

Original in colour

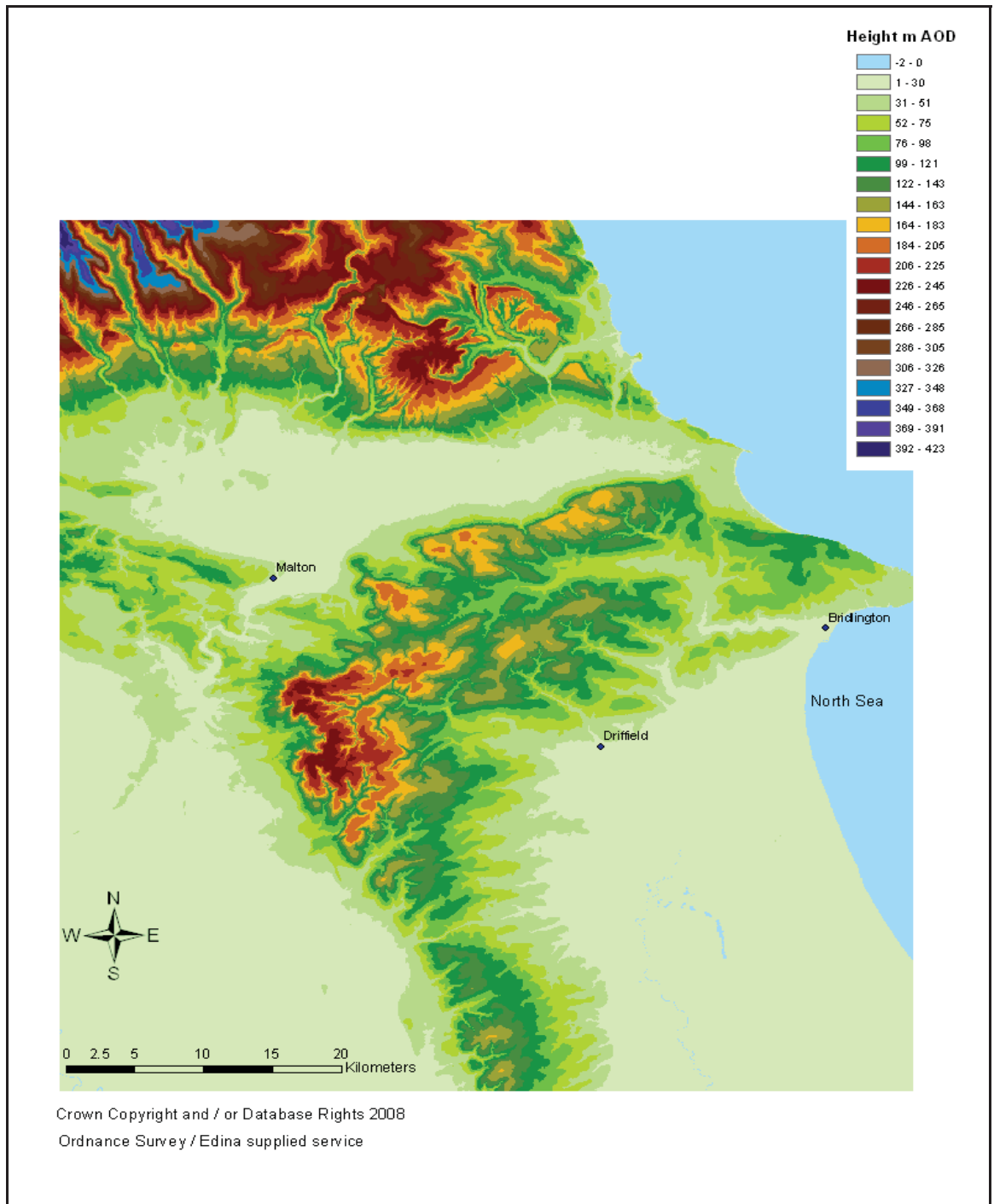


Figure 4 Digital elevation model of the Yorkshire Wolds and surrounding areas

Original in colour



Figure 5 The open Wolds landscape near to Cowlam, 2004

Original in colour

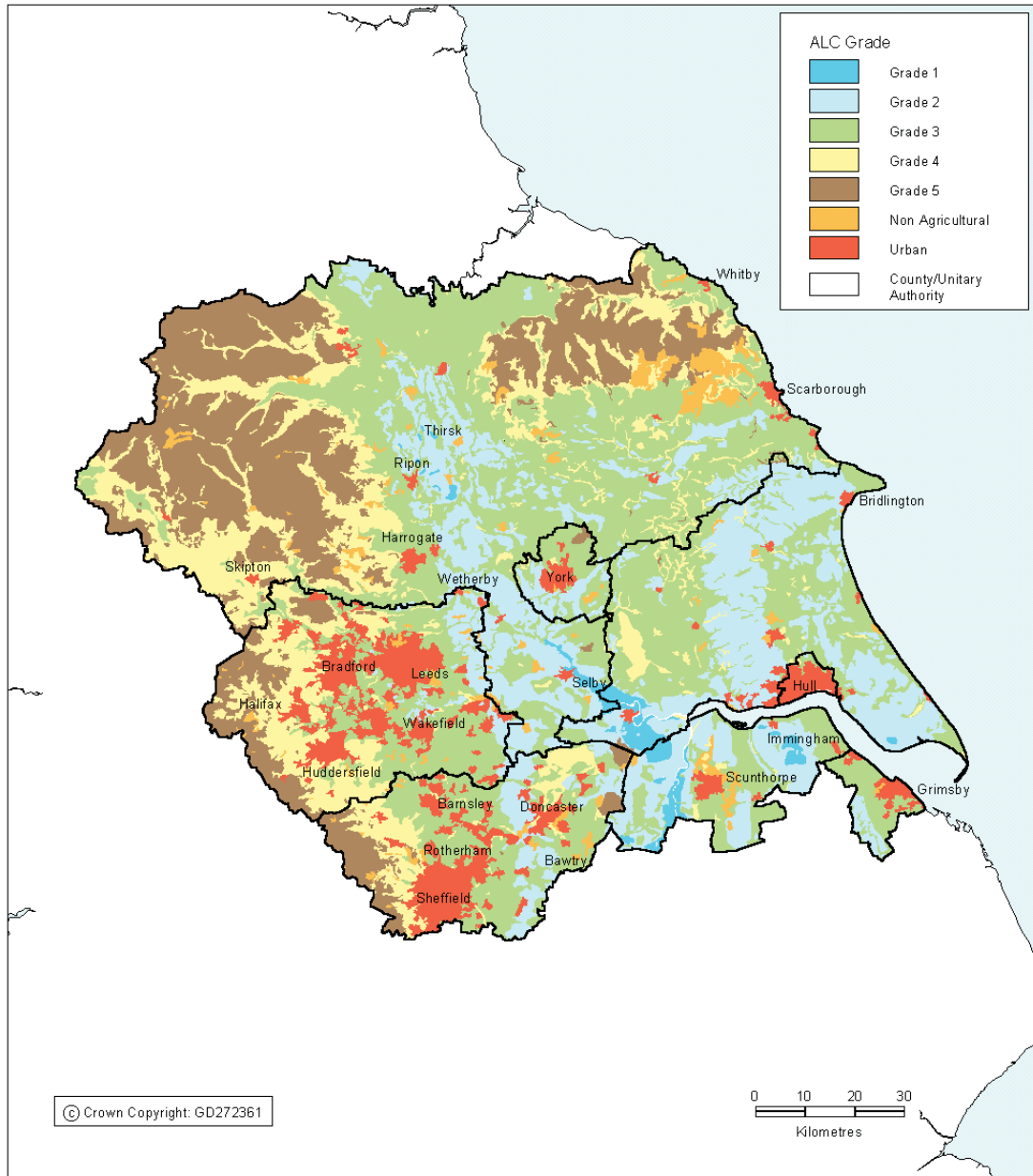


Figure 6 The land use of Yorkshire
(from DEFRA at www.defra.gov.uk/erdp/docs/yhchapter/yhsection11/default.htm
Jan 2009)

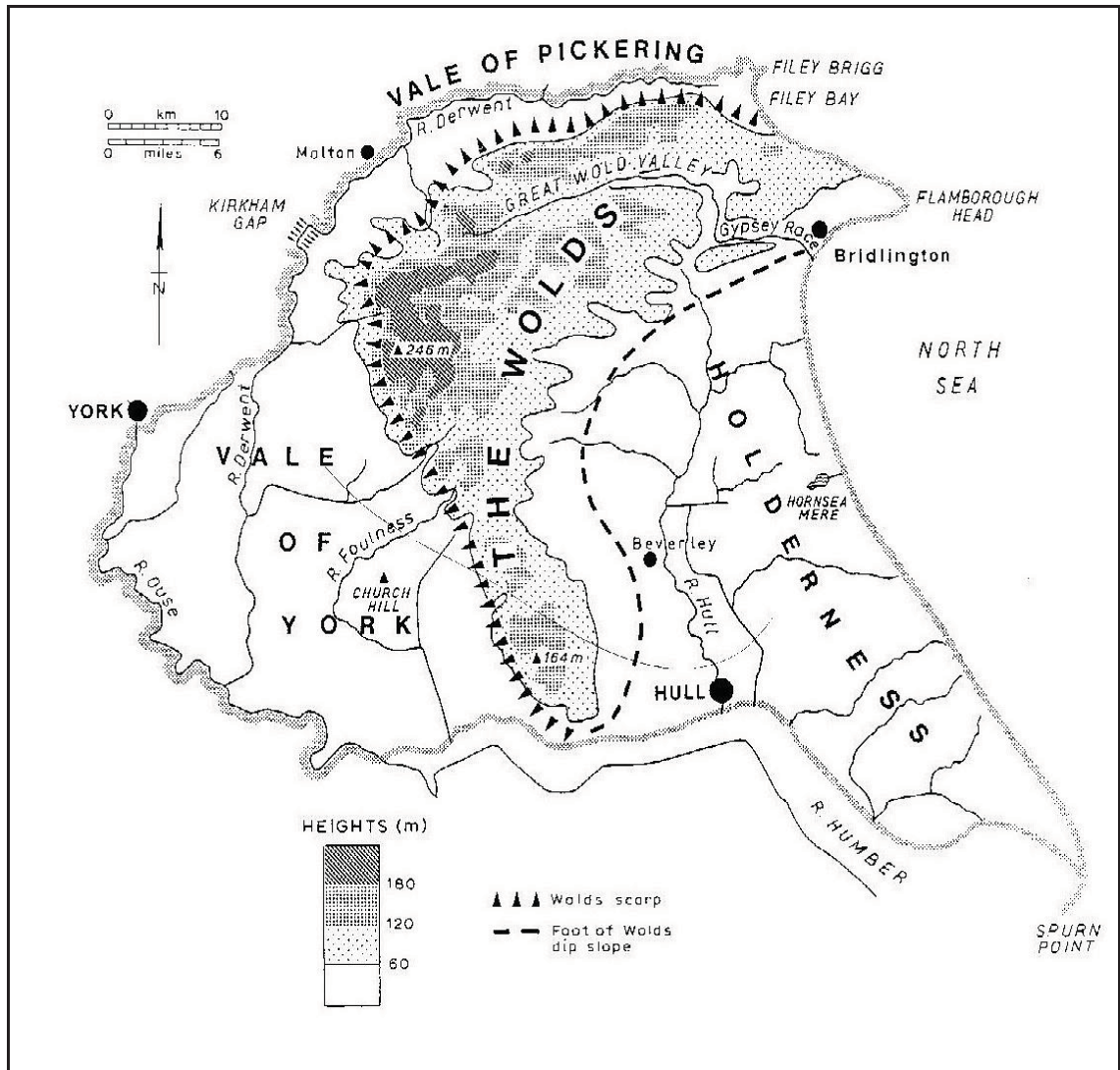


Figure 7 The physiography of East Yorkshire (from Ellis 1996, 2)



Figure 8 Plaque in Langtoft village commemorating the floods of 1657 and 1892, and recording the height of the 1892 flood

Original in colour



Figure 9 Sediment beneath St Marys Church, Langtoft 2006

Original in colour



Figure 10 Close up of the sediment beneath St Marys church, Langtoft 2006

Original in colour

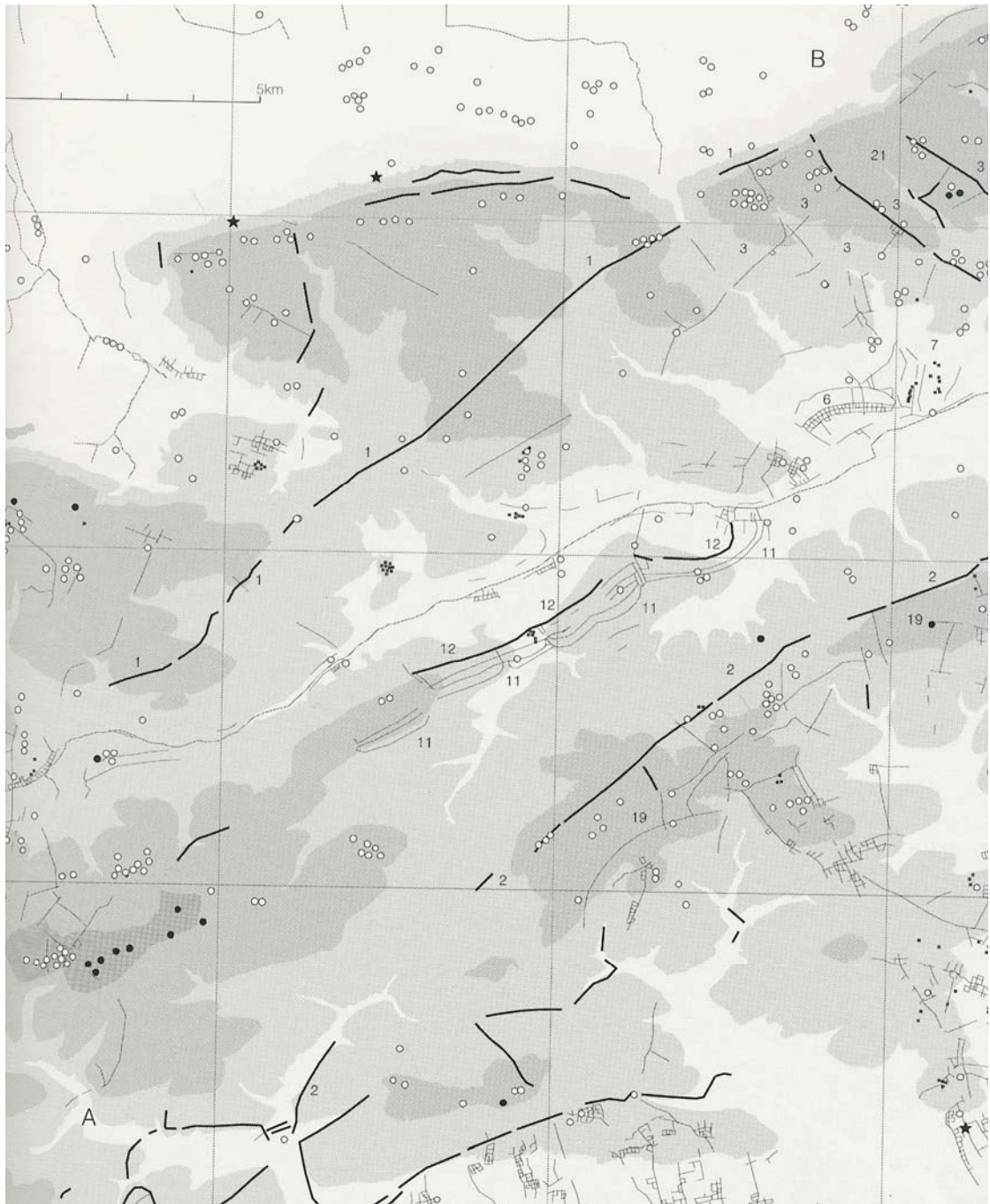


Figure 11 Excavation of the Roman settlement at High Hunsley 2006 (Photos courtesy of Network Archaeology)

Original in colour



Figure 12 Triple linear feature prior to excavation at Walkington Wold 2006 (Photo courtesy of Network Archaeology)



/ Linear ● Round barrow ○ Ring ditch * Bronze Age sites

Figure 13 Enclosed landscape block, north central Wolds (from Stoertz 1997, 79)

Original in colour

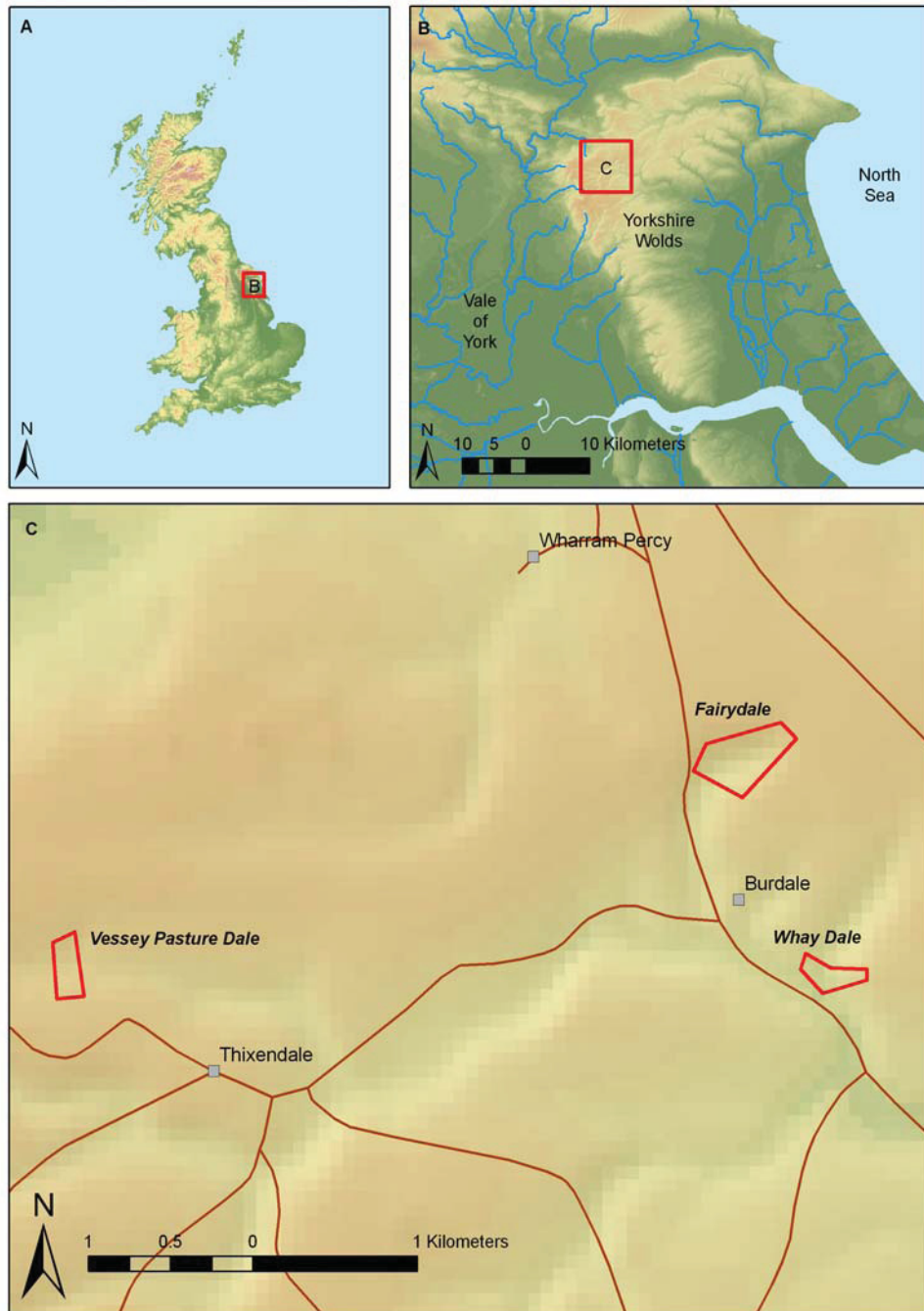


Figure 14 Location of the primary fieldwork sites

Original in colour



KEY: Yellow - shallow lime-rich soils over chalk
Grey - freely draining lime-rich loamy soils

Figure 15 Soils of the Yorkshire Wolds (NSRI www.landis.org.uk)

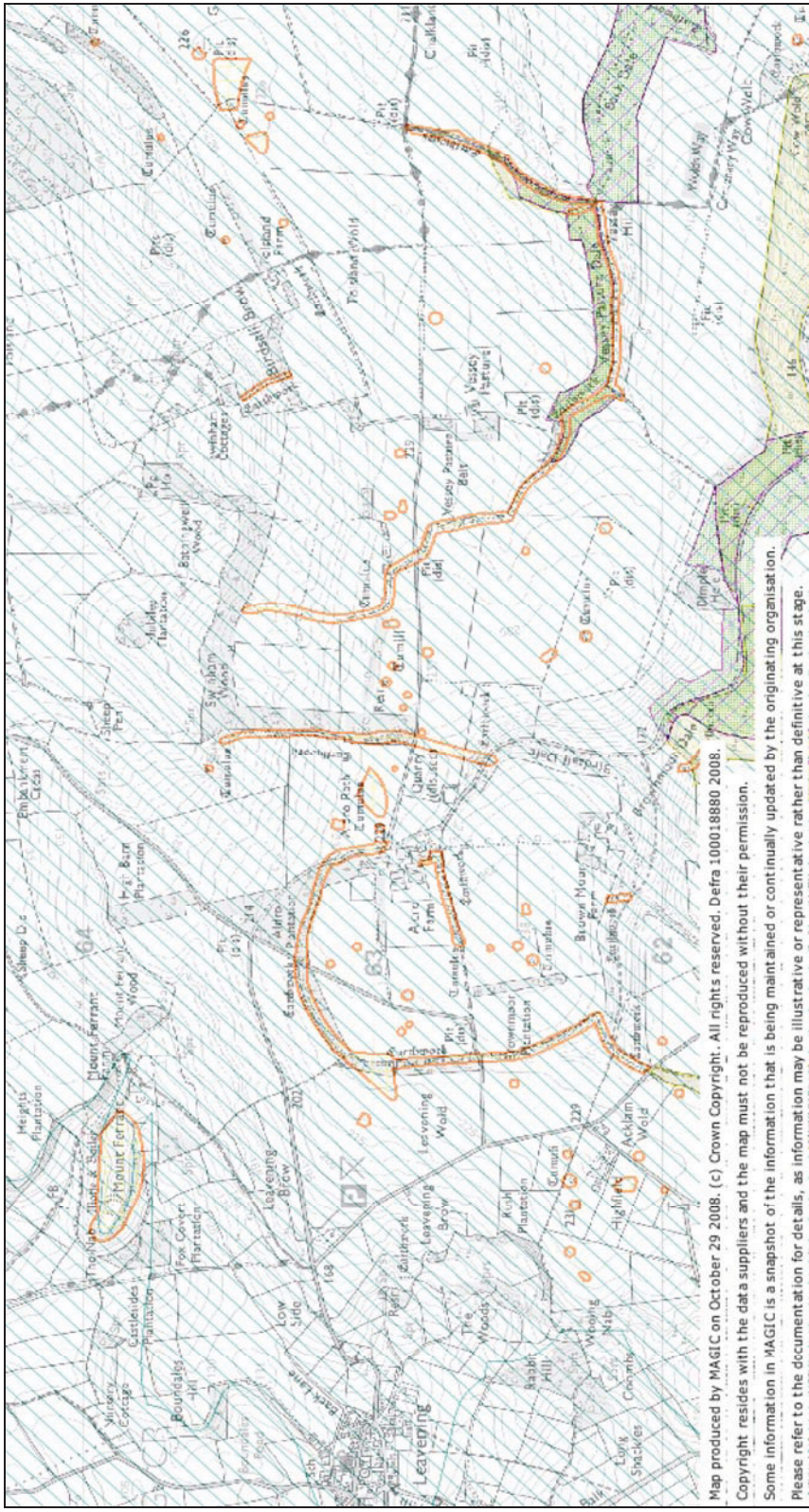


Figure 16 MAGIC map extract showing scheduled monuments surrounding Vessey Pasture



Figure 17 The linear earthwork along the bottom of Vessey Pasture Dale



Figure 18 Fence placed into the bank of the linear feature at Vessey Pasture Dale

Original in colour



Figure 19 Chalk lobe between Back Dale and Vessey Pasture Dale

Original in colour



Figure 20 Trace of a linear feature on valley side, Vessey Pasture Dale, and a trace of double at nearby Thixendale



Figure 21 Vessey Ponds, prehistoric water source (image from Google Earth)



Figure 22 The extent of the SSSI at Vessey Pasture Dale and Back Dale (from the Natural England website)



Figure 23 Relict palaeofeatures as cropmarks at Vessey Pasture Dale and Back Dale (©2009 Infoterra and Bluesky on Google Earth)

Original in colour

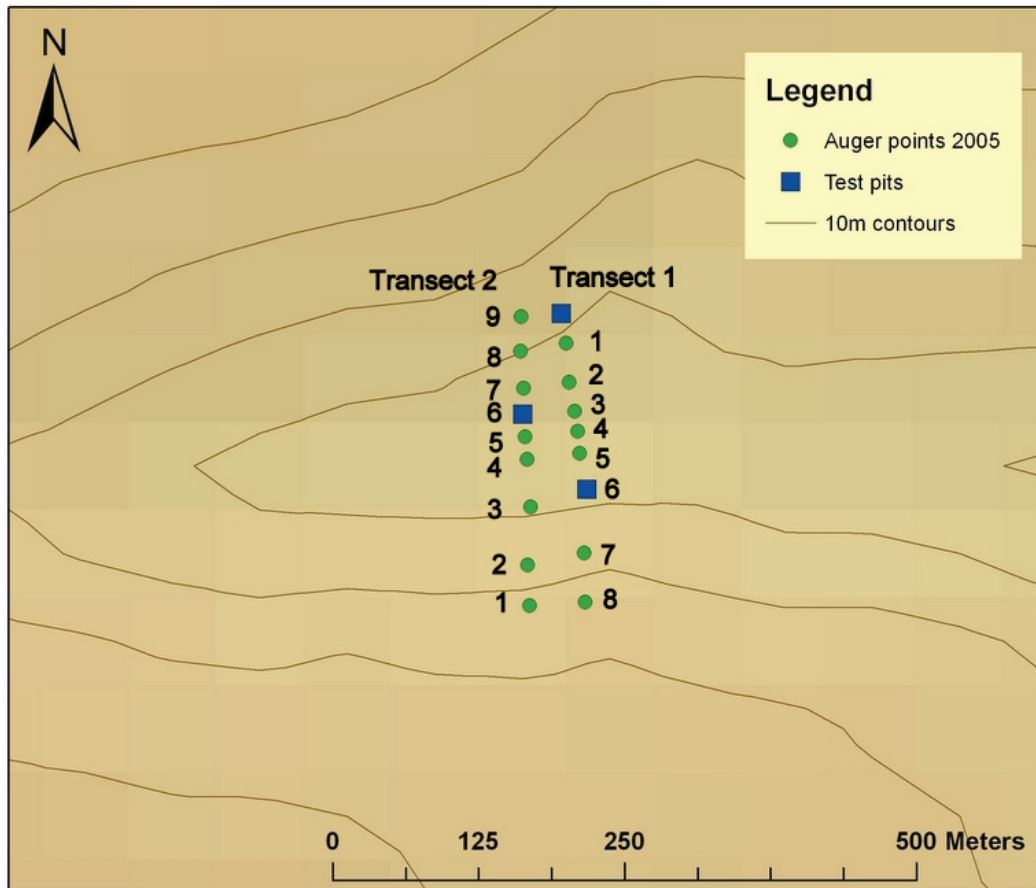


Figure 24 Auger transect locations, Vessey Pasture Dale

Original in colour



Figure 25 Bovine interest in the test pits at Vessey Pasture Dale

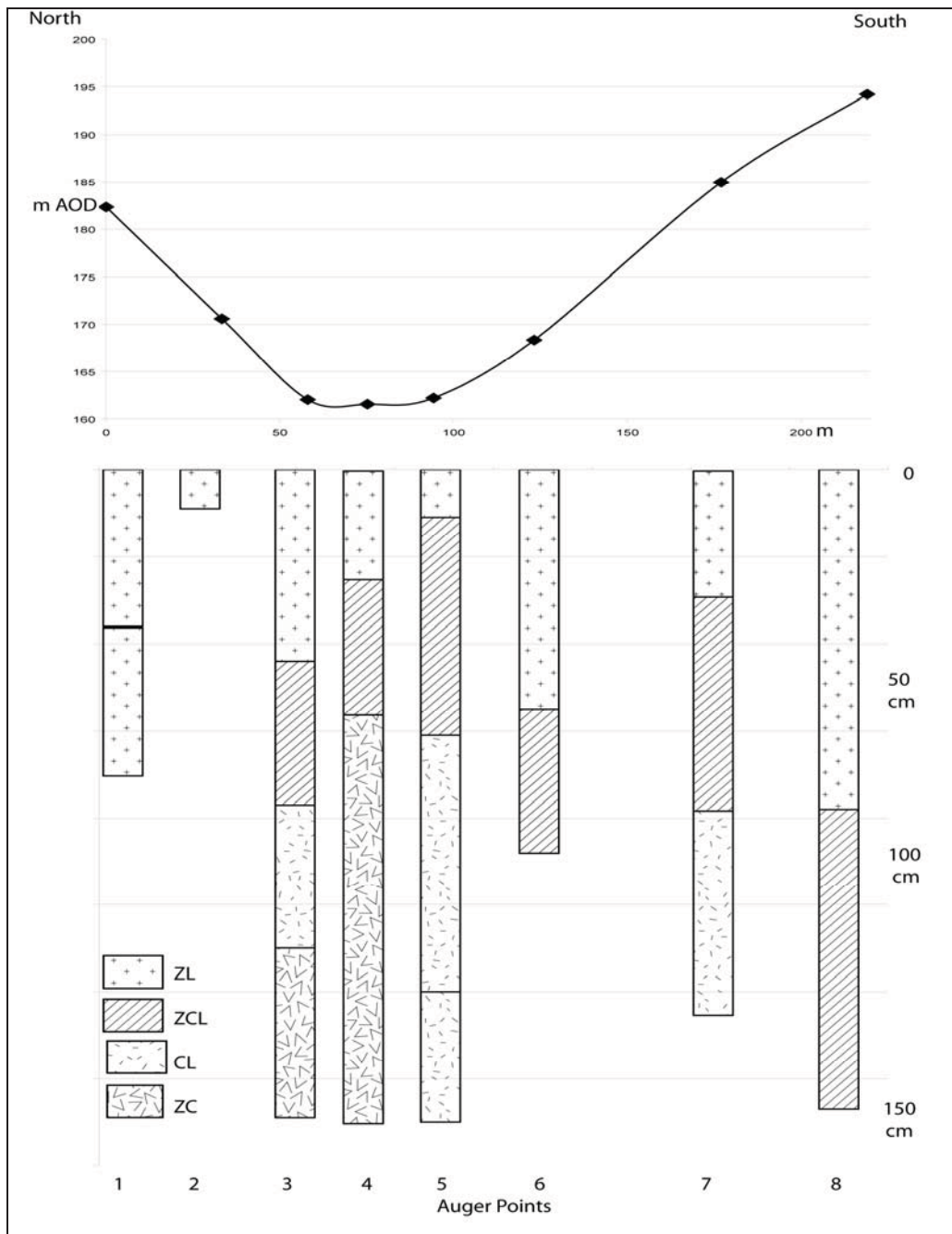


Figure 26 Auger results Transect 1 Vessey Pasture Dale

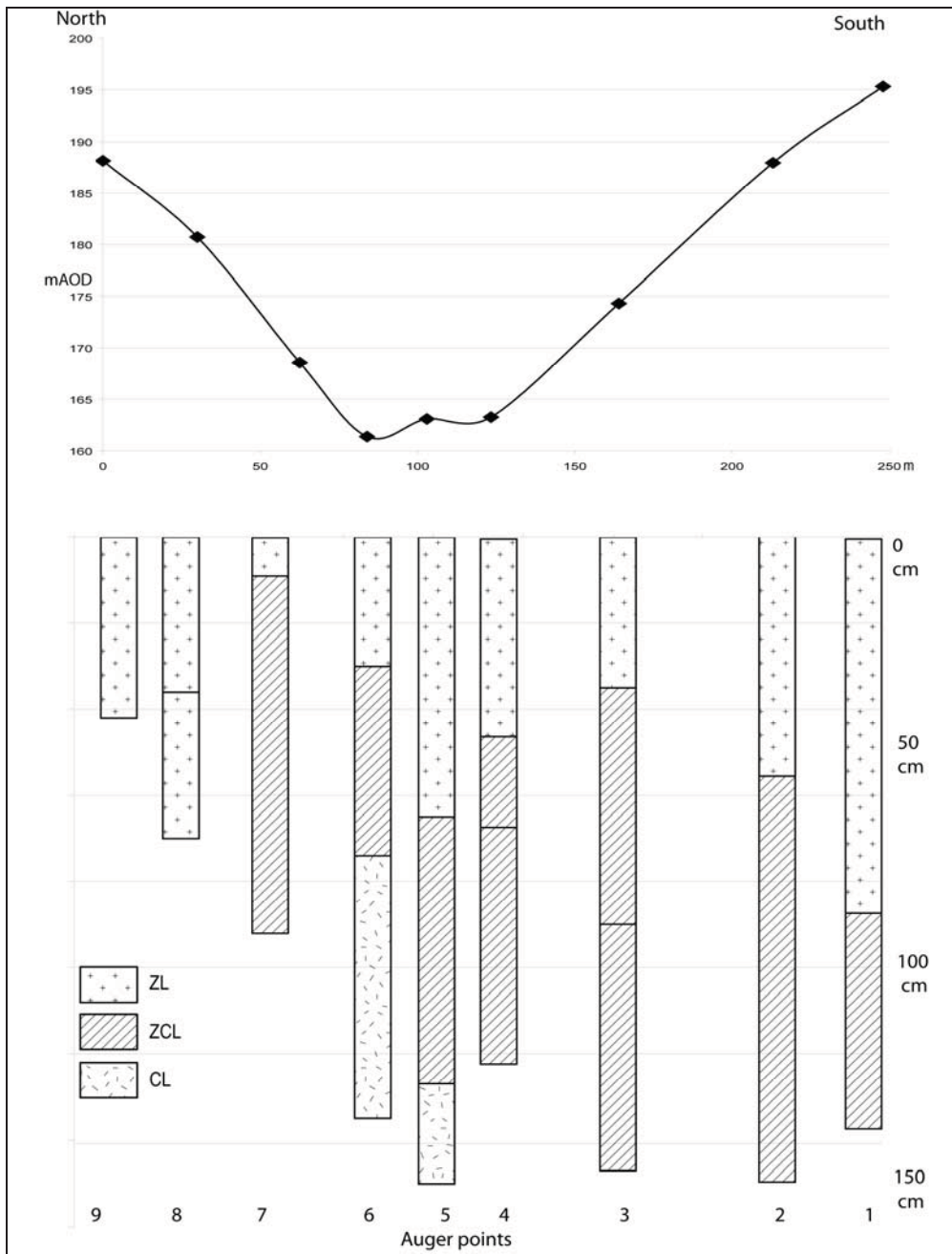


Figure 27 Auger results Transect 2 Vessey Pasture Dale

Original in colour

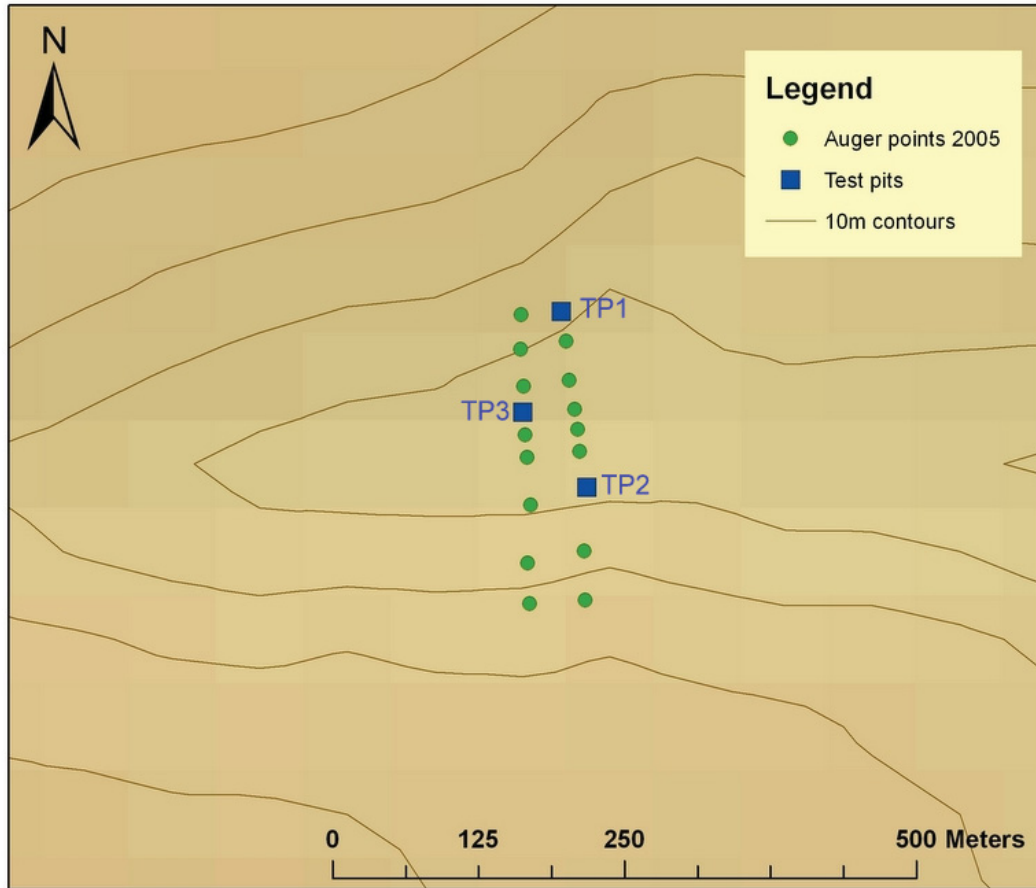


Figure 28 Test pit locations Vessey Pasture Dale

Vessey Pasture
 Test Pit 1
 14/6/05
 LJS/ JH
 1:10
 East Facing

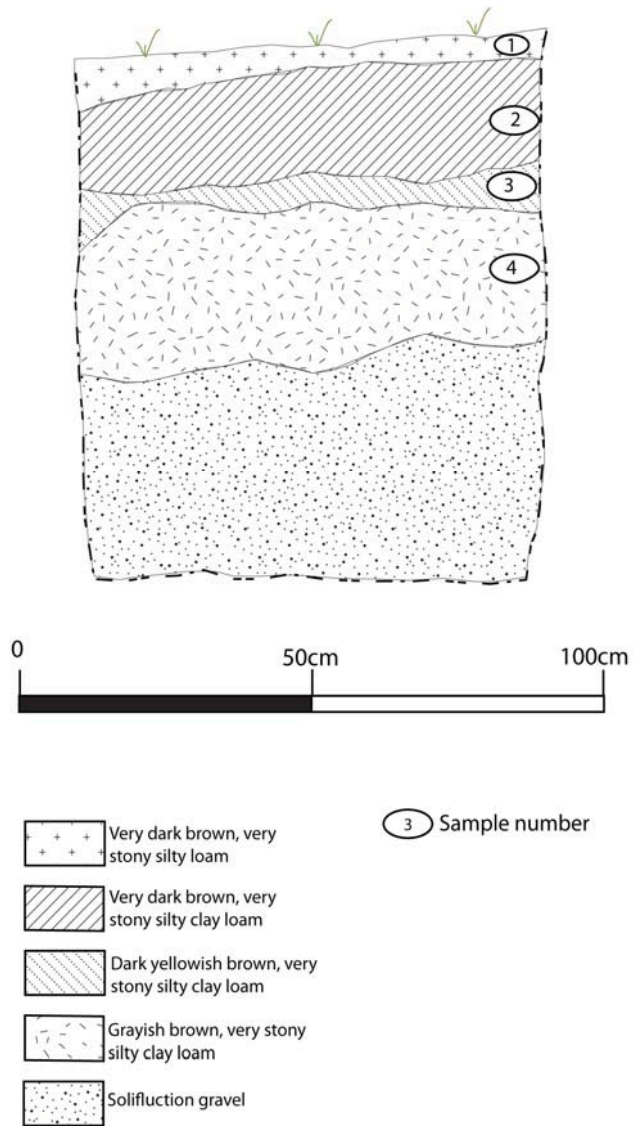


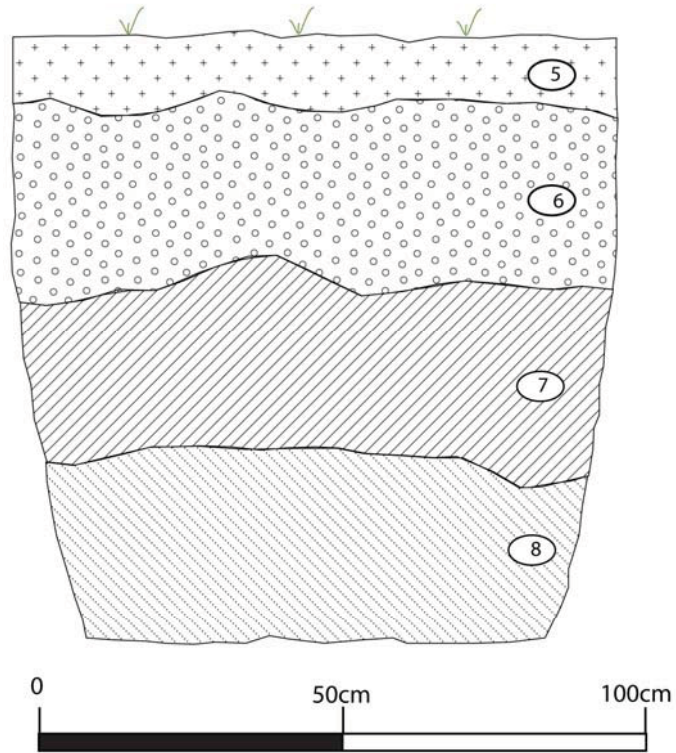
Figure 29 Drawing and sampling Test Pit 1 Vessey Pasture Dale

Original in colour



Figure 30 Photograph Test Pit 1 Vessey Pasture Dale

Vessey Pasture
 Test Pit 2
 15/6/05
 KT/WS
 1:10
 East Facing








- | | | | |
|---|--|---|---------------|
|  | Very dark brown, slightly stony silty loam |  | Sample number |
|  | Dark brown, moderately stony silty loam | | |
|  | Dark yellowish brown, slightly stony silty clay loam | | |
|  | Dark yellowish brown, moderately stony silty clay loam | | |

Figure 31 Drawing and sampling Test Pit 2 Vessey Pasture Dale

Original in colour



Figure 32 Photograph Test Pit 2 Vessey Pasture Dale

Vessey Pasture
 Test Pit 3
 16/6/05
 JH/LJS
 1:10
 East Facing

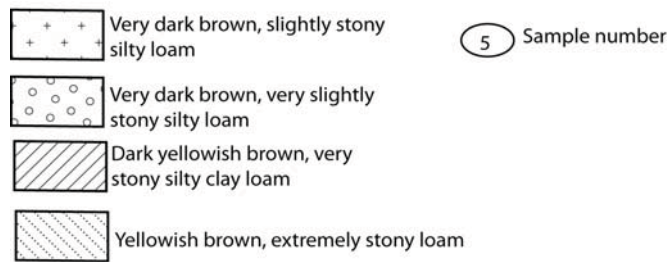
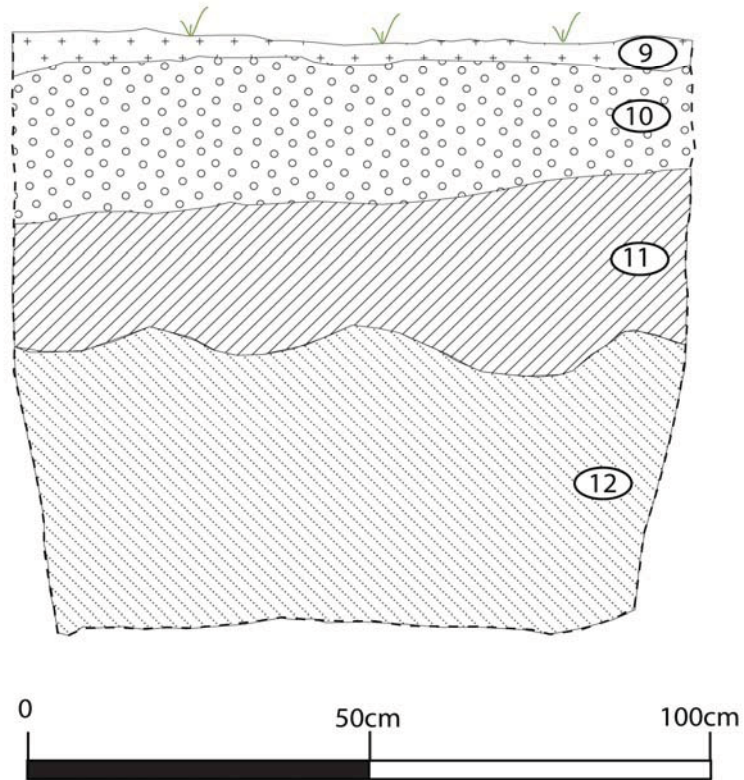


Figure 33 Drawing and sampling Test Pit 3 Vessey Pasture Dale

Original in colour



Figure 34 Photograph Test Pit 3 Vessey Pasture Dale

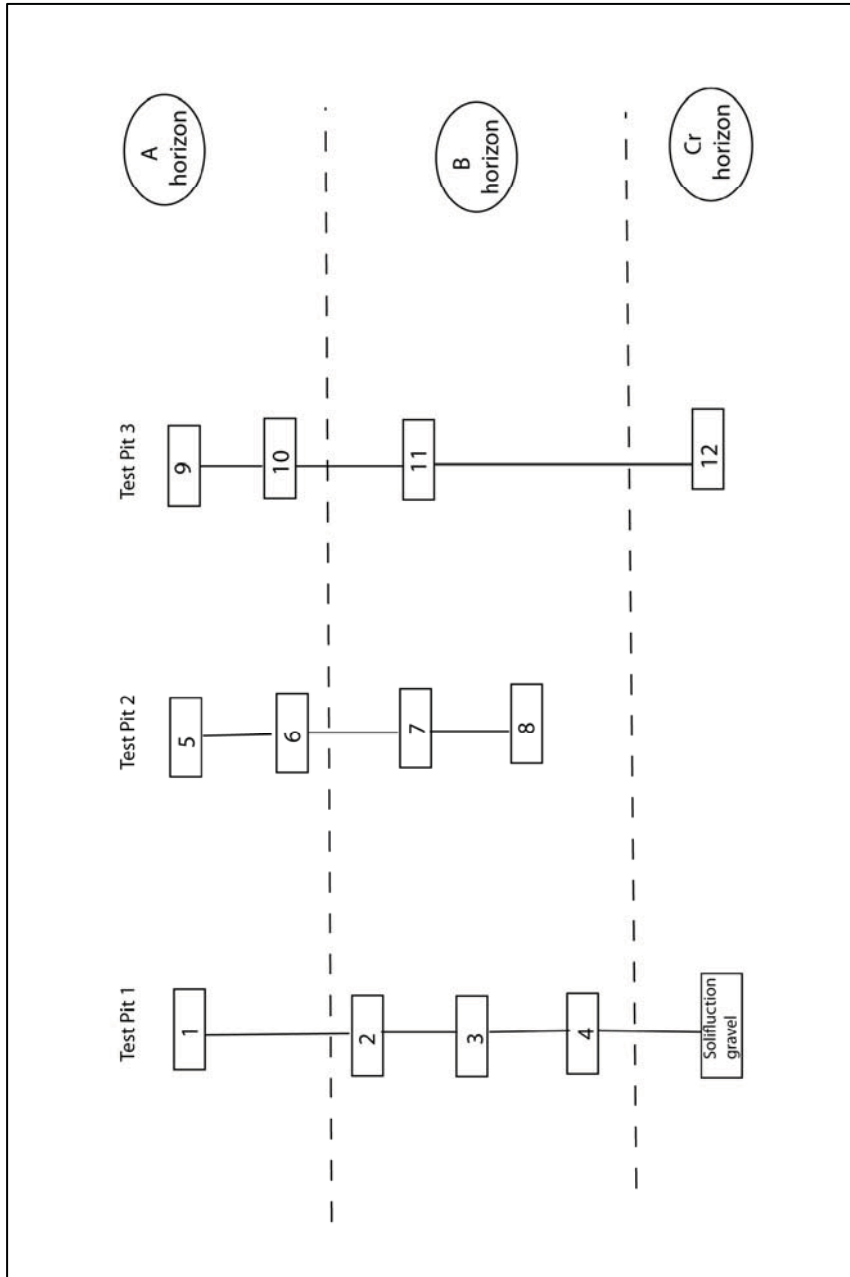


Figure 35 Matrix of sediments for Vessey Pasture Dale

Original in colour



Figure 36 The Fairy Stones



Figure 37 Tunnel collapse at Burdale photographed in the 1970s (photo courtesy of Mike Elliott)

Original in colour



Figure 38 The Burdale Tunnel being bricked up in 1958 (© Richard Porter) and as it appears today with changed ground level

Original in colour



Figure 39 Burdale Quarry

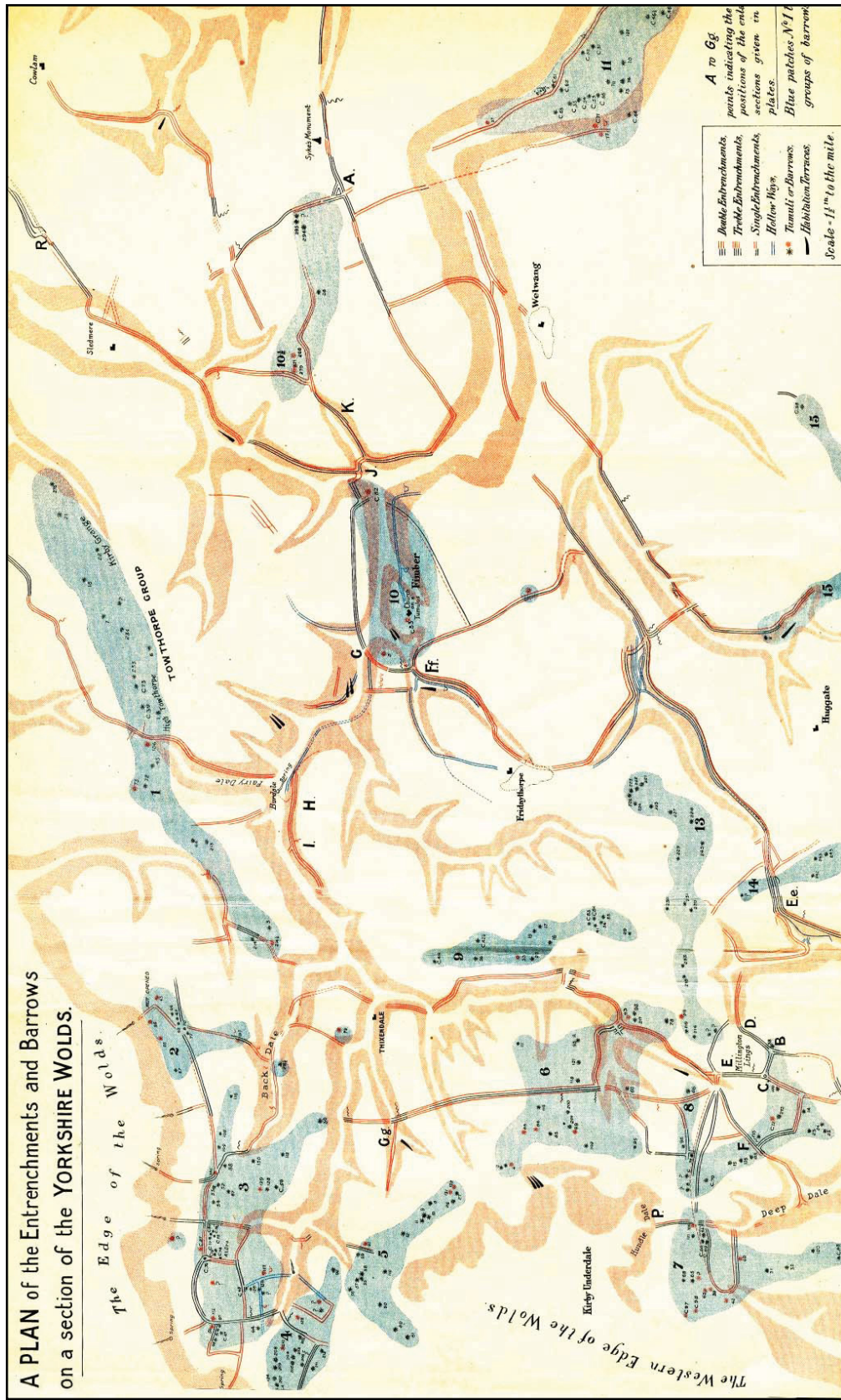


Figure 40 A plan of the entrenchments and barrows showing the Towthorpe Group to the north (from Mortimer 1905)

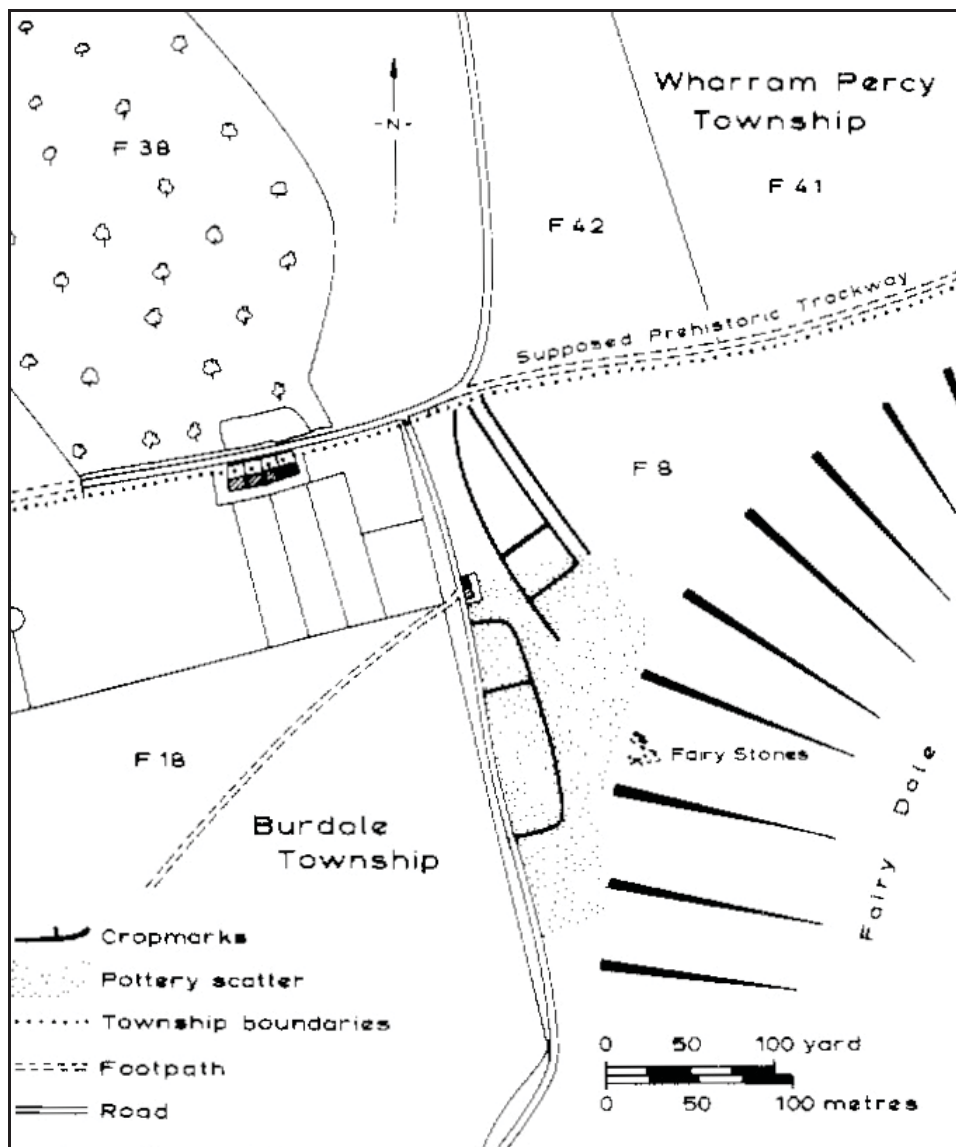


Figure 41 Tunnel Top Farmstead location (from Hayfield 1987, 127)

Original in colour



Figure 42 Valley slope concavity close to the Fairy Stones and dendritic palaeochannels to the north and east

(©2009 Infoterra and Bluesky from Google Earth)

Original in colour

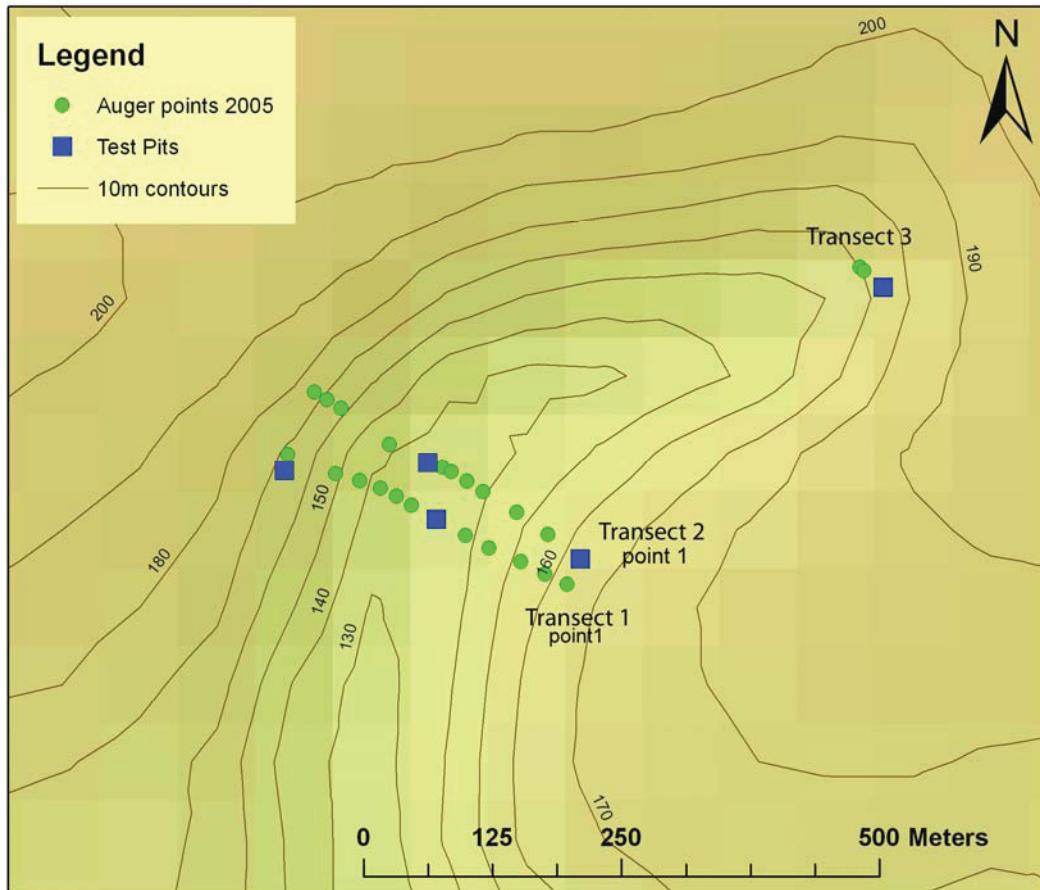


Figure 43 Auger survey transect locations, Fairy Dale

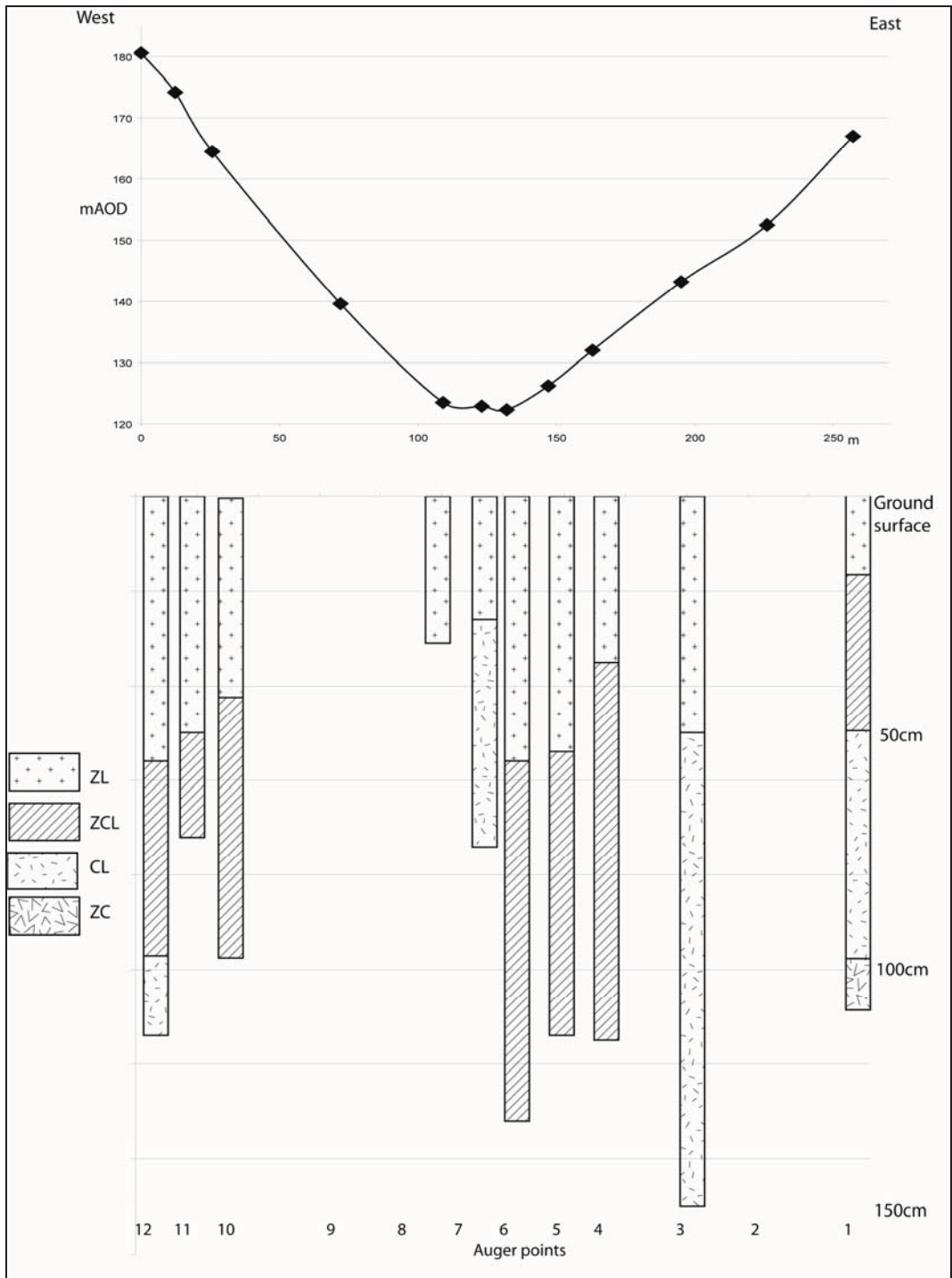


Figure 44 Auger results transect 1 Fairy Dale

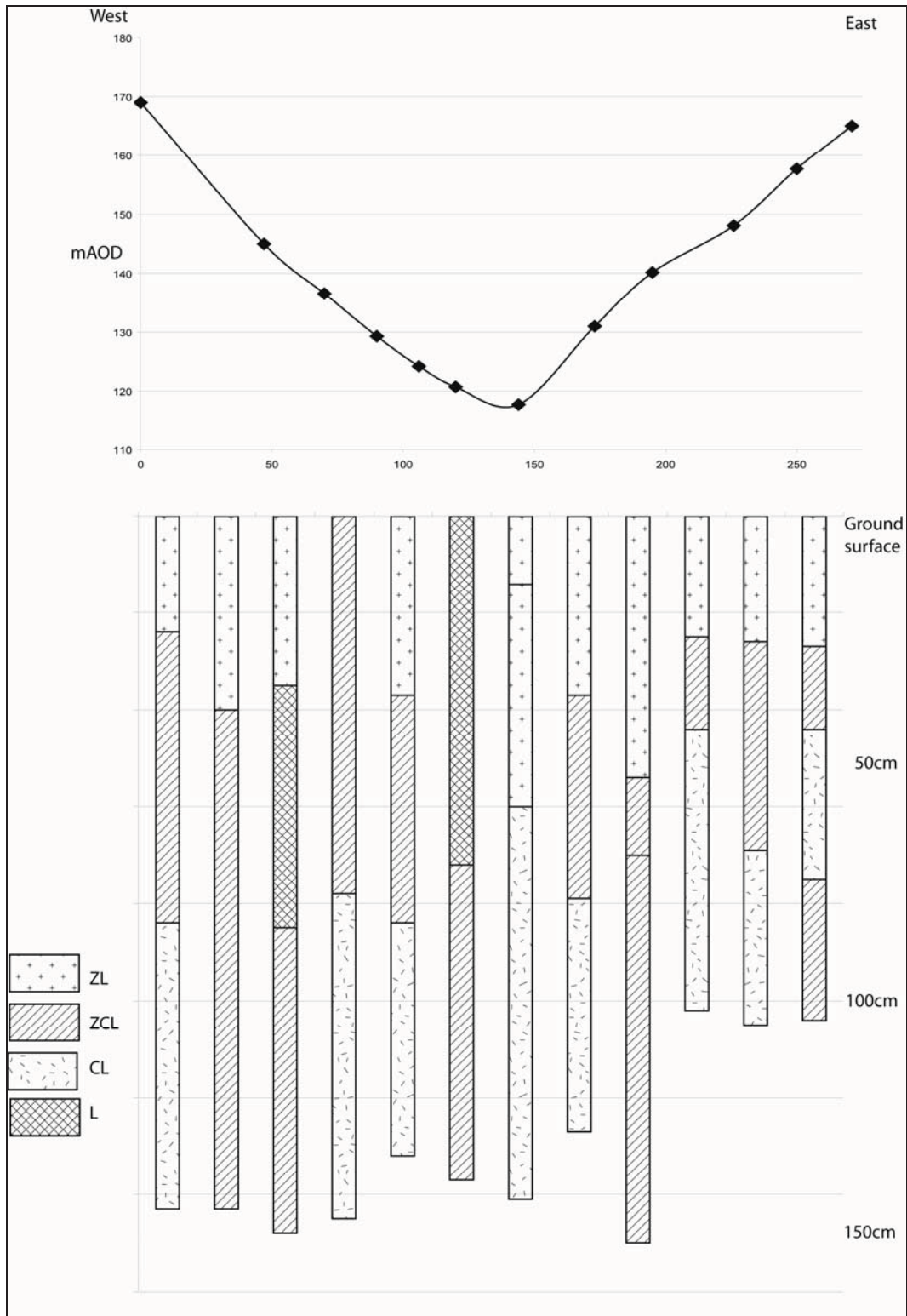


Figure 45 Auger results transect 2 Fairy Dale

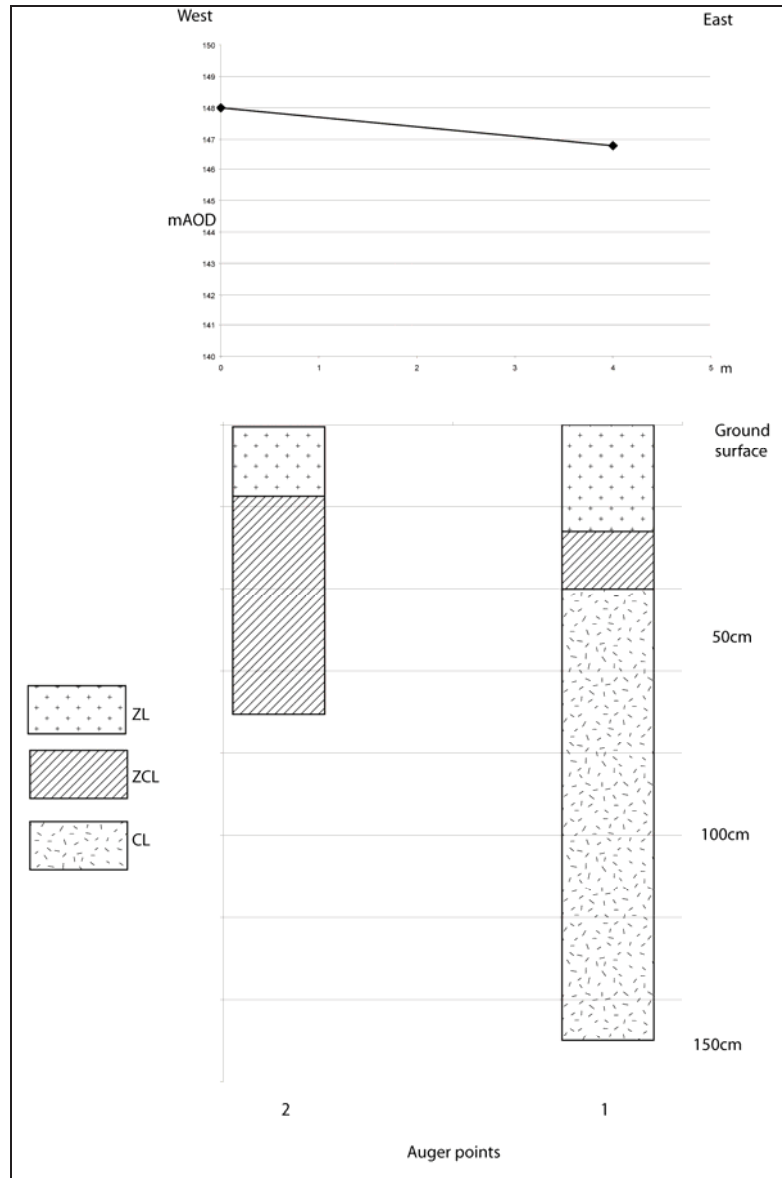


Figure 46 Auger results transect 3 Fairy Dale

Original in colour

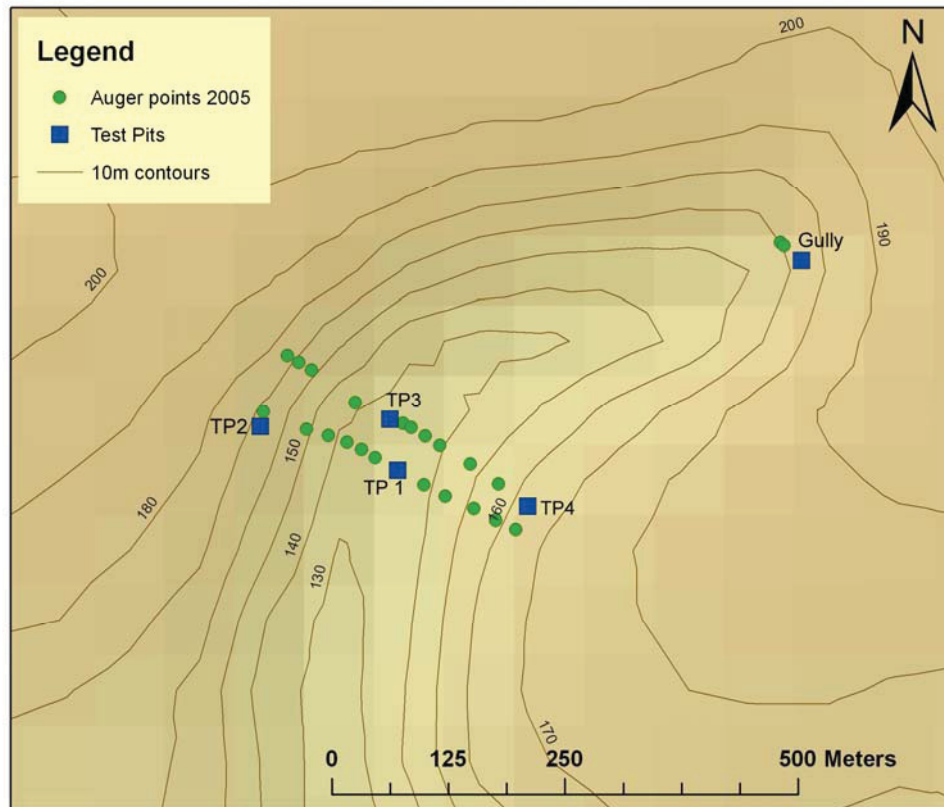


Figure 47 Location plan for test pits Fairy Dale

Fairy Dale
Test Pit 1
17/6/05
HS/CN
1:10
East Facing

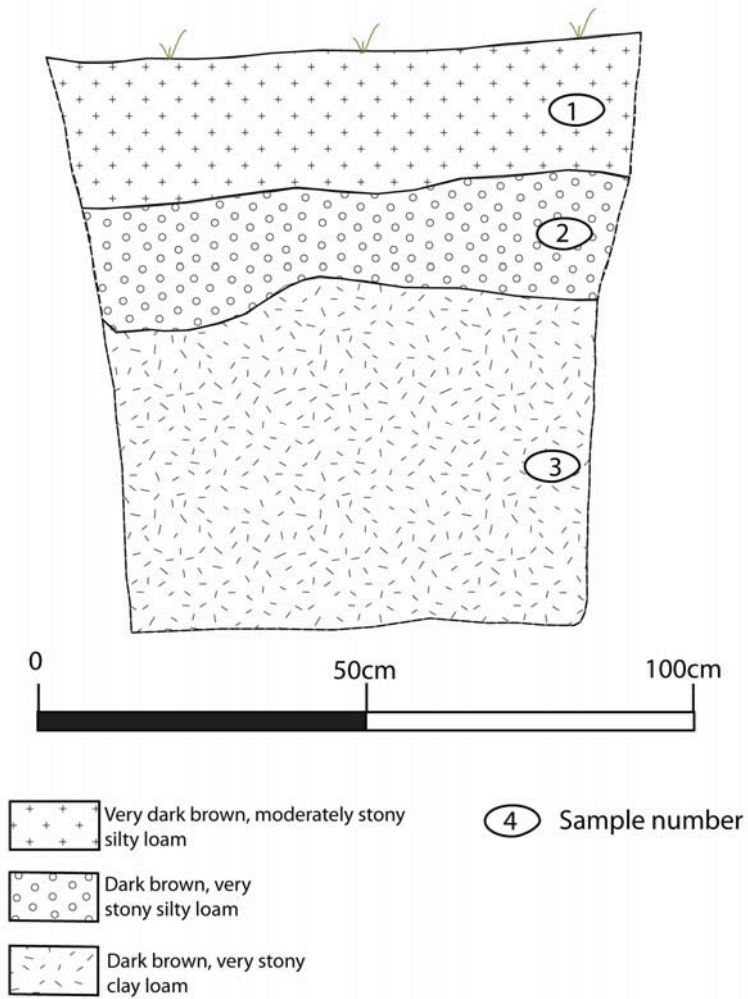


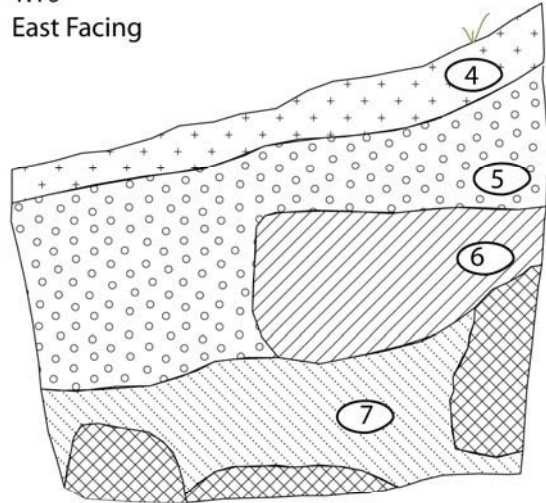
Figure 48 Drawing and sampling of Test Pit 1 Fairy Dale

Original in colour



Figure 49 Photograph of Test Pit 1 Fairy Dale

Fairy Dale
 Test Pit 2
 20/6/05
 HS/CN
 1:10
 East Facing









- | | | | |
|---|--|---|---------------|
|  | Very dark brown, slightly stony silty loam |  | Sample number |
|  | Very dark brown, very stony silty loam | | |
|  | Very dark brown, extremely stony silty clay loam | | |
|  | Very dark brown, extremely stony silty clay | | |
|  | Chalk blocks | | |

Figure 50 Drawing and sampling Test Pit 2 Fairy Dale

Original in colour



Figure 51 Photograph of Test Pit 2 Fairy Dale

Fairy Dale
Test Pit Gully
21/6/05
HS/CN
1:10
East Facing

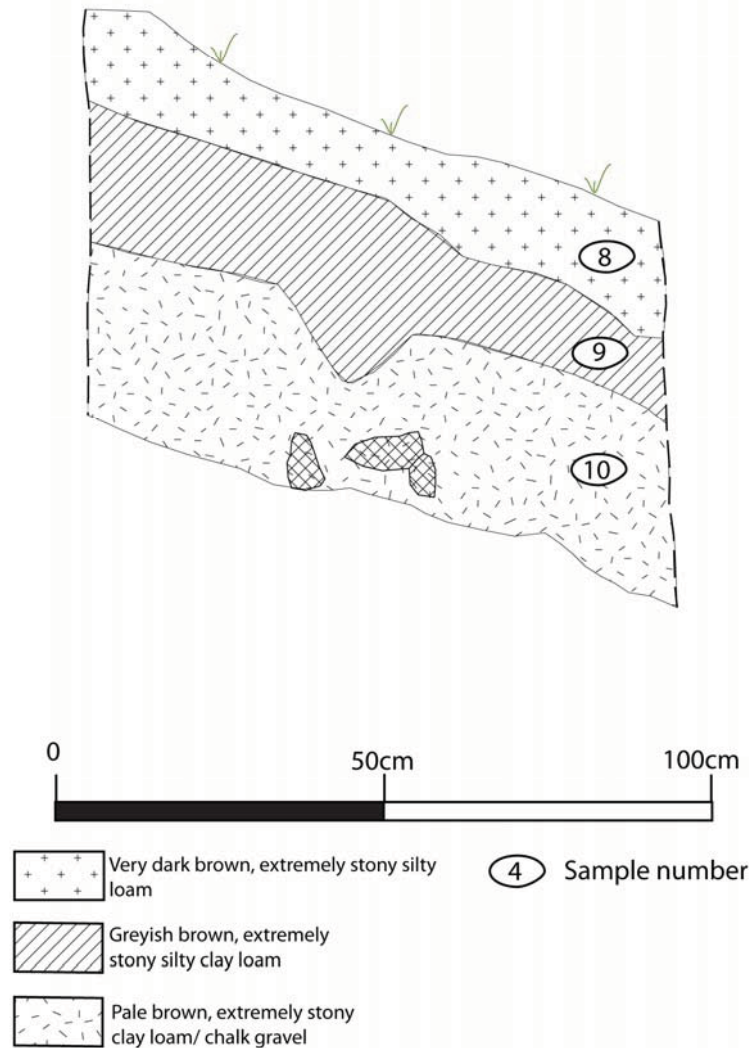


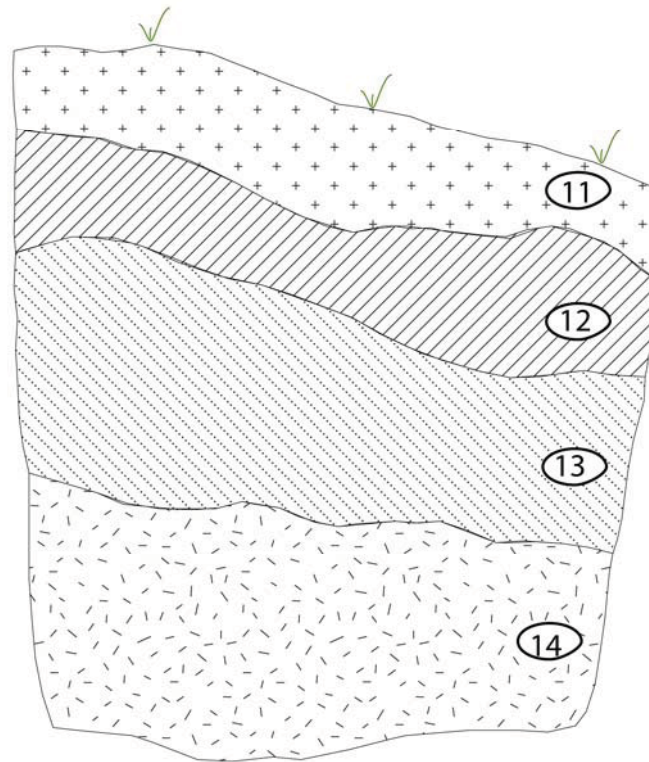
Figure 52 Drawing and sampling gully section

Original in colour



Figure 53 Photograph of the gully section Fairy Dale

Fairy Dale
 Test Pit 3
 21/6/05
 JH
 1:10
 South Facing








- | | | | |
|---|---|--|---------------|
|  | Very dark brown, extremely stony silty loam |  | Sample number |
|  | Dark greyish brown, extremely stony silty clay loam | | |
|  | Dark yellowish brown, extremely stony silty clay loam | | |
|  | Dark brown, extremely stony clay loam | | |

Figure 54 Drawing and sampling Test Pit 3 Fairy Dale

Original in colour



Figure 55 Photograph of Test Pit 3 Fairy Dale

Original in colour



Figure 56 Roman and Iron Age ceramics recovered from Test Pit 3 Fairy Dale

Fairy Dale
 Test Pit 4
 22/6/05
 EF
 1:10
 North Facing

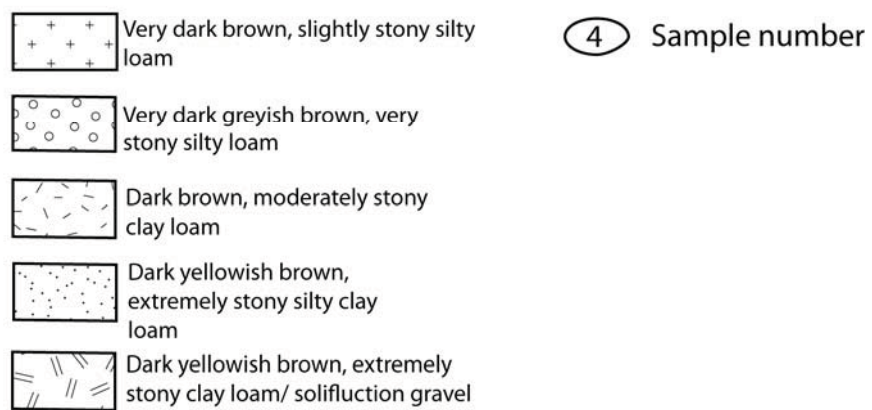
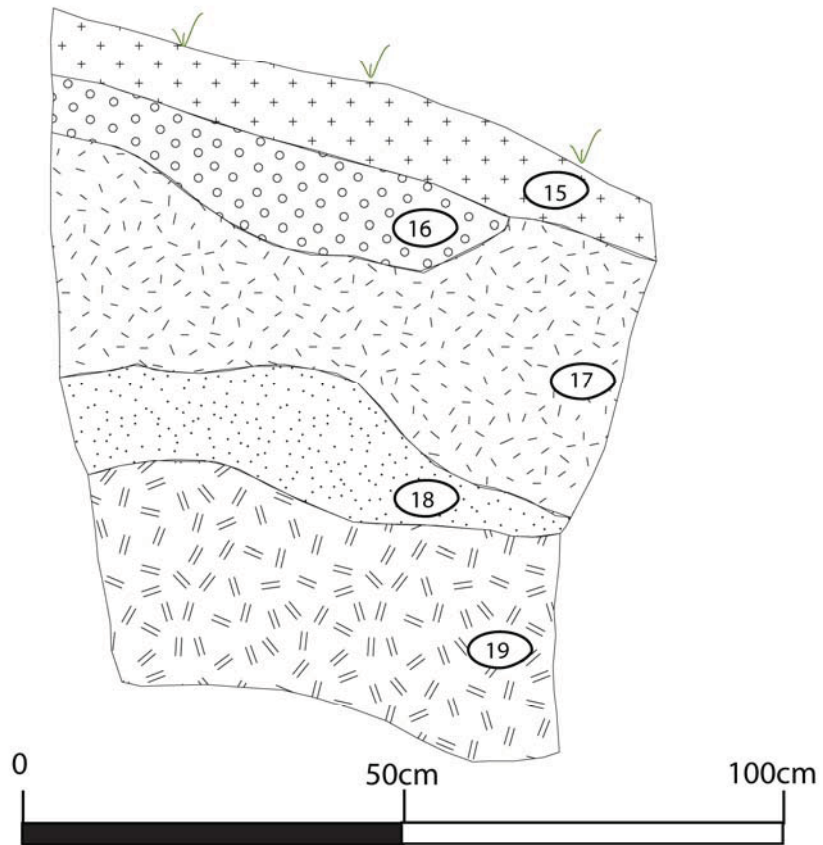


Figure 57 Drawing and sampling Test Pit 4 Fairy Dale

Original in colour



Figure 58 Photograph of Test Pit 4 Fairy Dale

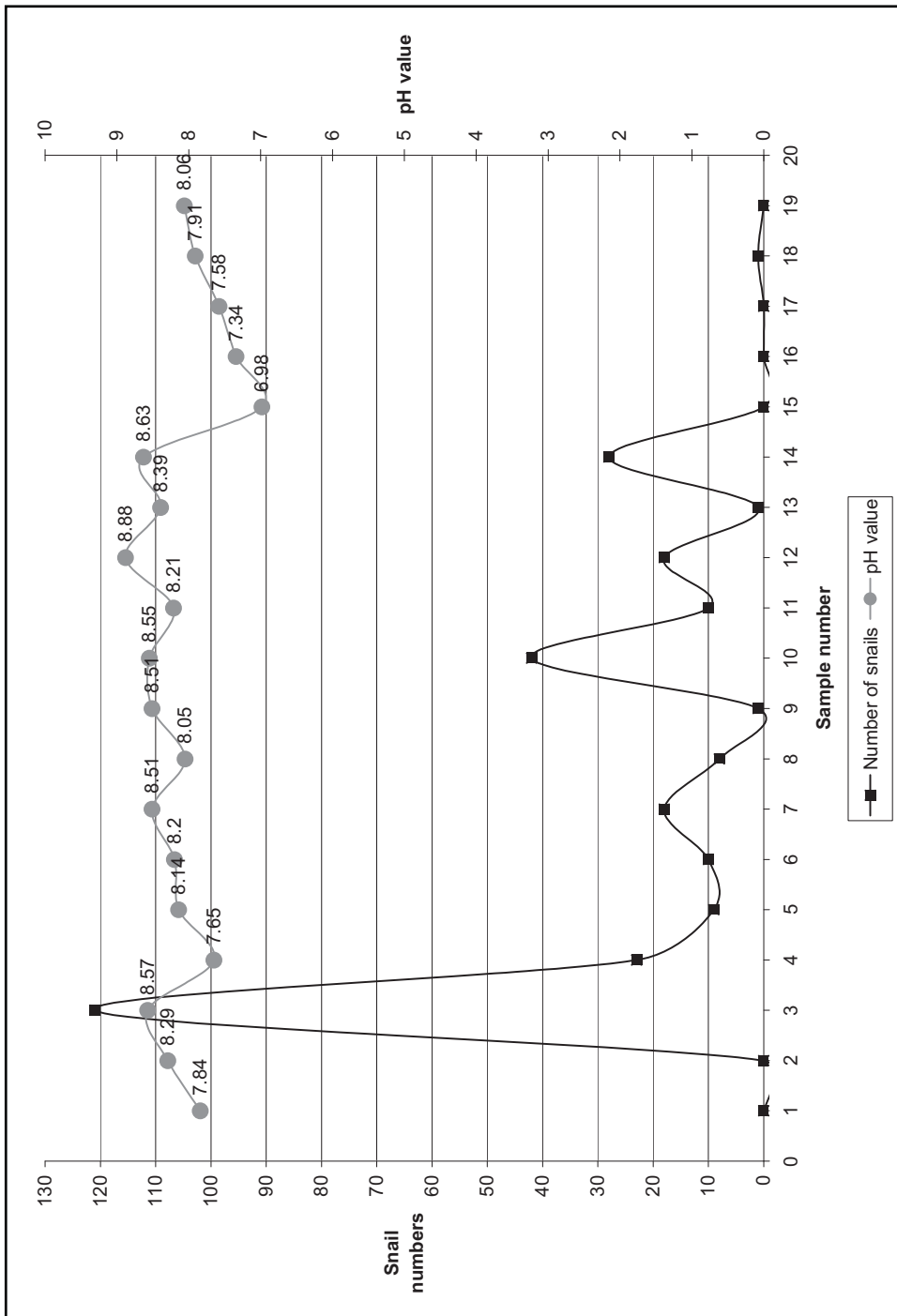


Figure 59 Relationship between pH and number of snail shells, Fairy Dale

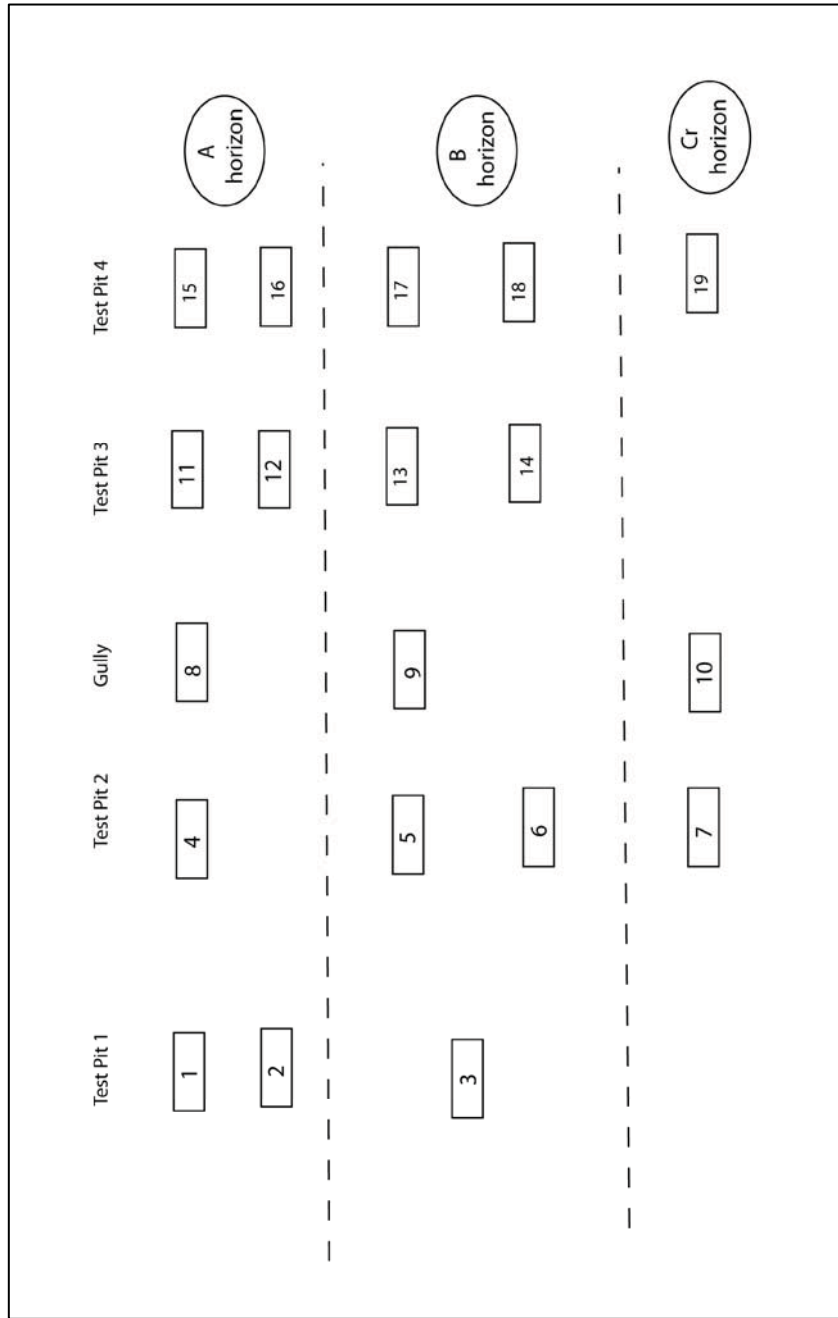


Figure 60 Matrix of sediments for Fairy Dale

Original in colour

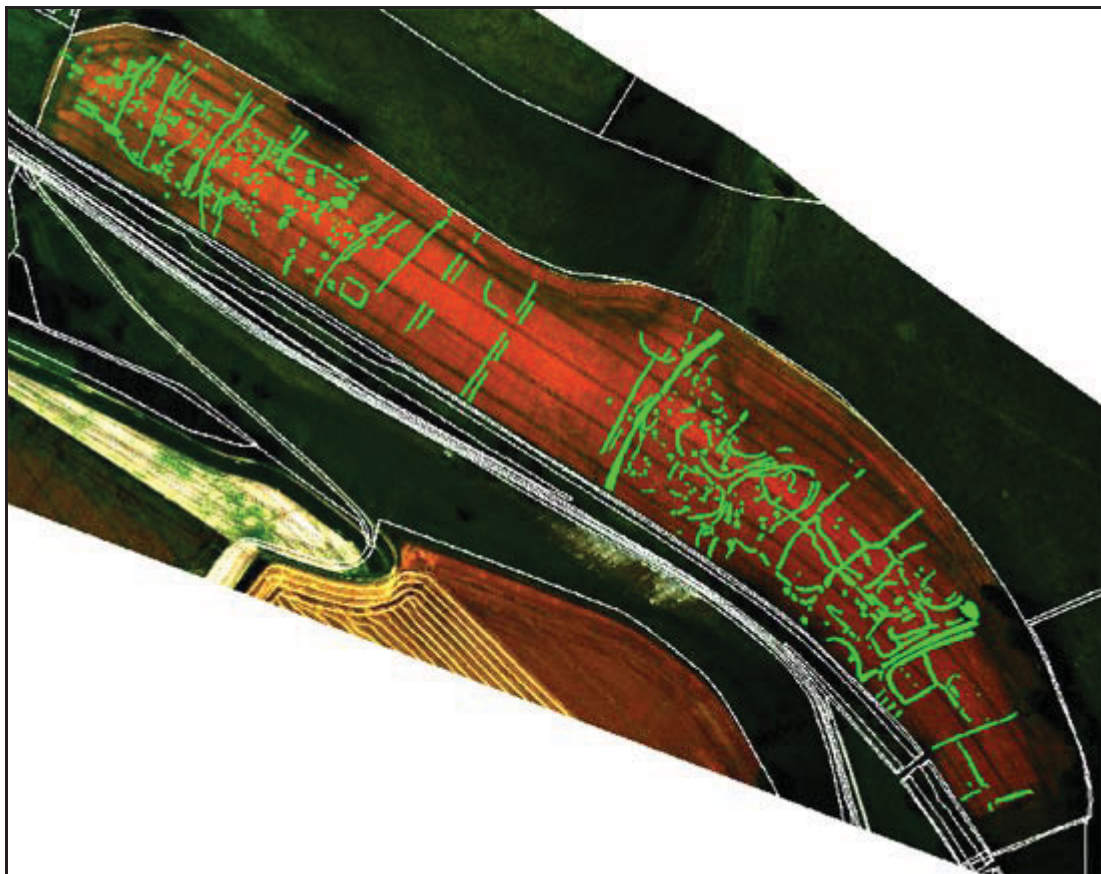


Figure 61 Transcription of aerial photograph of Burdale valley (image courtesy of the University of York)

Original in colour



Figure 62 Photo from the head of Whay Dale looking south

Original in colour



Figure 63 Chalk spurs at either side of Whay Dale (background)

Original in colour



Figure 64 The steeply incised valley head at Whay Dale

Original in colour

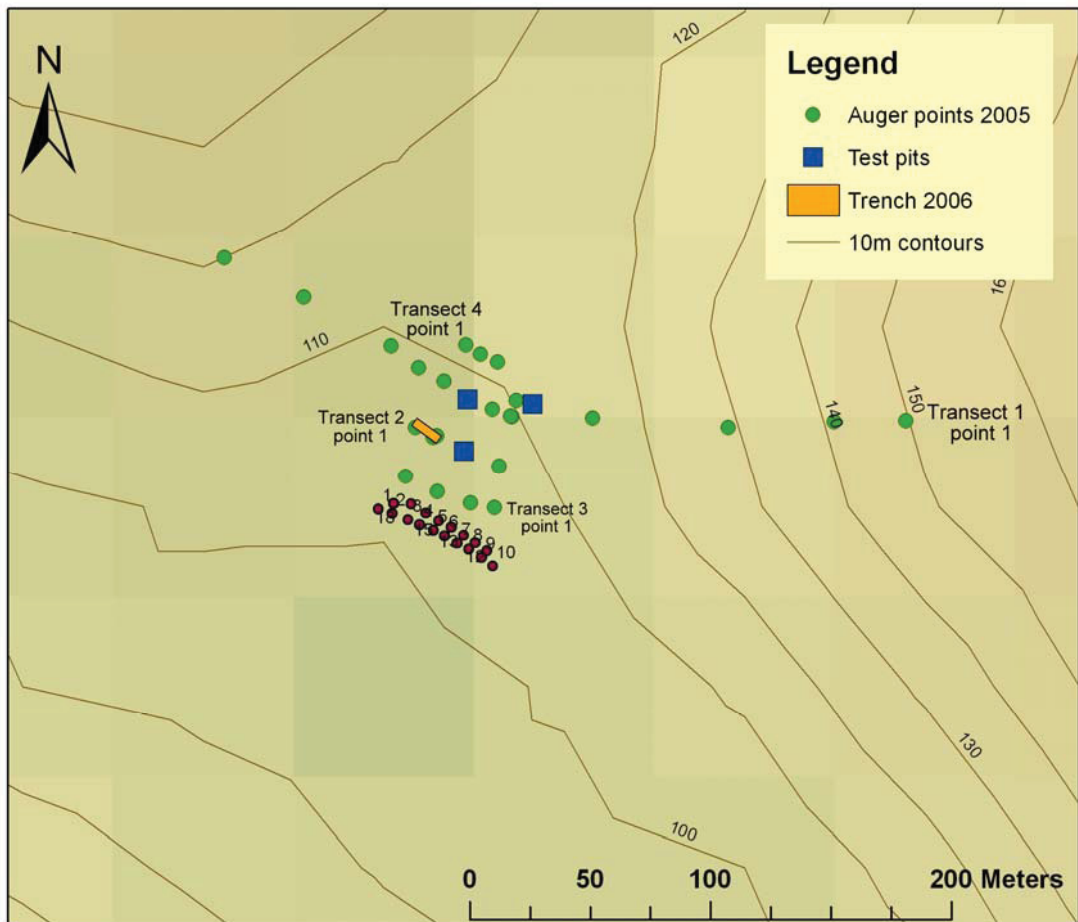


Figure 65 Auger transect location at Whay Dale 2005

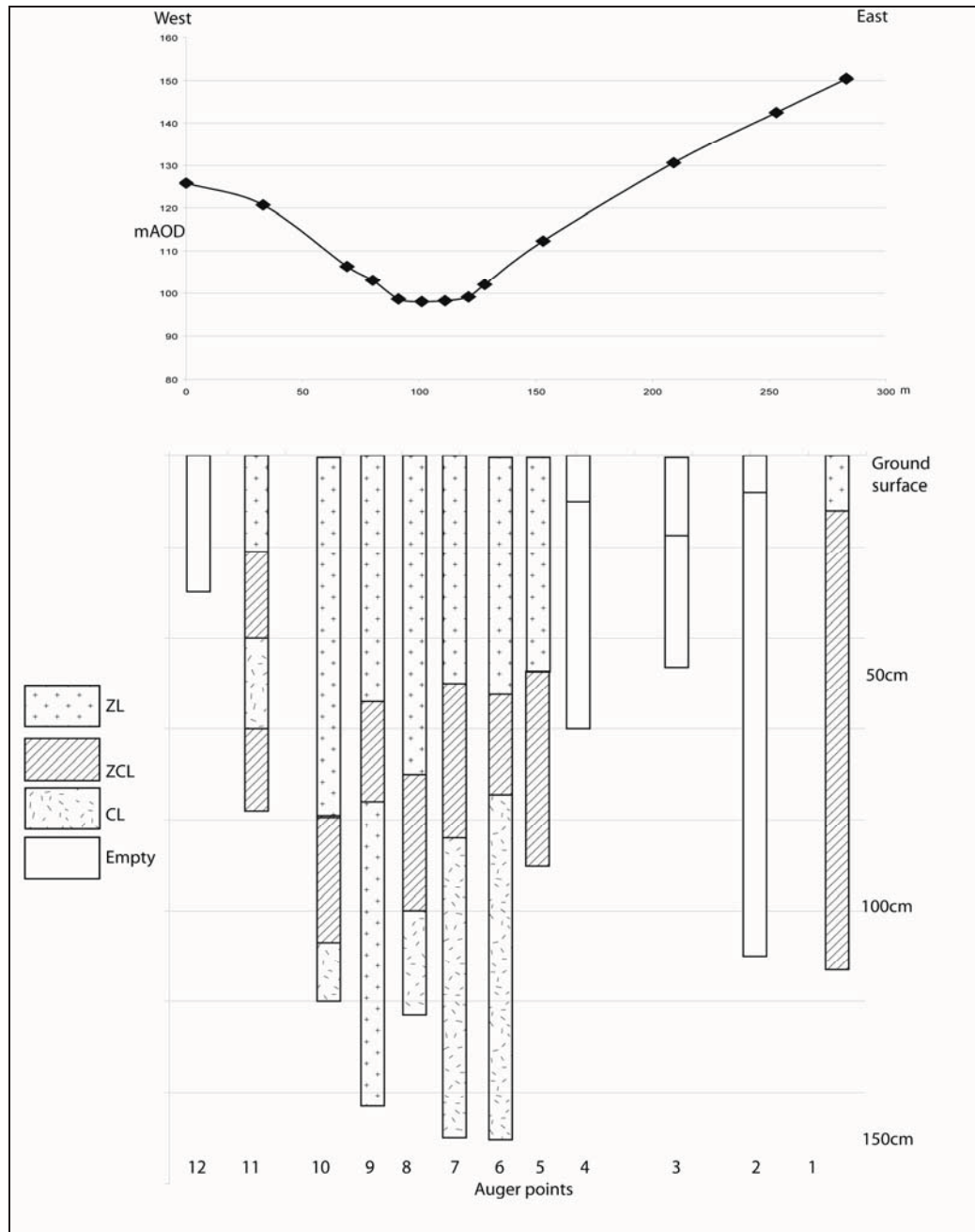


Figure 66 Auger results Transect 1 Whay Dale 2005

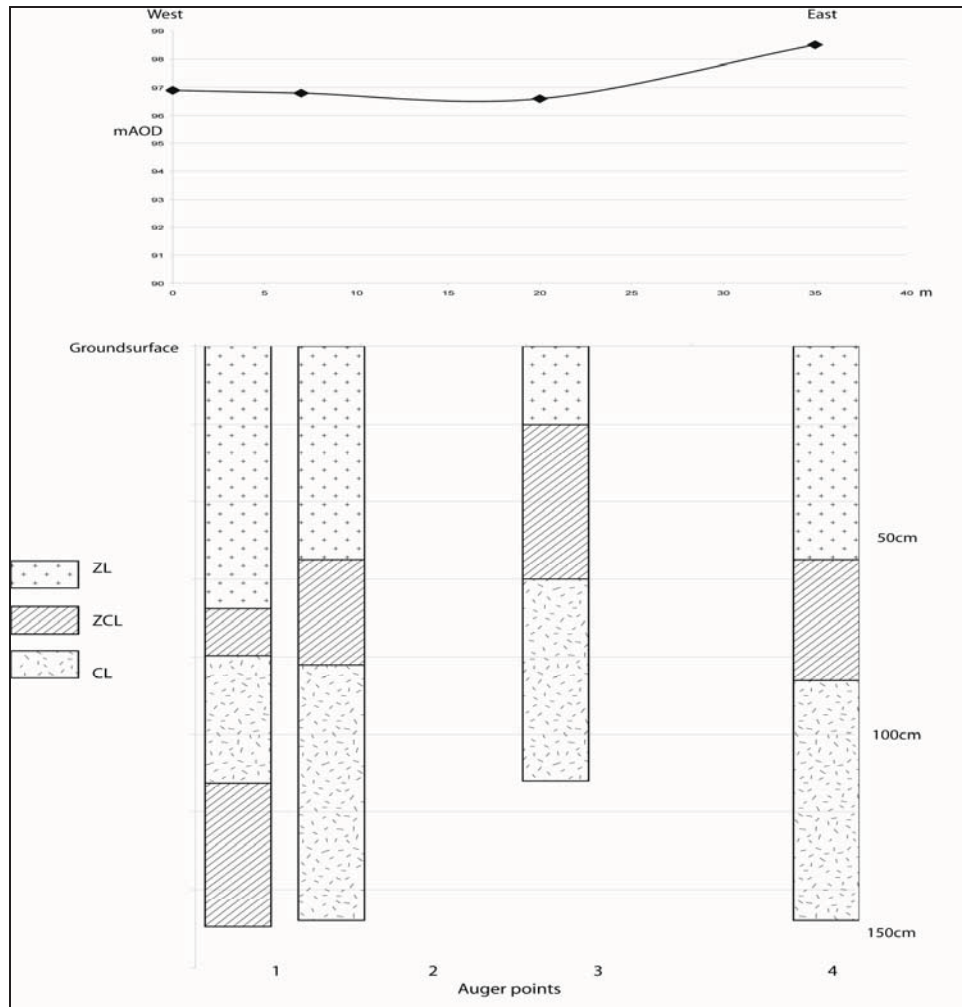


Figure 67 Auger results Transect 2 Whay Dale 2005

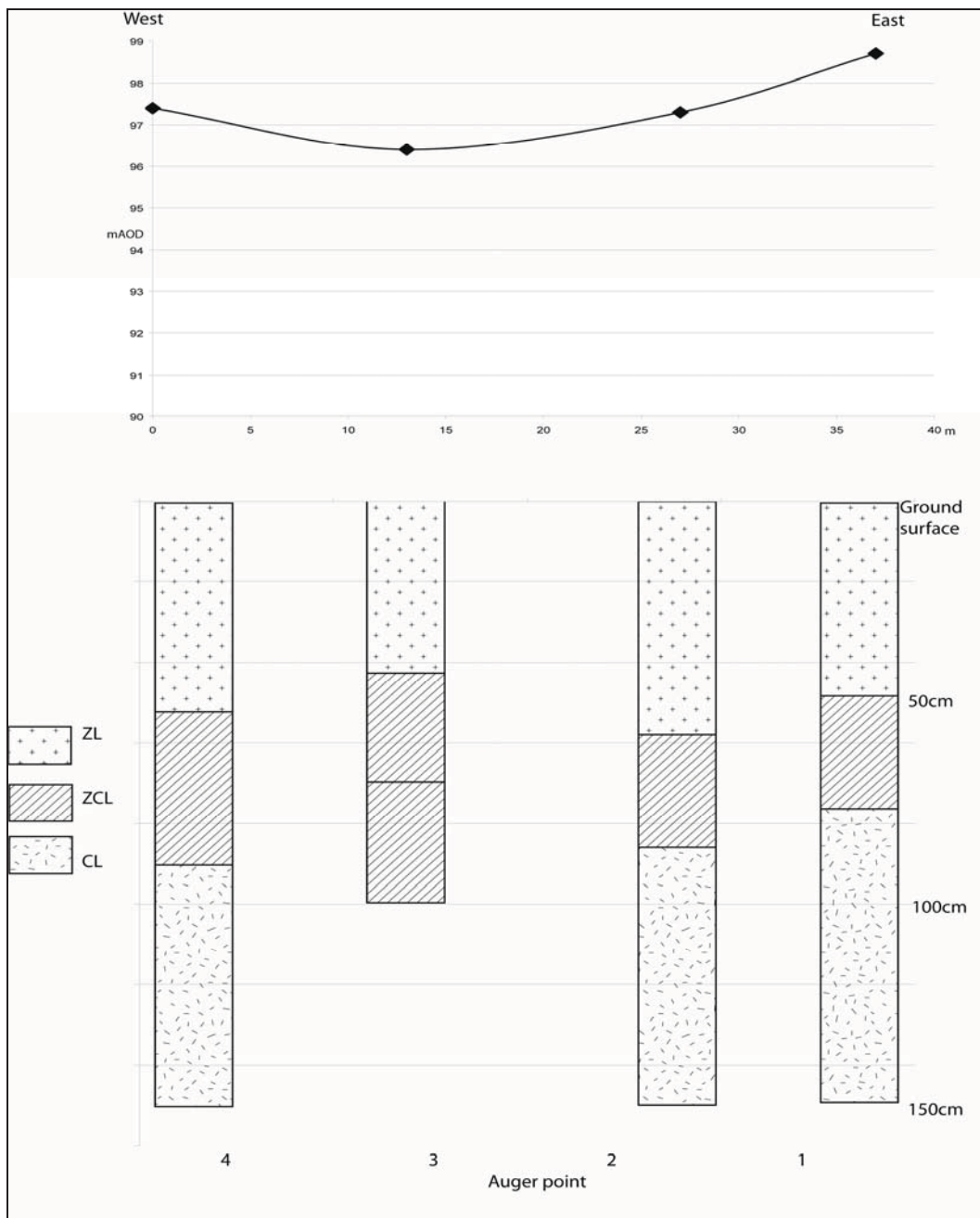


Figure 68 Auger results Transect 3 Whay Dale 2005

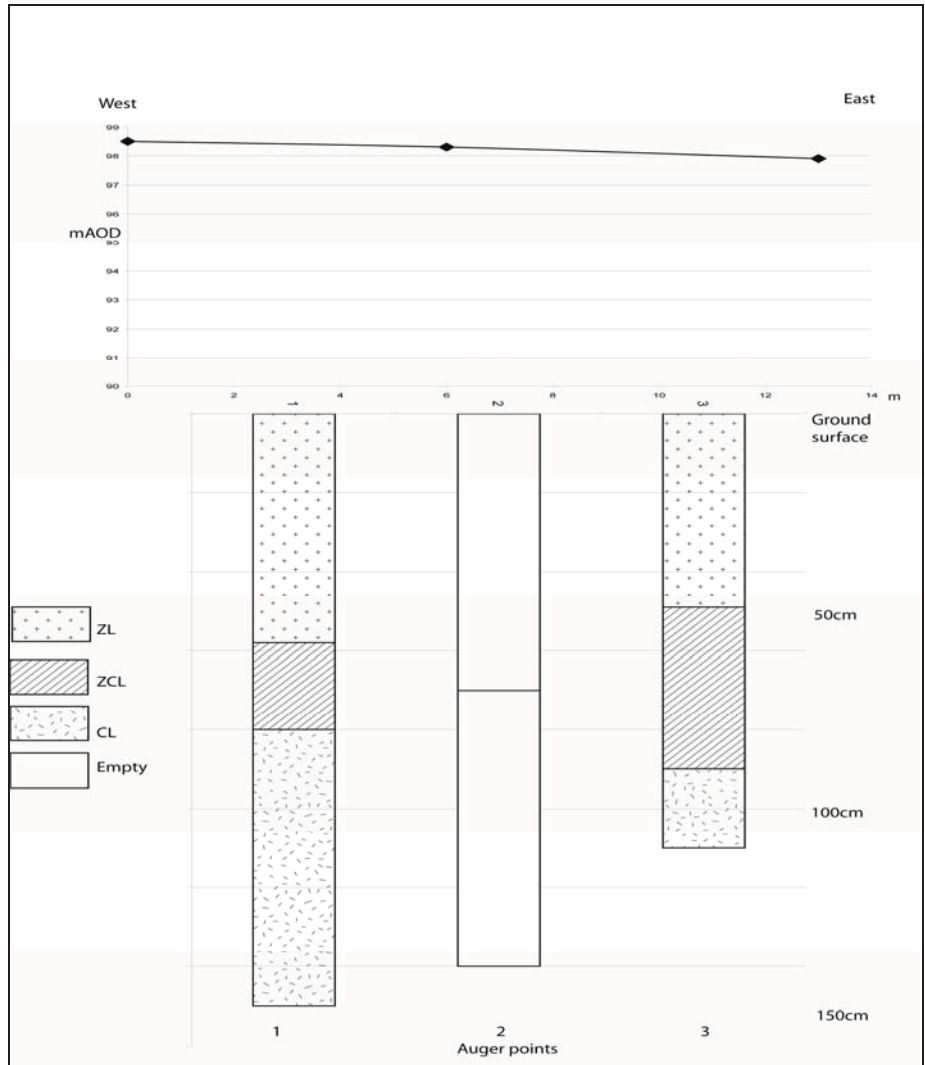


Figure 69 Auger results Transect 4 Whay Dale 2005

Original in colour

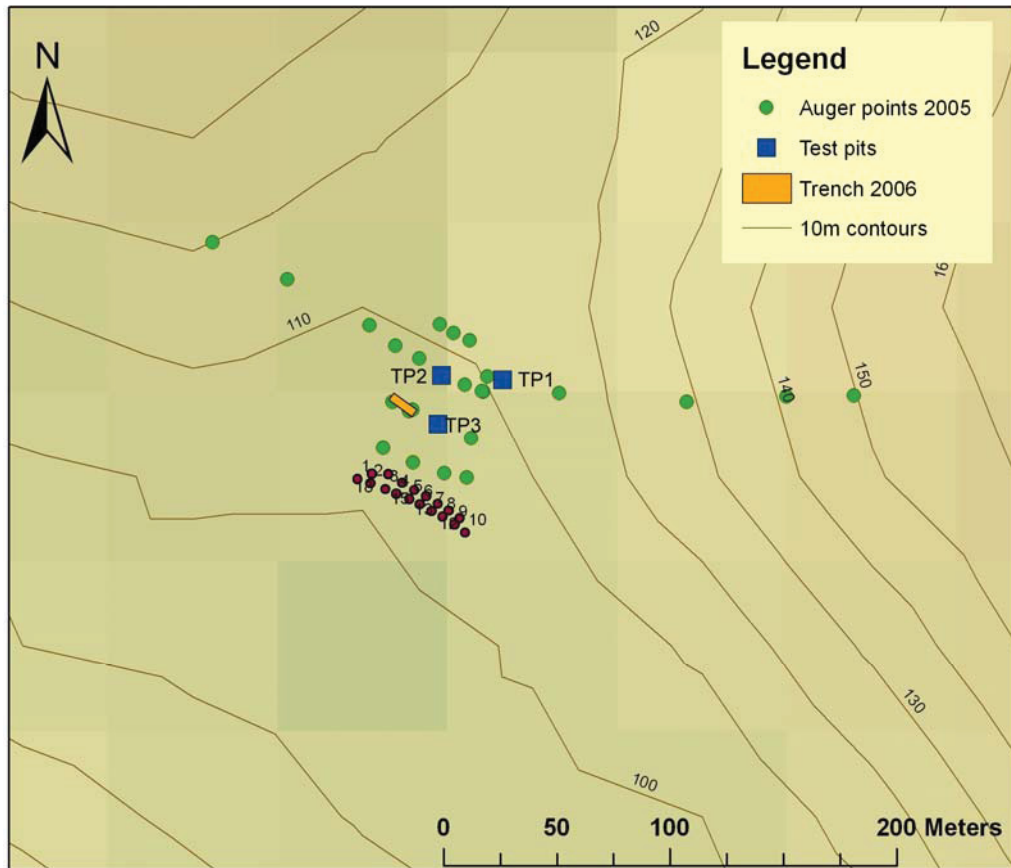


Figure 70 Test pit location Why Dale 2005

Whay Dale
 Test Pit 1
 23/6/05
 JH
 1:10
 South Facing

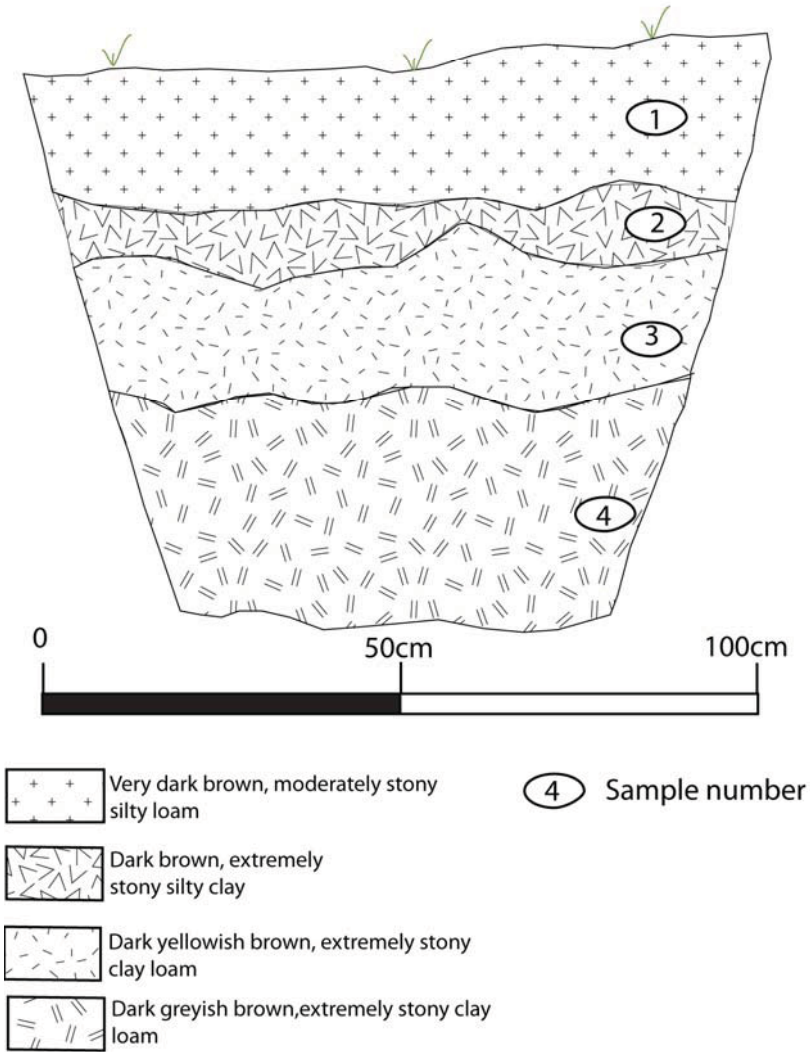


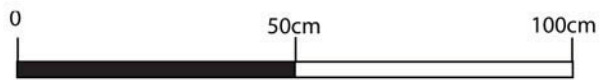
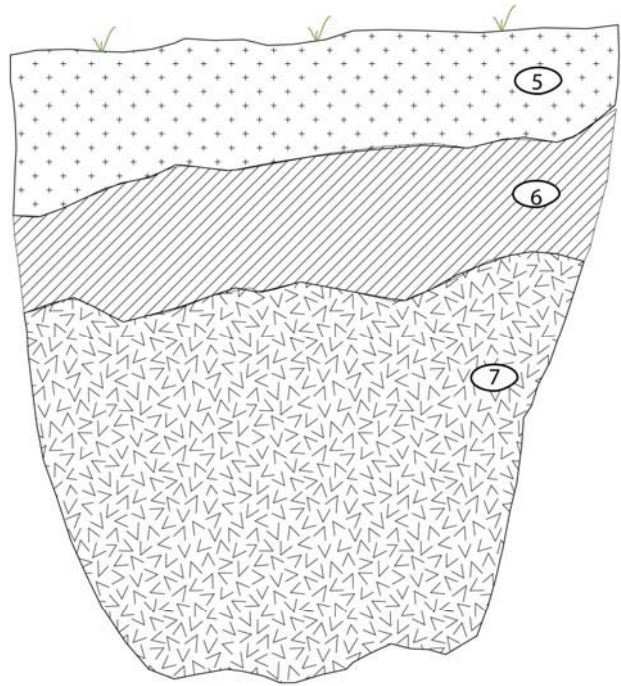
Figure 71 Drawing and sampling Test Pit 1 Whay Dale 2005

Original in colour



Figure 72 Photograph Test Pit 1 Whay Dale 2005

Whay Dale
 Test Pit 2
 24/6/05
 HS
 1:10
 North Facing



- | | | |
|-------|---|-----------------|
| + + + | Very dark brown, moderately stony silty loam | ④ Sample number |
| / / / | Dark yellowish brown, extremely stony silty clay loam | |
| \ \ \ | Brown, moderately stony silty clay | |

Figure 73 Drawing and sampling Test Pit 2 Whay Dale 2005

Original in colour

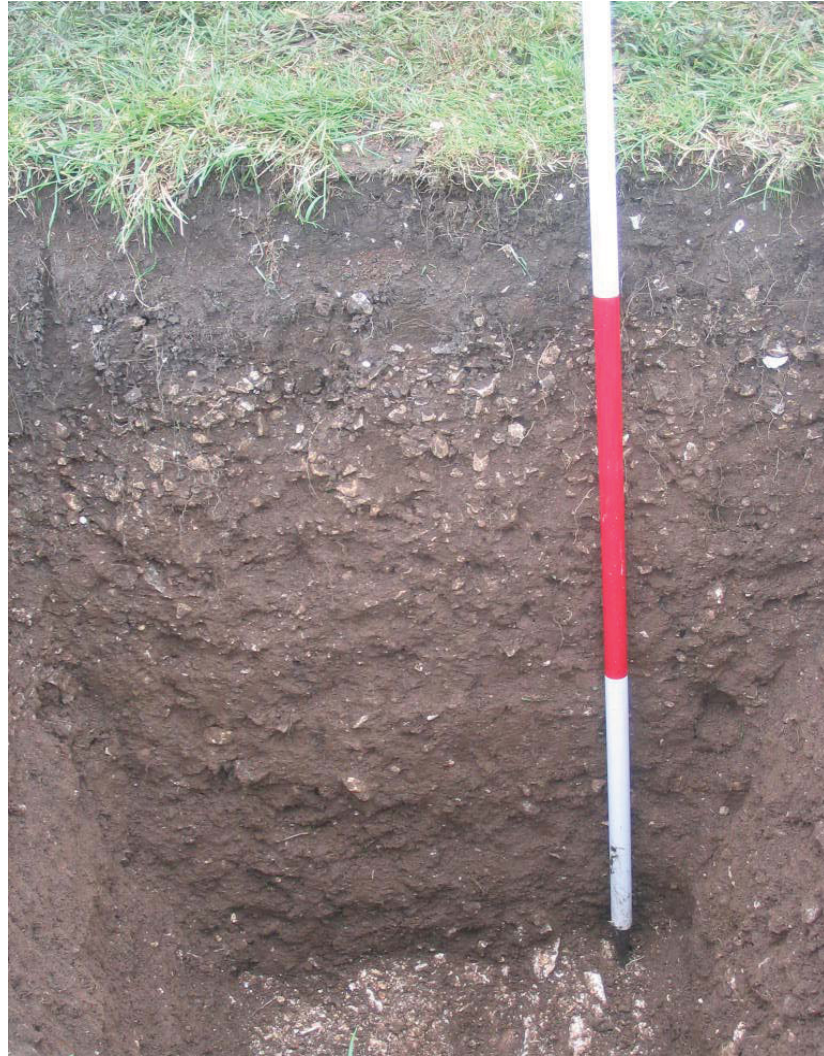
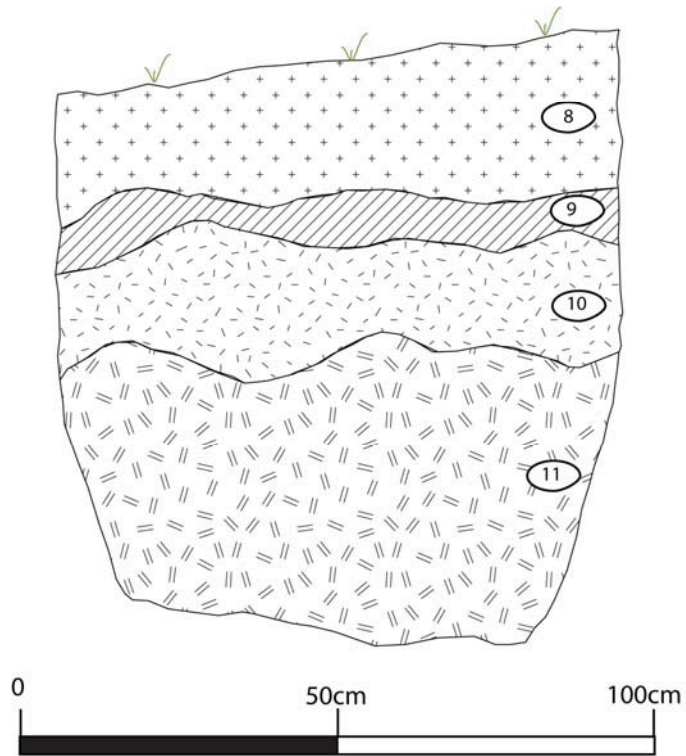






Figure 74 Photograph Test Pit 2 Whay Dale 2005

Whay Dale
Test Pit 3
24/6/05
JH/HS
1:10
North Facing



-  Brown, slightly stony silty loam
-  Very dark brown, very stony silty clay loam
-  Yellowish brown, very stony clay loam
-  Brown, moderately stony clay loam

 Sample number

Figure 75 Drawing and sampling Test Pit 3 Whay Dale 2005

Original in colour



Figure 76 Photograph Test Pit 3 Whay Dale 2005

Original in colour



6.2mm

Figure 77 *Cochlicopa nitens*

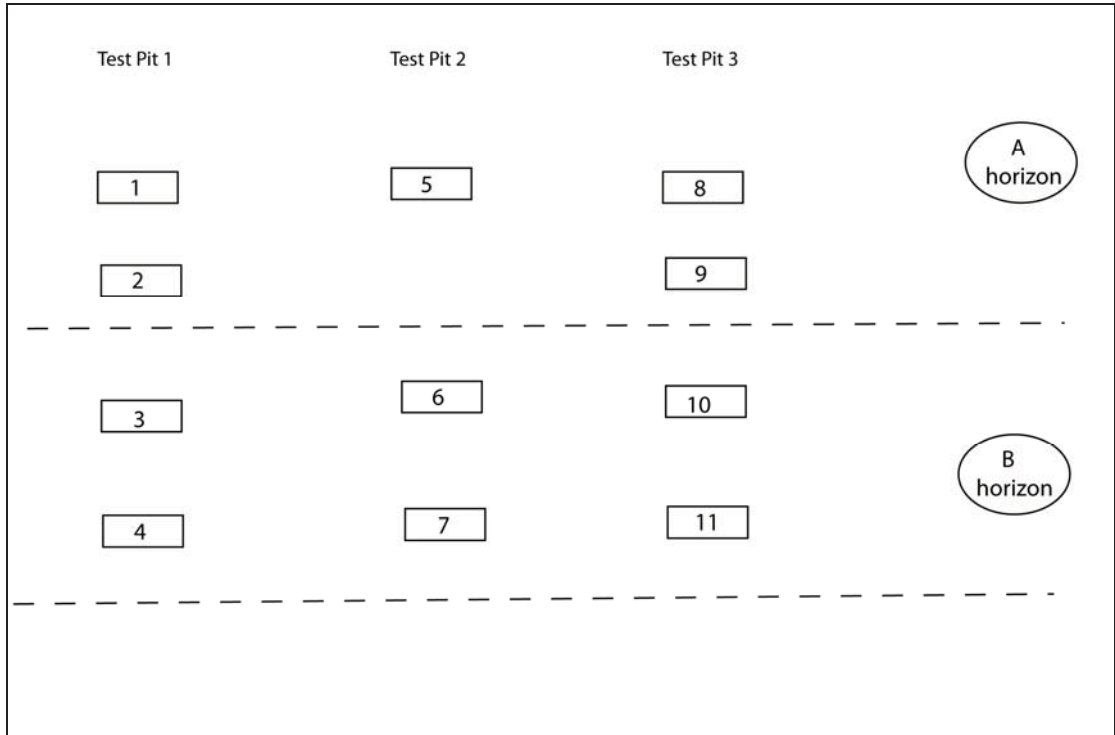


Figure 78 Matrix of sediments for Why Dale 2005

Original in colour



Figure 79 Denuded slope alongside the road at Burdale

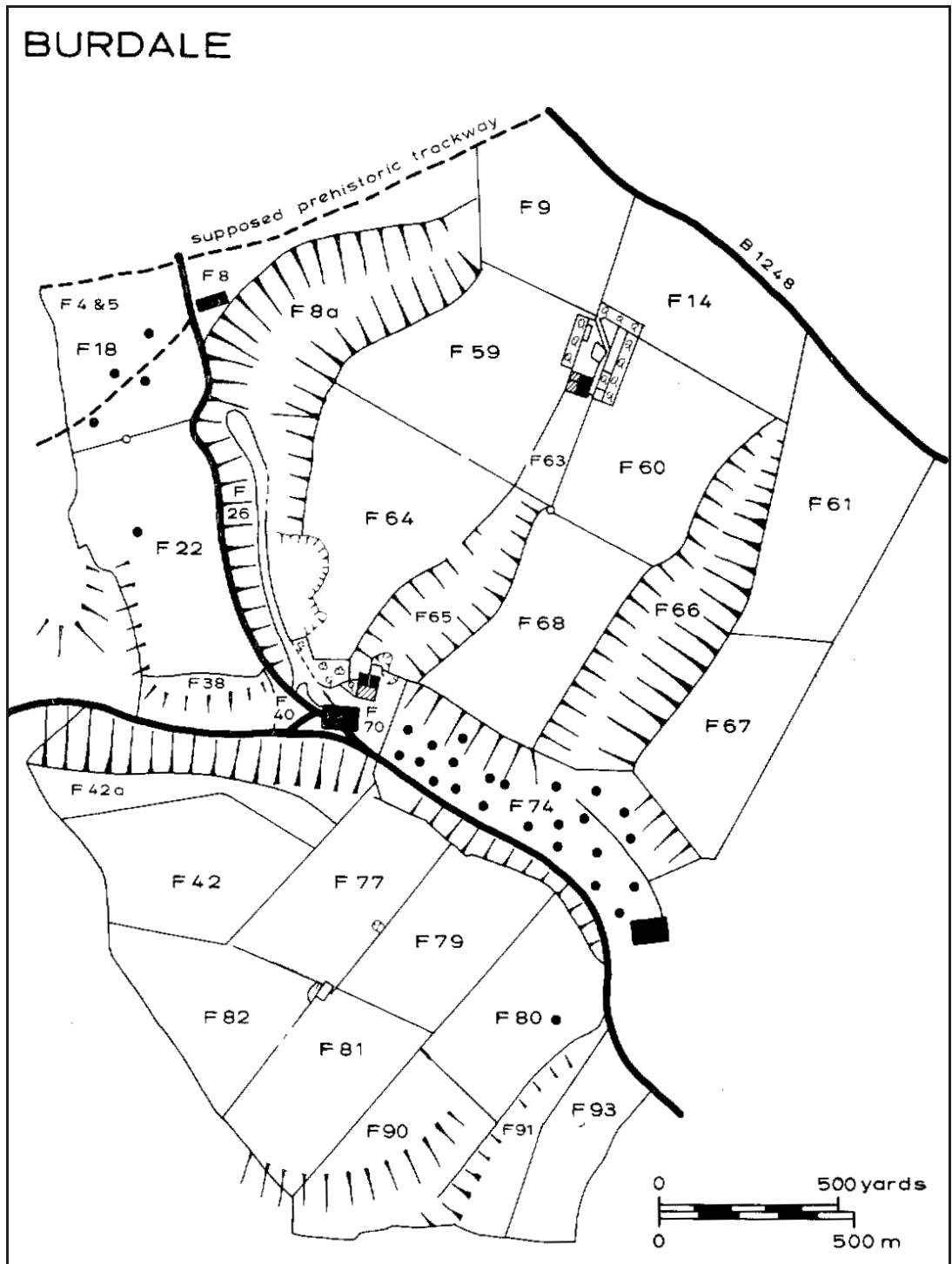


Figure 80 Distribution plan of miscellaneous field walked finds, Burdale Township (from Hayfield 1987, 143)

Original in colour



Figure 81 Excavation at Burdale 2006 by the Department of Archaeology, University of York, with our excavation in Whay Dale in the foreground (photo courtesy of Andrew Jamieson)

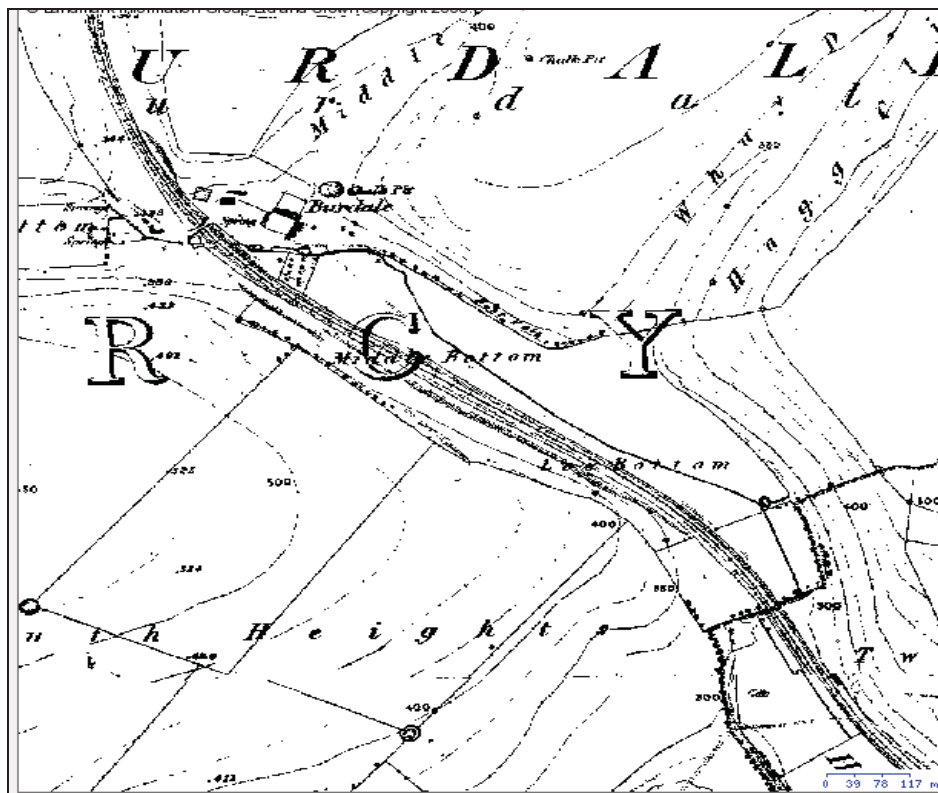


Figure 82 Map extract OS First Edition showing stream in field at Burdale (Edina supplied service)

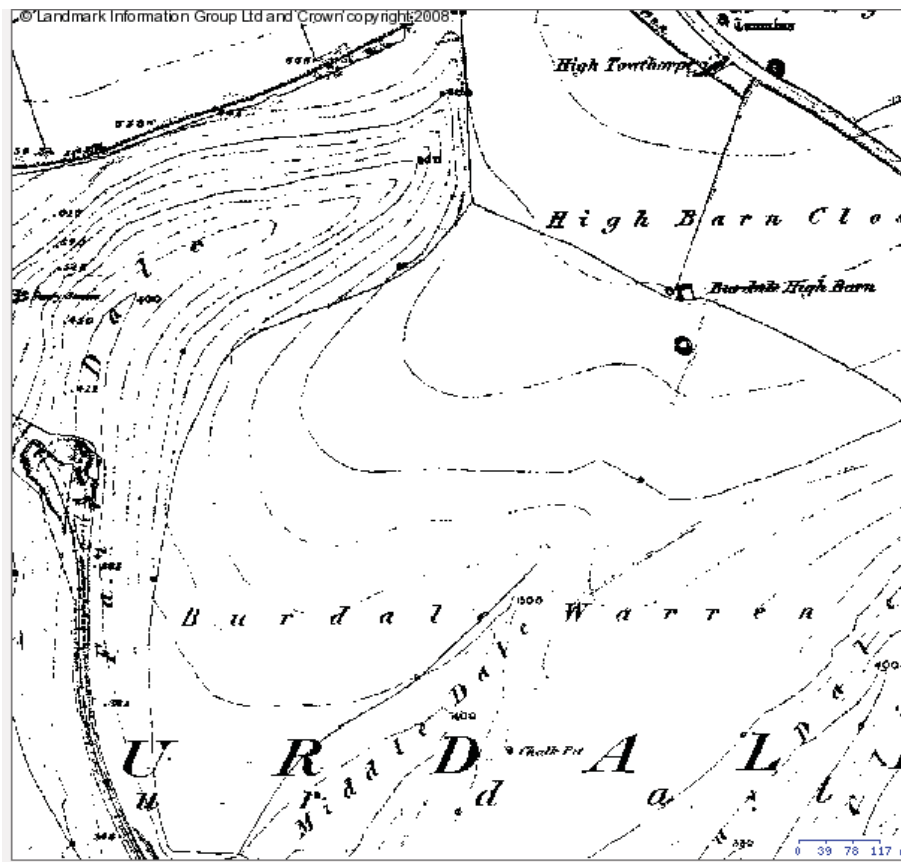


Figure 83 Map extract OS First Edition showing rabbit warren at Burdale (Edina supplied service)

Original in colour

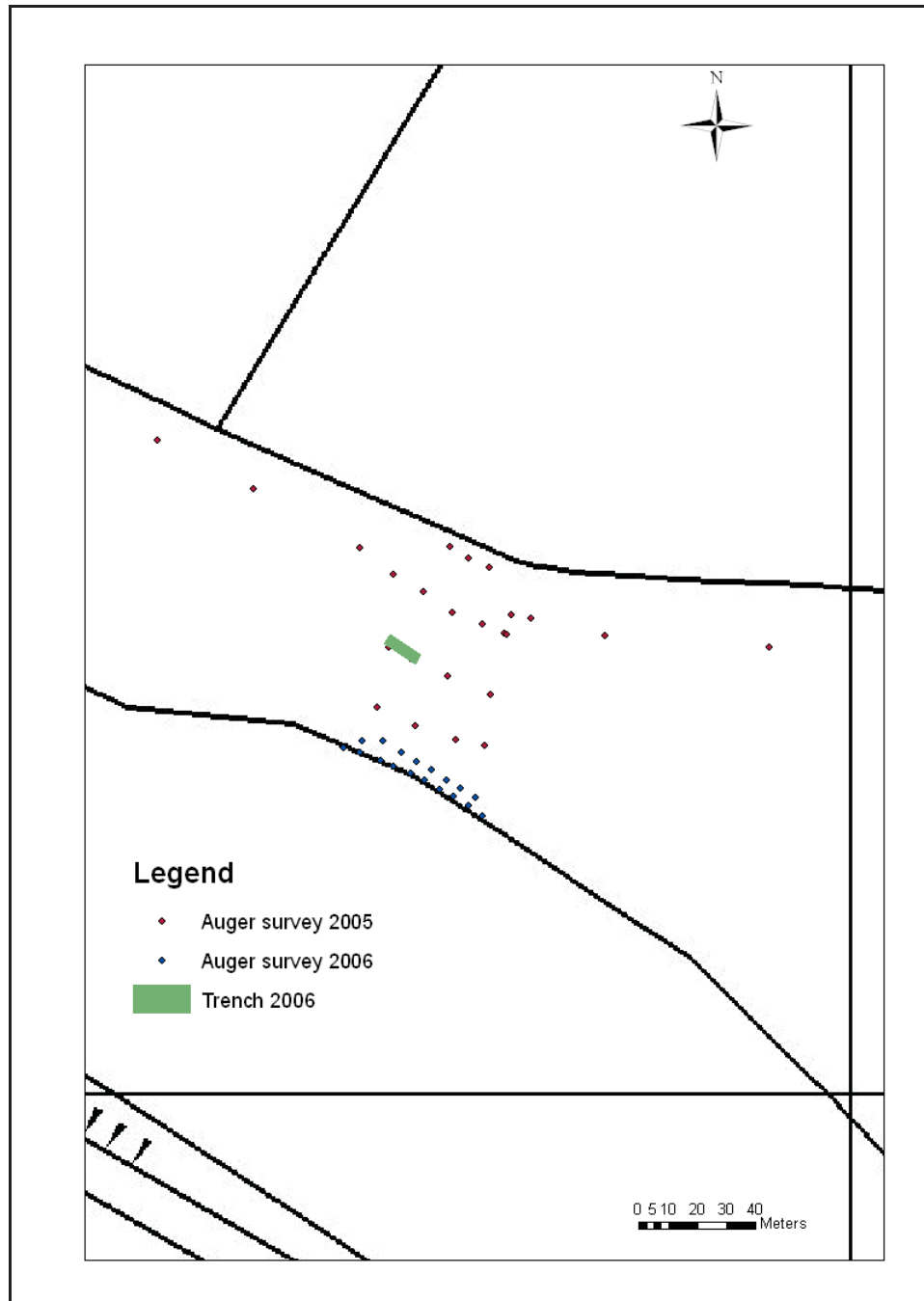


Figure 84 Trench location plan Whay Dale 2006

Original in colour



Figure 85 Natural terracing on the slope above the trench

Original in colour

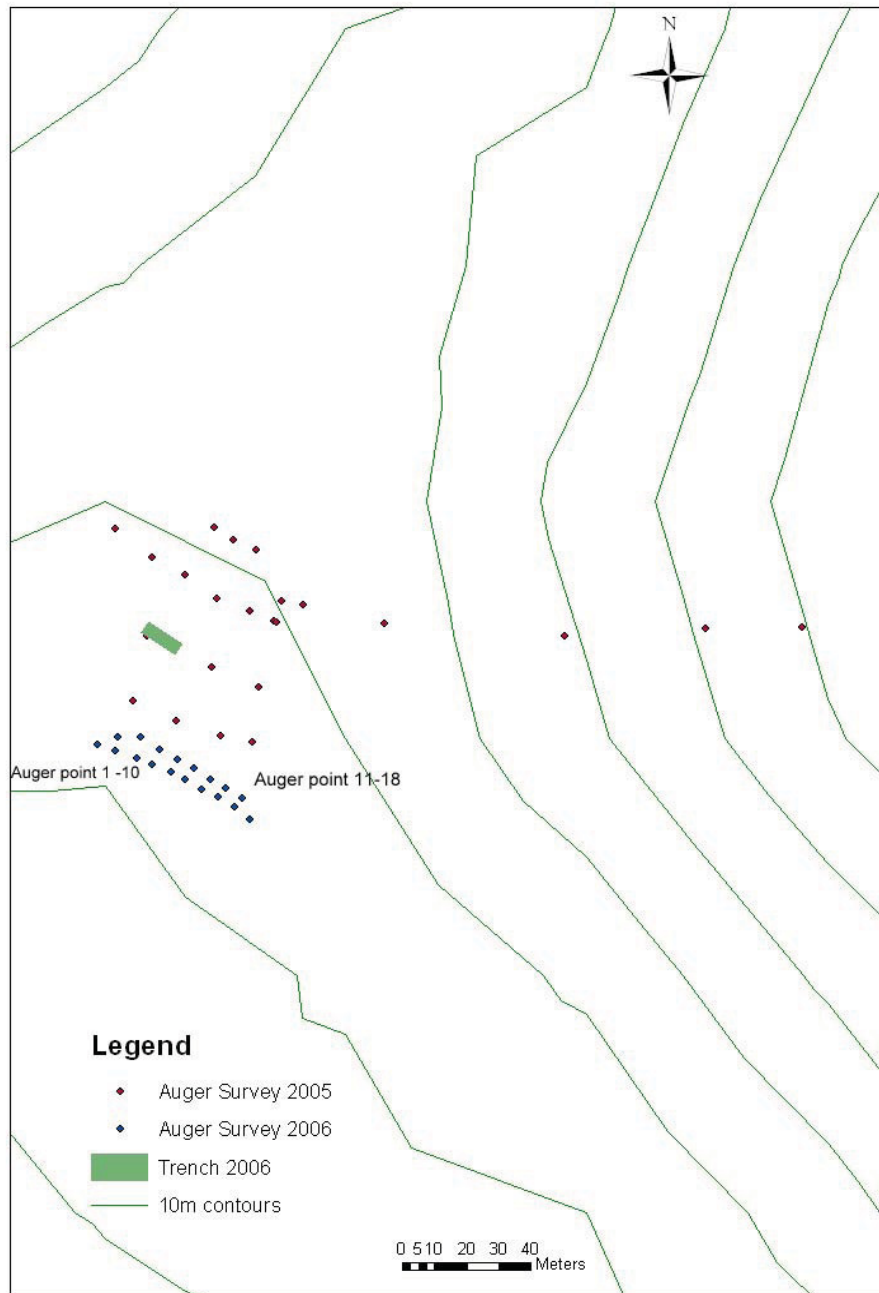


Figure 86 Auger survey location Whay Dale 2006

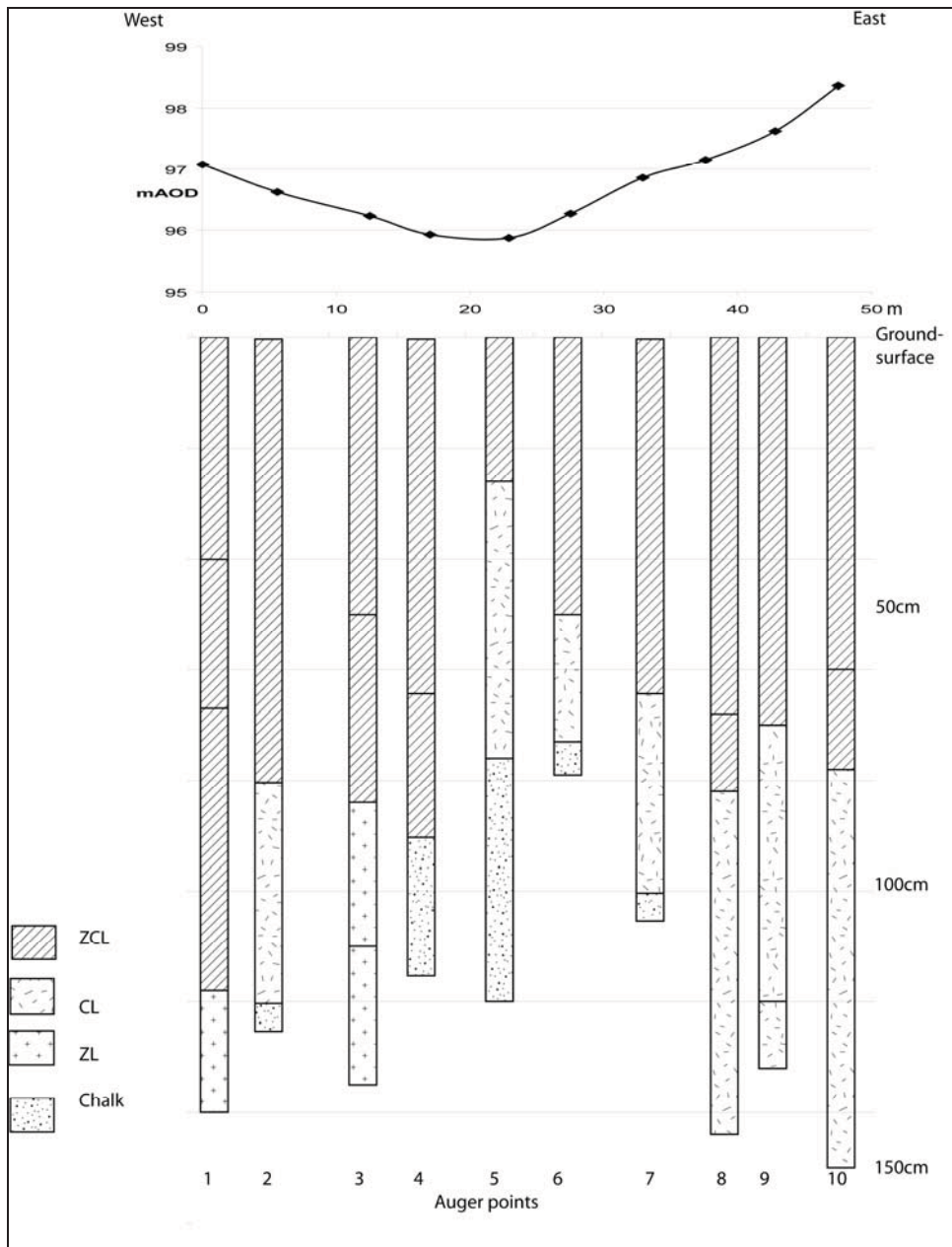


Figure 87 Results of the auger survey points 1-10, Why Dale 2006

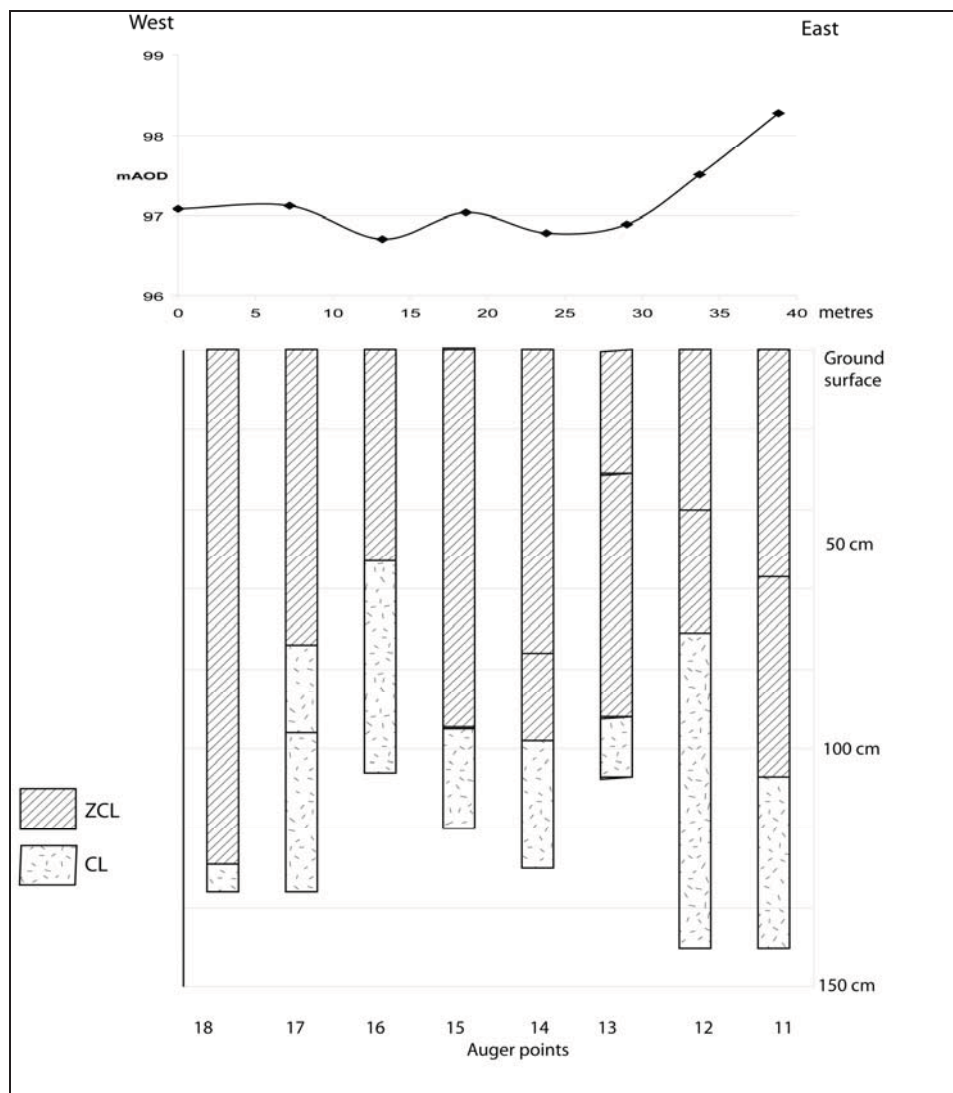


Figure 88 Results of the auger survey points 11-18, Why Dale 2006

Original in colour



Figure 89 Auger record Whay Dale 2006

Original in colour



Figure 90 General shot of the trench prior to excavation

Original in colour

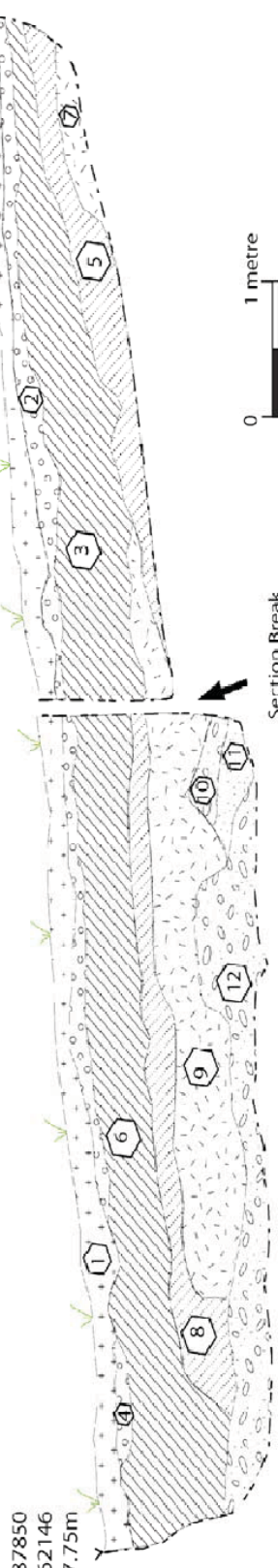


Figure 91 Section A before excavation

Whay Dale 2006
 North East Facing Section
 HS/ CN
 1:20
 24th May 2006

487850
 462146
 97.75m

487839
 462154
 99.35m











-  Layer 1 dark greyish brown and dark brown ZL/ZCL A horizon
 -  Layers 2 and 4 dark greyish brown and dark brown ZCL stony A horizon
 -  Layers 3 and 6 dark yellowish brown CL B horizon
 -  Layers 5 and 8 dark yellowish brown CL B horizon
 -  Layers 7 and 9 dark yellowish brown C Bt horizon
 -  Layer 11 dark yellowish brown ZL B horizon (not sampled)
 -  Layers 10 and 12 chalk gravel Cr horizon
-  Layer number

Figure 92 Section drawing showing stratigraphy

Original in colour



Figure 93 Section D following excavation for 0.5m

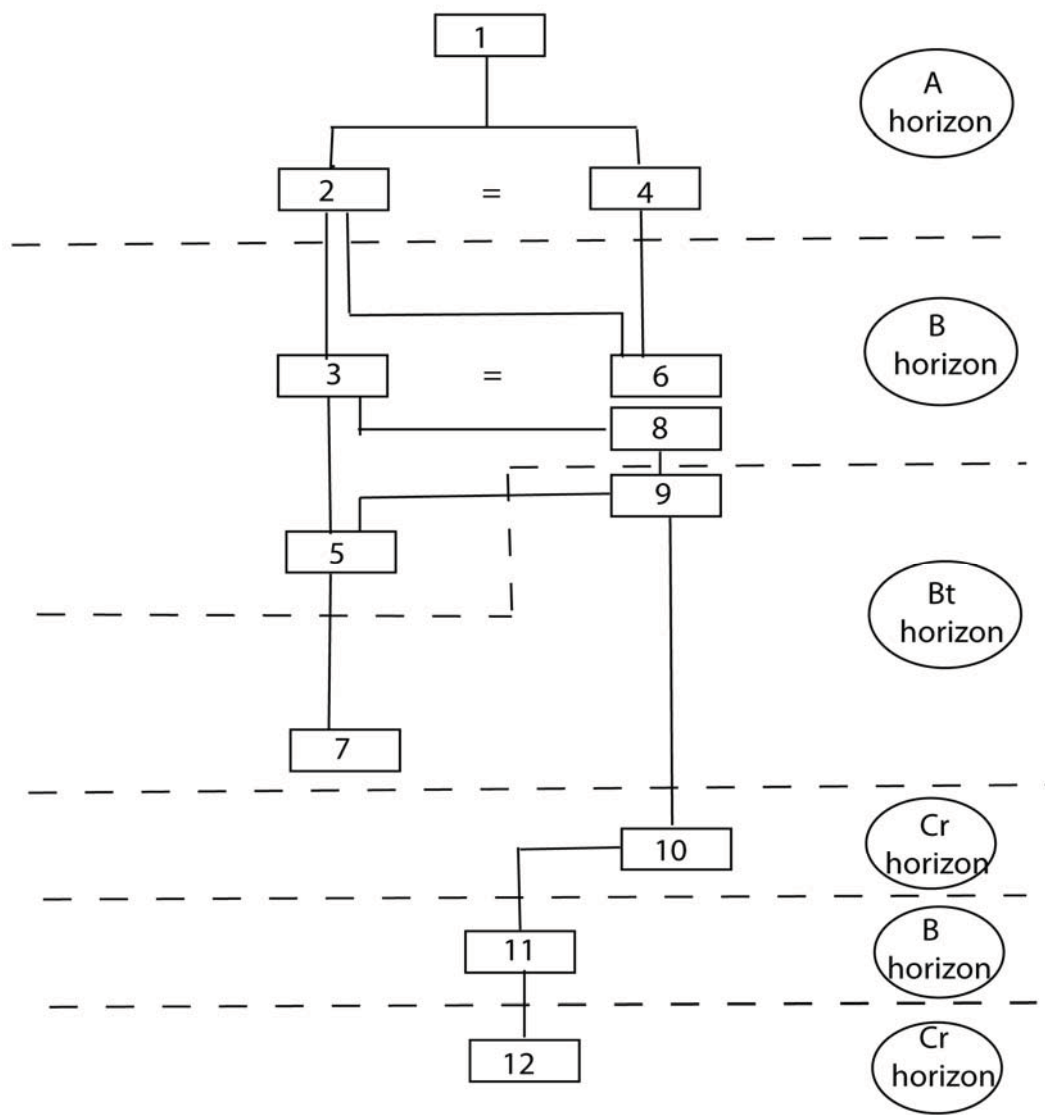


Figure 94 Matrix of sediments at Whay Dale 2006

Original in colour



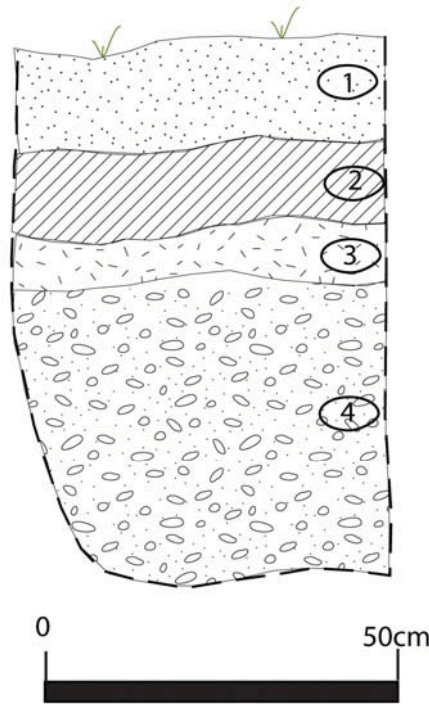
Figure 95 Clay filled square-cut feature before and after half-sectioning

Original in colour



Figure 96 Periglacial undulations in the base of the trench

Burdale 2006
 Adjacent to F1108
 30/5/06
 HS/CN
 1:10
 West Facing



Context F1108

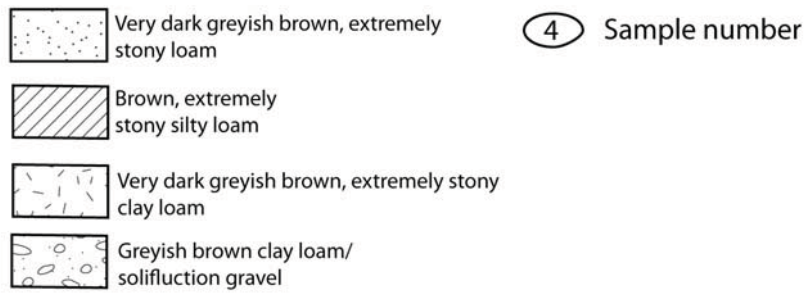


Figure 97 Drawing of test area next to F1108, Burdale 2006

Original in colour



Figure 98 Photograph of test area next to F1108, Burdale 2006

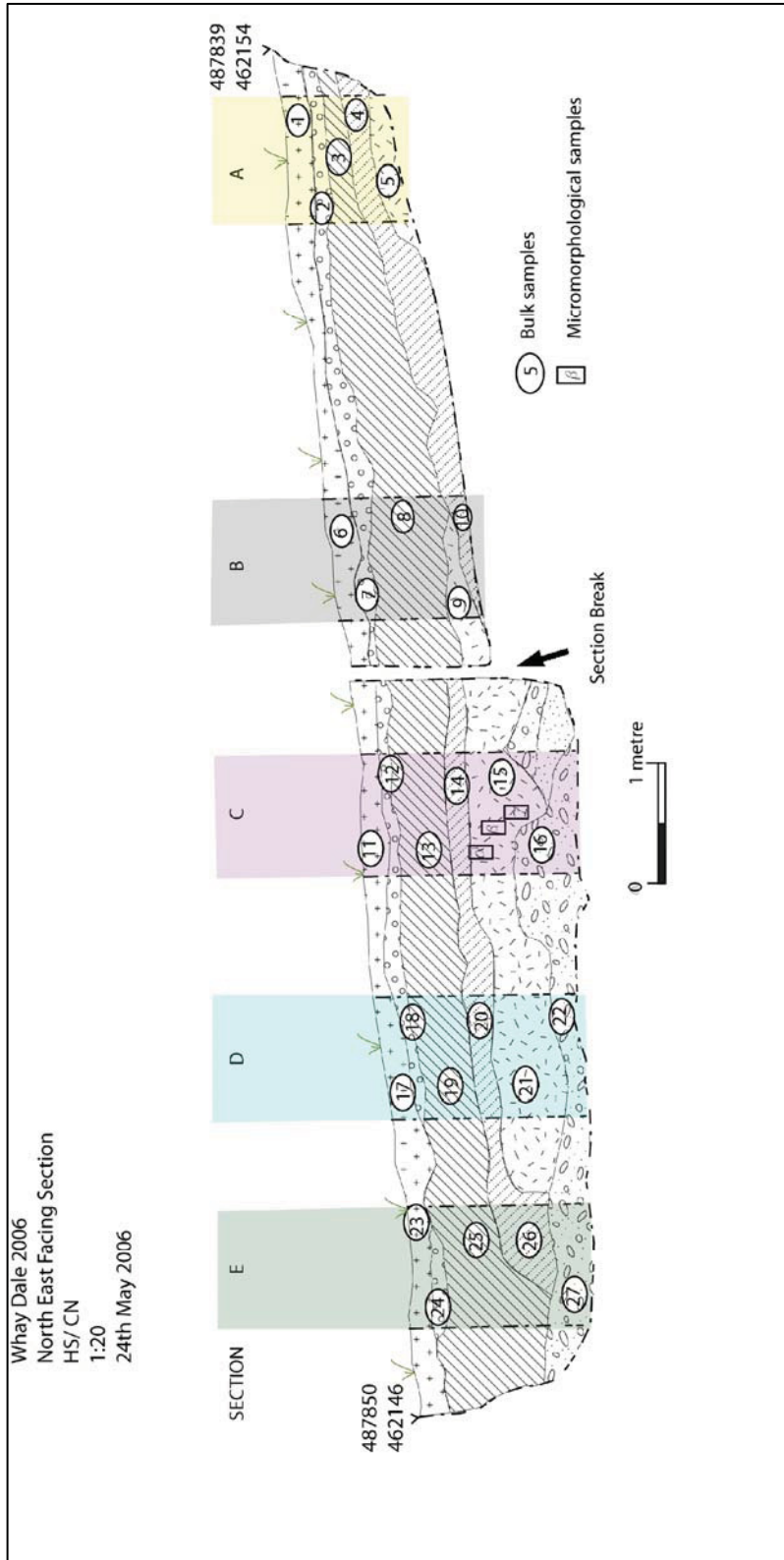


Figure 99 Section drawing showing sample location and numbering

Original in colour



Figure 100 Taking micromorphological samples

Original in colour



Figure 101 Section begins to collapse due to waterlogging



Figure 102 The thin section slides

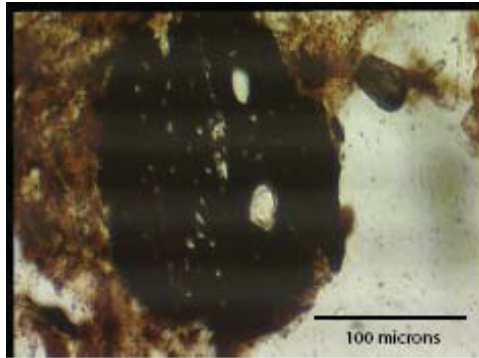
Original in colour



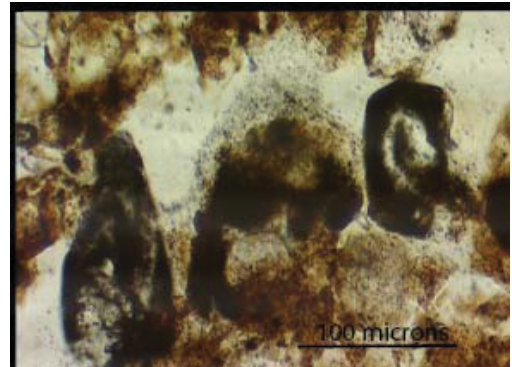
Channel coating in Slide γ in plane polarised light (PPL)



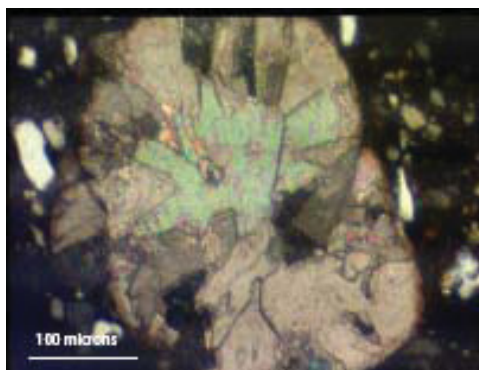
Channel coating in Slide γ (PPL)



Insect in thin section slide (PPL)



Black inclusions (PPL)



Anisotropic minerals seen in crossed polarised light (XPL)



Possible coal fragment seen in PPL

Figure 103 Images of micromorphological features

Original in colour



Figure 104 Surface waterlogging at Thwing



Figure 105 The complex archaeological features and palaeogeographical features surrounding Thwing
(© 2009 Infoterra and Bluesky from Google Earth)

Original in colour



Figure 106 The Roman villa at Thwing under excavation (photo courtesy of Martin Millett)

Original in colour



Figure 107 Aerial kite shot of Intervention 7, Wharram Grange Crossroads 2004 (photo courtesy of Ben Gourley)

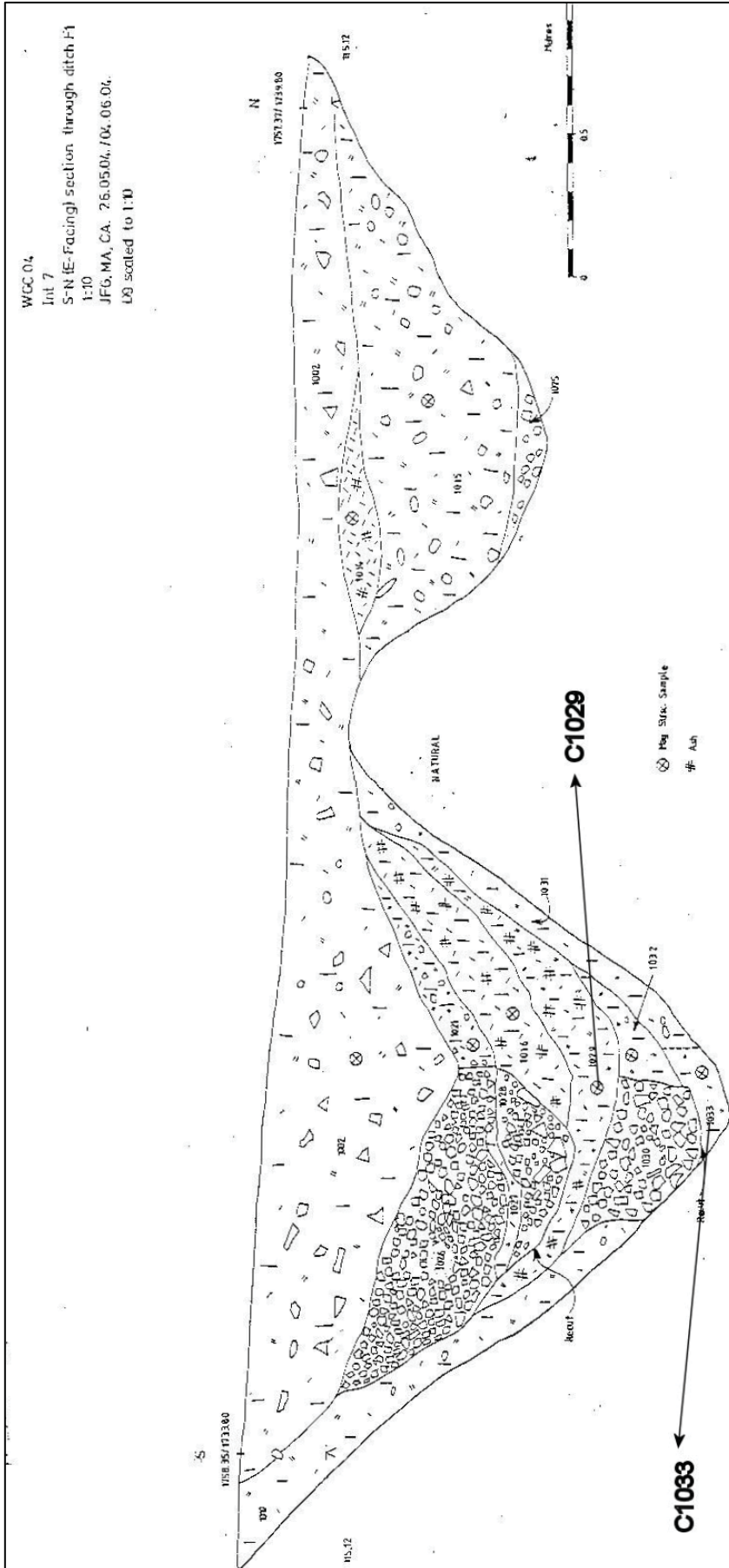


Figure 108 Drawing of section through Intervention 7 Wharram Grange Crossroads 2004

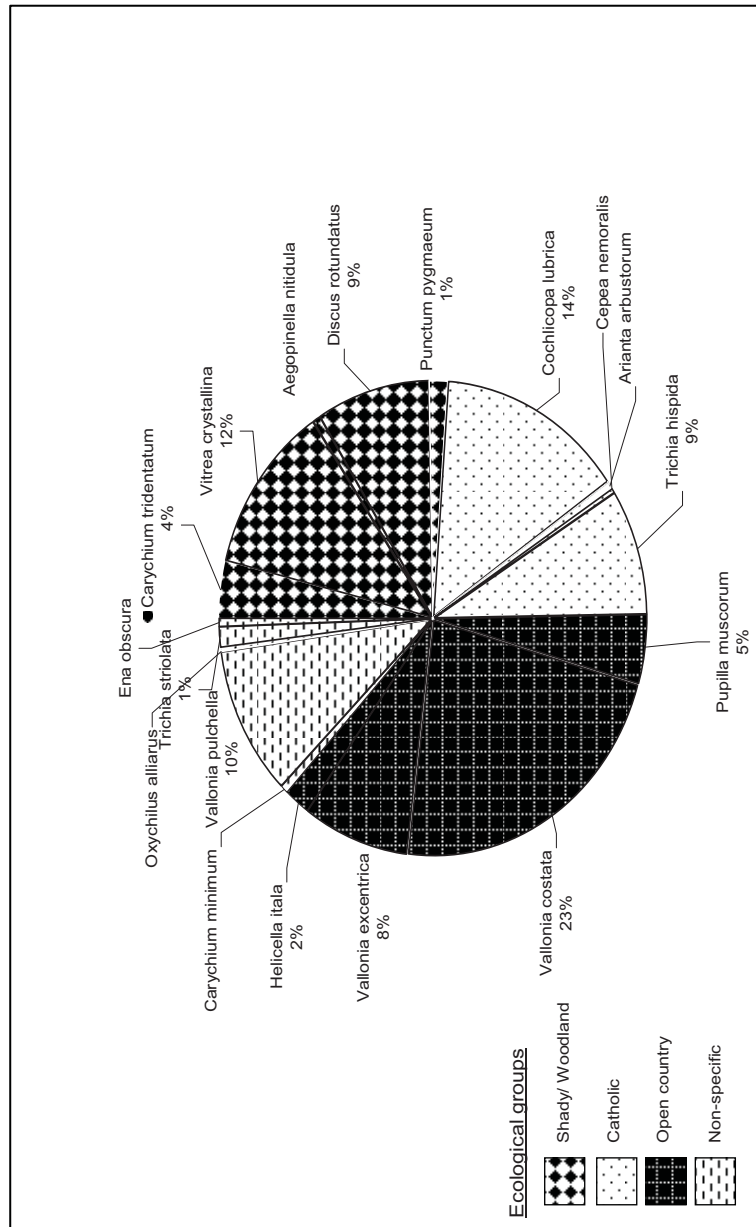


Figure 110 Pie chart showing ecological groups for sample 1029 WGC 2004

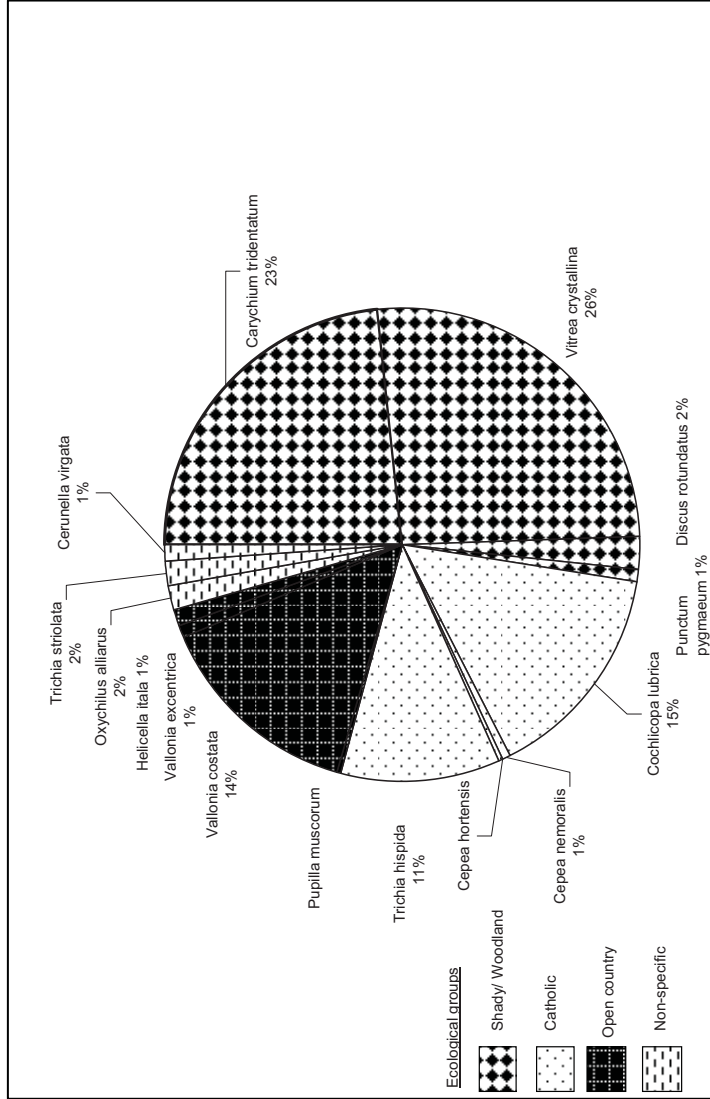


Figure 111 Pie chart of ecological groups for sample 1033 WGC 2004

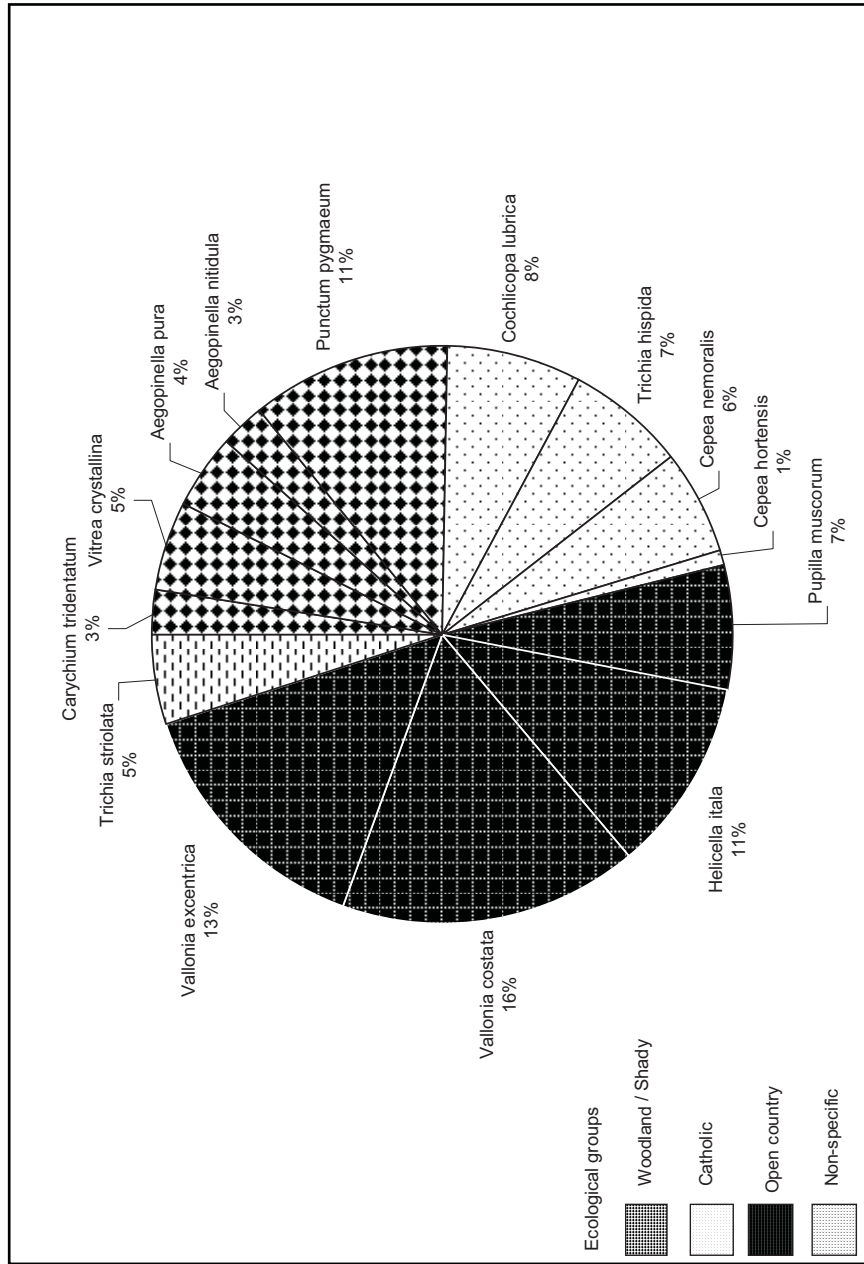


Figure 113 Pie chart of ecological groups for sample 2023 WGC 2004

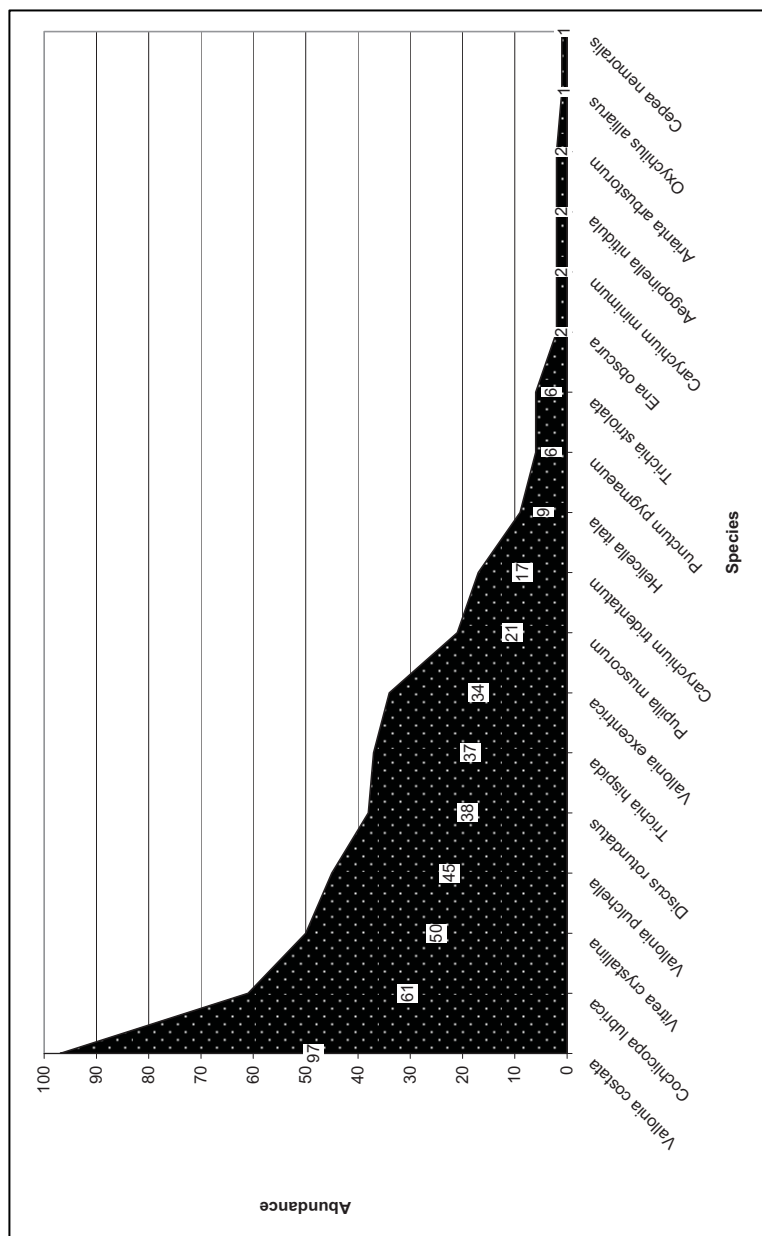


Figure 114 Rank abundance plot for sample 1029 WGC 2004

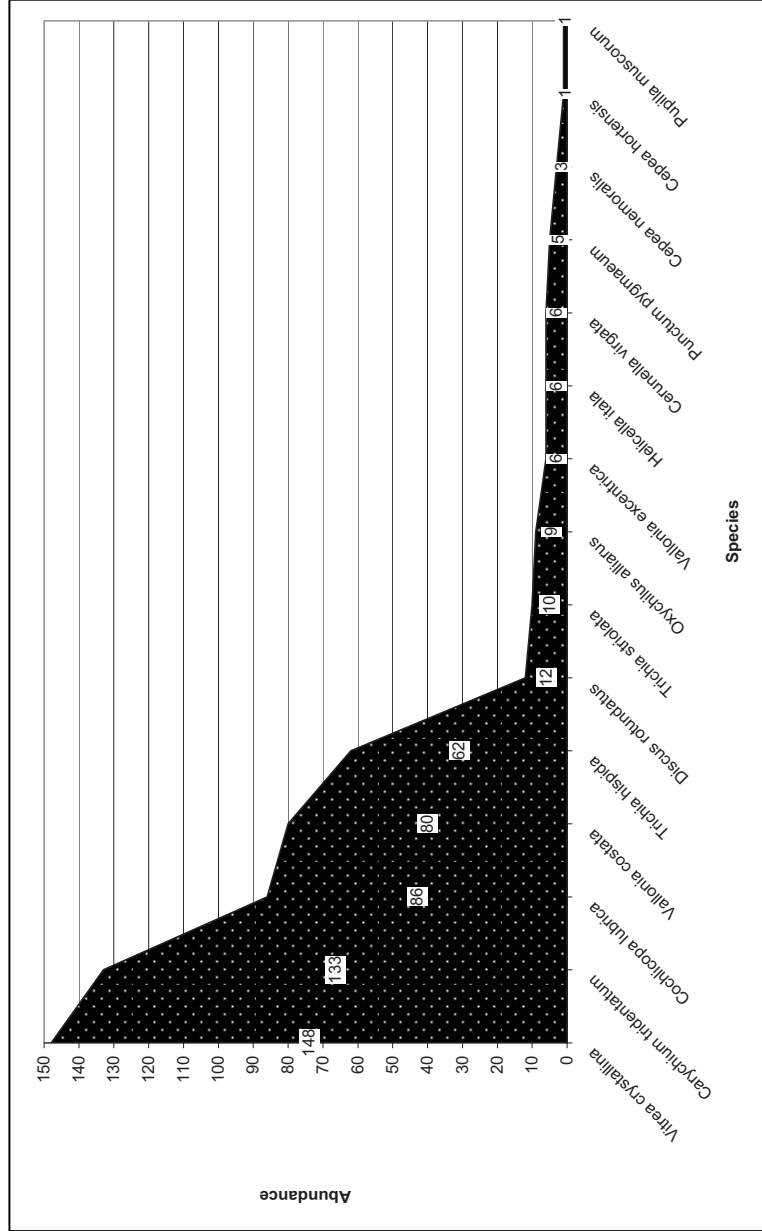


Figure 115 Rank abundance plot for sample 1033 WGC 2004

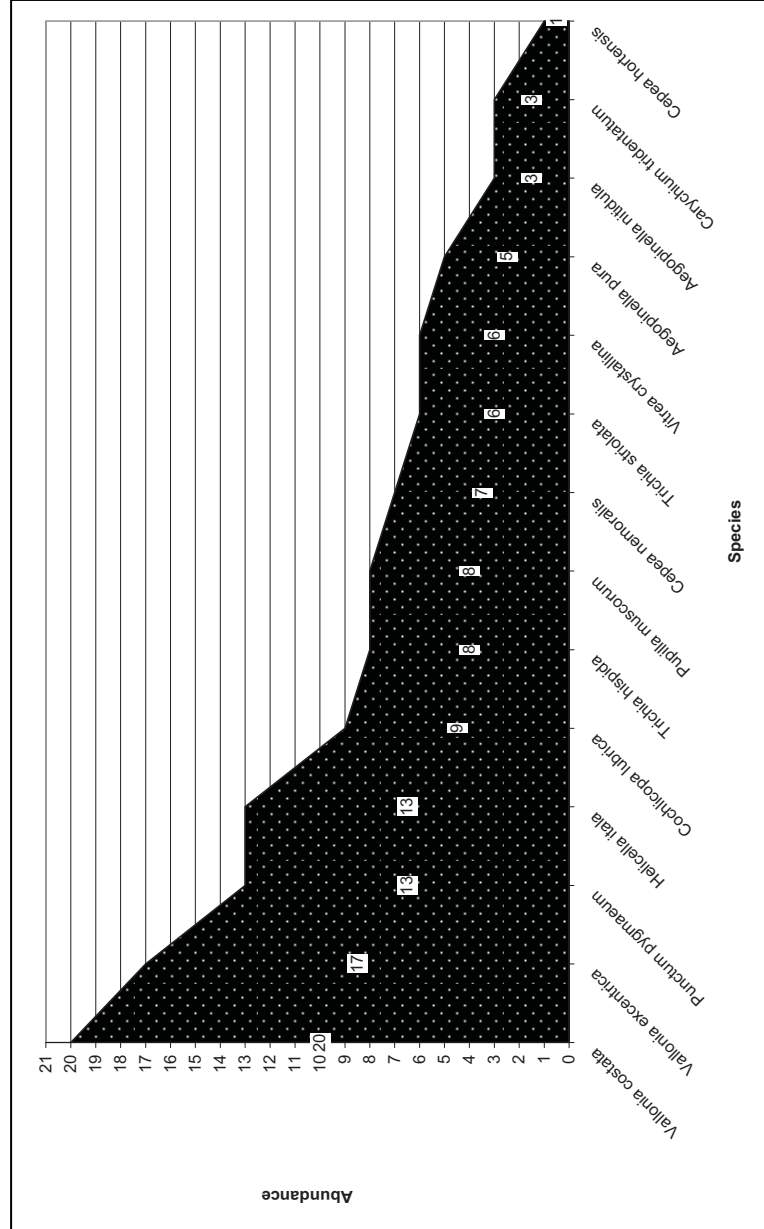


Figure 116 Rank abundance plot for sample 2018 WGC 2004

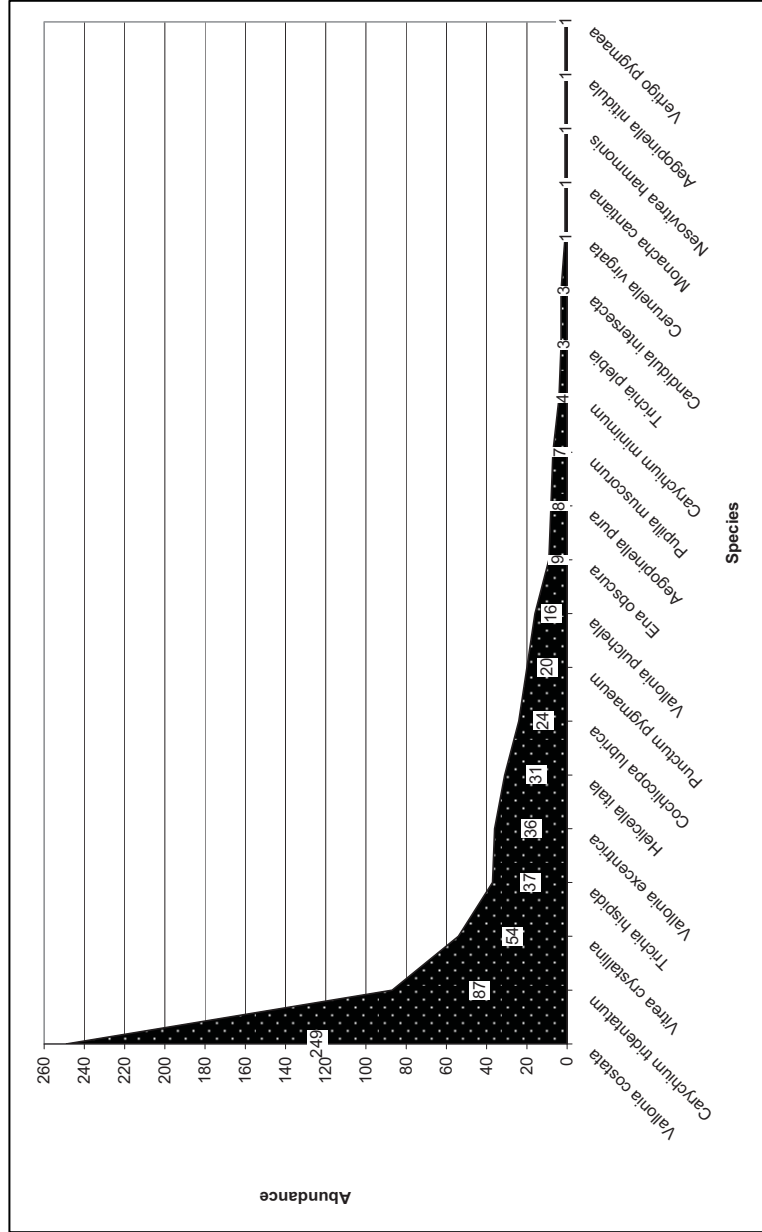


Figure 117 Rank abundance plot for sample 2023 WGC 2004

Original in colour

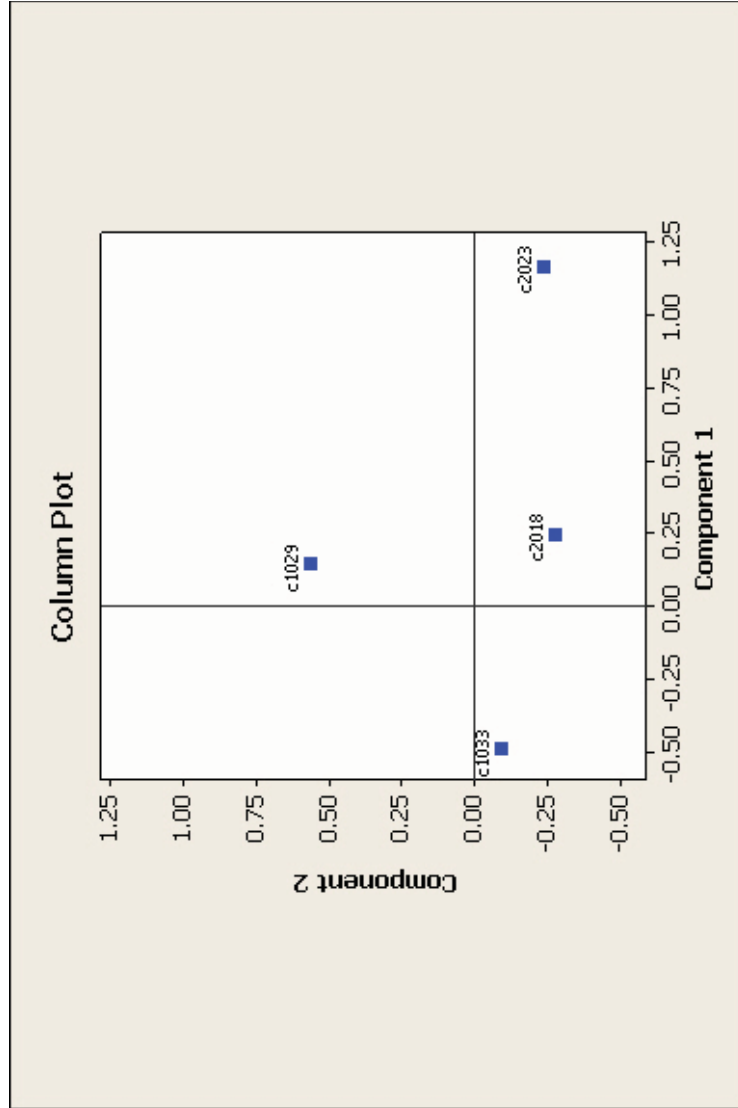


Figure 118 Correspondence Analysis column data

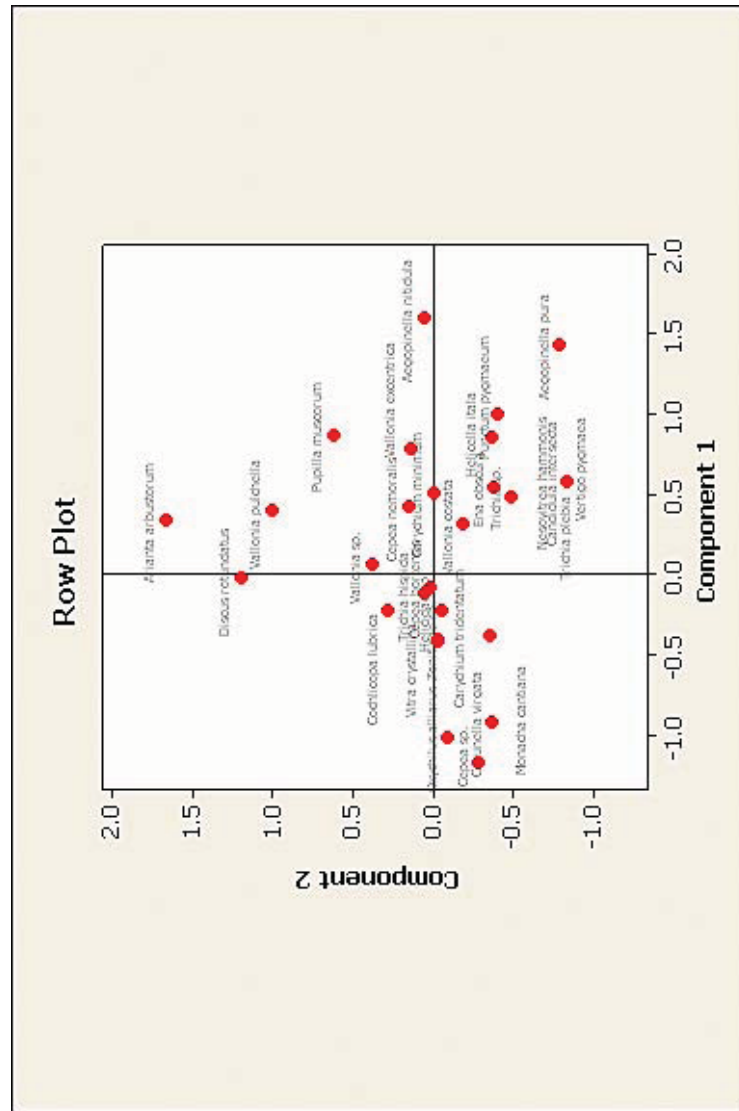


Figure 119 Correspondence Analysis row plot

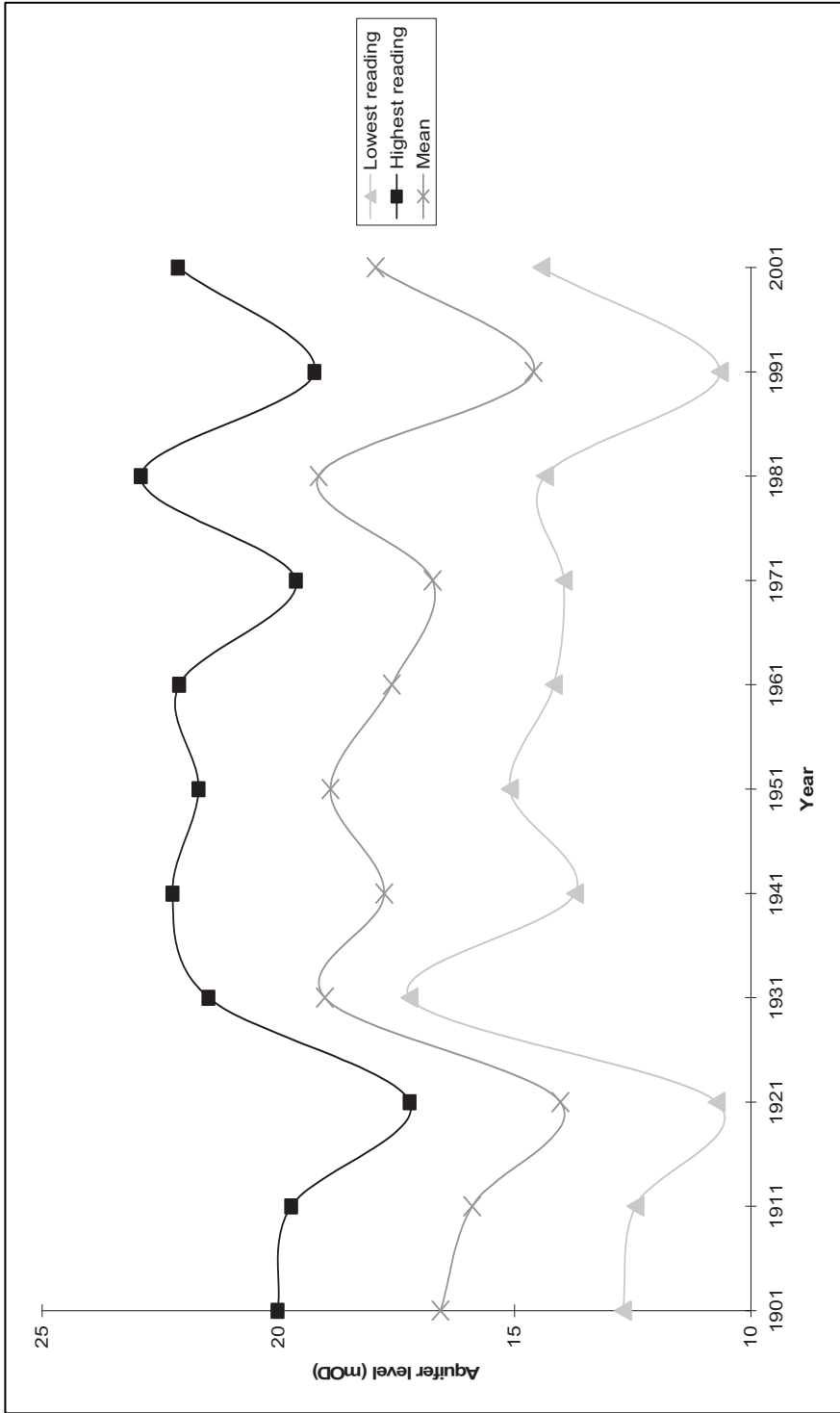


Figure 120 Aquifer water levels Dalton Estate Well 1901-2001 mean by year (database rights Environment Agency)

Original in colour

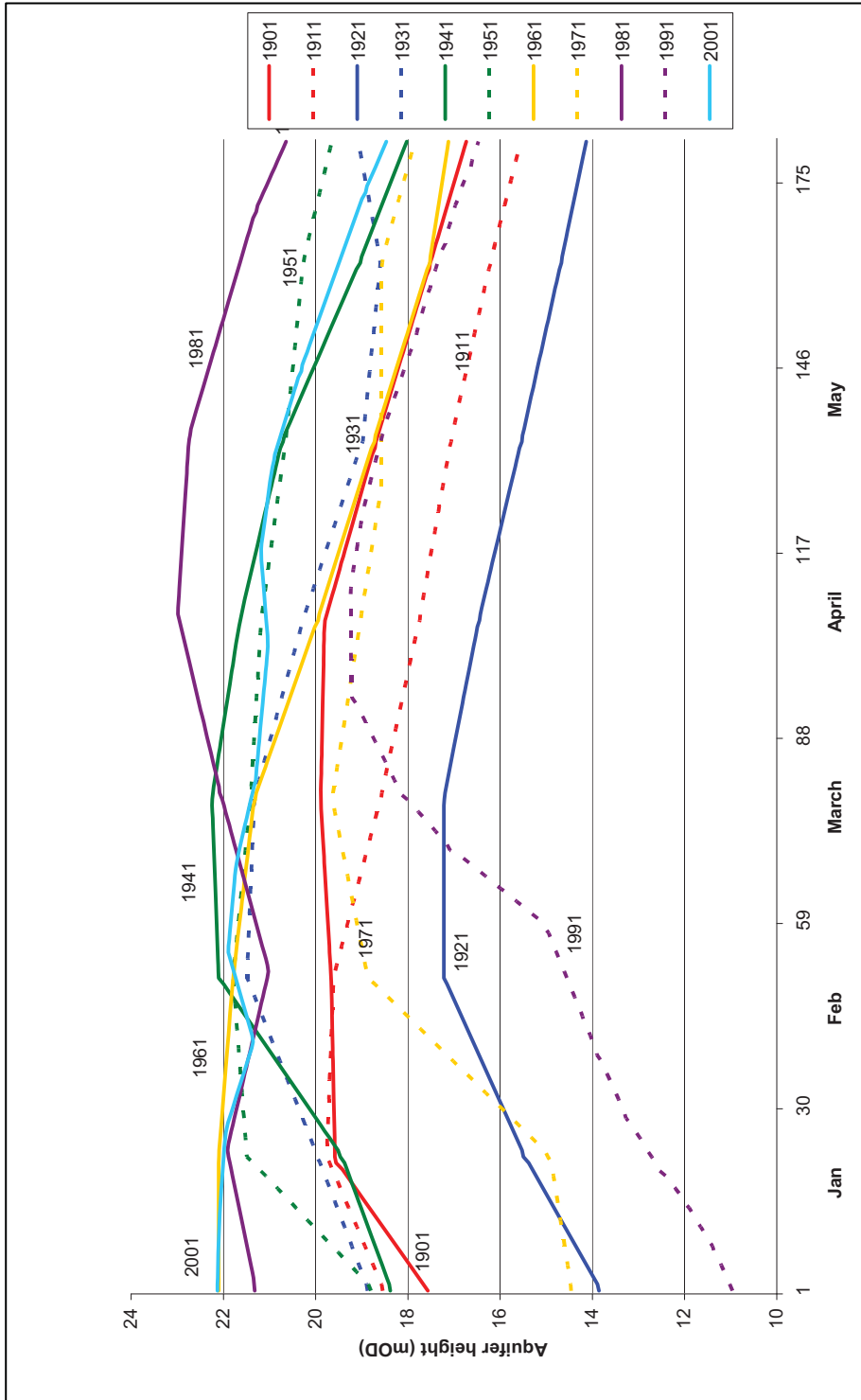


Figure 121 Aquifer water levels Dalton Estate Well 1901-2001 monthly fluctuations Jan – June (database rights Environment Agency)

Original in colour

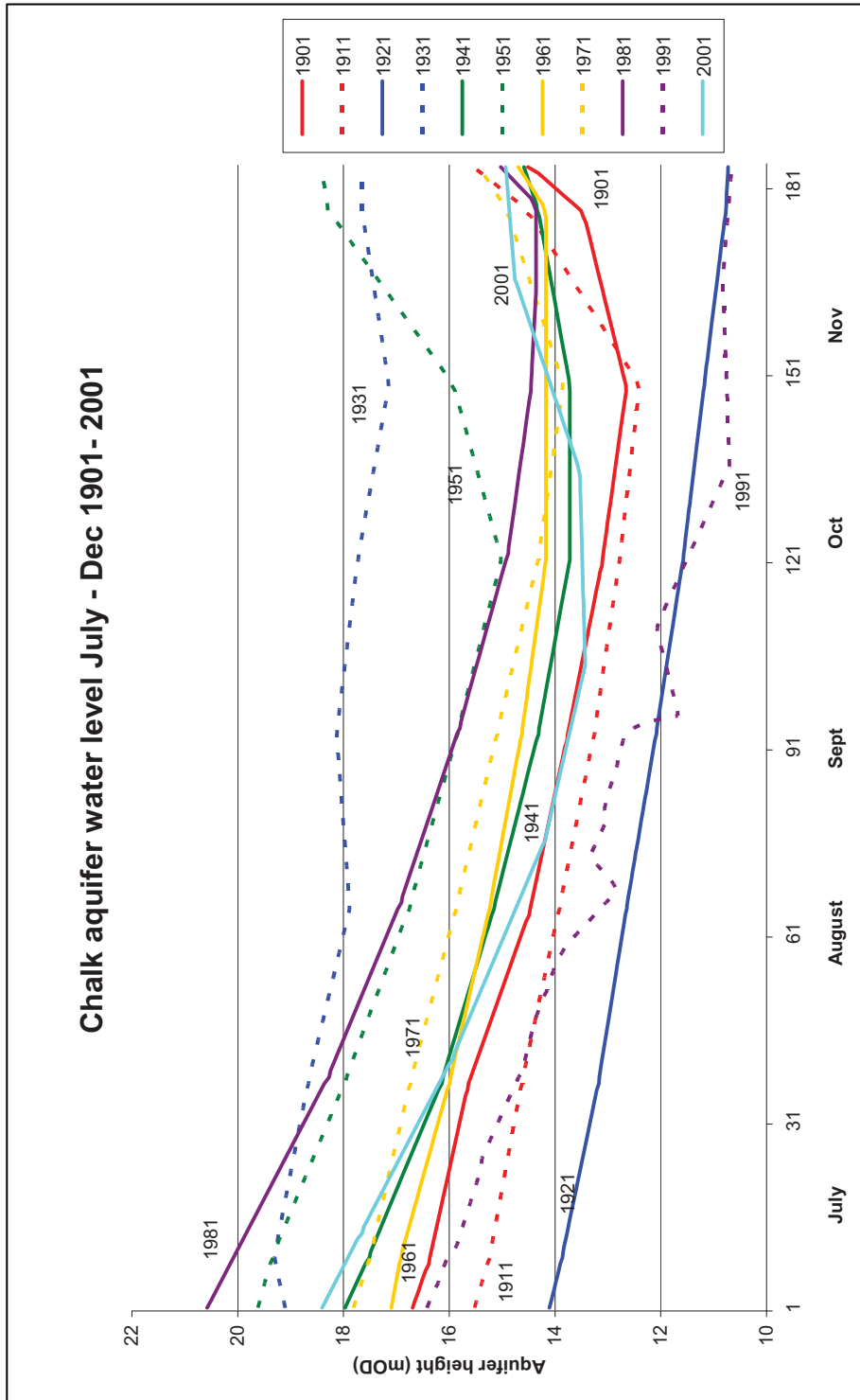


Figure 122 Aquifer water levels Dalton Estate Well 1901-2001 monthly fluctuations July -Dec (database rights Environment Agency)

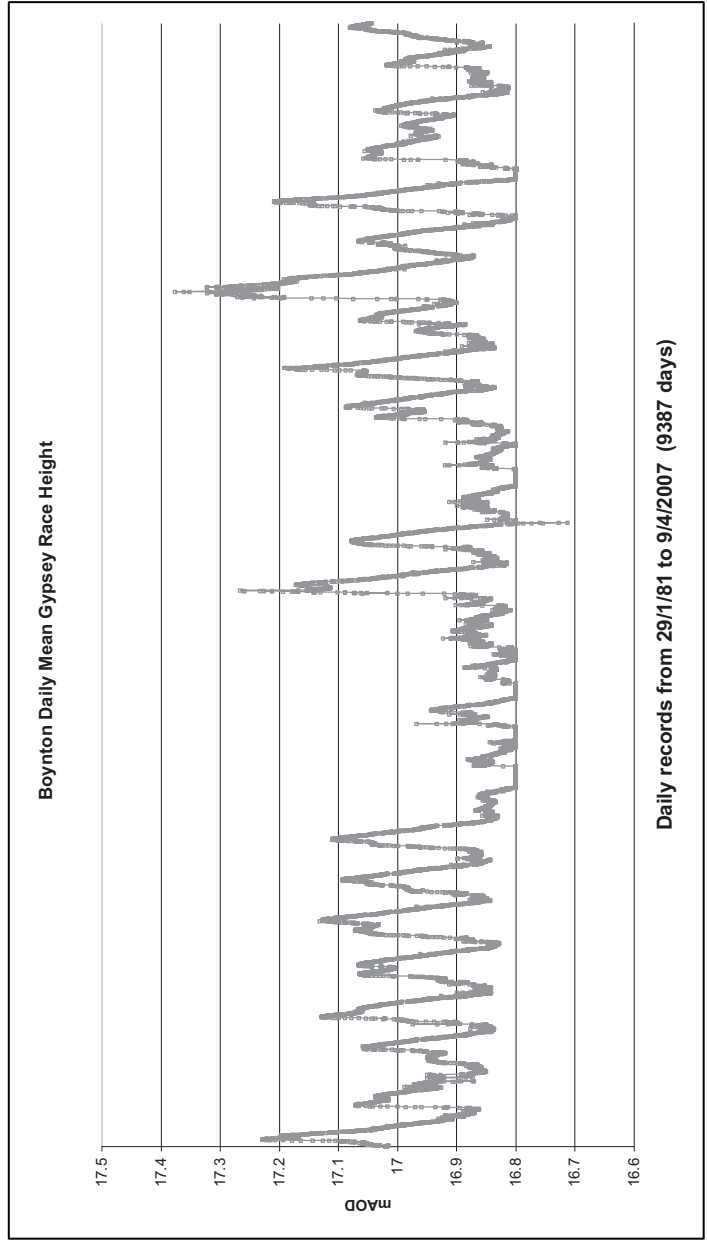


Figure 123 Gypsey Race at Boynton daily mean heights 1981 -2007 (database rights Environment Agency)

Original in colour

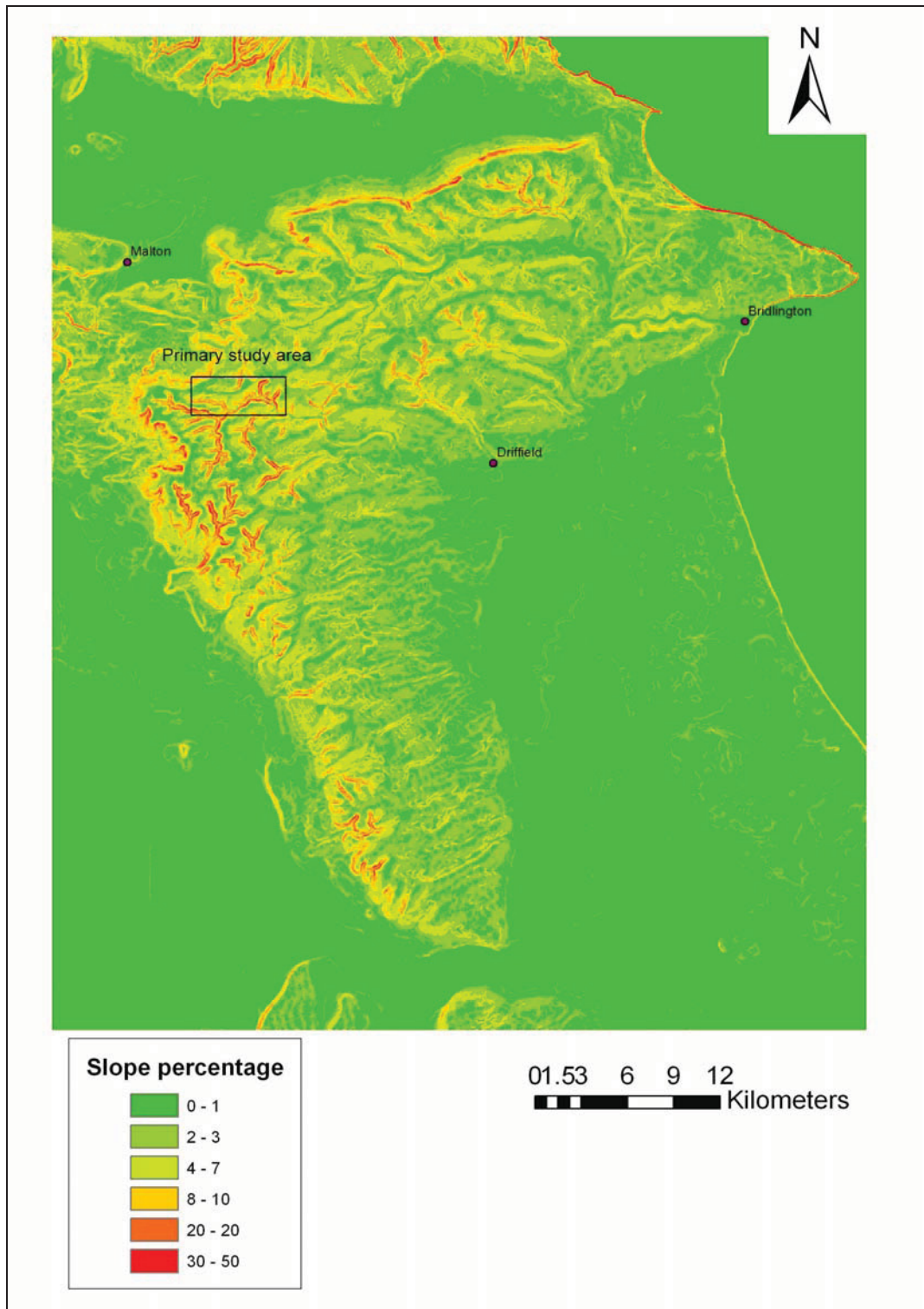


Figure 124 Digital elevation model showing slope gradient percentages in the study area and northern Wolds (Database rights 2008 Edina supplied service)

Original in colour



Figure 125 Examples of the steep slopes at Fairy Dale



Figure 126 A profusion of palaeofeatures between Wharram Grange Crossroads and Wharram-le-Street seen on satellite imagery (©2009 Infoterra and Bluesky from Google Earth)

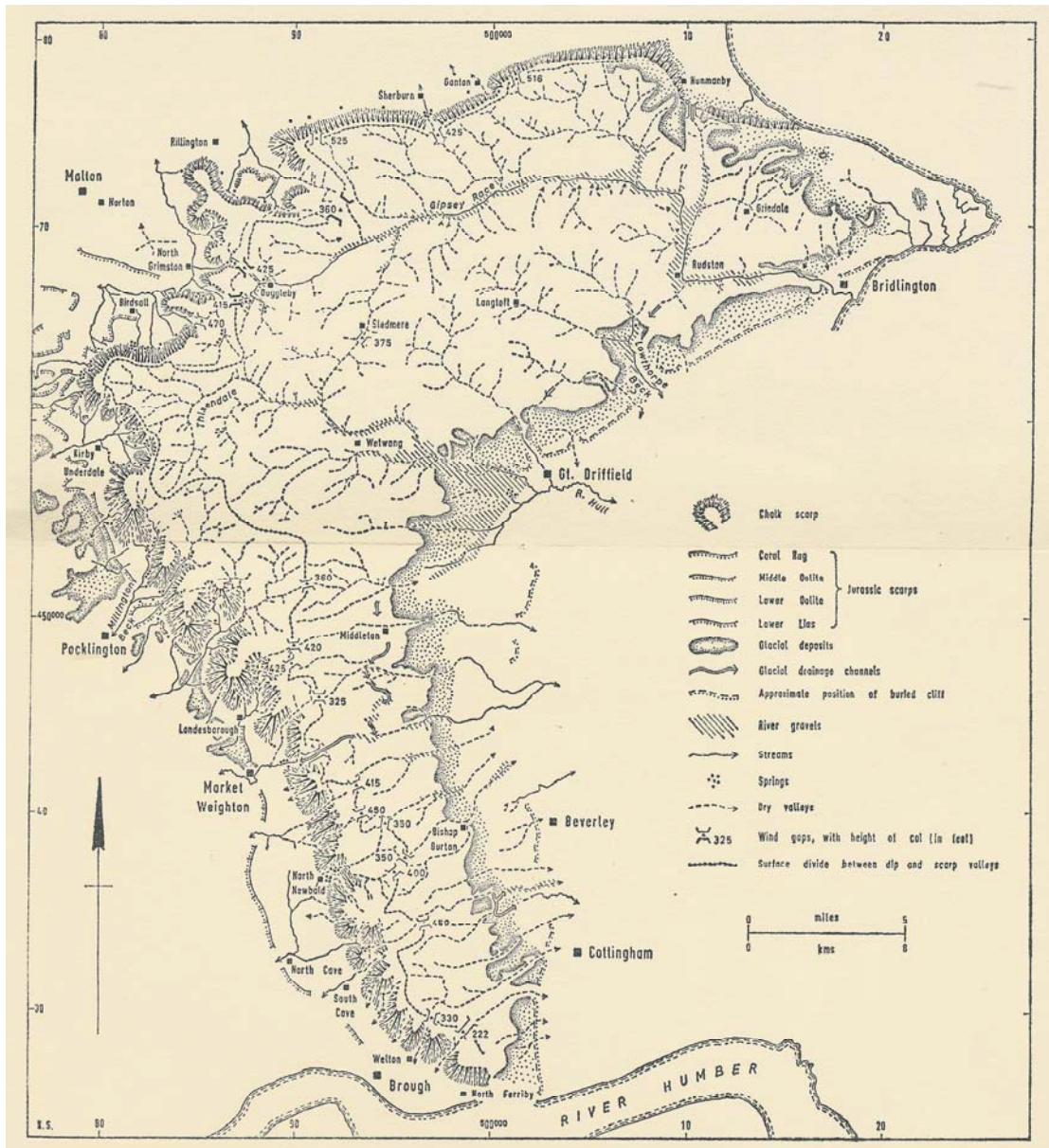


Figure 127 Geomorphological features of the Yorkshire Wolds (from Lewin 1969)

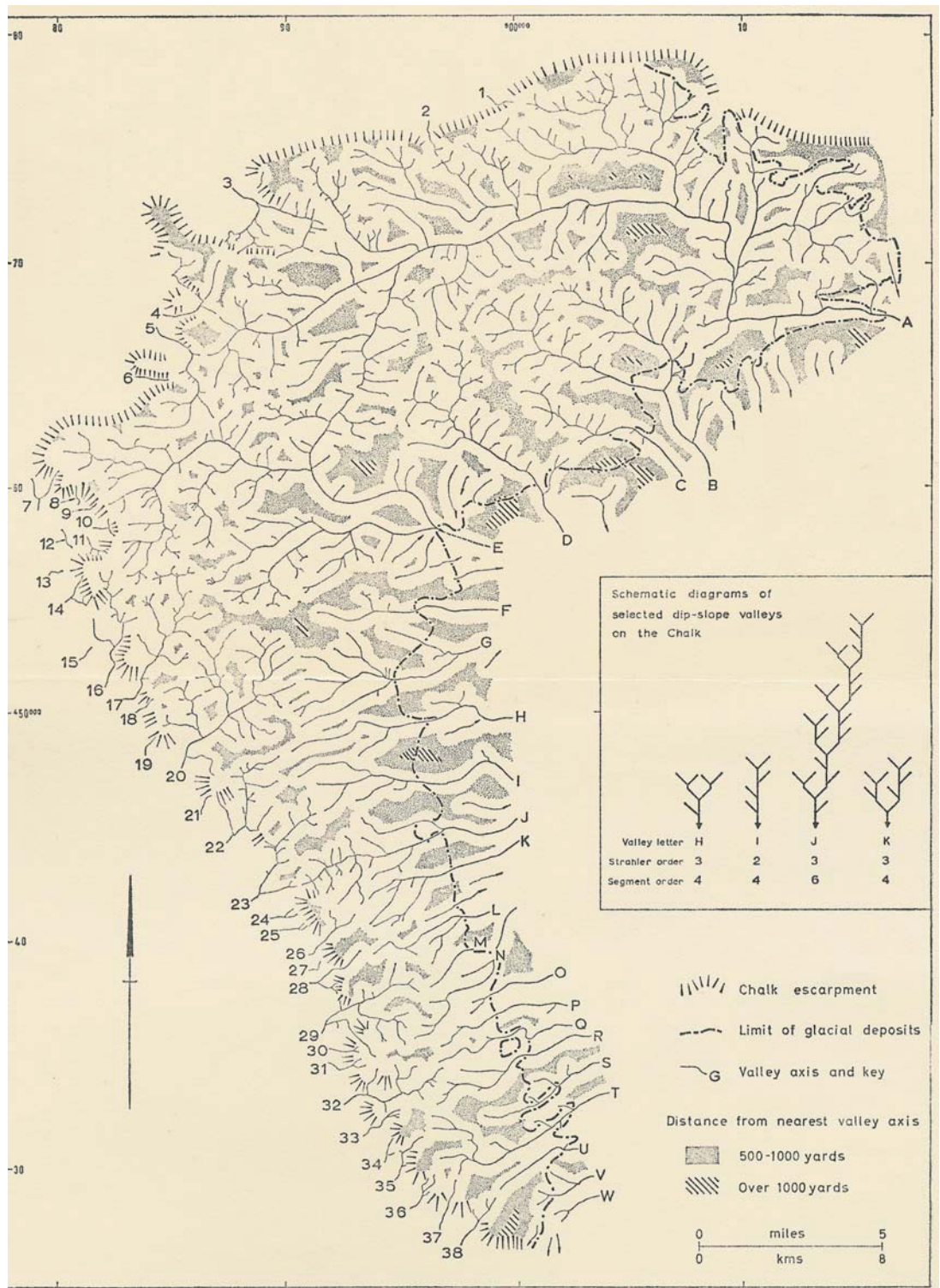


Figure 128 Dry valley networks on the Wolds (from Lewin 1969)

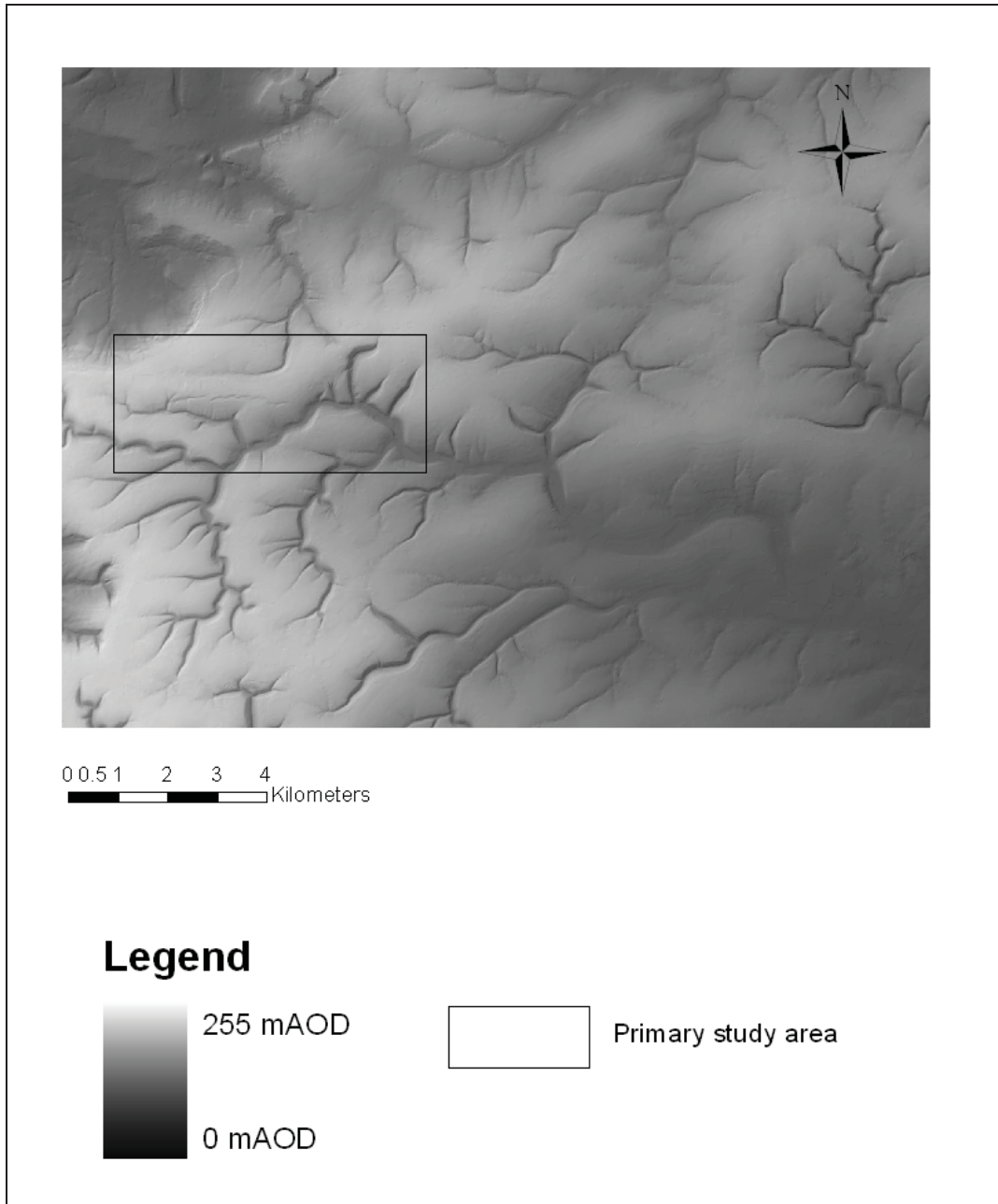


Figure 129 Digital elevation model (Database rights 2008 Edina supplied service)

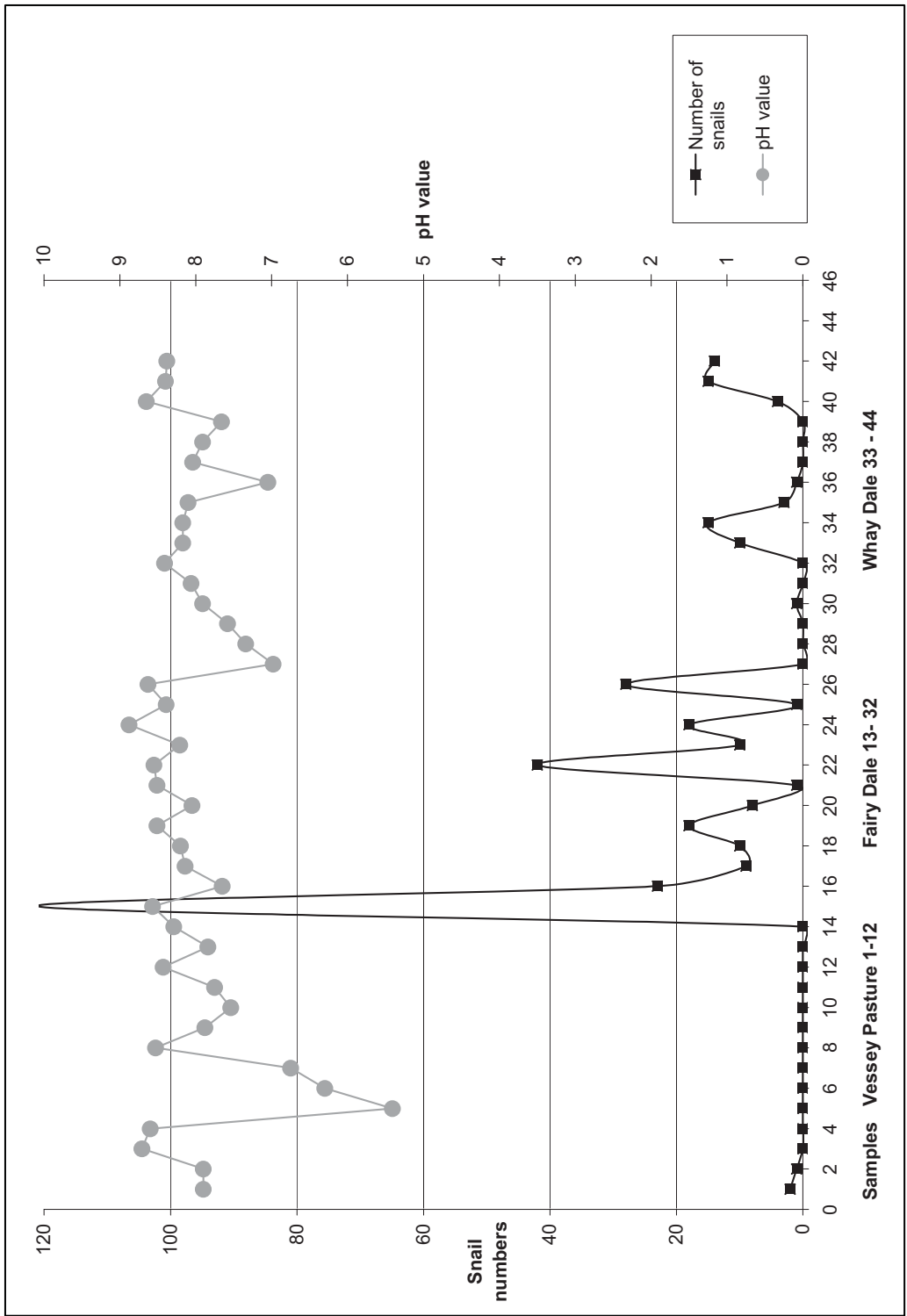


Figure 130 Land snail recovery against pH values, all test pit samples

Original in colour

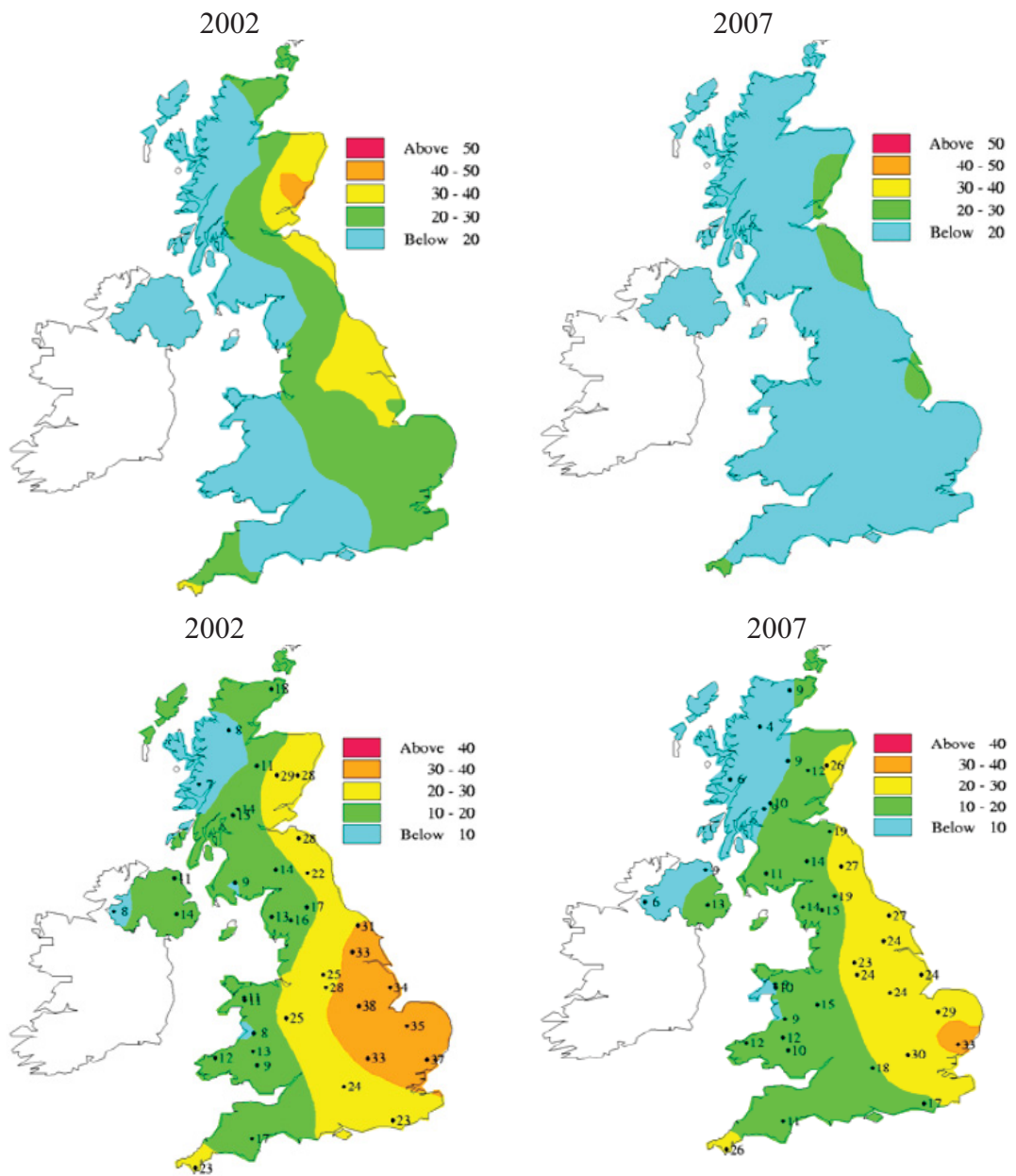


Figure 131 Precipitation weighted concentration maps for acidity (top) and for nitrates (bottom) both expressed in $\mu\text{eq l}^{-1}$ (from Lawrence *et al* 2007 18, 20)

Original in colour



Figure 132 The use of a metal detector before augering