Conservation objectives and definitions of favourable condition for designated features of interest

These Conservation Objectives relate to all designated features on the SSSI, whether designated as SSSI, SPA, SAC or Ramsar features.

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Name of Site of Special Scientific Interest (SSSI)	
Hatfield Moors	
Names of designated international sites	
Special Area for Conservation (SAC)	Hatfield Moor
Special Protection Area (SPA)	Thorne and Hatfield Moors
Ramsar	
Relationship between site designations	
Hatfield Moors qualify as a SAC under the EC habitats Directive for the following Annex 1 habitats: Degraded raised bogs still capable of natural regeneration Hatfield Moors form part of the Thorne and Hatfield Moors SPA, qualifying for the following Annex 1 Species: Nightjar (*Caprimulgus europaeus*) SAC covers whole of the SSSI excluding the ditch interest in the south. The SPA (of which this site is only part) covers only the former vegetated areas of the SSSI and excludes the former worked areas. (See map 2)	

Version control information		
Status of this Version (Draft, Consultation Draft, Final)	Consultation Draft	
Prepared by	Tim Kohler	
Date of this version	Feb 2009	
Date of generic guidance on favourable condition used	Lowland Wetland Habitats 2004 Freshwater 2005 Birds 2004 Invertebrates 2008	
Other notes/version history		
Quality assurance information		
Checked by	**Name** Tom Keatley	**Date**
	Signature	

Conservation Objectives and definitions of Favourable Condition: notes for users

Conservation Objectives

SSSIs are notified because of specific biological or geological features. Conservation Objectives define the desired state for each site in terms of the features for which they have been designated. When these features are being managed in a way which maintains their nature conservation value, then they are said to be in 'favourable condition'. It is a Government target that 95% of the total area of SSSIs should be in favourable condition by 2010.

Definitions of Favourable Condition

The Conservation Objectives are accompanied by one or more habitat extent and quality definitions for the special interest features at this site. These are subject to periodic reassessment and may be updated to reflect new information or knowledge; they will be used by Natural England and other relevant authorities to determine if a site is in favourable condition. The standards for favourable condition have been developed and are applied throughout the UK.

Use under the Habitats Regulations

The Conservation Objectives and definitions of favourable condition for features on the SSSI may inform the scope and nature of any 'appropriate assessment' under the Habitats Regulations. An appropriate assessment will also require consideration of issues specific to the individual plan or project. The habitat quality definitions do not by themselves provide a comprehensive basis on which to assess plans and projects as required under Regulations 20-21, 24, 48-50 and 54 - 85. The scope and content of an appropriate assessment will depend upon the location, size and significance of the proposed project. Natural England will advise on a case by case basis.

Following an appropriate assessment, competent authorities are required to ascertain the effect on the integrity of the site. The integrity of the site is defined in paragraph 20 of ODPM Circular 06/2005 (DEFRA Circular 01/2005) as the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified. The determination of favourable condition is separate from the judgement of effect upon integrity. For example, there may be a time-lag between a plan or project being initiated and a consequent adverse effect upon integrity becoming manifest in the condition assessment. In such cases, a plan or project may have an adverse effect upon integrity even though the site remains in favourable condition.

The formal Conservation Objectives for European Sites under the Habitats Regulations are in accordance with paragraph 17 of ODPM Circular 06/2005 (DEFRA Circular 01/2005), the reasons for which the European Site was classified or designated. The entry on the Register of European Sites gives the reasons for which a European Site was classified or designated.

Explanatory text for Tables 2 and 3

Tables 2, 2a and 3 set out the measures of condition which we will use to provide evidence to support our assessment of whether features are in favourable condition. They are derived from a set of generic guidance on favourable condition prepared by Natural England specialists, and have been tailored by local staff to reflect the particular characteristics and site-specific circumstances of individual sites. Quality Assurance has ensured that such site-specific tailoring remains within a nationally consistent set of standards. The tables include an audit trail to provide a summary of the reasoning behind any site-specific targets etc. In some cases the requirements of features or designations may conflict; the detailed basis for any reconciliation of conflicts on this site may be recorded elsewhere.

Conservation Objectives

The Conservation Objectives for this site are, subject to natural change, to maintain the following habitats and geological features in favourable condition (*), with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc.) for which the land is designated (SSSI, SAC, SPA, Ramsar) as individually listed in Table 1.

Habitat Types represented (Biodiversity Action Plan categories)

Bogs
Lowland Ditch Systems

Geological features (Geological SiteTypes)

Not applicable

(*) or restored to favourable condition if features are judged to be unfavourable.

Standards for favourable condition are defined with particular reference to the specific designated features listed in Table 1, and are based on a selected set of attributes for features which most economically define favourable condition as set out in Table 2, Table 2a and Table 3:

Table 1 Individual designated interest features

BAP Broad Habitat type / Geological Site Type	Specific designated features	Explanatory description of the feature for clarification	SSSI designated interest features	SAC designated interest features	SPA bird populations dependency on specific habitats			Ramsar criteria applicable to specific habitats			
					Annex 1 species	Migratory species	Waterfowl assemblage	1a Wetland characteristics	2a Hosting rare species &c	3a 20000 waterfowl	3c 1% of population
Bogs	M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Lowland raised bog	*	*							
	Invertebrate assemblage (Broad Assemblage Type: W31 permanent wet mire Specific Assemblage Type: W312 acid mire)	High quality invertebrate assemblage including scarce species with high habitat fidelity	*								
	Breeding Bird Assemblage: number of breeding species and aggregate BTO score	Site meets the BTO threshold score for Lowland damp grassland and scrub, and lowland damp grassland and scrub/lowland heath and scrub mosaic.	*								
	Aggregations of breeding birds: Nightjar	Supports >1% UK breeding population	*		*						*
Lowland Ditch Systems	G21 Eutrophic Running Water	Ditch system containing nationally scarce aquatic plant species	*								

NB. Features where asterisks are in brackets (*) indicate habitats which are not notified for specific habitat interest (under the relevant designation) but because they support notified species.

Table 2 Habitat extent objectives

Conservation Objective for habitat extent	To maintain the designated features in favourable condition, which is defined in part in relation to a balance of habitat extents (extent attribute). Favourable condition is defined at this site in terms of the following site-specific standards.
Extent - Dynamic balance	On this site favourable condition requires the maintenance of the extent of each habitat type (either designated habitat or habitat supporting designated species). Maintenance implies restoration if evidence from condition assessment suggests a reduction in extent.

Habitat Feature (BAP Broad Habitat level, or more detailed level if applicable)	**Estimated extent (ha) and date of data source/estimate**	**Site Specific Target range and Measures**	**Comments**
Bogs	1209 ha peat soil Area assessed from air photographs 2002	No reduction in area of peat soil Area assessed from air photographs and structured walks	Area based on extent of peat soils. Further 148 ha of former peatland and lagg striped of peat and worked for gravel, now included for hydrological reasons with potential in the long term for restoration as bog or lag habitat. This area also includes some dry birch woodland, which may possibly be on peat soil, and adjacent ditches and arable land, sperated from the main area of peat soil by the gravel workings.
Lowland Ditch Systems	59.4 ha (3,870 metres) Length estimated from air photographs 2002	No reduction in channel length. Length assessed by structured walk	Area figure includes arable fields.

Audit Trail
Rationale for habitat extent attribute (Include methods of estimation (measures), and the approximate degree of change which these are capable of detecting).
Rationale for site-specific targets (including any variations from generic guidance)
Other Notes

Table 2a Species population objectives

Conservation Objective for species populations	To maintain the desigated species in favourable condition, which is defined in part in relation to their population attributes. Favourable condition is defined at this site in terms of the following site-specific standards.
Population balance	On this site favourable condition requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature (species or assemblage)	**List supporting BAP Broad Habitats**	**Population Attribute (eg presence/absence, population size or assemblage score)**	**Site Specific Target range and Measures (specify geographical range over which target applies ie site, BAP broad habitat or more specific)**	**Comments**
Invertebrate assemblage (Broad Assemblage Type: W31 permanent wet mire Specific Assemblage Type: W312 acid mire)	Bogs	Direct Monitoring of assemblage score based on presence/ absence of specified proportion of species typical of habitat listed in ISIS	Monitor the assemblage once in every 6 year monitoring cycle Using defined invertebrate sampling protocols, threshold to be met: W312 acid mire: Weighted Species Score: 6	Hatfield Moors are not currently covered by any specific invertebrate monitoring schemes. Regular monitoring needs to be secured. This attribute is to be assessed via direct monitoring through specialist survey at least once in every 6 years.
Aggrigations of breeding birds: Nightjar	Bogs	Direct monitoring of breeding pairs by counting churring males	Monitor churring males annualy. 5 Year mean should be stable or increasing and should not be below 23 (30 minus 25%)	2004-2008 mean is 27 (peak 32). This has risen after falling in the early 00s from 30 (peak 36) between 1989 and 1993. This figure (30) has been selected as a baseline as it is the closest data available to the population at designation (1988). However this does not take into account wider population fluctuations and needs to be reviewed in the light of fluctuations in the UK population.

		No overall loss of habitat extent	Monitor extent of nightjar habitat, loss of greater than 5% unacceptable. Baseline of habitat needs to be assessed	No baseline has been set, and the assessment of appropriate habitat is difficult. The site is changing, with habitat being gained (through management and restoration) as well as being lost (to inundation) and there have been huge changes (loss of habitat) since notification
		Maintain habitat mosaic	xxx% of open ground with predominantly low vegetation (feeding), bare patches (nesting) and sparse scrub cover (feeding, roosting) from reference level. Once a reference level has been established then there should be no significant reduction in extent from that level. This needs to take account of the both the SAC and SPA objectives (see comments).	Nightjar require vegetation mostly of 20-60cm (feeding) with frequent bare patches of >2sq.m, 10-20% bare ground (nesting) and ideally <30% tree/scrub cover overall (feeding and roosting). Some loss of trees and scrub is required/acceptable; >30% birch is considered unfavourable to meet SAC targets and areas of dense scrub are also unsuitable for nesting Nightjar. Raised bog restoration should take account of key nesting and foraging areas. Areas of bog with less dense tree and scrub cover, that support nesting nightjar, should be retained. Key foraging areas include edges of deciduous scrub. Not all edges are equally valuable to nightjar and so their retention should not prejudice the bog and nightjar nesting habitat restoration targets. N.B. dense scrub/ woodland not used for nesting but used by nightjar for foraging and roosting is likely to support similar or higher nightjar densities and a range of other European interests if restored to raised bog with scattered scrub. Methodology for assessing target to be determined. Reference levels (i.e. proportion of SPA with appropriate vegetation heights) to be determined.

Breeding Bird Assemblage: number of breeding species and aggregate BTO score	Lowland damp grassland Scrub Mosaic of Lowland damp grassland, heathland and scrub	Number of breeding species	Maintain assemblage diversity. At notification 73 spp. were recorded as breeding, and should be used as a baseline figure. This should not fall below 55 to maintain favourable condition.	If the total score or the total number of breeding species calculated for a breeding bird assemblage falls by the equivalent of 25% or more in points then the assemblage is in unfavourable condition.. Record presence/absence of breeding species within the assemblage. Methods of survey will be a combination of those given in Part 2 depending on the species within the assemblage. Breeding must be confirmed as proven or probable according to generic proof of breeding codes. A count of the numbers of breeding pairs/units in a site is not needed. On the basis of presence/absence recalculate the assemblage score using the 1983 SSSI Guidelines for the relevant habitat. The species present at designation and each monitoring event do not need to be the same as this is a score-based assessment only.
		BTO Score	BTO score calculated from notification package, using Criteria for the Selection of Biological SSSIs on species breeding is 34, combining lowland damp grassland and scrub. The threshold scores for these habitats is equalled or exceded, and the Lowland heath threshold is almost reached (17 ½ of a threshold of 20). Total score for all habitats is 58. The total score should not fall below 44 to maintain favourable condition.	

Audit Trail
Rationale for species population attributes (Include methods of estimation (measures), and the approximate degree of change which these are capable of detecting).
Figures for the baseline of breeding bird assemblage are based on 1970s data and are hence very out of date. Further survey/data collation is required to establish a more appropriate baseline.
Rationale for site-specific targets (including any variations from generic guidance)
Other Notes

Table 3 Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **Bog** habitat at **Hatfield Moors** in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
The bog habitat on the site is described as M18, but is badly degraded as a result of peat cutting, and has lost most of the former lag fen which historically surrounded the site. However the target is to restore the site to favourable condition for M18 and its associated features.	

Site-specific standards defining favourable condition					
Criteria feature	**Attribute term in guidance**	**Measure**	**Site-specific Targets**	**Comments**	**Use for CA?**
M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Habitat composition	A baseline map, showing the boundary of the bog and any associated lagg fen, should be used to assess any changes in extent. Aerial photographs can offer a convenient means of rapidly assessing extent. Mire expanse is taken as the extent of peat soils, supporting habitats are taken as lagg. (see Map1)	No loss of the following specific components of the wetland: mire expanse, lagg.	'Bog' is taken here to be the peat deposit together with typical bog vegetation, irrespective of the precise nature and condition of that vegetation. 'Lagg' comprises both former peat deposit and vegetation, irrespective of nature and condition. There was no detailed NVC survey at the time of notification; as a result the vegetation communities cannot be separated for measurement. However, the notification documents and informal survey suggests the predominant peatland community present was the M18 *Erica tetralix-Sphagnum papillosum* mire although there is likely to be a mix of bog communities due to changes in hydrology and vegetation since notification.	Yes

M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Habitat structure	Aerial photographs can offer a convenient means of rapidly assessing these. It may also be necessary to make a visual assessment using a structured walk or transects.	There should be no obvious modification to structural features (e.g. vegetation cover, surface patterning and natural drainage), in relation to the established baseline. Total extent of the exposed substrate across the area assessed should be no more than 10%.	The surface of Hatfield Moor has been extensively modified by human activity, with no pristine surface remaining. Manmade features (such as drains, bunds, baulks and cuttings etc.) may mimic more natural pools and hummocks. A formal baseline needs to be established taking this factor into account.	YES
M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Vegetation composition: positive indicators - vascular plants	Visual assessment of cover and frequency, using structured walk or transects and recording quadrats	Targets for the **mire expanse only**: (1) At least 3 of *Calluna vulgaris, Erica tetralix, Eriophorum angustifolium, E. vaginatum & Trichophorum cespitosum* constant, with a combined cover not exceeding 80%; (2) no single species > 50% cover; (3) At least one of *Andromeda polifolia, Drosera rotundifolia, Empetrum nigrum, Narthecium ossifragum* and *Vaccinium oxycoccos* at least frequent	The vegetation of the mire expanse should comprise an inter-mix of bryophytes (predominantly *Sphagnum spp*), graminoids and dwarf shrubs, with no one group dominating at the expense of others on 'active' sites. Although Sphagnum may predominate on hyper-oceanic sites.	Yes

M18 *Erica tetralix*-*Sphagnum papillosum* raised & blanket mire	Vegetation composition: positive indicators - bryophytes	Visual assessment of cover, using structured walk or transects and recording quadrats	Targets for the **mire expanse only**: (1) At least 2 of the following spp. constant, with a combined cover > 20%: *Sphagnum capillifolium, S. magellanicum, S. papillosum, S. tenellum* (2) *Sphagnum cuspidatum* and/or *S. pulchrum* at least occasional	Expectations for *Sphagnum* cover vary widely across the country, but some *Sphagnum* should be scattered across all sites. *S.cuspidatum* cover is a surrogate indicator for year-round high water table position. *Sphagnum cuspidatum* present in at least 10% of quadrats, or at least occasional indicates 'unfavourable recovering' condition, where the other targets are not achieved.	Yes

M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Vegetation composition: indicators of negative change - non-woody vascular plant species	Visual assessment of cover, using structured walk or transects and recording quadrats	(1) No more than 1% cover of the following on the bog surface (subject to exceptions in comments column): *Phragmites australis, Phalaris arundinacea, Glyceria maxima, Epilobium hirsutum, Urtica dioica, Pteridium aquilinum, Rubus fruticosus, Juncus effusus, Deschampsia cespitosa, Cirsium spp*. (2) Invasive non-native plant species should be absent or no more than rare (if present at baseline)	This target applies to the whole bog, not just the mire expanse. The plants listed are indicators of enrichment or of drying out of the bog. *Phragmites* is acceptable around upwellings or their equivalent along former ditchlines. There is a problem with crassula in the lagg areas.	Yes
M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Vegetation composition: indicators of negative change - bryophytes	Visual assessment of cover, using structured walk or transects and recording quadrats	*Polytrichum spp*. Other than *P. alpestre* no more than occasional		Yes

M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Vegetation composition: indicators of negative change – undesirable woody species	Visual assessment of cover of the whole feature, using structured walk or transects Aerial photography may be a useful aid though not for seedlings.	On the mire expanse, trees and shrubs (*Betula, Salix, Rhododendron, Pinus* species, other gymnosperms no more than rare and <5% cover On the bog margin (rand) woody species <10% cover	Invasion by woody species and their development to healthy maturity may indicate drying out and/or enrichment. Trees and shrubs will exacerbate drying out. *Salix spp*. and *Myrica gale* can occur on raised bogs, but scrub generally constrains itself to areas where it receives a source of nutrients (e.g. near water that has passed through or over a mineral soil). As a result, it often is found close to or on the 'rand' of the raised bog, where it is more acceptable.	Yes
M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Indicators of local distinctiveness – micro-topography*	% length of transects intersecting bog pools or other microtopographic features.	No reduction in extent of microtopographic features (e.g. bog pools). Due to highly modified nature of the bog surface man-made features may have to stand in for natural microtopograhic features. Baseline needs to be set.	The quality of microtopographic features may also be assessed by providing a definition of target composition – for example, for a bog pool to count as such it could be defined as having little cover of living dwarf shrubs or *Eriophorum vaginatum*; a complete or extensive cover of *sphagna* with *S. pulchrum* and/or *S. cuspidatum* predominant. Some open water or bare peat may be present.	Disc
M18 *Erica tetralix-Sphagnum papillosum* raised & blanket mire	Indicators of local distinctiveness* e.g.rare/scarce spp	Visual assessment of frequency/cover of rare/scarce/local species in sample points chosen to represent their known distribution. Aerial photographs may offer a convenient means of rapidly assessing these.	- Existing populations of rare/scarce species are maintained eg: Royal fern, Bog rosemary, *and S pulchrum* . - Community and habitat transitions are maintained at current levels and in current locations.	This attribute is intended to cover any site-specific aspects of this habitat feature (forming part of the reason for notification) which are not covered adequately by the previous attributes, or by separate guidance (e.g. for notified species features). Targets need to be determined for this atribute.	Disc

Invertebrate assemblage of wet heath/mires	Sample based: Vegetation heterogeneity Diverse **surface** topography of vegetation types	Record Structural Recording Surveys (SRS) of 6m radius at sample stops to determine number of structural surfaces and representation of preferred surfaces within the assessed unit.	Single surface present in no more than 50% of SRSs >2 different surfaces present in at least 20% of SRSs Medium shrubs present in <30% and at least 5% of SRSs Preferred surfaces for this site are: Surface 1: Early successional surfaces, peats, lichen/bryophyte cover: *Cladonia* spp, *Sphagnum* Surface 3: Ericaceous shrub layer: *Calluna vulgaris, Erica tetralix* Surface 4: Medium shrub layer: low birch scrub	*Preferred features* are micro-habitat features which should always be targeted during an assessment. These should be recorded and mapped. *Preferred features* for Hatfield Moors are: ▪ Scrub margins usually birch with some willow ▪ Pools (including ditches/cuttings) and their margins ▪ Areas of bare wet peat ▪ Concentrations of *Erica tetralix* ▪ *Sphagnum* tussocks, lawns and sumps ▪ Transitions to dry heath ▪ Flowery areas, including those other habitats (verges, ruderal, etc) including “unwelcome” weeds such as ragwort and thistles (although these would need to be kept under control and not invade the mire habitat Medium shrubs may include young birch which is likely to be targeted for removal in order to benefit the bog condition, but within units some cover should be retained to meet the minimum requirement (5%).	Yes
Invertebrate assemblage of wet heath/mires	Unit based: Vegetation heterogeneity Scrub	Record the frequency and % cover of all tree and scrub species, considered together.	Less than 10% scrub cover of unit	*Negative features:* ▪ >10% scrub cover ▪ Invasive species: common scrub species sallow, birch, Rhododendron	Yes

		Visual assessment of cover of the whole unit, using structured walk or transects Aerial photography may be a useful aid though not for seedlings.			
Invertebrate assemblage of wet heath/mires	Early successional surfaces horizontal ('bare' soil)	Record % cover of bare wet peat. Visual assessment of cover of the whole unit, using structured walk or transects	No more than 10% of areas of bare wet peat in unit	*Preferred features*: ▪ Areas of bare wet peat	Yes
Invertebrate assemblage of wet heath/mires	Early successional surfaces Peats, lichen/bryophyte cover	Record % cover of typical species. Visual assessment of cover of the whole unit, using structured walk or transects	*Cladonia* spp, *Sphagnum* spp present in 5-10% of SRSs	*Preferred features*: ▪ Sphagnum tussocks, lawns and sumps ▪ Pools and their margins *Negative features:* ▪ Considerable green algal cover in pools and on bare peat	Yes
Invertebrate assemblage of wet heath/mires	Cover - Dead organic matter litter	Record % cover of sward with litter layer Visual assessment of cover of the whole unit, using structured walk or transects	Between 10-25% litter cover (grass/sedge/heather litter) present in unit of >1cm depth (but not bracken or *Molinia*).	*Negative features:* ▪ Dominance of *Molinia* or *Juncus*	Yes
Invertebrate assemblage of wet heath/mires	Cover - Seed Heads	Record percentage occupation of seed heads and broken stems able to over-winter (ideally recorded in winter)	Unit surface with >15% of seed heads over winter.	Over-wintering seed heads and erect and fallen hollow stems of herbaceous plants are often important for over-wintering eggs and pupae.	Yes
Invertebrate assemblage of wet heath/mires	Nectar sources (see floweriness table)	Record percentage occupation of sward able to flower throughout the year.	At least 40% of the unit sward is able to flower in the season	Open structured flowers are most important eg: umbellifers, daisies, hawthorn and bramble. “Weed” species such as ragwort & thistles also provide an important nectar source at times of the year when many other plants are not in flower. However, at	Yes

				Winmarleigh Moss it is anticipated that the majority of nectar sources will be found in the positive bog/heath species eg: *Calluna vulgaris, Erica tetralix*, *Eriophorum vaginatum E angustifolium*.	

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Some targets have been changed to reflect the highly modified structure of the bog.
Rationale for selection of measures of condition (features and attributes for use in condition assessment) **(**The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes

Table 3 Site-Specific definitions of Favourable Condition *[insert separate Table 3 for each BAP broad habitat]*

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **Lowland Ditch System** habitat at **Hatfield Moors** in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
The exact NVC class of the ditch system is not known, but key species were identified at notification.	

Site-specific standards defining favourable condition					
Criteria feature	**Attribute term in guidance**	**Measure**	**Site-specific Targets**	**Comments**	**Use for CA?**
Lowland ditch system	Water availability	Visual inspection, recording depths using fixed gauges and/or by probing with a pole.	90% of length of wet ditches should have the following summer water depths: at least 0.5m in minor ditches; at least 1m in major drains.	Ditches are managed to provide drainage for farmland in winter and source of water for abstraction in summer. Need to ensure sufficient depth to maintain standard of aquatic communities. Depths specified may need refining	Yes
	Water quality: Water clarity	Along the structured walk note unnatural turbidity or discoloration of water. For each sub-section, record % of the length (to nearest 5%) with clear water, % with slight turbidity/coloration and % with marked turbidity/coloration. The overall result is the mean of each set of figures from the sub-sections.	Water clear or only slightly discoloured in at least 90% of channel length.	May be some natural brown coloration of the water in acid peaty areas which should not be regarded as discoloration.	Yes

	Water quality: Extent of algal dominance	For each structured walk sub-section, in freshwater ditches only, estimate % cover of the channel (to nearest 5%) by filamentous algae and *Enteromorpha* species taken together. Occasional sampling of the vegetation by grapnel may be necessary. The overall result is the mean of cover values for the sub-sections.	Mean cover of filamentous macro-algae and *Enteromorpha* combined not more than 10% in mid June to end August		Yes
	Water quality: Water chemistry	Water chemistry should be assessed by reference to existing Environment Agency monitoring data either for the site or, where this is not available, for the feeding waters.	Total phosphorus <0.1mg per litre. Biological GQA class 'a' or 'b' depending on reach type. Chemical GQA Class 'A' or 'B' depending on reach type.	Quality at notification unknown. Water may need to be slightly acidic to support some species.	Yes
	Habitat structure: channel form	During the structured walk, note variation in ditch profiles and make an estimate of the percentage (to the nearest 5%) of ditch length with trapezoidal and non-trapezoidal cross sections in each sub-section of the route. The overall result is calculated by taking the mean of the figures for the sub-sections.	No more than 75% of ditch length with a trapezoidal cross section.	Most of the ditches are trapezoidal. The aim is to develop gentler batters, berms and over widening of ditches, but this may only be achievable in the minor drains	Yes
	Habitat structure: extent/composi	Make an assessment for each of the structured walk sub-sections of the	Mix of successional stages: 10-25% early successional 35-75% mid successional	Most of the ditches are managed too frequently and kept in early successional stage.	Yes

	tion of in channel vegetation	percentage (to nearest 5%) of channel length in early, mid and late successional stages. The overall results are the means of the three sets of values.	10-25% late successional		
	Habitat structure: extent/composition of bankside vegetation	For each of the structured walk sub-sections, assess the percentage (to nearest 5%) of channel length that is heavily shaded (i.e. over 50% of the channel surface overhung) by coarse ruderal vegetation, scrub or hedges. The overall result is the mean of the values recorded for the sub-sections.	No more than 10% of the channel length should be heavily shaded by coarse ruderal vegetation, scrub or hedges (i.e. over 50% of channel surface overhung).	At present very little shading	Yes
	Aquatic vegetation composition: native species richness	5 to 10 fixed sampling points are established in each ditch. Between mid June and mid August, record (on DAFOR scale) all native aquatic plant taxa in each 20 m sampling site. Calculate the mean number of species to give the overall result. For fresh and brackish ditches calculate separate means.	At least 9 native aquatic plant species per fixed sampling point. (Appendix 2 of common standards guidance should be used as a checklist of species.)	This target needs to be reviewed following new survey work.	Yes
	Indicators of negative change: introduction of or natural	For each structured walk sub-section estimate abundance of non-native or introduced aquatic plant species:	Mean cover of each very aggressive non native plant should not exceed 1%. Mean total combined cover of all non native species		Yes

	colonisation by non-native plants	(a) for each of the four most invasive non-native species (see Appendix 3 of the common standards guidance): separate percentage cover values (b) for all non-native and introduced species: a combined percentage cover value (to the nearest 5%). Occasionally sampling vegetation with a grapnel will be necessary. The overall results (for a and b) are the mean of the cover values for the sub-sections.	and introduced species should be less than 30%. (Relevant species include *Azolla spp., Crassula helmsii)*		
	Indicators of local distinctiveness : rare species and quality indicators.	Record for each sub-section of the structured walk the presence of rare aquatic plant species and other species/ communities chosen as 'quality indicators'. Where possible, take note of the size and condition of the population and the extent of flowering.	Populations of rare species and other characteristic species should persist: **Characteristic species:** Water plantain *Alisma plantago-aquatica* Tall sedges *Carex spp.* Reed sweet grass *Glyceria maxima* Yellow flag *Iris pseudocorus* Purple loosestrife *Lythrum salicaria* Yellow water lily *Nuphar lutea* Reed canary grass *Phalaris arundinacea* Common reed *Phragmites australis* Broad leaved pondweed *Potamogeton natans* Arrowhead *Sagitarria*	**Characteristic species:** Species selected are characteristic of the site and can be easily identified during the structured walk. The target is based on results of sampling in condition assessment in 2007. **Rare species:** *Myriophyllum verticillatum* and *Potamogeton praelongus* are identified on the notification documents. *Callitriche hamulata*, pilwort and bladderwort are thought to have been present historically. Presence on the site should be confirmed in fixed sampling points. Many other past records of regionally and nationally scarce plants, but all pre 1994.	Yes

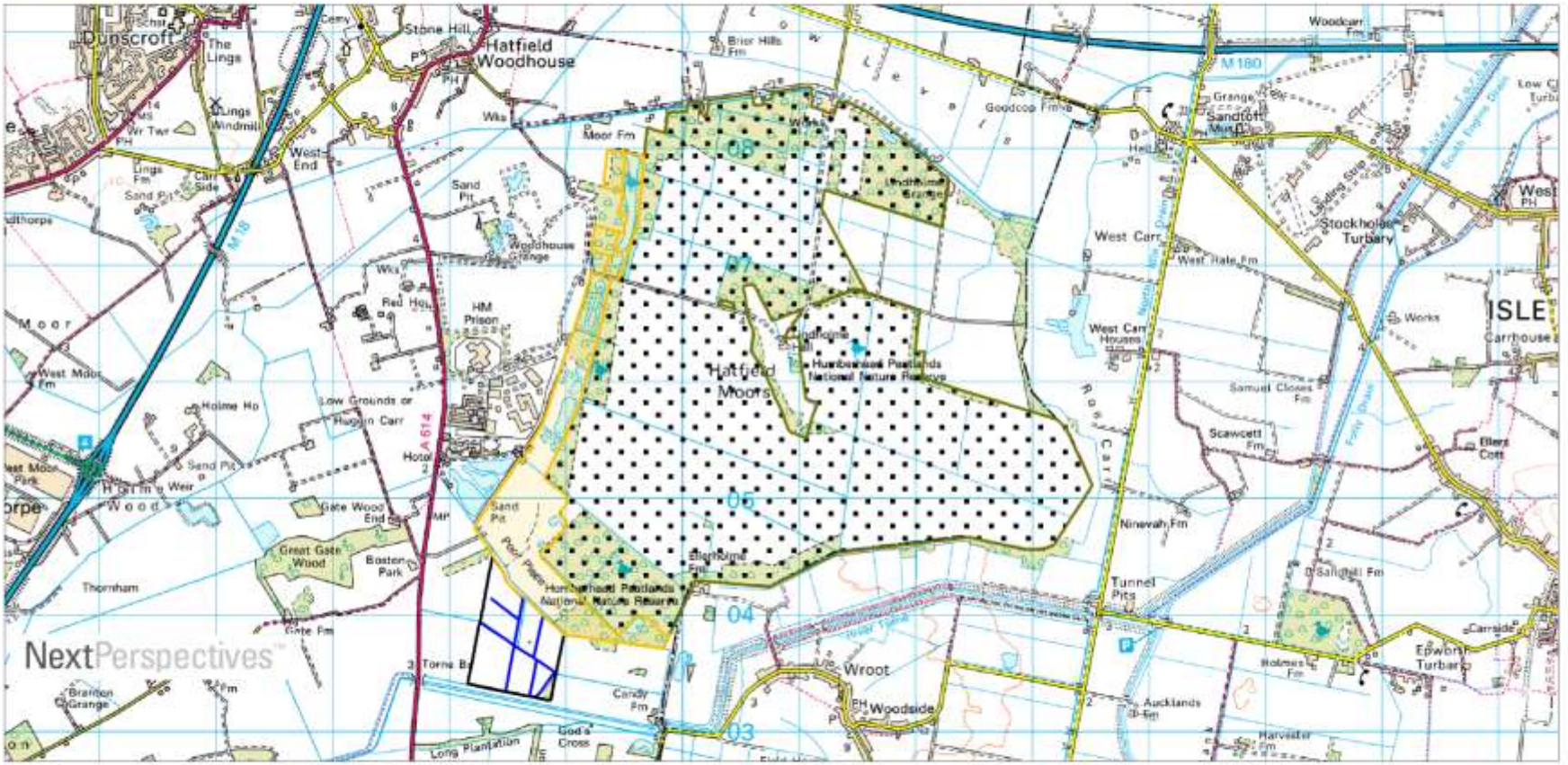
			sagitifolia Branched bur reed *Sparganium erectum* Common reedmace *Typha latifolia* There should be an average of **at least 5 characteristic species in each sub section of the structured walk.** **Rare species:** See comments.		
	Management activity: introduced fish			Not known to be a problem.	Yes

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) **(**The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes

Annex 1 Maps

Hatfield Moors

Map 1 : Habitat Extent



Scale 1:50000 Map 1 of 1

0 1 2 3km
0 2500 5000 7500ft

Drawn by: Tim Kohler
Date: 27/2/2009
Ref: se70840598

Grid North

Natural England
Bull Ring House
Northgate
Wakefield
West Yorkshire
WF1 3BJ

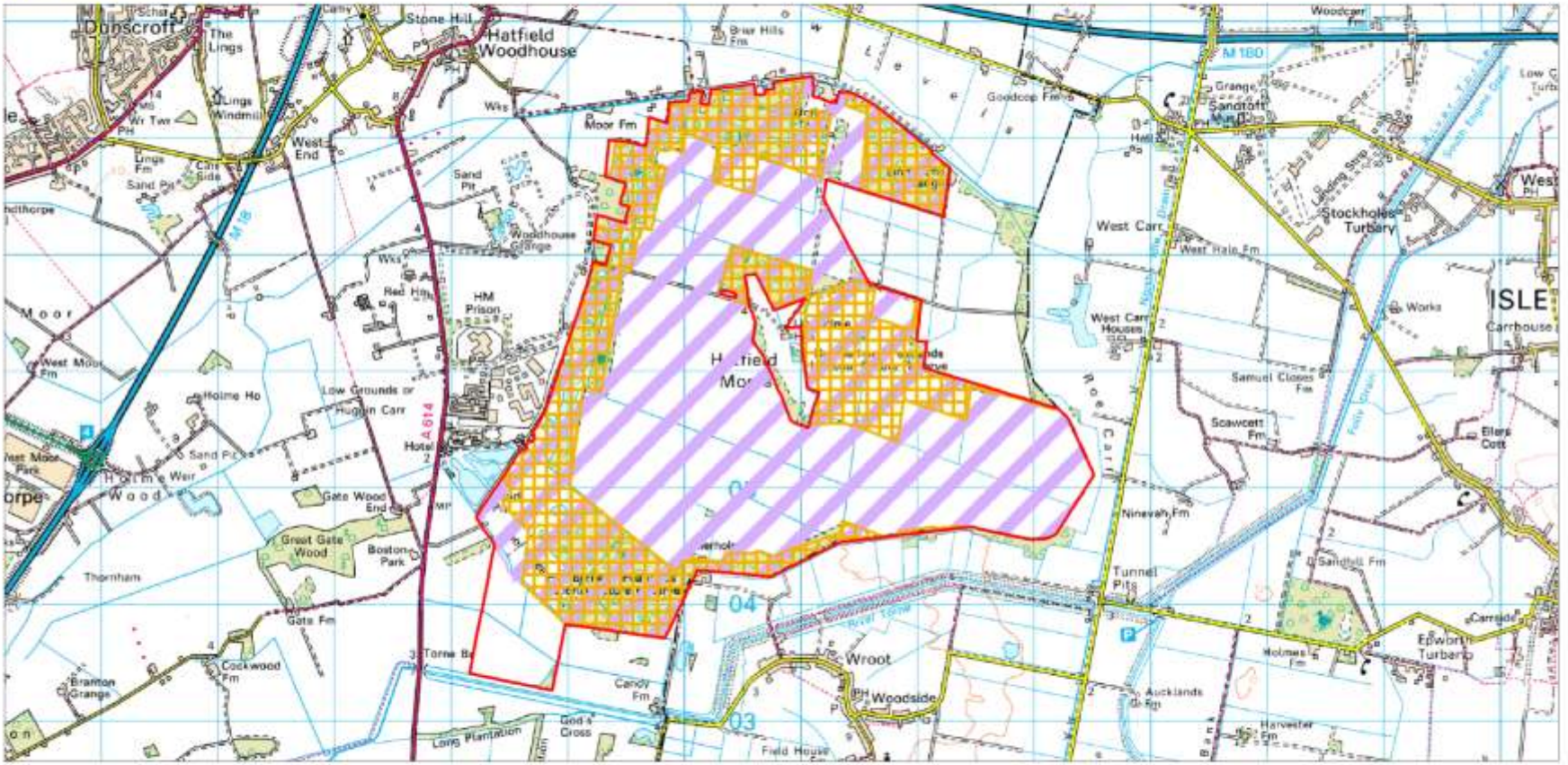
Extent of Lowland ditch system

Extent of former gravel workings and supporting habitats

Extent of peat soils

Hatfield Moors

Map 2 - Designation boundaries



Scale 1:50000 Map 1 of 1

0 1 2 3km

0 2500 5000 7500ft

Drawn by: Tim Kohler
Date: 6/3/2009
Ref: se70830590

Grid North

Natural England
Bull Ring House
Northgate
Wakefield
West Yorkshire
WF1 3BJ

SSSI Boundary

SAC Boundary

SPA Boundary