**NRW TECHNICAL ANNEX**

**Essential management to protect arable plant populations at proposed development site 2016/01427/OUT, Land off Cowbridge Road, Flemingston, St. Athan, vale of Glamorgan.**

NRW preferred strategy would follow more closely the strategy provided by the consultants Solstys Brewster in June 2015. The area and field labelling has been taken from their [Conservation Strategy](http://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/LDP/Examination-Documents-2015/Further-Submission-Documents/SD69-Land-East-of-Eglwys-Brewis-Site-MG25-Conservation-Management-Strategy-June-2015.PDF) document.

Retention of the areas A1 & C with autumn / winter cultivation, have the best possibility of achieving the result of maintaining the population of Corn Buttercup and Shepherds needle on this land.

It is now late winter, therefore for any hope of either plant germinating this year cultivation of all of Area A1 and part / most of Area (field) C needs to happen **now** and definitely before end of March. This should be by ploughing at a depth of about 20 – 40cm (or deeper if possible) and not by disc harrowing. Further work could be done to cultivate an area in the lower part of field B (F2) as this had a good population of Shepherds needle in recent years (to produce plants where seed could be collected for use in area C).

Before cultivation occurs, soil sections should be taken from area A1 - we suggest 10 blocks of 1x 1m and with a depth of 30cm - five of these from the Southern headland and five further into field.

Similar sized sections could then be taken from Area (field) C to replace the soil loss unless it is deemed that these depressions in area A1 will be lost or are insignificant with deep ploughing.

An organic (unsprayed) cereal crop could be sown in area C but with a 5 metre uncropped, but cultivated, margin. Area A1 could have similar, a cereal crop with 5 metre margin. If it is not practical to have a cereal crop with this size margin then the whole area should be cultivated and uncropped. In any way any cereal crop should be sown at a low density in area A1.

The site (Areas A1 & C) should be visited in June by a competent botanist to assess if there has been any success in germination of Corn Buttercup and Shepherds Needle.

If there has been success in Area A1 then locations should be mapped and recorded using high accuracy GPS. If success is widespread in this area then recording locations to return to with high accuracy GPS is less important, but they should still be mapped. The site should be revisited from mid-July to August and a portion of seed collected to be used for two different options; some (60%) should be kept and sown in area C in cultivated ground (October / November) and the locations recorded using high accuracy GPS and mapped. The rest (40%) should be taken and an attempt to propagate made ex situ in pots / trays. Subsequent plants should then be planted out in A1 or C the following spring or if big enough in autumn / winter this year.

The return to arable conditions in A1 and C should continue for a number of years - to be decided and depending on the degree of success with recruitment of Corn Buttercup and Shepherds Needle.

If there is success in recruitment of either species in A1 and / or C then arable / annual cultivation management of both these areas should continue. If both species continue to maintain good populations in Area C for at least five years then the requirement to continue with cultivation of area A1 could be reassessed then.

Lack of one or other species in the first year should not be taken as a fait accompli as cultivation time for this year (2017) is getting late. If cultivation type and timing and subsequent growth conditions are ideal for years two to five and there is still no appearance then a reassessment of options should be done.

If coarse and perennial weeds become an issue then use of a suitable herbicide in the latter part of the season could be an option. This would only be acceptable when:

1. The vegetation is so coarse that Shepherds Needle or Corn Buttercup had struggled to germinate earlier in the year.

And

1. These species had clearly finished growing and had set seed.

And

1. Before cultivation in autumn / winter.

Julian Woodman.

**End**