

SUBMISSION OF AN AGRICULTURAL PLANNING NOTIFICATION - IRRIGATION RESERVOIR

**MRS PHILIPPA MARRIAGE, TRADING AS:- PROFESSIONAL VISION
SERVICES LTD., COLVILLE HALL, CHELMSFORD ROAD, WHITE RODING,
ESSEX CM6 1RQ**

John Bailey has been advising Mr Marriage on the construction of a new irrigation reservoir/lake at Colville Hall and has been retained to assist with the planning notification.

BACKGROUND

Colville Hall covers about 44ha (110 acres) including about 4.5ha of woodland. The soil is a medium to heavy clay soil and the farm currently grows a mixture of winter wheat and long term grass. The agricultural holding number is 18/087/8004

IRRIGATION NEED

The farm intends to establish a small vineyard covering 4ha and 3ha of vegetables to be used in the kitchens associated with the wedding venue barns. It is intended to make the reservoir a pleasing lake feature as well as being functional. It is Government policy to encourage farm storage reservoirs and also the collection of roof water.

NEW RESERVOIR

A full level survey quantifies the Vee shaped profile visible to the eye down the middle of the field meaning less soil will conveniently need to be excavated. The construction will be a balanced excavation so that the volume of spoil excavated will accurately match the volume required for the banks plus the island and no excess materials will be taken off or spoil brought on to the site. It will be shaped and profiled to fit the landscape and to give a pleasing kidney shaped design with an island towards the far end.

Five soil profile digs (roughly the 4 corners and the middle) have shown there is very adequate suitable clay subsoil to form a natural liner and a sample of clay was sent to a soils laboratory for an infiltration test as a double check. The pits were very consistent with 300-400mm of topsoil quickly turning into a consistent grey chalky boulder clay subsoil. The clay soil is visibly and texturally suitable for a natural clay liner, readily taking a shine between thumb and forefinger. The infiltration test showed a reading of 3.3×10^{-11} m/sec which is approximately 30 times the normal standard required for a reservoir lining at 1×10^{-9} m/sec. It is I think the best clay I have found in over 40 years of doing this work.

The new reservoir will conform to normal CIRIA /DEFRA design standards:-

It will measure about 191m long x 76m wide (mean measurements).

Volume about 10,000m³ (2.2 million gallons)

Water depth 1.5m

Freeboard 0.75m (top water level to top of bank)

Bank top width 5m

Maximum bank height 2.45m (range 0-2.45m)

Inner slope 1 in 4.0

Outer slope 1 in 5.0

There will be about 7,000 m³ of spoil to move which will be wholly used in the banks and the island feature. It will be well outside of the current Reservoirs Act which kicks in with 25,000 m³ of water above the lowest surrounding ground level.

An experienced local contractor will be employed to do the work.

I expect a reservoir of this size to be completed in less than 30 days involving a maximum of 2 tractor drivers. A Construction, Design and Maintenance (CDM) safety review will not therefore be required.

It is not normal to fence a fresh water irrigation reservoir with the gentle 1 in 4 inward slopes plus the shallow depth in this case.

There is good access from the A1060 through Colville Hall for lorries with machinery to set up the equipment and then take away on completion. On a day to day basis it's likely that 2 people will be employed arriving in 1 or 2 vehicles each day.

WATER SOURCE

The farm has a small borehole which will fill and refill the reservoir steadily over the year together with rainwater collected from the house and buildings.

CONSERVATION POINTS

The outside reservoir banks will be sown with a low maintenance mix of grasses and wildflowers.

It is not overlooked being surrounded by trees on 3 sides and Colville Hall on the other side. No new planting of trees and shrubs is felt to be necessary but it may well happen once the reservoir has been formed including planting reeds on the reservoir edges. Access will be maintained all round the reservoir and together with the formation and shape of the banks. No tree roots will be affected by the soil movement.

The business is a member of the Soil Association and has a good record planting trees and hedgerows and so it is felt compensatory planting is unnecessary.

Enclosures:-

Location Plan 1:5,000 at A4 sizing

Site plan Approx. 1:1,000

X-Section A – B 1:500

X _Section C-D 1:1,000

Level Survey on a 20m x 20m grid.

Laboratory certificate for infiltration test.

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