t)**	**Imported slurry under proposed development (t)**	**Imported FYM under current baseline (t)**	**Imported FYM under proposed development (t)**	**Imported poultry muck under current baseline (t)**	**Imported poultry muck under proposed development (t)**
Dairy					-	-
Beef					-	-
Pig					-	-
Poultry	-	-	-	-		

Exported Manure

Part 3. Following entry of the above information in **Section A1.5** Part 1 and 2 to Farmscoper, fill in the relevant farm information within the tables below, if not applicable leave cells blank. This information is presented in cell H104 to M104 of the 'Farm' tab. This information will be automatically calculated by Farmscoper based on values entered in previous cells (percentage produced and applied on farm), the 'Manure Use Warnings' box in cells H103 to M103 will explain the remaining value further. If you do not think this value is accurate, you will need to reallocate the manure percentage values used in the tables above. If you make any changes, make sure you update the values in this document to ensure it is an accurate representation of the values you have used.

Exported Manure	**Manure remaining for export off farm under current baseline (%)**	**Manure remaining for export off farm under proposed development (%)**
Cattle Slurry		
Cattle & Sheep FYM		
Pig Slurry		
Pig FYM		
Poultry Muck		
Dirty Water		

If you currently export manure, please include further details below (including whether this will be used within or outside of the Wye catchment area presented in **Figure 1** of the guidance document).

If you plan to export manure under the proposed development, please include further details below (including whether this will be used within or outside of the Wye catchment area presented in **Figure 1** of the guidance document).

SECTION A1.6: MITIGATION MEASURES

Mitigation measures related to phosphorus as presented in the Farmscoper Evaluate tool are presented below. The percentage uptake of each measure is related to the area of farm the mitigation is relevant to, this is presented in the 'Farm Type Applicability' column of the measures table below. For example, the percentage uptake of mitigation measure '5: Early harvesting and establishment of crops in the autumn' is only related to potato and maize crops areas within the farm.

E.g. Varying percentage uptakes of a farm with 20 hectares of maize crop would be as follows:

10% = the measure would be applied to 2ha of maize.

50% = the measure would be applied to 10ha of maize

100% = the measure would be applied to 20ha of maize

Steps to fill in the mitigation measures table are as follows:

1. Fill in the relevant farm information for the current, pre-development, farm baseline (Stage 1) in Column A, if not applicable leave cells blank. This information will be input in the Farmscoper Evaluate tool, in cells I2 to K116 of the 'Method List' tab.
2. Fill in the relevant farm information for the panning development application (Stage 2) in Column B, this should include totals for both current existing measures and proposed measures,
   E.g. Percentage uptake = existing + proposed measures.
   If a measure is not applicable leave cells blank. This information will be input in the Farmscoper Evaluate tool, in cells I2 to K116 of the 'Method List' tab.
3. Complete the steps presented in **Section 5.1** and **Section 5.2** of the development guidance document, inputting the phosphorus output values to **Section 2.1** below.
4. Assess the phosphorus output value of Stage 1 and Stage 2 in **Section A2.1** below (see **Figure A1**). If the phosphorus output value for Stage 2 is higher than the Stage 1 value additional mitigation measures will have to be selected and a further Farmscoper run will need to be completed, steps are presented in Stage 3 (**Section 5.3**) of the guidance document.

Steps if additional mitigation measures are required are as follows:

5. Fill in the relevant farm information for Stage 3 (Planning application plus additional measures) in Column C, this should include totals for current existing measures, proposed measures and additional proposed measures,
   E.g. Percentage uptake = existing + proposed + additional proposed measures.
   If a measure is not applicable leave cells blank. This information will be input in the Farmscoper Evaluate tool, in cells I2 to K116 of the 'Method List' tab.

Phosphorus mitigation measures

Further information on regulations or guidance relating to each mitigation measures are presented in **Section 6** of the guidance document.

Method Name	Farm type applicability	Column A Stage 1	Column B Stage 2	Column C Stage 3
		Percentage uptake of existing measures (%)	Percentage uptake of proposed and existing mitigation measures under the proposed development (%)	Percentage uptake of additional, proposed, and existing mitigation measures under the proposed development (%)
4. Establish cover crops in the Autumn	Spring crops			
5: Early harvesting and establishment of crops in the autumn	Potatoes and Maize			
6: Cultivate land for crops in spring rather than autumn, retaining over-winter stubbles	Spring crops			
7: Adopt reduced cultivation systems	Drained arable soils			
8: Cultivate compacted tillage soils	Arable			
9: Cultivate and drill across the slope	Slopes			
10: Leave autumn seedbeds rough	Winter cereals			
11: Manage over-winter tramlines	Winter cereals			

13: Establish in-field grass buffer strips	Arable			
14: Establish riparian buffer strips	Riparian fields (field area next to a river or stream)			
15: Loosen compacted soil layers in grassland fields	Grass			
16: Allow grassland field drainage systems to deteriorate	Drained grass soils			
19: Improved livestock through breeding	All animal farm types			
22: Use a fertiliser recommendation system	All farm types			
23: Integrate fertiliser and manure nutrient supply	All farm types			
25: Do not apply manufactured fertiliser to high-risk areas	High risk areas within all farm types			
26: Avoid spreading manufactured fertiliser to fields at high-risk times	All farm types			
27: Use manufactured fertiliser placement technologies	All farm types			
32: Do not apply P fertilisers to high P index soils	Fields with a high phosphorus index			
35: Reduce the length of the grazing day/grazing season	Grazing farm types			
36: Extend the grazing season for cattle	Dairy / Beef			
37: Reduce field stocking rates when soils are wet	Grazing farm types			
38: Move feeders at regular intervals	Grazing farm types			
39: Construct troughs with concrete base	Grazing farm types			
52: Increase the capacity of farm slurry stores to improve timing of slurry applications	Dairy / Beef / Pigs			

60: Site solid manure heaps away from watercourses/field drains	All animal farm types			
61: Store solid manure heaps on an impermeable base and collect effluent	All animal farm types			
62: Cover solid manure stores with sheeting	All animal farm types			
63: Use liquid/solid manure separation techniques	All animal farm types			
64: Use poultry litter additives	Poultry			
68: Do not apply manure to high-risk areas	High risk areas within all animal farm types			
69: Do not spread slurry or poultry manure at high-risk times	All animal farm types			
71: Use slurry injection application techniques	All animal farm types			
72: Do not spread FYM to fields at high-risk times	All animal farm types			
73: Incorporate manure into the soil	All animal farm types			
76: Fence off rivers and streams from livestock	Livestock farm types with river and stream access within fields			
77: Construct bridges for livestock crossing rivers/streams	Livestock farm types with river and stream crossings within fields			
78: Re-site gateways away from high-risk areas	High risk areas within all farm types			
79: Farm track management	All farm types			
80: Establish new hedges	All farm types, suitable for new hedges only			
81: Establish and maintain artificial wetlands - steading runoff	Farm types with yards			
102: Management of woodland edges	Farm types with woodland			

103: Management of in-field ponds	Farm types with in-field ponds			
105: Management of arable field corners	Arable			
106: Plant areas of farm with wild bird seed / nectar flower mixtures	Arable			
107: Beetle banks	Arable			
108: Uncropped cultivated margins	Arable			
110: Uncropped cultivated areas	Arable			
111: Unfertilised cereal headlands	Cereals			
112: Unharvested cereal headlands	Cereals			
113: Undersown spring cereals	Spring cereals			
114: Management of grassland field corners	Grass			
117: Use correctly inflated low ground pressure tyres on machinery	Arable and grass			
118: Locate out-wintered stock away from watercourses	Outwintered livestock			
119: Use dry-cleaning techniques to remove solid waste from yards prior to cleaning	Farm types with yards			
120: Capture of dirty water in a dirty water store	Farm types with yards			
122: Avoid irrigating at high risk times	Arable, irrigated crops			
123: Use efficient irrigation techniques (boom trickle, self closing nozzles)	Arable, irrigated crops			
126: Increased use of maize silage	Arable, maize crops			

132: Better health planning: dairy	Dairy			
133: Better health planning: beef	Beef			
134: Better health planning: sheep	Sheep			
135: Improve livestock through genetic modification	Dairy / Beef			
180: Ditch management on arable land	Drained arable soils			
181: Ditch management on grassland	Drained grass soils			
331: Reduce dietary N and P intakes: Dairy	Dairy			
332: Reduce dietary N and P intakes: Pigs	Pigs			
333: Reduce dietary N and P intakes: Poultry	Poultry			
341: Adopt phase feeding of livestock: Dairy	Dairy			
342: Adopt phase feeding of livestock: Pigs	Pigs			
570: Minimise the volume of dirty water produced (sent to dirty water store)	Dairy / Beef			
571: Minimise the volume of dirty water produced (sent to slurry store)	Dairy / Beef			

SECTION A2.1: FARMSCOPER OUTPUTS

Input the phosphorus (kg) output value found in cell H4 of the Output tab of FARMSCOPER5_Evaluate for each of the three Farmscoper runs below.

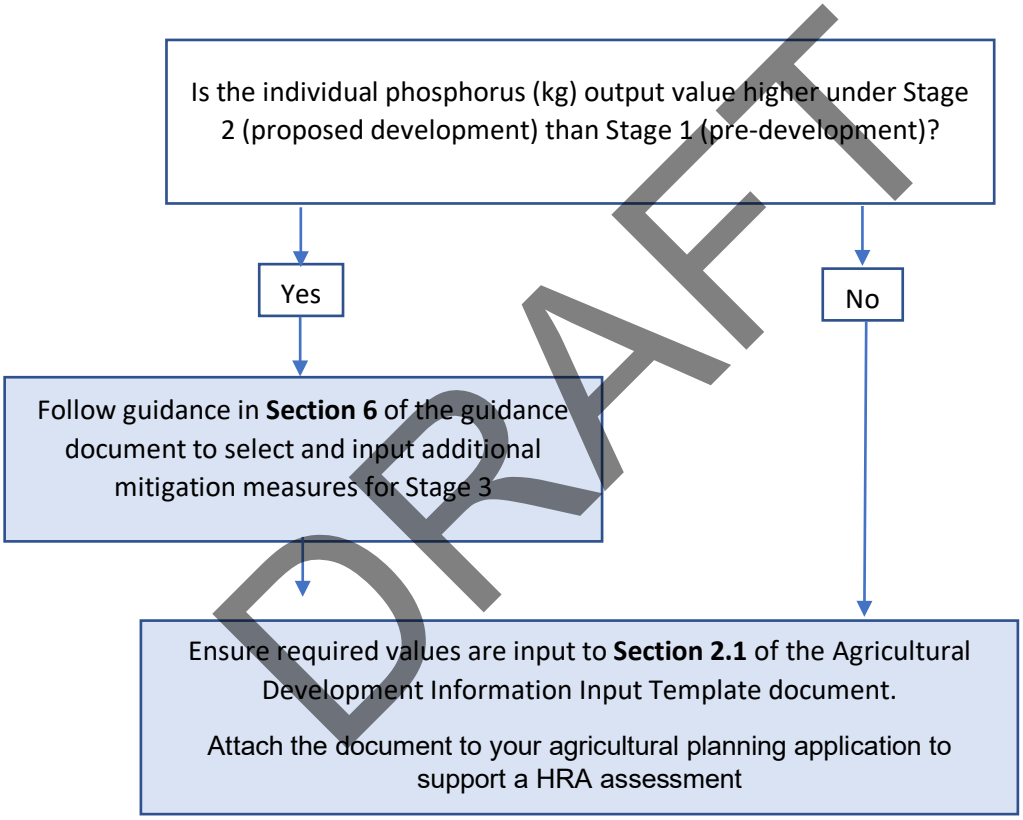
Stage 1: Pre-development baseline

Individual Phosphorus (kg) output from Farmscoper: _____

Stage 2: Planning development application

Individual Phosphorus (kg) output from Farmscoper: _____

Figure A1 – Phosphorus assessment requirements decision flow chart



Stage 3: Planning application plus additional measures

Individual Phosphorus (kg) output from Farmscoper: _____