

Natural England Commissioned Report NECR141

New Forest SSSI Ecohydrological Survey Overview

Annex T: Suburbs Wood

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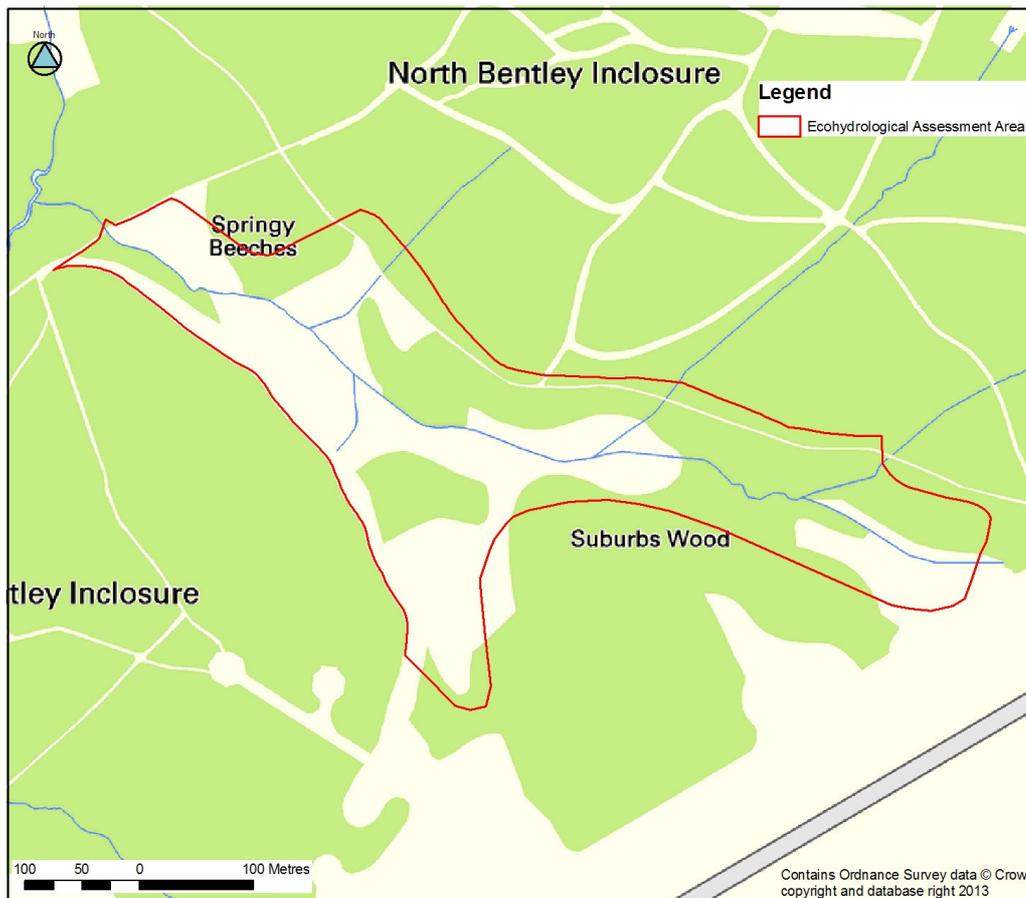
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1 Suburbs Wood

1.1 Introduction

This Ecohydrological Assessment Area (EcoHAA) covers 11.5 ha and is contained within SSSI Unit 75 with its centre at National Grid Reference (NGR) 423747, 113046 (see Figure 1-1).

Figure 1-1: Location Map



This site lies within a narrow valley. Valley side wetlands are supported in two locations where the river terrace gravels intersect the valley side. In the valley bottom, historic drainage works have created several areas of open lawn.

Table 1-1: Suburbs Wood Ecohydrological Assessment Area Summary Table

Eco-hydrological Assessment Area		U
Name		Suburbs Wood
Relative Geomorphology Assessment		
Size (ha)		11.6
SSSI Units		75
Valley Side Wetland	Present	Y
	Wetland Type	Flush Dominated Wetland
	Main Source of water	Seepage from River terrace Gravels at join with Barton Clay (aquitard)
	Indicative NVC communities	M9a, M21a, M23a, M29, U4, W7, W11, W14
	Wetland Types	Mire, Wet grassland, Wet woodland
	Drainage Damage	Y (Moderate)

	Scrub/Tree Encroachment Damage	N - Although some parts heavily wooded
	Poaching and Grazing Pressures Damage	N
Valley Basin Wetland	Present	Y
	Wetland Type	Flush Dominated Wetland
	Main Source of water	Seepage from River terrace Gravels at join with Barton Clay (aquitarde)
	Indicative NVC communities	M21a, M23a, W7
	Wetland Types	Mire, Wet grassland, Wet woodland
	Drainage	Y (Moderate)
	Scrub/Tree Encroachment Damage	N - Although some parts heavily wooded
	Poaching and Grazing Pressures	N
Additional Comments		Main valley has had formalised drainage cut but smaller side valley is in 'natural' state, all wet grassland with no heath. Valley Basin mire has been drained to partially successfully create areas of lawn

It should be noted that although this is a standalone report, it is strongly reliant upon the background information provided in section 3 of the JBA (2013) report, which provides general geology, ecology, hydrogeology, wetland mechanisms and restoration information for the New Forest wetlands surveyed. At the end of the report is a series of maps which support the assessment and indicate the spatial distribution of the features described.

1.2 Topography and Wetland Distribution

The site occupies a small narrow valley. Within the base of the valley is a series of open lawn areas surrounded by woodland (see Figure 1-2). Within the lawn areas, there is a man-made drainage pattern feeding a small centre drain. At the upper end of the main valley is a valley side wetland supported by a seepage face. The drainage system continues into this area but has not completely removed this wetland (see Figure 1-3). Another valley side wetland joins the main valley from the south, 450m from its source and this is supplied by another seepage face along the southern boundary of the site (see Figure 1-4).

Figure 1-2: Area of Lawn in the centre of the site (NGR 423785, 113030)



Figure 1-3: Drain at the upper end of the main valley damaging the valley side wetland



Figure 1-4: Valley side wetland joining the main valley from the south (NGR 423715, 112850)



1.3 Ecology

Suburb's Wood is situated in the headwaters of Dockens Water and is situated between North Bentley Inclosure and South Bentley Inclosure. There is some evidence of inclosure planting within the unit, however the woodland retains a semi-natural feel. There are two main mire areas feeding the main valley, the southern one is in good condition with a soakway flowing through a heavily-grazed lawn. The eastern mire has been truncated with made ground from the WWII airfield encroaching over the plateau edge. This mire area has a side drain and is scrubbier with Willow *Salix sp.* encroachment. However the drain is filling-in, shallow and frequently over-topping and leads to a heavily grazed, poached, lawn area.

In general, the mire vegetation remains strongly influenced by grazing and was structurally closely-cropped M23a: Soft/Sharp-flowered rush - Marsh Bedstraw - Sharp-flowered Rush

sub-community (*Juncus effusus/acutiflorus* - *Galium palustre* - *J. acutiflorus*). This contained a good variety of additional species including *Sphagna* and White Beak-sedge *Rhynchospora alba*. At the top of the slope there were also some dominant patches of Nettle *Urtica dioica*; these probably relate to historic nutrient enrichment and disturbance dating from the airfield construction/operation.

Seepage lines, soakways and the streams all contained good populations of Marsh St. John's-wort *Hypericum elodes*, Bog Pondweed *Potamogeton polygonifolius* and Water-starwort *Callitriche sp.* The upper section, which has been historically deepened, has silted up and vegetated sufficiently to allow frequent over-topping; this limits the damage within this area, but does transport water quickly into the middle reaches. The valley basin lawns and mires all contain good populations of target vegetation types, especially well-grazed examples of M23a and M24c.

The channel was deeply incised in places, particularly within the pasture woodland blocks. These woodlands surrounding the site are dominated by Beech *Fagus sylvatica* with over-mature Hollies *Ilex aquifolium* dominating the sub-canopy. Ground flora was restricted to low-growing bryophytes within the splash zone of the streams.

1.4 Geology and Hydrogeology

Table 1-2 shows the geology at Suburbs Wood. River Terrace Deposits intersect the two valley heads of the site. Underlying this is the Barton Clay, which forms the valley sides and majority of the base of the main valley. In the lower part of the site, below most of the lawn areas, the Barton Clay is replaced by the Selsey Sand Formation.

Table 1-2: Geology and Hydrogeology

Age	Group	Formation - member	Description	Thickness	Hydrogeological Role	Water Resources
Quaternary		River terrace deposits	CLAY, SILT, SAND and GRAVEL.		Aquifer / Aquitard - Spring lines may be present at the base of high level river terraces.	
Tertiary (Eocene)	Barton Group	Barton Clay Formation	Greenish grey to olive grey, glauconitic CLAY; may contain fine-grained sand and shells (mainly bivalves and gastropods).	26 – 80 m	Aquitard	Little useable groundwater
	Bracklesham Group	Selsey Sand Formation	Fine-grained SAND, sandy SILT and sandy CLAY; locally shelly and glauconitic.	0 – 50 m	Aquifer / Aquitard - Spring line at base	Variable lithology makes borehole yield hard to predict. Boreholes up to 200 mm in diameter may yield up to 200 m ³ /d; boreholes over 400 mm diameter have yielded more than 1800 m ³ /d from sandier strata. However,

						boreholes with little or no yield have been recorded.
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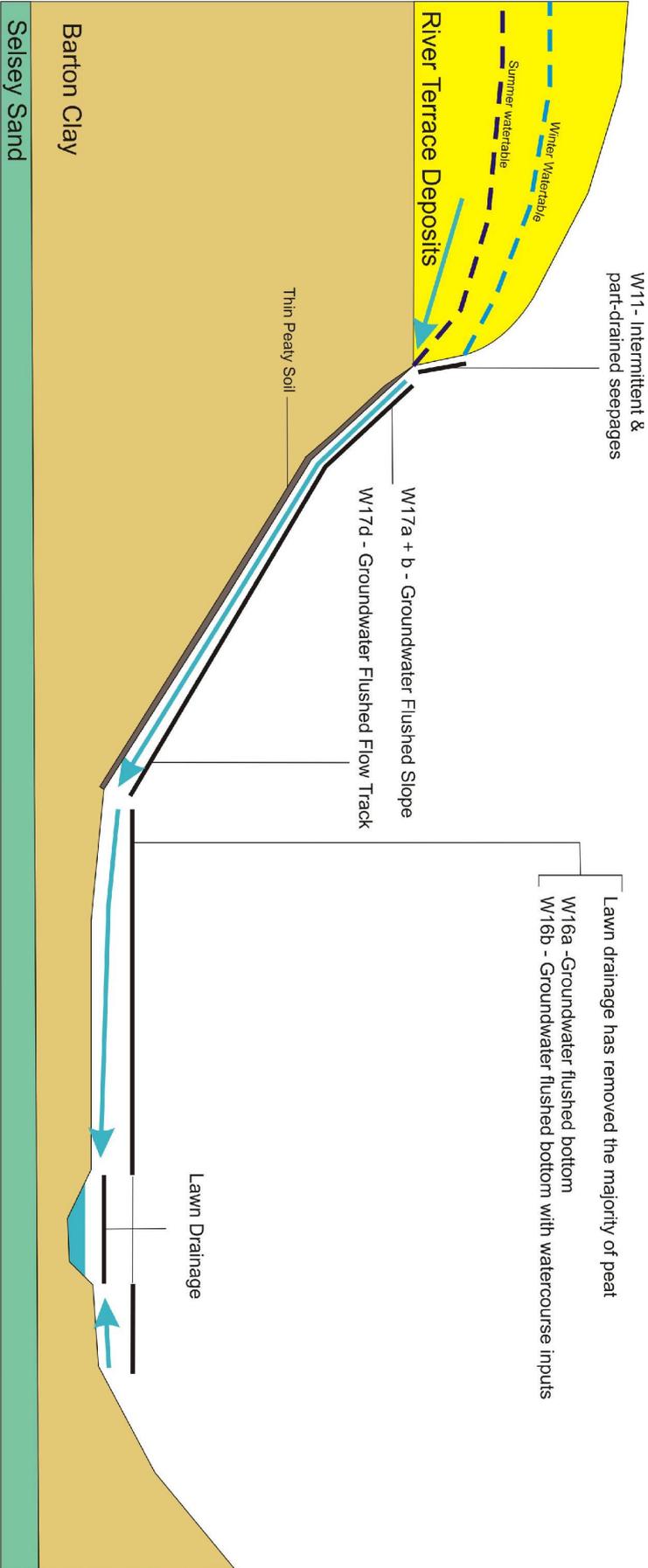
Local BGS borehole logs (available at <http://www.bgs.ac.uk/GeoIndex/>) describe the River Terrace Deposits as gravel or sandy gravel (likely to be relatively permeable and to act as an aquifer) and the Barton Clay as a blue-green laminated silty clay (likely to act as an aquitard).

1.5 Water Supply Mechanisms

The wetlands on site are flush dominated (see Figure 1-5). They receive water from a seepage face at the junction between river terrace deposits (aquifer) and the underlying Barton Clay Formation (aquitard). The water runs over the surface of the low permeability Barton Clay forming narrow flushed slopes in the main valley before reaching the shallow lawn valley bottoms. The lawn drainage has been effective over much of the area and has led to the degradation and removal of any peaty soils or peat that might have previously been present on in these areas.

The river terrace gravels only intersect the valley sides in two locations, one at the top of each of the feeder arms of the unit. In both locations at the heads of the two valleys, a valley side wetland has formed. Their differing lengths are controlled by the local topography.

Figure 1-5: Conceptual Model Diagram



1.5.1 WETMECS identified

WETMECS are ecohydrological classifications of how water can be supplied to a wetland to create distinguishable habitats. WETMECS were developed in partnership between the Wetland Research Group at the University of Sheffield, the Environment Agency, English Nature (now Natural England) and Countryside Council for Wales (now Natural Resources Wales). For each Ecohydrological Assessment Area WETMECS have been identified.

WETMECS identified include:

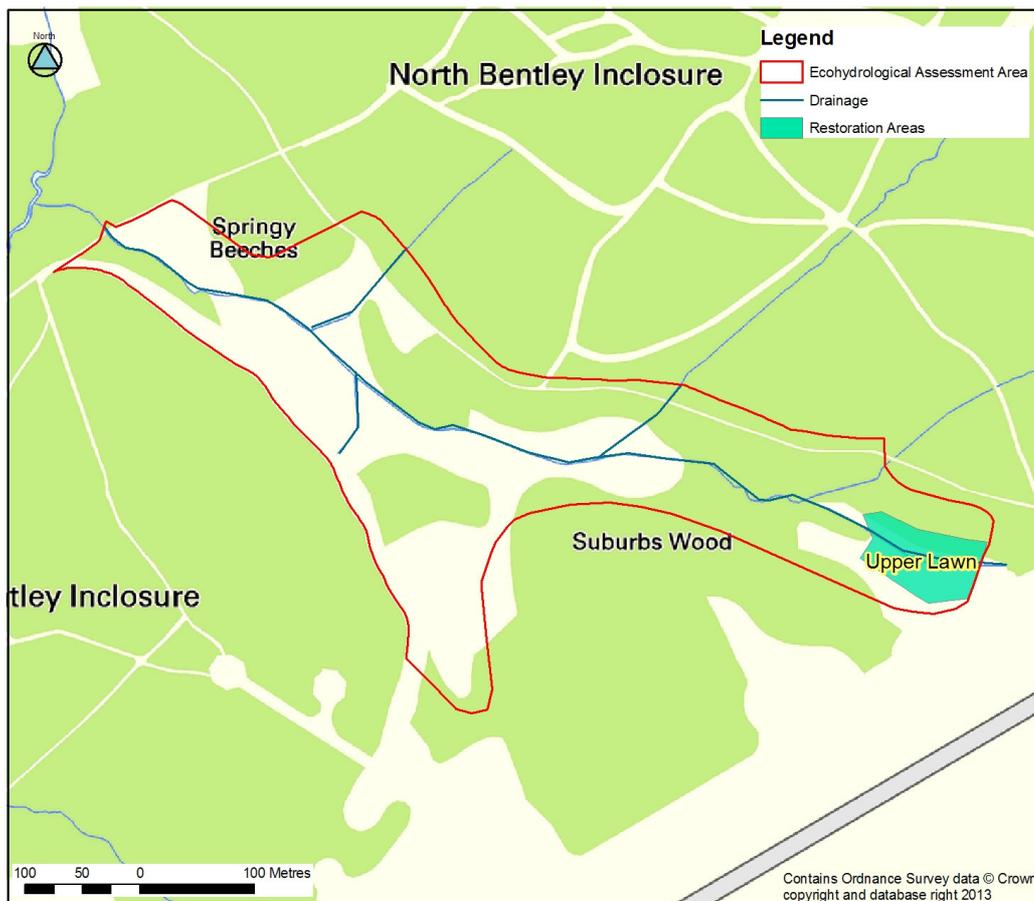
Valley side wetlands - narrow areas of W17a+b and W17b with small areas of W11 above.

In the valley lawn areas - W16a and b

1.6 Damage and Restoration

There is one area of damage (see Figure 1-6). This is at the top of the main valley, where the lawn drainage channel continues into the valley side wetland. The seepage from the river terrace gravels has overwhelmed the drainage and so a transition between a lawn habitat and an intact valley side wetland has formed. The drain in this area could be infilled or blocked with suitable earth or wooden plugs although this is already happening naturally as the drain silts up. All other areas of lawn are dependant on the drainage so no other restoration is recommended.

Figure 1-6: Restoration Areas Map



No restoration of the lawn areas is recommended as they appear to be reliant on the current drainage and no vestige of the original pre-drainage wetland remains.

There is some minor encroachment of seedlings from the surrounding conifer plantations within the unit, however, these tend to be kept in check by heavy grazing. The pasture

woodlands themselves may be at risk from this same grazing pressure as the Holly component is not regenerating and is becoming over-mature.

Table 1-3: Restoration Area Summary Table

Restoration Area	Damage Type	Restoration Proposals	Improvement	Constraints and Issues
Upper lawn	Drain	Infilling or plugging of the drain	Limit drainage of valley side wetland and increase mire area	The drainage may allow some lawn habitat in this upper areas

1.7 Monitoring requirements

1.7.1 Water Monitoring

The site contains flush dominated wetlands - groundwater monitoring is unlikely to be appropriate for such a site. The surface water features are small and appear stable which limits the need for monitoring.

1.7.2 Vegetation

Pine encroachment has been identified as an issue at this site. As a result, it may be necessary to monitor the extent of encroachment annually post restoration works.

Table 1-4: Monitoring Requirements

Eco-hydrological Assessment Area	SSSI Units	Site Names	Requirements for monitoring: ecology	Requirements for monitoring: hydrology (number of installations estimated)
U	75	Suburbs Wood Mire	Fixed point camera survey Fixed point quadrat survey	Flush dominated wetland – no peat – no monitoring recommended

2 Maps

Map 1: Location

Map 2: Aerial Photography

Map 3: Topography, Hydrology and Wetland Distribution

Map 4: Phase One Habitat

Map 5: Drift Geology

Map 6: Bedrock Geology

Map 7: Eco-Hydrology Map

Map 8: Restoration Plan



LEGEND

 Ecohydrological Assessment Area

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MAP 1

Site Location

140 70 0 140 Metres

Scale 1:2,855



LEGEND

 Ecohydrological Assessment Area

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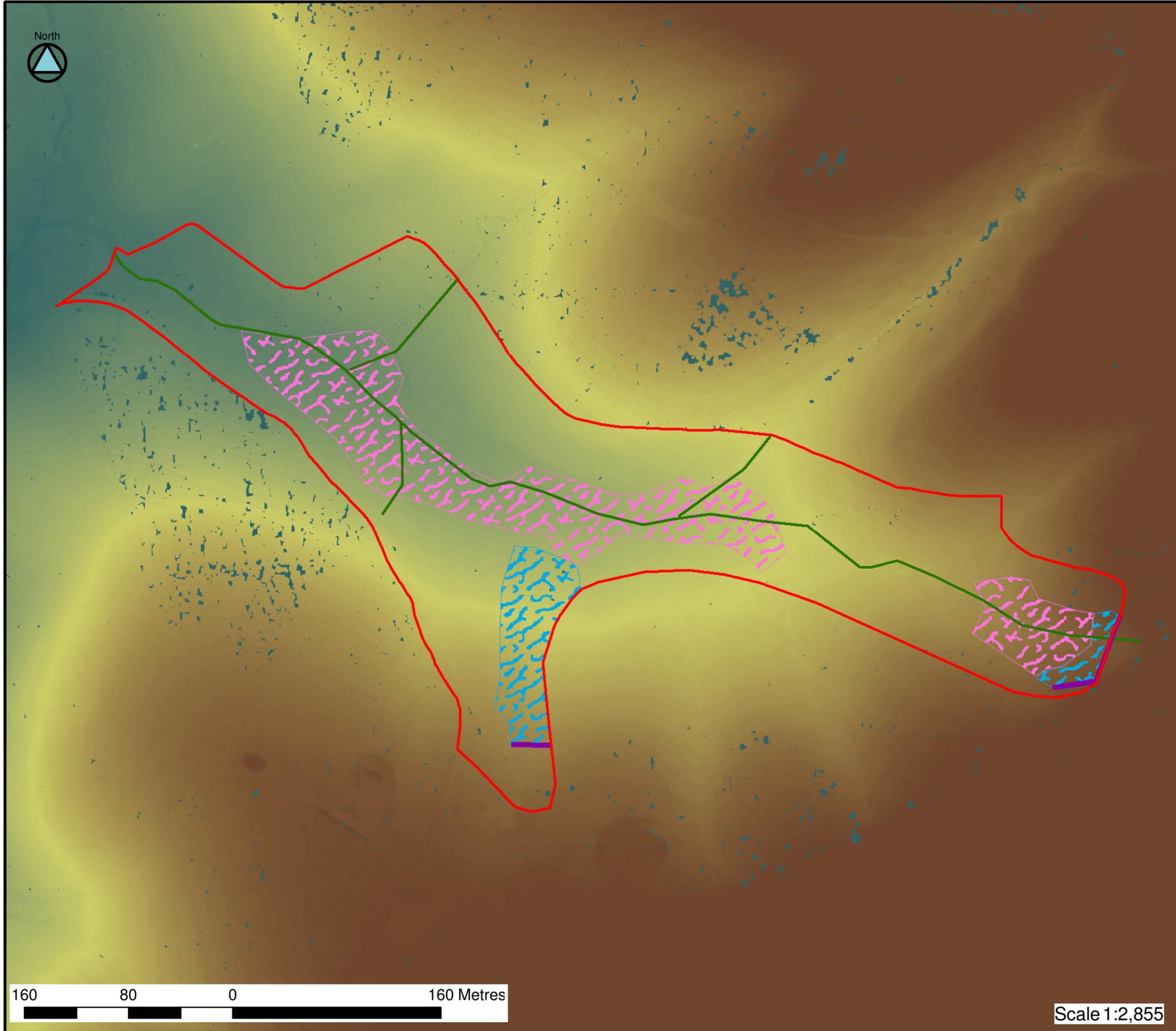


130 65 0 130 Metres

Scale 1:2,855

MAP 2

Aerial Photography



LEGEND

-  Ecohydrological Assessment Area
-  Seepage face
-  Drainage
-  Valley Bottom Wetland
-  Valley Side Wetland

LIDAR

mAOD



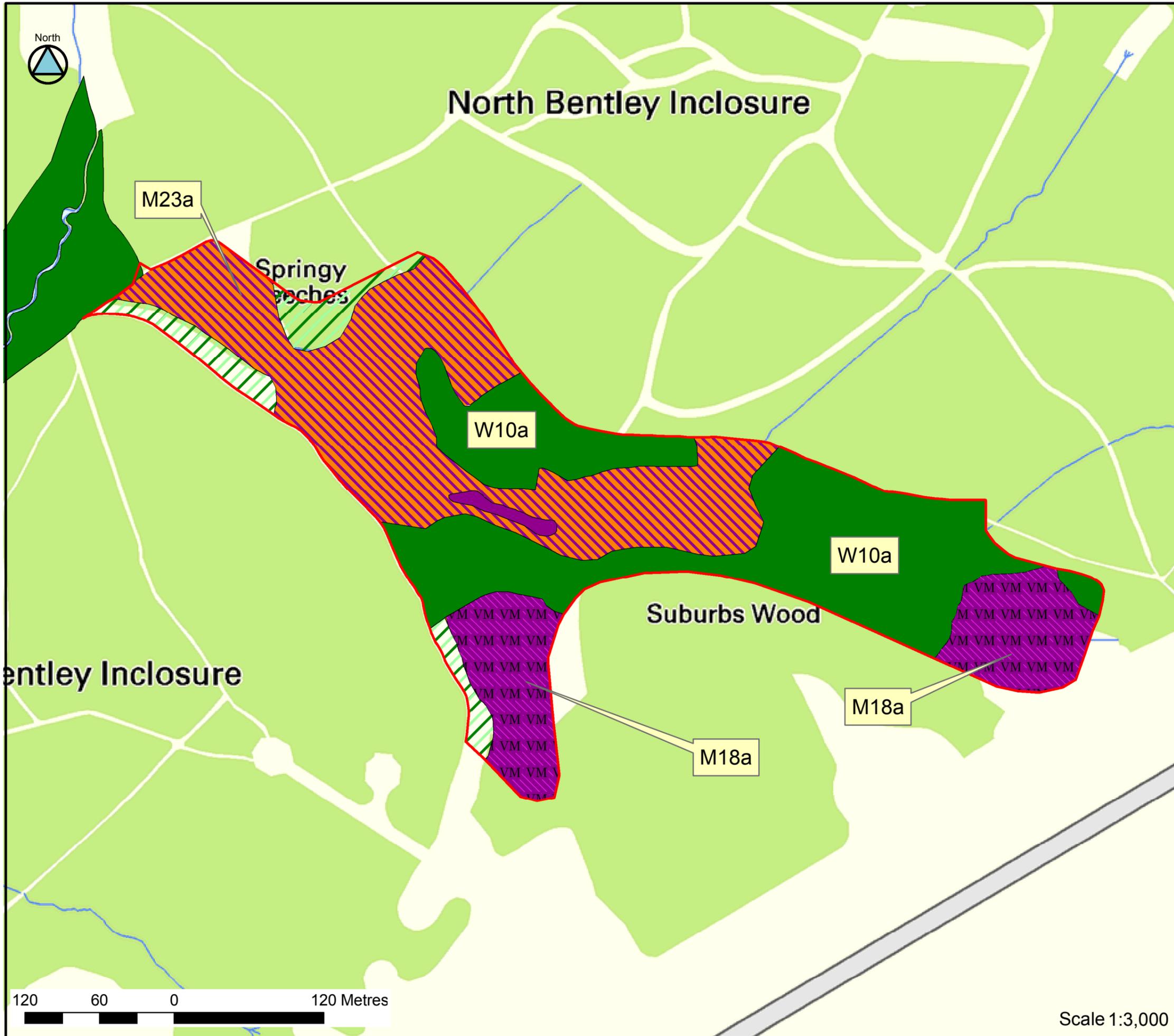
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MAP 3

Topography, Hydrology and Wetland Distribution

Scale 1:2,855



LEGEND

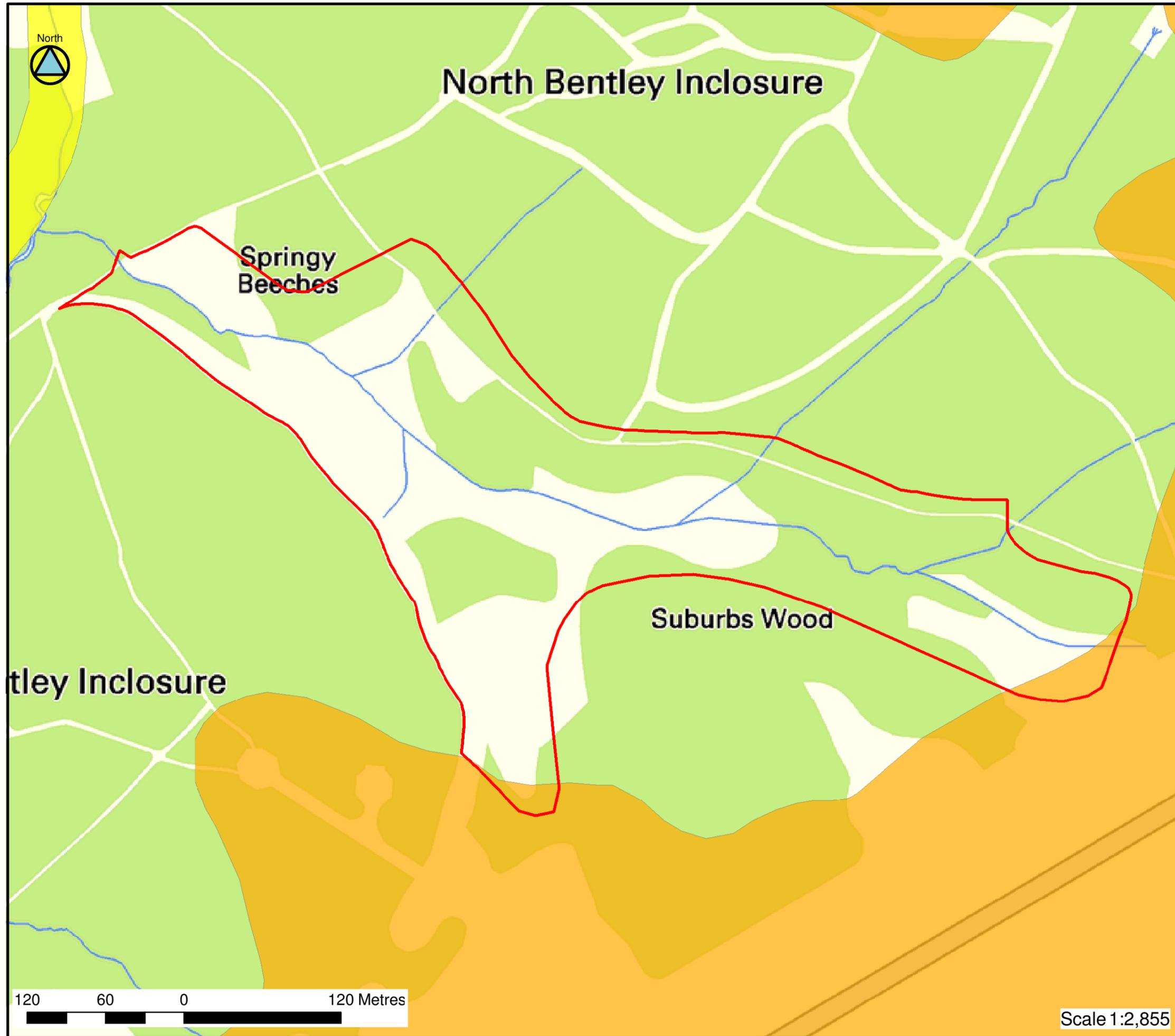
- Ecohydrological Assessment Area
- Invasives
- Trees
- G2.3
- Habitat**
- Habitat_code**
- A1.1.1
- A1.3.2
- B5
- E1.6.1
- E3.1

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MAP 4
Phase One Habitat

Scale 1:3,000



LEGEND

- Ecohydrological Assessment Area
- No Drift
- Other Deposits
- Alluvium - Clay, Silt, Sand and Gravel
- Head - Clay, Silt, Sand and Gravel
- Head - Gravel, Sand, Silt and Clay
- Head - Silty Clay
- Head - Gravelly Sand
- Peat
- River Terrace Deposits - Clay and Silt
- River Terrace Deposits - Sand and Gravel
- River Terrace Deposits - Sand, Silt and Clay

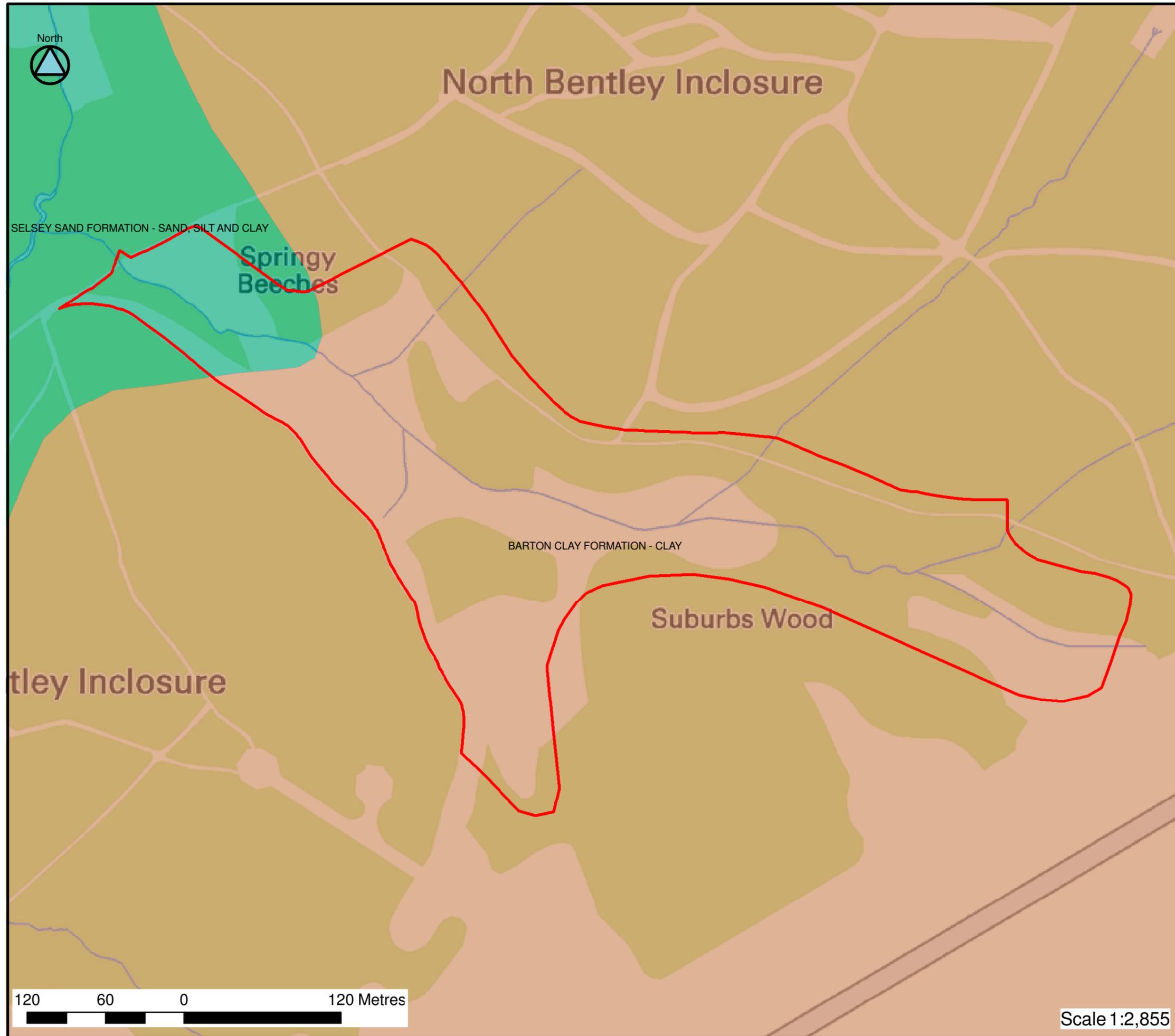
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MAP 5
 Drift Geology



Scale 1:2,855



- ### LEGEND
- Ecohydrological Assessment Area
 - Other Rock Types
 - Headon and Osbourne Beds
- Clay, Silt and Sand
 - Headon Formation
- Clay, Silt and Sand
 - Lyndhurst Member
- Sand, Silt and Clay
 - Becton Sand Formation
- Sand
 - Becton and Chama Sand Formation
- Sand, Silt and Clay
 - Becton Bunny Member
- Clay
 - Chama Sand Formation
- Sand
 - Chama Sand Formation
- Sand, Silt and Clay
 - Chama Sand Formation
- Silty Clay
 - Barton Clay Formation
- Clay
 - Barton Clay Formation
- Sand
 - Selsey Sand Formation
- Sand, Silt and Clay
 - Marsh Farm Formation
- Clay, Silt and Sand
 - Poole Formation
- Sand, Silt and Clay
 - London Clay Formation
- Clay, Silt and Sand

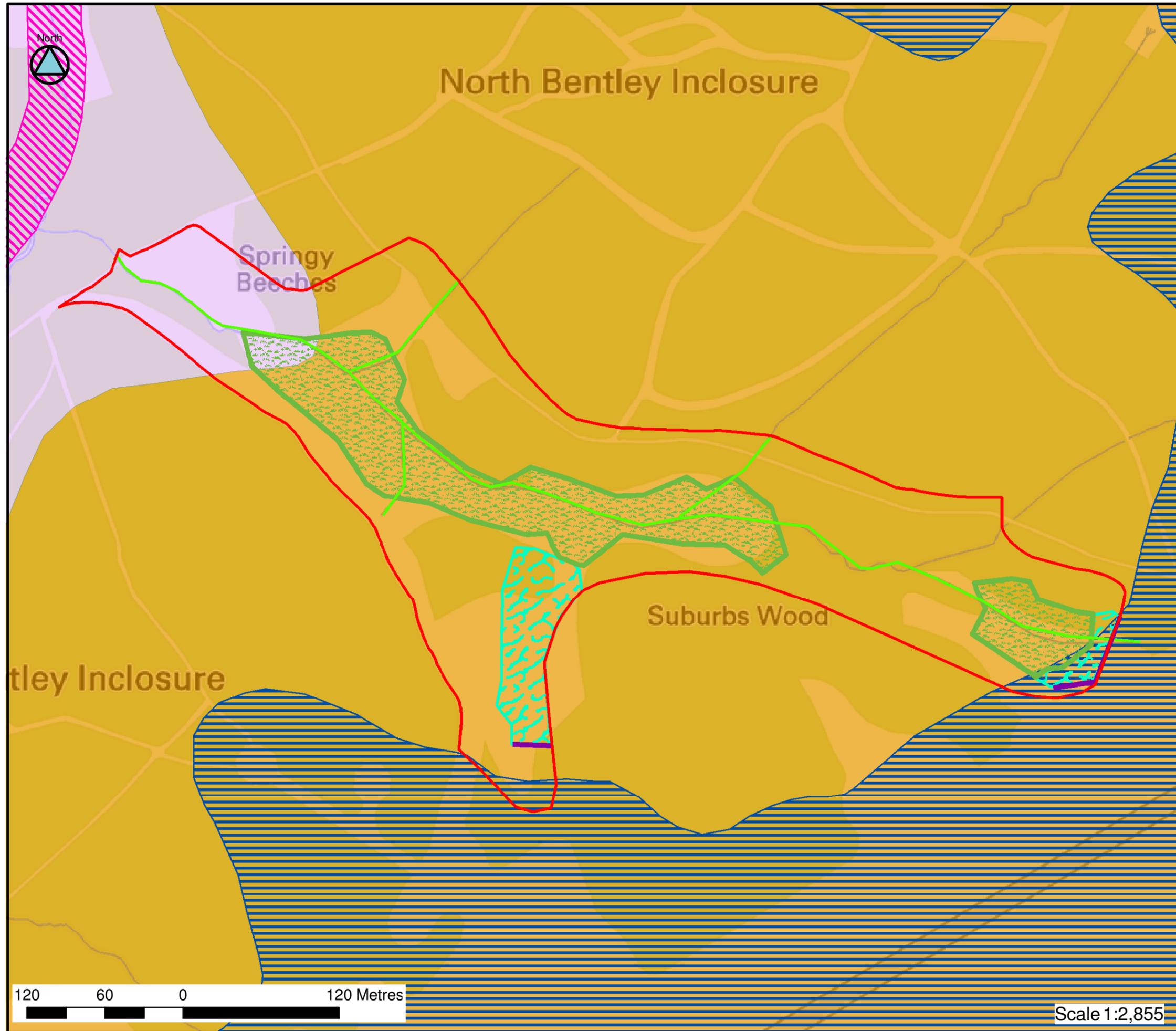
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MAP 6
Bedrock Geology



Scale 1:2,855



LEGEND

-  Ecohydrological Assessment Area
-  Seepage face
-  Drainage
-  Valley Bottom Wetland
-  Valley Side Wetland
- Drift Hydrogeology**
-  Aquifer
-  Aquifer/Aquitard
-  Aquitard
- Bedrock Hydrogeology**
-  Aquifer
-  Aquifer/Aquitard
-  Aquitard

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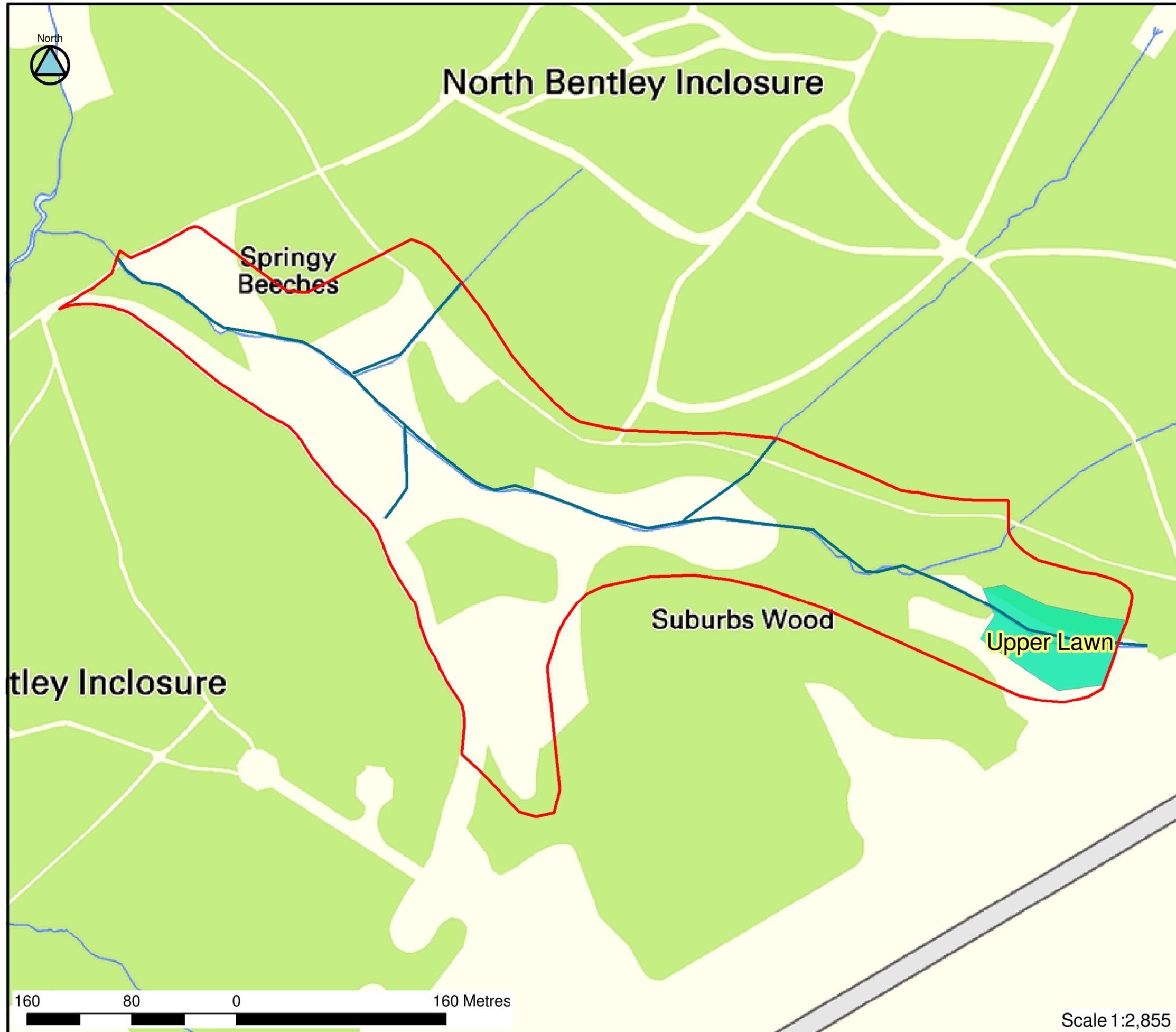


MAP 7

Eco-hydrology



Scale 1:2,855



LEGEND

-  Ecohydrological Assessment Area
-  Drainage
-  Restoration Areas

North Bentley Inclosure



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MAP 8
Restoration Plan

Scale 1:2,855