

Site Management Plan

2011 – 2015

Thornwood Common Local Nature Reserve

Thornwood



Produced by Epping Forest Countrycare

February 2011

Site Management Plan

Thornwood Common Flood Meadow LNR - 2011

Produced by Epping Forest Countrycare – First produced February 2004

Revised January 2011

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Thornwood Flood Meadow Local Nature Reserve

1.0 General Information

1.1 Location (See Appendix I, Map 6.1)

Name: Thornwood Common Flood Meadow LNR **Area:** 2.70ha

Grid Reference: TL 470 043

County: Essex

District: Epping Forest District Council

Parish: North Weald Bassett

Local Planning Authority: Epping Forest District Council

Conservation Status: Statutory Local Nature Reserve declared 23/12/04.

Designated Local Wildlife Site EP92 in 2009 (Appendix V, 10.1)

Nature of legal interest: The land is owned freehold by EFDC.

1.2 Site Description (See Appendix IV, 9.1)

Thornwood Flood Meadow was the last flood alleviation scheme developed on North Weald parish by EFDC and its partners. Completed in 1998, the site is managed primarily for flood alleviation, but within this remit the meadows are also being managed for nature conservation. This was reflected by its designation as a Local Nature Reserve in December 2004. Prior to its creation the area had been used as an old army camp and more recently for horse grazing. Other sections of the site were in arable production prior to being landscaped. Along the south, west and eastern edges of the site the land use remains as arable with some of the area being developed for conservation (see 3.1). A small housing development now exists on the site's northern boundary.

The meadow was sown initially with two different wildflower seed mixes. Both of these reflected species that can be found in the District's remaining water meadows (see Appendix III, table 8.1). The only exception was the far north-western end of the site that was untouched by the scheme and has had an extended history as grassland. Until 2012 the whole site is being managed under countryside stewardship with the primary management tool that of an annual hay cut.

Trees have now been planted around the entire site some as hedges and others as clumps. (See Appendix II, map 7.2, Grassland & hedgerows). Both the wet areas and remaining meadowland is improving floristically and becoming increasingly species rich.

1.3 Owners

Epping Forest District Council
Civic Offices, High Street
Epping,
Essex, CM16 4BZ

Qasim Durani – Assistant Director Technical
Abigail Oldham - Countryside Manager

(01992) 564055
(01992) 788 203

www.eppingforestdc.gov.uk/countrycare

1.4 Rights of Access (see Appendix I, map 6.2)

Access to the site is via 2 kissing gates on public footpath 76 North Weald, which runs east – west through the site. Once on site there is open public access. Vehicle access is via a gated concrete track along the northern boundary that leads into the Teazle Mead development.

1.5 Boundaries (see Appendix I, map 6.2)

1.6 Countryside Stewardship Agreement

In September 2002, a ten year agreement was signed and agreed with The Department of Environment Food and Rural Affairs.

1.7 Photographic Coverage

EFDC Planning holds aerial photographs of the North Weald area including the meadow for the following years - 1965, 1976, 1985, 1990, 1999 and 2001. See Appendix III - 9.1 Aerial Photography.

There are a few photographs showing the site before, during and just after creation in 1998. Most management projects that have been undertaken on the meadow have also been recorded and are held in the Countrycare Archives.

2.0 Environmental Information

2.1 Physical information

2.1.1 Topography

Thornwood Flood Alleviation Scheme is a low-lying area within the Thornwood Village catchment. Its highest point is 80.13m Above Ordnance Datum (AOD) on top of the embankment. The meadow is concave, lying between 79.9m AOD and 78.8m AOD (an engineering plan can be obtained from Land Drainage or Epping Forest Countrycare).

2.1.2 Climate

The closest records available are of Greenwich (averages from 1971 to 2000), which is approximately 30km south west of Thornwood Common.

Month	Max Temp [°C]	Min Temp [°C]	Days of Air Frost [days]	Sunshine [hours]	Rainfall [mm]	Days of Rainfall ≥ 1mm [days]
Jan	7.9	2.4	7.4	45.9	51.9	10.9
Feb	8.2	2.2	7.4	66.1	34.0	8.1
Mar	10.9	3.8	2.9	103.2	42.0	9.8
Apr	13.3	5.2	1.1	147.0	45.2	9.3
May	17.2	8.0	0.1	185.4	47.2	8.5
Jun	20.2	11.1	0.0	180.6	53.0	8.4
Jul	22.8	13.6	0.0	190.3	38.3	7.0
Aug	22.6	13.3	0.0	194.4	47.3	7.2
Sep	19.3	10.9	0.0	139.2	56.9	8.7
Oct	15.2	8.0	0.3	109.7	61.5	9.3
Nov	10.9	4.8	3.0	60.6	52.3	9.3
Dec	8.8	3.3	6.9	37.8	54.0	10.1
Year	14.8	7.2	29.1	1461.0	583.6	106.5

Source:

<http://www.metoffice.gov.uk/climate/uk/averages/19712000/sites/greenwich.html>

2.1.3 Geology and Soils

The surface geology consists of glacial boulder clay, overlying London clay.

2.1.4 Hydrology

The reason for the development of the flood scheme was to try to counteract the rapid response of the area to intense rainfall events. Historically, severe storms in the catchment area have resulted in rapid surface run-off and flooding problems were experienced in the villages of Thornwood and North Weald in July 1987 and June 1993.

The water storage capacity of the flood meadow is 14,350 cubic meters. This is the standard of protection against a major storm event with a 1:100 year return period.

2.2 Biological Information

2.2.1 Flora

There has been no formal survey of flora undertaken to date. A baseline survey would provide useful data for future comparative study and should be seen as a priority. A list of species sown in seed mixes initially may be found in Appendix III, table 8.1.

2.2.2 Fauna

There are no records of fauna for the site at present. It would be useful to carry out preliminary surveys of birds, butterflies, reptiles and amphibians. At the very least a species list should be compiled.

2.2.3 Communities

The site contains a number of different plant communities. Communities pass through a whole range from those with plants associated with dry, open grassland through to those with plants associated with aquatic habitats. The largest community is that of grassland which may be subdivided into wet and dry communities. It would be reasonable to assume that these communities are based on a neutral to basic substrate given the nature of the surface geology.

3.0 Cultural Information

3.1 Historical

Since the flood meadows are a creation project there are no significant historical features associated with it. Prior to being a flood meadow, the western side of the site had been an army camp and more recently was pasture used for grazing animals under the ownership of Epping Piggeries. The eastern side of the site was under arable production and was under the ownership of Copped Hall Estate.

3.2 Land Use

The meadow's primary function is a floodwater storage area. However, since its conception it has always been intended to integrate this with public access and nature conservation. The meadow's secondary use is therefore for informal recreation such as dog walking and bird watching.

The main management work that takes place on the site is to maintain the wild flower areas, scrapes and drainage ditches. This is done by cutting the meadows on an annual basis and clearing the ditches and scrapes as required.

3.3 Public Interest

The local people of North Weald use the site for informal recreation. This is mainly in the form of dog walking.

3.4 Obligations

3.4.1 The Wildlife and Countryside Act 1981

The Act protects all wild birds from nest destruction, killing (except in certain cases) and injuring. Schedule 1 listed birds are given special protection in these respects and additional protection in that such birds may not be disturbed whilst building a nest or whilst in, or near a nest, nor any dependant young be disturbed. A licence is also required by EN for photography of nesting birds.

The Act also makes it any offence to kill, injure, or take any bat etc. A number of other animals listed in section 5 of the Act are also given special protection and include the Great Crested Newt. Section 9 (4) refers to Water Vole and states it is an offence to intentionally or recklessly damage, destroy or obstruct access to the place where voles are sheltering. Schedule 8 refers to protection of plants.

3.4.2 The Control of Weeds Act 1959

The Act requires the following plants are controlled;
Creeping Thistle (*Cirsium arvense*), Curled Dock (*Rumex crispus*), Ragwort (*Senecio jacobea*) and Spear Thistle (*Cirsium vulgare*)

3.4.3 Occupiers Liability Act 1957

The Act requires that the occupier take all responsible measures to protect any persons visiting the site, including trespassers. In practice this will mean that parts of the site that are accessible are made reasonably safe, and that unsafe areas i.e. the deep water are made inaccessible or assigned as unsafe. Potentially dangerous man made features are considered to engender a greater duty of care than natural features.

3.5 Past Management

Date	Work Carried Out
16/02/2006	Coppiced along bank and thinning tree planting adjacent to bank.
23/02/2006	Cleared blackthorn from behind houses, planted hawthorn in hedge.
13/04/2006	20 bollards and 1 sign board installed, fence removed over stream.
27/04/2006	Installed 25 bollards.
31/05/2006	Strimmed fence behind house.
22/06/2006	Cut and raked.
21/05/2007	Cut meadow area.
24/05/2007	Cut and raked meadow behind houses near compost heap.
14/02/2008	Coppiced hedge behind houses & cleared bramble.
08/01/2009	Coppiced northern area of scrub cleared one metre gap.
23/04/2010	Cleared ditch.
01/07/2010	Cut & raked bank and replaced faggots.
23/12/2010	Coppiced trees overhanging ditch.

4.0 Aims and Objectives

4.1 Aims

- 4.1.1 To retain flood waters which would otherwise flood Thornwood Village.
- 4.1.2 To increase wildlife biodiversity.
- 4.1.3 To provide an area for informal recreation for the people of North Weald.
- 4.1.4 To promote the site for educational use.

4.2 Objectives

- 4.2.1 To maintain the site's function as a flood alleviation scheme/water collection area.
- 4.2.2 To maintain and enhance a wet grassland habitat.
- 4.2.3 To maintain and enhance the scrapes.
- 4.2.4 To maintain and enhance the hedgerows.

- 4.2.5 To maintain and enhance the watercourse.
- 4.2.6 To maintain and enhance populations of notable species.
- 4.2.7 Promote the site for educational use to the public.

4.3 Management Proposals

4.3.1 Maintain the site's function as a flood alleviation scheme

As prescribed by Land Drainage.

4.3.2 Maintain and Enhance wet grassland habitat.

- 4.3.2.1 Ideally the meadow should be cut on an annual basis between late June and August, the timing of the cut may be flexible. In poor summers it may be too wet to get machinery onto the site without causing unacceptable damage. In order to reduce the amount of dominant or undesirable species the cut should be made when these species are in flower and certainly before they go to seed. There is currently a large amount of Rye Grass (*Lolium perenne*) on the site. This will prevent the more desirable species from growing. An early cut should be done every year around late March early April until the amount of *L. perenne* is reduced.
- 4.3.2.2 Weed species and their control is a major factor to consider in terms of grassland management. Control of ragwort and creeping thistle is a priority. This may be done by pulling the ragwort and cutting the thistle before it goes to seed.

4.3.3 To maintain and enhance scrapes

The main areas of standing water throughout the year are provided by the scrapes. Even in very dry years some of the scrapes are maintaining water e.g. 2005. It is important to maintain these scrapes as they are important aspects of the flood meadow from a conservation viewpoint especially for dragonflies.

- 4.3.3.1 Monitor encroachment of marginal species (i.e. reed mace) into the scrapes and clear when necessary.
- 4.3.3.2 The scrapes should be dredged in rotation meaning each will be cleared every 4 years or so. They should be cleared by 200mm with only one scrape or group of scrapes being cleared in any one year, (see Appendix II, map 7.1, Scrapes & drainage channels).

4.3.4 To maintain and enhance the hedgerows

- 4.3.4.1 **Southern boundary** – This “hedge” was planted as part of the initial scheme. It consists of a single line of shrubs and is very gapped. This should be planted up to make a proper boundary hedge.
- 4.3.4.2 **Eastern Boundary** – This hedge was planted in 2003 and 2004. It is very gapped where trees have not taken, these gapes should be planted up to create a thick barrier indicating the site boundary.

4.3.4.3 **Northern boundary behind houses in Teazle Mead** - trees within this area were planted within the flood envelope by the developers when the houses were built in 2001. It was supposed to have been a hedge tight to the boundary, but became a copse area. Blackthorn scrub is a valuable bird nesting habitat and therefore this copse should be maintained in its current state. Some clearance work can be done when the copse is older to create a varied age structure.

4.3.4.4 **Western Boundary** – This hedgerow was planted in May 2003. It is now ready to be laid.

4.3.5 Maintain and Enhance the Water Course

4.3.5.1 The central drain should be dredged every four-five years or as required up to culvert.

4.3.5.2 Between culvert and arable field, ditch should be cleared annually, (see Appendix II, map 7.1, Scrapes & drainage channels).

4.3.5.3 The mature trees along the brook should be coppiced in 4 year rotation to prevent the watercourse becoming blocked up and to improve the water quality in the brook. Many of the trees are old and showing considerable signs of decay and die back. Coppicing will help to invigorate them and thicken them up.

4.3.6 To maintain and enhance populations of notable species.

4.3.6.1 Survey the site for vascular plants and monitor the effects of management on these plants.

4.3.6.2 Carry out butterfly surveys over the entire site and monitor the effects of management on these species

4.3.6.3 Carry out dragonfly surveys over the entire site and monitor the effects of management on these species.

4.3.6.4 Carry out reptile surveys over the entire site and monitor the effects of management on these species.

4.3.6.5 Carry out bird survey over the entire site and monitor the effects of management on these species.

4.3.7 Promote the site for educational use and use by the public

The site has great potential to be used as an educational resource its declaration as a Local Nature Reserve and Local Wildlife Site reflects this. The site should also be used to promote the work of both the Land Drainage Section and Countrycare. This valuable working partnership has provided a site that has a dual function as a flood alleviation scheme and nature reserve.

4.3.7.1 The interpretation panel should be updated. The panel should a) promote the site for informal recreation, b) raise awareness of its wildlife value and of the Essex Biodiversity Action Plan and c) explain the role of Land Drainage and Countrycare.

4.3.7.2 Organise over the next 5 years at least 2 educational events and a minimum of 2 practical conservation days each year.

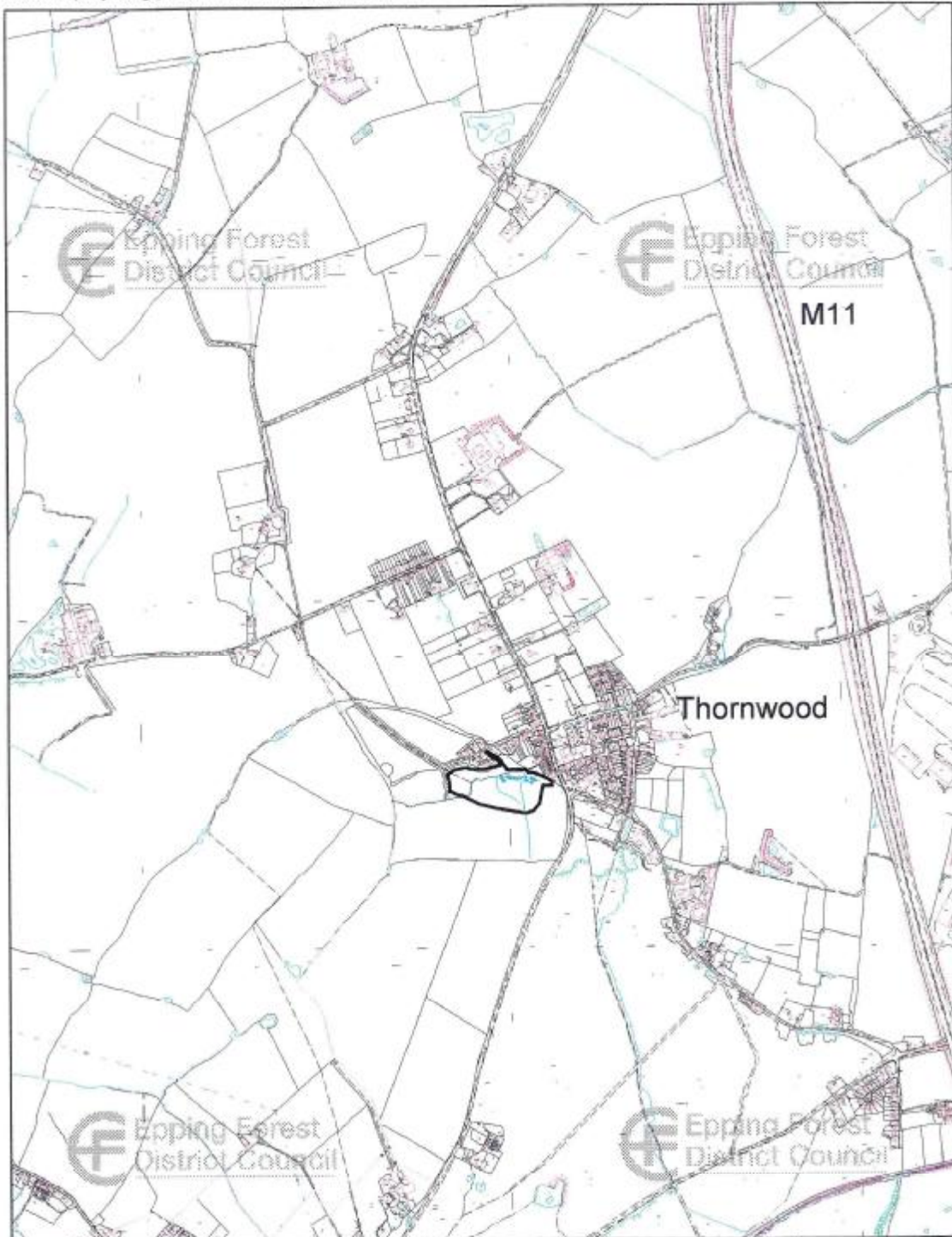
5.0 Work Schedule

Key			
1	Jan, Feb, March	S	Staff
2	April, May, June	V	Volunteer
3	July, Aug, Sept	L	Land Drainage
4	Oct, Nov, Dec	H	Hedgelayers

	Projects	2011				2012				2013				2014				2014			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
4.3.2.1	Mow grassland	C		V		C		V		C		V		C		V		C		V	
4.3.2.2	Pull ragwort		S				S				S				S				S		
4.3.3.1	Monitor and control species encroachment on scrapes																				
4.3.3.2	Dredge scrapes in 4 year rotation				L				L				L				L				L
4.3.4.1	Plant up gaps in southern hedge				V																
4.3.4.2	Plant up gaps in eastern hedge				V																
4.3.4.3	Monitor and maintain blackthorn scrub	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
4.3.4.4	Lay western hedgerow				H	H															
4.3.5.1	Dredge drainage ditch between culvert and outlet								L												
4.3.5.2	Dredge drainage ditch between culvert and arable field.				L				L				L				L				L
4.3.5.3	Coppice trees along drainage ditch in 4 year rotation				V				V								V				V
4.3.6.1	Carry out vascular plant survey		S				S				S				S				S		
4.3.6.2	Carry out butterfly survey		S	S			S	S			S	S			S	S			S	S	
4.3.6.3	Carry out dragonfly survey		S	S			S	S			S	S			S	S			S	S	
4.3.6.4	Carry out reptile survey		S	S			S	S			S	S			S	S			S	S	
4.3.6.5	Carry out bird survey		S	S			S	S			S	S			S	S			S	S	
4.3.7.1	Update interpretation panels		S																		
4.3.7.2	Organise educational events							S								S					

Appendix I, 6.1 Thornwood Common Flood Meadow Location

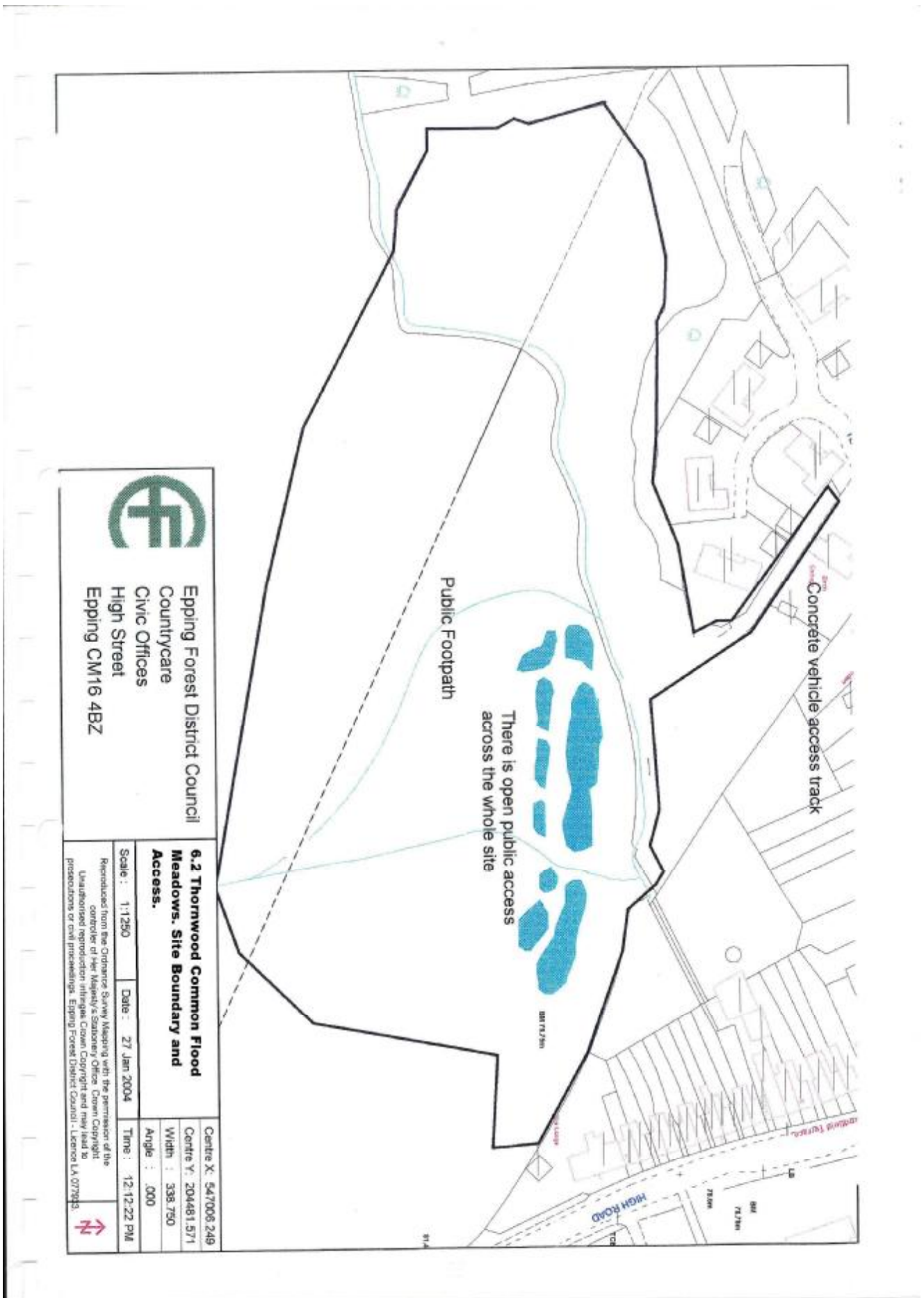
ProPrinter (© By Design) 27 Jan 2004 - 11:42:24 AM Licensed to ProPrinter - 50 User License - Epping Forest D C



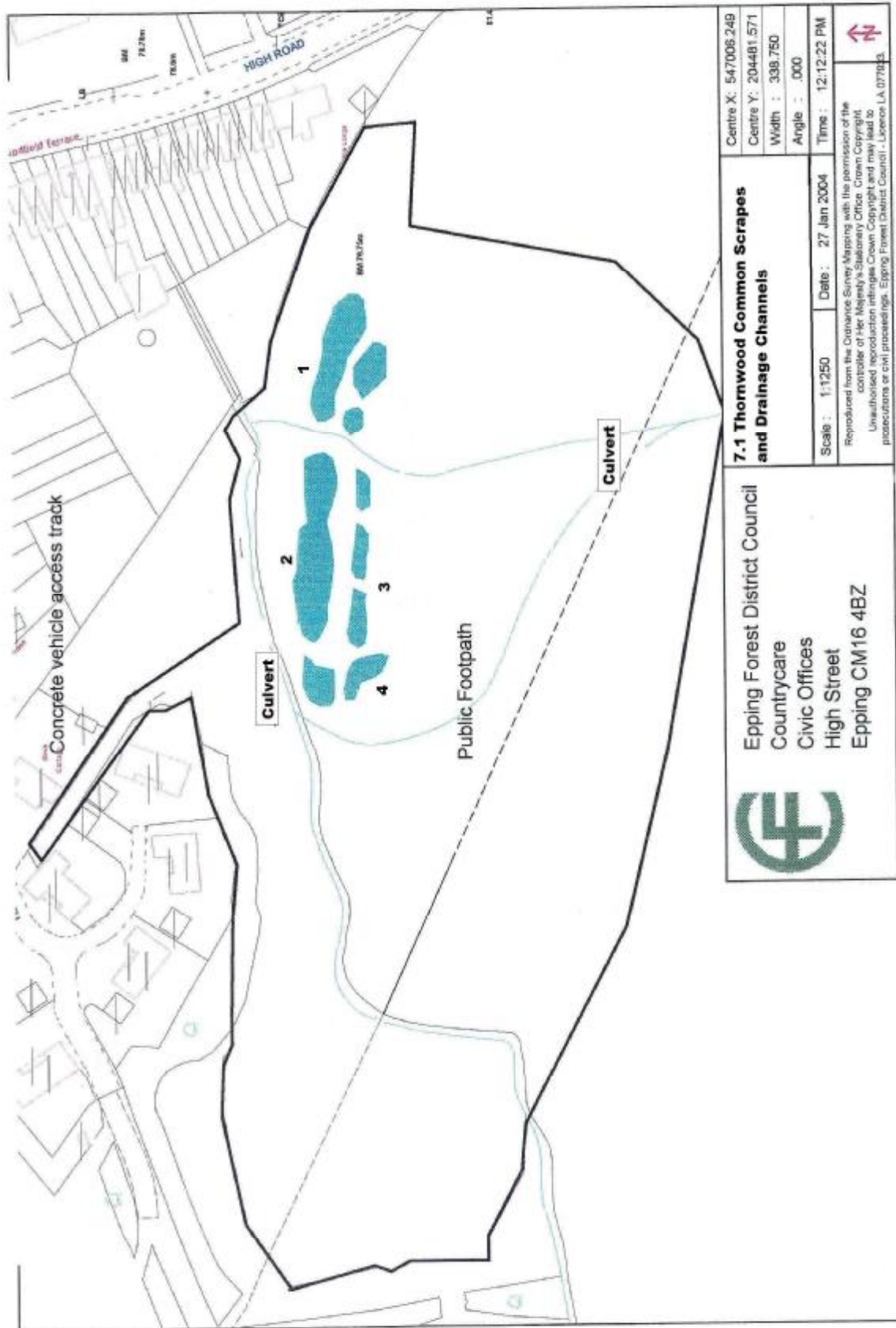
 Epping Forest District Council
 Countrycare
 Civic Offices
 High Street
 Epping CM16 4BZ

6.1 Thornwood Common Flood Meadow Location.		Centre X: 546949.328
		Centre Y: 204700.069
		Width : 2710.100
		Angle : .000
Scale : 1:15056	Date : 27 Jan 2004	Time : 11:42:24 AM
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Appendix I, 6.2 Thornwood Common Flood Meadow, Access and Site Boundaries.



Appendix II, 7.1 Scrapes and Drainage Ditches



Appendix III, 8.1 Wild Flower Seed Mix

Two different wildflower seed mixes were selected as follows. Both were a fescue grass mix in the ratio of 20% wildflowers to 80% grass by mass. These seeds were sown approximately 1998.

- Short meadow mix:
- Damp meadow mix

Variety		1. Short meadow	2. Damp meadow
Cowslip	<i>Primula veris</i>	yes	yes
Lady's Bedstraw	<i>Galium verum</i>	yes	
Meadow Buttercup	<i>Ranunculis acris</i>	yes	yes
Selfheal	<i>Prunella vulgaris</i>	yes	
Yellow Rattle	<i>Rhinanthus minor</i>	yes	
Hoary Plantain		yes	
Yarrow	<i>Achillea millefolium</i>	yes	
Betony	<i>Stachys officinalis</i>	yes	
Meadow Sweet	<i>Filipendula ulmaria</i>		yes
Yellow Flag Iris	<i>Iris pseudocorus</i>		yes
Ragged Robin	<i>Lychnis flos-cuculi</i>		yes
Devils Bit Scabious	<i>Succisa pratensis</i>		yes
Water Avens			yes

Appendix IV, 9.1 Aerial Photograph, 2007.



Appendix IV, 9.2 Site Photographs, page 1 of 3



Entrance track



Dry Meadow – eastern end



Dry Meadow – western end



Drainage ditch looking west from culvert



Drainage ditch looking east from site boundary



Scrub along northern boundary

Appendix IV, 9.2 Site Photographs, page 2 of 3



Scrape set 1



Scrape set 2 and 3



Scrape set 4



Eastern Hedge



Southern Hedge



Central Hedge

Appendix IV, 9.2 Site Photographs, page 3 of 3



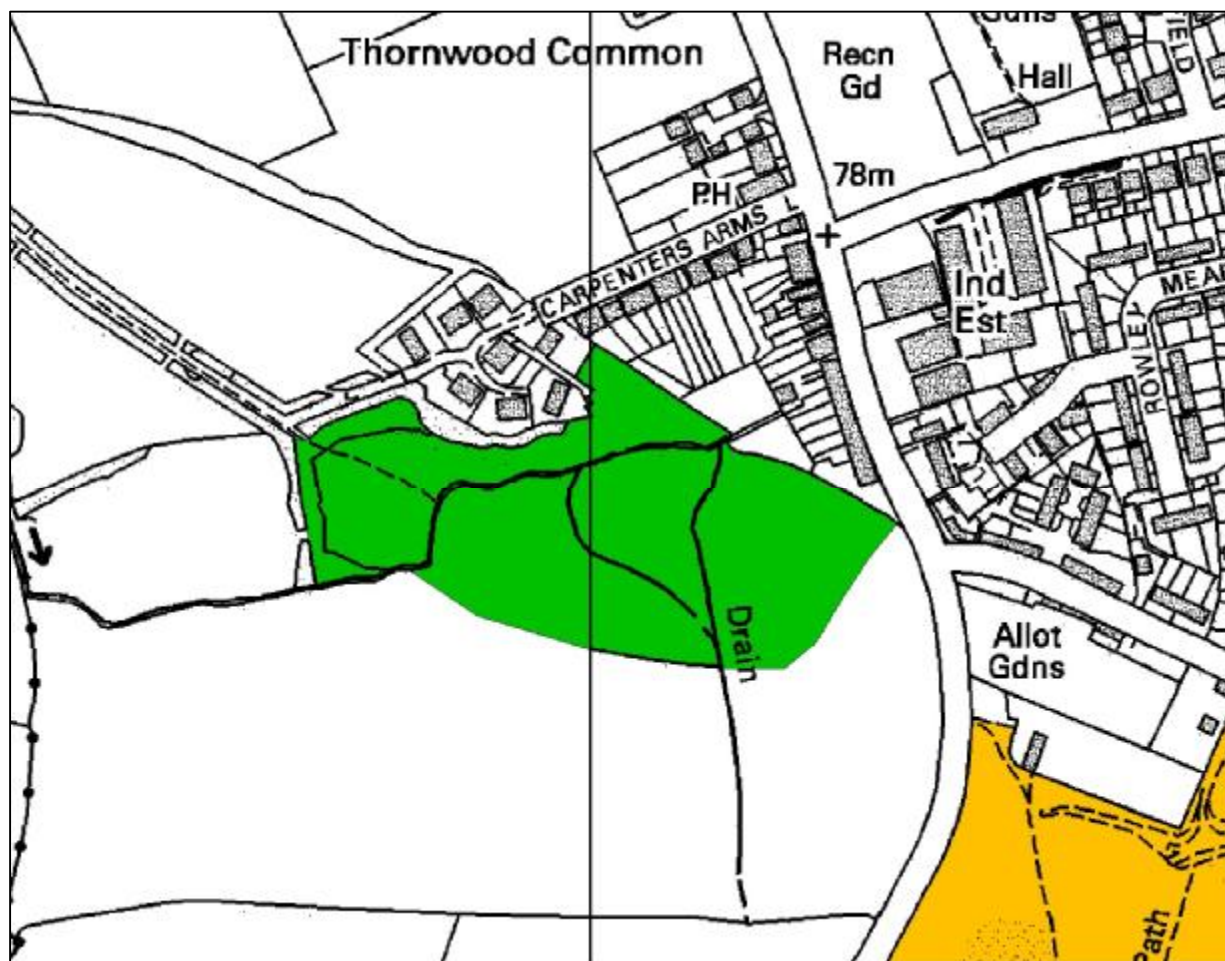
Central Hedge



Western Hedge



Wet meadow



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Ep92 Thornwood LNR (3.4 ha) TL 470044

This site is specifically designated as a flood storage area for the protection of the adjacent village of Thornwood, but has been created in such a way as to create valuable grassland and wetland habitat. It consists of a meadow, a flood bank, part of a small tree-lined stream, ditches and ponds. The species-rich grassland includes notable plants such as Quaking Grass (*Briza media*), Common Knapweed (*Centaurea nigra*), Lady's Bedstraw (*Galium verum*), Ragged-Robin (*Lychnis flos-cuculi*) and Ox-eye Daisy (*Leucanthemum vulgare*). The ponds are dominated by Common Bulrush (*Typha latifolia*), with a good variety of other wetland species such as Water-plantain (*Alisma plantago-aquatica*), several different willowherbs and sedges.

BAP Habitats

Species-rich Grassland (Essex)

Selection Criteria

HC28 – Small-component Mosaics

Appendix V, 10.1 ECOS Citations for Wildlife Site Designation, page 2 of 2.

Rationale

This artificial site has been created to support a variety of habitat types in a small area, which will benefit a wide range of fauna, including butterflies and dragonflies. The environmental education value of this LNR, both in terms of a “teaching resource” and also how engineering and ecological desires can be usefully combined.

Review Schedule

Site Selected: 2009

Reviewed: -