HABITAT MANAGEMENT PLAN

LAND TO THE WEST OF QUEEN ELIZABETH WAY

KINGS LYNN, NORFOLK

Prepared for Kings Lynn and West Norfolk Borough Council

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TREE SURVEYS

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1. Introduction

1.1 The client's instructions were to prepare a ten-year Habitat Management Plan for a wet area to the west of Queen Elizabeth Way to protect and improve the range of wetland habitats and turn the area into a managed nature reserve.

1.2 The site extends to 5.33 ha and consists of several habitats including woodland, scattered scrub, tall herb, grassland, fen, ditches and hedges. This Habitat Management Plan has been prepared in the light of a County Wildlife Site Survey prepared by Aaron Brown of Norfolk Wildlife Trust in 2021. This study outlines the likely range of species that may be found on the site. The plan also takes into account comments by Mike Jones of Norfolk Wildlife Trust during a recent site meeting. This Plan has been prepared by John Gibson, a qualified ecologist employed by A T Coombes Associates Ltd and Andrew Coombes Principal Arboricultural Consultant and Managing Director.

1.3 The catalyst for the production of the plan and the proposed programme of improvements which will secure the future of all the habitats on site is the nearby Parkway residential development. The plan is designed to produce a quantifiable Biodiversity Gain that can be related to the nearby development. Part of the plan will include controlling woody growth on the wetter parts of the site and enriching the northern edge, close to Decoy Wood, with a wider range of native wetland trees including native black poplar (*Populus nigra* subsp. *betulifolia*) which is rare and declining. This planting will also remediate tree losses associated with the development.

2. Site Description and History of the site

2.1 The site is located in the suburbs of Kings Lynn, which is in the west of Norfolk. A railway line borders the site to the south and to the north is an area of broadleaved woodland (CWS408 Plantation Wood). A housing development is to the east and playing fields to the west. CWS 408 Plantation Wood includes an established broadleaved woodland.

2.2 The site is bordered by ditches on three sides and is a mosaic of poor semi-improved grassland, scrub and localised areas of semi-improved grassland, tall herb vegetation, and reedbed. The soils are peaty and damp in the central sections and dryer and more free draining to the north. The habitat types are summarised in the following table:

Habitat type	**Area ha**
B6 Poor semi-improved grassland	2.2ha
B4 Improved grassland	0.2ha
C3.2 Tall herb and fern; tall ruderal	0.22ha
A2.2 Scrub scattered	2.04ha
G1.1 Wet ditch	800m (0.16ha)

Habitat type	Area ha
F1 Swamp	0.51ha

Tables contents drawn from the phase one habitat survey conducted by Aaron Browns,2021 survey (provided in full as Appendix 3).

2.3 According to satellite imagery (GoogleEarth,2022), the site has changed significantly throughout the past 30 years (Fig1). In 2009 the site appears most dry, with grassland habitat covering most of the land and minimal scrub and woodland encroachment. By 2021, the site had varied soil conditions and a swamp area that has been encroached upon by *Salix* species. It is apparent that the site now has significant scrub encroachment, which is beneficial for warblers and other breeding bird species but left unmanaged will ultimately the whole site would be likely to become wet woodland. This process can already be seen in parts of the site. Although wet woodland is not detrimental to the site, it is preferred to have a mixed broadleaved species woodland, with various habitats to maximise the site for wildlife. The plan will incorporate some of the sites new characteristics and manage the site accordingly to limit the encroachment.

Figure 1. Historic satellite imagery of the site from 1999-2021 (Google Earth, 2022)

2.4 The site's historical habitat management appears to have been minimal. The ditches that run along the northern, western, and southern boundaries have not been maintained and have become silted in recent years which has caused the ditches to decrease their efficacy to drain the site and become sub optimal for species such as water vole. The site has a lower elevation compared to adjacent land to the north, so this would explain the apparent swamping of areas and suboptimal conditions for grassland species, but optimal for wetland scrub to encroach. The survey effort by Mott MacDonald in 2018/19 recorded Water vole (BAP species). An area of land along the northern and western boundary has been periodically mown for access purposes but this appears to be the limit of work on site. There are some informal paths into the wetter part of the site. These may be the result of deer using the area rather than human activity.

2.5 The current state of habitats on site appears to be moderately diverse but declining due the lack of management. If water voles were on site in 2018/2019, the ditch conditions will likely be deterring populations from establishing or improving. The most botanically diverse habitat for wildlife is the western area where numerous grassland species exist. These will be out competed by scrub if left unmanaged.

2.6 The woody element developing on the northern edge has created a good transition of habitats from the adjacent Decoy Wood. The site has potential for managed diverse habitats to encourage protected species, such as brown hare *Lepus europaeus*, Hedgehog *Erinaceus europaeus,* Common pipistrelle *Pipistrellus pipistrellus*, Soprano pipistrelle *Pipistrellus pygmaeus* and numerous Schedule 1 birds, all of which have been recorded within 2km of the site. There are records of Great crested newts *Triturus cristatus* within 5km, and the site could benefit this species if managed with wetlands, ditches and riparian areas. There is scope for the use of habitat enhancements such as bat boxes, bird boxes and hibernacula.

3. The Long Term Vision

3.1 At the end of the plan period, connectivity with other areas of open public space will be substantially improved. This will include a new access on the western boundary off the public footpath leading to the railway bridge and an improved internal path forming a circular route around the site.

3.2 The peripheral drainage system will be sensitively restored, and a sluice fitted to control the water levels to optimise wildlife habitats particularly for Water vole *Arvicola amphibius*. Allowing a range of drainage conditions will further limit disruption to present protected wildlife populations, such as grass snakes *Natrix natrix,* which benefit from a range of riparian/ tall ruderal areas. After an initial restoration of the north, west and south drainage system, it will be followed by a staggered restoration process, ranging throughout the ten-year plan. The southern boundary ditch will have been cleared of vegetation.

3.3 Distinct habitat borders will be created to further increase the range of habitat. These will be close to the path running around the site, thus allowing good views over various habitats without disturbing wildlife, and protecting habitats by guiding visitors through the site, whilst still providing areas suitable for educational interpretation and learning opportunities.

3.4 New native woodland species will be established along the northern periphery of the site. Including Black Poplar *Populus nigra* subsp. *betulifolia* and other wetland tree species to provide resilience to climate change and increased botanical interest.

3.5 Encroachment of woody vegetation onto the grassland and fen areas will be halted and fen / grassland habitat maintained and enhanced by regular management.

3.6 the edges of ditches to have woody species either coppiced or removed, to allow a dominance of riparian habitat and tall ruderal species. This will improve the biodiversity of both flora and fauna, limit the negative effect of shading and leaf fall in the ditch areas and directly positively impact Water voles' populations.

3.7 There will be established stake holder involvement in the management of the area including of local schools, colleges, and community groups. Excess woody material from site to be used on local conservation projects, as well as habitat enhancements onsite.

3.8 Enhanced wildlife habitats onsite for BAP species will be in place, which will include bat & bird boxes and hibernacula.

4. Objects of Management

4.1 The objects of management which have been carefully drafted to balance the public recreation and wildlife conservation aims are as follows:

- To maintain and enhance, diversity wildlife habitats across the site.
- To provide a circular footpath and educational opportunities for nearby residents, schools and the general public, while protecting habitats.
- To manage the existing tree cover to improve the woodland structure and wildlife habitat potential, with the addition of native species.
- To improve age distribution and increase the species diversity of woody vegetation particularly on the northern part of the site.
- To eradicate all invasive plant species.
- To as far as is practicable ensure that the trees do not present a health and safety risk to the general public.
- To improve the efficiency of peripheral ditches, controlling water onsite and improve the quality of these habitats with particular attention to Water voles, Grass snakes and Common lizard.

5. Method of Working

5.1 The plan period will be ten years from the date of commencement of the works with detailed prescriptions for the first five years and outlined prescriptions for the remainder of the management period. The plan years will run from 1st April until 31st March in the following year. Year 1 of the plan is therefore the period from 1st April 2022 to 31st March 2023.

6. Habitat Management Prescriptions

6.1 Scrub management

Areas of dense scrubby woodland species will be coppiced on a 10-year cycle to allow light for natural regeneration. This will have three main purposes; to provide wider range of age classes of woody scrub, to diversify available habitats and to control succession onsite. This should be conducted annually cutting 10% of the scrub area (0.2 Ha). This will provide basking areas for species such as Grass snake and Common lizard *Zootoca vivipara* and low woody growth for nesting birds. However, woody scrub within the fen (swamp) area (0.5 ha) will be coppiced annually so wet areas and fen vegetation are not lost to woodland encroachment.

The site has some naturally regenerated pedunculate oak that will be retained, especially semi mature specimens. Species such as willow *Salix sp*., hazel *Corylus avellana* and alder *Alnus* sp. should be target species for coppicing, creating glades and open grass swards.

6.2 Grassland Management

Grassland and fen areas will be mowed annually, and arisings removed. This is to promote biodiversity of the site and replicate recent successes onsite with similar regimes. This will also reduce successional species moving into the area and ultimately promoting nectar and pollen availability for insect's species. This should be regularly surveyed to assess the impact of this management and cuttings will be utilised across the site to create piled habitats for Grass snakes and insects.

6.3 Site Water Management

6.4 As noted above the condition of the ditches are sub optimal for Water vole. Ditches will be sensitively cleaned out over the period of the plan, starting with the southern boundary ditch in year 1. This will involve coppicing all woody growth encroaching on the ditch line of the plan, then cleaning out the ditch retaining the existing profile. The western boundary ditch will be cleaned out in year 2 and the northern ditch in year 3. In each case woody vegetation will need to be cleared as for the southern ditch. It is important that following the ditch clearance there is a programme of maintenance working on one side of a ditch at a time (See Appendix 2 for details). The work will be conducted in early spring and autumn. A fully survey for BAP species will be required prior to commencement and an onsite Ecological Clerk of Works (ECoW) appointed to mitigate against harm to potential BAP species onsite.

6.5 A sluice will be constructed in the southwest corner near the railway culvert in year 1, see the site plan Appendix 1 for the exact position. This will be used to manage water levels holding back some water in the ditches to maintain optimum conditions for Water voles and other species.

6.6 Other habitat improvements

6.7 Enhancements to habitats, such as 2 bat boxes, 3 bird boxes, 1 owl box and 5 hibernacula will be provided onsite before works begin to mitigate against disturbances. Positions for the boxes and hibernacula are shown on Appendix 1.

6.8 Woody Vegetation

6.9 The primary method of tree increase will by way of natural regeneration. However, this will be carefully controlled and supplemented by limited tree planting in the dryer areas.

6.10 The focus of new tree planting will be to increase the range of native wetland species in particular, the rare Native Black Poplar. Providing important woodland fringe habitat along the edge of Decoy wood. Increasing the variety of species will improve resilience to climate change and pests and diseases and provide interest, and educational value. The planting will be restricted to the northern drier area of the site.

6.1 Individual tree planting positions are shown on the site plan Appendix 1. At approximate 5m centres these trees will cover an area of approximately 0.1 ha, this equates with 2% of the total area of the site. The trees have been concentrated the north of the site to reduce shading of grass and rush vegetation. 51 new heavy standard trees (14 to 16 cm stem girth) will be used. The following table gives species and number of trees to be planted.

Scientific Name	**Common Name**	**Tree Qty**
Alnus glutinosa	Alder	3
Frangula alnus	Alder Buckthorn	2
Populus nigra subsp. *betulifolia*	Native Black Poplar	20
Populus tremula	Aspen	5
Prunus padus	Bird cherry	5
Salix alba	White Willow	2
Salix cinarea	Grey Willow	5
Salix fragilis	Crack Willow	2
Salix triandra	Almond Willow	2
Sorbus aucuparia	Rowan	5
	Total	**51**

6.2 Poplars will be planted as unrooted sets 1.8 to 2.4 m from stool beds in Norfolk. Sets to be positioned in prepared pit (0.5m x 0.5 m x 0.5m) and pushed into a hole, made with an iron bar, in the centre of the pit to a depth of 300 mm before back filling the pit. All other species to, as far as is practicable, to be of East Anglian provenance. No imported planting stock will be used.

6.3 The wide spacing will allow light to reach the ground flora. Trees will be set into coppiced sections if necessary.

6.4 All trees will be maintained for a period of 5 years from the date of planting. All failures will be replaced with trees and shrubs of the same species, size, and quality. Weed growth will be controlled by fitting mulch mats combined with hand cutting. Stake and guards will be maintained and replace if required. This planting will remediate tree losses on the parkway site on a 3 for 1 basis.

7. Access and Interpretation

7.1 This existing paths edging the site will be maintained by mowing and linked with a new footpath running around the site designed to allow viewing of the various habitat types. The new foot path will be levelled and mowed using short sections of boardwalk in areas subject to seasonal flooding. The board walk will be constructed using recycled plastic boards. The route of the path is shown on the site plan Appendix 1.

7.2 A new light footbridge will be constructed on the western boundary to allow access directly from the public foot path running up to the railway bridge. This bridge will span the ditch and have side rails for safety. This will be done in year 1.

7.3 Five interpretation boards will be erected as shown on the site plan Appendix 1. Two at the access points showing a map of the site and three around the path giving details of the various habitats and associated wildlife.

8. Protection

8.1 It is likely that deer, particularly Muntjac, will visit the area. High deer populations make coppicing and natural regeneration difficult due to browsing and also have serious implications for ground flora. If deer browsing restricts coppice growth or the ground flora temporary fencing will be erected.

8.2 Planted trees will be protected from deer by individual weldmesh guards (1.8 m) supported by a machine rounded stake treated timber stake (2.4 x 75mm).

8.3 In the event of natural regeneration being browsed by deer, stems will be thinned and fitted with 1.5m tree shelters. When coppicing, brash from the tops of trees will be piled over the stumps rather than chipped to protect against browsing. To prevent browsing damage by rabbits, hares and voles all planted trees will be fitted with individual spiral stem guards (50 mm x 0.7 m).

8.4 Grey squirrels are present and high populations could have an impact on numbers of nesting birds due to predation of eggs and nestlings. Control of squirrels in an urban setting adjacent to residential properties and land accessible to the public is not practicable and will not be attempted unless excessive damage is noted.

9. Removal of Invasive Species

9.1 The Golden Rod *Solidago spp* will be eradicated the early part of the plan (Years 1 to 3) if necessary employing specialist contractors. The primary method will be hand pulling of the plants whilst the soil is moist, removing the plant and its roots and disposal of the plants off site. If required, hand pulling can be repeated in the following year. After pulling is complete the site will be mowed twice a year to ensure eradication is complete. Subsequent yearly monitoring will be required assess the success of the eradication and adjust accordingly.

10. Managing the Risk of Tree Failure

10.1 In order to fulfill the owner's duty of care, a system of routine tree inspections tree will be established.

10.2 Trees within falling distance of any path or area used by the public will have a professional survey in year 1 of the plan and then, subject to the condition of the trees at the time of the first inspection, at three-year intervals. Basic level checks should be carried out annually, these do not need to be completed by a professional arboriculturist, but anyone with a basic knowledge of trees would be preferable. Staff undertaking the basic surveys should, ideally, hold the LANTRA Basic Tree Inspection qualification. Results of the basic level survey should be retained along with those from the professional surveys of the site. Basic inspections should also be completed after any storm event.

11. Measures to Accommodate Climate Change

11.1 The likely effects of climate change caused by human emissions of carbon which enhance the greenhouse effect of the upper atmosphere is widely predicted to be as follows:

- Increased summer temperatures
- Possible more frequent storm events
- Higher wind speeds
- Potential for flooding
- Higher levels of carbon dioxide in the atmosphere.
- Spread of tree pathogens and insect pests.

11.2 The extent to which these potential problems will manifest themselves and over what timescale cannot be accurately predicted. The plan will have built in flexibility to, as far as is practicable, adapt to the predicted changes.

11.3 The plan will be reviewed at five-year intervals when any impacts of climate change adversely affecting progress towards the objectives can be considered and any necessary adjustments made.

12. Community Involvement

12.1 Any local groups interested in conserving the habitats and infrastructure will be invited to participate in management work. Possible partners in the management of the areas and coordinators of volunteers are TCV, local educational centres (Kings Oak Academy, Kings Lynn Academy and Fairstead Community Primary) and Norfolk Wildlife Trust.

12.2 The site others a great opportunity for forest schools' activities, which would match the habitat management requirements of the site. Most activities can be achieved with hand tools and therefore would suit supervised volunteers.

12.3 The country wildlife site to the north has an active woodland trust volunteer group, which could be invited onsite the site to support the management.

12.4 One of the main objectives for this site is to improve public access and enjoyment of the site, both for education and recreation. A circular walking path is proposed within the plan, to direct people through several habitats and deter the public from walking across the site (minimalise wildlife disturbance). The site will also have an additional access via the western boundary, with a bridge over the ditch system.

12.5 Five interpretation panels are proposed within the plan in key areas to highlight areas of greater wildlife importance and promote habitat improvements. These key areas are listed below:

- New access – Give an overview of the site, its route, habitats and species.
- Coppicing area - Highlighting the coppicing practice and the benefits of open landscape.
- Fen area - Promoting the management of succession, biodiversity within and hibernacula's benefits.
- Black Poplar and tree diversity – Tree identification and explanation of native species benefit onsite.
- Ditch system – Explaining the scheduled work, species, and riparian habitat.

13. Ecological and Environmental Considerations

13.1 Before finalising the plan additional up to date ecological surveys will be needed and the contents of the plan adjusted in the light of the findings.

13.2 <u>Bat species</u>

All the old trees with features that may be attractive to bats, such as cavities and peeling bark will be retained. Additional bat boxes will be positioned at least 4 metres above ground, away from artificial light, sheltered from strong winds and facing either south, southeast or southwest. Boxes should be on established trees, along linear features and have clear access for direct flight.

13.3 Brown hare *Lepus europaeus* and hedgehogs *Erinaceus europaeu*

Brown hare *Lepus europaeus* and hedgehogs *Erinaceus europaeu* have been recorded locally and the scrubby woodland and open grassland areas does offer suitable foraging and sheltering conditions for these both. Piles of wood and vegetation should be cleared by hand to mitigate against disturbing hibernating hedgehogs, especially in winter months.

13.4 Water voles *Arvicola amphibus*

Water voles have been recorded in similar neighbouring habitats and are presumed to be on site, at least at times. However with the evidence provided, the waterway conditions are not ideal for this species. Riparian vegetation is suitable for foraging Water voles, but the ditch banks are mostly not suitable. Reprofiling the ditches will enhance these features for sheltering and breeding Water voles, which will enhance the ecological value of the site to this species. An ECoW will need to be present during this reprofiling due to the risk of disturbance to borrows hidden from the untrained eye. Alongside the ditches is currently encroached with woody scrub, which impacts the sunlight and leaf matter entering the ditches. Removing these species and allowing riparian habitats to flourish, will enhance these areas for this species and additional tall ruderal areas will further improve biodiversity, including beneficial attraction to species such as the Grass snake. Reprofiling the ditch network will be on a 3-year plan, allowing species present to migrate to other ditches, whilst improvements are made. After this point, the ditch system will be a 1-year annual rotation system, as mentioned previously.

13.5 Nesting birds

The potential for nesting bird species across the site is moderately high, due to the mixture of habitats and scrub encroachment, although if left un-managed, the quality of this breeding site will decrease. All thinning, coppicing and clearance work will be completed during the period 1st November to 1st March in the following year to avoid the bird nesting season. Maintaining and restoring the fen habitat will ensure species requiring a marshland for nesting, foraging and shelter, can utilise this space and establish populations. Dense patches of woody shrubs will be retained in natural outer edges of the site, outside the pathway, to provide potential bird nesting and shelter. Cutting this scrub and coppicing areas on a yearly rotation will enhance the age structure and complexity of scrub and understory woody species on site, significantly improving nesting opportunities.

Enhanced nest opportunities on site should be provided whilst planted trees and scrub management is established onsite. Boxes should be for scrub species, such House sparrow *Passer domesticus*, Dunnock *Prunella modularis*, Song thrush *Turdus philomelos* etc . The habitats would suit foraging for Barn owl *Tyto alba* and Tawny owl *Strix aluco***,** and therefore an additional owl box should be located on establish oak tree on the western boundary.

13.6 Insects

Wherever possible, deadwood, both standing and, on the ground, will be retained to provide biodiversity. Cut and remove grassland regime should also promote opportunities for biodiversity

13.7 Reptiles

Common lizard *Zootoca vivipara* has also been found on site, and any hibernacula or wood piles, will have to be cleared by hand, avoiding November to March due to hibernation. Additional hibernacula will provide further opportunities for shelter for this species, especially during planned habitat management. Creating glades and open grasslands offering opportunities for basking will improve this site for this species.

13.8 Tree care

Maximum use will be made of recycled wood chip from coppicing and felling operations for paths and mulching planted trees. No artificial fertiliser or peat-based compost will be used during planting.

13.9 Grass snakes *Natrix Helvetica*

Found locally and noted as being recorded onsite. This site is a suitable habitat for this species and with the proposed habitat improvements, this species should flourish on site. Hibernacula should be raised and located beyond high public footfall to mitigate again disturbance and high water levels. Utilising vegetation cuttings onsite should create an educational opportunity and limit foreign material onsite. Piles of rotting vegetation should not be disturbed in summer months due to egg incubation and constructed hibernacula should not be disturbed between October and April due to hibernation.

14. Permissions and Constraints

14.1 While coppicing trees with a stem diameter of less than 150 mm is exempt from Felling Licence regulations no work will be completed until it has been established whether a felling licence will be required.

15. Implementation

15.1 A schedule of works and timetable for implementation of the plan is set out in Appendix 2. The major capital items have been included in the early years of the plan. To facilitate a possible long-term agreement with a conservation organisation to get involved in the management of the area.

16. Monitoring Throughout the Plan Period

16.1 It will be necessary to monitor the impact of the implementing the proposals to ensure the measures completed produce the planned habit improvements, in particular, the plan will be reviewed after five years, and any changes needed made for the second half of the period.

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Principal Arboricultural Consultant

A.T. Coombes Associates Ltd
05 May 2022

Potential Bridge

Proposed Sluice Gate

Existing Grassland

Existing Grassland

Existing Grassland

Existing Grassland

Existing Grassland

Existing Grassland

Existing Grassland

Existing Grassland

Existing Grassland

Existing Grassland

Existing Grassland

Drawing Title:

Appendix 1 - Tree Planting Plan

Site:

Land to the West of Queen Elizabeth Way, King's Lynn

Client:

Lovell

NORTH

To Scale 1:500 at A0

Key

- Existing Tree Positions
- Existing Tree and Shrub Mass Groups
- Scrape cluster
- Proposed Populus nigra subsp. betulifolia Planting
- Proposed Footpath
- Site Boundary
- Proposed Bat Box (B)
- Proposed Bird Box (Bi)
- Proposed Hibernacula (H)
- Proposed Owl Box (O)
- Proposed Information Boards (I)
- Proposed Hibernacula Banks (HB)
- Proposed Riparian Management
- Proposed Areas for Coppicing and scrub managment
- Proposed Area to be Reverted to Fen

Drawn By: RG

Date:29/04/2022

TREE SURVEYS

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Item	Prescription Type	Detail	Unit	Qty	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
1	Woody regrowth	Annual coppicing of woody regrowth on 10 year cycle (10% of area per year)	ha	0.2	*	*	*	*	*	*	*	*	*	*
2	Invasive woody growth fen area	Clearing woody growth from fen area annual clearance	m^3	0.3	*	*	*	*	*	*	*	*	*	*
3	Grassland	3 year rotation, 2 parts mown each year, rake arisings into piles	ha	2.4	*	*	*	*	*	*	*	*	*	*
4	Ditch line	Clear woody growth from ditch along southern boundary	m	344	*									
5	Ditch line	Clean out ditch along southern boundary	m	344	*									
6	Ditch line	Fit sluice gate by railway culvert	Job	1	*									
7	Ditch line	Clear woody growth from ditch along western boundary	m	344		*								
8	Ditch line	Clean out ditch along the western boundary	m	144		*								
9	Ditch line	Clear woody growth from ditch along northern boundary	m	344			*							
10	Ditch line	Clean out ditch along northern boundary	m	307			*							
10	Ditch line	Ditch maintenance and cut riparian habitat. One bank of the southern ditch only	m	172				*						
11	Ditch line	Ditch maintenance and cut riparian habitat. One bank of the western ditch only	m	72					*					
12	Ditch line	Ditch maintenance and cut riparian habitat. One bank of the s northern ditch only	m	153						*				
13	Ditch line	Ditch maintenance and cut riparian habitat. One bank of the southern ditch only	m	172							*			
14	Ditch line	Ditch maintenance and cut riparian habitat. One bank of the western ditch only	m	72								*		
15	Ditch line	Ditch maintenance and cut riparian habitat. One bank of the s northern ditch only	m	153									*	
16	Invasive species	Eradicate Golden Rod hand pull and remove from site	Job	1	*									

Item	Prescription Type	Detail	Unit	Qty	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
17	Invasive species	Cut any residual Golden Road x 2 plus further hand pull as required	Job	1		*	*							
18	Footpaths	Form new foot path across site using board walk from recycled plastic where necessary	m		*									
19	Footpaths	Mow new and existing paths X2	m		*	*	*	*	*	*	*	*	*	*
20	Potential Foot bridge	Construct potential foot bridge across the ditch to link with the railway bridge footpath (date to be allocated by site team)	Job	1										
21	interpretation	Erect interpretation boards as shown on appendix 1	5	ech	*									
22	Habitat improvements	Erect Bat boxes	2	ech	*									
23	Habitat improvements	Erect Bird Boxes	3	ech	*									
24	Habitat improvements	Erect Owl boxes	1	ech	*									
25	Habitat improvements	Form Hibernacula's	3	ech	*									
26	Tree Planting	Supply and plant trees	51	ech	*									
27	Tree Planting	Mainenance of planted trees	51	ech	*	*	*	*	*					
28	Scrapes	Three irregular shallow scrapes created, as shown the	60	Sqm		*								
29	Hibernacula banks	Acummulated spoil from scrap and scrub clearance used to create banks near established trees and scrub	2	Units		*								
28	Surveys and Supervision	New species survey and Ecological Clerk of Works	1	Job	*									
29	Fen management	Cut and remove 2/3 of vegetation	2 of 3	Area	*				*					*

County Wildlife Site Survey Form

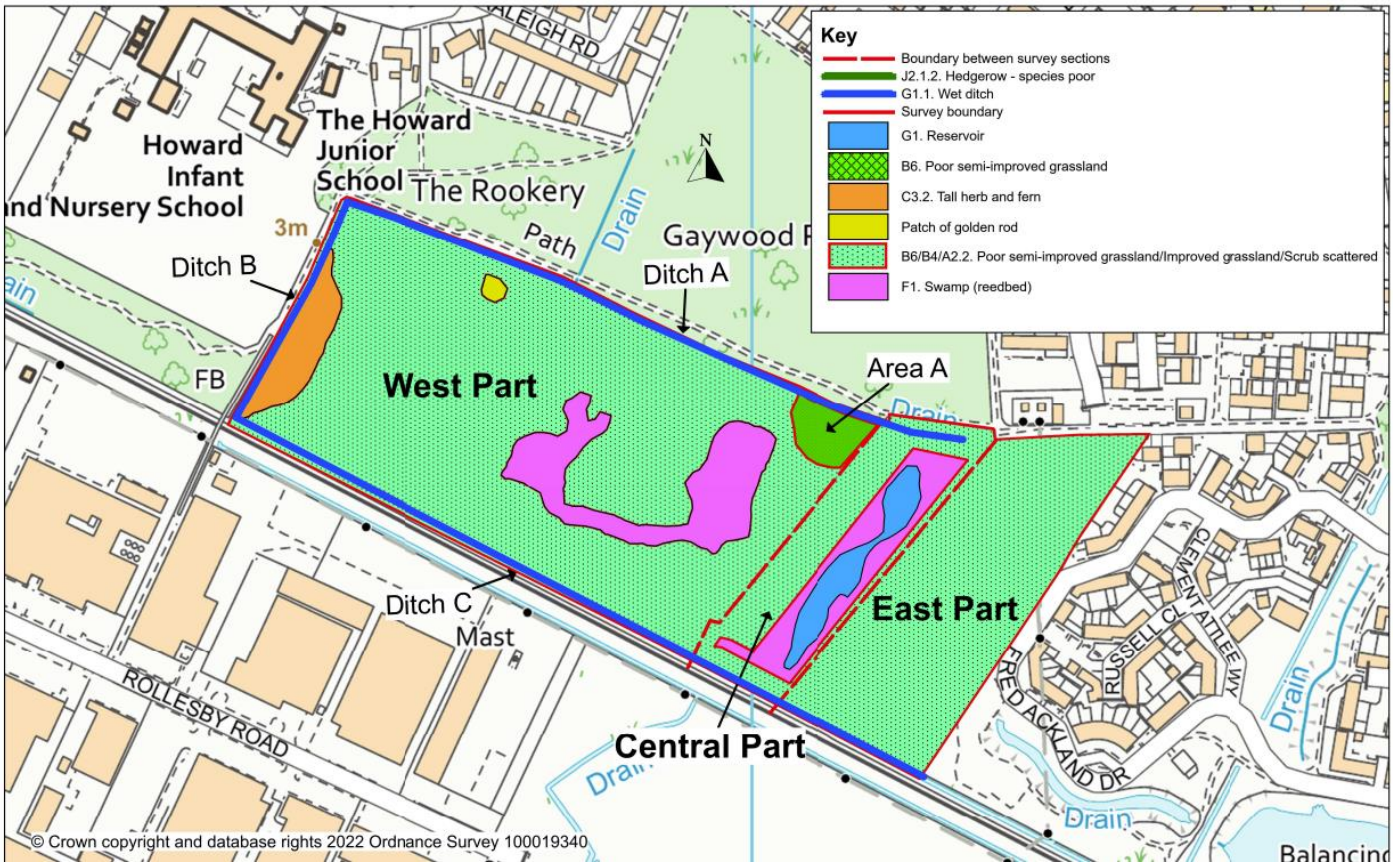
Site Name: Parkway
Grid reference: TF 63982 19358
District: Kings Lynn and West Norfolk

Parish: Kings Lynn
Survey date: 04/08/2021
Area: West Part 5.33ha, Central Part and East Part 2.95ha

Please complete the following

Type of survey	*Please tick*
New site	✓
Re-survey of existing site	
Change to existing site (specify)	
Information change	

Annotated habitat map



Site description:
Overview:

The site is located in the eastern suburbs of Kings Lynn. Along its southern boundary runs a railway line and to the north is an area of broadleaved woodland which itself is bordered by housing. Housing also borders the site to the east and playing fields to the west. CWS 408 Plantation Wood lies the other side of the dividing track to the north and is an area of broadleaved woodland**.**

The site is formed of 3 distinct sections:

- The West Part (5.33ha) is bordered by ditches on three sides and is a mosaic of poor semi-improved grassland, and scrub and localised areas of semi improved grassland, tall herb vegetation, and reedbed. The soils are peaty and damp.
- The Central Part (1.16ha) is managed by Anglian Water (AW) and contains a reservoir, reedbed and poor semi improved grassland. The soils are peaty and damp
- The East part (1.79ha) is a mosaic of scrub and poor semi-improved grassland and a hedge running along its northern boundary. Non-native goldenrod *Solidago canadensis* is locally dominant. The soils are peaty and damp to the south and dryer and more free draining to the north.

Both the survey area and land to the west was surveyed in 2018/19 by Mott McDonald and several protected and priority species were recorded included 9 Amber and Red listed bird species. Grass snake, common lizard, and water vole were also recorded and which are all Biodiversity Action Plan (BAP) species.

Habitat description: West Part

Habitat type	***Area ha or % of site***
B6 Poor semi improved grassland	2.2ha
B4 Improved grassland	0.2ha
C3.2 Tall herb and fern; tall ruderal	0.22ha
A2.2 Scrub scattered	2.04ha
G1.1 Wet ditch	800m (0.16ha)
F1 Swamp	0.51ha

Habitat description: Central Part and East Part

Habitat type	***Area ha or % of site***
B6 Poor semi improved grassland	1.51ha
A2.2 Scrub scattered	0.95ha
G1.1 Wet ditch	107m
G1 Reservoir (AW compound)	0.19ha
F1 Swamp (AW compound)	0.3ha
J2.1.2 Hedges/intact/species poor (northern boundary of East Part)	90m

West Part

B4 Improved grassland

This occurs on the mown paths adjacent to the northern and western boundaries (Fig.1). It is heavily mown and species poor and species include cocksfoot *Dactylus glomerata*, annual meadow grass *Poa annua*, ribwort plantain *Plantago lanceolata*, creeping thistle *Cirsium arvense*, daisy *Bellis perennis*, nettle *Urtica dioica*, common ragwort *Senecio jacobaea*, lesser trefoil *Trifolium dubium*, and creeping buttercup *Ranuculus repens*. Burdock sp. *Arctium sp.* is frequent along the north south path.

B6 Poor semi improved grassland

This forms a mosaic of distinct stand types dominated by individual grass species (see table below and Fig. 3,5,6,7) and consisting of common couch *Elymus repens*, reed *Phagmites*

australis, reed canary grass *Phalaris arundinacea*, greater pond sedge *Carex riparia*, and wood small reed *Calamagrostis epigejos.* Discrete areas where soft rush *Juncus effusus* is frequent occur across the site but are mainly located in the dampest areas within the common couch dominated areas. Away from the boundaries the grassland is relatively open with scattered scrub. Across the areas dominated by common couch, bare peaty soils were observed in many places and where very recently surface water lay, resulting in the sward dying off.

Grass stand type approx. area (based on grassland area of 3.19)	***Area ha and % of site***
Common couch	1.66ha 52%
Reed	0.6ha 19%
Greater/lesser pond sedge	0.52ha 16%
Reed canary grass	0.35 11%
Wood small reed	0.06 2%

Common couch dominated areas predominate across the area and although it is species poor, these areas represents the most botanically diverse areas of the site. Other grasses include rough meadow grass *Poa trivialis*, black bent *Agrostis gigantea*, and Yorkshire fog *Holcus lanatus* and which are locally frequent, false oat grass *Arrhenatherum elatius* is locally abundant. The most dominant forb is hemp agrimony *Eupatorium cannabinum* which ranges from locally frequent to locally abundant. Locally frequent forbs include smooth tare *Vicia tetrasperma*, creeping thistle, curled leaved dock *Rumex crispus*, soft rush, and tufted vetch *Vicia cracca*. Cow parsley *Anthriscus sylvaticum*, bittersweet *Solanum dulcamara*, hairy bittercress *Cardamine hirsuta,* and hoary ragwort *Jacobaea erucifolia* are occasional and marsh willowherb *Epilobium palustre*, cuckoo flower *Cardamine pratensis*, marsh woundwort *Stachys palustris*, fleabane *Pulicaria dysenterica*, gypsywort *Lycopus europaeus*, water dock *Rumex hydrolapathum* and celery leaved buttercup *Ranunculus sceleratus* are rare. Variations within the sward height occurs in extensive pockets due to deer grazing.

Reed is the next most dominant stand type. In the eastern half of the site it forms an extensive stand of pure tall reed but which in places contains frequent greater pond sedge. The most extensive block lies near to the eastern boundary and which to its south merges into a sedge bed. Within this area of reed numerous reed bunting were heard calling on the survey and are likely to be breeding on the site.

Tall dense canary reed grass dominated stands occur centrally and in the northern half and contain many of the forbs present in the common couch stands but in much lower frequencies. Tall dense wood small reed forms a small number of very localised stands and yellow flag *Iris pseudacorus* was only observed in one small but dense patch in the north west part of the site and out of which flew a willow warbler.

Greater pond sedge beds mainly occur in a band adjacent to the southern ditch (Ditch C) and to the far south east and north west of the site and which contain locally frequent hemp agrimony and rare lesser pond sedge *Carex acutiforis*. A large patch of goldenrod is present on the edge of the sedge bed in the north west of the site near the northern boundary.

Some scrub clearance has occurred in the far north east and adjacent to the concrete track (Area B, Fig. 3), this area being isolated from other areas of grassland by dense scrub. Here the vegetation is quite diverse with many species associated with disturbed ground. Black bent, creeping bent *Agrostis stolonifera*, rough meadow grass *Poa trivialis*, common couch, Yorkshire fog, toad rush *Juncus bufonius*, field forget-me-not *Myosotis arvensis*, soft rush, scarlet pimpernel *Anagallis arvensis*, and reed sweet grass are all locally frequent. Scentless mayweed *Tripleurospermum inodorum*, feverfew *Tanacetum parthenium* are occasional, and reed frequent to locally abundant. False fox sedge *Carex otrubae* and bristly oxtougue *Helminthotheca echioides* are frequent, and hemp agrimony and creeping thistle locally

abundant. Dense stands of reed and hemp agrimony occur around the boundaries. A wide bank of false brome *Brachypodium sylvaticum* borders the area to the north adjacent to the path.

A2.2 Scrub scattered

The scrub is at its most dense around the boundaries of the site and especially to the north and is dominated by grey willow *Salix cinerea.* Grey willow also forms a number of dense stands within the interior of the site and which casts deep shade resulting in unvegetated damp peaty soils. Crack willow *Salix fragilis* is occasional across the area and osier *Salix viminalis* is rare to occasional and mainly confined to a band of scrub along the northern boundary. Hawthorn *Crataegus monogyna* and ash *Fraxinus excelsior* scrub are mainly present in the common couch areas to south west and are either dead or suffering die back and likely due to fluctuating high ground water levels. Extensive stands of bramble *Rubus fruticosus* agg. which forms thickets also occur and which are mainly concentrated to the far west and along the southern boundary on southern bank of Ditch C. A grouping of young oak *Quercus robur* trees are present in the far west of the site and are of very similar age and which appear to be a result of planting. Blackthorn *Prunus spinosa* scrub is rare.

C3.2 Tall herb and fern; tall ruderal/ B6 Poor semi improved grassland

A mosaic of very dense tall herb vegetation and young mixed scrub occurs within a wide band to the west of the site (Fig.4). Nettle, creeping thistle, field rose *Rosa arvensis*, hemp agrimony, bramble, bittersweet are all frequent to locally abundant. Great willowherb *Epilobium hirsutum*, ground ivy *Glechoma hederacea*, and dog's mercury *Merculis perennis* are frequent, and common ragwort occasional. Scrub consists of hawthorn willow sp. *Salix sp*., and oak.

G1.1 Wet ditch

Ditch A

This runs along the northern boundary and to the south of which is a wide mown grassy path (Fig.1 & 2). A bridge across the ditch is culverted and a further ditch enters at this point from the north.

The water is shaded by trees and scrub along the north bank and which widens noticeably east of the bridge. Trees comprise frequent semi-mature oak and ash, and scrub consists of hawthorn, field maple *Acer campestre*, blackthorn, grey willow, hazel *Corylus avellana*, rose sp. *Rosa sp*., wytch elm *Ulmus glabra*, and ivy *Hedera helix*. Grey willow occurs most frequently east of the bridge and here most especially in places it has invaded the ditch. Water vole were found to occur in the ditch in surveys carried out in 2019.

It is deeply sedimented and especially east of the bridge and on the survey it contained shallow water along its length which averaged approx. 15cm and was clear. Water starwort *Calitriche sp*. was the only floating aquatic plant observed and which was locally frequent. Where it is less shaded the channel is heavily vegetated with lesser pond sedge and reedmace *Typha latifolia* and which are locally frequent forming dense patches and greater pond sedge occasional. Reed occurs within ditch and along the bank and is occasional west of bridge but frequent east of bridge. Other frequent species along the southern bank include hemp agrimony, great willowherb, bramble, creeping thistle, cocksfoot, false oat grass, and false fox sedge. Soft rush is rare.

Ditch B

This runs along the western boundary and is similar in character to Ditch A with scrub along its west bank of similar species although grey willow is notably less numerous. Along its length are 5 notable mature oak trees. It is much less vegetated then Ditch A and water is also clear and of similar depth. Lesser pond sedge is locally frequent in the channel and water starwort is frequent forming large patches. The dominant species on the east bank are nettle, hemp agrimony, and creeping thistle.

Ditch C

This runs along the southern boundary. It is bordered by an almost continuous band of dense bramble along the south bank but is only heavily shaded in its far western section where it is enclosed by salix scrub which is invading the ditch in places. Here the water is turbid and the banks extensively of bare soil and species which occur here include remote sedge *Carex remota*, ground ivy, bramble, and nettle. Where unshaded the water is clear and greater pond sedge forms a narrow band along most of the northern bank with frequent hemp agrimony. Water is up to 30cm deep in places and is heavily vegetated with mainly flag iris and greater pond sedge. No floating aquatic plants were observed.

Ditch C also continues along the southern boundary of the Central Part and the East Part and where it is dominated by dense reed.

Central Part (Anglian Water compound)

This lies within steel palisade fencing and was observed through the gateway on the northern boundary. The area observed indicated that the area is a mosaic of poor semi-improved grassland and scrub and which surrounds a reservoir fringed by reed.

B6 Poor semi improved grassland/ A2.2 Scrub scattered

Most frequently occurring species is false brome, common ragwort, thistle sp., hemp agrimony, good king Henry *Blitum bonus-henricus*, butterbur *Petasites hybridus,* false oat grass, and cocksfoot. Scrub is scattered through the area and is mainly comprised of willow species but hazel, ash, hawthorn also occur.

B4 Improved grassland

A Google Earth aerial shows a grassy mown track running through the length of the site and which appears to provide access to infrastructure positioned on the inlet of the reservoir.

G1 Reservoir/ F1 swamp

The area contains a reservoir fringed by a wide reed margin. Given its close proximity to Ditch A it may support water vole.

East Part

B6 Poor semi improved grassland/ A2.2 Scrub scattered

This is a mosaic of tall rank grassland and scrub and with the grassland proportionally more diverse than the West Part. The scrub is much more dense than in the West Part (Fig. 8,9,10). Grey willow is dominant, with occasional oak, ash and blackthorn. The northern 2/3 is the most diverse area with frequent species including bristly oxtongue *Helminthotheca echioides*, black bent, Yorkshire fog, false oat grass, creeping thistle, hoary ragwort, reed,

creeping buttercup, and charlock *Sinapis arvensis*. Locally frequent species include creeping bent, fleabane *Pulicaria dysenterica*, hemp agrimony, soft rush, wood small reed, and silverweed *Potentilla ancerina*. Scentless mayweed is occasional, and false fox sedge is rare. Wood small reed occurs as occasional small tall dense stands. In the far north greater pond sedge forms bands around boundary and especially to the west and which is interspersed with hemp agrimony.

Goldenrod is rapidly spreading across the site. In the top third it is occasional, and across the remainder of the site except the final quarter (where it is absent) it ranges from frequent to locally dominant, with many large stands occurring (Fig. 9). The site gets distinctly damper in the final third with tall vegetation throughout where the diversity decreases but many of the species further north still occur. Both reed and hemp agrimony are frequent to local dominant with large stands occurring, common ragwort and teasel *Dipsacus fullonum* are also locally frequent here. The final quarter is where it is wettest and here reed is the most dominant grass, and wood small reed, and false oat grass locally dominant (Fig. 10).

J2.1.2 Hedges/intact/species poor

A thick wide hedgerow which is a remnant of a former arable field boundary runs for approx. 90 metres along the northern boundary. It is almost exclusively of blackthorn and which is spilling into the grassland and is interspersed with some bramble. On the survey approx. 10 house sparrows flew in and out of the hedge and were likely breeding.

Other notable species

Non-native and invasive species goldenrod was found to be locally dominant within the East Part and is rapidly spreading across the site. One patch was also observed in the West Part.

On the survey one willow warber Amber listed) was observed in the West Part, and numerous reed bunting (amber listed) where heard in the main reedbed of the West Part. IRO 10 house sparrow (Red listed) were observed flying in and out of blackthorn hedge along northern boundary of the East Part.

Both this land and land to the immediate west of the West Part was surveyed in 2018/19 by Mott McDonald and several protected and priority species were recorded. Although the exact location of these records are not known (except for water vole) given the survey area comprises of the most suitable existing habitat they are highly likely to occur here. These include 5 Amber listed species (dunnock, kestral, reed bunting, tawny owl, willow warbler) and 4 Red listed species (house sparrow, mistle thrush, song thrush, starling). Grass snake, and common lizard (BAP species) were also recorded, and water vole (BAP species) were recorded in the northern ditch (Ditch A) of the West Part.

The habitats within the survey area including the reservoir also represents suitable habitat for common toad BAP species), and which may occur within the survey area.

Adjacent habitats/potential buffer zones & linkage to other sites:

CWS 408 Plantation Wood lies the other side of the dividing track to the north and is an area of broadleaved woodland.

Poor semi-improved grassland which was unmown on the survey adjoins the eastern boundary of the East Part. A narrow strip of broadleaved woodland adjoins the west boundary of the West Part (other side of track). Ditch C which borders the southern boundary of the survey area continues south east up to the A149 and which may be culverted under it and so connecting to the wider ditch networt.

Is the site in positive conservation management? No.

No management is carried out within the grassland apart from the mowing of paths along northern and western boundary of West Part. The grassland is steadily being invaded by scrub and the ditches have not been subbed out for many years and are sub optimal for water vole. Dumped material is cleared from ditches on a regular basis.

Brief management proposals:

If grasslands managed by cutting, carry some rotational cutting with arisings collected. This would diversity both structure and species richness of sward. Areas could be cut annually if practicable with approx. 1/3 left uncut and on rotation.

If grazing is introduced graze from April/May – September/October depending on soils conditions. 1 Livestock Unit (cattle over 2 years) per ha is recommended. Grazing for 5 – 6 months will allow time for a range of species to flower and set seed.

Manage all ditches on a 5 year rotation in October – November to enhance their value to water vole by de-silting and by removing only the sediment that has accumulated in the bottom of the ditch. The rotational cutting of bank-side vegetation will diversify it both structurally and floristically, benefiting invertebrates, water vole and amphibians. Split Ditch A, B, C into 5 sections with 1 section restored each year: Ditch A (2 sections), Ditch B – (1 section), Ditch C (2 sections). Cut back surrounding scrub which is shading ditches and especially where Ditch B joins Ditch C to improve connectivity for water vole. Liaise with AW to improve connectivity of ditches to the reservoir to benefit water vole and potentially common toad.

Manage scrub by coppicing to create more structural diversity. Stump treat scrub where necessary and especially at the East Part in order to maintain the grassland scrub mosaic and prevent areas succeeding to dense scrub and ultimately woodland. If branches and brash remains on site it should be stacked or ideally chipped and left in discrete piles. Larger branches can be stacked lengthways on edge of dense areas of scrub to form habitat piles to benefit reptiles, amphibians and mammals including hedgehog.

Tree planting is not considered appropriate for the site given the existing extensive scrub cover including crack willow and the fact that trees will inhibit the effective cutting of the sward of the site. The trees will steadily shade the grassland and ditches and lead to increased leaf litter input which will negatively impact the sward, water quality, and the quality of the habitat for the existing population of grass snake, common lizard, and water vole (all BAP species), and starling (Red Listed) and reed bunting (Amber Listed).

Eradicate the invasive goldenrod from all areas.

Has a site condition assessment form been completed for this site? No

If not how would you rate the overall site condition?

Compartment	Favourable/ no issues. Score 1	Favourable/ some issues Score 2	Recovering Score 3	Unfavourable – no change Score 4	Unfavourable - declining Score 5 (poor management	Neglected Score 6 (no management	Part destroyed/ Score 7	Destroyed Score 8
West Part						✓		
Central Part						✓		

East Part						✓		
Overall Condition						✓		

Surveyor's assessment of site:

To be filled in by Conservation Officer and with reference to CWS handbook

Habitat	Criteria passed on	Criteria failed on	Comments
Scrub	1, 3, 4	2	4: reed bunting song thrush water vole

Recommendations:

Site remains CWS (boundary unchanged)
Site deleted
Boundary altered (specify
✓ Notify site as CWS

PLANT LISTS

King's Lynn Parkway
Date of survey: 04/08/2021
Surveyor: Aaron Brown

West Part

Species/scientific name	**Common name**	**DAFOR**
Acer campestris	Field maple	R
Agrostis gigantea	Black bent	LF
Agrostis stolonifera	Creeping bent	LF
Anagallis arvensis	Scarlet pimpernel	R
Anthriscus sylvaticum	Cow parsley	LF
Arctium minus	Lesser burdock	R
Arrhenatherum elatius	False oat-grass	LF
Bellis perennis	Daisy	O
Blitum bonus-henricus,	Good king henry	R
Brachypodium sylvaticum	False brome	O - LA
Calamagrostis epigejos	Wood small reed	R
Calitriche sp.	Water starwort	O
Cardamine pratensis	Cuckoo flower	R
Carex acutiforis	Lesser pond sedge	R
Carex otrubae	False fox sedge	R
Carex remota	Remote sedge	R
Carex riparia	Greater pond sedge	F - LA
Chenopodium album	Fat hen	O
Cirsium arvense	Creeping thistle	LF
Corylus avellana	Hazel	R
Crataegus monogyna	Hawthorn	R
Dactylus glomerata	Cocksfoot	LF
Dipsacus fullonum	Teasil	R
Elymis repens	Common couch	A
Epilobium hirsutum	Great willowherb	LF
Epilobium palustre	Marsh willowherb	R

Eupatorium cannabinum	Hemp agrimony	LF - LA
Fraxinus excelsior	Ash	R
Glechoma hederacea	Ground ivy	O
Glyceria maxima	Reed sweet grass	R
Hedera helix	Ivy	O
Helminthotheca echioides	Bristly oxtongue	R
Holcus lanatus	Yorkshire fog	LF
Iris pseudacorus	Flag iris	R
Jacobaea erucifolia	Hoary ragwort	R
Jacobaea vulgaris	Common ragwort	O
Juncus bufonius	Toad rush	R
Juncus effuses	Soft rush	O - LF
Lycopus europaeus	Gypsywort	R
Merculis perennis	Dogs mercury	R
Myosotis arvensis	Field forget-me-not	R
Petasites hybridus	Butterbur	R
Phagmites australis	Reed	LD
Phalaris arundinacea	Reed canary grass	LF - LA
Plantago lanceolata	Ribwort plantain	O
Poa annua	Annual meadow grass	LF
Poa trivialis	Rough meadow grass	LF
Potentilla ancerina	Silverweed	R
Prunus avium	Wild cherry	R
Prunus spinosa	Blackthorn	R
Pulicaria dysenterica	Fleabane	R
Quercus robur	Oak	O
Ranunculus repens	Creeping buttercup	LF
Ranunculus sceleratus	Cellery leaved buttercup	R
Rosa arvensis	Field rose	R
Rosa sp.	Rose sp.	R
Rubus fruticosus agg.	Bramble	O
Rumex crispus	Curled leaved dock	O
Rumex hydrolapathum	Water dock	O
Salix alba	White willow	O
Salix cinerea	Grey willow	F
Salix fragilis	Crack willow	O
Salix viminalis	Osier	R
Sinapis arvensis	Charlock	R
Solanum dulcamara	Bittersweet	O
Solidago canadensis	Goldenrod	LF - LA
Stachys palustris	Marsh woundwort	R
Tanacetum parthenium	Feverfew	R
Tripleurospermum inodorum	Scentless mayweed	R
Typha latifolia	Reedmace	R
Ulmus glabra	Wytch elm	R
Vicia cracca	Tufted vetch	O - LF
Vicia tetrasperma	Smooth tare	LF

East Part

Species/scientific name	Common name	DAFOR
Agrostis gigantea	Black bent	F
Agrostis stolonifera	Creeping bent	LF
Anagallis arvensis	Scarlet pimpernel	R
Anthriscus sylvaticum	Cow parsley	R
Arrhenatherum elatius	False oat-grass	F
Bellis perennis	Daisy	R
Brachypodium sylvaticum	False brome	O
Calamagrostis epigejos	Wood small reed	O
Carex otrubae	False fox sedge	R
Carex riparia	Greater pond sedge	LA
Cirsium arvense	Creeping thistle	F
Crataegus monogyna	Hawthorn	R
Dactylus glomerata	Cocksfoot	O - LF
Dipsacus fullonum	Teasil	R
Elymis repens	Common couch	O
Epilobium hirsutum	Great willowherb	O
Eupatorium cannabinum	Hemp agrimony	LF
Fraxinus excelsior	Ash	LF
Glechoma hederacea	Ground ivy	R
Helminthotheca echioides	Bristly oxtongue	F
Holcus lanatus	Yorkshire fog	F
Jacobaea erucifolia	Hoary ragwort	F
Jacobaea vulgaris	Common ragwort	R
Juncus effuses	Soft rush	LF
Myosotis arvensis	Field forget-me-not	R
Phagmites australis	Reed	LD
Plantago lanceolata	Ribwort plantain	R
Poa trivialis	Rough meadow grass	R
Potentilla ancerina	Silverweed	LF
Prunus spinosa	Blackthorn	O
Pulicaria dysenterica	Fleabane	LF
Quercus robur	Oak	LF
Ranunculus repens	Creeping buttercup	F
Rubus fruticosus agg.	Bramble	O
Rumex crispus	Curled leaved dock	R
Salix alba	White willow	O
Salix cinerea	Grey willow	F
Sinapis arvensis	Charlock	F
Solanum dulcamara	Bittersweet	R
Solidago canadensis	Goldenrod	LA
Tanacetum parthenium	Feverfew	R
Tripleurospermum inodorum	Scentless mayweed	O
Trifolium dubium	Lesser trefoil	R
Urtica dioica	Nettle	R
Vicia tetrasperma	Smooth tare	R

Photographs

Fig. 1. Path south of Ditch A taken from NW corner & looking East

Fig. 2. Far east part of Ditch A where heavily silted up & looking East

Fig. 3. Area A within West Part looking east toward AW compound

Fig. 4. Tall herb vegetation in west part of West Part looking east

Fig. 5. South west part of West Part looking east

Fig. 6. North east part of West Part looking east toward reed bed

Fig.7. West Part looking north and taken in west half near sth boundary

Fig. 7. Northern part of East Part looking south

Fig. 8. Southern half of East Part looking east where goldenrod LD

Fig. 9. Far south part of East Part looking west