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‘Transformation’ by Cistercian Rievaulx Abbey: change and complexity in a flood-prone landscape

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A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

2020

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Freya Horsfield

Abstract

This study considers the first Cistercian abbey in northern Britain, Rievaulx Abbey, as an agent of change in the medieval landscape. A catchment-based approach was used to investigate landscape 'transformation' by the abbey. This was nested within a theoretical model of change, a complex system, in which people, belief, and the environment were treated as diverse, interconnected, interdependent and adaptive. Study areas were nested in physical terms within subareas of river catchment defined using geoscience and documentary evidence.

An acknowledgement of the inherent complexity of monastic landscapes offered a more nuanced perspective than many previous studies. This work cuts through disciplinary silos, integrating historical, environmental, and archaeological data. It treats a monastic landscape holistically, thus diverging from much existing scholarship which focusses on either the claustral complex, the precinct, or beyond the precinct. The complex system model was used to articulate the interconnection of factors which are traditionally considered separately, such as spiritual and pragmatic motivations of monastic patrons.

The research found that, contrary to older research, Rievaulx had not been the first to use the land in question. Along the course of the River Rye on which the monastic centre was founded, the monastery continued the developmental trajectory established by preceding Anglo-Scandinavian occupants. In the Vale of Pickering, long suggested to have been the location of an extensive primal marsh reclaimed by the Cistercian abbey, Rievaulx was found also to have continued the trajectory of Anglo-Scandinavian activities with only a limited area newly brought into agrarian use.

In both locations studied, Rievaulx's landscape inheritance from lay society was found to be significant. Overall, this work contributes to the growing body of revisionist research into the Cistercian order, and to broader debates on landscape stewardship.

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Dedication and acknowledgements

To my parents and grandparents:

B.R.H. & D.H., O.M.G. & N.G., A.H. & E.H.

I wish to thank those within and beyond Durham University who have made conducting this research both possible and enjoyable. I am grateful to my supervisors, David Petts, Pam Graves, and Karen Milek, and others (too many to mention) who have contributed to the vibrant and supportive wider research and engagement community from which I have benefitted. The Department of Archaeology and Institute for Hazard, Risk and Resilience at Durham University proved fertile bases from which to explore interdisciplinary issues. Grant support from the Rosemary Cramp Fund and Durham University's Institute for Medieval and Early Modern Studies (IMEMS) enabled various elements of this research. I greatly appreciated the constructive challenge provided by James Bond, Andy Howard, and Chris Gerrard in examining this thesis under difficult circumstances in January 2021.

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Glossary

alluvium	fine-grained river deposits usually associated with overbank sedimentation across the floodplain
assart	clearance in woodland
attainder	Parliamentary Act punishing a crime (often treason)
caput	short for *caput baroniae*, the central settlement in a medieval estate
catchment	a geographic area defined naturally by surface water hydrology' (Defra 2013:3).
choir monks	monks ordained into Holy Orders as priests or deacons
co-enobitic	life lived in community
demesne	land worked for directly for lord, rather than rented out
eremitic	solitary life
farm (feorm)	render (including in food) due to a lord
forest	area under forest law (not necessarily woodland)
Lay / secular (in terms of Church)	religious person or institution not under a religious Rule
manor	agricultural estate and holdings
mass movement	bulk gravitational movements of soil and rock debris down slopes
medieval period	*Sensu strictu* this phrase is tautologous, as in Latin the second word in *medium aevum* means 'age' or 'period.' The English phrase is in widespread useage, however (e.g., Hall 2018:614), so is used within the current study.
mire	Wetland environments are subject to various formation processes. Some fens / sunk mires are fed predominantly by groundwater, while others (raised mires) may be fed primarily by rainwater.
monk	broadly, one who lives in a monastery under a religious Rule
noval	newly established
reclamation	significant change in physical state
Regula Benedicti	Rule of St Benedict, which by the high medieval period became the pre-eminent monastic Rule
sac and soc	medieval jurisdictional unit
SUA	Small Unmanned Aircraft / drone
superficial	geological deposits that are of natural origin and 'in place', typically unconsolidated deposits of Quaternary origin (i.e,. under 2.6 million years old)
temporalia	revenues held as a baron
tithe	a due owed to the Church

Conventions, abbreviations, and data

References to text in Domesday Book are to the Yorkshire folios edited by Stinson and Faull 1986. Individual entries are shown by folio number (eg 299b) then the section assigned by Stinson and Faull, ie 299b 4 refers to the entry for Pickering. Documents in published collections are referred to by their number in the published source used. Editorial comments and translations in such volumes are referred to by page. For example, in Atkinson's edition of the Rievaulx Cartulary, the *Memorial of Benefactions* is referenced as *Cart. Riev*. 368, while Atkinson's editorial comment on the same document is referenced as Atkinson 1899:260.

Bede (1969) Ecclesiastical History of the English People. Edited by B. Colgrave and R. A. B. Mynors. Translated by R. A. B. Mynors. Oxford: Oxford University Press Reprints	H.E.
Regula Benedicti	R.B.
Atkinson, J. C. (ed.) (1889) *Cartularium abbathiæ de Rievalle, Ordinis cisterciensis fundatæ anno MCXXXII*. Durham: Surtees Society by Andrews & Co. Available at: http://archive.org/details/cartulariumabbat00riev (Accessed: 20 April 2014).	*Cart. Riev.*
Capitula -documents from the Cistercian General Chapter	Cap.
Statuta - statutes of the Cistercian General Chapter	Statuta
EM Elder, E. R. (ed) (2012) The great beginning of Cîteaux: a narrative of the beginning of the Cistercian order: the Exordium magnum of Conrad of Eberbach. Translated by B. Ward and P. Savage. Collegeville, Minn.: Cistercian Publications; Liturgical Press.	EM
Patrologia Latina Database (electronic version of Migne's *Patrologia Latina)* http://pld.chadwyck.co.uk/	PL
Papal Encyclicals	PE
Fasti Ecclesiae Anglicanae 1541-1857	Fasti
Record identification system used by Public Records Office, now the UK National Archive	PRO
North Yorkshire Country Records Office	NYCRO
Domesday Book. Edition used: Faull, M. L. and Stinson, M. (eds) (1986) The Domesday Book: Yorkshire Parts One and Two. Chichester: Phillimore & Co.	DB
Yorkshire Archaeological Research Framework: research agenda. A report prepared for the Yorkshire Archaeological Research Framework Forum and for English Heritage – project number 2936 RFRA (Roskams and Whyman 2007)	YARF
Working with Natural Processes	WWNP
Natural Flood Management	NFM

Catchment flood management plan	CFMP
Department of the Environment, Food and Rural Affairs	Defra
Flood Risk	FR
Environment Agency	EA
Flood and coastal erosion risk management	FCERM
Catchment Management Plan	CMP

Digital / online datasets and resources	
Online database Dictionary of Medieval Latin from British Sources. http://www.dmlbs.ox.ac.uk/web/welcome.html	DMLBS
Prosopography of Anglo-Saxon England http://pase.ac.uk/	PASE
Aerial data and derived products for Rievaulx Abbey used under licence from Historic England	SUA
Historic Environment Record data, accessed under licence from North York Moors National Park Authority and North Yorkshire County Council	HER
The National Archive	TNA
Tithe data via the Genealogist website, https://www.thegenealogist.co.uk/ which makes data from The National Archive available under licence	TG
National Soil Resources Institute (2014-2020) Academic Soils Site Report for 1km x 1km locations as stated, National Soil Resources Institute, Cranfield University. Accessed via https://www.landis.org.uk/sitereporter/	NRSI
Open Domesday website https://opendomesday.org/	Open Domesday
Hull Domesday project http://www.domesdaybook.net/	Hull DB
BRITICE Chrono data https://www.sheffield.ac.uk/geography/research/projects/britice	BritIce
Data accessed via the UK Data Service	**UKDS identifier**
Kain, R.J.P., *Atlas of Agriculture in England and Wales, c.1840* [computer file]. Colchester, Essex: UK Data Archive [distributor], 1981. SN: 1659, http://dx.doi.org/10.5255/UKDA-SN-1659-1	UKDS 1659
Kain, R.J.P. and Oliver, R.R., *Enclosure, Rating, Drainage and Sanitary Maps of England and Wales in Public Archives, 1598-1936* [computer file]. Colchester, Essex: UK Data Archive [distributor], June 1999. SN: 3820, http://dx.doi.org/10.5255/UKDA-SN-3820-1.	UKDS 3820
Burton, N., Westwood, J. and Carter, P., *GIS of the Ancient Parishes of England and Wales, 1500-1850* [computer file]. Colchester, Essex: UK Data Archive [distributor], March 2004. SN: 4828.	UKDS 4828
Kain, R.J.P. and Oliver, R.R., *Historic Parishes of England and Wales: an Electronic Map of Boundaries before 1850 with a Gazetteer and Metadata*	UKDS 4348

[computer file]. Colchester, Essex: UK Data Archive [distributor], May 2001. SN: 4348.	
Palmer, J., *Electronic Edition of Domesday Book: Translation, Databases and Scholarly Commentary, 1086; second edition* [computer file]. 2nd Edition. Colchester, Essex: UK Data Archive [distributor], September 2010. SN: 5694, http://dx.doi.org/10.5255/UKDA-SN-5694-1	UKDS 5694
Satchell, A., Kitson, P., Newton, G., Shaw-Taylor, L., Wrigley, E. (2016). *1851 England and Wales census parishes, townships and places*. [data collection]. UK Data Service. SN: 852232, http://doi.org/10.5255/UKDA-SN-852232	UKDS 852232
Satchell, A., Kitson, P., Newton, G., Shaw-Taylor, L., Wrigley, E. (2017). *1851 England and Wales census parishes, townships and places*. [data collection]. UK Data Service. SN: 852816, http://doi.org/10.5255/UKDA-SN-852816	UKDS 852816
Data accessed via Archaeology Data Service, including	ADS
Brookes, S. (2017) 'Domesday Shires and Hundreds of England'. Available at: doi.org/10.5284/1058999 (Accessed: 4 February 2020). Used under Creative Commons Attribution 4.0 International License	
Digital geospatial data accessed under licence via EDINA Digimap service	Digimap
Ordnance Survey data – modern and historic	OS
British Geological Survey	BGS
Environment Agency	EA
Aerial and satellite imagery	
Digital geospatial data used under Open Government licence v3	OGL
Defra MAGIC website https://magic.defra.gov.uk/MagicMap.aspx. Consulted 20200129.	
OS Open Data https://osdatahub.os.uk/downloads/open	
Environment Agency data https://environment.data.gov.uk/	

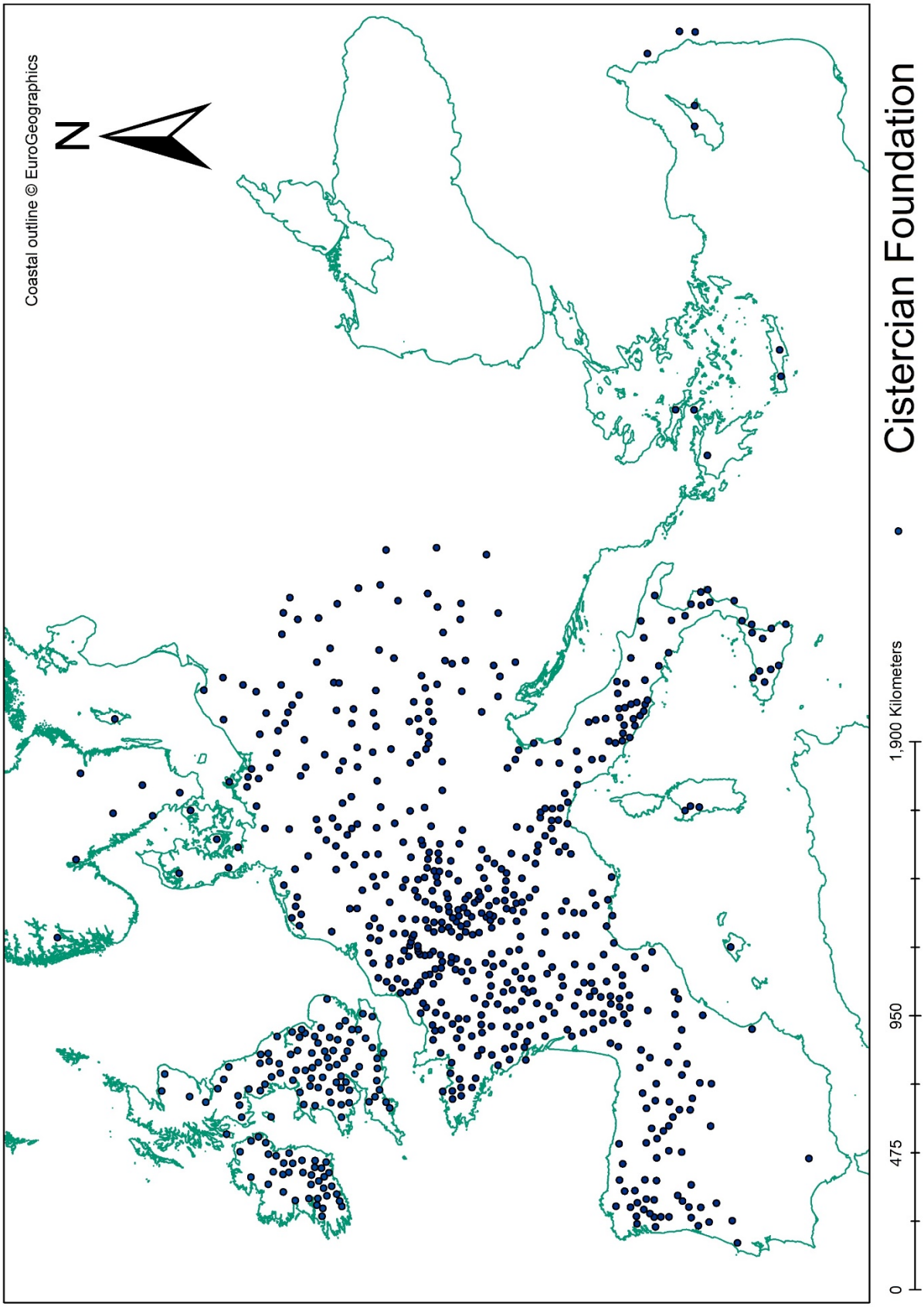
Chapter 1
1.1 Introduction

This work is an investigation of change in the historic landscape, and the role of a major medieval religious institution in that change. The Cistercian monastic order was one of the most successful, influential, populous, and spatially extensive of the monastic orders that practiced communal living in the High Middle Ages. From its origins in late 11th-century Burgundy, the number of male monasteries in the order grew to over 525, across Europe and the Levant, by the end of the 12th century; and 740 by the late 17th century (Coppack 1998a:11) (Figure 1:1). The Cistercian order has been termed 'one of the last great pan-European phenomena before the rise of the nation state' (Tobin 1995:17); and the 'first multinational' (Jamroziak 2013:43-91). The Cistercian movement continues as an active religious tradition in the modern day.

The Cistercian Order has attracted a significant proportion of the scholarship into those monastic orders which emerged in the medieval period in Europe. The roster of scholars who have contributed to the substantial body of research into the order is similarly international, drawn from the USA, Eastern and Western Europe and the Antipodes including Berman (2000), Dutton (2017), Fergusson (1984), Newman (1996), Waddell (2002), Burton and Kerr (2011), Robinson and Harrison (2006), Jamroziak (2013), Tobin (1995) Lekai (1992), Bruun (2012), Freeman (2002).

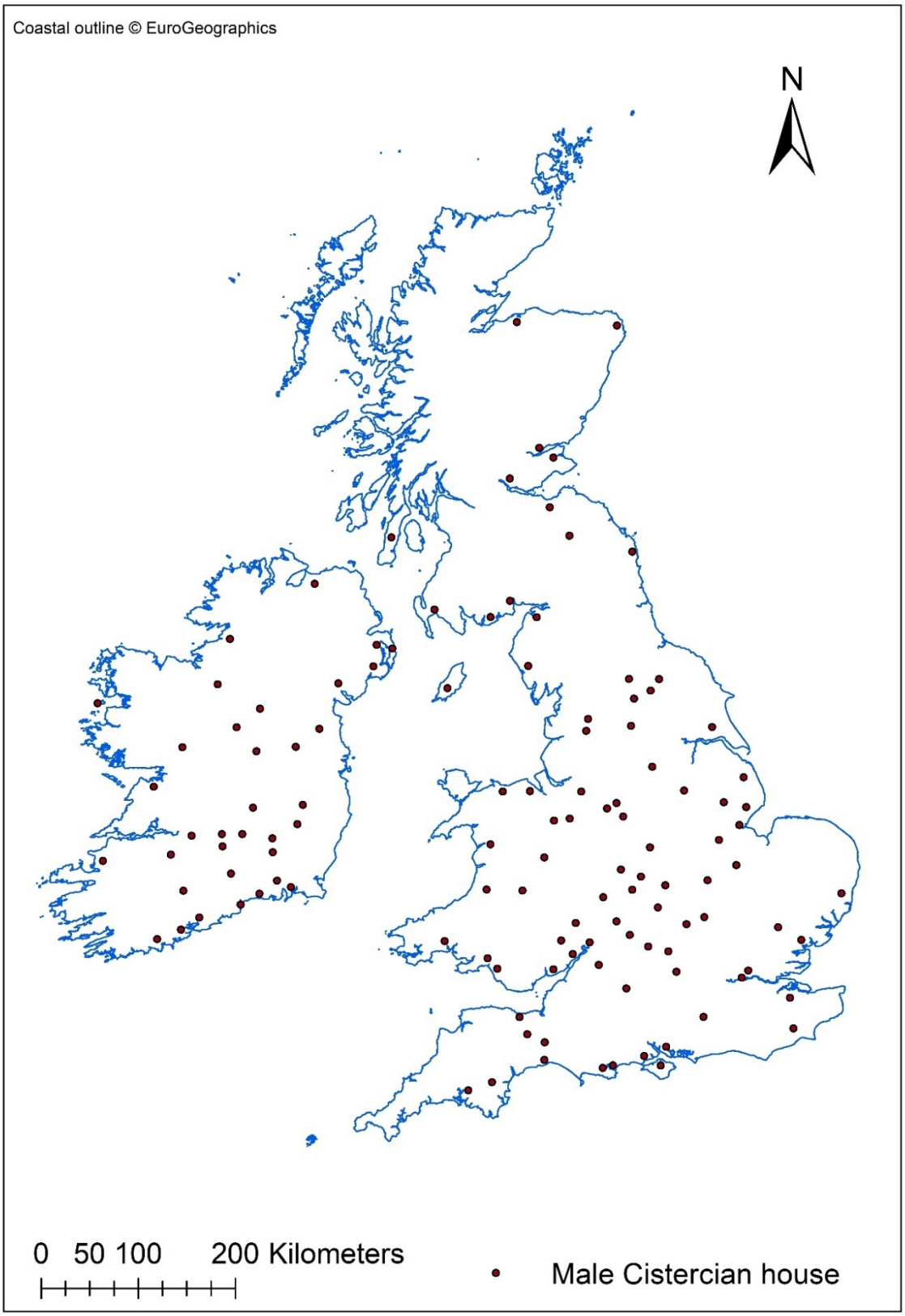
By the late 11th century, the date traditionally assigned to the first Cistercian monastery in Northern France, the practice of monasticism in Northern Europe had seen cycles of foundation, diffusion, destruction, change, reform, and diversification. The 10th-century revival of monasticism in England radiated from Wessex with initially only few outposts north of the Trent (Burton 1994a). Refoundations occurred, such as at Durham, Wearmouth and Jarrow (Burton 1994a:1-42). In Yorkshire, the county in which the case study monastery was later established, monastic foundations had occurred by the late 11th century at Selby (1069), Whitby (c1078) and York (1088) (Knowles 1963:159-171; Burton 2004c:91). In 1066, there were about 50 male monasteries in England but by 1154 there were around 500 (Greene 2005:4).

The new orders associated with Norman expansion were partly responsible for this rapid growth of monasticism in England (Greene 2005:4). The Cistercian order was among the most enduringly successful of these new orders, with 86 male and 32 female Cistercian houses founded in England and Wales (Coppack 1998a:11) (Figure 1:2).



After Burton and Kerr 2011 Figure 1

Figure 1:1 Male Cistercian monasteries across Europe



After Brown 2012 Figure 1.1

Figure 1:2 Male Cistercian houses in Britain and Ireland excluding temporary sites.

1.2 Study purpose

This work pursues new questions, and questions identified by earlier scholars, which have hitherto been hampered by the availability of data and investigative techniques. The overall purpose of this project was to advance understanding of relationships between humans, belief, and the physical environment. It pursued this through exploring an aspect of Cistercian identity which became historically entwined with relationships with the physical world: a reputation for transformational effectiveness in agrarian activities. Much of this Cistercian reputation rests on specific interpretations of medieval writings, in which the concepts of waste and wilderness are prominent (Bruun 2008:21-42).

It is now understood that the terms waste and wilderness are culturally contingent, first applied to early Christian monastic practice in Late Antique Egypt and the Levant (Oelschlaeger 1991:739-740). In these texts, early monks were exemplified as world-renouncing ascetics, such as St Anthony (d. c. AD 356) (Dunn 2003:2). Yet even in such early arid-zone monasticism, a growing body of research suggests that religious texts did not truly represent some monastic practice, which is now understood to have been more closely engaged with the world than was previously averred (Goehring 1996; 1999:39-52; Wipszycka 2011). The paradigm of monastic asceticism and the importance of a 'wilderness' setting continued to develop as monasticism expanded across Europe (Goehring 2003). Memory of Christian monasticism's desert origins endured in tropes and expectations, akin to a form of ancestral inheritance. How Cistercians responded to this inheritance, and what it meant for their relationships with landscape, is one of the themes of this work.

1.2.1 Aim 1

The overall purpose of this research was to advance understanding of a Cistercian monastery as 'change agent' in the physical environment. The Cistercian order was one of the new monastic orders established in the 11th and 12th centuries which overtly attempted to 'return' to the monastic ideal and its paradigmatic ascetic desert setting, partly in reaction to aspects of monastic reform which had begun in the 10th century (Burton and Kerr 2011). As will be seen in Chapter 2, the association of Cistercian houses with a hostile physical environment, and the 'transformation' of that environment into productivity, was a reputation curated by Cistercians themselves.

The supposedly exceptional Cistercian effectiveness in land management has long been argued as contributing to the long-term success of the order (e.g., Graves 1957:3-62; Roehl 1969:180-182). The basis for this reputation is, however, problematic. There may be an element of circular reasoning because of the weight of scholarship which the order has attracted (above). Further, the quantitative degree to which Cistercian monasteries pioneered occupation of previously unsettled land should not be overemphasised (Bond 2004:71). It is far from clear how exceptional Cistercian sites and land management practices were among their peers, both lay and monastic, and if there was anything uniquely 'Cistercian' about how they went about such things (Aston 2000:85). The 'centre' of the order at Citeaux in Burgundy (Northern France) created a substantial body of normative regulation over several hundred years (Waddell 1999; 2000; 2002).

A key debate in historical research has been the interpretation of apparent divergence between Cistercian regulation and activities documented for specific Cistercian monasteries. Lekai's binary model of 'ideals and reality' has been acknowledged as problematically persistent in historical debate (Lekai 1992; Jamroziak 2013). Can an archaeologically derived understanding, with insights from both the physical environment and historic sources, help cut through the religious rhetoric to understand the role played by a Cistercian monastery in landscape change?

1.2.2 Aim 2

The investigation of Cistercian 'transformation' of the physical environment relates to broader questions. The relationship between humans and the physical environment is a major research challenge faced by medieval archaeology (Gerrard 2018:992-993). That research challenge relates also to a practical problem faced by both medieval and modern communities: water management. For people in arid environments, water shortage and evaporation are key challenges. Elaborate water husbandry was therefore practiced, such as the floodwater harvesting system of Roman / Early Islamic Resafa (Syria) (Beckers and Schuett 2013). For temperate Northern Europe, such as occupied by most Cistercian monasteries, the challenge is more likely to be water in the wrong place or an over-abundance, including flooding. Given the prevalence of highly damaging floods in the modern day, it is curious that management of the same landscape by major medieval actors such as monasteries has been a somewhat unfashionable area of study.

The gulf between the scale of the practical problem of landscape water management in the past and the body of research available to help understand this, may be due in part to several

challenges, which are explored in Chapter 2. One of these factors is that, with some notable exceptions (such as Menuge 2000; Everson and Stocker 2011), explanatory models for human-mediated change in medieval landscapes have been somewhat limited. Questions of definition, classification and typology have tended to drive investigation down silos, whereby certain types of enterprise are viewed as distinct, including questions of 'land' and 'water' management.

Yet it is the mixing of these elements in a matrix comprising water, geology, soils, sediment and land cover which would have contributed most in terms of volume to river catchments. In contrast, gravity-flow systems in building complexes, in which water is prevented from mixing with 'land' by an intervening membrane such as piping, would have contributed much less in quantitative terms to a catchment. Such gravity-flow systems tended to be installed at building complexes such as monasteries and urban centres (Magnusson 2001). Also, in certain research traditions, it has been customary to view monastic land management as a wholly functional exercise, linked to religious factors solely as the material means for monastic support. For much of the 20th century monastic landscape research was dominated by primarily economic or functional interpretative models (Chapter 2.4). Yet human actions are influenced by world views such as religious beliefs, as well as practical understanding at the time. These themes will be explored and problematised in Chapter 2.

Given the potential of modern landscape-scale data sets and advanced technology, how can we better design investigation of landscape change around both earth science principles and historic insight into human practices and understanding? How might an investigation of a Cistercian landscape, which includes an articulated world view, identifiable physical locations, and a well-documented narrative, help a) understand change in the landscape more widely, and b) be the platform on which to design a methodology which also incorporates wider questions of modern landscape stewardship? How can the practices of archaeology be constructively widened to incorporate certain key principles of hydrology, such as connectivity? How can we better understand the human role in landscape change as occurring within interconnected systems of flow, management, and worldview?

1.2.3 Objectives

This study therefore set out to:

1. use a case study to understand Cistercian 'transformation' of landscape in a specific context.
2. develop and evaluate a methodology using a complex system as conceptual model and incorporate modern methods for studying landscapes with historic insights.
3. address research questions mindful of their potential relevance to modern landscape stewards.

In the physical sciences, human / environment interactions are understood as being coupled, whereby change in one may result in change in the other (Cadenasso et al 2006). This study therefore adopted a complex system theoretical model to investigate claims that a major Cistercian monastery 'transformed' her landscape. Since the development of complex systems within the field of computer science, many other disciplines have found this model to be constructive (Chapter 2.2). Complex systems emphasise the interconnections between factors and agents (Miller and Page 2007). Complex systems thus offer integrative potential for archaeology (Bintliff 2008).

Teasing out the circumstances in which change occurred in the medieval landscape necessitated a nested approach. The case study of Rievaulx Abbey enabled the investigation of supposedly standardised 'Cistercian' behaviour in specific contexts. This study attempted to interpret the relationship between Cistercians and landscape through expectations of the time, rather than those of the 21st century. This necessitated contextualisation within the wider debates around Cistercian historiography (Chapter 2.3). The study adopted a nested physical approach also, in which study areas were nested within a river catchment and asked different questions at different scales.

1.3 Case study: Rievaulx Abbey, the first Cistercian monastery in Northern England

Rievaulx Abbey was used as a case study to address the research questions listed above. Rievaulx was a Cistercian monastery founded in 1131-1132 in North Yorkshire near to the small town of Helmsley. (Figure 1:3). Water defined Rievaulx Abbey, which acquired its name from the Anglo-Norman term for its location, the valley of the River Rye (Smith 1928:73; Watts 2010:500). The Rye and its course through the western North York Moors have been important to Rievaulx Abbey for over 800 years, defining the northern, western, and southern parts of the monastic precinct in the medieval period. The Rye correspondingly defines the extent scheduled as an ancient monument in the present day (Scheduled Monument listing 1175724). The course of the Rye at Rievaulx's centre has also generated a long-standing research debate, which began in 1899, about the monastery's management of her definitional river. As Chapter 5 will argue, assumptions made over 120 years ago still problematically underpin the traditional interpretation of the monastic precinct's development.

Rievaulx was of immense importance to the Cistercian order. It was the first Cistercian house founded in England directly from Clairvaux, the base of the charismatic early Cistercian leader, St Bernard (Knowles 1963:707; McGuire 1991; Jamroziak 2005). Rievaulx was the third British foundation, after two foundations made from L'Aumone (near Blois, France): Waverley Abbey (Surrey) 1128-1129 and Tintern (Gwent) 1131 (Knowles 1963:707). Rievaulx may have been intended as a mission centre from which to cultivate the north (Fergusson and Harrison 1999:38). Rievaulx went on to found 'daughter' Cistercian monasteries across northern England and Scotland. By the 13th century, Rievaulx and her daughter monasteries numbered 19 across England and Scotland and were connected to the network of Cistercian monasteries across the whole of the British Isles and wider Europe (Knowles 1963: p724 Table IV). After Tintern, the next Cistercian monastery in Wales at Whitland (Carmarthenshire) was founded in c1140-1145 from Rievaulx's mother house of Clairvaux (Williams 2001:3-5). The first of Ireland's 33 Cistercian abbeys, Mellifont (County Louth), was also founded from Clairvaux (Stalley 1989:1).

Rievaulx also played an important role in the medieval Church and politics, both within Britain and more widely. For example, her charismatic early abbot St Ailred (1110 –1167) played a role in the disputed election of an Archbishop of York (Jamroziak 2005: 170-184; Dutton 2017). As will be

seen in Chapters 7 and 8, Ailred was also an adviser to King Henry II of England, whose domain also incorporated Northern France (Dutton 2006). Rievaulx was important economically, connected to pan-European trade networks through the sale of high-quality wool (Jamroziak 2003:197-218).

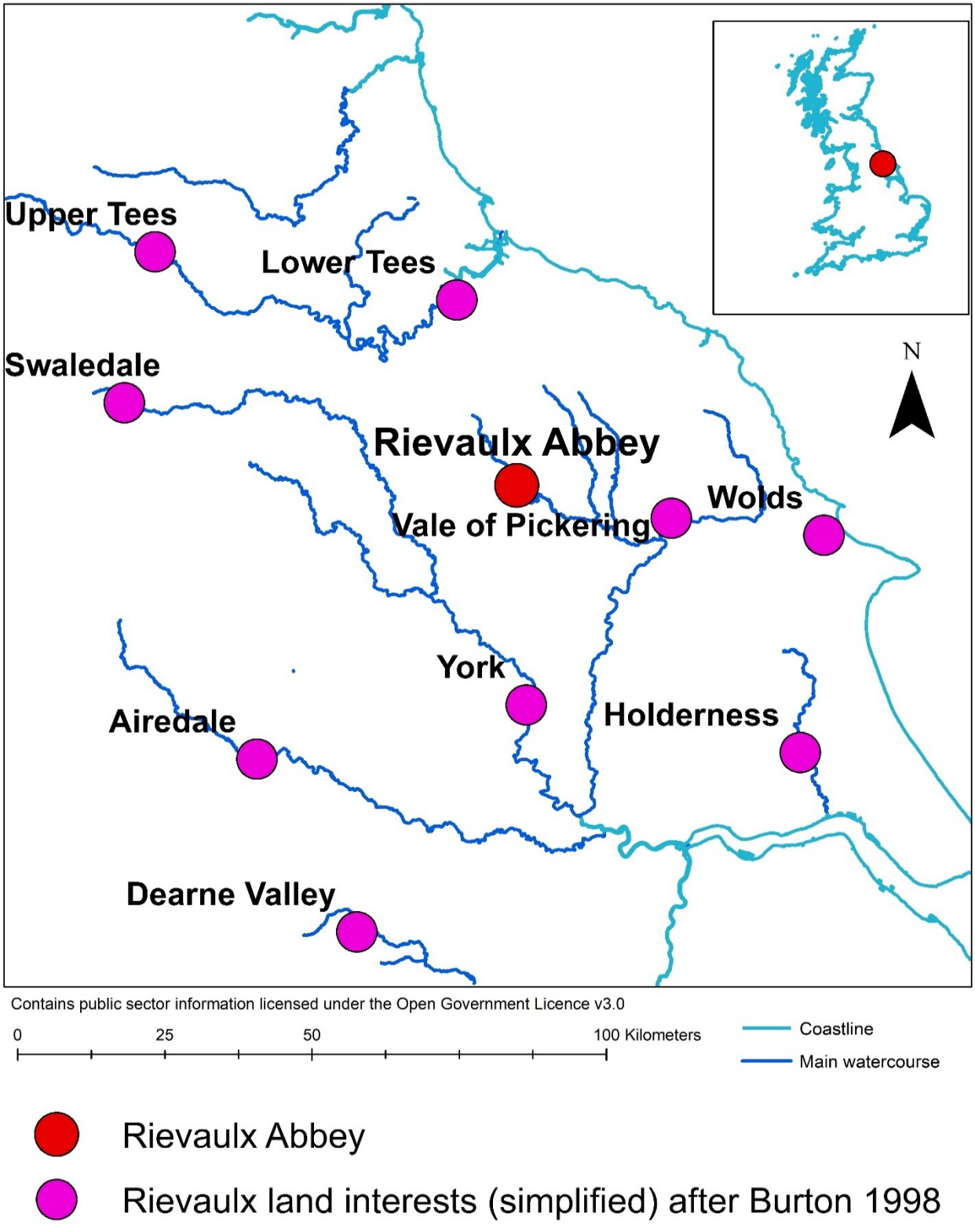


Figure 1:3 Rievaulx Abbey location and land holdings (simplified) after Burton 1998a

Rievaulx's land interests were extensive. The abbey was founded on land given by a single donor, Walter Espec, in 1131-1132. Thereafter, the abbey acquired a diverse portfolio of land and rights across Northern England from other donors. The documentary evidence is patchy, but the abbey's major expansion appears to have occurred in the 12th century, with consolidation and more minor acquisitions thereafter (Burton 1998a). A representation of Rievaulx's general zones of activity within Northern England is shown in Figure 1:3.

Rievaulx was disbanded and her assets sold into various private hands in 1538 as part of the Dissolution of the monasteries under Henry VIII (Coppack 1999a;199b). Rievaulx's estates encircling the monastic core were purchased from the Crown by the Earl of Rutland, under whose ownership the metal-working begun by the monastery within its precinct continued until the 1640s (Fergusson and Harrison 1999:187–8). Rutland's descendants sold the site to Charles Duncombe, whose family commissioned an ambitious programme of building and landscape engineering which incorporated the view of the abbey into one of the earliest large-scale engineered views in Europe (Burton 1758:560; Smith 2014). Rievaulx Terrace, laid out in about 1758, has been in the care of the National Trust since the death of the last Earl of Feversham in 1963 (listing entry 1001072; Pevsner 1966).

From the 18th century, the decaying monastic church complex became a visitor attraction, part of public appetite for the antique and rural reflected in the burgeoning Picturesque and Romantic traditions in art and literature (Gerrard 2003: 5-29). This obvious decay, however, became increasingly controversial. After a public campaign, the buildings and land at Rievaulx's claustral core, the headquarters of the monastery, were one of the earliest sites in England taken into public guardianship in 1917 (Scheduled as Ancient Monument 1175724; Thurley 2014). Excavation of the monastic church complex was carried out by veterans of the First World War, from 1920-c1930. These works took place in a manner that would now be regarded as somewhat brutal clearance rather than archaeological good practice, under the direction of the Inspector of Ancient Monuments, Charles Peers, and engineer Frank Baines. Rievaulx Abbey's core complex is now a national heritage icon, and the charismatic standing buildings at the monastic core have attracted substantial attention (Fergusson and Harrison 1999).

Only limited fieldwork has been conducted at the precinct however and Peer's excavations remain substantially unpublished (Chapter 5). Beyond the precinct, the broad picture of Rievaulx's land

acquisitions has been established by successive historians (Burton 1998a; Jamroziak 2005). Many aspects of Rievaulx's relationship with her land holdings within and beyond the precinct, however, remain unclear. One of the most significant questions is whether, as a Cistercian abbey, Rievaulx 'transformed' her landscape as suggested by documentary sources that will be considered within the case studies.

Study areas

Two study areas were selected from within the Yorkshire River Derwent catchment (Figure 1:4). Both relate to land which, it has long been assumed, Rievaulx 'transformed.' The first area is along the upper reaches of the River Rye, including at the precinct where two Victorian antiquarians suggested Rievaulx substantially diverted the river (Atkinson 1899: Rye 1900). The second is land known today as Marishes, in the Vale of Pickering, where the practical challenge was in the low-lying, marshy nature of the land. Robin Donkin's seminal work on the Cistercians in England and Wales suggested that Rievaulx had reclaimed this land wholescale from primary marsh (Donkin 1978:59).

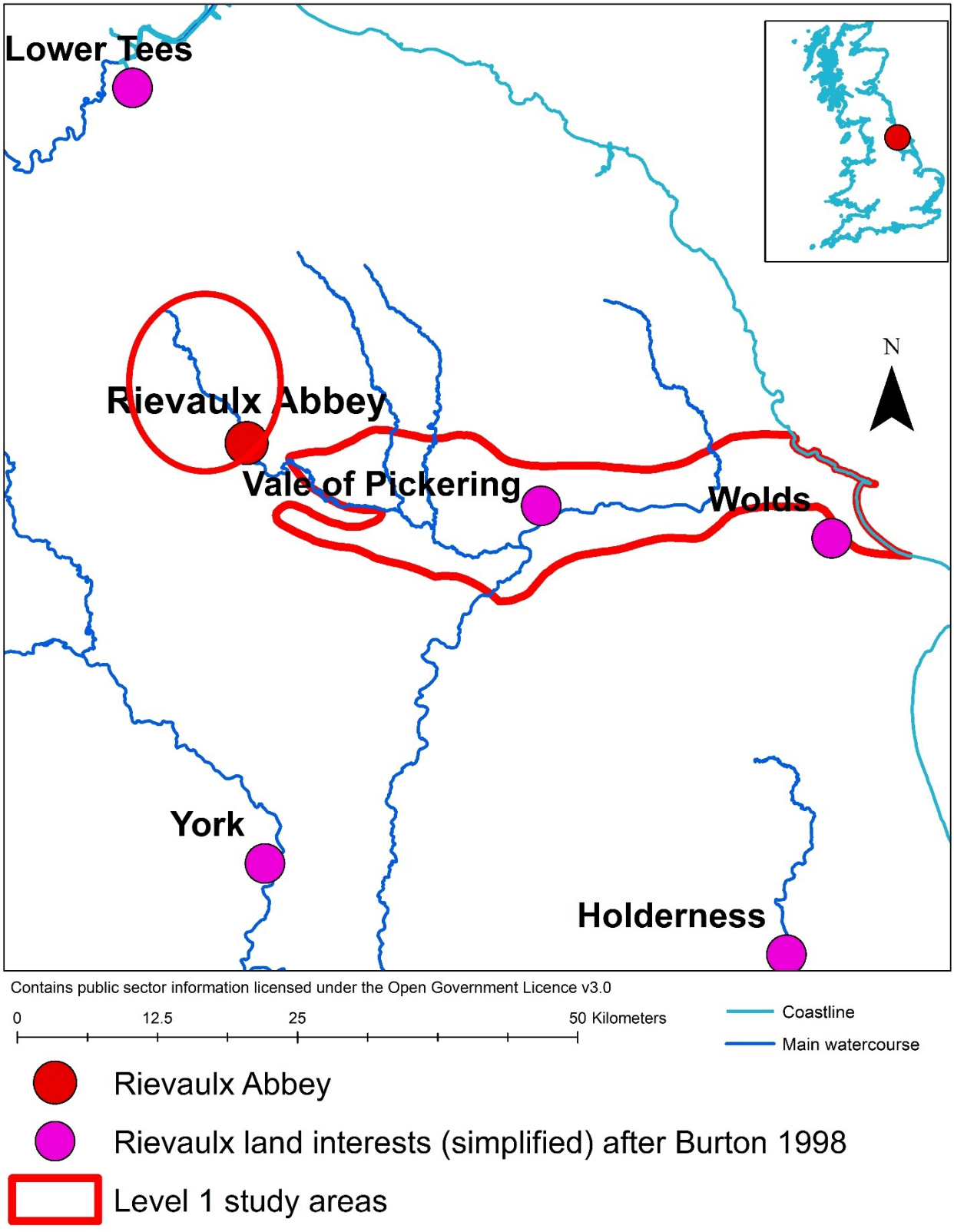


Figure 1:4 Case study locations outlined in red.

1.4 Structure of this work

Chapters 2 and 3 problematise Cistercian landscape transformation and outline the data and methods used in this study. **Chapters 4, 5 and 6** present the first case study: Rye Vale, including land on which the monastic precinct and claustral complex were established. **Chapters 7 and 8** present the Vale of Pickering case study. The succeeding chapters discuss results against the main research questions (**Chapter 9**), consider issues which arose in terms of the methodology and data used (**Chapter 10**) and present recommendations for future work (**Chapter 11**). **Chapter 12** presents conclusions and claims for the significance of this work.

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Chapter 2 Change in the historic landscape: problematising a Cistercian case study.

2.1 Introduction

This chapter sets out how the core research questions were problematised for this study. The trope of 'colonising Cistercians' has become embedded in popular history. In this, Cistercian monasteries are credited with near-heroic transformations of marginal land through carrying out major river diversions, primary marshland reclamation, and other feats of landscape-scale water management (Donkin 1978). As with many reputations, the survival of this portrayal has depended on some element of fact. In the period before a fully monetised economy, all monasteries depended on land to some degree. Land was necessary on which to establish a monastery. Agrarian production was needed to provide the food and other material support, whether this production was conducted by the monastery itself or donated by others.

It is, however, far from clear how distinctive or unusual Cistercian monasteries were in creating change in the medieval environment. As Table 2:1 (*at end of chapter*) shows, initiatives which resulted in environmental change were underway well before the 12th century, by a variety of agents including lay peasant communities and lords as well as the Church. The present study contributes to a fundamental reappraisal currently underway elsewhere of many aspects of Cistercian historiography and reputation. The main themes of the revisionist work pertinent to the current enquiry are outlined below. One means through which Cistercians are supposed to have created environmental change was through granges, an outlying agrarian unit, but the attribution of this to Cistercian innovation is problematic, a question to which section 2.3.6 will return.

The relatively limited nature of research into how major medieval actors such as monasteries managed landscape may have been in part due to an overlapping set of factors. For narrative clarity these are presented here as multiple research challenges, prompted by Gerrard's approach (2018: 982-996). This is illustrated graphically (Figure 2:1). That figure will be used throughout this chapter with a minor colour variation to aid the reader's navigation through a complicated range of topics. This chapter however goes on to argue that the research challenges identified here are not free-standing but are instead crucially interlinked, a common theme being the challenge of understanding the relationships between people, belief, and the environment.

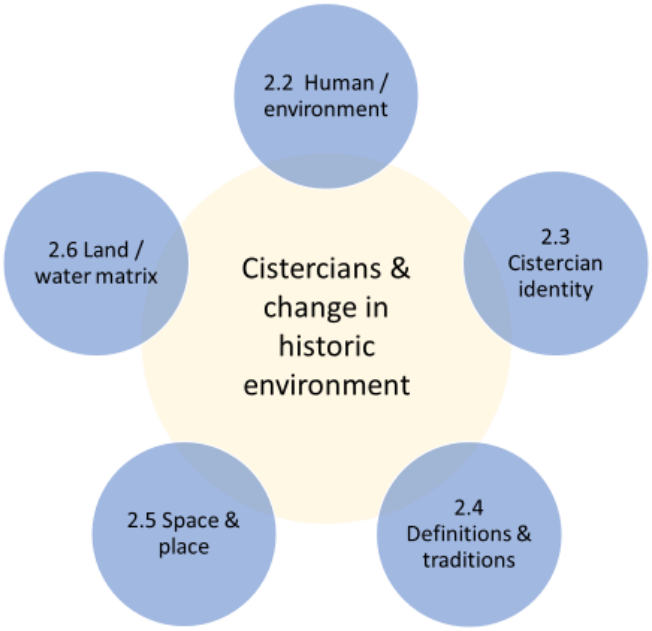
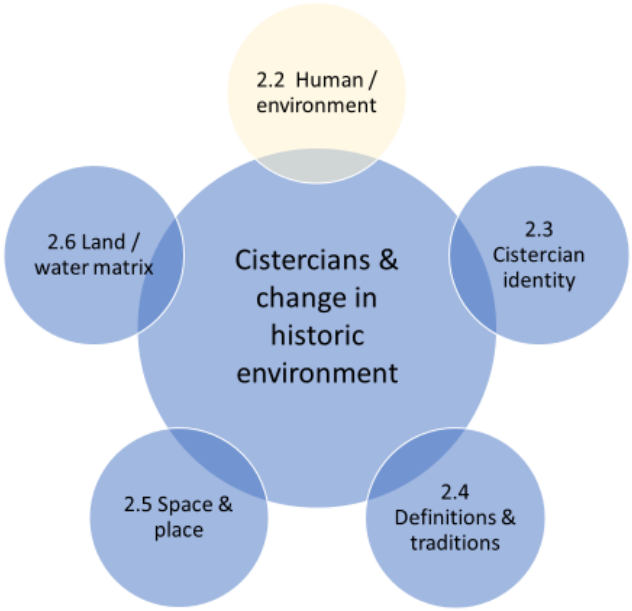


Figure 2:1 Understanding Cistercian change in the historic environment entails multiple challenges.

2.2 Overarching challenge: humans and change in the historic environment

This work uses a case study of a Cistercian monastery to explore human-induced change in the historic environment. Explanatory models for such anthropogenic change in past environments have been somewhat reductive until relatively recently. There are many reasons for this, with just three outlined here to illustrate the scale of the challenge. The first is understanding human motivation, such as religious belief, the second is the theory of how human activities cause change in the historic environment, and the third is the question of change and high medieval monasticism.



2.2.1 Human motivation

Human motivation is a difficult factor to identify, in the past as in the present. It has been common to define medieval motivations in dichotomous terms, as either wholly economic ('rational') or entirely religious. Such models assume medieval mindsets to have been very different to those of the present day. The religious unity model suggests that past humans possessed 'a unity foreign to our own …which … revolved around God' (Oelschlaeger 1991:71). There is an alternative 'unity' model of past human motivation, the 'rational actor' model. This views human decision-making as based on objective rationalisation of a set of objectives and goals (Mintz and DeRouen 2010:57–67). This 'unity' viewpoint was sustained by cultural contexts of the 19th and 20th centuries which saw developments in the concept of economic value, including the economic rent theory of classical economics (Bailey 1989), and neo-Marxist theories of class relations (e.g., Brenner 1976). Such post-medieval assumptions may have coloured interpretations such as Postan's neo-Malthusian population-resources model whereby use of uplands and wetlands were seen as a 'journey to the margin' compelled by population pressure (Beresford and St Joseph 1979:94; Postan 1993). This interpretation has proved enduring (e.g., Miller and Hatcher 1978:53-63).

Based on Biblical references such as the description of the Garden of Eden (Genesis 1:26).[1] White (1967) suggested that medieval people sought dominion over nature. White further argued that technological advances, such as the invention of the mouldboard plough, allowed humans to 'attack' land, thus explaining changes in agrarian practice and productivity. Since White, a research consensus has developed of religion as 'an important, if not the only, factor in how human societies relate to the natural world' (Whitney 2015:396).

2.2.2 Change in the historic environment

Technological progress as the major driver of landscape change, such as posited by White's mouldboard plough suggestion, has been a common explanatory model in archaeology and historic geography in the culture-historical tradition, a tradition which has long dominated landscape research (Rippon 2009a:228-234, *and see also 2.4 below*). In the culture-historic tradition, culture is equated with ethnicity, and assumed to 'develop' progressively (Moreland 2013). Such models tacitly assume that the historic environment was essentially static and passive until acted upon. This static and passive state is implicit also in the assumption that change in the historic landscape manifested in successive, discrete 'layers.' This metaphor, as used by Crawford (1953:51), likened evidence of historic land activity to a palimpsest, a parchment which still bears traces of previous writing. This is a concept which has proved enduring in landscape archaeology (Turner 2013). The same assumption of accretive stasis is tacit throughout much of Hoskins' (2013 [1955]) classic account of the making of the English landscape.

Long-term change has been incorporated within some research traditions, notably those influenced by the *Annales* school of historiographic research. That school emphasised how perceptions, ideas, and communities changed through time and interacted with their physical environments (see Burrows 2010 for a review, and Everson and Stocker 2011 and Gilchrist 2014 for archaeological examples). Although the static, accretive palimpsest model of change remains pervasive, it has been challenged by some historic landscape researchers. Oosthuizen (2006a:153) suggests that a better metaphor for landscape change is of a dynamic kaleidoscope, whose elements contribute to the development of the future landscape.

[1] *And God said, 'Let us make man in our image, according to our likeness; and let him have dominion over the fish of the sea, and over the birds of the air, and over all the wild animals of the earth, and over every creeping thing that creeps upon the earth.'*

In fields such as geosciences and ecology, human-associated change in the environment is typically considered in terms of coupled systems, with land understood as dynamic, and undergoing processes of constant change with which human practices interact (Walsh 2018:1-3). In this dynamic model, factors such as husbandry are understood to create consequences for the development trajectory of land. For example, stock-keeping may affect soil fertility from accumulation of animal excreta, impacting plants and animals in turn through mechanisms such as species-selective grazing (Simpson et al 1999:223-229).

In the physical sciences such coupled systems are increasingly being modelled both theoretically and computationally. The systems thinking approach underpinning coupled system models was drawn originally from computer modelling but has since been adopted by multiple disciplines (Wohl et al 2014). The use of systems as conceptual models through which to understand past societies is well established in archaeology (Daems 2019). Early attempts to apply systems theories archaeologically were however more successful at describing than explaining change (Trigger 2008:419-424). An important challenge is to incorporate all the pertinent factors within the same model. The focus of the present work is on the coupling of belief, land use and hydrology. Many system models of the land use-hydrology coupling are over-reliant on biophysical datasets (height, slope, soil, weather) and omit the direct or indirect societal factors that can contribute to changes in water resources or hydrologic processes, such as population growth and changing land-use demands (Yalew et al 2018:315).

This work will use the conceptual model of a complex system to integrate multiple evidence types. The definition of complex system is much debated (Miller and Page 2007; Page 2009). Generally, in complex systems, relationships exist between 'collections of entities' or 'agents.' The difference between *complicated* systems and *complex* systems is that in the latter the *relationships* between entities are important (Miller and Page 2007:9). In the definition used by this study, these relationships are described in terms of several axes: the heterogeneity - diversity scale; types of connection (interconnection, interdependence); and behaviour under change (such as predictability, adaptiveness, and emergence) (Cadenasso et al 2006; Page 2009). As constituent components in such systems are, by definition, multitudinous, the naming of specific elements within the model is relatively unimportant. Based on work in ecology, Cadenasso and colleagues further posit that temporal relationships are pertinent to relationships in complex systems (Cadenasso et al 2006:1-12).

In complex systems, a simple action can lead to non-linear, i.e., unpredictable, change. This is relevant to the current enquiry because when change occurs within a complex system, other entities within the system may change in response, leading to responsive processes of change and adjustment termed a self-organising system (Wohl et al 2014). A graphical depiction of change within a self-organising complex system is given in Figure 2:2. Describing the effects of change as from the centre of the figure, some changes may have relatively minor impact. Other processes may cause a transition across a disequilibrium threshold, leading to a new state. Those changes which can be accommodated by the system are conceptualised as occurring within the zone of adaptation and resilience. Other changes that cannot be accommodated by the system may cause a *phase transition* in the system, i.e., crossing over a tipping point into a new state (Page 2009: 47). For example, the addition of an additional grain to a pile of sand or drop of water to a lake can cause tipping over a critical threshold into, respectively, the complete collapse of the sand pile or dam breakage.

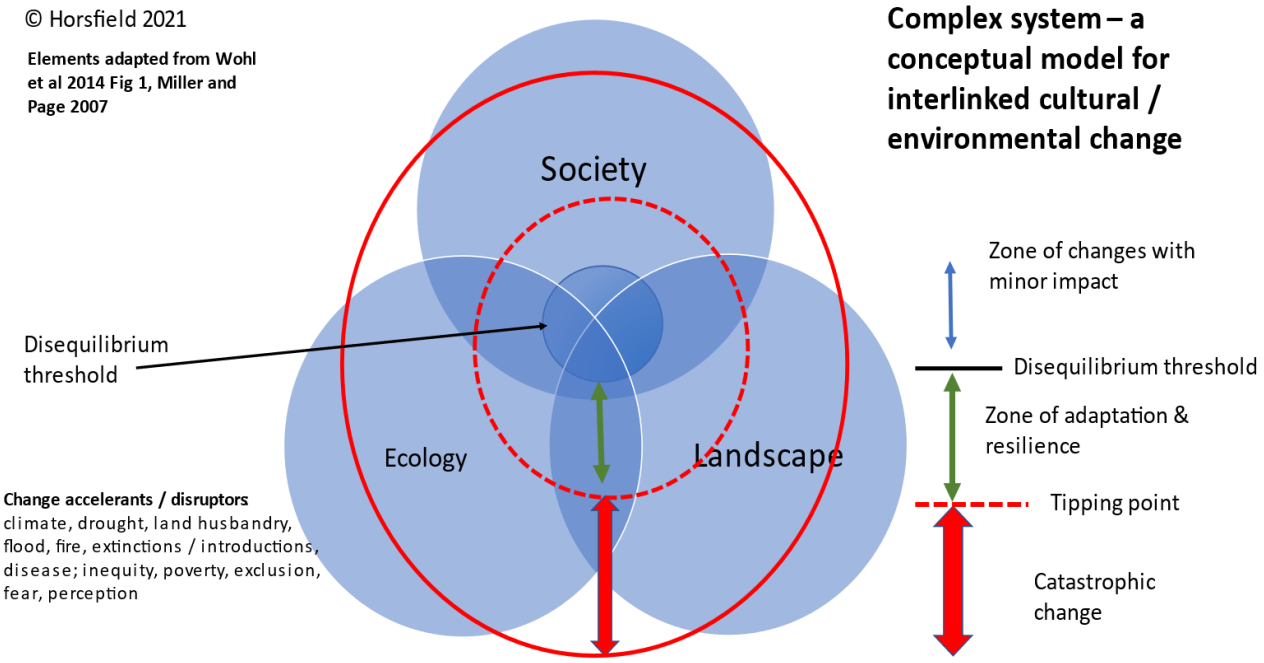


Figure 2:2 Complex system: a conceptual model for interlinked cultural and environmental change

The traditional approach to monastic archaeology and to medieval water management research is to compile, classify and compare. This may not be the most appropriate approach to understand change in a complex system, however. The capacity of traditional scientific tools to 'collect and pin to a board all the insects' lends little insight into the ecosystem of which the elements form part (Miller and Page 2007:10). Miller and Page argue (2007) that studying complex systems demands a different approach. In place of questions which can be investigated through *granularity*, understanding complex systems requires investigation of their *interconnections*. Archaeologists have long engaged with complexity, in the meaning of this term as *differentiated*, such as political / societal relations in 'complex societies' (e.g., Chapman 2003). Archaeological engagement with another meaning of complexity, namely that derived from systems modelling (above) has been more limited (Kohler 2011). Bintliff, however, argues (2008: 159-160) for the integrative potential of complexity theory for archaeology, because it offers:

> '… centrality of a subtle role for individual agents, unique events, in constant dialectic with constraining and enabling structures of their social and environmental context… The advantages of the culture historical, processual, and post-processual paradigms are all available within the theoretical umbrella of chaos-complexity'.

This study therefore took advantage of this integrative potential to investigate interconnections between humans, a specific world view and the environment. The study approach will be more fully set out in Chapter 3.

2.2.3 Change and high medieval monasticism

This work considers a specific Cistercian monastery as change agent in the historic environment. In general, identifying the physical impact on the landscape of religious change in the high medieval period is difficult. The process of early Christianisation in Atlantic Europe was associated with the introduction of features such as the plantation of free-standing crosses and churches (Turner 2006c:24-43). Religious changes in the high medieval period manifested in multiple ways

including movements within existing traditions.[2] The physical evidence for religious change may therefore vary in survival and detectability.

The documentary evidence with respect to change and medieval Christianity is problematic to interpret. There was an existential tension at the heart of medieval monasticism. Change is an inherent consequence of religious enquiry by virtue of the nature of humans as creative, curious beings. Yet a central tenet of Christianity is to achieve communion with God, who is conceived of as eternal, perfect, and unchanging. The medieval period consequently saw diverse attempts to redefine how communion with God should be achieved and efforts by the established Church to create orthodoxy in religious practices such as monasticism (Melville 2016). Chapter 2 ENDNOTE –at end of chapter

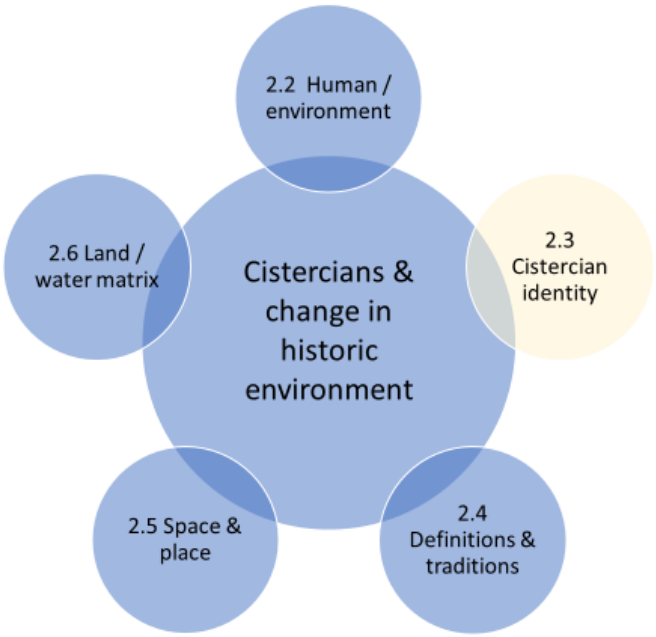
The practice and teaching of Christianity in Western Europe during the Medieval period saw attempts to define and ensure religious behaviour in line with the increasing body of scholarly interpretation of scripture (Melville 2016). A major concern of monastic practitioners was to situate monastic practice within complex theological debates, with changes in practice argued for in terms of better adherence to key religious teachings (Melville 2016: 349-353). Much of the collection and curation of texts in relation to monasteries and their activities sought to create a narrative situated within specific confessional frameworks, namely the teachings of specific religious traditions. These narratives formed a key part in establishing monasteries' legitimacy and authority. Religious communities curated their own founding histories, often seeking to demonstrate origins and virtues in line with the early apostolic church in Jerusalem, collating – and sometimes falsifying – documents relating to their history to create a 'particular past' (Melville

[2] Diversification in religious ideas and practice was ongoing and variously reflected throughout the Middle Ages. The parish system developed throughout the 10th to 13th centuries, with about 11,725 parishes in Britain by AD 1250, each of which notionally had its own parish church (Morris 2018:545-546). There were changes in plan in churches and cathedrals, such as the addition of individual memorials, chantry chapels and Lady Chapels (Morris 1989; Morris 2018, Fawcett 2018a), and changes also in the plan of monasteries (Bond 2004, Bond 2018). Colleges and closes developed in association with some cathedrals (Gilchrist 2005, Stocker 2005). Installations and features developed within churches, cathedrals, and monasteries, such as wall paintings, glass, and sculpture (Giles and McClain 2018, Fawcett 2018b). Developments in the notion of a penitential journey (see section 9.4.1 in the current work), and in practices such as vows and offerings made at saint's shrines, led to the creation of long-distance pilgrimage routes and infrastructure along such routes, such as crosses, chapels, hospitals, and accommodation (Yeoman 2018). Portable material could be associated with such routes, including pilgrim badges, miniature flasks (*ampullae*) and curated natural objects (Spencer 1998, Anderson 2010).

2016: 351).

The medieval Church's efforts to ensure uniformity, and monasteries' own attempts to present a specific version of their past, may have contributed to a theological view of change as negative and to be concealed (Jamroziak 2013). Catholic confessional traditions have also coloured research on monastic activities. As first a monk, then a priest, in the Benedictine confession (Brooke 2004), David Knowles compiled magisterial surveys of high medieval monasticism (e.g. Knowles 1963). Knowles' work is considered foundational to the field of monastic archaeology (Foot 2014:13-40). Knowles collaborated with archaeologists to produce topographical and air-photographic catalogues of monastic sites (Knowles and Hadcock 1971 [1953]); Knowles and St Joseph 1952). Certain aspects of Dom. Knowles' approach to medieval monasticism, have, however, been criticised. Knowles' approach 'was highly judgemental …defined … static … and negative [*when discussing certain factors*]– perhaps one of the reasons why [the field of high medieval monasticism] remains relatively underexplored...' (Jamroziak (2013: 3). The relationship between archaeological approaches to monasticism, and that of other disciplines, will be considered in 2.4 below.

2.3 Challenge: Cistercian identity construction



This work is concerned with the relationship between the physical world and a religious order born out of efforts to reform monasticism in Europe during the 11th and 12th centuries. Cistercian relationships with the physical environment may to some degree be understood as identity construction within a specific context. Other examples are known of medieval identity construction intimately associated with the physical world. For example, after the Norman Conquest in England, élite identities were constructed partly through the culture of hunting wild species (Sykes 2007; Pluskowski 2018:141-153).

To understand the role played in Cistercian identity by a specific portrayal of relationships with the physical world it is appropriate to consider several inter-related factors. Early Cistercians changed established monastic practice (as understood by major orders such as Benedictine and that of Cluny), which they justified partly through reference to a specific cultural trope (desert wilderness). The Cistercian justification of their origins, and differentiation from other religious traditions, created a normative narrative of 'Cistercian' behaviour which is somewhat at odds with the growing body of evidence for diversity of Cistercian practice. These factors will now be considered in turn.

2.3.1 Monasticism and the desert wilderness

Eleventh- and 12th-century reformed monasteries, including, but not exclusively, Cistercian houses, sought to justify their departure from existing monastic practice to 'return' to earlier, 'purer' past practice (Burton and Kerr 2011). This reform movement was prompted by concerns that monastic practice had declined, as exemplified in the practice of the monastery of Cluny (France) which emphasised the liturgy in a manner which some thought inappropriate (Burton and Kerr 2011). Within this broader reform movement, the origins of the Cistercian movement is traditionally traced to the departure in 1098 of a group of monks from the Benedictine monastery of Molesme (Northern France) to set up the 'New Monastery' (*Novum monasterium*) at Citeaux. This was justified by sympathetic later authors, such as Conrad of Eberbach in the late 12th – early 13th century (Elder 2012), in terms of a 'return to the desert.' This 'return to the desert' theme was a common one in the 11th- and 12th- century reform movement (Burton and Kerr 2011).

The desert monasticism to which Cistercians were concerned to 'return' emerged in the semi-arid contexts in what are now known as Egypt and the Levant. Textual evidence from the 3rd and 4th centuries onwards reveals early Christian monastic identity formation underway. Late Antique authors created a specific narrative of the early practice of Christian monasticism. Such early references to desert monastic practice appear based on Biblical exegesis, in which the Bible was treated as divinely revealed text. It was theologically important that such early monks were portrayed as exemplars of correct practice. Hagiographic portrayals of early monk-saints, such as St Anthony (d. c. AD 356), associated emergent monasticism with feats of ascetic endeavour, in which the environment played a role in the spiritual struggle (Goehring 1999).

Research has led to important shifts in the interpretation of such Late Antique monasticism. Early Christian authors are now thought to have creatively shaped 'a spiritual landscape that transcended the everyday realities of desert life' (Goehring 2003:438). A combination of documentary and archaeological evidence suggests diversity in early monastic practice that is not well reflected in theological sources (Wipszycka 2011; Herbich et al 2007; Brooks Hedstrom 2013; 2019a and 2019b). Summarising archaeological work, Brooks Hedstrom concluded that '…the archetype of monastic habitations as isolated, solitary, and wholly non-material is no longer a tenable interpretation of Egyptian monastic history' (Brooks Hedstrom 2013:300).

The process of idealisation of monastic practice, which had begun in the Late Antique period,

continued thereafter. The concept of 'wilderness,' which had arisen in Christian practice within the Late Antique arid-zone, became an idea embedded in wider medieval imagination through hundreds of years of close engagement with Biblical texts (Le Goff 1992:47-59). A culture of the book and writing existed in monasteries (Gameson 2011). Monasteries were centres of learning, in which reading, writing and the study of text were primarily theological in purpose, to perfect a search for God (Leclerc et al 1961). It was through text that monasteries perpetuated the *topoi* of monasticism such as withdrawal from the world (Goehring 1999: 73-88). The 11th- and 12th-century monastic reform movement, of which Cistercians were part, thus inherited theological-cultural concepts whose development had been both extended and complicated. Textual evidence is therefore of key importance to understand the question of 'transformation' by Cistercian monasteries, such as Rievaulx. The interpretation of textual evidence however requires situation in the complicated debate over Cistercian historiography.

2.3.2 Cistercian 'primitive documents' and the traditional narrative of early Cistercianism

Between the 12th and 20th centuries, most scholarship on the Cistercian order largely accepted both the substance and date of a narrative derived from a specific reading of the so-called 'primitive documents' of the Cistercian order. These documents include the *Exordia* (comprised of the *Exordium Parvum* and *Exordium Cistercii*) and versions of the *Carta Caritatis*. The Rule of St Benedict (*fl.* 6th century) (*Regula Benedicti*, henceforth RB) formed the basis for monastic practice in the Benedictine tradition, including Cistercian monasteries (see chapter endnote). *Ecclesiastica Officia* reworked RB for an organisation larger than a single monastery (Jamroziak 2013:22). *Usus Conversorum* regulated life for lay brothers (Waddell 2000:7). Attempts at codification of practice can also be seen in documents such as the *Instituta Generalis Capituli apud Cistercium* and the *Capitula,* the continuous annual General Chapter records, and the promulgation of the General Chapter statutes (Waddell 1999; 2002; Jamroziak 2013:22-24). (Table 2:2 *at end of chapter*)

The traditional narrative of Cistercian history described the creation of a self-conscious and fully formed order early in the 12th century, with an explosive growth in the number of Cistercian houses almost immediately thereafter. For example, in his magisterial eight-volume edition of Cistercian documents, Canivez dated the creation of the Cistercian Order to the 1110s, and its early records as created or compiled between 1123-1134 (Canivez 1933-1941). Understanding the

development and deployment of concepts such as wilderness by early Cistercians is however problematic as no originals of some key documents survive. Early Cistercian texts saw a process of copying and amendment which make it difficult to identify an *urtext* (Jamroziak 2013:20). It has been much debated what 'Cisterciannness' entailed at this early stage, and how it was practiced but 'even such normative and narrative texts as existed were to undergo significant change in the 12th century' (Jamroziak 2013:19).

The evolution of the concepts of what it meant to be Cistercian may have been more prolonged, and the concepts more amorphous, than many historians writing before the late 20th century have claimed (Jamroziak 2013:19). Broadly, a way of monastic life, liturgy and ethics seems to have emerged from the wider monastic reform movement of the 11th century (Jamroziak 2013: 5-9). An early charismatic leader, St Bernard, abbot of Clairvaux (1090-1153) used various Latin terms to describe the Cistercian family, each with shades of meaning: *consuetude*, *ordo, institutio* and *religio* (McGuire 2003:225-250; Jamroziak 2013:16).

Some historians, however, argue for an even more radical reinterpretation of the date and nature of 12th-century Cistercian documents. Constance Berman suggested that the development of the Cistercian Order took place more slowly than the traditional narrative maintains, based on her redating of certain key texts. Berman argued that it was not until the middle of the 12th century that a group existed to which the term 'Cistercian' might be applied, in terms of practice which might be followed (Berman 2000). Berman suggests that the Cistercian 'primitive documents' were an image of 'an idealised past that never existed.' Berman characterised the traditionalist narrative and timeline as 'Cistercian mythology,' suggesting that several papal confirmation documents were forgeries to support specific purposes, including contestation of a legal action. If accepted, Berman's redating (Table 2:2) represents a difference of around 50 years compared to the traditional dates. Berman's methodology, namely the redating of key texts solely on manuscript evidence, has been dismissed wholescale by some (Waddell 2000). Other historians have welcomed Berman's fundamental reappraisal of Cistercian origins, while acknowledging the issues with her methodology (McGuire 2000; Newman: 2001; Jamroziak 2013:24-25).

2.3.3 Rievaulx, St Bernard and Cistercian emphasis on the physical world

Cistercian culture evoked the physical world through sensory means as well as in writing.[3] The precise relationship between Cistercian textual emphasis and practice is however obscure because of the uncertainty surrounding early Cistercian historiography. An emphasis on the desert, waste, and wilderness gradually emerged in the writings of the second and third generation of Cistercian monks, notably in the writings of St Bernard of Clairvaux (1090-1153) and those of religious people in other Orders[4] (Ward 1976: 186; Bruun 2006). Cistercians incorporated the Biblical trope of Deuteronomy 32:10, which presented a paradigm for a spiritual journey '*in a desert land, and in the waste howling wilderness'* (McGuire 1991: 285-6) into the 12th-century *Exordium Cistercii* (Newman 1996: 69,94-6). The desert emphasis was shared later with La Trappe (France) and the Knights Templar (Bruun 2008; Pluskowski et al 2011). The Cistercian *Exordium Parvum* also emphasised isolated sites and pioneering activities (Jamroziak 2013: 54). Such texts therefore created a 'metaphorical condition' to be sought by Cistercians (Newman 1996: 69,94-6).

Rievaulx's establishment occurred at a date (1131-1132) when the Cistercian emphasis on the tropes of the physical world was developing through the activities of St Bernard of Clairvaux. It was St Bernard who orchestrated Rievaulx's foundation (Jamroziak 2005:30, and Chapter 4.2). St Bernard contributed substantially to Cistercian teaching and theology, and much of his writing had very clear messages about the importance of the physical environment to monastic practice (Bruun 2006:70-80). In writing to Abbot Henry Murdac, abbot of Rievaulx's sister house in Yorkshire, Fountains Abbey, on the topic of Murdac's study of the Prophets (*Epist. 106*. transl.

[3] For example, a piece of 13th-century plainchant set part of a sermon by St Bernard of Clairvaux in memory of St Malachy of Armagh. This compared the latter to a fruitful olive tree, using melismatic phrases (Henriques 2019) which blossom and cascade evocatively. Manuscripts such as the *Moralia in Job* copied at Citeaux (supposedly c. AD 1111) (now Dijon, BM MS. 173 fol.29), contained vegetal motifs and scenes of outdoor life (Załuska 1989; 1991). Foliate design in 12th-century window glass is known at continental Cistercian houses and from secure English sources somewhat later. Glass excavated from Rievaulx however lacks a secure context and is hence imprecisely dated but similar to 13th-century material from Hailes (Gloucs.) and Kirkstall (Yorkshire) (Marks 1986:214). It is however now unclear how exceptional Cistercians were in referencing of the physical world through material culture. 'While the Cistercians' artistic legislation may have set the Order apart from the mainstream, by and large the art which characterised it did not' (Reilly 2012).

[4] For example, William' of St Thierry wrote of Carthusian practice as a Benedictine monk (PL 184:332-334). Bernard's emphasis was 'taken up and solidified by the next generation [of Cistercians including] Conrad of Eberbach [in the] *Exordium Magnum'* and Ordericus Vitalus *Historia Ecclesiastica* (Ward 1976:183-192). St Bernard, however, expressed both positive and negative views of the concept of desert withdrawal for a communal religious life (Bruun 2006:72-80).

James 1953:156.), Bernard wrote:

> 'Believe me who have experience, you will find much more labouring amongst the woods than you will ever will amongst books. Woods and stones will teach you what you can never hear from any masters'.

St Bernard had a vivid and persuasive writing style and was able to convey messages influentially to audiences beyond the medieval Church. For example, in writing to King Henry I of England about land in Yorkshire given to Rievaulx by Walter Espec, Bernard used the language of military campaigning in hostile territory (Menuge 2000: 29-30).

Bernard inspired a tradition of writing which associated Cistercian monks with the physical world. Attention to the physical environment was however not unique to Cistercianism but drew on earlier monastic traditions. For example, an 8th-century Old English text known as Guthlac A eulogised the activities of the monk Guthlac in the East Anglian fens (Bovaird-Abbo 2017).[5] Bernard's style was however so vivid that it inspired other Cistercians to write in a manner that communicates well even to a modern reader. The anonymous 12th-century '*Description of Clairvaux'* waxes lyrical about Cistercian monks bringing in the annual harvest (Matarasso 1993:287-291). A Cistercian monk formerly of Clairvaux, Conrad of Eberbach, was the probable author between the 1180s and 1215 of a collection of *exempla,* moral tales later termed the *Exordium magnum Cisterciense* (Elder 2012). Conrad's work continued the Bernardine tradition of using metaphors from the physical world for spiritual edification. For example, relating how the first Cistercians went forth from Citeaux: 'From this, as from a most pure fountain, flow the streams of our Order's many churches' (E.M. *Prologue* Elder 2012).

Rievaulx's foundation as the first British Cistercian house established from Clairvaux meant the abbey had a direct connection to St Bernard's emphasis on the importance of the natural world

[5] Guthlac A is an "ecologically friendly presentation of how humans may interact with lands that might be labeled as 'wastelands' …Guthlac does not set out to improve the ecological diversity of the fens but rather to do the will of God, nonetheless, his actions benefit the local ecology while offering an alternative and less-invasive approach to inhabiting a wilderness space through redefining the concept of community." (Bovaird-Abbo 2017). Monastic engagement with the physical world was diverse, ranging from spiritual to practical activities. For example, the shepherd-farmer mythology is a complicated one in Christian teaching but includes aspects of pastoral responsibilities towards the Created world. It is noteworthy in this regard that the Cistercian reputation became so enduringly associated with sheep farming in particular – for the practical implications of this see Waites 2007 on sheep farming by monasteries in Yorkshire.

to Cistercian practice. Rievaulx's first abbot, William, was Bernard's secretary (Dutton 2017:17). The account by Walter Daniel of Rievaulx's foundation, strongly in the Bernardine tradition, will be discussed in Chapter 4. Rievaulx is thus an important case study in terms of understanding the role played by the physical environment in Cistercian identity. The invocation of certain concepts in early Cistercian documents such as waste and wilderness, and messages about the value of the physical world, may be seen in anthropological terms as origin stories, serving to explicate and validate the existence of a social group. Twelfth-century Cistercians were a 'textual community', with understanding unified by reading the same texts (Stock 1983:405; Jamroziak 2013:25). Cistercian *understanding* of concepts unified through text is however some way from *behaviour* unified through text.

2.3.4 Cistercian behaviour as diverse

The present work attempts to keep an open mind against the preconceptions in which much older Cistercian scholarship is embedded. This is made challenging by the extent to which conceptions of a distinctive 'Cisterciannes' are entrenched in the literature, both academic and popular. Documented behaviour by specific Cistercian monasteries can appear at odds with that which was exhorted in early Cistercian texts. This apparent divergence has created a polarising debate. Older scholarship applied normative models of Cistercian behaviour, offering a single criterion against which the whole Cistercian order can be viewed (Jamroziak 2013:2). An influential such normative model is Lekai's 'ideals and reality' argument (Lekai 1992). In this, Lekai accepted the traditional Cistercian foundation narrative, suggesting that the early years were an 'ideal' highpoint of pure, distinctive, and unified monastic practice, later 'compromised' by various factors. Challenging Lekai's assertions, Waddell has demonstrated that the order's legislation was not applied uniformly and was regularly adapted and revised (Waddell 2002).

This notion of uniform and distinctive practice by Cistercian monasteries may have contributed to the emergence of the discipline of Cistercian studies as a distinct field. The active state of this discipline is reflected in the existence of several peer-reviewed journals.[6] Academic congresses have grown up around the consideration of 'Cistercian' topics, such as the International Congress on Medieval Studies at Western Michigan University (USA). A conference publication devoted to 'Cistercian space' included suggestions for a modern surveying handbook specifically for Cistercian

[6] Including Cistercian Studies, Cistercian Studies Quarterly, Citeaux.

estates in France (Pressouyre 1994: 265-280). In place of such normative expectations, more recent research interprets divergence from Cistercian statute as pragmatism and adaptability, qualities which may help explain the longevity of the Cistercian tradition (Jamroziak 2013: 183-207).[7]

Context is increasingly understood as important in understanding Cistercian responses to local circumstances. Coomans argues that the alleged specificity of Cistercian architecture is problematic and entwined with nationalistic interpretations which emerged from the late 19th century (2012:151-170). Berman emphasised the need to see the evolution of the Cistercian Order in the context of evolution of governance of the lay world (Berman 2000). In turn, others caution against using Berman's work on Cistercians in France to interpret activities elsewhere, where the social, political, economic, and geographical factors may differ markedly (Jamroziak 2005: 13).

The present study therefore considers Cistercian practical activities as an aspect of behaviour possibly more diverse and adaptive to context than the older normative models of uniform and distinctive Cistercian practice allow. The debate over the development of the Cistercian Order illustrates the degree to which scholarship on the Cistercians has rested on generalised interpretations which applied anachronistic concepts (Jamroziak 2013: 2-5). A specific, anachronistic concept, the Cistercian 'economy,' has long underpinned research interpretation of Cistercian agrarian activities.

2.3.5 The Cistercian 'economy': effectiveness and 'colonisation' of waste land

A view of Cistercians as successful proto capitalists forms part of a model of monasticism as economic operation, a post-medieval concept which has become pervasive (Jamroziak 2013:3). In this model, Cistercians are viewed as having processes which are both distinctive to the order and consciously adapted to economic effectiveness, which in turn is argued as having played a major role in the success of the order. This view of the Cistercian monastery as exemplary economic machine has since become widely accepted (e.g., Graves 1957:3-62; Roehl 1969:180-182).

[7] 'the ability to adapt and respond to very different social and economic conditions is what made the Cistercians so successful, enabling the Order to function and change over time as an international organisation, held together by a novel 'management system'; from Estonia in the east to Portugal in the west, and from Norway to Italy.' (Jamroziak 2013).

Economic theorists further postulated that 'Cistercian' ethics of thrift and hard work were evidence of a supposedly 'Protestant' ethic predating the Reformation (Andersen *et al.* 2017:1756–1793).

One of the mechanisms by which Cistercians were popularly supposed to have become successful capitalists *avant la lettre* was through seeking out and bringing into use 'new' land, particularly land outside the manorial system and without tied peasantry. Several aspects of this traditional viewpoint are now however considered problematic. The characterisation was perpetuated by medieval writers whose work requires careful interpretation. A chronicler contemporary with the Cistercian emergence, Orderic Vitalis (1075-c1142), commented that the Cistercians 'have built monasteries with their own hands in lonely, wooded places' (Chibnall 1973:327). Gerald of Wales (c. 1146 – c. 1223), wrote satirically as part of a broader trend of contemporary clerics critical of monks in general, and of Cistercians in particular (Golding 1995). Gerald drew comparisons between Cluniacs and Cistercians, suggesting that a gift of land to the Cluniacs would lead to its ruin whereas the Cistercians would transform it (Golding 1995:11). Archdeacon Walter Map (1140-c.1210), possibly aggrieved by the encroachment by Cistercian Flaxley Abbey (Gloucs.) onto his land (Sinex 2002), wrote a vivid satire of Cistercian accrual of material wealth:

> 'they practise all manner of tillage with their own hands …they have such a reserve of wealth accruing from their care that they could enter the ark in the same spirit of security as Noah.'[8]

The biases of post-medieval scholarship may have also coloured the emphasis on monks as explorers of frontiers and colonisers of 'empty' land. This 'frontier' emphasis emerged from 19th century German scholarship on the expansion of the German civilisation and population eastwards in the Slavic territories (Bartlett 1992:23-47; Jamroziak 2003:199 FN8). The 'colonising Cistercians' was a concept which chimed also with Anglophone colonialism, including the North American 'empty land' mythology (Jamroziak 2013). Even historians from the mid to later 20th century were very clear on the relationship between Cistercians and under-used land. 'If any one attribute is laid to the Cistercians it is that they were unrivalled reclaimers of waste' (Graves 1957:16).

[8] Walter Map *De Nugis Curialium* ('Courtiers' Trifles', c.1182) James et al (eds) (1983).

2.3.6 Counterevidence for Cistercian settlement and cultivation of isolated and 'waste' sites

Documentary studies have already begun to erode the Cistercian reputation for settlement and cultivation of isolated and 'waste' sites. (Table 2:3). Roehl (1969) and Graves (1957; 1966) considered that Cistercian clearances had been over-emphasised. Many Scandinavian Cistercian houses lay in areas which had long been intensively cultivated (Gotlind 1990: 20). A more recent synthesis of documentary sources also suggests that Cistercian sites may appear to have been secluded rather than isolated, creating metaphorical rather than real isolation (Burton and Kerr 2011: 149-150).

For the Iberian Peninsula, Alphonso suggests that 'the most questionable part of the traditional thesis holds that the Cistercians were reclaimers of waste, pioneers who created new arable land out of the wilderness' (Alfonso 1991:8). For Catalonia, McCrank concluded that many of Poblet's granges founded after 1170 formed part of the consolidation after the *Reconquista*, using pre-existing units of administration. He suggests that these granges were 'not really new developments but were institutions which continued the development and settlement of the land behind the new frontier' (McCrank 1976:150).

Constance Berman considers that the language in the *Exordium Parvum* of isolated sites and pioneering activities is more rhetorical than factual (Berman 2000:23). Berman studied documentation for 43 monasteries and agricultural practices in the south of France and found a picture somewhat at odds with the reputation for reclamation by Cistercian houses. Charter evidence suggested that the Cistercian monasteries had been established in areas which had already been cleared, settled, and cultivated (Berman 1986:11). Berman suggested tests which may be applied to documentary evidence to assess previous cultivation of Cistercian land (Berman 1986:12 and Figure 2:3).



Figure 2:3 Berman's tests for development of Cistercian land

It is clear from the limited archaeological attention given to Cistercian 'waste' sites in Britain that the topic requires further attention. The Cistercian reputation for reclamation of waste in the British Isles may have been overstated (Bond 2004: 71). In Wales, abbey foundation on new land was relatively uncommon, with 'waste' being largely secondary, rather than pre-monastic 'wilderness' (Williams 1984: 226; 1998:321). In his seminal documentary studies of Cistercian settlement and estates in England and Wales, Robin Donkin suggested that most reclamation there had been to extend an existing grange, and few Cistercian granges had been founded entirely on new land (Donkin 1978: 111). The evidence is ambiguous, however. Donkin identified material both confirming and challenging the Cistercian reputation for reclamation of 'waste' land such as through assarting (forest clearance) (Donkin 1978:109). Donkin suggested (1978:58-60) that land given by Henry II to Rievaulx Abbey in the Vale of Pickering (North Yorkshire) was one of these relatively few cases of grange foundation in 'primeval waste.' The land given by Henry II to Rievaulx therefore formed one of the case studies in this work, as reported in Chapters 7 and 8.

Most studies have focussed on documentary evidence for Cistercian use of 'waste' (Table 2:3). Archaeological approaches to Cistercian 'waste' are relatively more recent. A study of Stanley Abbey (Wilts) used a range of evidence, including field survey, and found that Stanley had been founded in a previously well populated and well-developed area (Brown 2012). The apparent divergence between evidence for Cistercian textual exhortations for the importance of 'waste'

sites, and evidence that these sites may have not been the marginal, unvalued land portrayed by both Cistercian writings and contemporary commentators (above), requires interpretation. Using the case of Yorkshire Cistercian monasteries, Menuge argued (2000:22-37) that there needed to be some elements of truth for the Cistercian wilderness ideology to be effective. Understanding the Cistercian practical approach to agrarian matters may shed some light on the Cistercian reputation for landscape 'transformation.'

2.3.7 Cistercian 'economy': agrarian innovation and labour

Cistercians were popularly considered exceptional and innovative agrarian managers. The monastic grange, the outlying monastic farm, and the lay brethren who ran them, known as *conversi*, were long considered 'peculiar and original features of the white monk economy' (Knowles 1963:199). A similar view was held by Robin Donkin:

> 'The *grangia* was the most important single contribution of the new monastic orders, and particularly of the Cistercians, to the landscape and economy of the twelfth and thirteenth centuries' (Donkin 1978:67).

Cistercian monasteries were however not unique in having outlying agrarian units, a matter which will be considered below. Supposed Cistercian agrarian innovations were also considered, by early agricultural historians studying the post-medieval 'rational' and 'new agriculture' movements to 'improve' agriculture, to have been foundational for later agrarian developments. For example, Smith (1947:104)[9] argued that the work of 13th- and 14th- century Yorkshire Cistercians 'may be said to anticipate the whole subsequent development of English agriculture.' The association between Cistercians and agrarian innovation is however problematic. Alfonso (1991:9) observed that:

> 'it has not been demonstrated that the Cistercians were responsible for the introduction of any such innovations [in agriculture and rural industry], as opposed to being important agents in their diffusion and improvement.'

The question of who carried out the various practical tasks in Cistercian monasteries is pertinent to the current study of Cistercian transformation of landscape through physical endeavour. It was

[9] This picture of monasteries overall was embedded in the broader public imagination, as reflected in the comment 'we must become the new monks' made by a member of a 1930s work camp near Guisborough organised by Rolf Gardiner (Teesside Record Office UPEN/11/28.)

observed earlier that Cistercians were but one group within the broader 11th-12th-century monastic reform movement. Medieval élite literature saw three categories of endeavour: those who pray; those who work; those who fight. In Benedictine monastic traditions, the proper work for a monk was '*Opus Dei*' – religious reading (*lectio divina*), writing, and the performance of the liturgy. Older research suggested Cistercian teaching added a further emphasis, on the performance of certain manual tasks (Holdsworth 1973:59-76). It is now unclear, however, to what extent this emphasis represented a real break in practice from other monastic orders.

There is limited textual evidence which can help understand what work was carried out and by whom in a monastery, and the size and nature of the community that needed to be provisioned, through the posited 'transformation' activities addressed in this study. The topic is possibly too mundane to merit many contemporary medieval references. Several categories of inmate existed in Cistercian houses. Choir monks and lay brethren, the latter termed *conversi,* are probably the most well-known of these monastic inmates, although these two categories were perhaps less well-defined than has been widely acknowledged. The primary duty of choir monks in the Benedictine tradition, and hence for those traditions derived from the Benedictine including Cistercians, was to perform the liturgy in the monastic church. There are tantalising references also to 'lay monks,' (*monachus laicus*) a category which may have implied illiteracy (Waddell 2012).

Somewhat confusingly, for several centuries before the Cistercian emergence, the term *conversus* had been used to describe monks who had joined a Benedictine monastery in adulthood as opposed to having joined as a child. Child oblates and *nutriti* (those who had been given board in the monastery) were not permitted in Cistercian houses (France 2012:30). From the date of the foundation of Citeaux, monks and *conversi* could join Cistercian houses only as adults (France 2012: xiv). Lay brethren, i.e., adult *conversi,* were not a Cistercian innovation but there is some disagreement about their precise origins. Lay brethren were a category common to the monastic reforms of the 11th century (France 2012: xiv,30). John Gualbert at Vallombrosa (Tuscany, Italy) has been credited with the introduction of lay brothers, freeing monks to focus on religious matters (Burton and Kerr 2011:5). The Carthusian movement (founded by St Bruno of Cologne, d.1101) also included lay brothers who carried out practical tasks (Jamroziak 2013:7).

There is more consensus on the view that Cistercian arrangements for *conversi* were well-

developed so may have been an attractive factor for converts. 'It would be the Cistercians who would use these *conversi* to their full potential' (Burton and Kerr 2011: 5). Cistercian arrangements formally recognised the status and duties of *conversi*. One historian posits that the well-articulated arrangements for the integration of lay brethren and the distillation of the liturgy to permit time for physical work were two pragmatic reasons that the Cistercian Order was attractive to new entrants (Berman (2000:65). Dissatisfaction periodically arose, but interpretation of the reasons behind rebellions by Cistercian *conversi*, as noted by Cistercian writers, varies according to the perspective adopted by the historian (Noell 2006:253-274).

A Cistercian lay brother held an auxiliary role in the monastery 'dedicated to a life of toil' (Greenia 1981:39). Cistercian *conversi* took different vows to those of choir monks. Instead of *Reguli Benedicti* which applied to choir monks, *conversi* conduct was guided by the *Usus conversorum*, a document attributed to Stephen Harding 1115-1120 (Waddell 2000:20; France 2012:35). Some *conversi* may have been from noble families but lay brethren were often illiterate and drawn from a lower social stratum than choir monks (France 2012:57-75). Lay brethren had important roles beyond the precinct. The *Exordium Parvum* articulated that estates should be under the control of lay brothers, to allow monks to stay within the confines of the monastery (Berman 2000:1-23). Platt considered *conversi* 'corps of exceptional supervisors, experienced, loyal and devout' (Platt 1969: 77). Despite broad claims that it was unpaid *conversi* labour on granges which made Cistercians rich, little quantitative evidence to support this has been assembled (Alfonso 1991:15).

It is also unclear to what degree Cistercian arrangements reduced reliance on tenurial or employed labour compared to other monasteries. The debate about the range of interpretations of Rule of St Benedict of Nursia (see Chapter Endnote) and the role of *conversi,* may have somewhat obscured the fact that much manual work for monasteries was carried out by peasantry. Peasants may have worked for a Cistercian abbey under a mix of arrangements, not often visible in literature. Labour and agrarian arrangements may have been influenced by local customs, with Cistercian requirements possibly representing a 'regional gloss' overlaid on local practice (Burton and Kerr 2011: 187).

No bar existed in Benedictine monasteries to peasants giving the customary service pertinent to lordship. Cistercian statutes initially prohibited such *temporalia*, but the practice continued. Historic evidence for granges using lay labour in the 12th century is limited, with the earliest French

documentation for such granges dating to the 1140s (Berman 2000: 21). Neither Bouchard (1991) for Burgundy, nor Donkin (1978) for England and Wales, provide evidence for granges using lay labour before the 1170s or 1180s (Berman 2000: 21). For England, Platt argued that Cistercians had recourse to several sources of labour for their granges: 'a mixed community in which lay brothers, supervisors, servants and tied peasantry equally played their parts' (1969:77-93). It was common for monasteries of all orders to employ servants such as cleaners, cooks, infirmary staff, and porters (Harvey 1993). Cistercian employment of servants was ratified late in the 12th century.[10] After a year's probation in a Cistercian abbey, a servant could become a lay brother (Fergusson and Harrison 1999: 56). Servants are even less visible than *conversi*, except when as *corrodians* (effectively, pensioners) their retirement was recorded as a charge on the monastery. For example, John and Jenett Benson are recorded in Rievaulx Abbey's Dissolution surveys (Atkinson 1889: 354). Itinerant workers servicing monasteries and élite lay establishments were probably common, as suggested by the freelance tilers in England identified by Anderson (2013). Cistercian nuns are assumed to have relied on *conversi* and paid servants for heavy physical tasks (Jordan 2018:187-201). Lay sisters as well as lay brothers are known in houses of the Gilbertine order, which adopted some Cistercian customs (de Moor 1999; Burton 2014:131).

Peasant labour may have been especially necessary for yearly agricultural peaks. In France, a 12th-century *Description of Clairvaux* paints a picture of the people involved in haymaking, including monks, lay brothers, hired and voluntary helpers (Matarasso 1993:287-292). In medieval Spain, 'the variety of contractual and customary obligations assumed by peasant cultivators was almost infinite' (Smith 1966:435). In Catalonia, Cistercian Poblet Abbey welcomed the donation of slaves from the 12th century (McCrank 1976:155). Documentary evidence exists for further categories of person. A somewhat opaque category was a person with whom a monastery had a business (broadly defined) relationship, such as a hired labourer or person contracted to run an asset such as a mill or grange. Members of this category were termed *mercenarios* in Catalonia. *Mercenarios* were remembered in the monastery's prayers and may have had an option to later acceptance as a lay brother (McCrank 1976:155-165). The overlap between this category and *familiares,* considered next, is however unclear.

[10] '…and they decided to employ hired servants, for they realized that without their help they would not be able to keep the Rule in its fullness day and night, and they took over lands far from human habitation for their own use, with fields, woods, and waters to be worked by mills and fishponds, and the upkeep of horses and cattle and various other things that are useful for human needs.' (Elder et al 2012 Chapter 20). The legislation referred to: *Cap* 15; *Inst* 5.

Cistercian monasteries were affected by broader trends in labour arrangements. Population decline associated with the Black Death and other factors created labour shortages, exacerbating the need to manage land with reducing human resources. The beginnings of a money-based economy in the early 13th century enabled letting of remoter granges (Fergusson and Harrison 1999:57). A 1261 statute of the Cistercian General Chapter permitted the letting out of property rather than farming in demesne (directly) (Table 2:2). McCrank (1976:156-157) records that:

> 'These [lessees] took no vows nor did they have a voice in the community's government, but because they dwelt on monastic property and leased their plots from the cellarer, it is commonly assumed that they were integrated into the order as *familiares*. Supposedly they had a membership slightly inferior in status to that of the *conversi*. There is little evidence, in Poblet's case, that the Cistercians considered these [men] as a tertiary grouping within the order. The affiliation of Poblet's *mercenarios* consisted of contractual business arrangements with men who were legally free and who had the right to move whenever the terms of their contracts were fulfilled or whenever a proposed contract dissatisfied them.'

The use of peasant labour in Cistercian monasteries has generated divergent modern views. Using Iberian evidence, Alfonso argued that the picture of Cistercians as economic units operating outside the feudal system is over-generalised, and that Cistercian monks held and exercised seigneurial power from an early period in their existence (Alfonso 1991). Although a Cistercian reputation for depopulation, as satirically noted by Walter Map (above), may not have been wholly undeserved, it may also have been common for existing tenants simply to stay on under new management (Aston 2000). Donkin suggested that in respect of displacement of lay settlement there is more evidence against Fountains (Yorks) than other houses (Donkin 1978: 46).

Platt challenged the view of Cistercians as depopulators and interpreted the close association of field remains of settlements and granges in Yorkshire as evidence that peasant labour was used on granges. Based on references in the Fountains Abbey cartulary he suggested that the grange of Thorpe Underwood, on previously settled land, was linked to the gift of seven peasant families, who may have been retained to work the land under its new monastic owners (Platt 1964:83-84). In sum, then, the division of labour is opaque: Cistercian physical work such as necessary to

'transform' land could be carried out by any combination of choir monks, lay converts, lay servants, *familiares / mercenarii,* tenants and others, with the situation at Cistercian nunneries being even less well understood.[11]

Estimates vary of the number of people who would have lived at a Cistercian abbey or grange, which is pertinent to the resources necessary to sustain such a community. The figures for the case study, Rievaulx, will be discussed in Chapter 5.2. For England, Platt estimated about 20 lay brothers and 20 servants at each grange (Platt 1969: 79-80). Byland's cartulary, which dates to between 1399 and 1403-1413, gives a picture of staff in a major Yorkshire Cistercian house and its granges in the late medieval period. Individuals there included a cellarer, subcellarer, granger, infirmarer, *bercarius*, master of the animals, master of the *conversi* and steward (Burton (Burton 2004a: xxvii, 434).

2.3.8 Cistercians and the monastic grange

This work investigates Cistercian land 'transformation' in two study areas, which encompass several of Rievaulx's granges in Rye Vale and the Vale of Pickering. The monastic grange is popularly, but erroneously, credited to innovation by the Cistercian order. The term *grangia* is first noted in English sources in c. AD 1100 but was common in France before that date (Knowles 1970: 264-265). Etymologically the term may have originally implied a storage place for grain, and by extension a tithe barn or (arable) farm (Bishop 1936:193-214). It is possible however that survival bias privileges references in relatively well-preserved texts over other evidence which could help understand how, for example, post-Roman and early manorial complexes may have influenced monastic practice.

Even some recent archaeological work however assumes that Cistercians were solely responsible for the introduction of the monastic grange. Bezant, for example, without citation calls granges 'distinctly Cistercian in origin' (Bezant 2014:53). Several other monastic orders however are known to have used granges or a similar arrangement. Benedictines and Augustinian canons were the first monasteries to settle coastal Frisia and Groningen (Netherlands) c.1100-1132, with Cistercians only one of the many religious orders to settle this region between AD 1150-1400 along with

[11] Waddell (2012:148) called for 'studies dealing with the various categories that made up the Cistercian community or gravitated around it in various capacities, including *servientes and famuli, familiarii, mercenarii, corrodiani,* and *garciones'*

Premonstratensians, Knights Hospitaller and the Teutonic orders, who in total developed c.173 granges in the coastal polderland (Mol 2015:205-232).

Based on his historical geographic work on England and Wales, Donkin described Cistercian *grangia* as a 'directly cultivated and relatively consolidated land holding with its own nucleus of farm buildings' (Donkin 1978:51). Platt (1969) brought a new focus on the physical as well as the economic aspects of Cistercian granges. At the time of his survey, which used field survey, excavation, maps (including tithe maps) and documentary sources, no grange remains earlier than the 13th century were known (Platt 1969:22). Platt demonstrated through excavation that the form of granges could differ according to function. For example, a permanent base for agrarian production and processing could differ from a shelter for seasonal animal pasturage and stock-rearing necessitated different arrangements from produce storage (Platt 1969:138-173). In considering the upland estates which formed the 12th-century granges of Cistercian Strata Florida (Ceredigion, Wales), Bezant reflected that archaeological research into granges has advanced little since Platt: 'the precise character and function of the monastic grange in parts of Britain remains opaque' (Bezant 2014:51).

Relatively few physical survivals of grange buildings have been identified in northern England. It is unclear at present whether this is a matter of survival or some other factors. Non-élite constructions such as granges tend to leave physical evidence which can be ephemeral and difficult to characterise. Stone buildings in an agrarian context may have led to a low ascribed value which permitted stone re-use. It is possible, although relatively rare, for grange buildings, including timber barns, to survive intact. For example, the barn at Cistercian Great Coxwell (Oxfordshire) still survives almost as built in the late 13th century (Horn and Born 1965:35; Coppack 1998a:114). [12] Regional differences in grange traditions and distribution of known survivals requires more attention. *Bercaria* (sheep stations) for Gloucestershire had somewhat different dimensions from those of a possible sheepcote of Strata Florida (Ceredigion) (Dyer 1995;

[12] 25 examples of Cistercian barns, either ruined, converted, or with some form of surviving record are listed by Holdsworth (1994: 353-363). The surviving Cistercian barn at Coggeshall, Essex contains timber which was dendrochronologically-dated as having been felled between 1237 and 1270 (Bond 2010 [2004]). A comprehensive county-scale survey of the remains of Cistercian granges in Glamorgan includes buildings and earthworks not only of granges but also features such as barns, fishponds, chapels, living-quarters, mills, dovecotes, and mills (Royal Commission on Ancient and Historical Monuments in Wales 1982: 245-306). A wider geographic assessment of agricultural and domestic buildings on monastic estates, including on Cistercian granges is provided by Bond (2010 [2004] Chapters 7 and 8, pp.101-152).

Fleming and Barker 2008: 261-290). One grange type could have domestic buildings including areas for grange staff to eat, sleep and prepare food, and buildings for the shelter and processing of animals and produce, as well as one or more courts (Platt 1969; Donkin 1978:53).

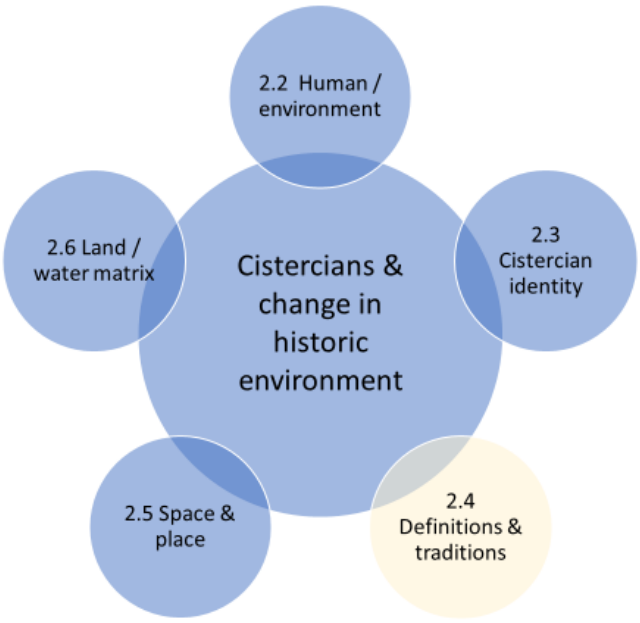
The arrangements for religious observance on granges is unclear. Historians had assumed that granges would include a monastic centre in miniature, with a chapel or oratory as well as dormitory, refectory and calefactory (Donkin 1978:53). The early Cistercian rule discouraged altars at granges and a statute of 1152 required the siting of a grange to be no further distant than a day's journey from the host monastic church (Platt 1969:26). The expectation was that *conversi* would attend the abbey for feast days unless they were needed for work on the grange (France 2012). Platt found that separate chapel buildings tended not to occur earlier than the 13th-14th century (Platt 1969).

Broadly, the development of granges may have responded differently according to context, which means that it is inappropriate to assume that Cistercian granges were uniform in form or function, or that they necessarily differed substantially in physical terms from contemporary arrangements, such as the manors of other orders or lay society. Grange estates in England and Wales could vary in size, from around 100 to 1000 acres (Donkin 1978:44). Coomans (2013) observed four main phases of architecture and spatial organisation in precincts and granges in Belgium.[13] In 12th-century Catalonia, the granges of Poblet included converted towers, farmhouses, and mills, and could revert to this usage when let subsequently to lay tenants (McCrank 1976). Gorecki's work on the documentary references to granges of Henrykow in Silesia suggests that the 'traditional' model of a grange in Eastern Europe there owed more to local arrangements predating monastic ownership than previously considered (Gorecki 2007).

The preceding survey has illustrated that a relationship with the physical environment was an aspect of Cistercian identity curated by Cistercians themselves and perpetuated by contemporaries and successors. This reputation, and the theological layers of meaning which shroud any question of 'change' in the medieval Church (2.2.3), make it challenging to unwrap questions around Cistercian 'transformation' of 'waste' land through documentary evidence alone.

[13] Coomans (2013) records these Belgian developments as: '1. the medieval "domestic grange" and its relationship to the rest of the domain; 2. from the end of the Middle Ages, a "home farm" with all the aspects of a lordly manor; 3. a new type of "abbey farm" dating from the mid-18th c. onward; 4. farms belonging to abbeys that were re-established or founded in the 19th or 20th centuries without the immense agricultural domains of earlier times.'

2.4 Challenge: definitions and traditions



2.4.1 Definitions

This work attempts to understand the impact of a specific Cistercian monastery on its managed land. It thus encountered multiple definitional challenges. The weight of scholarship and the traditions of Cistercianism have become entwined with specific, somewhat static, definitions of 'Cistercian' behaviour (above). These entrenched definitions make it difficult to understand behaviour by specific Cistercian houses in non-normative terms. This section will consider two further definitional challenges: Cistercian relationships with the wider world and relationships with monastic land beyond the claustral core. The following section (2.4.2) will then discuss interpretative and investigative traditions which have created these problematic definitional boundaries.

The diverse nature of monasteries' interactions with the world has long been emphasised in terms of the wide array of activities undertaken by monasteries.[14] A question for the present study

[14] The religious focus of monasteries has been treated comprehensively elsewhere (for example, Knowles 1963). Consideration of this factor is therefore limited here, other than to note the important role of monasteries and other religious professionals in offering intercession through prayers and other religious observances (Brown 2015). In her seminal work on the excavations of the monasteries of Wearmouth and Jarrow (Tyne and Wear), Prof. Cramp noted the importance of interactions between a monastery and the wider world and emphasised the impact of monasteries in terms of pastoral care, political engagement, resource exploitation and subsistence, and artistic and architectural influences (Cramp 2005:361). The provision of pastoral services beyond the monastery may have been

arising from the diversity of monasteries' relationships with the wider world, and diversity of 'Cistercian' behaviour outlined above, is therefore: how might these relationships with the world be defined and their impact investigated?

Cistercians have been popularly characterised as shunning the wider world. This is a characterisation which may misrepresent Cistercian teachings. The Cistercian philosophy of *caritas* (the term in Latin literally means care or charity but in the middle ages also meant Christian love) included social involvement intended to shape the world into an ideal Christian society (Newman 1996). Cistercians therefore rejected the doctrine of the 'two swords' of priesthood and the royal power as being separate. This Cistercian emphasis led to the reformulation of argument 'to encourage greater co-operation between the two spheres, ecclesiastical and royal' (Freeman 2002:64). Cistercian monasteries engaged with power and politics at levels ranging from the local to the international, their influence facilitated partly by the hierarchical power and connectivity of the medieval Church.[15] Yorkshire Cistercians became involved in disputed appointments to the see of York, and to the papacy (Jamroziak 2005: 170-191; 2018: 101-123). Cistercian engagement with the outside world included a need for patronage. All monasteries required land on which an abbey could be constructed, and from which the means of subsistence could be derived.[16]

Definitional issues also affect research into monastic land beyond the claustral core, namely what it has become commonplace to term 'landscape.' Landscape archaeology has been described as a somewhat amorphous ('usefully ambiguous') concept which developed, went somewhat out of

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common practice before the emergence of the parish system (Blair 1992:226-266). This provision became the specific mission of secular canons and friars (Burton 1994:45; O'Sullivan 2013). Some monasteries provided medical care to the lay community through hospitals and leprosaria (Gilchrist 1994:172-174; Gilchrist 1995:8-61; Rawcliffe 2006; Roffey 2012).

[15] Some Cistercians showed considerable skill in associating with spiritual and temporal power. St Bernard of Clairvaux played a significant role in stimulating support for the Second Crusade (Gervers 1992). English Cistercian abbots, including those of Fountains, Beaulieu, Rievaulx, Warden, and Byland, sat as peers in Parliament by virtue of their land holdings (Davies 1985:32). Cistercians were active in the *Reconquista* 'to colonise reconquered lands' of Catalonia including through the foundation of the 'Cistercian triangle' of Poblet, Volbona and Sante Creus (McCrank 1976; O'Callaghan 2003).

[16] A monastery's relations with the family of its patrons could continue for generations. Either the original patron or their family connections could be called upon to assist a monastery well after foundation (Jamroziak 2005:57-110). This was illustrated by the case settled through trial by combat c1170 at which a champion for Rievaulx Abbey battled a local, Alan de Rydale, who had attempted to claim some of the monastery's land (*Cart Riev*. 153; Galbraith 1948:290). Land donation to monasteries in general could be made from by patrons from all points on the social scale, as was demonstrated by a comparative study of practices in Denmark and England between c.1100c1100 and 1300 (Rasmussen 2006: 77-92).

fashion then was rediscovered (Reynolds 2009:409), and as 'a conceptual, temporal and spatial framework into which a wide range of data can be woven together and placed in context' (Rippon 2000a:51).

The conceptual and theoretical aspects of landscape as applied in archaeology are diverse and have been reviewed elsewhere. See Turner (2013) for a theoretical summary, papers in David and Thomas (2010a) for a selection of approaches, and Rippon (2009a) for a review of the history of research across mainland Britain into the medieval landscape. Some key theoretical issues have emerged in the various fields of medieval, monastic and landscape studies which are pertinent to the present enquiry.

2.4.2 Investigative and interpretative research traditions

This work aims to engage with wider theoretical approaches to the interactions between monasticism and the environment, bringing together insights from across the disciplinary spectrum. Pertinent investigative and interpretative traditions have however been somewhat problematic in relation to interpretative frameworks. Gilchrist suggests that contemporary monastic archaeology 'has no explicit theological or polemical basis' (Gilchrist 2014: 236). Monastic archaeology does however rest on a substantial body of writings which were generated within the intellectual framework of Christian religious confession. Even after the decline in large-scale monasticism, which occurred in Britain in the 16th century, and somewhat later elsewhere in Europe, 'religion often provided the framework for writing' (Gerrard 2003:7). As noted above, texts have played a major role in shaping and perpetuating a specific narrative about Christian monasticism, and such documents continue to be a major focus of scholarship (see Melville 2016 for a survey). The religious aspects of monasticism have generally been investigated at the expense of other elements, partly because of the abundance of written documents available on liturgical matters. The literature on medieval monasticism is so substantial that a select bibliography (Constable 1976) could probably not now be revised by a single individual. The documentary record is not an unproblematic source of evidence, however, as was shown above for Egyptian monasticism.

The influence of Dom. Knowles on monastic studies noted above, has possibly helped sustain the role of the historic record as the primary interpretative framework for monastic archaeological

investigations. Some view the proper role of archaeology as operating within the narrative established by historians (see papers in Austin and Alcock 1990). One archaeologist has stated his position that 'historians have created the geographical, functional and chronological framework for many estates; it is the task of the landscape historian to cover this documentary skeleton with the flesh of the contemporary landscape' (Moorhouse 1989: 39). Archaeology's traditional role as 'handmaid' to history is problematic for several reasons, not least that the documentary record is known to contain inherent biases and omissions, as outlined above.[17] The dominance of narratives derived from texts generated in specific confessional contexts prompts a question of how archaeologists can engage with other research disciplines, some of which are developing fresh interpretations of medieval behaviour, without being over-framed by this. Some archaeologists argue that archaeological approaches are now competent to establish independent narratives, working alongside other disciplines on equal terms (for the debate see papers in Gilchrist and Reynolds 2009).

The breadth and diversity of medieval monasticism as an object of study however both argues for, and acts as an impediment to, interdisciplinarity. Reynolds (2009: 409-433) and Gilchrist (2014:235-250) noted a tendency for medieval and monastic archaeology to specialise, at the expense of broader social science methodologies and theoretical approaches. Disciplinary silos exist in medieval and monastic studies, and historians' insights percolate at a relatively leisurely rate through to archaeologists, and vice versa (Platt 1994: xvii – xviii; Gerrard 2003: xiii).

2.4.3 Modern monastic archaeology: initial phase from c. 1970

Theoretical engagement by much medieval and monastic archaeology has been limited, with the former termed 'intellectually invertebrate' and theoretically under-engaged (Gerrard 2003: xiv; McClain 2012:131-170). Monastic archaeology beyond the precinct has drawn relatively few theoretically engaged scholars working within the full resources of major research organisations. Early engagement by landscape historians with monasticism was dominated by issues around settlement, colonisation, and diffusion. The roots of this emphasis in England can, in part, be traced to the focus of some influential scholars. Hoskins' (2013 [1955]) work on the making of the

[17] This is not solely an Anglophone issue. Written sources have proved dominant in Italian medieval archaeology, which have led to some interpretations being revised by archaeological investigation only later (Corsi 2016). An exception is at San Vincenzo al Volturno (e.g. Hodges et al 2011). The involvement of British researchers with that project however make it possibly atypical of wholly Italian projects.

English landscape helped make him 'the father of English landscape history' (Rowley 2006: xiii). That classic account however accorded monasteries little attention, a 'seven-line paragraph and a plate on Rievaulx, with some references to the role of monks, especially Cistercians, in woodland clearance, marsh drainage, sheep farming and village depopulation' (Bond 2000:63).

Gilchrist notes two phases of modern monastic archaeology. [18] The first being work broadly from 1970, 'influenced by landscape history and processual archaeology; [with] scholarship focused principally on historical, economic, and technological questions and targeted individual sites and monuments for study', and the acquisition and economic utilisation by monasteries of their land assets, and technological development within the medieval landscape (Gilchrist 2014: 237, 245). Gilchrist observed that such functionalist and economic research approaches neglected religious and social aspects, and the opportunity to locate archaeology within emerging paradigms drawn from multiple disciplines. Certain theoretical research stances have played a role in limiting broader focus, for example structuralism, which 'can tend to emphasise the static' (Mytum 1989:346). 'Much contemporary work in the field [monastic archaeology] remains descriptive and under-theorized, in the tradition of culture-historical archaeology' (Gilchrist 2014:236). The culture-historical paradigm has also been dominant in medieval archaeology in South-East Europe with resistance to post-processual ideas noted elsewhere such as in Italy (Brogilio 2009; Curta 2009).

The dominance of the culture-historical paradigm may have led to perceptions of monastic archaeology as static and with limited qualitative challenges, possibly limiting the advancement of the broader field. Much research into land associated with a monastery has been small-scale or piecemeal, with few works of critical synthesis and holistic interpretation. A relatively small number of scholars have provided syntheses which have played a substantial role in defining the field of monastic landscape research. Robin Donkin's work as a historical geographer compiled evidence for the economic and practical activities of Cistercians across England and Wales (Donkin 1978). Bond's work draws on a range of evidence, from excavation to documentary sources, focussed initially on England and Wales but subsequently extended to wider Europe to illustrate the wide range of activities by monasteries both within the precinct and the wider landscape,

[18] Space precludes a fuller examination of the development of the field of monastic archaeology, but a succession of edited volumes provides a snapshot: Gilchrist and Mytum (1989); Gilchrist and Mytum (1993) Keevill et al (2001); McNally (2001); Sanchez-Pardo et al (2020).

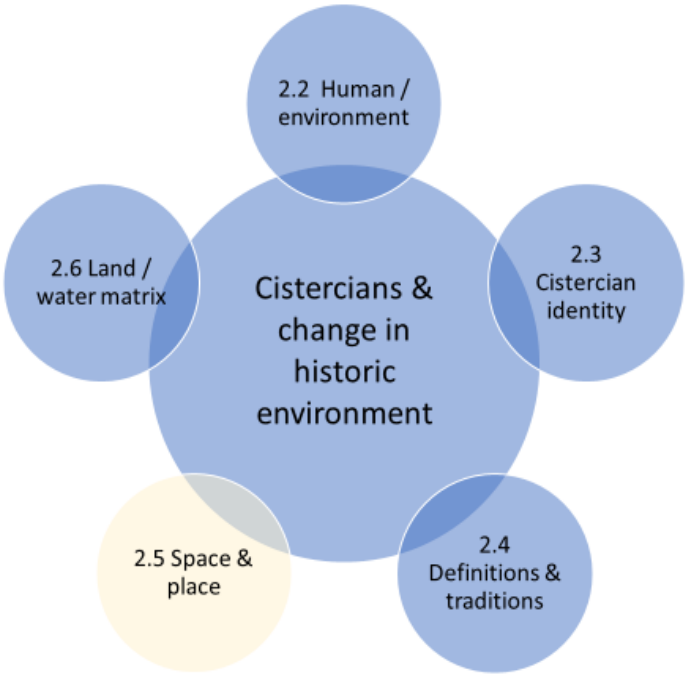
engaging with both practical and spiritual / symbolic factors such as the monastic use of certain plants (Bond 2004; 2007a; 2020). Aston addressed the religious operation of monasteries both within the conventual core and outlying land but considered the latter in purely economic or functional terms (Aston 2000). Other culture-historical bodies of work include Cistercians in Wales (Williams 2001); Yorkshire monasteries and landscapes (Waites 2007); Scottish monastic estates (Hall 2006). The work of Moorhouse has attended particularly to the economic activities of monasteries in Yorkshire (Faull and Moorhouse 1981; Moorhouse 1989).

2.4.4 Second wave of monastic archaeology: from early 21st century

Gilchrist suggests that the processual / culture-historical paradigm is beginning to be supplemented by a second wave, informed by post-processual approaches. This second wave 'considers change and complexity in religious landscapes and perspectives on religious space, embodiment, and agency' (Gilchrist 2014:235). Brooks Hedstrom argues for greater and different usage of archaeological evidence for Egyptian monasticism, a suggestion which may have validity also for European monasticism. She demonstrates that post-processual theoretical frameworks facilitate new ways of rereading Egyptian monastic archaeology and concludes that 'new approaches to interpreting Egyptian monastic archaeology give rise to alternative histories that allow for greater and more appropriate integration of textual sources and material remains' (Brooks Hedstrom 2013).

Studies have shown that social science perspectives can help understand the relationship between sensory experience and the sacred, and hence human decisions consequent on a religious worldview which is the focus of this work. The theology of light in the 12th and 13th centuries provides evidence of the entwinement of the sense of sight with theology (Tanner et al 2016). In Cistercian contexts, Panofsky's 1957 articulation of the connection between architecture and theological principles has been extended to explore experiences such as singing and the effect of sound (Cassidy-Welch 2001: 100-102). Following Giles' emphasis on the complicated relationship between historical concepts and visio-spatial aspects of the 15th-century wall paintings in the North Yorkshire church at Pickering, Graves used an exploration of aspects of the Cistercian sensory environment to argue for 'situated analysis [using] conceptual and epistemological tools' to understand experience of the material world as mediated by a religious world view (Giles 2000; 2007; Graves 2007:517). This study therefore attempted a situated integration of textual, material, and earth science data using approaches which will be outlined in the next chapter.

2.5 Challenge: understanding space and place



This study aims to understand the relationships between a Cistercian monastery and its places. These relationships are somewhat more difficult to define than religious and economic activities. Meaning and perception in medieval landscape may matter as much as empirical data (Mileson 2012:83-98). Such factors are thus pertinent to matters of belief but are challenging to elucidate. Many of the post-processual experiential approaches are a welcome challenge to theoretical monovision. If post-processual approaches are uncritically applied, they can however present issues of interpretation, integration and cultural relativism and the potential over-interpretation of often slight evidence (Fleming 2006).

The concept of 'space' is nebulous and has been much debated, but the interpretation of the term may be linked to cultural context. Summarising developments, Giles (2007) sees progressive development from medieval writers following an Aristotelian conception of space as neutral, fixed container to a more relativistic, perspective-centred meaning. The scholarly interpretation of the term 'space' has also varied according to theoretical stance. Space has been defined either as a neutral 'backcloth …of human activity' or conversely as socially constructed and implicated in social processes (Appleton 1975:2; Giddens 1984). Cassidy-Welch (2010:1-12) suggests that 'space

can be used as one of the analytical instruments we possess to think historically.' Space can be dynamic as well as structured (Giddens 1985: 265-295). It may have been possible for religious charisma to be spatialised beyond the monastic precinct, such as through the ritual movement implied in the 16 'stations' around the monastic island of Inishmurray (County Sligo, Ireland) (Ó Carragáin and O'Sullivan 2008). Religious charisma could be localised temporarily by events such as conflict. The Battle of the Standard in 1138 between the English and Scottish armies was portrayed by Ailred of Rievaulx as a religious war (Bliese 1988:543-556). Interpretation of how movement interacted with spirituality, such as transit within specific areas in a church or in the wider landscape, however, remains underexplored (Graves 2007:522-528).

As a social construct (above), space may be conceived of as having meaning, communicable in various ways. The *generative code* by which social phenomena such as meaning is communicated (Carlstein (1981: 43-44) may be extended to the landscape scale, as being both constructed and perceived by contemporary actors. The term *space syntax* has been here borrowed from Hillier and Hanson (1984). The present work however uses the term *landscape syntax* in ways that differ from Hillier and Hanson's definition of space as being encoded in ways that can be 'read' in highly specific interpretations. Instead, this study uses the term space syntax in two ways: as a metaphor to describe the complex interplay between practical and intangible factors in monastic landscapes, and proceeding from that meaning, as a very broadly defined analytical lens. The analytical lens aspects will be considered more in the next chapter.

It is suggested throughout this study that boundaries - and the contemporary perception of these - formed an important part of the monastic identity, from desert monasticism onwards. Monasteries could be 'planted' in culturally coded locations. In early medieval Northumbria, monasteries were often located both near to the sea or major rivers and to centres of secular power, such as Wearmouth-Jarrow (Tyne and Wear) (Turner et al 2013:137). Some aspects of this phenomenon will be explored in Chapter 9.

The interplay between place, land, words, text, and belief also merit mention here, as text and place names are used as sources of evidence in this study. A sense of place is an intangible eco-cultural artefact which becomes increasingly accessible to research as modern understanding grows of the sophistication of place names. Place name meanings and their referents may change as the context does (Gardiner 2012). The medieval landscape was constructed by its inhabitants

conceptually, physically, and spiritually (Howe and Wolfe 2002). Jones and Semple (2012: 1-17) emphasise the importance of placenames in the study of the past. Place names accordingly are some of the evidence used in this work (Chapter 3).

The intricate systems of rights and responsibilities associated with land begins to be visible to researchers with the creation of texts.[19] Texts illustrate that land meant much more than the means of subsistence. In Anglo-Saxon societies, land could also hold a complex set of conceptual attributes, including spiritual and social obligations (Smith 2012). Monasteries' social relationships were closely linked to law and custom in relation to land (Rasmussen 2006:78). Multiple forms of patronage existed under which rights could be conveyed in Anglo-Saxon lands. These factors underlay the cultural basis on which post-Norman monasteries such as Rievaulx were established. The ability to alienate land, free tenure, was decisive, allowing even peasants to participate in a land market and to become monastic patrons on a small scale (Baxter and Blair 2006). In texts such as donative charters, the motivation of monastic patrons was typically expressed in religious terms. Monastic patronage, such as of the abbey of Cluny (France), is known however to have formed part of complex social processes in which economic factors were only one of many considerations (Rosenwein 1989).

Gilchrist (1994: 160-167), acknowledging her indebtedness to Bourdieu's work on *habitus* and agency, argued through access analysis that cultural meanings of space are pertinent to the monastic sphere. Cassidy-Welch also considered the claustral core, as well as symbolic and social relationships beyond the core, demonstrating how the engagement between Cistercian monasteries and the lay world both shaped and were structured by the monastic built environment (Cassidy-Welch 2001).

Such studies of spatial meaning and perception in monastic contexts have however considered principally the élite built environment of the claustral complex, thus leaving unaddressed the question of spatial meaning of the wider monastic landscape which is the focus of this work. This study focuses on monastic activities both within and beyond the monastic precinct, areas which have traditionally been considered separately. Monastic architecture, particularly the élite

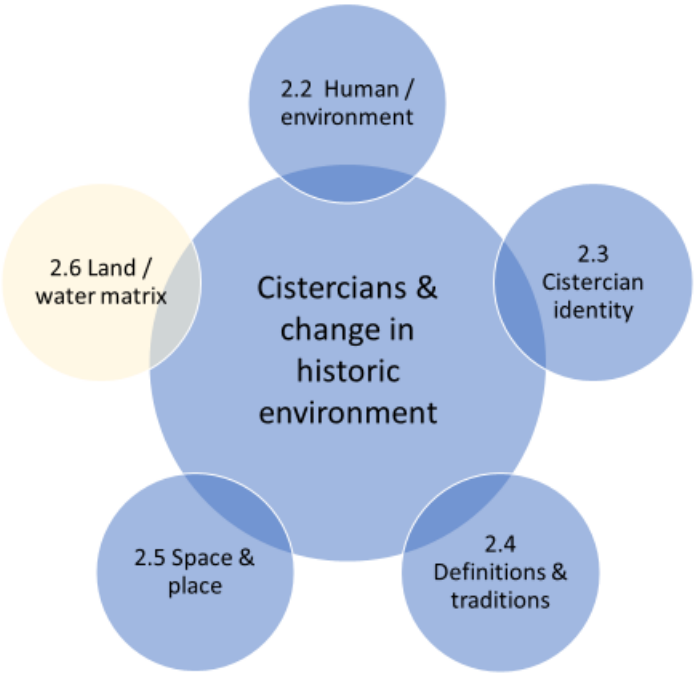
[19] Pollock's 1895 text is still a useful introduction to English law between 11th and 16th centuries, with an accessible chapter on tenure relevant to the evolution of the complex web of rights and responsibilities relating to land (republished as Pollock and Maitland 2009 Vol 2: 243-429).

architecture at the monastic core, and material culture from excavations of these areas has been the predominant focus of enquiry until relatively recently (Brown 2012:8-9).[20] This focus on élite core architecture followed the approach by early investigators, such Hope and Brakspear (1906) on Beaulieu Abbey in Hampshire, and Sir Charles Peers, an architectural historian who directed the excavation of Rievaulx Abbey in the early 20th century and whose work is cited in Chapter 4.

The scale of the investigative challenge of understanding Cistercian places and spaces is suggested by the spatial extent of monastic land within and beyond the precinct, which could be extensive. For example, Cistercian houses held over 500,000 statute acres in medieval Ireland (Lynch 2008). Many studies exist of the 'estates and economy' historical geography type based on compiling the holdings of a specific monastery. Relatively few archaeological studies however exist of a monastery and its wider landscape considered holistically. It is noteworthy that Cistercian abbeys such as Bordesley Abbey (Worcs.) (Astill et al 2011), Strata Florida (Ceredigion) (Austin 2013: 3-20) and Stanley Abbey (Wilts.) (Brown 2012) are some of the few abbeys and landscapes analysed together, possibly because of the perception identified above that Cistercian association with landscape was to some degree exceptional. A significant other example of work both within and beyond the precinct is on Barlings (Lincs, Premonstratensian) (Everson and Stocker 2011).

[20] It was customary for archaeological reports on such corpora as bones and artefacts to be provided by specialists as an annex to the larger publication of sites (Fradley 2018: 20-37). Another approach has been a synthesis of evidence for artefacts across a range of sites and periods, for example such as floor tiles or window glass (on the latter, see Graves 2015).

2.6 Challenge: understanding change in the water/land matrix



This work attempts an holistic approach, bringing together insights from archaeology, earth sciences, and historical research. Given the physical characteristics of the study areas, the nature of the transformational change supposed to have been caused by Rievaulx Abbey would have entailed change in the water/land matrix.

2.6.1 Hydrological connectivity and the water/land matrix

Physical analyses in this study are predicated on the principle of hydrological connectivity. This is the 'water-mediated transport of matter, energy and organisms within or between elements of the hydrologic cycle' (Freeman et al., 2007:1). This hydrological connectivity principle is pertinent to the processes of sediment transport and deposition and thus key to the present enquiry. Put simply, water and land are connected, whereby physical forces (including gravity and capillary action) cause water to move and thus to transport sediment and other matter. Water flow routes are therefore implicated in processes of landscape erosion and deposition. The physical properties of the surface and subsurface will affect permeability and water storage, and susceptibility to waterborne erosion.

A landscape study in which hydrological connectivity is a factor therefore necessitates hydrologically appropriate spatial definition. This work used one hydrological definition: the catchment of the Yorkshire River Derwent. A catchment is 'a geographic area defined naturally by surface water hydrology' (Defra 2013:3). Catchment connectivity may be affected by multiple factors (Bracken and Croke 2007: 1749-1763) (Figure 2:4). In temperate regions, such as Northern Europe, major factors in catchment connectivity are climate, run-off regime,[21] delivery pathway and lateral buffers (Bracken and Croke 2007: 1752). (Figure 2:4)

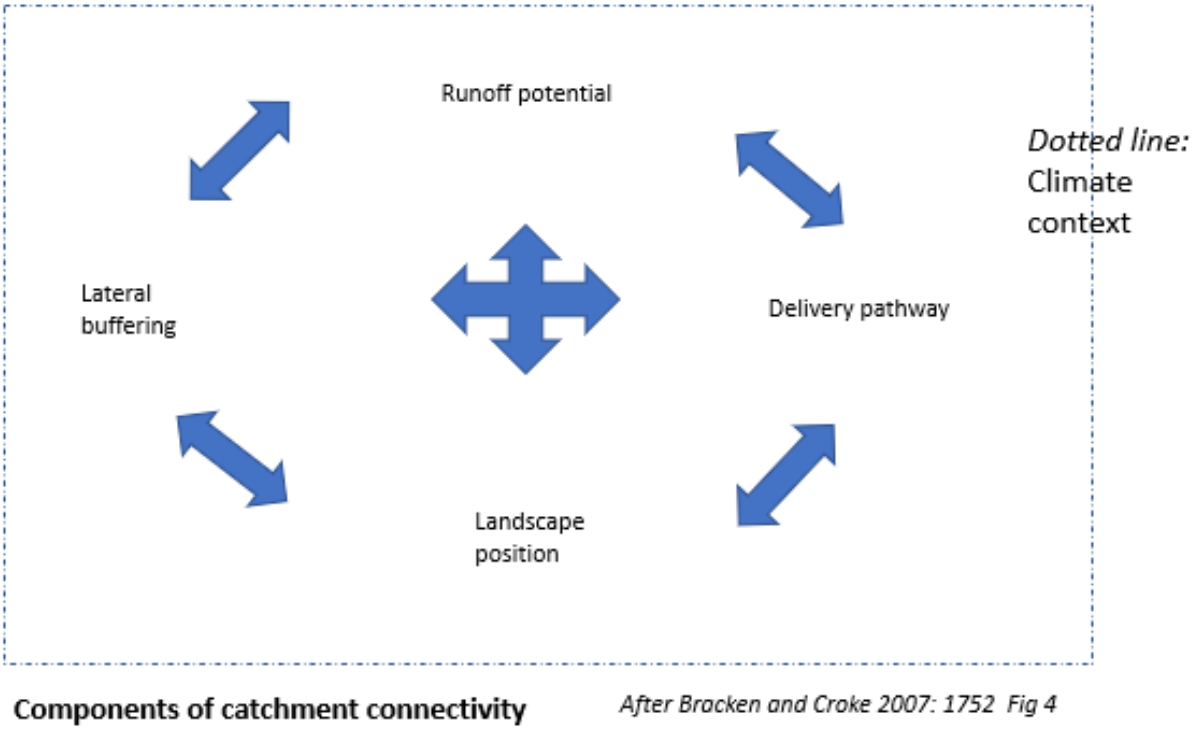


Figure 2:4 Components of catchment connectivity.

Human activities may have significant effects on hydrological connectivity and delivery pathway, through drainage creation or changes to any lateral buffers between channels, such as riparian vegetation or wet areas (Bracken and Croke 2007:1757). Water management is considered here as two broad categories: gravity-fed water-flow systems and management of the water/land matrix. The former often incorporates a membrane (such as ceramic or metal pipe) between water and the outer world. In the latter, the term water/land matrix is used here to describe areas where no membrane divides liquid from solid. The distinction between gravity-flow and matrix arrangements may not be clear, however, and a medieval hydrological system could incorporate both categories. Conduit systems are known from within monastic precinct, some medieval cities,

[21] This is 'determined largely by the nature and distribution of rainfall through saturation overland flow (SOF)' Bracken and Croke 2007:1752

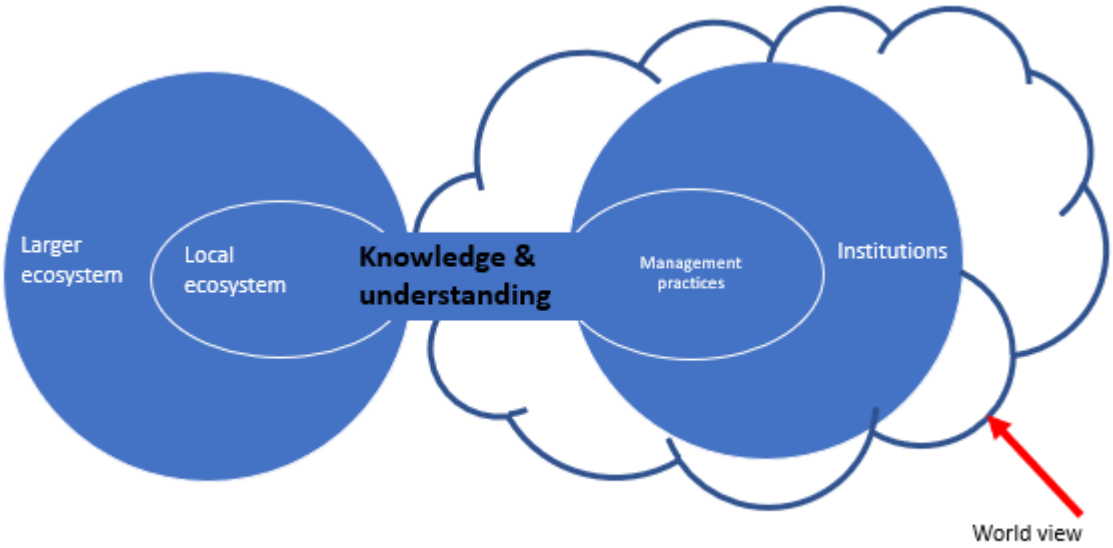
and élite residences and other locations (Magnusson 2001:1-35). Such gravity-flow systems would necessarily be nested within the wider water/land matrix for both intake (supply) and outflow.

Features in the water-land matrix can change depending on multiple factors. Such physical fluidity creates problems of terminology and typology in wetland archaeology (Van de Noort and O'Sullivan 2006). The etymology of many of the words used in English to describe wet land, such as marsh, carr, fen, bog, and mire, is outlined elsewhere (Wheeler and Proctor 2000). Water features can be problematic to understand, as these can have extended lives, be difficult to date, and be multi-functional. The same feature may at different times variously have acted as transport route, field drainage, livestock corral and societal marker. When is a channel a canal (see Rye Vale study, Chapter 5 and 6)? Water channels can change and move, through wholly natural processes, or (highly likely in the intensely settled areas of Europe) through some degree of human action, direct or indirect. Some water features are periodic or seasonal, depending on factors such as rainfall and permeability of the surface and subsurface. The water/land matrix is thus complex, being diverse (as shown by its typological variety) interconnected, interdependent, and adaptive.

Human interactions with hydrology add yet more factors to this complexity. A recent review identified the 1998 definition considered foundational for the field of social-ecological systems (SES) discourse (Berkes and Folke 1998; Colding and Barthel 2019). In this, ecological systems were defined as the physical environment, and social systems defined as dealing with:

> 'property rights, land and resource tenure systems, environmental worldviews and ethics, and different types of knowledge systems pertinent to the environments in which they were situated (Berkes and Folke 1998:4).

Ecological and technological knowledge may therefore be key factors mediating human changes to ecosystems (Colding and Barthel 2019) (Figure 2:5). Human social systems, such as world views, can thus have complex relationships with catchments and their ecological systems. The present study considers the world view associated with Cistercianism.



extended from Colding and Barthel 2019 figure 1

Figure 2:5 Knowledge, understanding and world view as crucial links between ecosystems, management practices and institutions

2.6.2 Medieval water/land matrix management

This work included a focus on management of the water/land matrix by Rievaulx Abbey, within the precinct and beyond. Such a study necessitates understanding the capability of Cistercian monasteries at the time. By time of the emergence of the Cistercian order, in the late 11th to 12th centuries, many of the basic principles of landscape evolution and hydrology had been discovered, from understanding advanced across a wide range of Greek, Roman, Christian, and Islamic contexts (Montgomery 2013:9-19).

There is patchy evidence about the degree of survival versus innovation / re-adoption of hydraulic engineering knowledge between the Roman worlds and the appearance of increasingly sophisticated hydraulic installations in the high Middle Ages (Magnusson 2001:5-7). Magnusson (2001), and contributions to the surveys edited by Wikander (2000) and Squatriti (2000), stress the deep continuity of water management practices including from the Roman period to the medieval and post-medieval. Such survivals can make water features difficult to date. For example, *qanats*, underground tunnels for water whose origins are unclear, remained in use in Aragón (Spain) at least until the 16th or 17th century of the modern era (Bailiff et al 2015:452-459; Avni 2018). No

systematic medieval treatise on hydraulic engineering appears to have survived (Magnusson 2001: v). It is possible however that textual knowledge transmission between Roman and later periods occurred.[22] The Cistercian 'textual community' (Stock 1983:405) may have been one means through which such knowledge was diffused. Elite texts, however, represent only a fraction of the practical knowledge of water and land management available to medieval actors.

There is ample evidence that people in the medieval period were capable of major water engineering feats, and that monasteries were far from the only actors who carried out water management (Table 2:4, Magnusson 2001:1-35; Bond 2007a). Practical understanding of water engineering could be shared through social processes (Magnusson 2001:7-13). There was a spectrum of knowledge, ranging from specialists through to a broader body of agrarian insight which is less directly identifiable than knowledge shared through élite texts. [23]

2.6.3 Monastic water management: gravity-flow systems

A key review found that 'the investigation of water management has rarely featured as a primary objective in monastic studies in Britain …systematic study has barely begun' (Bond 2001a:88). Such research as has been conducted has been dominated by studies of gravity-flow systems within the monastic precinct. Within the precinct, monasteries used water for multiple purposes: in performance of the liturgy; for industrial processes, such as milling, tanning or metal working and to clear drains; for drinking and food preparation, and certain food production such as fishponds (Aston 1988; Bond 1988; 1989; 1993; 2001b).

The existence of gravity-flow systems in medieval élite building complexes, including cities and the core religious centres of European monasteries, is well-established (Bond 1989; 1993; 2001a;

[22] Two Roman writers active in the 1st century, Vitruvius and Frontinus, created works which appear to underpin later understanding of gravity-flow systems. Frontinus' *De acqe ductibus* deals with the ways in which water could be led (Bond 2001). Elements of this were preserved in a 4th century text by Palladius - *De Agricultura* (also known as *Opus Agriculturae* or *De re rustica*). A survival of Roman agrarian knowledge through medieval monastic circles is illustrated by a catalogue of books once held in the library of Rievaulx's sister abbey, Byland Abbey (Cistercian, Yorkshire), as collected by Thomas and Roger Gale and given to Trinity College Cambridge in 1738 (James 1902: v). This catalogue suggests that Byland possessed two copies of *De Agricultura.* One is listed in the catalogue as *Opus Agricultura* and dated to the late 12th century (James 1902: 224). An inscription on the flyleaf of the second copy suggests that this was a copy from St Augustine's Canterbury held by Abbot Roger of Byland (James 1902: 225).

[23] Known specialists included Gerard, of whom his brother, Bernard of Clairvaux, said ''Did anything ever escape the skilled eye of Gerard in the buildings, in the fields, in gardening, in the water systems?'' Gerard would have known Geoffrey of Ainai from the latter's time at Clairvaux. Geoffrey was the monk / architect sent in 1133 to help the new Cistercian community at Fountains (Magnusson 2001:13).

Greene 2015:109-133; Magnusson 2001). Such systems typically used sections of closed conduits enabling water pressure to overcome gravity. Construction of gravity flow hydraulic systems in élite building complexes appears to begin in the early 11th century and became increasingly widespread during the 12th and 13th centuries (Magnusson 2001:6). A plan for the water supply arrangements at Canterbury Cathedral Priory under Prior Wibert (1151-67) provide a detailed illustration of how water was delivered round a monastery of the broadly Benedictine plan in 12th-century England (Willis 1868; Greene 1992: 109-111; Bond 1993: 43-47; Bond 2001). Houses of the Carthusian Order had particularly complicated water management requirements, to service the individual cells which were the dwellings and workspaces for each monk, such as Mount Grace (Yorks.) (Coppack and Aston 2002). Piped water supply was not necessarily restricted to the claustral centre, however. A grange of Cistercian Fountains Abbey at Malham (Yorks.) had a piped water supply by 1257 (Bond 2001:128).

The Cistercian order has achieved a prominence in the literature of medieval water management which is in some respects unwarranted. Some differences did exist, but with the exception mentioned above of the arrangements necessary to support the individual cells of a Carthusian house, these tended to be not between orders but between locations, for example rural sites allowed greater physical leeway in arrangements than did urban sites (Bond 1989; 1993; 2001a:115). Magnusson (2001:13-14) has demonstrated using the records of licences issued for conduits that it was the Benedictine, Franciscan, and Carthusian houses, not Cistercian, who were most active in licenced conduit installation. The probable gravity-flow system at Rievaulx's claustral core merits a project of its own and is not a primary focus of the present work which will aim instead to synthesise current knowledge as a basis for future research.

2.6.4 Monastic water/land matrix management in the wider landscape

Questions of water management by Rievaulx have long been dominated by the suggestion that the monastery diverted or canalised the River Rye. Despite extended attention (which will be outlined in Chapter 5) 'changes in the [Rye] valley are still not fully understood' (Bond 2001:103). Bond's review of pre-modern river canalisation observed that 'river diversions, canalized rivers, and wholly artificial canals are …all part of the same process …it is impossible to study any of them in isolation'. (Bond 2007a:157). The Rye catchment therefore forms the study area investigated in Chapters 5 and 6. The Vale of Pickering case study (Chapters 7 and 8) focusses on the agrarian use

of marshy land. Bond's 2001 review of monastic water management specifically excludes 'drainage of marshland for agricultural purposes' (Bond 2001:105).

The present study used Rippon's spectrum model as the basis for both case studies of change in the water/land matrix. Rippon's model suggests that interventions in the water/land environment ranged from exploitation, through adaptation to complete transformation. Exploitation included the extraction and management of resources such as peat, salt, fish, waterfowl and eels, rush, and sedge. Adaptation could include the construction of ditches, drains, banks, and channels. Transformation could include the reclamation of land surface from under water (Rippon 2000a:52-53).

A growing body of case examples demonstrates that medieval actors possessed significant practical awareness of management of the water / land matrix. From the 10th century, land reclamation and drainage improvement was widely underway across mainland Europe and Britain (Table 2:4). Such works were undertaken across all sections of society, although the best-documented activities were directed by monasteries or the lay Church. In the East Anglian fens, major drainage was initiated by the Benedictine monasteries of the 10th-century revival, with either the manorial lords or free communities responsible for initiatives before the 10th century (Oosthuizen 2017:124-131). In the Po Valley (Italy) and Holland, initiative was taken by free peasant communities and other lay and religious élite-directed enterprises (Campopiano 2013a; 20113b; Curtis and Campopiano 2014). City states as well as religious institutions were active in the case of Lombardy (Italy) (Williams 1982: 86-125). Both lay society and monasteries are known to have created substantial new water channels or diverted existing ones. Some lay and monastic sites were moated in whole or part by water courses, an act with cultural as well as environmental significance (Le Patourel and Roberts 1978:46; Bond 1993:73; Johnson 2015:233). Examples of canalisation of watercourses include several dating to the 10th century, such as at Glastonbury (Somerset) and the East Anglian fens (Bond 2001:102; 2007a:).

Despite such research, the role of medieval actors in adaptation - transformation transitions in the water/land matrix is still not well understood. There are multiple contributing factors to this knowledge gap. One such factor is awareness. Bond has drawn attention to the fact that even relatively recent medieval historical studies (such as Holt 2000) attribute activities such as canalisation largely to the post-medieval period activities made famous by engineering / economic

historians (Bond 2007a:154).

Certain aspects of management of the water/land matrix have received more research attention than others. Overall, attention has been directed mainly towards the extremes of Rippon's spectrum, namely exploitation and transformation, rather than adaptation. This may be partly because a distinct change of ecological state is relatively easier to identify than a gradual evolution. Exploitation of wetland archaeological projects in Europe have tended to focus on prehistoric activity (O'Sullivan 2012:28). Some medieval exploitation of the water/land matrix may have required little intervention and so left relatively little mark on the landscape. For example, grazing livestock on salt / brackish environments may have helped prevent liver fluke and foot rot. In Yorkshire, Cistercian Meaux Abbey (Yorks.) grazed over 11000 sheep on Holderness marshlands (Moorhouse 1989: 45).

The nature of change in some ecosystems is already under consideration. Possibly because of concerns over issues such as isostatic adjustment, climate change and the consequences of coastal flooding for modern communities, changes to coastal and estuarine environments has attracted significant attention (e.g. Rippon 2000a; Rippon 2004a; Rippon 2006; Soens 2013). Ecosystems in these environments are predominantly salt-water or brackish in nature, which affects the scientific approaches likely to identify a change in physical state. In considering the soils of the coastal marshland of Romney Marsh, Green argued that a physical distinction can be seen between new 'calcareous' marshland, which has recently experienced sea inundation, and old or de-calcified marsh from which the calcium has been leached after a long period of drainage (Green 1968: 18, 27). Reclamation in the Severn Estuary Levels (Somerset) was underway piecemeal by the 3rd century after Christ and gradually transformed the water environment. A ditched enclosure from the Early Roman period at Puxton Dolemoor (North Somerset Levels) changed the environment from intertidal to freshwater (Rippon 2006a: 62-66). Such transformation could have led to concomitant changes in agrarian regime.

This work aims to understand the interaction between specific freshwater /land matrices and the activities of Rievaulx Abbey. In these terms, existing research is of limited applicability. Human diachronic impacts, from adaptation to transformation, on inland, freshwater hydrological systems are not well understood. Although river history has a flourishing literature (see Schönach 2017: 234 for a recent review), and it is acknowledged by some research that a relationship exists

between historic activities and river channels (Lewin 2010:270), few works address the diachronic interlinkages between human culture and hydrological systems. Most archaeological investigations, including those noted above, have focussed on river reaches or features, such as specific watercourses managed by Glastonbury Abbey and others in the Somerset and Gwent Levels (Rippon 2007). Lewin (2010)'s survey of lowland channels is one of the few studies to have considered social-economic activities in terms systemically linked to physical changes in hydrology, providing an overview of how hydrological and social changes interact. Lewin's study unfortunately engages only briefly with cultural factors as drivers of such changes, giving worldview solely three sentences as a generic 'pious age.' This is a common challenge for the natural sciences, in which 'many approaches …lack sensitivity to the role of human agency and its roots in the history of thought and social behaviour' (Schreg 2014:107). Research into land reclamation has tended to over-emphasise factors such as commerce, demography, and technological innovation, obscuring social consequences of pre-modern land reclamation (Curtis and Campopiano 2014:93).

Approaches of disciplines beyond archaeology highlight how much is still unknown. Anthropologists stress that water, and its manipulation, has complex cultural aspects (Strang 2004). Drainage is highly connected, in hydrological terms (above), to human impacts and to wider society's concerns. Gerrard's (2011) work on modern water governance in north-east Spain illustrates practical and social complexities usually difficult for archaeologists to see without a broad range of evidence, including contemporary ethnographic data.

Chapter 2 Summary

This survey has identified that existing research has not fully addressed some aspects of the questions identified in the introduction. This may partly be because understanding the relationship between the environment and humans, and more specifically monastic communities and their landscapes, is a multi-faceted challenge. The overarching challenge is to identify change in the historic landscape, and the reasons for and consequences of that change. Barriers to understanding such change include embedded cultural tropes about Cistercians and the transformation of desert, waste, and wilderness. These tropes developed in specific cultural contexts and were perpetuated by textual sources which cannot be viewed as unbiased. Post-medieval viewpoints and research traditions have further obscured understanding, presenting

Cistercian landscape management in over-simple terms, such as having a wholly rational, economic viewpoint. Existing definitions and traditions have tended to treat aspects of transformation of the water /land matrix separately.

This chapter has demonstrated that the Cistercian presence in the medieval world could be characterised as *diverse,* possibly *adaptive,* but certainly *interconnected,* and *interdependent*. The Cistercian presence was diverse, in that it encompassed spiritual practices and ones which, to 21st-century eyes, appear wholly practical, such as agrarian activities. Cistercian practice may have been adaptive, in that there is a growing body of evidence that Cistercianism may have been practiced differently in different cultural and historical contexts. The Cistercian presence in the world was highly interconnected, and interdependent. Spiritual practices depended on practical endeavour, at a minimum for the material means of subsistence, and these practical resources depended on connection to the world outside the precinct not just foundational donations but on an ongoing basis for gifts to the monastery for prayers and for societal consent to their presence. Water / land management, such as practised by monasteries and other medieval actors, was also highly diverse, interconnected, and interdependent in physical terms.

As diverse, interconnected, interdependent, and (possibly) adaptive, the presence of Cistercian monasteries in the world may thus be characterised as meeting at least three of the four criteria for one definition as a complex system (Page 2009:6-7). Investigating such complexity required a fresh approach. The next chapter will set out how the complexity concept underpinned the methodology for this project.

Chapter 2 Endnote

Regulation of monastic practice became a recurring concern for leaders of the early Church and was the subject of much debate, such as at the Council of Chalcedon in AD 451.[24] Religious leadership helped concepts of correct practice to coalesce, notably in the form of activities attributed to specific charismatic individuals. The 6th-century document attributed to St Benedict of Nursia (d.546x550), Abbot of Monte Cassino monastery (now in Italy), described by its writer as a 'little Rule written for beginners,' and now known as *Regula Benedicti, (*henceforward, RB) became one of the most widely adopted guides to monastic practice (Lawrence 1989:22-23). The document however bears 'textual traces' of earlier religious teaching by others such as St Basil (c330-c378) and Cassian (5th century) and others (Dunn 2003:34, 73; Melville 2016:24-49). RB became highly influential in Western Christian monasticism, particularly after being promoted by the councils of Aachen (AD 816–17) (Burton and Kerr 2011: 1).

RB provided guidance on translating Christian values into arrangements for living in monastic community under a rule and an abbot. The text emphasised the importance of discipline under a rule as spiritual service, and some aspects which underpin interpretation of practical as well as spiritual monastic activity merit mention here. Participation in prayers and services was the *Opus Dei* (RB 1875: 184-9, Chapter 16 and XLIII.) So that monks need not go beyond the gates, monasteries were to contain all elements necessary to life, including water, a bakehouse, mill, and garden (RB 1875:281). Chapter XLI implies that it was practice for some monks to 'labour in the fields' as this activity permitted relaxation in the otherwise strict time for their meals. Daily manual labour was also prescribed to counter idleness as an enemy of the soul (Chapter XLVIII). This labour included reading aloud, and:

> 'if the situation of the place, or their poverty require them to labour in reaping their corn, let them not be saddened thereat, for then are they Monks in very deed, when they live by the labour of their hands, as our Fathers and the Apostles did before us. Yet let all things be done with moderation for the sake of the fainthearted' (p203).

Such work should not include 'any servile work, for such is forbidden, but [instead work should be carried out] in the kitchen, or in the infirmary' (p205).

[24] Papal Encyclicals Canon 4

Monasticism was re-energised in Britain and other parts of Europe during the 10th century following the 9th century disruptions to societies in Northern Europe associated with Scandinavian activities (Burton 1994a:3). Cluny (f.909, France) was a notable monastic establishment which particularly emphasised the liturgy (Lawrence 2015 [1989]:86-110). The 10th-century revival in England adopted the 6th-century Rule of St Benedict in the traditions and practices recorded by Benedict of Aniane and agreed at Aachen in 817 (Knowles 1963:36-56). This monastic revival was reflected in the *Regularis Concordia* agreed at Winchester c.972 (Symons 1953; Knowles 1963: 42), and the *Constitutions* of Lanfranc of Canterbury from c.1077 (Knowles 1951). The concept of a monastic order, in the sense of monastic houses that followed a defined practice, emerged as part of this revival. The number of orders grew rapidly, and over 500 monastic orders arose in Europe during the medieval period (Gilchrist 1994). These included a wide range of practice (Aston 2001:10): wholly coenobitic (i.e. living in community) such as Benedictine (Clark 2011), some variant of enclosed hermit such as Carthusian (Luxford 2009; Coppack and Aston 2002) or mendicant orders that from the early 13th century rejected both communal and personal tenure of property to engage in a pastoral mission to society (Lawrence 2015:238). Regular canons were priests rather than monks living under a rule, with that of St Augustine from the early 12th century being favoured (Burton 1994:44) Premonstratensians also adopted St Augustine's rule (Burton 1994:44; Bond 1993; 2007b).

The movements associated with the crusading movement from the late 11th century were also notable (Burton 1994:81-84). For an overview of the 'soldiers of Christ' see Forey (1992); for the individual orders of the Knights Templar see Nicholson (2010); Knights Hospitaller (Riley-Smith 2012); Teutonic Knights (Pluskowski 2012). Entanglement of the churches of the East and West with the Muslim world led to movements such as Catharism (Hamilton 1979).

Chapter 2 tables

Nature of change	Date & agency	Source
Rotational cropping 'convertible husbandry'	From 8th century by local communities and lords	Rippon et al 2006; Astill 2010
Laying out of open fields, reorganisation of settlement & landscape including nucleation, cerealisation (intensive grain production); changes in crop types	Large common fields from prehistoric & Roman periods, new field layouts c.700-850 in places, more widespread across England and France 10th – 11th century by mix of local communities, lords, and the Church. Cerealisation underway from c. AD 800, by all agents, across much of Europe. Expansion of arable (e.g., in Britain) in 12th and 13th centuries	Oosthuizen 2006a; Loveluck 2013:274-290; Gerrard and Hall 2007:974–7; O'Donnell 2018:86-101; Hoffman 2014:116; Hamerow et al 2020; Thirsk 1997
Internal colonisation: regime change in specific zones	Various. Changes observable in pollen record for Baltic 7th-8th then 10th-11th centuries AD, associated with possible woodland clearance following Slavic colonisation and land-use intensification	Brown et al 2019
Embankment & drainage of low-lying coastal & estuarine land	Processes noted in specific locations during Iron Age & Roman became widespread around the North Sea, Atlantic and parts of Mediterranean coasts and estuaries of Europe by 11th-13th centuries AD, practiced by all sections of society from peasantry, lords and both the secular and monastic Church	Loveluck 2013:290; Tys 2013; Rippon 1997:23-4; Lascaris & de Kraker 2013; Campopiano 2013a & b
Assarts & changing woodland into élite forests and chases	From 10th -12th centuries: Forests in Ardennes and Normandy (France), forests in England (e.g., of Dean) by royal, regional, and local smallholders	Loveluck 2013:291-2
Warfare, conflict & defence. Change in fortified bases: from ringworks to larger ringworks and small castles	Late 11th and 12th centuries in England and Wales by local lords, Norman nobles and royalty. Impact of specific conflicts	Loveluck 2013:292-297
Building & rebuilding of parish churches in stone	From 1090s in England by local officials & magnates	Loveluck 2013:293
New species introduction	Species such as fallow deer associated with new elites and hunting culture	Hoffman 2014:192 Pluskowski 2018

Table 2:1 Environmental change in medieval Europe

Certain documents are traditionally dated by papal confirmation. For example, a version of *Carta Caritatis Prior* was confirmed by a bull of 1119 by Pope Calixtus II, addressed to Citeaux's Abbot Stephen Harding and the monasteries of the Cistercian *ordo*. *Carta Caritatis Posterior* was confirmed by four popes, from Eugenius III (1152) to Alexander III (1165) (Jamroziak 2013:20).
Exordium Cistercii may date to between 1134 and 1150 rather than 1123x1124 as previously thought (Waddell 1999:147-161, Jamroziak 2013: 21).
Exordium Parvum is a complex polemical document, only parts of which are now thought to date to c1112x1113 with the rest reflecting considerable revisions made before 1147 (Jamroziak 2013:21).
The first version of *Ecclesiastica Officia* was created at Citeaux during the abbacy of Stephen Harding (c1060x1134) (Jamroziak 2013:22).
Usus Conversorum concerned expectations for lay brothers. The earliest version is no longer extant but may have been created in the early 1120s (Waddell 2000:20), until subsumed in 1202 by regulation by the Cistercian General Chapter, and further regulation in 1237 and 1257 (Jamroziak 2013:22).
The Cistercian General Chapter (*Instituta Generalis Capituli apud Cistercium)* records began in c.1147, and the *Capitula* from c1135x1136 (Jamroziak 2013:23). Continuous records of annual General Chapter 1157-1161 (Jamroziak 2013:23). 1202: first promulgation of General Chapter statutes (Lucet 1964, Jamroziak 2013:24).
Berman's redating suggestions include that the initial collection of Cistercian statutes took place around 1160, the compilation of *Exordium Cistercii* also during that decade; *Exordium Parvum and Carta Caritatis Prior* redated to 1150s; the first Cistercian General Chapters to the 1150s; the first Cistercian constitution to 1165; the creation of a self-conscious Order to around 10 or even 20 years later (Berman 2000: 46-92, 86-92, 151-160, appendix 1).
The General Chapter Statute in 1152 forbidding further **new foundations** [*Quod noue abbatie ulterius in ordine nostro non construantur* (Waddell 1999:310-313, 325, 364 replaces Canivez: *Statuta* I, 13)] may not have been uniformly applied (Waddell 1978:42). Foundations did continue (Canivez 1933-41, I, 45). St Graces, London) (1246) was the last Cistercian foundation in England (Brown 2012).
de construendis abbatiis specified requirements of people, books, and buildings as prerequisite for a new Cistercian foundation. This appears variously in *Summa Cartae Caritatis VIII* (Waddell 1999:187): *Cap*. IX (Waddell 2002:512). The Cistercian General Chapter of 1119 mandated certain buildings be constructed for new monasteries, including a church, gatehouse, and wall (Norton 1986:318-393).
Employment of **servants.** '…and they decided to employ hired servants, for they realized that without their help they would not be able to keep the Rule in its fullness day and night, and they took over lands far from human habitation for their own use, with fields, woods, and waters to be worked by mills and fishponds, and the upkeep of horses and cattle and various other things that are useful for human needs.' (Elder et al 2012 Chapter 20). The legislation referred to: *Cap* 15; *Inst* 5.
Cistercian legislation on a range of aspects of material culture, such as floor tiles (Holdsworth 1986a; Holdsworth 1986b), was gradually simplified (Norton 1986: 315-393). For example, early, detailed statutes on coloured window glass replaced in 1289 and 1316 with a general clause against novelty and superfluity (Carter 2015:79).
Granges: A 1152 statute required the siting of a grange to be no further distant than a day's journey from the host monastic church (Platt 1969:26). Altars at granges: Statuta 1 1180: 6 (Waddell 2002:88); Statuta 1 297-98 (1204), 307-8 (1205); Statuta 2:65 (1228)
A 1261 statute of the Cistercian General Chapter permitted the letting out of property. *Statuta* II (Waddell 1999:477)

Table 2:2 Cistercian normative documents referred to in text

Coverage / focus	Investigator	Techniques & data
Eastern Germany	Roehl 1969	Documents
England and Wales	Graves 1957, 1966	Documents
Catalonia	McCrank 1976	Documents
England and Wales	Donkin 1978	Documents
Wales	Williams 1984; 1998	Documents
Southern France	Berman 1986	Documents
Scandinavia	Gotlind 1990	Documents
Iberian peninsula	Alfonso 1986, 1991	Documents
Rievaulx and Fountains, Yorkshire	Menuge 2000	Documents
Synthesis of studies from across Europe	Burton and Kerr 2011	Documents
Stanley Abbey, Wilts	Brown 2012	Documents, architecture, maps, topographic survey, aerial photographs, antiquarian accounts

Table 2:3 Cistercians and ‘waste’ locations

Lombardy, Italy	Documented interventions from late Roman period in intertidal area. A navigable canal, the *fossa Augusta*, to flush brackish Ravenna lagoon with fresh water taken from the River Po. Piecemeal reclamation as part of reorganisation of large estates under manorial system documented from 8th & 9th centuries. In marshy *Silva de Ostilia* colonists had 29-year contracts from monastery of Nonantola, with rent payable in wheat and wine, compelling the conversion of marsh into arable. Irrigation canals between Adda and Serio rivers (10th cent). Documented manorial obligations – to both lay and ecclesiastical lords - to put land under cultivation common from 12th century. Autonomous community initiatives also occurred. Community rights over colonised land were part of movement that resulted in granting of freedom charters from mid-11th century. Local communes exacted dues and acquired cultivation rights outside city walls including to water and uncultivated land, recognised in 1183 Peace of Constance. Reclamation of Verona's swampland under direction of citizens (from craftspeople to consular aristocracy), with entire swamp sold to city commune in 1216, who recouped their investment from the profits of the rich soil, subletting to rural farmers. Changes to hydrology, including embankments and canalisations, implicated in major floods in 1276 and 1293.	Campopiano 2013, Bond 2007
Low Countries	Reclamation by monasteries here has been over-stated. North of Low Countries, embankment and drainage was initiated by weakly-manorialised communities. In Holland-Utrecht, peasants were granted peatland in return for rent and acknowledgement of authority (variously, Bishop / Count of Utrecht and minor lords). This contract, 'cope' reclamation mode was 'exported' from the late 11th century, including to Britain, Frisia and North Germany. Only from 13th century did most coastal areas gradually evolve towards more farmer-driven commercial economies, which was also the period when Cistercian and other monasteries become more actively involved in reclamation activities, especially in capital-intensive projects such as dam building	Thoen and Soens 2015; Mol 2013; Tys 2013
East Anglia	Romano-British dykes and canals (incl. Car Dyke) in fen basin by 3rd century AD. Maintenance / re-use thereafter is debated. One school of thought sees lords, particularly post-AD 970 monasteries, as substantially the first to oversee post-Roman large-scale water management here. Documentation for sophisticated water engineering evidence from 970, such as for Abbey of Ely, including construction / alteration of specific water courses. Others suggest more continuity or an earlier inception of such works, with at least 8 *lodes* (channels) and catchwaters constructed before 970, with early medieval communities having agency as well as monasteries. Early medieval fenland probably managed in common by communities. 'Customs of the marsh' were already ancient by the 12th century. Water managed by linking canals and their subordinate feeder ditches with natural water courses. *Lodes* cut across natural drainage known from most communities' fenland by mid-13th cent, connected by artificial catchwater drains and banks aligned to watercourses.	Oosthuizen 2017: 90-134, Bond 2007a
Severn estuary	Reclamation from Roman period onwards, followed by marine transgression. Rehabilitation of Roman sea defences and recolonization in Late Saxon period from c.9th century, which was well underway by the 11th century. Reclamation organised by various agents, including for large estates at seigneurial initiative (including monasteries). Others may have been at the initiative of the colonists, with some similarities to the 'cope-system' reclamations of the Low Countries noted above.	Rippon 1997:168-185
Humber	'Attempts to control drainage started in 10th century through embankments & sluices' with draining and embanking starting later, in 12th & 13th centuries, in which post-Conquest monasteries played a major part	Van de Noort 2004:127-163

Table 2:4 Medieval modification of the water/land matrix

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Chapter 3 Theoretical and methodological considerations

3.1 Introduction

This chapter describes how research was designed and conducted to address the multi-faceted challenges identified in previous chapters. The overall purpose of this research was to advance understanding of a Cistercian monastery as 'change agent' in the physical environment. To do this, the project attempted holistic, interdisciplinary, theoretically informed research. The succeeding sections set out the theoretical stance adopted, pertinent concepts and principles, and how these were used to define the spatial scope and the data and analytical techniques used.

3.2 Definition of terms - theoretical and conceptual models

This study attempted to understand change caused by interactions between specific medieval people and the physical environment. This entailed engagement with multiple challenges, including research traditions which have previously tended to tackle only one of the constituent aspects. A theoretical stance was thus required which would support holistic investigation and knowledge creation and enable the research to be made more robust by criticism. The research therefore adopted a social constructivist theoretical stance, which asserts that:

> 'the emphasis of reality construction [lies in] both societal and biological factors. There is a joint focus on reality construction being influenced by both nature and nurture' (Teater 2015:813-820).

The previous chapter argued that the Cistercian relationships with the medieval world could be characterised as *diverse, interconnected, and interdependent,* with a growing body of evidence that it was also *adaptive*. This meets at least three of the four criteria for one definition as a complex system (Page 2010:6-7). This research was therefore designed to achieve a better understanding of the fourth variable, namely change and adaptation. In place of the traditional granular approach to monastic archaeology, this study follows Miller and Page's argument (2007) that understanding complex systems

requires investigation of their *interconnections*. The complex system used as model in this study can broadly be described as a social-ecological complex system (SES) (Verburg et al 2013: 433-437).

Considering change within a village ecosystem, Schreg (2014:83) argues that:

> 'Traditional approaches from landscape archaeology are insufficient to understand the changes within … ecosystems….. Use of the perspective of … ecosystems as a theoretical background offers a way to examine individual historical case studies with close attention to human agency. Thinking in terms of human ecology and environmental history raises awareness of some interrelations that are crucial to understanding past societies and cultural change."

Within the SES investigated in this study, major factors of likely relevance were hydrology, properties of the surface and subsurface, culture, agrarian husbandry, and diachronic changes. The first of these, hydrology, helped define the spatial extent of the study areas.

3.3 Spatial definition using key principle of hydrology: catchment connectivity

The present study attempted to bridge the practices of two disciplines. Hydrological modelling reconstructs the flow routes of water at hydrologically defined scales (such as drainage basin, catchment, reach). Although surface topology and land cover are typically allowed for in such modelling, it has not been common practice to consider small-scale or local differential in subsurface properties. For example, palaeochannels are rarely systematically recorded (Stein et al 2017). In contrast, archaeological research is intimately concerned with the properties of the subsurface but may poorly reflect the wider processes inherent in the hydrological basin, catchment or reach within which a given archaeological site is located. This means that the local (i.e., site) impacts of wider processes, at larger scales, may be missed. These very different approaches mean that the issue of scale, and the relationship between factors at different scales, can be important in understanding human interactions with palaeohydrology.

As both archaeological reconstruction and hydrological analysis are, essentially, models, the problem of equifinality merits mention. Equifinality is the problem that different processes may have caused a specific end state (Premo 2010). As archaeological modelling 'generally starts with only a very small percentage of the originally available data [and the end] state of the process to be modelled will be poorly evidenced and may be almost completely opaque' archaeological modelling may be inherently incomplete (Murgatroyd 2012:21-22).

The previous chapter identified that a landscape study in which hydrology is a factor necessitates hydrologically appropriate spatial definition. As a catchment was previously defined as the area contributing to a drainage system, the (Yorkshire) Derwent catchment was used as the framing of study, as encompassing Rievaulx's core territories. Data and analytical resource for this study were however both constrained. For specific analyses, nested areas within the study catchment were therefore selected which combined hydrological and archaeological / historical definition. Nested studies have proven utility elsewhere. For example, at the Anglo-Saxon monastic site of Lyminge (Kent) the analytical framework for environmental work used various scales including regional, catchment and on-site perspectives to provide interpretative robustness (Maslin 2017).

Study units: Rye Vale and Vale of Pickering

Within the Derwent catchment, nested study areas were designated numerically. Within the Yorkshire Derwent catchment, two Level 1 zones provided the overall settings. The first was the catchment and course of the River Rye, within which Rievaulx Abbey's monastic core was located (R1). The second Level 1 study area was chosen within an inland basin, the Vale of Pickering. (VoP1). In both Level 1 study zones, the initial hydrological definition permitted nested subareas to be selected for detailed examination. These subareas will be outlined in Chapter 4 (for Rye Vale) and in Chapter 7 (for the Vale of Pickering)

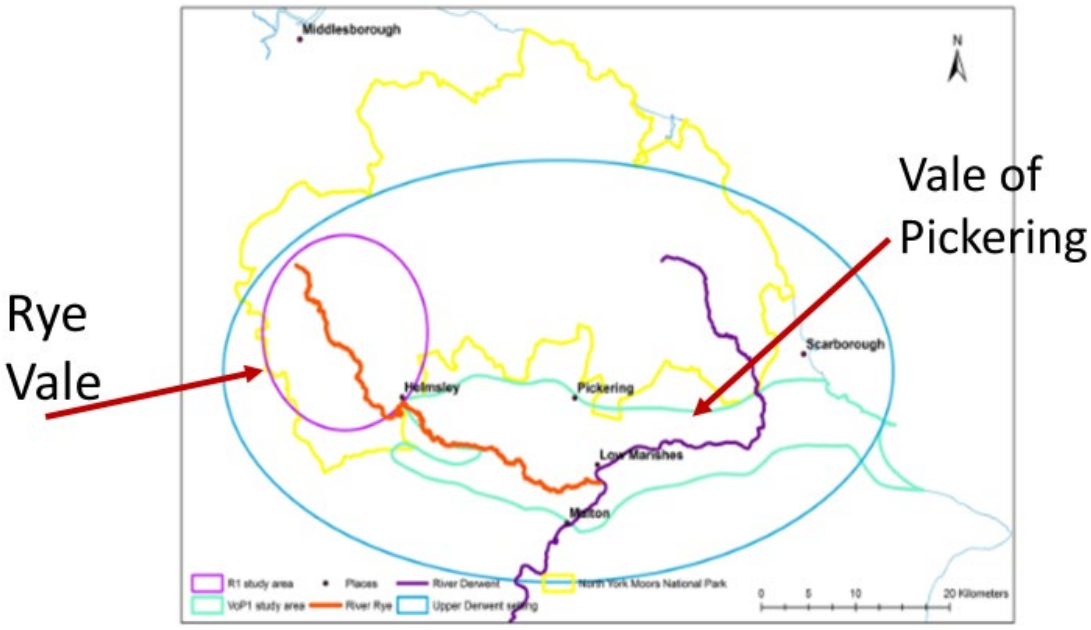


Figure 3:1 Two study areas within the Yorkshire Derwent catchment

3.4 Integration of data and analytical techniques from multiple disciplines

3.4.1 Overview

The selection of data and analytical techniques flowed from the theoretical model and purpose of investigation. This study hypothesised that the human activities under investigation formed part of a complex social-ecological system (above), in which physical processes and cultural factors interacted. This stance contrasts with single-instrument theories of change in the historic landscape, such as technology-driven (Chapter 2). It was therefore important to interpret Rievaulx Abbey's activities in multiple contexts: physical, cultural, and chronological. This is part of a wider trend in archaeological research, away from study of sites in isolation towards understanding locations as forming part of wider connections of cultures and physical processes (Johnson 2017).

A desk study is the appropriate first stage of investigation for field disciplines such as hydrology and archaeology, namely 'the preliminary examination of …all [relevant]

information before additional data are obtained from the field.' (Brassington 2007:11). In archaeology, desk-based assessment is 'a programme of study of the historic environment within a specified area' (CiFA 2020 [2014]:4). For this investigation of human-induced change in the historic landscape, the challenges presented by the research object (Chapter 2), the theoretical stance and conceptual model adopted (this chapter), all argued for incorporation of data and analytical approaches from multiple disciplines.

Wohl and colleagues (2014:14) emphasised that disciplinary overlap 'can facilitate interdisciplinary understanding of complex systems …by highlighting drivers of change within systems.' Previous studies have demonstrated the potential of approaching cultural phenomena, including monasteries, in their wider chronological, landscape and cultural contexts through integrating a range of investigative techniques. Interdisciplinary study is increasingly recognised as a necessary approach to historic landscapes (Rippon 2000a: 47). A combination of approaches from multiple disciplines has proved constructive in investigating a wide range of medieval landscapes elsewhere. 'Like so many other techniques applied to later medieval archaeology, single strands of evidence are strengthened through multi-disciplinary collaboration' (Fradley 2018:33). Interdisciplinary work on the environs of late medieval castles in Kent incorporated palaeohydrology and geomorphology with more traditional archaeological approaches such as geophysical survey, to elucidate the extended history of the area from the prehistoric period onwards (Johnson et al 2017).

It is now customary for regional studies to begin with physiography, a tradition dating back to the first chapter of Bede's *Historia Ecclesiastica*. The articulation of time depth and physiography is relevant to the present study, as physical processes such as hydrology, a focus of the case studies in Chapters 4-8, typically evolved over extended time periods and in complex interactions with physical factors such as geology and climate. It is increasingly recognised that articulation of time depth in the historic landscape is appropriate to archaeological research and heritage management (Fairclough 2003). It is well established that comprehension of specific cases in landscape history necessitate location in time and space (Roberts 2007:74).

Diachronic approaches at non-élite areas are still relatively rare, however. A study of the village of Shapwick (Somerset), used multiple techniques including documentary study, archaeological survey, excavation, soil analysis, remote sensing (geophysics and aerial photographs), and ecological investigations. These led to significant fresh understanding of the emergence and development of that village (Gerrard and Aston 2007; Aston and Gerrard 2013). Over 10,000 years of human occupation were revealed at two parishes in Wiltshire, using a range of techniques including air photographs and excavation (Fowler and Blackwell 2000). A diachronic 'landscape biography' approach has been successfully used to reveal the deep history of human manipulation of watery landscapes, including the Lincolnshire Fens (Simmons 2017) and Gwent Levels (Rippon 1996). Investigations over 60 years in the Yorkshire Wolds, at Wharram, concluded by presenting settlement development chronologically from prehistory to the 16th century (Wrathmell 2012).

Investigation of Norton Priory (an Augustinian priory in Cheshire), one of the largest open-air monastic site excavations in Europe, used multiple techniques including field names and soil samples to understand the pre-monastic landscape (Greene 1989; Howard-Davis and Brown 2008). Using a range of techniques, including archaeology, placenames, maps, documents, selective topographic survey, and air photographs, Brown gained a much fuller understanding of Cistercian Stanley Abbey (Wilts) and its associated land than could have been gained solely from documentary records (Brown 2012:120). Archaeological, documentary, and architectural techniques were used to investigate Cistercian Bordesley (Warwickshire) (Astill et al 2004; Astill 2011). Revisiting antiquarian investigations of monastic sites can be constructive, as shown at Glastonbury Abbey. There, new questions, and a fresh synthesis, setting aside previous assumptions, re-contextualised existing evidence within a wider body of material than was available to the original excavators (Gilchrist and Green 2015).

A project in the water/land matrix of the North Somerset Levels revealed 'an idiosyncratic combination of factors which shaped the countryside character: cultural, natural, regional, and locally-variable factors' (Rippon 2006). Such an 'idiosyncratic combination of factors' in a landscape study will necessarily differ across contexts. A bespoke research workflow was therefore designed for this study, which brought together qualitative and quantitative data from multiple disciplines.

Data and tools	Rye Vale	Vale of Pickering
Study areas	Follow direction of flow, from upper to mid-catchment	Follow increasing granularity within floodplain
Archaeological question	Evidence for pre-Cistercian use & Cistercian 'transformation'	Evidence for pre-Cistercian use & Cistercian 'transformation'
Soils	NSRI 2018; old Soil Survey	NSRI 2018; no old Soil Survey
BritIce Chrono **BGS geology data**	✓ ✓	✓ ✓
Lidar - elevation	✓ 1m - 50 cm resolution along much of upper – mid catchment	✓ 2m 50 cm resolution only available in small area – used as VoP4 study area
Lidar - intensity	✓ In 50cm resolution area	X
3D photogrammetry (SfM) (Historic England)	✓Over claustral area	X
Near-earth geophysics	✓Over areas in field to S of Bow Bridge	X
Aerial & satellite images	✓	✓
Historic documents & maps	✓ Incomplete tithe map coverage	✓ Complete tithe map coverage for VoP 3-5
Historic climate / weather data	Mainly documentary	Mainly documentary
Place names	✓	✓
Historic Environment Record	✓National Mapping Programme & North York Moors National Park Authority HER	✓North Yorkshire County Council HER. Not mapped by NMP
Grey literature	✓	✓
Analysis & project management	Iterative, in complex system hypothesis: GIS, Scrivener, analytical 'lenses'	

Table 3:1 Data and techniques used

3.4.2 Data

As suggested above, the properties of the physical environment were pertinent to this enquiry. The physical properties of the Yorkshire Derwent catchment were significantly affected by geology and ice-marginal processes. Data from the *BritIce Chrono* project (Clark et al 2018) was therefore used, as that project produced a:

> 'detailed map of the pattern of ice margin retreat that is based on - and traceable back to - the underlying landform evidence…. a quality controlled geo-chronometric database for future multidisciplinary research.'[25]

An archaeological study of fields in East Anglia found that areas most likely to have been used for early agriculture could be identified using factors such as access to water, soil type and drainage potential (Martin and Satchell 2008). British Geological Survey data was accessed through the Edina Digimap licence. Archive borehole records were

[25] University of Sheffield website accessed 20190817.

consulted through the BGS GeoIndex online map viewer. Soil data in the form of 1km^2 pdf reports supplied by NSRI under academic use licence were accessed as representing the most up to date generalised data. Where available older, but more detailed, mapping from the Harpenden Soil Series reports (Bendelow and Carroll 1976 and 1979) supplemented the NRSRI data.

Weather (short-term, localised environmental factors such as temperature and precipitation) and climate (longer-term trends in such environmental factors) may significantly affect options for agrarian activities and subsistence strategies. Interpretation in this study was based on the broad climate and weather picture for Eurasia around the time of the Medieval Climate Anomaly (c.AD 1200-1500), as synthesised by Campbell (2016). This was supplemented by regionally specific proxy data and documented narratives where available, such as Chiverell (1998 and 2001) and Menuge (2004a).

Spatially extensive surveys of the near and subsurface may now be facilitated by a range of remote sensing approaches (Ch'ng et al 2011). Aerial photographs and satellite imagery are important data for landscape archaeological investigation (Cowley 2010). The case of Newhall Tower (Cheshire) illustrated the high potential for aerial photographs to aid discovery of major late medieval archaeological sites (Fradley 2018: 27). Topographic survey of Cistercian sites has proven effectiveness, variously supplemented by documentary, cartographic study and aerial photographs, as at Tilty Abbey (Essex) (Clarke 2011); Byland Abbey (Yorkshire) (Jecock et al 2011); Bordesley (Worcestershire) (Astill 2011); Hailes Abbey (Gloucestershire) (Brown 2006); Stanley Abbey (Wiltshire) (Brown 2012), Kirkstead (Lincolnshire) (Coppack and Harrison 2014), Griff (North Yorkshire) (Hunt and Stone 2003).

The present study therefore used remotely sensed data to conduct both morphological analysis of the surface and preliminary characterisation of the subsurface. Geophysical survey is routinely used in archaeological research and has made a major contribution to medieval landscape research such as at Wallingford (Oxfordshire) (Christie and Creighton 2013) and Heslerton (Yorkshire) (Powlesland 2006). The author assisted in 2015 with collection of near-earth geophysical survey by Bradford University north of Rievaulx's

precinct. Aerial photographs and satellite imagery were used under licence from Edina Digimap and Google Earth unless otherwise stated. For study area R4, 3D photogrammetry ('Structure from motion'/ SUA) data as collected and processed by Historic England over Rievaulx's precinct (Pearson 2019) was used under licence.

The lidar (light detection and ranging) collected by the Environment Agency for flood risk mitigation purposes was used in both elevation (height) and intensity product. Lidar elevation data are now mainstays of historic landscape research (Fradley 2018:27). The potential of lidar intensity data, namely the amplitude of the reflected laser pulse, has been less widely applied. An investigation of lidar intensity data found that it had potential to contribute 'to a qualitative understanding of land cover and the burial environment of archaeological remains, either cultural or environmental,' with variations in intensity returns in fluvial contexts suggested most likely to be caused by sediment moisture content (Challis et al 2011: 1-11).

Catalogues of known archaeological evidence have been compiled by various agencies, and the Historic Environment Record for the study areas was therefore accessed. Such records are however likely to significantly under-represent medieval occupation, for example, medieval usages of uplands are generally not well understood (Costello 2016).

Maps and documents

The mapping of historical data, such as relating to urban convents in Belgium, adds 'a hitherto neglected geographical dimension to historical explanations' (Klaarenbeek and Coomans 2017). Historic maps are now routinely used in historic landscape research, typically to interpret surface expression of landscape features, to minimise, target or precede intrusive investigation (O'Donnell 2015; Oosthuizen 2006a). Map regression, beginning with post-medieval cartography, has become a common approach in the British landscape research tradition (Rippon 2004b:79-81).

Aspects of map use in historic landscape research can however be problematic. Although substantial concerns have been expressed (Austin 2007), the methodology of regression of post-medieval maps as the basis for analysis of pre-modern landscape (such as Roberts and Wrathmell 2002) has not received sustained scrutiny (Astill 2018:72). Maps are not

neutral records, but both products of, and agents in, the construction of cultural meaning (Cosgrove 2008). As representational models, maps suffer from the problem of equifinality (above). A medieval settlement may have changed location before maps were compiled, such as the late medieval settlement of Shapwick (Somerset) which appears to have shifted from the area established in earlier periods (Gerrard and Aston 2007:949-1012). Cartographic evidence earlier than c. AD 1600 is scarce, and those sources which do exist must be regarded as potentially problematic (Rowley 1982:25-55). The specific issues around one category of map data – those created for tithe commutation – are considered below. For this study, modern and historic Ordnance Survey mapping was accessed courtesy of Edina Digimap licencing.

Morphological evidence such as topographic survey and mapping requires chronological control. In the British historic landscape tradition, this chronological control is most usually supplied by documents (Astill 2018:72-73). Primary documentary study, synthesis and re-presentation of relevant grey, unpublished, and secondary literature are all important elements of an integrated landscape project. The 'abundance of documentary data available …and the relationship of medieval archaeology to the discipline of history … can allow a very different narrative to develop than tends to be constructed for earlier periods' (Fradley 2018:20). A combination of documentary synthesis and primary analysis has been found productive in projects as varied as into the landscape associated with late medieval castles in Kent (Johnson 2017) and village nucleation in Somerset (Gerrard and Aston 2007). Brown used documents including manorial records alongside maps – including estate, tithe, manorial, and 19th-century OS - to reconstruct the estates and features of Cistercian Stanley Abbey (Wiltshire) (Brown 2012).

Medieval documents have long been used for the study of Cistercian monasteries such as in England and Wales (Donkin 1978) and Wales (Williams 1990; 2001). The surviving written evidence for Rievaulx's land interests is however fragmentary and does not offer equal coverage for the whole of the abbey's existence. Rievaulx Abbey's collection of charters is one of the oldest Cistercian cartularies in Europe (Jamroziak 2005:20-21). The abbey may have begun to compile the documents in its cartulary within 50 years of its foundation, in the late 1170s or early 1180s, so the period before compilation is therefore best represented in the surviving sources (Burton 1998a; Jamroziak 2006: 64-65).

Rievaulx's cartulary came into the ownership of Robert Cotton (1571–1631). Cotton accessioned his documents in an idiosyncratic arrangement, whereby the title of the Roman bust surmounting each library squeeze was used as the catalogue descriptor. Cotton's documents from Rievaulx hence became known as Cotton *Julius D i*. The British Library retained this accession style when the collection came into its care.[26]

Rievaulx's cartulary is a complex artefact, with documents organised by connections such as donor's birth, marriage, or tenure (Jamroziak 2005:22). This is unlike the geographic arrangement of some other cartularies such as the fifteenth century cartulary of Cistercian Byland Abbey (Yorks.) (Burton 2004a). Spatial aspects of Rievaulx's land as recorded in its 12th-century cartulary can therefore be challenging to elucidate. Some references therein are to places whose names are somewhat common, such as Newton (new settlement) or Stainton, the latter common in the Danelaw as a placename. Few documents are dated, so their chronology must be inferred from other evidence, and forgeries in monastic charters are not unknown. As Cotton *Julius D i* has not yet been digitised, the most accessible copy remains the somewhat problematic edition prepared by John Atkinson, published in its series of monastic cartularies by the Surtees Society (Atkinson 1889). Many of Atkinson's editorial decisions, including substantial excisions, re-ordering of documents and insertion of secondary material, have been criticised as 'puzzling' and 'confusing' (Jamroziak 2005a).

Other documents are cited when used by this study. The provenance of some of these was difficult to establish conclusively, and the contextual material which could help to identify forgery or interpolation has not always survived. Many documents were preserved solely thanks to industrious antiquarians. Some of the records acquired by the Court of Augmentations from north of England monasteries were stored in St Mary's Abbey, York (English and Hoyle 1993: 91; Norton 1994: 256-257). Roger Dodsworth[27]

[26] British Library website accessed 20022018. BL Catalogue entry Cotton MS Julius D I, ff 5–193 'Cartulary of Rievaulx Abbey, including Canons of the Third Lateran Council, 1179 (7r–18v) -). British Library' (no date). Record available at British Library website: http://searcharchives.bl.uk/primo_library/libweb/action/ display.do ?dscnt=1&doc=IAMS041-001101708&displayMode=full&dstmp=1577894074566&_ga=2.34773025. 1255462467.1577872555-998282564.1574019671&vid=IAMS_VU2&ct=display&tabs=detailsTab&fromLogin =true (Accessed: 1 January 2020). An introduction to the Cotton collection is at: https://www.bl.uk/collection-guides/cotton-manuscripts

[27] Dodsworth was born on a farm near Helmsley which had formerly been a grange of Rievaulx Abbey. (McDonnell and Fox 1963: 255)

transcribed certain of these documents in the 1630s and 1640s (Burton 2004a: xxxix). Dodsworth and Thomas Fairfax had salvaged some of these from the fire at St Mary's in 1644 (English and Barr 1967-1970; English and Hoyle 1993:91-4). Dodsworth also worked with William Dugdale, and the first volume of their monumental joint work *Monasticon Anglicanum* was published in 1665. Antiquarian approaches to documents was sometimes problematic, for example in publishing summaries of documents, rather than the full texts. An example of a regular omission is the *pro anima* phrase, which antiquarians typically did not reproduce but which it is now realised can offer valuable insight into the social context of a transaction (Jamroziak 2005). John Burton drew on Dodsworth's material and other sources to present Rievaulx's major acquisitions in a catalogue style ordered alphabetically by place name (Burton 1758:358-366). Burton's alphabetic ordering however makes it challenging to identify the location to which his sources refer.

Other of Rievaulx's documents passed at the Dissolution to the new owner of the abbey, stored in archives at Belvoir Castle (Leicestershire) and subsequently given to the North Yorkshire County Records Office (Jamroziak 2005a:37). Some relevant documents may have been among those destroyed either by a fire at Duncombe Park in the late-nineteenth century or the burning of many papers in Helmsley gas works in 1919 (NYCRO ZEW; Smith 2014:15).

This study also accessed the Early Yorkshire charters (EYC), as transcribed and published by Farrer and Clay (1914-1965). EYC is however problematic as a resource. The volumes can be unclear precisely which *ms* is the source for each entry, and as noted, documents may be shorn of useful contextual material such as the *pro anima* phrase. Other documents were sourced for this study as appropriate, including coucher books and similar document compilations used by some organisations to record their acts or possessions. The Honour and Forest of Pickering records form part of the Duchy of Lancaster records (Turton 1894-1897). As such, Duchy records from the 14th century dominate the collection but some documents of earlier relevance were preserved such as Kirby's 1284 *Inquest* for Yorkshire. Other documentary sources are cited when used. Quitclaims, a legal device whereby rights were formally renounced, were scrutinised as these can reflect land rights or a related dispute.

The case of the water supply for Durham priory illustrates the complementary importance of both archaeological and documentary evidence. Magnusson (2001: *Preface* X) comments that:

> 'The author of the sixteenth-century Rites of Durham presents a sunny image of monks washing at the laver fountain and drying their hands on clean towels before entering the refectory. The Durham account rolls, on the other hand, paint a far grimmer picture of women watercarriers hauling water up the steep hill from the Wear River because the abbey's pipes were once again fractured or frozen. Archaeological excavations have confirmed the architectural details presented by the author of the Rites but also suggest that the pipe trenches were too shallow to protect the pipes from frost damage.'

Tithe records

Tithe records were investigated for both case studies as these have been useful in monastic land research elsewhere. Platt (1969) used 19th-century tithe commutation records to define tithe-exempt former Cistercian land in Yorkshire. Brown (2012) used tithe records to help elucidate aspects of Stanley Abbey (Cistercian, Wilts). Tithes (literally, a tenth) were in principle due to the Church on the produce of all land. This was an unpopular exaction in many quarters, but monasteries were liable to pay tithes (as well as to receive tithes, if they owned a church) unless an exemption was in force.

Certain monasteries (including, but not solely, Cistercian houses) were periodically tithe exempt on various grounds. One key exemption was on the grounds that the land in question was newly cultivated, referred to in documentary sources as *novalia*, or new land. Policy on tithe exemptions however fluctuated and was the cause of much dispute within the Church[28]. Church policy was finally agreed at the 4th Lateran Council (AD 1215) which ruled that only land which had been newly cultivated by certain monasteries (including, but not exclusively, those of the Cistercian order) would be tithe-exempt (Constable 1964). This exemption could be passed on in title with the land. In Britain,

[28] For example, Pope Hadrian IV limited tithe exemption to newly cultivated land (1154-9) then reversed this policy in 1160 (Constable 1964; Donkin 1978: 110)

those tithes which had not been extinguished by other means were commuted into a single payment by the Tithe Commutation Act of 1836. Implementation of the 1836 Act involved a survey of the ownership and occupation of all titheable lands across the country, the recording of the tithe liabilities for each parcel, and the calculation of the capital sum due in respect of each parcel to commute the tithe liability. The records of parliamentary tithe commutation typically included a file, a schedule of lands and their tithe valuation, and a map. Tithe mapping is however of variable quality and scale and is known to have been subject to errors (Kain and Oliver 2011). Tithe data was accessed via The Genealogist website (https://www.thegenealogist.co.uk).

Place and personal names

Place-name interpretation has made an important contribution to understanding of past changes in land use and settlement, especially where medieval settlement evidence appears limited (Fradley 2018 :24). For example, placenames provided insight into settlement patterns in Cornwall between the late Romano-British period and 13th/14th centuries (Turner 2006b). Place and feature names, such as fieldnames, can provide hints about land use and changes, such as meadowland in damp locations and intakes of woodland in the Bourn Valley (Cambs.) (Oosthuizen 2006a:34-45).

The present study treated place names conservatively because of known issues. Gelling cautions that archaeologists should not attempt primary interpretation of place names, as without the necessary professional competence amateurs can create interpretations which are onomastically incorrect (Gelling 1997 [1984]: unnumbered page). Given the small number of active scholars in the specialist field of onomastics and toponymics, the field has advanced slowly. Older studies, such as Smith's study of Yorkshire place names for the English Place Name Society (EPNS) (Smith 1928) contain known issues. For example, to permit others to comment it was the early practice of the English Place Name Society to publish problematic attributions as associated with a personal name (Gelling and Cole [2000] 2014: xxi). Leggett (2017) therefore suggests that ideally place-name experts and archaeologists need to work closely together. In this study, place names which occur in variants have been used in the form provided by the published source, except where it is argued that a variant may be significant.

3.4.3 Analytical approach

The issue of equifinality (above) was considered in designing the analysis for this study. Landscape characterisation (e.g., Roberts and Wrathmell 2000, 2002) has become a widely adopted approach to landscape analysis (Astill 2018). That approach was not adopted for this study as 'one morphogenetic type of landscape can hide very different historical phenomena and static typologies can result in teleological understandings of landscapes' (Tys 2013:20). Tys' approach was preferred here, which considered landscape transformation through 'landscape morphology, morphogenesis, and life trajectories of the material elements' (Tys 2013:200). That approach considered in context how actors dealt with these elements, without overly rigid classifications, aiming to 'hypothetically deduce which decisions and choices were made concerning the development of a landscape at any given time' (Tys 2013:202).

The previous chapter illustrated the potential pitfalls of anachronistic models prevalent in much work dealing with monastic land beyond the precinct, such as a simple 'economic' interpretation. Within the overarching model of a complex system (above) the present study attempted more nuanced interpretation of the motivation of medieval agents. The approach adopted can broadly be described as a series of analytical lenses, a well-established metaphor in landscape research (for example see Howard 2013:43-53). The purpose in using multiple analytical lenses was to generate more nuanced interpretations of interactions between human factors and physical processes in the natural world, through the interpretative overlap in such lenses. The precise definition of each individual lens is therefore relatively less important than the generative effect of their interface.

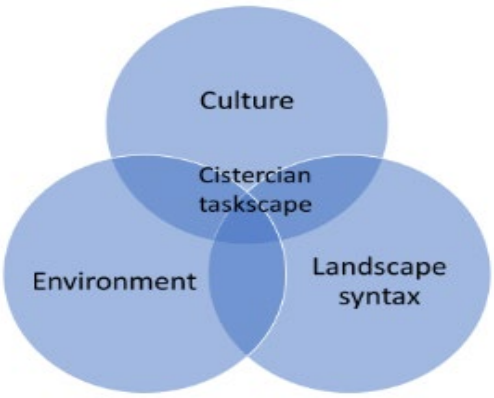


Figure 3:2 Overlapping analytical lenses used to interpret a Cistercian taskscape

In a case study of medieval landscape change in the Schwabian Alb (SW Germany), Schreg (2014:83) argued for the need to 'consider social aspects and subjective recognition of the environment by past humans as a crucial part of human–nature interaction.' The unifying feature of monastic activities was their overt direction at an overarching religious purpose. This encompassed a diverse range of activities, from the seemingly mundane (such as for subsistence or sanitation) through social (engagement with patrons) and spiritual (prayer, contemplation, and worship). A monastery therefore had an array of related activities, and thus can be considered as meeting the definition by Ingold (1993) of a ***taskscape****,* namely the temporal and spatial aspects of human life in landscape. Darvill (2009) summarises taskscape thus:

> '… the entire ensemble of tasks or actions that a society, community, or individual performs. The idea of the taskscape recognizes that all tasks are interlocking, and that any one task is embedded in the way that other tasks are themselves seen and understood. Thus, the very notion of a taskscape as a continuous or seamless spread of heterogeneous events and experiences stands in opposition to the widespread western practice of classifying activities into groups such as technological, subsistence, or ritual.'

A taskscape, then, can be understood as having elements which are susceptible of analysis. Ingold used five factors to analyse his taskscape: mobility, habitat, economy, nature, and public space (Ingold 1993:152-173). Since the coining of the term, however, both Ingold's work and wider theoretical developments have continued (Rajala and Mills 2017). The analytical elements of taskscape proposed by Ingold have been superseded by arguments for greater plurality than acknowledged by Ingold's original elements. The literature suggests that landscape offers a greater range of interconnected concepts than taskscape (Fairclough 2017:98-99). Ingold himself is now ambivalent about his creation, suggesting that taskscape may have been supplanted by landscape: 'Either will do, though with its rich historical resonances, landscape means more to me' (Ingold 2017:26).

The present author however considers that, with some reconfiguration, the concept of taskscape retains utility. In a voluminous literature in which the definition of landscape is

plural and highly contested (David and Thomas 2010b:27-43; Turner 2013:131-142), taskscape clearly signals processes of social construction which may be underemphasised by certain disciplinary definitions of landscape, such as those of the earth sciences. A taskscape is dynamic rather than in a static or immutable state: 'taskscape ….is to be considered as perpetually in process' (Ingold 1993:162). Taskscape is therefore potentially corrective to conceptions of the historic landscape as static palimpsest, noted in the previous chapter. Taskscape also offers a way to place the human worldview as central to inquiry, however imperfectly, rather than that of a research tradition. It can therefore help address the issue of disciplinary silos and research traditions identified in Chapter 2.

Qualitative (historic) data was analysed using well-established historical approaches such as source criticism, and the analytical lenses above. Published translations of primary sources in Latin were used where available. Unless otherwise stated, other translations are by the present author using the online database *Dictionary of Medieval Latin from British Sources*.[29] The quantitative geospatial data was processed and integrated using ArcGIS 10.3-10.7. The processing of the lidar intensity data merits mention as a potentially problematic set of results. Considerable challenges attach to the processing and interpretation of lidar intensity data, for example the lack of an industry-standard registration. The initial processing of lidar intensity data for this project was carried out by the author during her earlier Master's research (Horsfield 2014) but examined afresh for this project. Project management was carried out using Scrivener.

3.5 Summary

This chapter has described the theoretical, conceptual, and spatial definition of the current study, and the main types of data accessed and how analysed. The results of research into the posited 'transformation' by Rievaulx of study areas within the River Derwent catchment, Rye Vale (Chapters 4, 5 and 6) and the Vale of Pickering (Chapters 7 and 8) follow next, succeeded by discussion against the research question of 'transformation' (Chapter 9).

[29] http://www.dmlbs.ox.ac.uk/web/welcome.html

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Chapter 4 Rye Vale study areas R1-R3

4.1 Introduction

As outlined in Chapter 2, recent critical evaluations have led to substantial revisions of aspects of the Cistercian historic reputation. A key question however requires further attention: the physical basis for the Cistercian reputation for landscape 'transformation.' Historical studies elsewhere have emphasised the importance of context in understanding activities by individual Cistercian houses (Chapter 2.3). The case studies in this chapter through to Chapter 8 therefore investigate the question of landscape 'transformation' by a significant Cistercian monastery, Rievaulx Abbey, in both physical and cultural contexts.

This chapter and Chapters 5 and 6 examine the relationship between Rievaulx and the upper and mid-catchment of the River Rye. Terminology for this region can be confusing. The term Ryedale has multiple meanings: the dale through which the River Rye flows; a modern local government administrative district; the extent of a deanery of the Church of England; and a rather spatially imprecise description of the western area of the North York Moors. The term Rye Vale will therefore be used here, to describe the extent of the River Rye between its upland catchment as far as the floodplain edge near Helmsley.

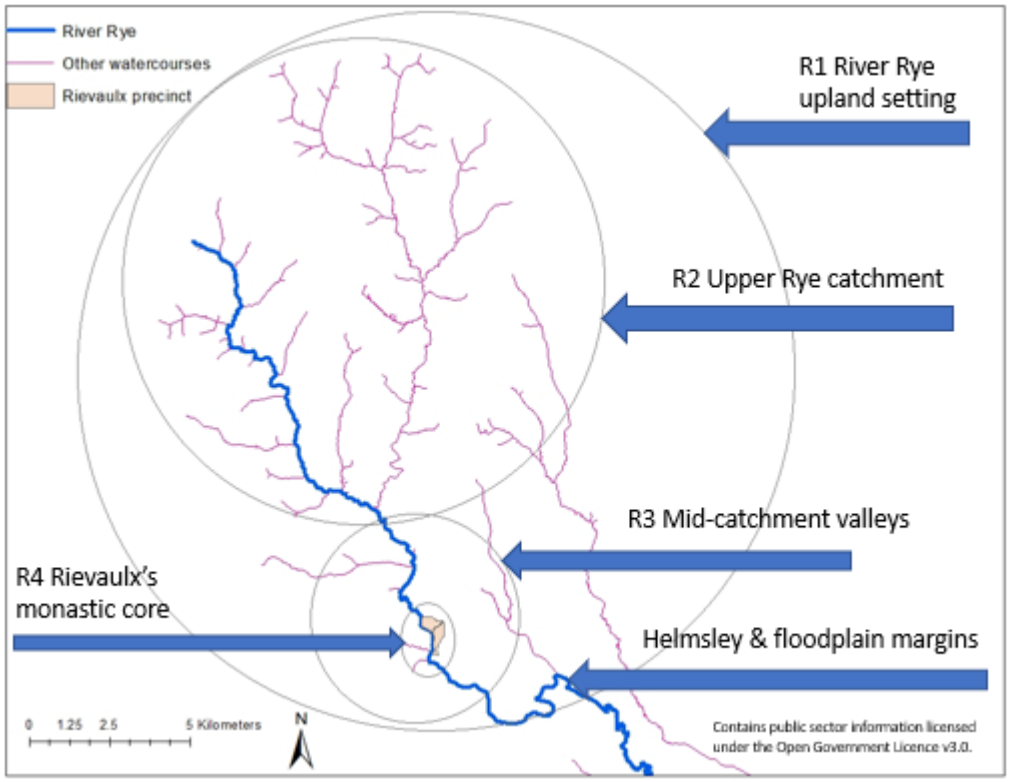


Figure 4:1 Simplified diagram of Rye Vale study areas.

The River Rye's extent and its broader context provides the overall study area, R1 (this chapter). (Figure 4:1). Then three study areas are nested within this extent which consider Rievaulx's relationship with landscape here in more detail. R2 is from catchment origins to near Shaken Bridge, where water courses run through markedly sloping terrain. R3 begins near Shaken Bridge and continues south, where terrain slope and hence watercourse energy reduces, and the Rye's meanders become less constrained by a widening of the valley floor. Chapter 5 considers R4, which is a more detailed consideration of Rievaulx's monastic core. That chapter includes a critical review of a 19th century theory of river diversions which is important to the question of Rievaulx's 'transformation.' Chapter 6 continues the analysis of R4, presenting a fresh interpretation of water/land management within the monastic core.

4.2 Rievaulx Abbey: foundation and early development

4.2.1 Traditional account of Rievaulx's foundation

Literature on Rievaulx presents an attractive narrative of the monastery's foundation, one derived from a medieval Cistercian account. St Ailred was Rievaulx's charismatic third abbot (1110-1167) whose life was recorded by his friend, Walter Daniel (Bell 2004). Daniel's *Vita* of Ailred presents what has become the accepted narrative of Rievaulx's foundation. In a version of this 12th-century text preserved in a 14th-century *ms* 'most likely' produced at Durham,[1] Walter Daniel wrote:

> *"…*these holy men reached England safely from their monastic wrestling ground across the sea. They set up their huts near Helmsley, the central manor of their protector, Walter Espec, a very notable man and one of the leading barons of King Henry I. The spot was by a powerful stream called the Rie in a broad valley stretching on either side. The name of their little settlement and of the place where it lies was derived from the name of the stream and the valley, Rievaulx.

[1] James 1895; Dutton 1994 FN2. In writing this account, Daniel may have had in mind Bernard of Clairvaux's letter prefixed to the *Mirror of Charity* (Powicke 1994:160).

> High hills surround the valley, encircling it like a crown. These are clothed by trees of various sorts and maintain in pleasant retreats the privacy of the vale, providing for the monks a kind of second paradise of wooded delight. From the loftiest rocks the waters wind and tumble down to the valley below, and as they make their hasty way through the lesser passages and narrower beds and spread themselves in wider rills, they give out a gentle murmur of soft sound and join together in the sweet notes of a delicious melody.
>
> And when the branches of lovely trees rustle and sing together and the leaves flutter gently to the earth, the happy listener is filled increasingly with a glad jubilee of harmonious sound, as so many various things conspire together in such a sweet consent in music whose every diverse note is equal to the rest. 'His ears drink in the feast prepared for them and are satisfied.'" (Powicke and Dutton 1994: 98).

Daniel's *Vita* of St Ailred may be in the tradition of what Heffernan termed 'sacred biography.' In such writing, facts may be adjusted, omitted, or supplemented to serve a spiritual purpose (Heffernan 1988; Dutton 1994:7). In the account of Rievaulx's foundation, therefore, facts about the landscape, as well as about people, may have been altered to serve a purpose. Other sources of evidence are therefore needed as a corrective to reliance on such texts. This evidence is, however, diffuse, so requires synthesis.

The foundation of a new Cistercian monastery was not an enterprise to be undertaken lightly. The monarch's consent was required, as was the consent of the Cistercian Chapter General (Burton 1994a:132). As outlined in Chapter 2, all new monasteries required donations of land on which to build, and land and other assets to provide for the maintenance of the house. Based on the early donations to Rievaulx as recorded in a 12th-century cartulary, Cotton *Julius D i*, Janet Burton, and Emilia Jamroziak have established the broad chronology of Rievaulx's foundation (Burton 1998a; 1999a; Jamroziak 2005). Abbeys at Waverley (Surrey, 1128-1129) and Tintern (Monmouthshire, 1131) (Knowles 1963:707) may already have been established by the time of an 1131 letter from St Bernard of Clairvaux to King Henry I of England and Wales. In this, Bernard skilfully used

the language of a military campaign to request the king's permission to send men to reconnoitre an unspecified location, which has been inferred as relating to Rievaulx (Jamroziak 2005). With no direct evidence however this association, and King Henry I's specific response, must remain a matter of conjecture.

The foundation date given in the records of the Cistercian General Chapter is 5 March 1132, a date which is also given in Ailred of Rievaulx's *Relatio de Standardo* (Janauschek 1877:22; Howlett 1886:181-199; Jamroziak 2005). Yet a third date for Rievaulx's foundation -1133 -is given in the Ros genealogy in Cotton *Julius D.i*. (Atkinson 1899:xl) [2]

A document in Rievaulx's cartulary entitled *Carta Walteri Espec de Rievalle*[3] describes two major gifts by Walter Espec (Jamroziak 2005:22). An extract from this document is reproduced below (4.2.3). This undated document has traditionally (for example by Atkinson 1889: 260) been termed Rievaulx's foundation charter. More recently, Espec's gift has been established as relating to two separate donations made some years apart (Burton 1998a:30). *Carta Walteri Espec* is therefore a composite, with the primary record of the foundation grant apparently not having survived. *Carta Walteri Espec* was published by Atkinson (1899) as *Cart Riev 42.* The document states that the abbey was given Griff, where there were four carucates, and *Thillestona*, where there were five carucates, with all that pertained to this land. A carucate was a measure of ploughland, namely the amount of land that a team of eight oxen could plough in a season, and such ploughland could be associated with unspecified amounts of meadow (Sheppard 1975:67-78).

Cart. Riev. 42 also sets out the second donation by Espec, which conveyed to Rievaulx a substantial proportion of Bilsdale, uplands which lay to the north and west of the monastery. This second gift may have been at the time of Espec's possible retirement, c1145-?1158 (Burton 1998a; Jamroziak 2005). The primary record of this, Espec's second gift, has also not survived. Both grants are however stated in another source within the cartulary: the documentary titled *Iste sunt possessiones Rievallenses perhennes quod sic collate sunt nobis* (*Cart. Riev.* 368). *Cart. Riev*. 368 is also a composite document, which

[2] BL, MS Cotton Julius D I, f. 15v [f 19v]; P. Leopoldus Janauschek, *Originum Cisterciensium,* vol. 1 (Windobonae, 1877), p. 22;
[3] folio 24 [fol 28] in British Library *ms* Cotton *Julius D.i.* published in Atkinson 1889 as *Cart. Riev.* 42

has been termed a *Memorial of Benefactions* (Burton (1998a). Although undated, internal evidence suggests that the *Memorial* may have been compiled in the late 12th century, by 1188 (Burton 1998a:29).

The *Memorial* lists benefactions in an order that appear broadly chronological. The first entry states that nine carucates in Griff and Tilston were given in 1131 to St Bernard of Clairvaux for the construction of an abbey. Jamroziak suggests that as Bernard of Clairvaux is here styled *beatus* rather than *sanctus*, this entry was written after the death, but before the canonisation, of St Bernard, namely after 1153 but before 1174 (Jamroziak 2005: 32-33). The foundational donor is not named but is inferred by similarities to details in *Cart. Riev.* 42 to have been Walter Espec. The third entry in the *Memorial* states that Walter Espec gave Bilsdale and its appurtenances (namely rights and lands pertaining to the land) to the abbey in 1145.

The work of Janet Burton (Burton 1998a) has enabled the identification of Rievaulx's general zones of activity within Northern England, a simplified version of which was reproduced earlier (Figure 1:3). Soon after foundation, Rievaulx began to acquire lands and rights which ultimately extended across Northern England, from the Tees Valley to South Yorkshire. Between 1132 and 1147, the abbey gained rights over land within an approximate radius of 12 miles from the abbey, from a relatively small set of benefactors (Burton 1998a:30-31). The connections and influence of Rievaulx's charismatic third abbot, Ailred (who was abbot between 1147-1167) may have facilitated an extension of the geographical extent of the abbey's land interests and its patronage circles, to include the Bishop of Durham and King Henry II (Burton 1998a:33-37). The latter's grant of lands in the Vale of Pickering will form the second case study, in chapters 7 and 8. Under Ailred's successor as abbot, Sylvanus (1167-1188) the abbey grew further and consolidated its interests (Burton 1998a: 37- 39). After 1188, the pace of expansion appears to have slowed somewhat but consolidation continued including through the exchange of interests with neighbouring religious houses. The lack of written sources for the period after 1188 directly comparable to the *Memorial of Benefactions* however make it difficult to establish a precise chronology (Burton 1998a: 39-43).

4.2.2 Rievaulx's founder, Walter Espec

The Walter Espec (?c1090-?1158) who made the foundational gift to Rievaulx of land near Helmsley (North Yorkshire) was a Norman 'new man' who rose to become one of Henry I's justices in the North of England and a Justice of the Forest. Espec had close ties to King David I of Scotland, although he commanded against King David, on the English side for King Stephen, at the Battle of the Standard in 1138 (Dalton 2004a).

It is unclear by what date the Espec family gained the land later given to Rievaulx. Substantial lands in Helmsley, including the vills of Griff and Tilstons, were held by two lords at Domesday: the king and Count Mortain (Table 4:11). References to 'vill' in DB are best interpreted as a settlement or an estate (albeit in some cases a small one) rather than 'village' (Dyer and Lilley 2012:83).[4] Elsewhere in Domesday Book, a 'William Spech' was noted at Warden in Bedfordshire (Atkinson 1889: xlv). By 1122 Walter Espec had gained, possibly from the Crown, estates in Wark (Northumberland) as well as assets in Helmsley (Dalton 2004a). Espec constructed a castle at his new manor of Helmsley (scheduled monument listing 1009963). This would hardly have been tolerated if the Crown also maintained a base there.

Espec's foundation of Rievaulx (1131-1132) had been preceded by his foundation of Kirkham Priory (Augustinian, North Yorks.) 1121-1122. Espec granted Kirkham substantial assets including the church of Helmsley and thus the right to the tithes from the vills of Griff and Tilstons (Burton 1977:102). At some date Kirkham appears to have ceded these tithes to Rievaulx Abbey[5] (Table 4:9) (*Cart Riev* 149; 234; 235). Espec founded another Cistercian house, a daughter of Rievaulx Abbey, in Warden, Bedfordshire in 1136. Espec's date of death is unknown, but it was sometime before 1158 when his land was accounted for by his heirs (Dalton 2004a). The circumstances are somewhat unclear under which Walter Espec decided to establish Rievaulx. These are therefore discussed in Chapter 9 as part of a consideration of motivation by the patrons involved in both case studies.

[4] The chronology and development of nucleated rural settlements in England is now thought to be prolonged and has been much debated (Gerrard and Aston 2007:3-9)

[5] Jamroziak (2005:39) suggests that Kirkham's ceding of these tithes formed part of the reshaping of Kirkham's property before a planned conversion of that priory to the Cistercian order. The evidence for this intention by Espec is however inconclusive, and such a conversion did not, ultimately, take place.

4.2.3 Definition of Rievaulx's 12th-century boundaries in Rye Vale

It is necessary to define the extent of Rievaulx's early land possessions to assess the subsequent 'transformation' of this land. This definition is difficult for several reasons. The documentary evidence is far from complete.[6] Cultural practices and land interests in Yorkshire in the 12th to 16th centuries could potentially include rights to a wide array of resources, which may not necessarily have formed coherent estates. Medieval land and property rights could be complicated and layered (Hoffman 2014:277). Rights such as to woodland, wood-pasture, and meadow pasture may have been distinct. It was not uncommon for the intricate nature of land interests to cause prolonged disputes.[7] Such factors limit the precision with which Rievaulx's impact area may be defined. This study therefore makes an assumption which may need to be revised if other relevant data are identified: that where 12th century boundaries are unclear these have been inferred from later boundaries, such as parish boundaries.

Espec's gifts of Griff, Tilstons and Bilsdale can only be approximately located. The spatial definitions of Espec's gift set out in *Cart. Riev. 42* bear reproduction, as these contain evidence of pre-Cistercian activities within the land later granted to the abbey:

> *…scil. terram de Grif, ubi sunt quatuor carrucatae, et terram de Thillestona, ubi sunt quinque carrucatae, cum omnibus appenticiis et rebus eisdem terris pertinentibus, in boscho et plano et pastura, et pratis et aquis, et omnibus allis locis, bene et in pace, et honorifice et libere et quiete de omnibus consuetudinibus et auxiliis et assisis et occasionibus et placitis et querelis, et omni terreno servitio, in perpetuum tenere—his divisis, scil:—*

'Griff, where there are 4 carucates, and Thillestona, where there are 5 carucates, with all that appertains to these lands, including woods, plain and pasture, fields and waters, and all other places, to be held without disturbance, free from all customary dues, duties and

[6] Atkinson (1889:254) commented 'It is much to be regretted on all hands that no original grant of lands or territory in Raisdale appears to be extant. We learn much as to the early topography of Bilsdale from Walter Espec's charter, but of those divisions of Bilsdale, distinguished by the name of Raisdale, Bilsdale Birdforth, Bilsdale Midcable, Bilsdale Kirkham, and the like, no corresponding ancient delineation or local description, however imperfect, is known to exist. It is evident from the present deed that the old grants might have abounded with local and other information.'

[7] For example, on Snilesworth Moor the rights of Byland Abbey and the de Meinil family were the subject of a long dispute (Burton 2004a: 363).

pleas, and all land service, in perpetuity, with the following boundaries.' The boundaries are stated next, a translation of which is given in Table 4:1, and these locations are used at the basis for the maps in this chapter: -

> *Ab eo loco ubi Sperragata venit ad Riam, omnem aquam usque ad Fangadala et inde per Fangadala sicut divisae sunt inter me et Steinton usque ad magnam viam quae venit de Widheris, et inde supra clivum montis quantum meae divisae tenduntur versus Clivelandam, et subtus clivum montis a monte qui vocatur Traneshof per vallem quae dicitur Landesmere usque ad aquam quae currit per Bildesdala: hae sunt divisae a parte occidentis.*
>
> *Ex parte vero orientis, a supradicta Sparragata per eam usque ad illam viam qua itur de Grif ad molendinum de Sproxton, et inde per viam qua itur inter duas Haias—scil. illam de Grif et mediam Haiam, usque ad sartum, et inde totam vallem usque ad parvam Haiam de Thilleston, et inde inter planum de Thilleston et oram nemoris usque ad quandam fossam e contra ubi Depedala et Lithlebec conveniunt, et inde totam vallem Lithlebec usque ad Raudepade, et inde per viam magnam usque ad furcam viarum,et inde per viam a dextra super Smidhesdala usque ad acervum lapidum qui vocatur Bacheler, et inde retroductu supra Thriplesdala usque ad magnam viam quae venit de Thurchilesti et per illam viam quantum meae divisae tenduntur versus Cliveland supra clivum montis, et subtus clivum per rivulum qui vocatur Willelmesbec et est divisa inter me et Johannem Engelram, usque ad supradictam aquam quae currit per Bildesdala.*
>
> *Et praeter haec concede eis omnia aisiamenta sua in maneria [sic] et in foresta mea de Helmeslac—scil. materiem et ligna ad suos proprios usus, et pascua et panagia ab omni consuetudine quieta in omnibus boscis meis de Helmeslac, sicut ego ipse liberius et quietius habeo ad meum proprium opus….*

	Eastern boundaries	Comments
1	*Ab eo loco ubi Sperragata venit ad Riam* - from Sperragate to the Rye	The location of Sperragate is unknown. Atkinson's suggestion of the route between what is now the B1257 and Abbot Hagg is unsatisfactory as a boundary as it omits much of Griff. A route closer to the outer wards of Helmsley is more likely.
2	*omnem aquam usque ad Fangadala* – all the water as far as Fangdale	Fangdale Beck is still extant on modern mapping
3	*inde per Fangadala sicut divisae sunt inter me et Steinton* – by Fangdale to the boundary between me [i.e., Espec's land] and Steinton	The northern boundary between Espec's land and Steinton was formed by Fangdale Beck. Steinton's other boundaries are defined in de Meinil, Malebestia, and Mowbray's gifts / confirmations to Rievaulx (*Cart Riev* 70-73)
4	*usque ad magnam viam quae venit de Widheris* – as far as the great road from Widheris	Certain paths from Weatherhouse (A) still form a parish boundary. It is not however clear where the 'magnam viam' may have been (B)
5	*et inde supra clivum montis quantum meae divisae tenduntur versus Clivelandam* - and by the slope / hill as far as the boundary between my land and Cleveland	? This hill cannot be securely identified, but locationally may be on one side of Raisdale (B)
6	*et subtus clivum montis a monte qui vocatur Traneshof* – and below that hill to the hill named Traneshof	May be Bilsdale / Snilesworth moor boundary (A) 'Traneshof' is a strange hill name for the period - a transcription error?
7	*per vallem quae dicitur Landesmere* – by the valley / ditch called Landesmere	'Landesmere' may have been a rivulet connecting to William Beck (A)
8	*usque ad aquam quae currit per Bildesdala* - as far as the water that runs through Bilsdale	i.e., River Seph (A)
	Western boundaries	
9	*[a supradicta] Sparragata per eam usque ad illam viam qua itur de Grif ad molendinum de Sproxton* – [the above-mentioned] Sp[e]rragate as far as the way from Griff to Sproxton mill	See above on Sperragate
10	*et inde per viam qua itur inter duas Haias—scil. illam de Grif et mediam Haiam, usque ad sartum, et inde totam vallem usque ad parvam Haiam de Thilleston* – by the road between two 'haia' – that of Grif and middle haia, as far as [the assart], and all of the [vallem] as far as the small haia of Tilston.	As a 'haia' could be either a hedge or an enclosure in a forest (DMLBS), and Espec's forest of Helmsley is mentioned in this document, the latter meaning is preferred here, thus through certain enclosures and assarts in the forest
11	*et inde inter planum de Thilleston et oram nemoris* -and in between the [planum] of Tilston and the forest	A route between the flat place of Tilston and the forest
12	*usque ad quandam fossam e contra ubi Depedala et Lithlebec convenient* – as far as the fossa (ditch / dyke) where Depedale and Lithlebec meet	Based on the boundary line between Rievaulx and Helmsley parishes, Depedala and Lithlebec may have been Etton Gill and Borough Beck respectively (B)
13	*et inde totam vallem Lithlebec usque ad Raudepade* – and all the valley / ditch of Lithlebec as far as Raudepade (Roppa)	[Based on the above] the valley of Borough Beck as far as Roppa (A)
14	*et inde per viam magnam usque ad furcam viarum* – By the 'great road' as far as the fork in the road.	Beyond Roppa, the footpath crossing the moor divides Laskill Pasture Moor on the east from Helmsley Moor on the west
15	*et inde per viam a dextra super Smidhesdala usque* - By the right-hand road above Smidhesdala.	From the route taken so far, this 'Smith's Dale' appears to have been on the eastern side of Bilsdale, not far from Chop Gate, so A's

		association of Smidhesdala with the 'Iron Smiths' mentioned in Dissolution surveys makes little sense. A '*Smiddales*' is marked on 10k OS mapping at SE 58727 95320. The line continues broadly along the ridge of high ground. Taking the right-hand way deviates slightly from parish boundaries, to encompass Bilsdale East Moor centred on SE 59924 94916, returning to the ridge line and parish boundaries along Bransdale Ridge
16	*ad acervum lapidum qui vocatur Bacheler* – to the pile of stones known as Bacheler	Bacheler = Badger Stone (A). (SE 59924 94916)
17	*et inde retroductu supra Thriplesdala* - turning back towards Thriplesdala	Turning back (i.e. left, west/south-west) from Badger Stone takes the path towards Tripsdale. The remaining entries may be somewhat out of order
18	*usque ad magnam viam quae venit de Thurchilesti* – as far as the great road from Thurchilesti	The *Thurkilesti* route has long foiled attempts at secure identification, although the broad direction of stretches of it have been suggested. One branch of an old route may have originated somewhere near Welburn, thence to Skiplam Moor and Roppa Moor and continuing northwards (A,B,C). The route/s beyond this point are more conjectural and not sufficiently clear to allow secure identification of this boundary element
19	*et per illam viam quantum meae divisae tenduntur versus Cliveland supra clivum montis* – and by the road which marks the boundary between my [Espec's] land towards Cleveland	It is not clear which route or *montis* is intended, and this entry appears to duplicate a phrase earlier in the document (entry 5).
20	*et subtus clivum per rivulum qui vocatur Willelmesbec* – below the slope by the stream known as Williamsbec	The boundary between the parishes of Bilsdale Kirkham and Bilsdale Low Midcable is marked partly by William Beck, which is still extant on mapping
21	*et est divisa inter me et Johannem Engelram* – and the boundary between me [Espec] and J Engelram	This entry puzzled Atkinson, who suggests Engelram's was a small parcel of land adjoining William Beck and that this entry was thus out of order
22	*usque ad supradictam aquam quae currit per Bildesdala* – as far as the above-mentioned water that runs through Bilsdale	After William Beck, the parish boundaries run along Breck Gill to Cock Howe. Here a ridge south-east by Miley Howe defines the boundary between Bilsdale and Snilesworth, continuing along Weatherhouse ridge. The eastern boundaries (above) suggests the boundary then turns eastwards towards and along Fangdale Beck then the lower Seph
23	*…Et praeter haec concede eis omnia aisiamenta sua in maneria [sic] et in foresta mea de Helmeslac—scil. materiem et ligna ad suos proprios usus, et pascua et panagia ab omni consuetudine quieta in omnibus boscis meis de Helmeslac, sicut ego ipse liberius et quietius habeo ad meum proprium opus….* …and all easements in my manor and forest of Helmsley – wood for their own use, wood pasture, pannage and customary uses in my wood of Helmsley, freely and without disturbance for their own use	

A. Atkinson 1889 B. McDonnell 1963:69-80 C. Turton 1932

Table 4:1 Broad extent of Espec's donations

4.2.4 Rievaulx's monastic neighbours and other relevant grants in Rye Vale

Rievaulx received many other grants in Rye Vale (Table 4:9 at chapter end). These included gifts from the Ros family, who were related to Espec through his sister Odelina's marriage to Peter de Roos (Atkinson 1889:21). Everard de Ros gave land near Helmsley, (*Cart. Riev.* 44), possibly what now lies within Duncombe Park estate. The patchwork of dues and service owed on the land donated by Espec may not have been entirely extinguished by his gift. For example, the Ros family in the 13th century remitted to Rievaulx one mark annually due from service in Bilsdale (*Cart. Riev*. 98). The broad boundaries of Espec's gifts are given in Table 4:1 and are conjecturally reconstructed in Figure 4:2, which reflects also the relatively small parcel of land given by Everard de Ros in the outskirts of Helmsley. [8]

Rievaulx's land holdings were bordered by, and in places interlaced with, those of many other religious houses (Figure 4:3, Figure 4:4). Some of the boundaries here may have been preserved as parish boundaries, the 1850 records of which may offer an approximation of 'spheres of interest' by Rievaulx and the other religious houses in Rye Vale, although the specific boundaries must be read with caution (Figure 4:2, Figure 4:4). Rievaulx's land in Bilsdale adjoined land previously given by Espec to Kirkham Priory (McDonnell 1963b; Burton 1998a). The extent of land given by Espec to Kirkham Priory appears preserved as a division of Bilsdale (Helmsley parish) (McDonnell 1963b: 124-128). To the west of Kirkham's land lay the vill of Raisdale, divisions possibly preserved as units in Helmsley parish. Raisdale was held in the 12th century by Roger de Mowbray, whose family became the most prolific lay donors of Rievaulx Abbey (Jamroziak 2005:22). Mowbray's tenants Stephen de Meinil, Hugh Malebestia and Simon de Ver also ceded to Rievaulx their interests in Raisdale. Mowbray and his tenants also gave a vill known as Steinton[9] to Rievaulx (Cart Riev 70-73, 322, 362[10]) (Table 4:9). Steinton as defined in

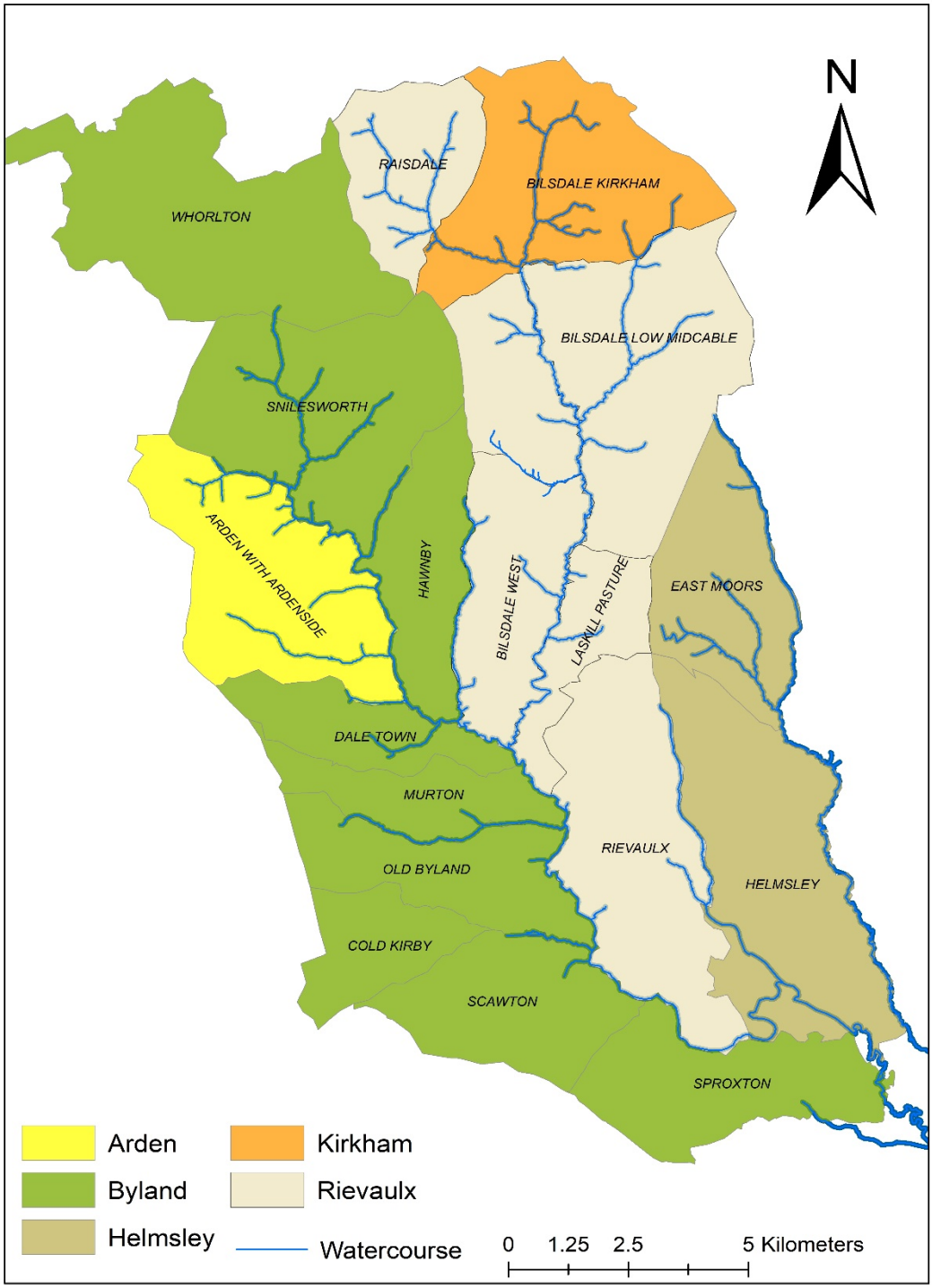
[8] The Ros family also gave land and grazing in Pockley, on the fringe of the Vale of Pickering (*Cart. Riev*. CLXXII). Did this also entitle the monastery to the 'Pockley Moor' on the edge of Bilsdale Moor at SE 59664 96163?

[9] Identification of Steinton is problematic, as multiple references to a Steinton / Stainton can be met with across Yorkshire, such as William de Gant's gift of a Stainton which was given to Henry II in return for Pickering Marishes, the subject of the case study in Chapters 7-8. Atkinson (1899:17) traced Steinton based on the donational charters from the Mowbray tenants as 'bounded on the west by the Laddale Beck; then on the southwest and south by the Rye; on the east by the Sef; and on the north by Fangdale, including, however, it may be, a section of the latter'. McDonnell and Hayes agreed (1963:73)

[10] Inserted by Atkinson from the Kirkham cartulary into his 1899 edition of the Rievaulx cartulary.

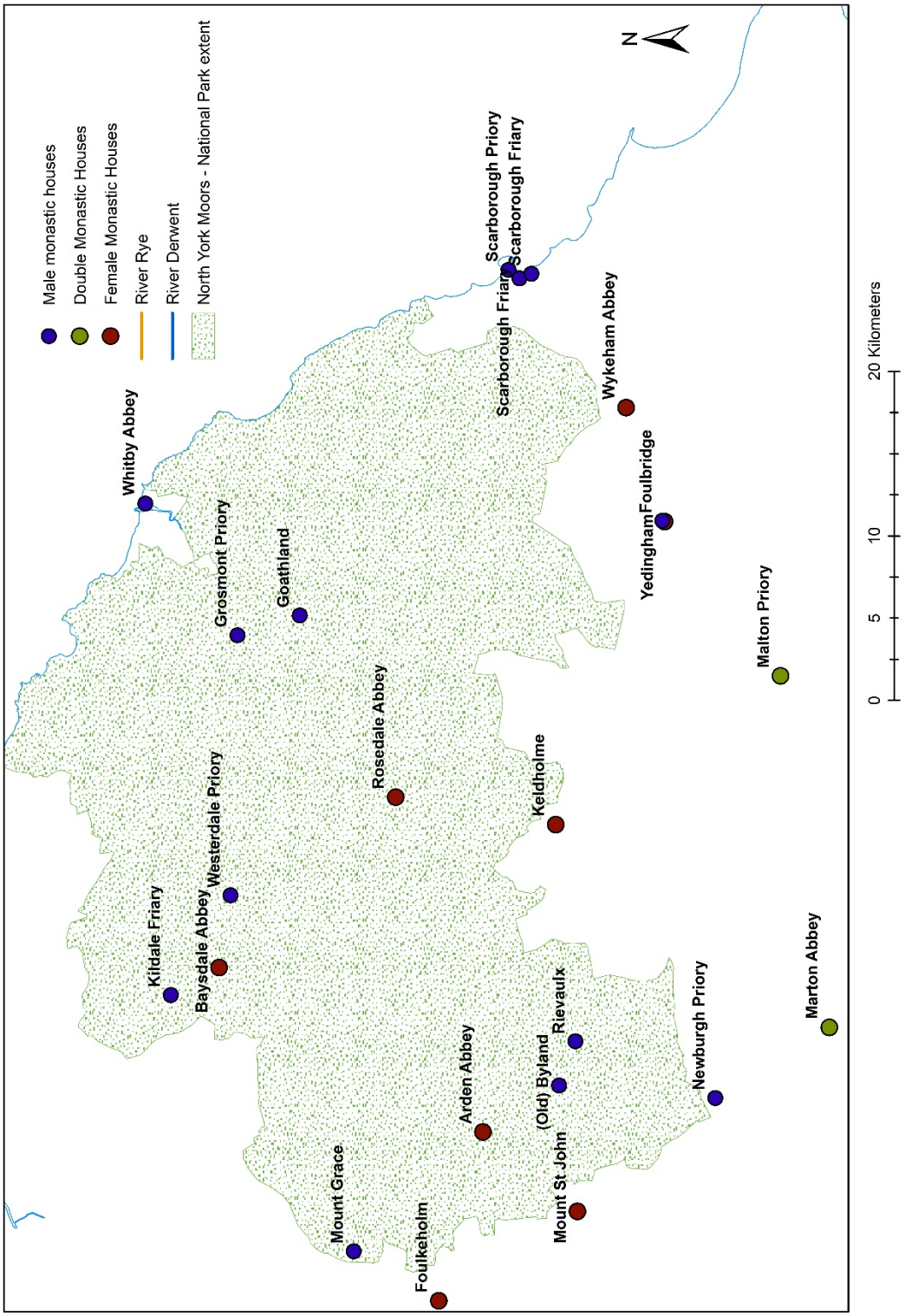
those charters lay in what became in Hawnby parish, the southern half of Bilsdale West. (Figure 4:4, Figure 4:11)

Known nunneries in the western Moors included Arden (Benedictine), and Rosedale and Baysdale (both Cistercian) (Burton 2006a). Guisborough Priory held lands which bordered those of Rievaulx to the north of the Moors, towards the River Tees.



Data from: Burton, N., Westwood, J. and Carter, P., *GIS of the Ancient Parishes of England and Wales, 1500-1850* [computer file]. Colchester, Essex: UK Data Archive [distributor], March 2004. SN: 4828**.** Created by Burton and Southall from the electronic map and gazetteer: Kain, R.J.P. and Oliver, R.R., *Historic Parishes of England and Wales: an Electronic Map of Boundaries before 1850 with a Gazetteer and Metadata* [computer file]. Colchester, Essex: UK Data Archive [distributor], May 2001. SN: 4348.

Figure 4:2 Rievaulx and her major neighbours - approximation of areas of interest in Rye Vale



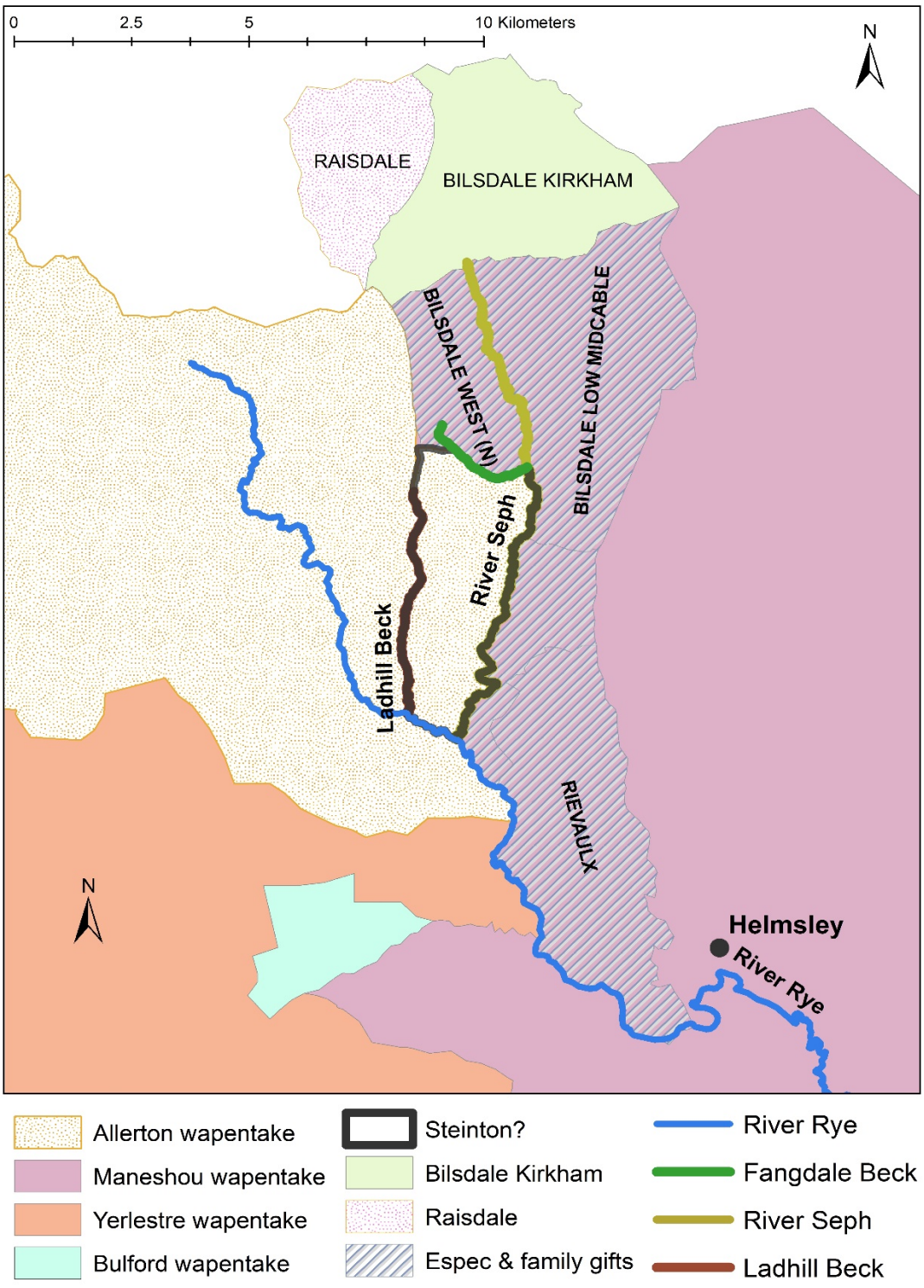
After Burton 2004 Fig 6.14 Contains public sector information licensed under the Open Government Licence v3.0

Figure 4:3 Monastic houses in North York Moors and adjoining lowland

One of Rievaulx's closest relationships, both in terms of spatial location and, ultimately, confraternity, was with Byland Abbey. The Byland community was established by the Savignac monks of Furness (Lancashire) who in 1134 founded a house at Calder (Cumbria) that was subsequently destroyed by the Scots. The Calder monks were offered a site at Hood (Yorkshire) to which they moved in 1138, but the site proved unsuitable so in 1143 the monks moved to Old Byland, under the patronage of Roger de Mowbray (Burton 2004a: xxiii-xxiv). The Mowbray family gave Byland substantial areas of land on the western bank of the River Rye, including the moor at Snilesworth, with one boundary formed by Hesketh Dyke (Spratt 1989:33). In 1147 the monks of Byland moved to another site, at Stocking, and to yet another, New Byland, in 1177, but retained the name of Byland Abbey (Knowles 1963:708). 1147 was also the year in which the Savignac order was incorporated within the Cistercian order, and so from this date Byland came into Cistercian confraternity with Rievaulx.

Espec's gifts meant that Byland and Rievaulx's holdings in the Hambleton Hills bordered each other. On the west bank of the Rye, Rievaulx ultimately gained land parcels and interests within Byland Abbey's area of interest, such as at Scawton, which had a chapel dependent on Byland. Byland also had granges in the western North York Moors, including at Cold Cam (Sutcliffe 2010: 62-65). Since the 19th century, the relationship between Byland and Rievaulx in the River Rye's mid-catchment been associated with a problematic theory that Rievaulx by consent of Byland diverted the Rye at the monastic precinct (Atkinson 1899, Rye 1900). The Byland / Rievaulx relationship will therefore be considered further in Chapter 5 as part of a discussion of the monastic core.

The gifts initiated by Espec led to Rievaulx having rights over a substantial proportion of the North York Moor uplands. By the mid-12th-century Rievaulx held rights over much of what is now Rievaulx parish, namely from the uplands to the outer wards of Helmsley vill. Perambulations between 1637-1642 of the Honour of Helmsley, Bilsdale Kirkham and 'Bilsdale Ryvalx' suggests that certain boundaries here were still in dispute in the 17th century (McDonnell 1963c: 431-435).



Data adapted from © Dr Stuart Brookes 'Landscapes of Governance / Domesday Shires and Hundreds of England' project, https://doi.org/10.5284/1058999 used under Creative Commons Attribution 4.0 International Licence; © Burton, N., Westwood, J. and Carter, P., *GIS of the Ancient Parishes of England and Wales, 1500-1850* [computer file]. Colchester, Essex: UK Data Archive [distributor], March 2004. SN: 4828**.** Created by Burton and Southall from the electronic map and gazetteer © Kain, R.J.P. and Oliver, R.R., *Historic Parishes of England and Wales: an Electronic Map of Boundaries before 1850 with a Gazetteer and Metadata* [computer file]. Colchester, Essex: UK Data Archive [distributor], May 2001. SN: 4348.

Figure 4:4 Conjectured wapentake boundaries and Rievaulx and Kirkham's adjoining interests in Bilsdale

4.3 Physical landscape in which Rievaulx was founded (R1)

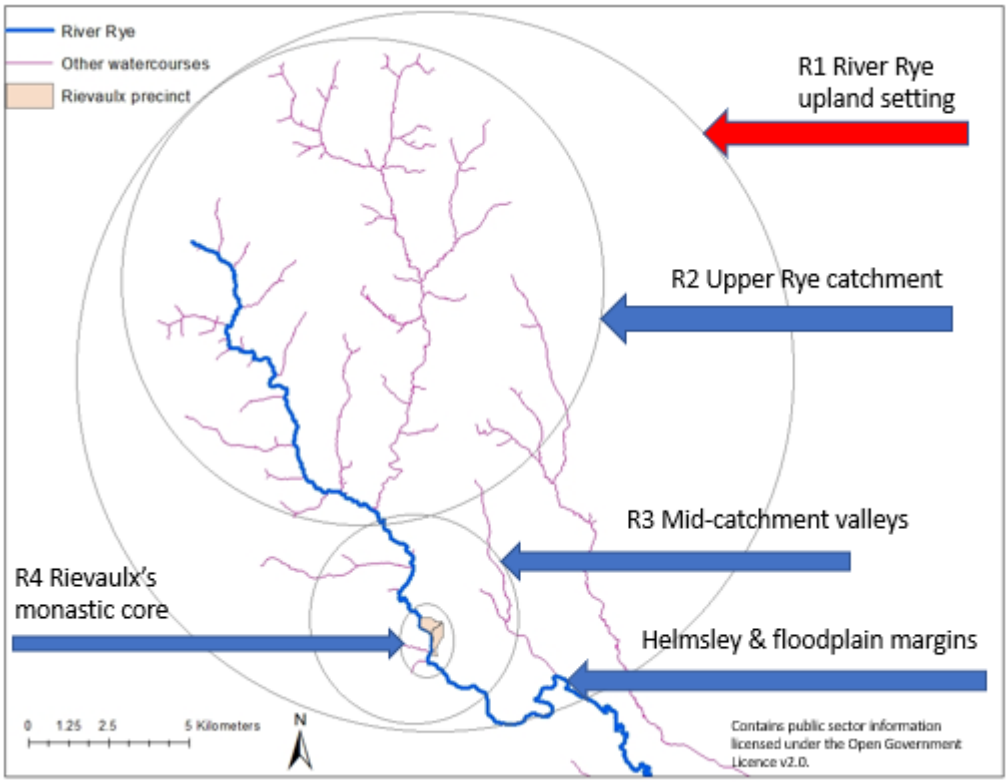


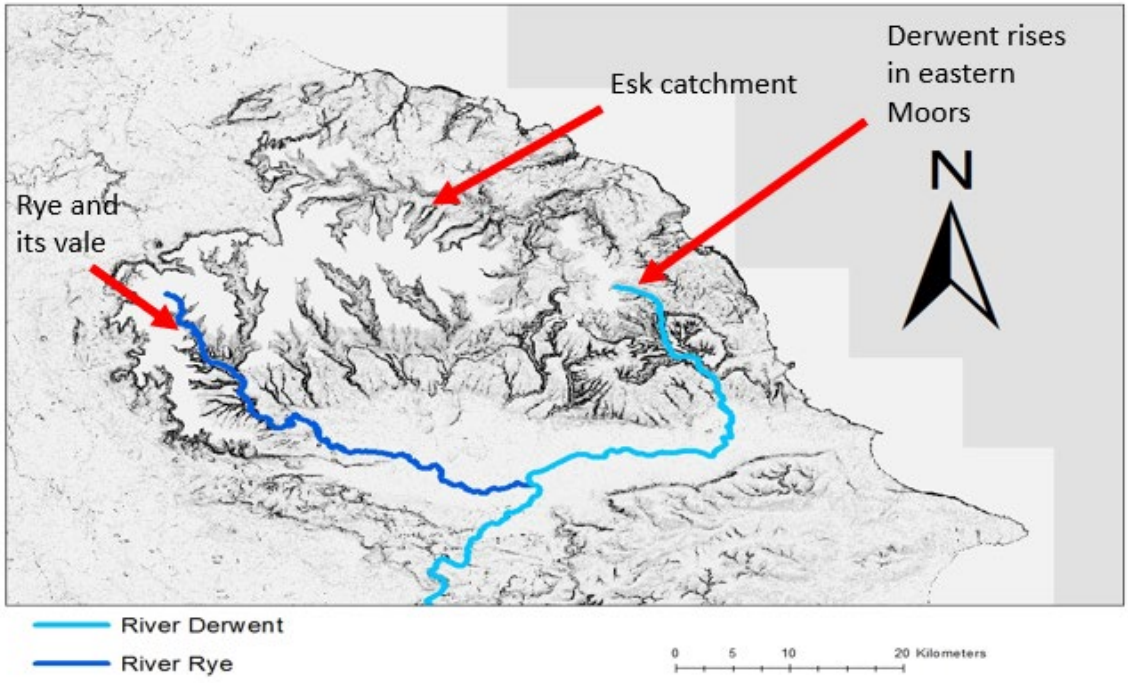
Figure 4:5 R1 River Rye and its upland setting

Having established Rievaulx's broad area of interest in Rye Vale, the next question is to establish a baseline from which to assess whether this land may have been 'transformed' under Cistercian control. It is difficult to establish such a baseline, however. As noted in Chapter 2, landscape is dynamic, and human interventions in the water/land matrix interact in complex ways with physical processes. Knowledge of both physical processes and the possible nature of human interventions is therefore needed to discriminate the 'change agent' in a specific case. Environmental resource availability is also relevant, affecting the options for, and utility of, different modes of human exploitation. This section therefore focuses on physical factors affecting capability of land for agrarian use, including geology, glaciation, geomorphology, and drainage. Climate and weather will be considered where relevant.

The River Rye originates in the uplands[11] of the massif known as the North York Moors (henceforth, the Moors). The Moors massif is bordered by the plains of the Vales of Cleveland, York, and Pickering to the north, west and south, and by the North Sea to the

[11] Uplands defined as above 300m. Further east the Moors rise to a height of 454m at Urra Moor (Atherden 2004: 4).

east. At 404m, Noon Hill (also known as Green Howe) is the highest point of the western block of the Moors (Chiverrell 1998:5). In the western Moors, a series of valleys, trending broadly north to south-east, cut through the hill ranges known as the Cleveland and Hambleton Hills, forming the main surface drainage routes. The River Rye originates as a spring at SE 50963 98996 between Whorlton Moor and Black Moor (Allen et al 1997: 132). The Rye flows south-east, fed by upland water courses including the River Seph and Bilsdale and Raisdale becks. The River Rye then flows through a mid-catchment valley, within which Rievaulx's monastic core is situated. The Rye enters its floodplain near Helmsley, then flows across the Vale of Pickering to join the River Derwent near Marishes. The Derwent drains into the Yorkshire Ouse basin which in turn debouches into the Humber Estuary (Taylor 2004: 9; Howard and Macklin 2004: 14-17). The north-eastern area of the Moors, the Esk catchment, drains westerly into the Tees catchment and does not contribute to the Derwent catchment.

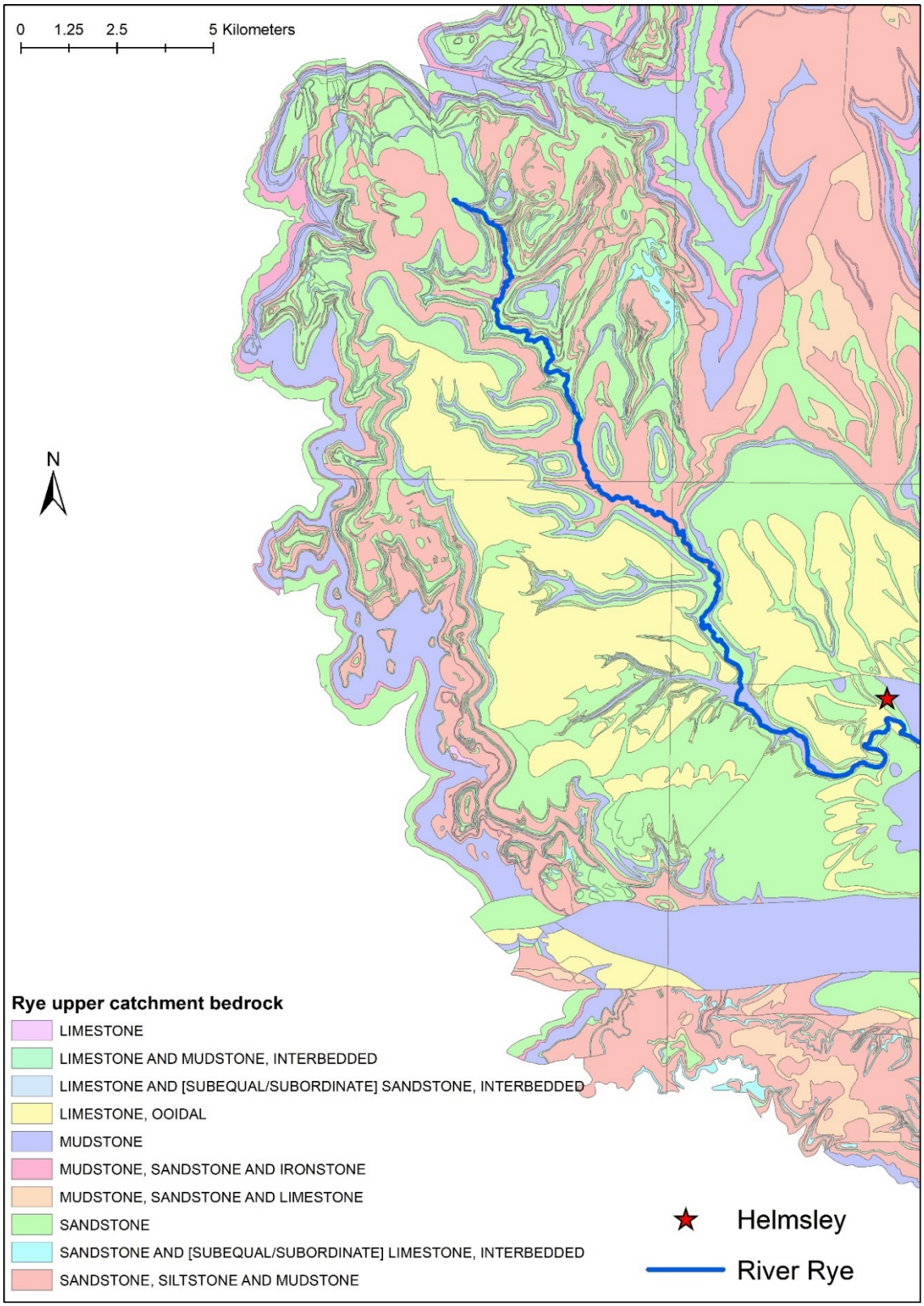


Ordnance Survey (GB), Terrain 5 [ASC geospatial data], Scale 1:10000, Using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk>, Downloaded: 2020-06-14

Figure 4:6 The Rye and Derwent arise on the Moors and meet in the Vale of Pickering

The Rye and its tributaries flow over different geologies which variously affect surface drainage properties and hence suitability for agrarian use (Figure 4:7). The Moors massif was formed by marine deposition in the Cleveland Basin during the Jurassic, succeeded by Cretaceous uplift, and Tertiary basin inversion (Hemingway and Riddler 1982). Folding and erosion followed (Powell et al 1992). The geological succession dips gently to the east (Powell and Ford 2011). Upper geological layers are typically Middle and Upper Jurassic sandstone, mudstone, and limestone (Powell et al 1992:25-72). An oolitic Corallian limestone series is present along the southern aspect of the Moors massif as far as Scarborough (Powell et al 1992: 25-72).

The limestone that underlies much of Rye Vale is subject to fissures, faulting, and landslip (Powell and Ford 2011:5). The south / south east extent of the Hambleton Hills is separated by the Coxwold-Gilling Fault and Kirkham Gap from the tectonically complex Howardian Hills (Wilson et al 1934:249). Mass movement (namely bulk movements of soil and rock) manifests as landslip around the western edge of the Hambletons, and along the upland valleys and moors such as Caydale and Hawnby (Powell et al 1992:91-92). A downthrow fault crosses the southern section of Rievaulx's precinct (BGS data; Powell et al 1992: 84-90). Ridge-and-trough features, hillside trenches and uphill-facing scarps, and enterable widened joints formed by valley-ward mass movement (bulk gravity movement of rock and soil) occur in several locations within the Hambleton Hills (Cooper 1980: 149-156). Some of the enterable widened joints lead to underground cavities known locally as 'windy pits', so named because of the upcurrents of air periodically emitted (Hayes and Rutter 1963:16-27, Cooper et al 1982: 1-14, Leach 2006; Murphy and Lundberg 2009). Localised processes such as landslips (above) and glaciation have led to solifluction and deposits such as loess (windblown silt), and rock debris (Powell et al 1992:73-81).



Contains BGS data Scale 1:50000, Downloaded 2020-06-23 using: EDINA Geology Digimap Service https://digimap.edina.ac.uk. River Rye added for orientation

Figure 4:7 bedrock of upper Rye catchment

This study considers human interactions with hydrology. Many drainage channels in the Moors originated as meltwater, subglacial or ice-marginal features (Atkinson 2004:13). The natural surface water routes here were significantly determined by Pre-Devensian glaciation,[12] periglacial stages and fluvial down-cutting which created the series of deeply incised valleys across the Moors (Cooper 1980:149-156; Powell and Ford 2011:11). Drainage also varies depending on bedrock. Drainage over sandstones and mudstones of the upper catchment has low levels of surface absorption through the relatively impermeable layers. Surface water flow over the limestone can be unpredictable, as streams can 'disappear' down fissures in the limestone, to emerge lower in the drainage system as springs (Powell and Ford 2011:5). Multiple physical factors therefore affect natural drainage in Rye Vale.

[12] Most of the Moors massif inland of the coastal zone and Eskdale is thought not to have been covered by the Devensian glaciation (Gregory 1965; BRITICE data 2016). The phenomenon of ice-dammed lakes elsewhere in the North York Moors (such as at Kildale, Eskdale and Glaisdale, and north of Hackness) appears only at the outer extent of the western uplands, near Whorlton Moor (SE 51610 99585) and Westerdale Moor (NZ 65842 04308) (BritIce data 2016). Uranium series (TIMS) dates from speleothem taken from several windy pits (Noddle End, Antofts and Spaunton Quarry) suggest that the region has been free of ice from some time before Marine Isotope Series 7, ~208 to ~190 ka (Murphy and Lundberg 2009: 305-313). A local ice sheet may have existed over an area of the Hambleton Hills, extending into the Vale of Pickering in MIS8 with a possible southwestern lobe near Helmsley (Powell et al 2016).

4.4 Factors inherited by Rievaulx

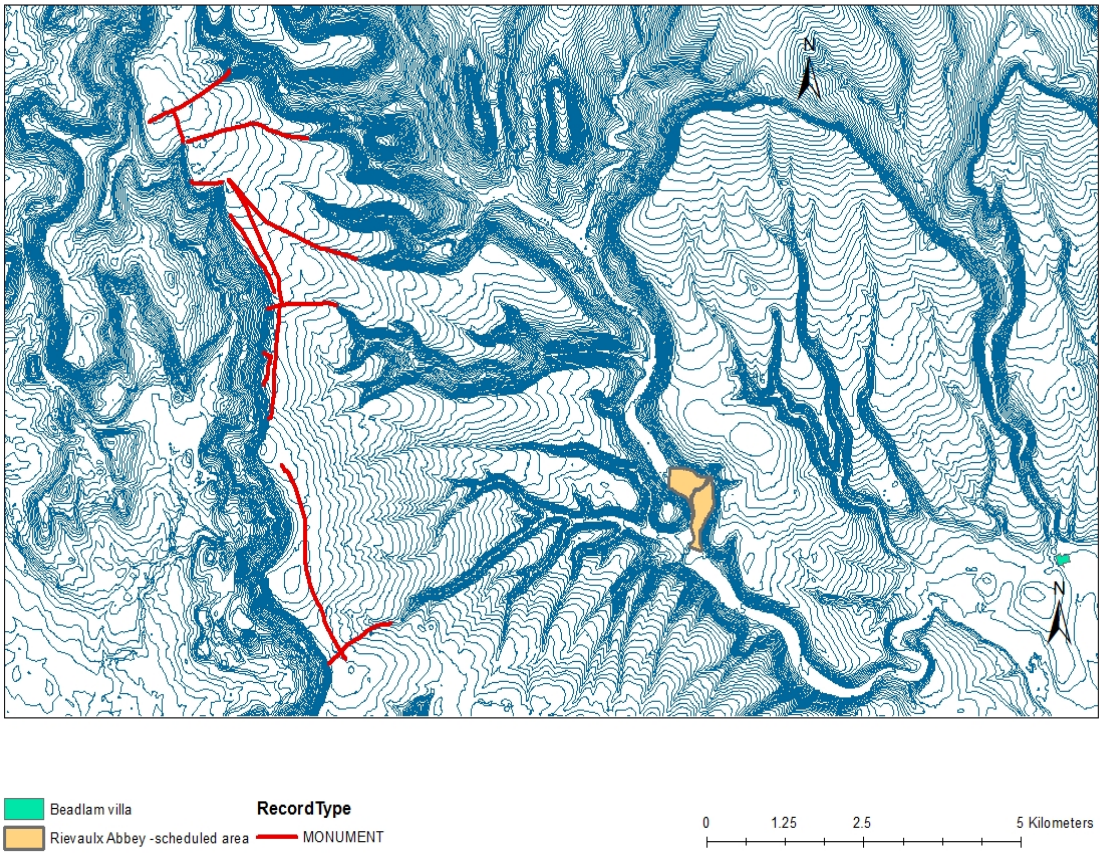
Rievaulx inherited land in Rye Vale which had by the 12th century been shaped by thousands of years of human interactions and was altered thereafter by post-medieval use. Understanding Rievaulx's activities therefore depends on identification of both pre- and post-monastic land use, to discriminate evidence for medieval management. This identification is difficult even for small areas of land, and for large areas of land such as are considered here, the identification must be viewed as highly preliminary. Human activities such as woodland clearance can create path-dependencies that influence subsequent landscape development. Predecessor conditions are therefore relevant to questions of medieval landscape change. A broad consideration of land use in the western Moors before Cistercian settlement therefore follows.

4.4.1 Pre-medieval factors inherited by Rievaulx

The Quaternary of the Hambleton Hills is not well understood, with few sites studied (Murphy and Lundberg 2009:312). This limited attention may in part be because relatively small areas of superficial deposits are known on the Hambleton Hills (Atkinson 2004:12). This contrasts with attention given to the more abundant deposits on the central and eastern Moors (eg Atherden 2004; Albert and Innes 2015). Lithic scatters suggest repeated use of some water sources in the Moor uplands over long time periods from the Mesolithic onwards, including the springline and spring head basins on Bransdale, the Baysdale-Westerdale-Farndale watershed, and Glaisdale-Rosedale (for a recent survey, see Waughman 2017). Woodland (oak forest) cover may have become established after 8,000 BC but human management may have led to soil impoverishment, heather moor establishment and peat bog development on these uplands (Atherden and Simmons 1989: 11-27).

Settled mixed farming was established in parts of the Moors well before the arrival of the Cistercians. Neolithic arable farming on the Moors may have been responsible for a disturbance in woodland species c. 5,200 BP noted alongside cultivated cereal (*Hordeum*-type) pollen in analysis of peat cores from Esklets, in the central Moors (Albert and Innes 2015:357-375). Spratt suggests that lines of prehistoric features along ridges (such as watersheds), including Bronze Age burial mounds (c. 2500-1000 BC) and later (c 1000 BC)

dykes, long ditches, and banks (Manby 2004: 40-42), formed prehistoric land boundaries in the Bronze Age, some of which survived well into later periods to be used as township boundaries (Spratt 1989:33) (Figure 4:8). For example, territorial boundaries formed by features such as Cleave Dyke outlined 'estates' which had elements necessary for mixed farming, namely grazing, arable, meadows and access to water. One such 'estate' possibly related to the Iron Age hillfort at Boltby Scar and Hesketh Dyke (off Cleave Dyke), with the latter feature surviving to become a boundary for Byland Abbey (Cistercian, Yorkshire) in 1142 (Spratt 1989:33) (Figure 4:8).



Contours derived from Vector Map Local – Ordnance Survey data OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2020. Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk. The Historic England GIS Data contained in this material was obtained on 20200725, © Historic England 2020. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk

The uplands of Rye Vale were exploited since prehistory, with certain features such as linear dykes (in red) surviving to form medieval territorial boundaries.

Figure 4:8 Rye Vale uplands and prehistoric linear dykes

Pre-medieval farming may have affected ground cover and hence drainage here. Atherden suggests that prehistoric farming, including woodland clearance, may have had a greater impact on the Moors upland than has generally been acknowledged, thus

allowing the spread of the heather which is now pervasive across the uplands (Atherden 1976:284-300). [13] Iron Age arable farming has been recorded in the lowlands bordering the Moors (Vyner 2004: 42-47). The development of Roman-era farming and resource exploitation in the western Moors,[14] and the territorial associations of villas such as Beadlam, is poorly understood (Wilson 2004: 52-55). Uplands elsewhere in northern Britain, such as the Pennines, were exploited by Romans for iron (Horne 2004: 58-61). This suggests that the Roman use of similar uplands such as the North York Moors may be under-detected.

4.4.2 Early Medieval factors inherited by Rievaulx

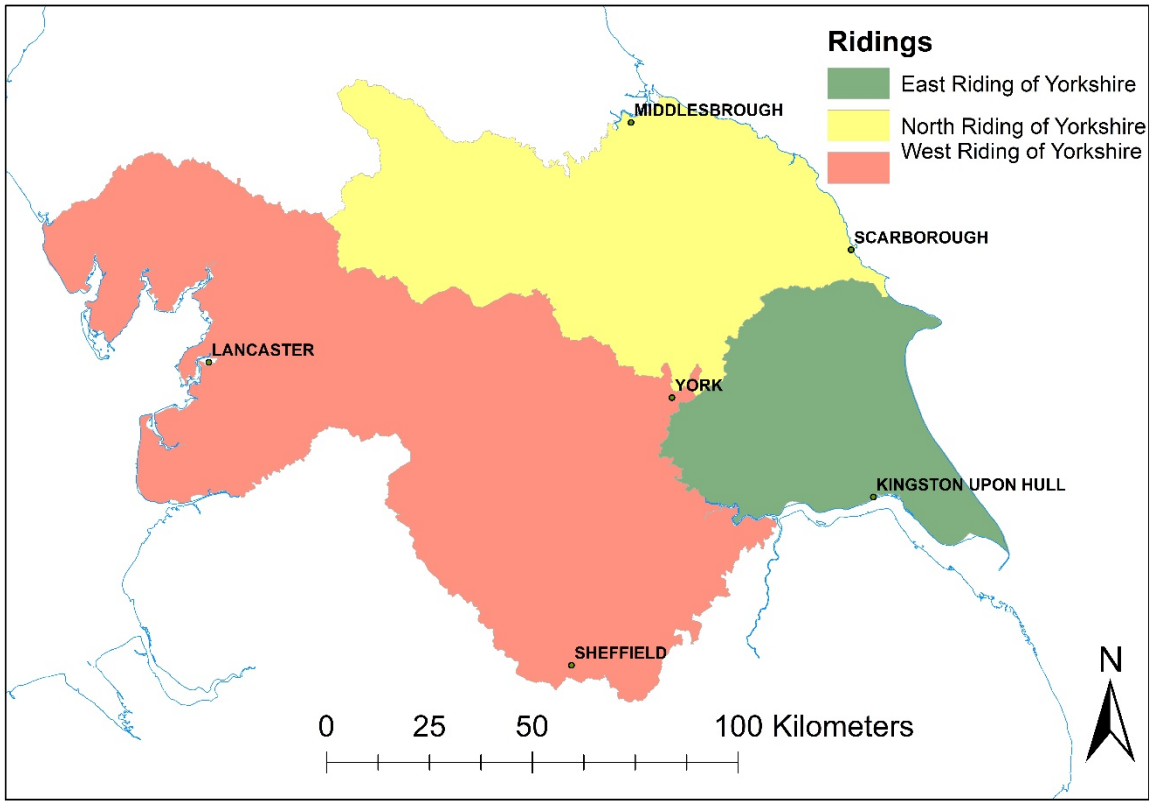
This work argues that that authority, both lay and religious, may have been factors in Cistercian plantation. Pre-Cistercian cultural geography is therefore outlined here and discussed further in Chapter 9 in relation to both case studies. A patchwork of cultural geographies had evolved in the western North York Moors well before the Cistercian foundations in the Moors in the 12th century. By AD 954, Scandinavian presence had been notable since the mid/late 9th century (Hadley 2000:7). During this period, what by the 11th century became known as Yorkshire had been divided into three ridings, a term from Old Scandinavian - *þriðjungr* - meaning a third part (Brookes 2017:3). (Figure 4:9). Within the North and West Ridings of Yorkshire, *wapentakes* functioned as a combination of court, territory, and corporate body, named from the Old Scandinavian term for taking of weapons - *vápnatak* (Iversen 2013: 9; Skinner 2014:4).

Within the English-controlled East Riding, fiscal and jurisdictional functions were performed by units known in Saxon lands as *hundreds*, rather than the wapentakes of the

[13] Heath cover dominates the uplands in the modern day. Atherden (1992) states that the Moors are 'dominated by dwarf shrub heath and open dwarf heath, interspersed with pockets of bog. Neutral and calcareous grassland also dominates in …parts … At the fringes… fields of improved grassland are a key component of land cover … valley landscapes are characterised by predominantly pastoral farming, with clear demarcation between the enclosed fields, farms, settlements, and the moorland ridges above. The transition is often marked by bracken fringes.' The Moors lie within the administrative area of the North York Moors National Park and the North York Moors and Cleveland Hills National Character Area (Dalton et al 2013:11). The modern economy in the western Moors is principally farming and associated small, dispersed settlements in valleys. Tourism and leisure are important elements in the economy, with game shooting in the bracken monoculture of the uplands. Forestry and extractive industries are also important. (North York Moors management plan first review 2016).

[14] Roman settlement is most densely attested in the adjoining lowlands of the Vales of York and Pickering. Elsewhere in the western Moors, Roman presence is evidenced at specific locations including Cawthorn Camps (Pastscape -Monument Number 60589) and Beadlam villa (Pastscape Monument number 58835), the latter by an affluent of the Rye, the River Riccal, near Helmsley.

Danelaw (Skinner 2014:4). Scandinavian kingship centred on the city of York ended in AD 954, when the territory was absorbed into the kingdom of Northumbria (Townend 2014:15-21). The existence of an Anglo-Saxon shire associated with the city of York by the mid-11th century is attested by a writ of Edward the Confessor from the 1060s (Sawyer 1968: 318no. 1067; Townend 2014:18, Harmer 1989:137, Woodman 2012:220-223).



Domesday Book data © Dr Stuart Brookes from https://doi.org/10.5284/1058999 'Landscapes of Governance / Domesday Shires and Hundreds of England' project, used under Creative Commons Attribution 4.0 International Licence. Open OS data used under Open Government licence 3. *Modern place-names added for orientation*

Figure 4:9 Ridings of Yorkshire

4.4.3 Domesday Book

Rievaulx was established within a complicated cultural landscape. Some of these complications will be argued later in this study to have played a role in the decision by Espec and King Henry II to donate land to Rievaulx. Evidence for authority and settlement in Rye Vale around 45 years before Rievaulx's foundation, and thus of potential relevance to the cultural factors relating to the monastery's foundation, survive in a crucial source: Domesday Book, henceforth DB. This source has dominated interpretation of the 11th-century cultural geography of England. DB was compiled on King William's instruction

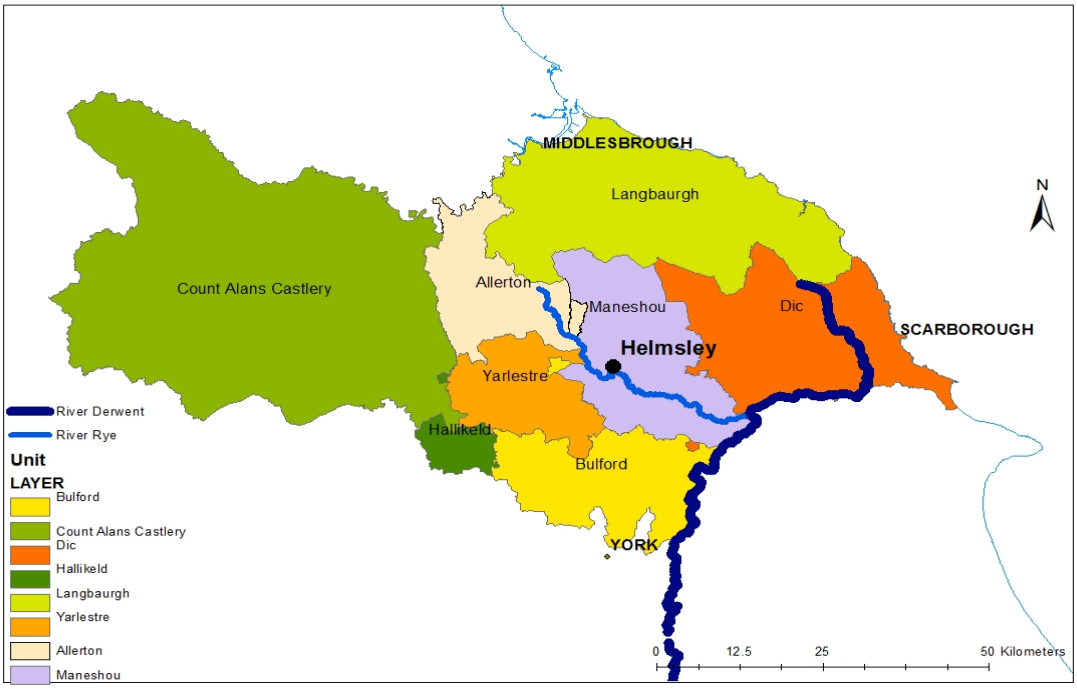
after his victory at the Battle of Hastings in AD 1066. Between 1086-1087, scribes undertook circuits of counties as part of the prolonged process of securing Norman interests (Le Patourel 1971: 2; Clarke 1986: 50-75). DB is however a problematic resource from which to elucidate cultural geography (Maxwell 1962; Darby and Maxwell 1962; Darby and Versey 1975). The final text, known as Great Domesday, comprised multiple surveys, some now termed 'Domesday satellites' (Clarke 1986: 50-75). [15]

The evidence for Yorkshire is found across several sections of DB and includes references which may be contradictory or obviously incomplete, and nearly 40 duplicate entries which raise further interpretative complications (Darby and Maxwell 1962: 456-494). The peculiarities of entries for Yorkshire may reflect their compilation in possibly one of the earliest circuits, when survey and scribal approaches were still being worked out, resulting in textual stratigraphy (Roffe 1991: 244). These peculiarities make DB evidence for Yorkshire a valuable but problematic resource for landscape research. Two sections, the breves and dispute claims, are structured feudally. The geographical structure of the so-called Summary, which was possibly compiled from a source, such as a geld list, separate to those of the original breves or chapters, enables the complex feudal arrangement of the separate breves to be better understood and provides a cross-check on specific data (Roffe 1991:243).

DB evidence suggests that the area of the North Riding under investigation here, the western North York Moors, was divided into multiple wapentakes, each of which may have been divided into two or three subareas (Darby and Maxwell 1962: 87; Skinner 2014: 303-359) (Figure 4:10). Certain areas may to some degree have lain outside the wapentake structure, such as the tenurial area known as Count Alan's Castlery.[16] Religious authority had its own hierarchy and geography.[17] By the 11th century, two archbishoprics in England were at the apex of arrangements: the archbishopric of Canterbury[18] and that of York, with the latter having existed since the seventh century

[15] The volumes preserved in the British state archive were first published in the 18th century (Farley 1783).
[16] Later known as Richmondshire (Skinner 2014:360).
[17] Developments in monasticism have been outlined elsewhere (such as Knowles 1963: 100-171).
[18] A long-running dispute existed between the two sees over primacy. The 1072 Accord of Winchester failed to settle the matter, and the dispute continued beyond the 12th century (Cowdery 2004). Lanfranc, a Norman cleric who was a close friend of William the Conqueror, was made Archbishop of Canterbury in 1070. Lanfranc attempted to implement the reforms made in the name of Pope Gregory VII, on matters such as improving the quality of the lay clergy (Cowdery 2004).

(Hadley 2000:241). The *scyra archiepiscopi* ('archbishop's shire') of York probably related to customs, privileges, and liberties[19] of the Archbishop of York over a somewhat disparate area rather than the wholly geographical definition that the term 'shire' was to acquire later (Dickens 1955: 131-147). The terms Allerton[20] and Allertonshire recorded in North Yorkshire were inconsistently used in DB to refer either to a wapentake or to a liberty held by the Bishop of Durham that encompassed parts of several wapentakes (Skinner 2014:350-353). It is possible that such inconsistency could have been caused partly by the nature of ecclesiastical authority there, as being to some degree beyond secular authority. Bishop's (consistory) courts had wide jurisdiction after the Conquest (McGregor 2009). Rievaulx was thus established in a cultural context in which authority, both religious and secular, was highly intricate.



Domesday Book data – *adapted from* © Dr Stuart Brookes from https://doi.org/10.5284/1058999 'Landscapes of Governance / Domesday Shires and Hundreds of England' project, used under Creative Commons Attribution 4.0 International Licence. Open OS data used under Open Government licence 3. *Modern place-names added for orientation*

Figure 4:10 North Riding wapentakes

[19] Liberties were independent of royal jurisdiction, being 'a district over which the privilege of a corporation or individual extended … first recorded in England [in this sense] in 1166-67' (English 1979: 98). Such arrangements gave certain prelates [*ecclesiastical dignatories such as bishops*] significant rights and freedoms comparable to those of lay lords, which may have operated separately from the system of wapentakes and hundreds (Dalton 1994:108). Ecclesiastical liberties included that of Ripon Minster.

[20] The Bishop of Durham's interest in *Aluertunescire* / Allerton/shire as recorded in Durham's *Liber Vitae* may have been established by 1088 (Raine 1841:77; Rollason and Rollason 2007; Skinner 2014: 349). The tenure and jurisdiction of this liberty was still held by the Bishop of Durham in the mid-12th century (Skinner 2014:344).

4.5 Upper Rye Vale (R2)

4.5.1 Domesday Book and Upper Rye Vale

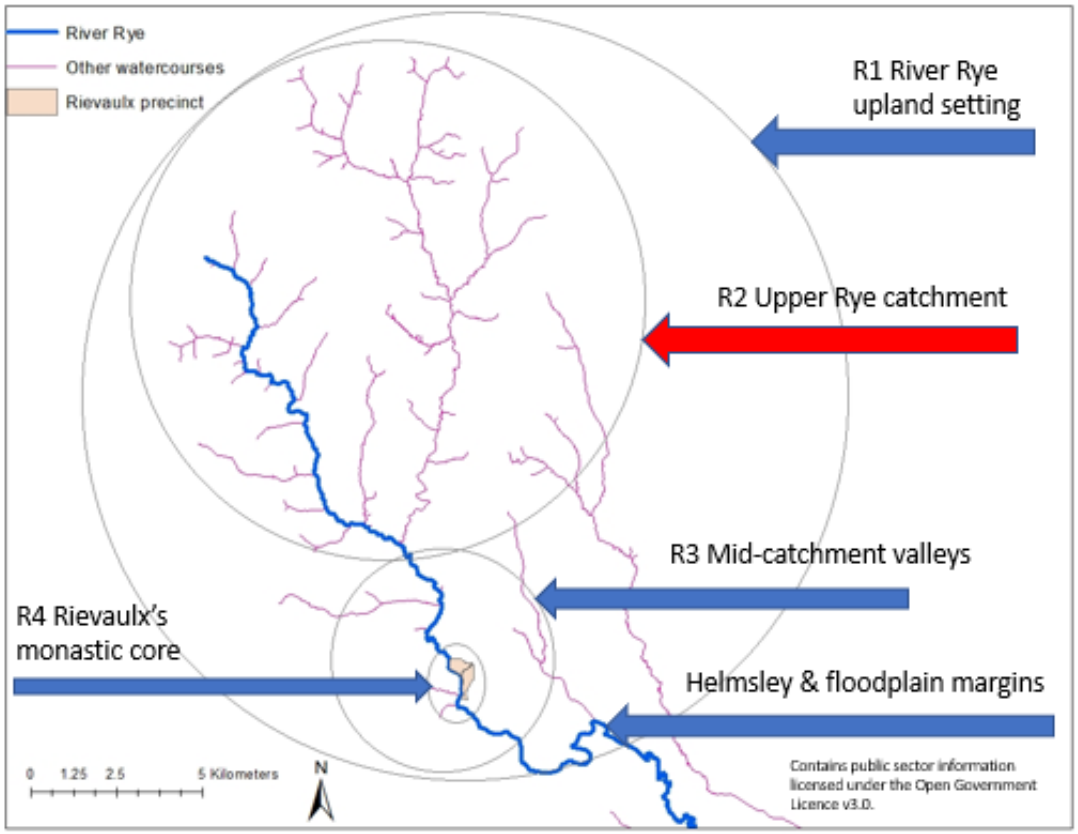


Figure 4:11 R2 Upper Rye catchment

DB is an important but problematic source through which to understand the settlement and economy of the upper Rye catchment (R2) (Figure 4:11). Much of this area passed into Rievaulx's stewardship in the 12th century. DB has been used in this study to infer wapentake boundaries which might have shaped the extent from which Espec made his gift to Rievaulx. As reflected in his grants to Rievaulx, much of Maneshou came into Espec's lordship and later formed part of Helmsley parish.

Different researchers have inferred different wapentake boundaries, however. The map published with Smith (1928) traces the boundary between Maneshou and Langbaurgh West as beginning at Green Howe (Noon Hill), then follows the ridge over the moors to the northern extent of the field systems at the tip of Weatherhouse Moor, with the boundary between Maneshou and Allerton (Birdforth) following Fangdale Beck and the lower Seph. This is consonant with later parish boundaries, as Fangdale Beck and the

lower Seph appear to have been the dividing line between Helmsley and Hawnby parishes. Skinner (2014:319 and Figure 101) follows Smith in adopting this boundary.

Brookes (2017) however follows a slightly different boundary between Maneshou and Allerton.[21] After Weatherhouse Moor, Brookes' boundary instead follows Ladhill Beck, for which, in the absence of a publication explaining the rationale, historical evidence is not obvious. Brookes' definition would place Steinton vill, as defined in 12th century grants to Rievaulx (*Cart. Riev.* 70-73) within Maneshou, and hence possibly in Espec's lordship. In the 12th century, however, Steinton was in the lordship of the Mowbray family, and was granted to Rievaulx by their lord's consent by Mowbray's men (Meinil and Malebestia) (Table 4:9). This is not an insuperable objection, however. Parcels of land could shift between wapentakes, for example elsewhere in the Moors, Lastingham, and Kirby Misperton changed hands (Skinner 2014:319).

Based on the evidence for the lordship of Steinton, therefore, this study adopts the interpretation of Smith and Skinner over that of Brookes. The other wapentake boundaries are beyond the scope of this study, so Brookes' mapping has otherwise been adopted here. (Figure 4:12). Many of the boundaries are however 'fuzzy,' namely, defined by features which have not been clearly identified, or natural features such as watercourses that may have shifted location, or watersheds / hill ridges that before modern metric survey were identified subjectively rather than empirically.

References in DB to settlement in the upper Rye catchment are somewhat sparser than those for the lowlands which encircle the Moors (Maxwell 1962:85-163; Darby and Versey 1975:513-540). This comparative sparseness was interpreted by older literature as representing a lack of settlement or other forms of exploitation (for a typical such viewpoint, see Hodgson 1969). Although 17% of the medieval settlements listed in Site and Monument Records for the Moors (now HERs) are known solely from documentary sources (Roskams and Whyman YARF 2007:79), such documentary sources may be inadequate evidence from which to identify settlement for this period. It is possible that accurate information did not reach the DB clerks for a variety of reasons. Also, there has

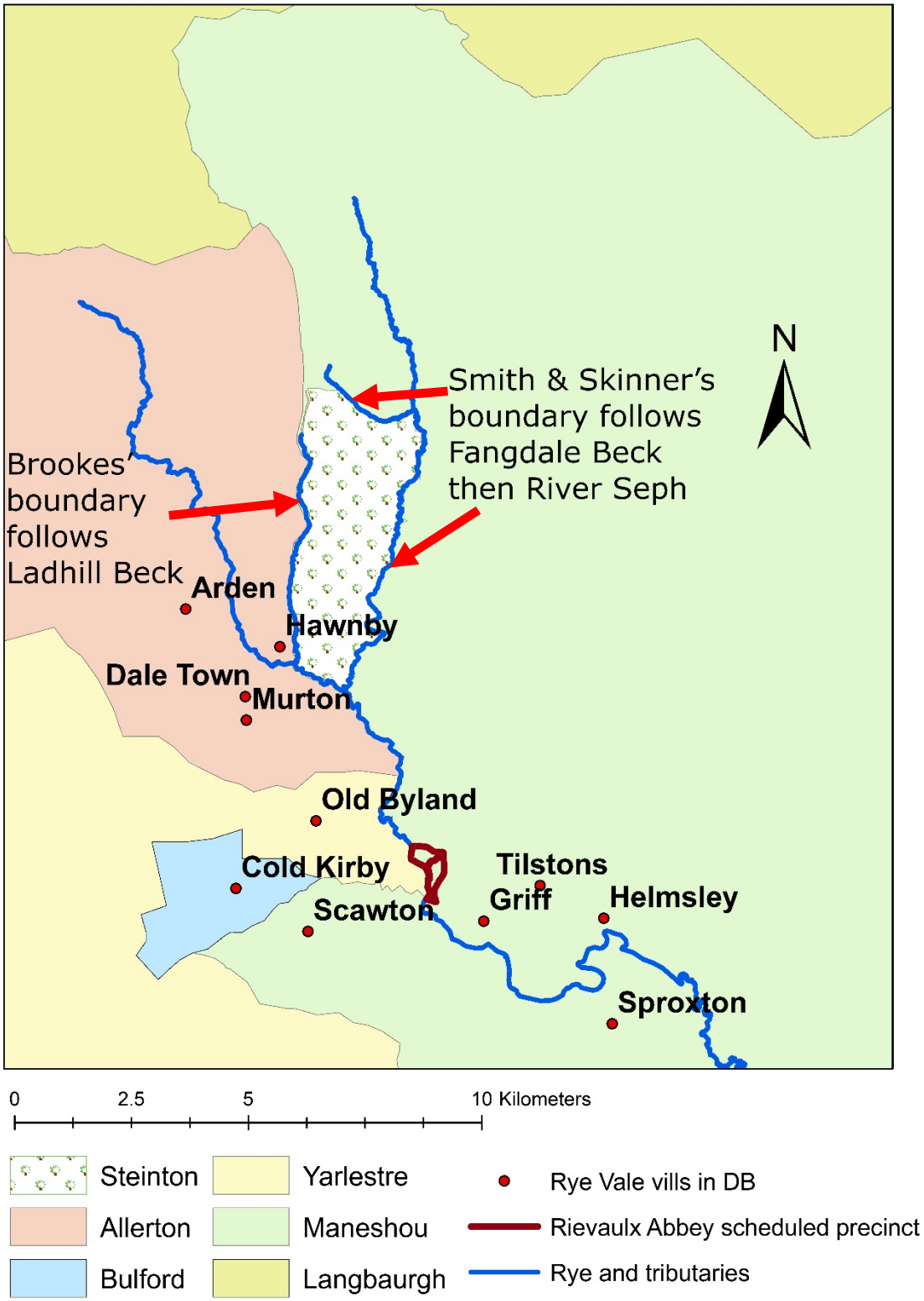
[21] Brookes, S. (2017) 'Domesday Shires and Hundreds of England'. Metadata note for dataset. Available at: DOI:https://doi.org/10.5284/1058999 (Accessed: 4 February 2020). Part of two longer-term projects, the Early Medieval Atlas project and Landscapes of Governance project, the latter 'brought archaeology, place-names, and written sources together in a national study of early medieval assembly sites.'

been little fieldwork here and it is possible that material has been dated inaccurately, thus subsuming medieval evidence within either earlier or later periods (Roskams and Whyman YARF 2007:32).

Interpreting DB, it appears that a mixed economy of small-scale arable and animal husbandry was practised in multiple locations across Rye Vale by 1066 (Table 4:11). At that date, Rye Vale vills were in the hands of several individuals with Anglo-Scandinavian names. Most Rye Vale vills were in two units, many with arable land. Arable land is recorded as ploughland or carucatage, which varied in size between 1-2 carucates or 1-2 ploughs per half vill. This apparently equitable distribution suggests some societal arrangement in Rye Vale by that date, possibly to ensure adequacy for a typical social unit.

The precise locations of many of the Rye Vale vills mentioned in DB have been lost. If these 'lost' vills were located near later settlements of the same name, placenames suggest that these were in one of two broad types of location. Across the uplands (considered in this work as study area R2) and the mid-catchment valley (study area R3), the DB vills of Cold Kirby, Griff,[22] Stiltons, Old Byland, Scawton, Sproxton were all on open plateaux. In contrast, Dale Town, Hawnby, Murton were in relatively sheltered upland valleys which in the modern day are near to rivers, streams, or springs.

[22] Although Smith (1928:73) suggests that Griff is derived from *gryfja* – narrow valley. This may suggest that an early settlement was located within the adjoining valley rather than on the limestone plateau itself.



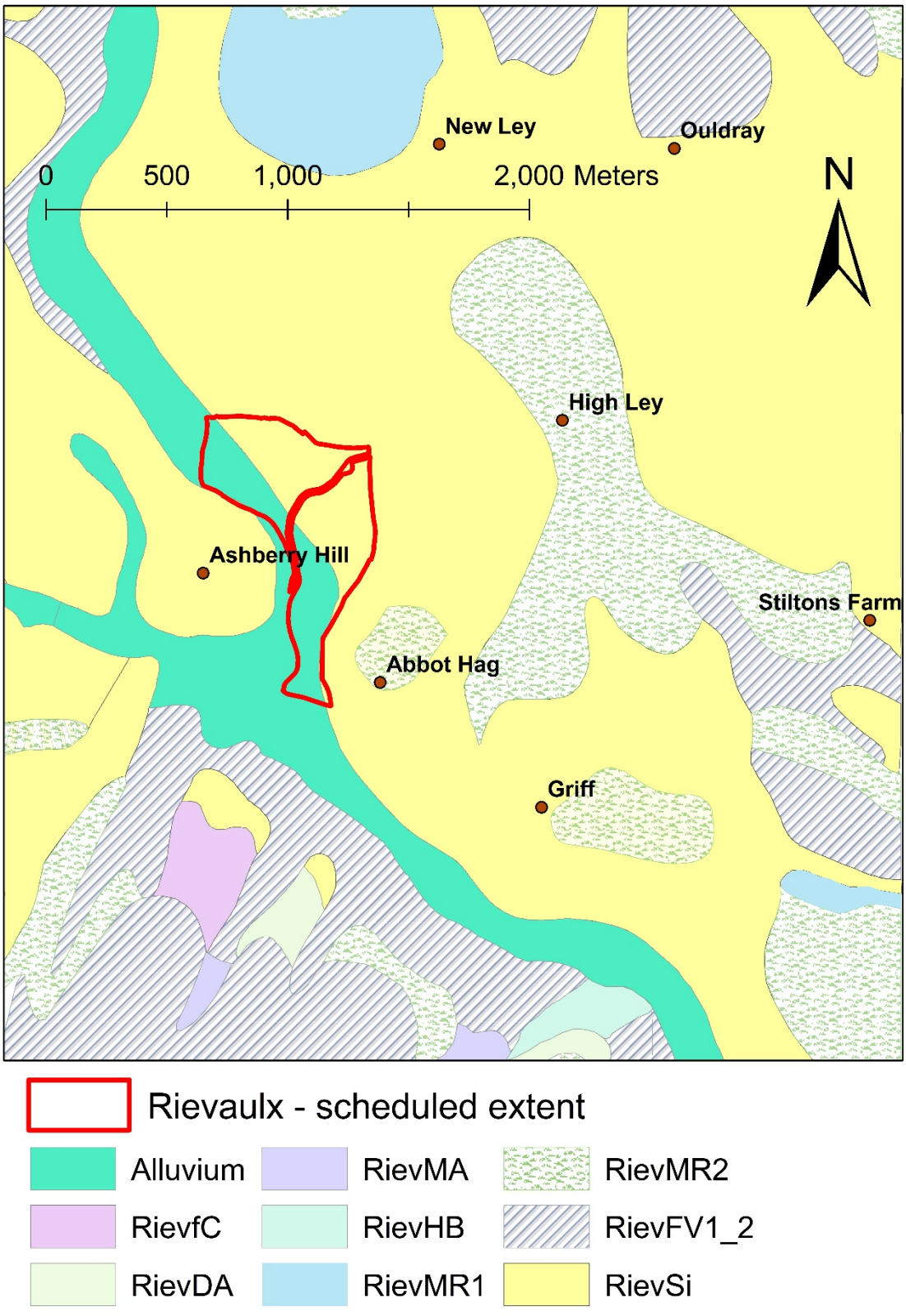
Wapentake boundary data amended from © Dr Stuart Brookes from https://doi.org/10.5284/1058999 Landscapes of Governance / Domesday Shires and Hundreds of England project Used under Creative Commons Attribution 4.0 International License *Watercourses from* OS Open River Network - public sector information used under Open Government Licence v3.0.

Figure 4:12 Wapentake boundaries in Rye Vale after Brookes, Skinner and Smith

4.5.2 Soil characteristics

Soil characteristics offer possible insights into the land-use choices made by early occupants of Rye Vale. Different soil types developed on different bedrocks, and bedrock varies across Rye Vale (Figure 4:7) The most recent soil mapping provides a generalised picture, in which well-drained soils (such as Elmton 2 and Rivington) interleave with areas of slower drainage (such as Maw, Dale and Denchworth), with alluvial courses variably affected by slow drainage and groundwater (Table 4:12). The Rothamstead soil surveys, although less recent, offer greater detail relevant to the present enquiry (Bendelow and Carroll 1976: 1979 - Figure 4:13). Most soils in upper Rye Vale are classed as having moderate to moderately severe limitations for crops (land use capability categories 3 and 4), with soils on sandstone above 210m altitude being relatively impermeable with few deep peat deposits and suffering from ironpan development, namely a subsurface hard layer of iron salts (Chapman 1976; Bendelow and Carroll 1979:1).

Some soil units in Rye Vale permit arable farming despite their altitude because of the permeable and easily worked nature of the soils (Bendelow and Carroll 1979: 3-4). One category of soil, MR $_{1,2}$ (land use capability category 2s/2) is otherwise known as fine loamy brown earths. These have minor limitations, such as climate, height and exposure, which reduce choice of crops and / or interfere with cultivation but produce good yields of grass, cereals and brassicas with moderate fertiliser use (Bendelow and Carroll 1979:108). These loamy brown earth soils are found at certain locations over limestone on the west and east banks of the Rye. Based on the tentative identification of the location of certain lost Domesday vills (above), on the west bank of the Rye, Scawton had close access to fine loamy brown earths. On the east bank, these brown earth soils are found at or within 100m of modern-day farms at Griff, Stiltons, Abbot Hagg, High Ley and New Leys. (Figure 4:13).



Derived from **Soil Survey of England and Wales Bendelow, V. C. and Carroll, D. M. (1979). Places added for orientation.**

Figure 4:13 Soil types near Griff and Tilstons

In contrast, another set of vills on higher ground (above 200m ASL) and possibly without close access to good quality soils, including Old Byland, Murton, Dale Town, and Cold Kirby, may have needed to establish their arable plots at some distance from the settlement or to have used a patchwork of ecological niches (Table 4:11). The (inferred) locations of these vills are associated with rendzinas (Si) of capability grade 3 or poorer which predominate on the west bank of the Rye. There is one exception on the west bank, Scawton, which had access to better-quality soil. Scawton also had alluvial valley floors nearby, as did Old Byland, Dale Town and Murton on the west bank, and Griff and Tilstons on the east bank. Alluvium, mapped as clay, silt sand and gravel, mark the courses of the rivers Seph and Rye and their tributaries (BGS data 2020). The rich alluvial cover may in the past have provided pockets of arable or meadows that could be used for seasonal grazing. Such Rye Vale valley floors are under pasture in the modern day (Bendelow and Carroll 1979: 3-4). The valley sides in the upper course of the Rye and its tributaries are steep, so have limited arable potential and in the modern day are typically wooded, with areas of deciduous and ancient woodland (both natural and replanted) as well as areas of modern conifer (Bendelow and Carroll 1979: 3-4; Defra MAGIC website).[23]

4.5.3 Other sources for pre-Cistercian activities

Looking beyond Domesday Book as a documentary source, 12th-century documents and early editions of OS maps (1856-1912) contain placenames that may offer insights into pre-Cistercian activities here (Table 4:2). Many of these place names appear Anglo-Scandinavian in origin. Some names suggest selective territorial exploitation. Espec's gift to Rievaulx of Bilsdale contained land still known as Laskill**.** This sheltered upland valley may have been the site of a seasonal shieling, with the outline of an area known as Laskill pasture preserved in the first edition Ordnance Survey mapping**.** Other valleys may have been notable for good hunting (Fangdale). There was at least one path across the upland moors (Thurkilesti).

Although the physical extent and precise nature of these upland pre-Cistercian sites is yet to be determined, the settlement preferences they may reflect could have combined

[23] https://magic.defra.gov.uk/MagicMap.aspx. Consulted 20200129.

access to the upland resources with agrarian development of specific areas. Transhumant access to the upland moors could have been important. No evidence of early medieval arable farming north of Griff in the fissured limestone uplands of the east bank of the Rye has yet been found, where arable farming would have been hindered by the stony soil quality of Rievaulx Moor. The moorland could however have been used for rough grazing, as it is today.

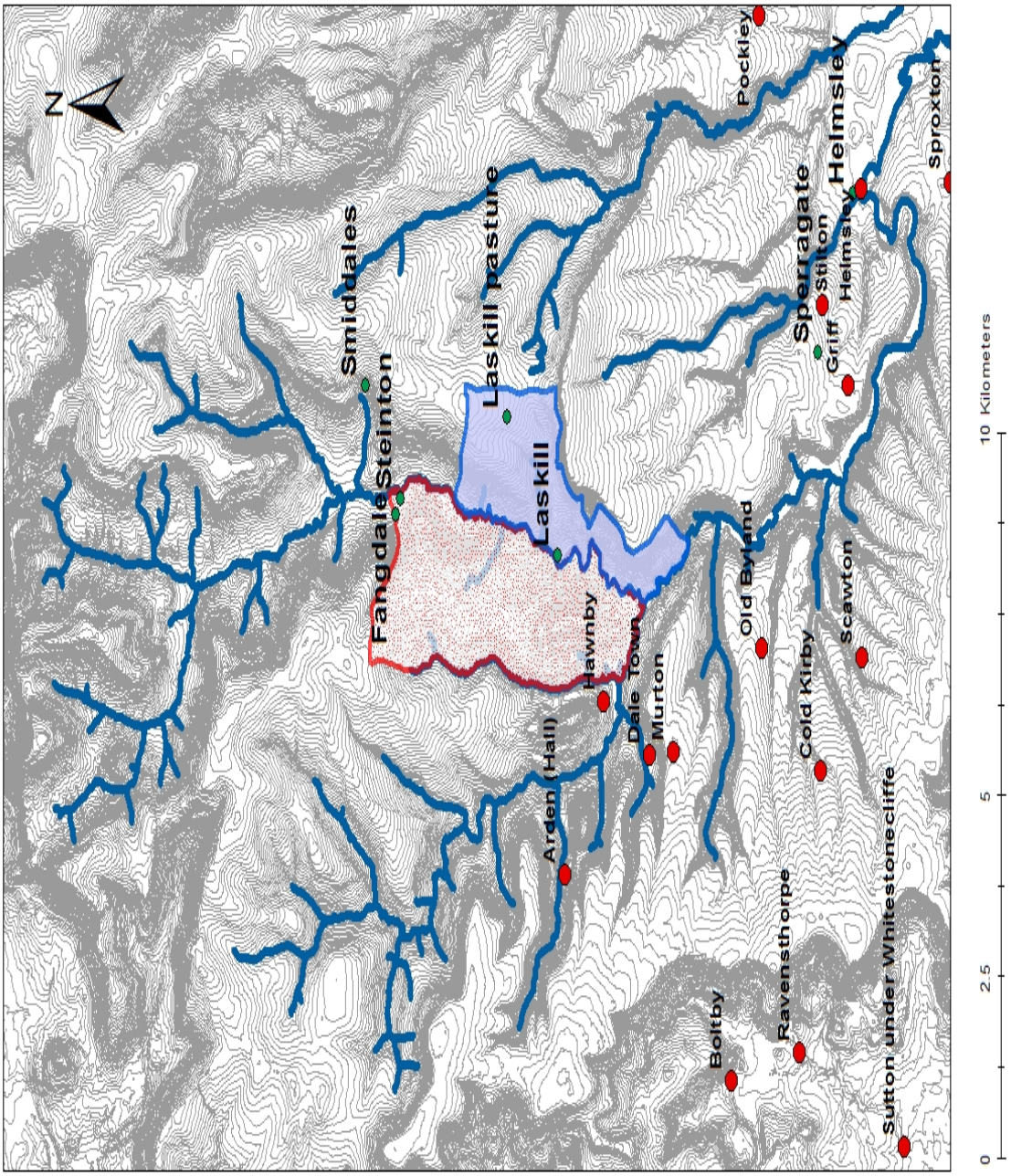
Location / feature	Evidence
A route on the moors near Helmsley	*Sperragate*.[1] First element derived from L **spuor** (stone)? Not treated by Watts, but second element possibly ON **geit** (path, way) as in Gatescarth (Watts 2010:247). Located – probably erroneously – by Atkinson as route near Griff Cross. A starting point nearer Helmsley is more likely.
A location / path over the Moors associated with an individual with a Scand. name (Thurkil / Thorketil)	Partly definitional of Espec's Bilsdale gift[1] *viam quae venit de Thurchilesti.* Watts does not treat this name but pers.n. element paralleled in 1086 in *Tur-Turch(it)elestone* in Leics (Watts 2010: 614). Atkinson suggests *-sti* element as way (Atkinson 1899, and see -gate above). Same term used in papal bull.[2] A grant made from the moor *de Skipnum super Thurkirsti.*[3] *Turkey Nab* is a high spur in the western Moors above Ingleby Greenhow.
A "smith's dale" active in Bilsdale by the time of Espec's gift	A *Smidhesdala* is mentioned in Espec's Bilsdale gift.[1] Smith (1928:69) suggests "smith's valley", from OE **smid** + **dael.** Not treated by Watts, who records Northern dial. **smiddy** -blacksmith's shop, and **dael** as OE or **dalr** ON (Watts 2010:177). Metal extraction and working at multiple locations, variously dated, in Bilsdale confirmed by geophysical survey (Vernon 2006 & Table 4:14).
Low shielings at Laskill	ON **lagr** + **skali** – low shielings (Watts 2010: 362)[5]
Laskill pasture	Pasture lands associated with the above. Later a unit in Helmsley parish [4]
Fangdale, a valley notable for good hunting	Fangdale Beck[1] *Fangdale* 'hunting valley, the valley where game is taken' (Watts 2010: 224)
Steinton	ON **steinn** frequently replacing OE **stan**, + **tun**. The reference may be to stony ground or buildings in stone, but perhaps most frequently to a place where stone is quarried (Watts 2010:567). The association between ironstone extraction and iron working is well-established, and there was an ironsmith at Steinton by c1170 (*Cart Riev* 243)
Sources **1**. Cart Riev 42 **2**. Papal bull of protection and confirmation by Alexander III (Cart Riev 250) **3**. Cart Riev 285 **4.** Kain and Oliver as converted to GIS by Burton and Southall **5**. *skale* as temporary hut, in context of North York Moors (Spratt and Harrison 1989: 95) .	

Table 4:2 Anglo-Scandinavian Rye Vale: placename and documentary evidence

4.5.4 Early extractive industries in Rye Vale

The natural resources of the Moors enabled industrial activities such as iron extraction and processing to become established before Cistercian settlement. In the document recording the Bilsdale land given by Espect to Rievaulx (*Cart*.*Riev*. 42), one boundary refers to a "Smiths Dale" (*Smidhesdala*). These name elements (*smid-* and *-dalr*) appear Scandinavian (Table 4:2). The River Rye, and its tributary the River Seph, flow over the Main and Dogger ironstone outcrops, with thin seams of poor-quality coal[24] suitable for fuel (Powell and Ford 2011). Small Iron Age smelting sites are known from further east in the Moors, such as at Levisham Moor, Roxby, and Westerdale (Spratt 1993).

[24] Lead and lime were also available, but the earliest use of these in Rye Vale is uncertain.



Anglo-Scandinavian occupation in Rye Vale including aspects not reflected in Domesday Book. Contains public sector information licensed under the Open Government Licence v3.0. Contours derived from Vector Map Local – Ordnance Survey data OS VectorMap® Local Scale 1:10000. Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service https://digimap.edina.ac.uk

Figure 4:14 Anglo-Scandinavian occupation in Upper Rye Vale

4.5.5 Anglo-Scandinavian - Norman transition and settlement in Upper Rye Vale

From the evidence so far collated, the transition from pre- to post-Norman settlement does not appear as very distinct in the material record. It is therefore difficult to distinguish this from the impact of the Cistercian period. Much of the collated evidence is slight and inconclusive. Early Norman or possibly pre-Norman settlement in Upper Rye Vale is suggested by the layout of two rows of tofts (houses) and crofts (associated land), a wide village green and narrow straight fieldstrips at Cold Kirby and the Old Scandinavian or Old English names of some farmsteads in Bilsdale (Harrison and Roberts 1989: 98-99). McDonnell (1986:271-2) identified two Scandinavian names in Upper Bilsdale, Gartwayt (modern Garfitts) and Horhowe (Urra). Both these settlements possibly represent the earliest medieval settlements in this part of Bilsdale, but in the 12th century lay within the area managed by Kirkham rather than by Rievaulx.

It is unclear when the inhabitants of Rye Vale adopted Christianity. A 10th-century hogback survives within Helmsley church (Lang 1991: 142-143). Although slight in terms of evidence, this single example suggests co-existence and transitions of Christian and other influences in the lower slopes of the western Moors before the Cistercians arrived. A sundial with an Anglo-Scandinavian inscription survives in a church at Old Byland, but it is possible that this is a re-use (Wall 1997: 93-117). A church is mentioned at Old Byland in DB (Table 4:11) This is not necessarily the same building as that which still survives. Pevsner (1966:275-6) considers (on stylistic grounds alone) the early Norman masonry of the surviving church at Old Byland as 'too early' to be connected to Byland Abbey. A chapelry in Bilsdale was dependent on the church at Helmsley. The stone church of St Hilda at Seave Green in Bilsdale contains an inscription which states that it was founded by William 'the noble.'[25] The identity of this William is uncertain but has been tentatively suggested as a relative of Walter Espec such as an uncle, possibly the William who became prior of Kirkham Abbey (Clay 1903: 237-240; Burton 1977:103). The evidence for this association, other than that the name is a Norman one, is however lacking.

[25] An inscribed stone is reset above porch doorway: "*COONDDIT ECLEE SIAAM WIILLELMVVS NOBLIS ISTAA OO INTEMERRATE NOOMMIINNE SCE VIIRGINNIIS HILDE*"

4.6 Cistercian Upper Rye Vale: settlement, agrarian and extractive activities

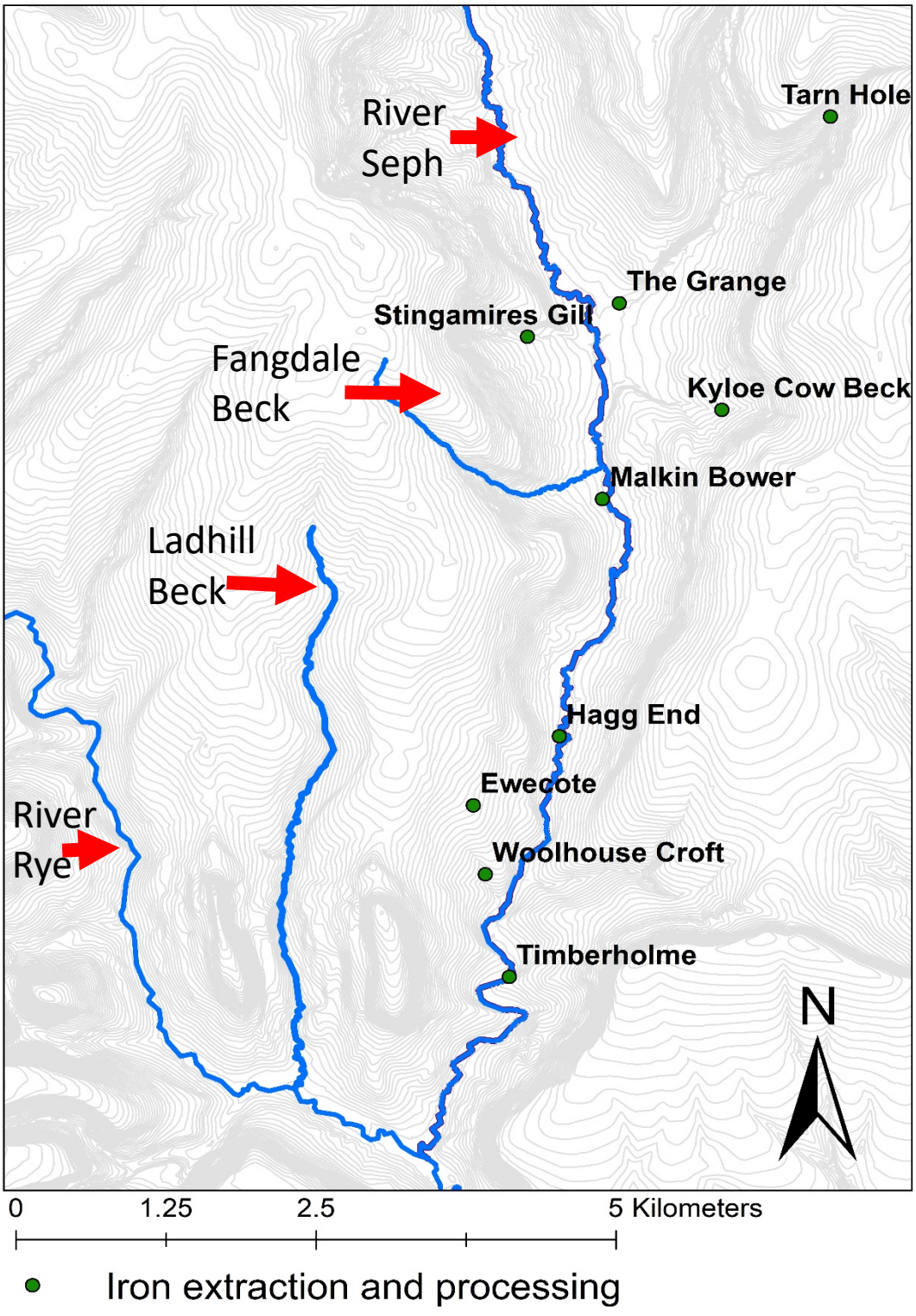
In Rye Vale, Rievaulx appears to have continued many activities first established by earlier settlers. In Bilsdale, Rievaulx continued a metal extraction and processing tradition established in the Anglo-Scandinavian period (above). A place known as Steinton existed at the time of Espec's gift of Bilsdale to Rievaulx (ie some date between 1131 and 1158), as the boundary between Steinton and Espec's land formed the extent of Espec's grant of Bilsdale to Rievaulx (*Cart. Riev.* 42). Steinton itself was given to Rievaulx by Mowbray's tenants with boundaries defined as Fangdale Beck, Ladhill Beck, River Seph and River Rye (*Cart. Riev.* 70-73). Steinton thus lay in the southern portion of what became known later as Bilsdale West Side, but does not appear under this name in DB. A *ferrarius* (ironsmith) at Steinton is recorded by c 1170, as this is mentioned in the *Conventio Caritatis* between Rievaulx and Byland which was read in the Chapter of both houses in that year (Byland Cartulary 988; Burton 2004a:339-340). The *Conventio Caritatis* states (among other entries) that Byland gave Rievaulx permission to 'lead the Rye'[26] at Steinton. This evidence has been inferred as relating to iron and stone extraction / processing from the Dogger Formation, for which running water would have been important (Crosland, Williams, and McDonnell 1963:116; McDonnell 1963:124).

4.6.1 Cistercian stone and iron exploitation

Successive Bradford University research, including geophysical survey, excavation and charcoal analysis from multiple sites, has revealed extensive iron smelting activity in areas managed by Rievaulx (Table 4:14). For many sites, the dates ascribed were however based on morphology rather than an absolute date. It appears that iron deposits were initially processed in the uplands near where they were mined. Geophysical survey over a site near the Grange, Chop Gate, identified features commensurate with a simple bloomery (shaft furnace), which would have produced through the 'direct' process a substance termed 'bloom,' namely a mixture of iron and slag which requires reheating and hammering to produce clean iron (Vernon et al 1998a:182-183). Although the

[26] '*…et de fossata quod fecerunt in terra Staintunae ad ducendum Riam …*' (*Cart. Riev.* 243:179). Byland's collection of documents contains a mirror copy of this composite charter between Byland and Rievaulx, the *Conventio Caritatis,* gives the date, 1170, when the final version of the charter was read in the chapter of both houses (Burton 2004a:340).

surveyors suggest the site dates possibly from the 12th or 13th centuries, the published survey appears inferential rather than definitive of date and morphology (Vernon et al 1998b). Without evidence for pre-Cistercian usage of this place name, the potential interpretation of Chop Gate as an early medieval trading place (after Britnell 2009) must be tentative.



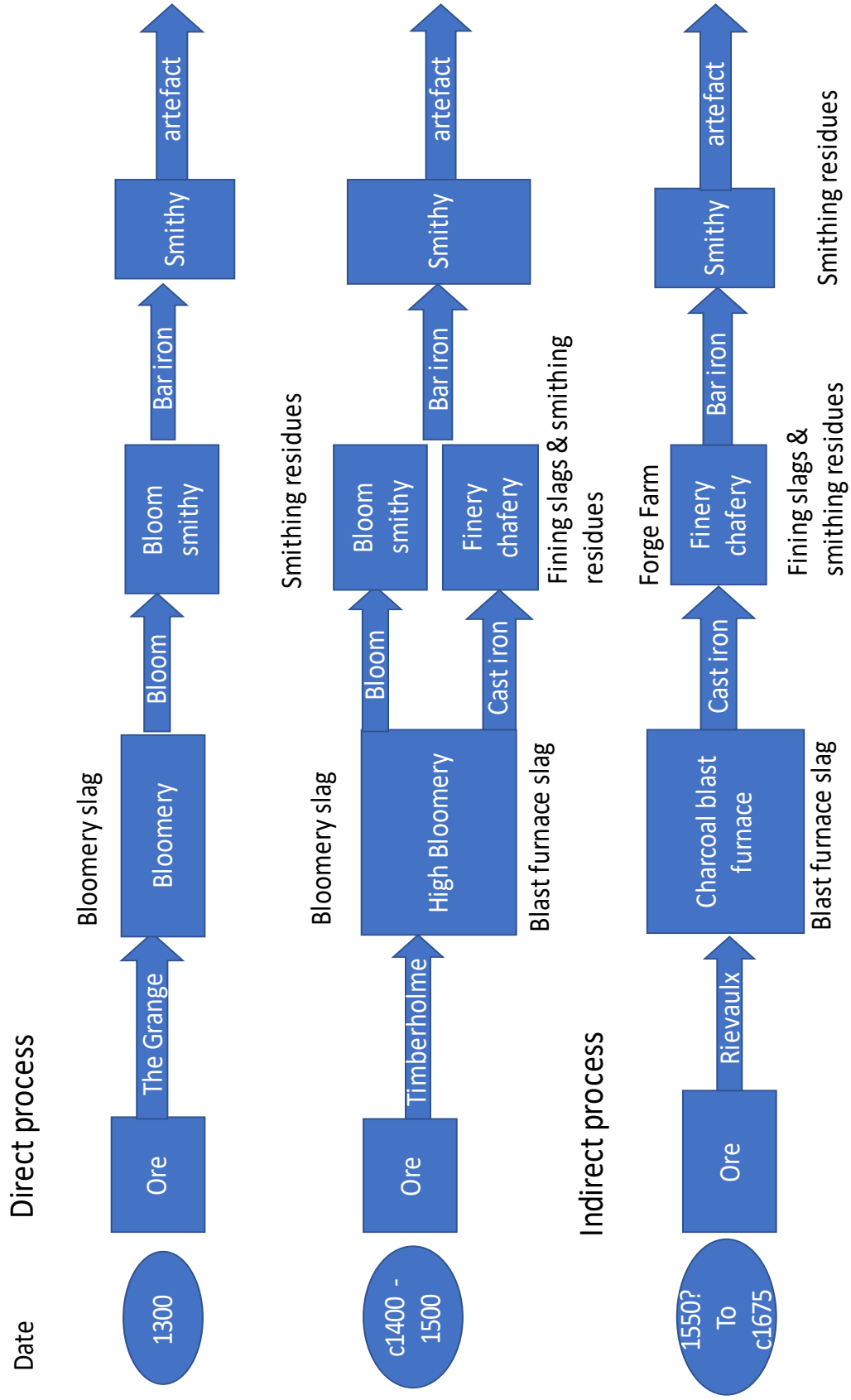
Locations assessed by Bradford University

Figure 4:15 Selected iron extraction and processing sites in Bilsdale have been assessed by Bradford University

By the mid- 16th century, Rievaulx was also processing iron at various locations within the precinct as well as the uplands (Table 4:14). Documentary accounts suggest that at Dissolution Rievaulx was operating an 'Yron Smethes' [iron smith] in Bilsdale.[27] Vernon and colleagues (1998a: 181-188) suggest this may have been a bloomsmithy where both iron and slag bloom could be processed to produce cast iron by the 'indirect' process, possibly the upland installation at Timberholme which they surveyed geophysically. There was also a hammer-smithy at Rievaulx's monastic core (Vernon et al 1998a:188-198). Rievaulx's post-Dissolution owner continued these operations, and a blast furnace may have been operational within the precinct as early as 1550, but certainly by 1577/78. (Vernon et al 1998a:188-190). Developments in iron processing from 1300 as represented in evidence from Bilsdale and Rievaulx's precinct are represented graphically below (Figure 4:16).

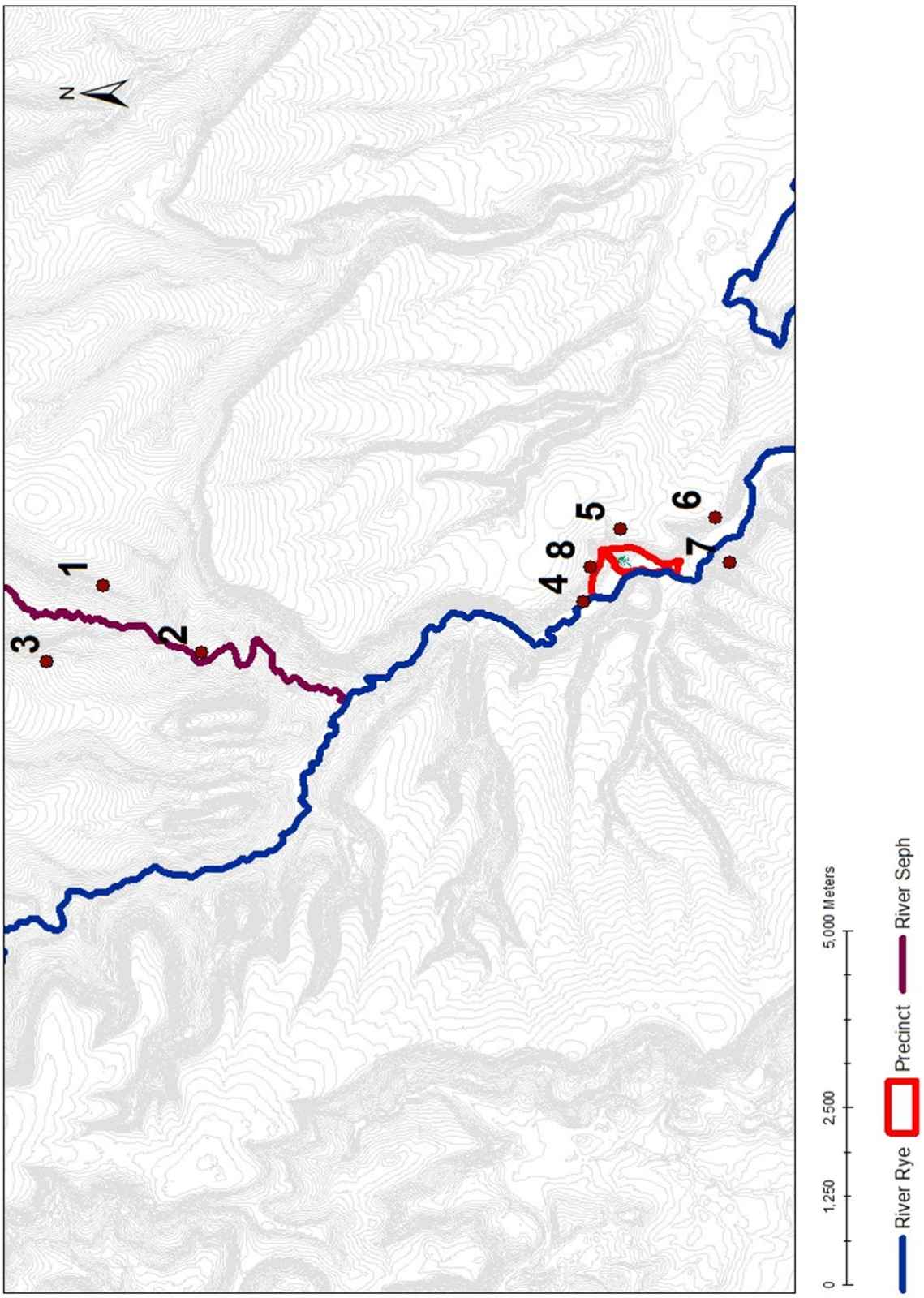
Fuel for iron processing was likely provided by the locally available poor-quality coal, and from the local woodland. Analysis of charcoal samples taken from four Bilsdale sites, and from the hammersmithy and blast furnace within Rievaulx's precinct, led Wheeler to conclude that woodland management (including species selection and cutting practice) for industrial fuelwood changed between the 12th and mid-16th centuries AD. It was unclear however whether the driver for this was resource availability or technological factors (Wheeler 2011)**.** Ironstone may have been secondarily exposed by quarrying for stone in Bilsdale (Crosland et al 1963:116). Quarries near Wethercote (59SEYYYY,) were a source of dressed ashlar for the monastery from the 12th century (Senior 1989, Senior 1999). (Figure 4:17)**.**

[27] Ministers Accounts 30-31 Henry VIII No 162, published by Atkinson 1889:314-316.



Rievaulx and iron-working processes in Bilsdale -upper Rye Vale. After Vernon, McDonnell, and Wheeler (various)

Figure 4:16 Bilsdale and Rievaulx. Iron-working processes AD 1300 – c 1675.



After Senior 1999: 1 Firth Bank 2 Laskill 3 Wethercote 4 Penny Piece 5 Unnamed near abbey church 6 Griff Bank 7 Hollins Wood

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Figure 4:17 locations of stone used in Rievaulx's monastic core buildings

4.6.2 Cistercian agrarian activities

Rievaulx also continued agrarian exploitation begun in the pre-Cistercian period. The upland valley given by Espec to Rievaulx by 1158 is known from DB to have had ploughland (at Hawnby) as did the vills which faced Rievaulx's land on the other side of the Rye, namely Old Byland, Dale Town and Murton (Table 4:11). Other than the ploughland recorded in DB, evidence for early arable in upper Rye Vale is currently limited. Westerdale, which lies to the east of Rye Vale, provides evidence for pre-Cistercian settlement and agrarian activities in the upper Moors which may offer an analogy for Rye Vale. In Westerdale, Rievaulx had a grange at Esklets.[28] Hayes (1963:436-437) considered this to be Rievaulx's most isolated grange, although how isolated is perhaps a question of perception as the grange was close to other monastic houses. Esklets was within reach of a Cistercian nunnery, Baysdale Abbey, and a Templar preceptory, founded c1190 and c1200 respectively (Wilson 2013).[29] (Figure 4:18). Rievaulx's land in Westerdale was established from a gift from de Balliol in a document c1180 (*Cart. Riev*. 115) which illuminates 12th-century grange life in the North York Moors. The charter gave permission for a shepherd and two servants to construct a dwelling, and for the use of warning horns against wolves. The text of this grant hints at communal pasturing of sheep and cattle with the development also of arable land, with common grazing on the arable after harvest (Wilson 2013: 3-11). These practices would have added manure to the land and so enhanced its fertility.

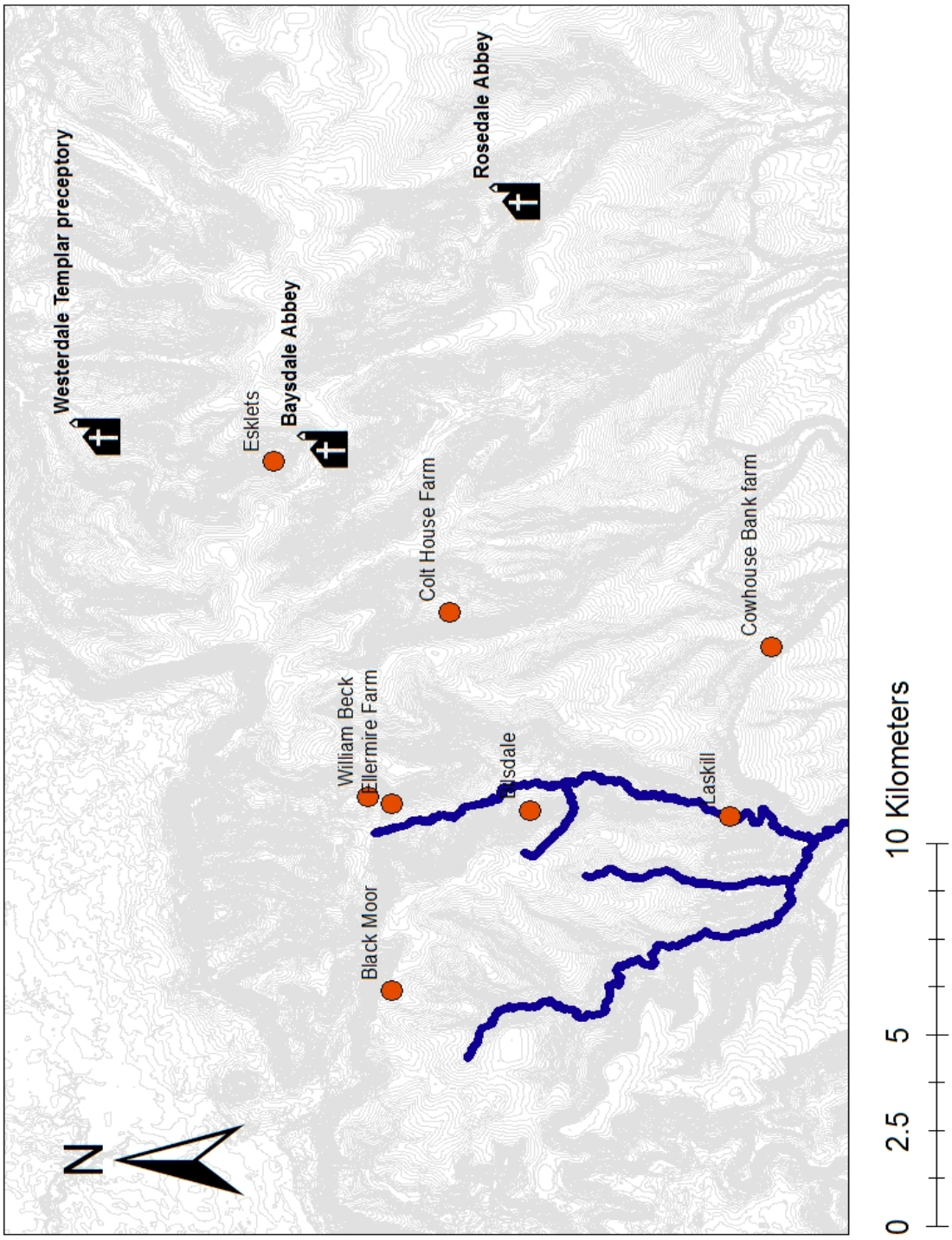
Stock-rearing, of sheep, cattle, and horses, became a major component of Rievaulx's use of its uplands. Rievaulx's agrarian activities would have benefitted from the improvement in the weather in North Yorkshire, which became drier and warmer c 1150-1350 (Chiverrell and Menuge 2004: 23-24). The evidence for Rievaulx's Rye Vale granges

[28] HER entry: MONUMENT NO. 1484555 North Yorkshire District (NZ 60 SE 72). The possible site of the medieval monastic grange of Esklets. In c1185, Bernard de Baliol bestowed land and rights within Westerdale upon Rievaulx Abbey. This included the liberty to construct, 'enclosures, sheds and stables at Wolfdalebeck below Howthwaite as well as a dwelling for the brother in charge and his assistants at Esklits.' The grassed over foundations of a building some 13.5m by 7m lie adjacent to a trackway. Across the trackway to the east there is a set of ruined, drystone walled pens and to the west a set of drystone walled features, and evidence of ridge and furrow. It is unclear whether the structures are post medieval or part of a medieval grange. Elements of field boundaries, hollow ways and another possible building were identified from air photographs and mapped as part of the North York Moors NMP. These features are not shown on early Ordnance Survey maps, *may* be medieval in origin, and are extant on the latest 2009 vertical photography. Sources: English Heritage Alternative Action Report; Eric Instone MPPA, 25 May 1999; Vertical aerial photograph reference number; Next Perspectives PGA Tile Ref: NZ6501 02-JUL-2009

[29] Other monastic houses were later founded on the edges of the Moors and in inland valleys including Mount Grace (Carthusian) and Guisborough (Burton 2004a)

however requires more detailed attention. An intriguing building is located near the River Seph at SE 5629 9071, 5.5km from Rievaulx. This was interpreted by previous investigators as a woolhouse for processing and storage of sheep fleeces. The building no longer stands, but foundations included the base for three columns suggestive of a 4-bay vaulted undercroft c18.3m by 8.8m, with chamber above, and coloured floor tiles survived in the nearby yard (McDonnell 1988: 51-52). The masonry fragments date architecturally to the 12th century, with the lower level (undercroft) c1250 (Historic England listing 1010340). The location of the building would have enabled fleece washing in the nearby River Seph. The building must have represented a significant investment by the abbey with detailing somewhat grand for a woolhouse in an upland dale. Elsewhere in Yorkshire, a four-bay woolhouse is known within the precinct at Cistercian Fountains Abbey (Coppack 1994: 420). King Edward II was recorded as hearing court at Laskill on 30 August and 1 September 1323.[30] Was Laskill a customary stage on such a progression? Did the building perform other functions in the landscape, such as hosting part of the peripatetic court in 1323, even if it functioned as a woolhouse during other periods?

[30] Cal Pat R 17 Edw II Pt1, Great Britain Public Record Office (ed.) (1904) *Calendar of the Patent Rolls Preserved in the Public Record Office. Edward II Volume I*. pages 337,341,375. London: HMSO. At: http://archive.org/details/calendarpatentr04offigoog (Accessed: 22 May 2020).



Contours derived from Vector Map Local – Ordnance Survey data OS VectorMap® Local Scale 1:10000. Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk>

Figure 4:18 Rievaulx in Rye Vale by 1301

The 1301 Lay Subsidy, assessed as a fifteenth of the land's annual value (Brown 1897, and Table 4:3) provides a snapshot of Rievaulx's granges in Rye Vale by that date. Many of these granges cannot be securely located, including Blakemore, Newhouses, and Stirkhouse. The largest Bilsdale grange was calculated at £2 9s 1d. but the extent of this grange is uncertain. The names of some units suggests a range of stock-rearing activities in the uplands by 1301. Sheep cotes are recorded at William Beck and Ellermire, and horse and cattle rearing suggested by the names of Stirkhouse, and a Colt House farm which still exists in Bransdale (SE 61668 97528). Most of the exact locations have been lost, so have been suggested here based on modern successors with similar names. The overall picture in 1301 is a gradual intensification of the pre-Cistercian agrarian usage of these uplands.

Laygskales	At or near modern Laskill[1] SE 56379 90875	Colthous	Location unknown, but Colt House Farm still extant[1] at SE 61645 97462
Blakemore and Newhouses	Location unknown. Tentatively assigned to Black Moor at SE 51797 98858, just beyond the Bilsdale parish line[1]	William Beck cote	Location unknown but William Beck Farm still extant[1] SE 56927 99358
Eluitemercote	Possibly sheep cote near modern Ellermire Farm.[3] SE 56650 98918. 1301 value about half that of New House [2]	Stirkhous	Location unknown but Cowhouse Bank Farm still extant SE 60766 89762
Bilsdale grange	Specific location unknown. Assigned on map to general area of Bilsdale	**Sources** 1. Extant mapping 2. Brown 1897 3. McDonnell 1963b, 1986 & 1988	

Table 4:3 1301 Lay Subsidy – Entries for Rievaulx in Upper Rye Vale from 'Incrementum wapentagii de Rydale'

4.7 Mid-catchment valleys and plateaux (R3)

The preceding section has demonstrated that Rievaulx's activities by the upper reaches of the Rye in many respects, such as agrarian activities and iron extraction, continued the trajectory of previous occupants. This section deals with the question of 'transformation' of land on which the abbey's monastic core and home granges were established, namely the mid-catchment valleys and plateaux south of Shaken Bridge, as encompassed by study area R3. R4, namely the monastic precinct, is nested within that extent and will be considered in Chapter 5 (Figure 4:19).

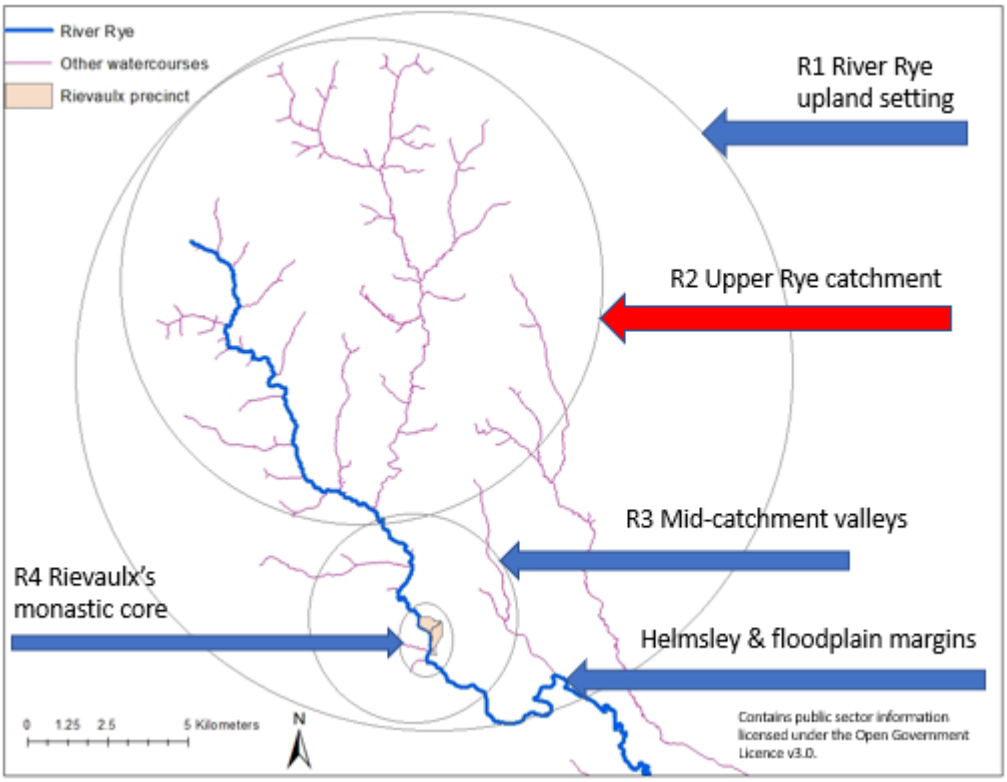


Figure 4:19 R3 mid-catchment general extent

4.7.1 Belief and authority as factors in Cistercian plantation

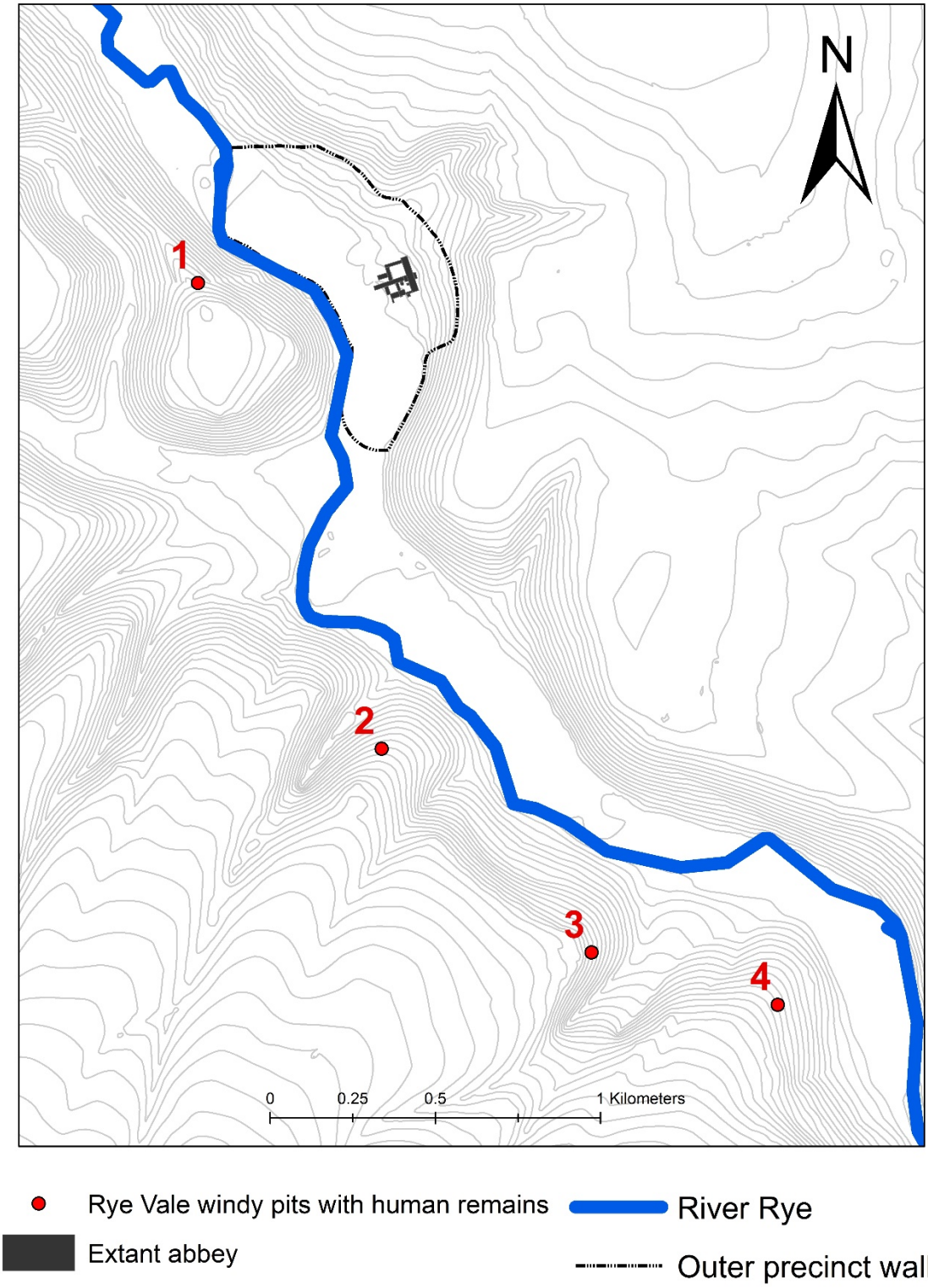
Little is known of the Rye Vale mid-catchment prior to Norman settlement (Keevill 2000: Section 3.3). 2018 Google Earth imagery may represent Iron Age settlement on limestone near modern Griff farm (Petts pers. comm.). There are, however, tantalising lines of evidence, including belief systems and questions of authority which, collectively, hint at possible reasons for Cistercian plantation here. The impact and timeline of Christianity in pre-Cistercian Rye Vale is currently unclear. Specific activities, such as the single 10th-century burial which would have occasioned the hogback preserved within Helmsley church noted above, do not give an unambiguous picture of a universally Christian milieu at this date.

The deposits made over an extended period in the local 'windy pits' suggest non-Christian belief systems could have been practiced very near to what became Rievaulx's precinct. Windy pits are physical fissures in the limestone bedrock, which can act as funnels for periodic updrafts of air at the fissure mouth, creating an otherworldly atmosphere. The selective use of certain, north-easterly facing (i.e. towards the rising sun?) windy pits for burials and other depositions over extended periods is noteworthy (Hayes and Rutter 1963:16-27; Leach 2006:201-345). One such pit with human remains (Ashberry) lies very close to Rievaulx's church (<600m) and precinct (c100m), with two other such pits (Slip Gill and Antofts) close by (Table 4:4). Might the updraughts of air at the windy pits be associated with voices 'crying in the wilderness' (Pam Graves, pers. comm.)?

Map key	Name and Monument number	Location	Physical / excavation record
1	Ashberry windy pit 57064	SE57098501 c100m from Rievaulx's precinct, c566m from Rievaulx's church	A vertical rock fissure investigated sporadically from the 1940s onwards. Finds include Beaker sherds, human remains, and flint implements including a saw and a knife. Roman finds suggested as 'slipped rubbish deposits' rather than deliberate and in situ deposits.
2	Slip Gill windy pit 57244	SE575835 c1.4 km from Rievaulx's church	Large rock fissure investigated from 1940s onwards. Finds included Beaker pottery, burnt stones and animal bones, bone pin, parts of two human skulls and other bones.
3	Antofts windy pit 57256	SE58238296. c2km from Rievaulx's church	An extensive series of natural fissures with a cave-like entrance. Finds included human remains (at least 8 individuals), sherds of Beaker, Iron Age and/or Roman pottery, flint knife and scraper. Charcoal from a possible hearth yielded a radiocarbon date of 3750+/-150 B.P. (uncalibrated).
4	Helmsley (aka Buckland's) windy pit 57259	SE58798279, SE58798280 c2.4 km from Rievaulx's church	Extensive series of natural rock fissures. Excavation of small square chamber & fissures: at least four hearths, remains of seven to eight human skeletons, bell-beaker sherds, flints & charcoal.

Table 4:4 Windy pits near Rievaulx's core[31]

[31] Data from Heritage Gateway website https://www.heritagegateway.org.uk accessed 14 March 2020, North York Moors HER, and Leach 2006. A windy pit with archaeological – but not human remains - is also recorded from antiquarian investigations, but as the records are unclear as to whether the material was recovered from two known locations near Hawnby that example has been omitted here.

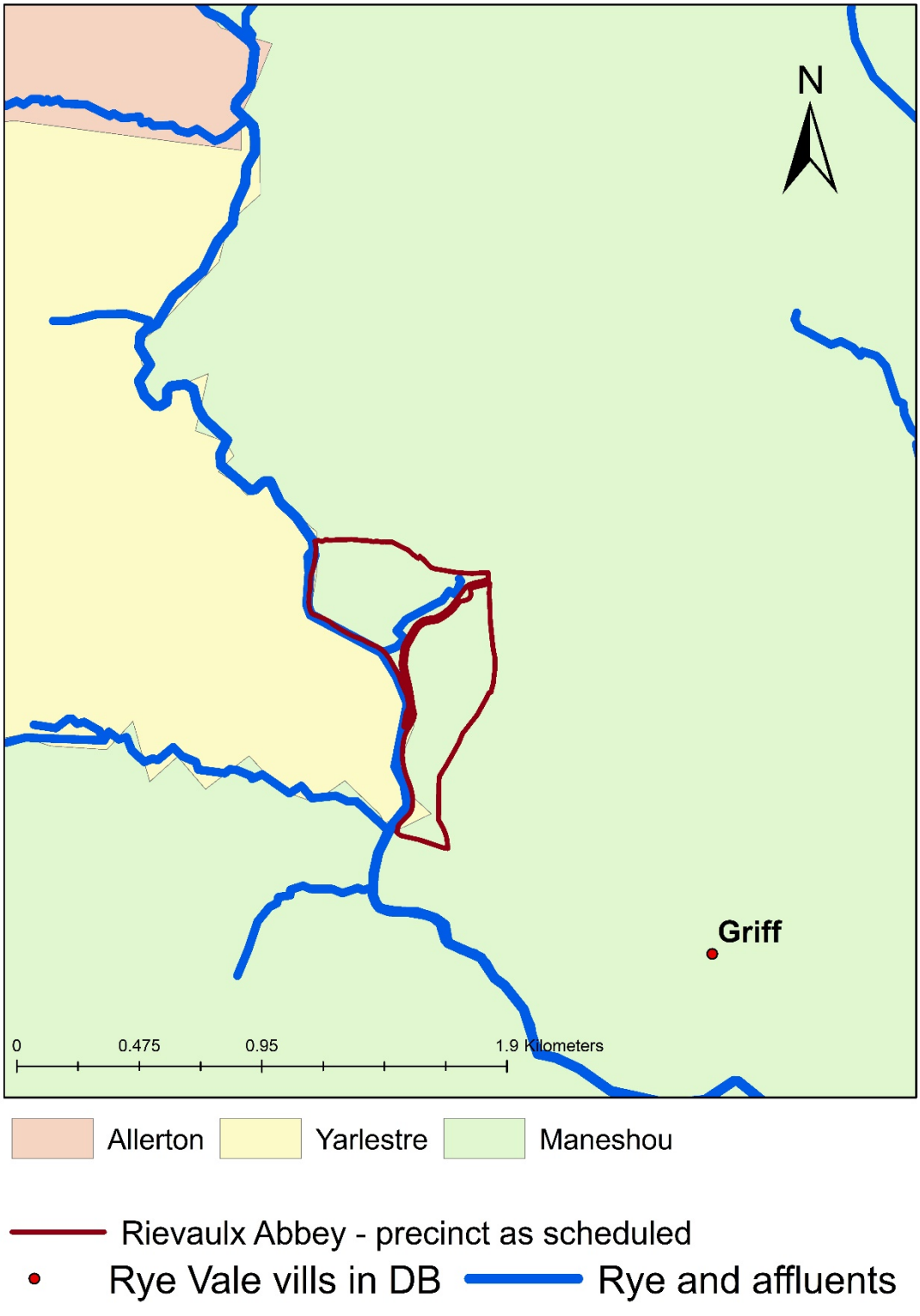


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Figure 4:20 Windy pits in relation to Rievaulx's core

It is possible, therefore, that a Christian institution was established at Rievaulx partly to engage with non-Christian belief systems at or near that location. Pearson (2019) wondered whether a pre-Cistercian church may have existed at Rievaulx. In summarising recent research, Semple (2013:1-12) noted that evidence exists in early medieval England for selective re-use and cultural appropriation of landscape features over extended periods. Awareness of natural features perceived as numinous could well have persisted into the high medieval period. This factor in relation to the donative decision by Walter Espec to establish a Christian religious institution nearby will be discussed in Chapter 9.

Transitions in authority provide another line of evidence for whether and why Rievaulx's land in Rye Vale, both in the uplands (R2) and in the mid-catchment (R3), was newly occupied by that monastery. Two transitions are key here: between the Anglo-Scandinavian period into Norman occupation in the late 11th century; and from initial Norman settlement into Cistercian plantation over 40 years later. Evidence is currently limited however for both transitions. The Anglo-Scandinavian territorial arrangements are inferred from very problematic evidence, principally that of DB. Three studies are considered here: Smith's 1928 study of North Riding placenames for the EPNS; Skinner's 2014 study of assembly sites; and the Domesday Shires and Hundreds of England project for which Stuart Brookes created the GIS (Smith 1928, Skinner 2014, and Brookes 2017).



Wapentake boundary data amended from © Dr Stuart Brookes from https://doi.org/10.5284/1058999 Landscapes of Governance / Domesday Shires and Hundreds of England project Used under Creative Commons Attribution 4.0 International License OS Open River Network - contains public sector information used under Open Government Licence v3.0. Some imprecision in watercourses and wapentake boundaries from variations in underpinning data

Figure 4:21 Rievaulx's monastic core in relation to pre-existing wapentake boundaries

Smith, Skinner and Brookes agree that a stretch of the Rye, between Sledhill Gill and Grass Keld, formed the boundary between Maneshou and Yarlestre in the mid-catchment valley within which the monastery of Rievaulx was constructed. The wapentake boundary may thus have run along the eastern side of Ashberry Hill. The extent of Espec's gifts (Table 4:1) and vill names in Domesday Book (Table 4:11) suggest that the first gift from Espec (Griff and Tilstons) was wholly in Maneshou, but placed Rievaulx at the boundary between Manshou and Yarlestre, with yet a third boundary, of an outlier of Bulford at Cold Cam, nearby (Figure 4:12, Figure 4:21).

In the moor tops, Espec's grant of Bilsdale may have been bounded in the north by the boundary between Maneshou and Langbaurgh, a wapentake boundary which appears to have followed the watershed. Whether the boundary between Maneshou and Allerton at Steinton (above) was defined by the Seph and Fangdale Beck (Smith 1928, Skinner 2014) or by Ladhill Beck (Brookes 2017), Espec's gift of Bilsdale (R2) appears to have lain entirely in Maneshou, along a substantial proportion of the boundary between that wapentake and Allerton.

Both of Espec's grants therefore placed Rievaulx at the intersection of what had been multiple territories in the Anglo-Scandinavian period. Recent work on Anglo-Scandinavian territorial organisation suggests such boundaries may not have been 'marginal' but instead, culturally charged (Semple 2013). Ian Maxwell considered that the division of Bolesford and Allerton was possibly manorial, with the division of Maneshou geographic (Maxwell 1962:87). [32] Based on the same DB evidence used by Maxwell, Skinner suggests that a territory did exist in Maneshou prior to Cistercian settlement, although any manorial organisation was not reflected by Domesday records (Skinner 2014:318-327). Maneshou[33] may have been the only Scandinavian wapentake in the North Riding, except possibly for Halikeld (Skinner 2014:50). Other nuances of Maneshou cultural arrangements may similarly have been poorly reflected in the rapid survey of specific taxable assets which was the focus of Domesday Book.

[32] The division of Dic, in which Rievaulx's Vale of Pickering lands were located, may also have been geographic (Maxwell 1962:87)

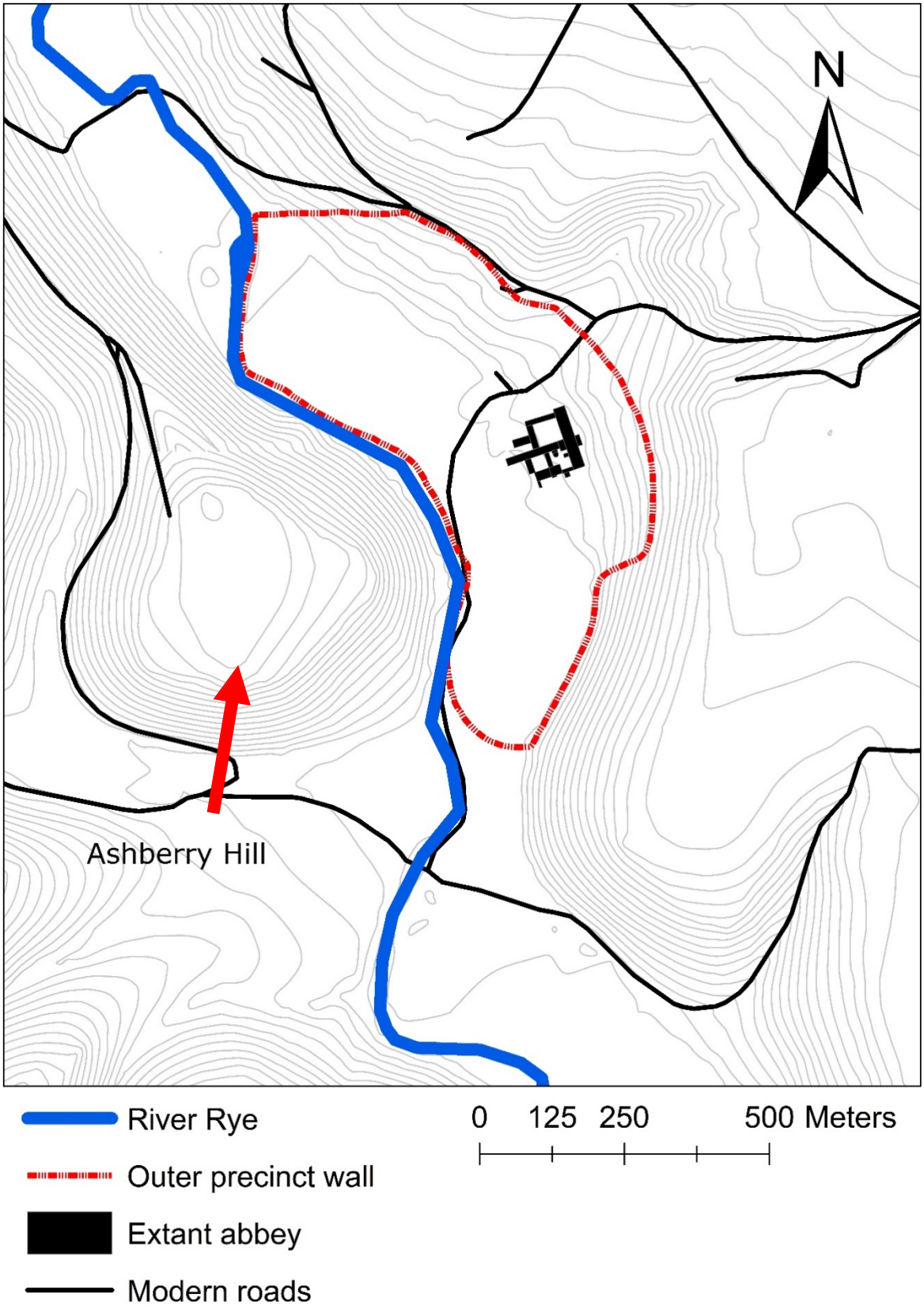
[33] Maneshou wapentake was re-named Ridale wapentake by the time of the Pipe Rolls of 1166 (Skinner 2014:318).

The assembly place for Maneshou wapentake has yet to be identified (Skinner 2014:322). The *-hou* (Old Scand. *-haugr*) nomenclature indicates 'a focal point in the form of a mound' (Skinner 2014:151). Assembly sites were typically sited at highly visible locations, such as high points in the landscape (Semple 2013). Might Ashberry Hill have been a culturally important place in the Anglo-Scandinavian period? This small hill is locally prominent (169m), with relative elevation greater than its absolute height given its location on the downslope of the Moors. Its summit would therefore have given a good view down the valley below, overseeing the (inferred) location of wapentake boundaries, a possible thegnly centre, and more certainly a settlement, at Helmsley (discussed below).[34] There are some irregular ditches enclosing the hill at the 152m contour[35] that could be defensive. Rievaulx's foundation immediately to the east of Ashberry Hill may therefore have carried cultural significance.

Medieval soke is interesting for Maneshou. Soke was a cultural arrangement, which entailed the obligation to pay services, dues and attend the soke-lord's courts (Oosthuizen 2006a:115-116). Four sets of sets of soke may have existed in this area of the Moors, namely Helmsley, Kirby Moorside, Hovingham and Carlton Husthwaite (Skinner 2014:777). Skinner's mapping suggests Helmsley's soke lands may have been bordered on three sides (east, south and west) by those of Carlton Husthwaite. These factors suggest possible compound motivations for Espec to secure his new caput at Helmsley, which will be discussed in Chapter 9 as the matter merits consideration alongside similar factors in the Vale of Pickering case study.

[34] Other possible assembly sites within or near to the uplands given to Rievaulx by Espec include Green Howe, which is the highest point locally.

[35] HER number 1844 'A series of irregular ditched enclosures some quite small and suggestion of a ditch enclosing the hill at the 152m contour'



Ashberry Hill lies to the west of Rievaulx's precinct (indicated by red arrow)

Historic monument data C Historic England *Contours derived from* Vector Map Local – Ordnance Survey data OS VectorMap® Local Scale 1:10000. Downloaded: 2020-07-25 using EDINA Digimap Ordnance Survey Service https://digimap.edina.ac.uk

Figure 4:22 Ashberry Hill

Considering Espec's gift of Griff and Tilstons more specifically, it has been claimed, based solely on town plan morphology, that nearby Helmsley has 'no suggestions of any substantive pre-Conquest roots' (Roberts 2008:119). To the contrary, the hogback at Helmsley church (above), DB entries and archaeological evidence suggest that other lines of evidence are important to understand change in this territory. In the 11th century, Helmsley may have been the largest settlement in the north of Maneshou. [36] In 1066, Helmsley was occupied by individuals whose names suggest an Anglo-Scandinavian cultural milieu. A named individual, Uhtred,[37] occupied the land later held by Count of Mortain, with three thegns on land later held by the king. A thegn (alt. sp. *thane*) was the lowest level of aristocracy, a freeman who held land granted by the king or a nobleman (Loveluck 2013:279). It is unclear whether Uhtred was also a thegn (Table 4:11Table 4:11 Domesday Book – Helmsley and Upper Rye Vale (R2-R4) with approx. heights).

Uhtred Three thegns	Count Robert of Mortain King William	Uhtred had 1 manor of 8 carucates taxable, 4 ploughs possible. Now the Count has there 6 villagers with 2 ploughs. A priest and a church. Woodland pasture and arable field, 6 leagues long and 1 ½ leagues wide. Value before 1066, 32s; now 10s. In Helmsley 3 thanes, 3 ½ carucates taxable. Land [for] 2 ploughs	The Count of Mortain 7 carucates The King in Helmsley 3 ½ carucates.

Table 4:5 DB references to Helmsley - extract from table 4.11

From examples known elsewhere, such thegns could have had a fortified base. An 11th-century text (GeÞyncðo) and excavated examples such as at Late Saxon Goltho (Lincolnshire) suggest such a base might have included a church, kitchen, bell-house, and enclosure gate (Beresford 1987).[38] Might such a fortified complex lie under Espec's earthwork fortifications at Helmsley?[39] Such a complex could have been 'upgraded' to a castle thereafter, such as suggested to have occurred at Burwell (Cambs.) in the 12th century (Wright and Creighton 2016: 6-25).

[36] The largest settlement in the south of Maneshou recorded in DB was at Old Malton

[37] Uhtred is a somewhat common name in DB, occurring 95 times. Data from *Prosopography of Anglo-Saxon England* database retrieved 20200214: http://pase.ac.uk/jsp/pdb?dosp=VIEW_RECORDS&st=PERSON_NAME&value=3927&level=1&lbl=Uhtred

[38] For summary of re-dating of Goltho see Creighton 2005: 21–7

[39] Earthwork enclosure (located at SE611837, scheduled as List Entry Number: 1009963) at Helmsley castle. https://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=1009963&resourceID=5 Accessed 20200912

Rye Vale entries in DB for 1066 and 1086 provide snapshots of a social transition in process. (Table 4:5; Table 4:6; Table 4:11). In 1086, the Rye Vale vills were held by three lords: King William, his half-brother Count Robert of Mortain and Robert Malet, the first two of whom held the vills of Griff and Tilstons. Where a value is given for Rye Vale vills, this appears to have dropped between 1066 and 1086, and some vills, including Tilstons, were recorded as waste. The interpretation of waste references in DB will be considered as part of a discussion of the broader use of this term in Chapter 8.

Vill name	1066 people named	1086 people named	DB Breve evidence	DB 'Summary' evidence
Griff	Grimr	King William Count Robert of Mortain	In Griff (farm) Grimr, 2 carucates taxable. Land for 1 plough No entry	The King 2 carucates The Count of Mortain 2 carucates.
Stiltons	Uhtred Frithgestr	Count Robert of Mortain King William	In Stiltons, Uhtred had 1 manor of 2 carucates taxable; 2 ploughs possible. Now Count Robert has (it). Waste. Woodland pasture and field, 1 league long and 1 wide. Value before 1066, 20s In Stiltons (farm), Frithgestr, 1 carucate taxable. Land for ½ plough	The Count of Mortain 3 carucates The King 1 carucate.

Table 4:6 extract from table 4.11- Domesday Book – Maneshou entries for Griff and Tilstons

4.7.2 Agrarian factors in Cistercian plantation on vills of Griff and Tilstons

It was thus from land held and cultivated by Anglo-Scandinavians in 1066 that Espec granted the vills of Griff and Tilstons on which to establish his new Cistercian abbey. Agrarian potential is another line of evidence for the question of whether land granted to Rievaulx had previously been occupied. Areas on both banks of the Rye had specific opportunity niches and agrarian constraints, yet DB vills in Rye Vale were predominantly on the west bank of the Rye (above). Griff and Tilstons were the only two vills on the east bank of the Rye upriver of Helmsley, and both had been productively occupied at

Domesday (Table 4:11). The soil evidence suggests that both vills are in the modern day in the highest category of land-use potential to the immediate north of Helmsley (above). The arable potential of Griff and Tilstons had therefore been established during Anglo-Scandinavian occupation.

The fate of the pre-monastic occupants of Griff and Tilstons is, however, something of a mystery. Although Tilstons is recorded as 'waste' in 1086, no value is given for Griff vill in DB at either 1066 or 1086. A survey by Hunt and Stone (2003) for English Heritage used aerial photographs and topographic survey to investigate the presumed extent of the monastic grange at Griff. The survey interpreted some earthwork fragments, principally land boundary features and holloways, as relating to pre-monastic land use, but did not find any features that looked like settlement. The investigators however stressed that the survey area was constrained and the pre-monastic vill recorded in DB may lie beyond the survey extent, possibly to the north-east or west (Hunt and Stone 2003:31-34). What the surveyors interpreted as the centre of the grange appears to have been enclosed by a substantial stone wall, extended as the grange developed to incorporate several enclosed yards, and a freestanding rectangular building footprint nearby *might* be a grange chapel, although differential survival, a lack of dateable features, and post-medieval use of the site make interpretation of function and date problematic (Hunt and Stone 2003: 31-34).

The surveyors' interpretation was that the grange buildings did not overlie the pre-monastic vill. This leaves open various possibilities. One is that the pre-Cistercian vill lay in a location other than near the monastic settlement, conceivably in a nearby valley. As previously noted, Smith commented (1928:73) that Griff's name may be derived from Old Norse *grifya* - narrow valley - and valleys lie on three sides of this limestone plateau. Other possibilities are that the vill and the monastic occupation were in operation at the same time; that the vill was deserted at the time of Cistercian settlement; or that the vill occupants may have stayed on, possibly to work for the abbey. This latter practice is suggested at Thorpe Underwood in relation to Fountains (Yorkshire), a sister house of Rievaulx (Platt 1969:83-84). At the foundation of Revesby (Cistercian, Lincs) in 1142, William of Roumare gave peasants the option of moving to new holdings on different terms (Stenton 1910:24-6).

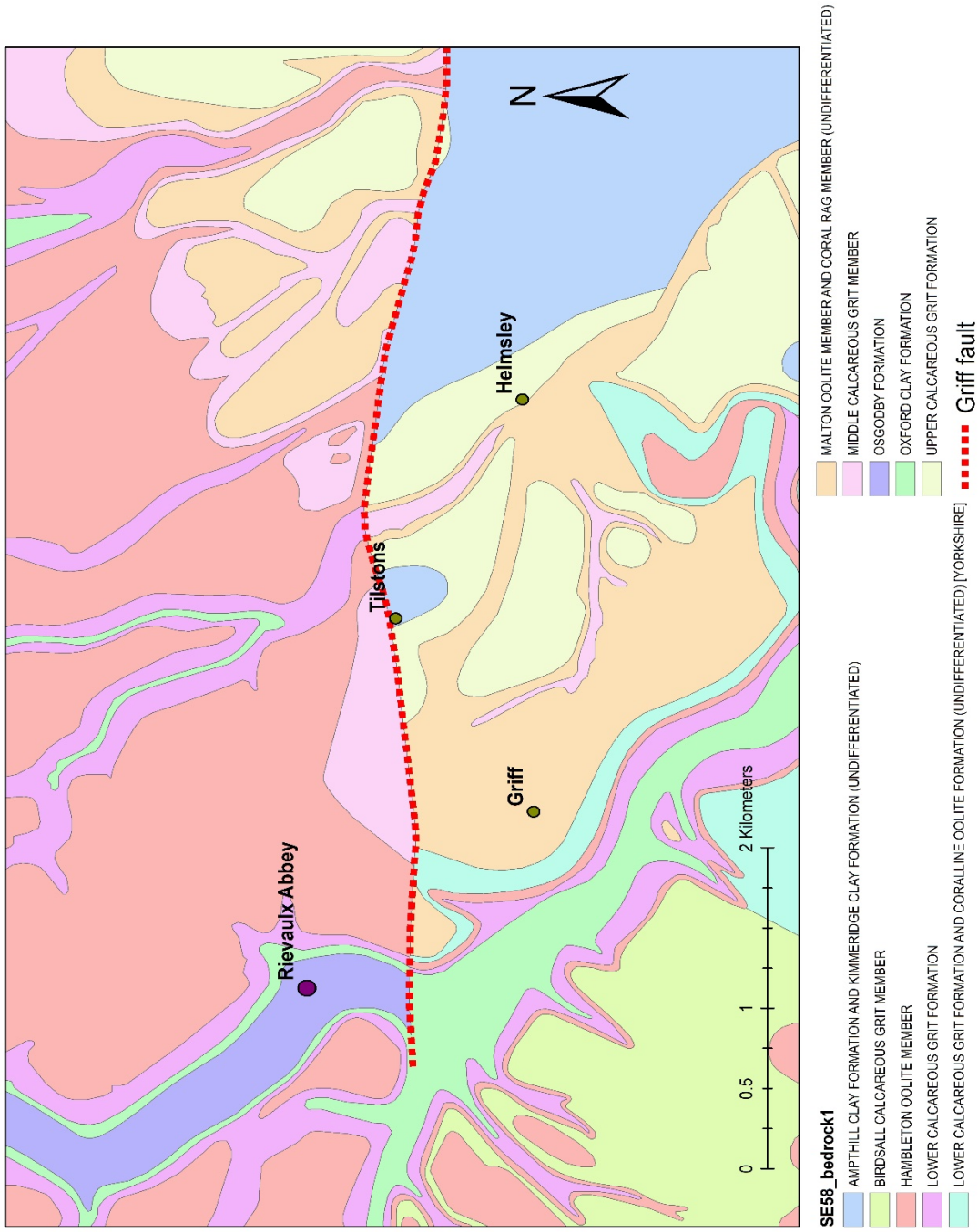
4.7.3 Water stress at Griff and Tilstons?

There is a practical matter that may help explain why Griff and Tilstons had been settled by Domesday but were given by Espec to the new monastery. The 12th century reference that the people of Griff were accustomed to use the mill at Sproxton, on the west bank of the Rye (Table 4:9**)**, suggests that the lime-rich, well-drained soil on the Corallian limestone could be productive for grain. Although potentially fertile, the productivity of Griff and Tilstons may have been conditional on the right circumstances for farming, with water management being a significant determinant.

It will come as a surprise to anyone who has experienced a Yorkshire downpour, but despite intermittent over-supply of rain, water shortage has historically constrained agricultural activities at certain locations on the North York Moors. The water issue results from a combination of relatively low rainfall and the underlying geology. Modern rainfall in the Rye catchment, which includes land above 200m, is atypically low for its altitude (Bendelow and Carrol 1979:4).[40]

Geology is also a factor in surface drainage. Griff and Tilstons lay on fissured limestone which has limited water storage, and the downthrow fault mapped west-east across the plateau between Abbot Hagg and Stiltons Farm (Figure 4:23) likely exacerbated surface water loss. The physical properties of the bedrock control how it performs as an aquifer. In summer, more water is lost from water courses disappearing down swallow holes than is discharged elsewhere in the aquifer by springs, and groundwater movement increases the dissolution of carbonate in the limestone thus enlarging the faults and cracks through which water is lost (Allen et al 1997: 132-133). The fissured bedrock aquifer therefore offers very limited surface water storage (Reeves et al 1978: 253-262).

[40] Standard-period Average Annual Rainfall (SAAR) Rye at Broadway Foot gauge number 27055 was 938mm (1941-1970) and 882 mm (1961-1990) UK Centre for Hydrology and Ecology https://nrfa.ceh.ac.uk/data/station/spatial/27055 accessed 20200202



Crown Copyright/database right 2021. A British Geological Survey/EDINA supplied service. DiGMapGB-50 [SHAPE geospatial data], Scale 1:50000, Updated: 30 November 2016, BGS, Using: EDINA Geology Digimap Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-03-03

Figure 4:23 Griff and Tilstons lay on a faulted limestone plateau

A reliable water supply was established at Griff and Tilstons only in the 18th century. In 1768, Joseph Foord was employed by local farmers to create a system of over 70 miles of 'races', gravity-fed open channels, to bring water from the uplands to key farming areas in the Hambleton Hills. One of these was Abbot Hagg race, a 13-mile course carried by revetted earthen banks and four wooden aqueducts to bring water from Tripsdale to Griff and Stiltons (McLean 2005). A section of the supposed course of Abbot Hagg Farm race was excavated, but no trace of the race was found (Richardson and Dennison 2009). At Stiltons farm (probably the general area of the former monastic Tilstons), a reservoir is noted on the 1895 OS 25" map which may have been fed by an offshoot of the Foord race to Rievaulx (HER No 9901 / Old SMR 15962). At Griff, a circular pond known from 19th-century mapping was so important that three field boundaries aligned there, to allow animals to access it from all sides (Hunt and Stone 2003:29).

It is tentatively suggested, therefore, that water-stress could have contributed to the challenges of medieval farming at Griff and Tilstons. Arable production in the 12th century depended crucially on oxen to draw the heavy, mouldboard plough which had been standard agrarian technology in Northern Europe since at least the Early Roman / Iron Age (Larsen 2016: 225-236). Before the abbey foundation, such oxen could have been pastured on the low meadowland next to the Rye, on which Rievaulx Abbey was subsequently built. The lack of a reliable water supply on the limestone plateau may have made supplying human residents more challenging. Groundwater sources are some distance away in the valleys which flank the limestone plateau on either side: to the west is the valley of the River Rye, and to the east is the valley through which Etton Gill runs into Borough Beck. If settlement lay on the plateau, water supplies would therefore need to be carried uphill to the vills from either the west or the east (Figure 4:23). Griff's water system may have been connected to that of the abbey at some stage. Hunt and Stone (2003:44), recorded a system of probable water channels between the supposed grange site and Rievaulx's monastic core. As these features were identified in aerial photographs the dating of them is however uncertain.

There is suggestive evidence for other environmental challenges in North Yorkshire which could have played a role in Espec's gift of Griff and Tilstons to Rievaulx. Crop failure, famine, pestilence, murrain, bad winters, wet weather, and flooding are variously noted in documentary sources for North Yorkshire for several years at the turn of the 11th to

12th centuries[41] (Menuge's table in Chiverrell and Menuge 2004: 23). It is impossible to know at present whether such factors may have added to the disruption caused by the Norman settlement, possibly prompting people to seek an easier living elsewhere, conceivably to the lower lands on three sides of the Moors. Griff and Tilston could thus have been under-productive or occupied on a relatively small scale, which a new abbey would be able to increase with the resources available to it. An advantage a larger organisation, such as a monastery, has over a smallholder is a greater flexibility to move assets round as needed. When Griff and Tilstons were managed by the abbey, the human and animal assets could be more easily be redeployed during the year, as necessary. This resource flexibility may have overcome the suggested water stress, and enabled agricultural potential of the lime-rich, well-drained soils to be better realised by the monastery than by the pre-Cistercian small-scale settlers.

[41] 1070, 1086-1088, 1093, 1095, 1103-4, 1111, 1115, 1117, 1120, 1121, 1123, 1124 and 1131

4.8 Espec's 'starter package' to Rievaulx: Griff, Tilstons and the Rye Vale uplands

In Anglo-Scandinavian upper and mid-catchment Rye Vale, therefore, the picture is of scattered small holdings of proven agrarian potential with varied access to specific resources. Far from being marginal, the vills given by Espec to Rievaulx, namely Griff and Tilstons, had been productive under Anglo-Scandinavians by 1066 and could be made productive again under the right conditions such as the larger scale and flexibility of resources available to a monastery. Espec's gifts to Rievaulx contained the elements for a mixed agrarian economy. DB entries suggest Griff and Tilstons had woodland, pasture, field and ploughland. The potential for grain production on the limestone plateau of the vills of Griff and Tilston has been noted above. The nature of land rights and transactions in 11th- and 12th-century Yorkshire is somewhat opaque, but carucates in DB could be associated with unspecified amounts of meadow and on occasion other types of land (Sheppard 1975:67-78). When Espec's heirs confirmed his grants of five and four carucates in Tilstons and Griff respectively, it was made clear that the specified carucates came with that which pertained to them (*Cart. Riev*. 43-48). In the mid-13th century[42] Rievaulx had to make suit against Espec's heirs over its rights to Griff's carucates '*cum pertinenciis*' (*Cart. Riev.* 8, 217). (Table 4:9). These appurtenances were likely the woodland mentioned in DB as well as the meadowland of the two vills. The meadowland is likely to have included the relatively flat and low-lying land beside the Rye, to the west of Griff. This offered a suitable building site for the extensive claustral complex, which will be considered in the next chapter. Quitclaims (a legal device whereby an individual or organisation formally ceded their rights) of Griff and Tilstons beginning in the mid-12th century[43] (Table 4:9) suggest that individuals claimed interests in this land, so the potential of this land obviously merited effort to secure.

One attraction to a monastery of the low-lying land by the Rye may have been the presence of two separate water sources. Chapter 2 provided a general introduction to water use in monasteries. The Rye-side location provided a flowing river for practical requirements, a type of location favoured by Yorkshire Cistercians - the settings of Fountains and Kirkstall are remarkably similar in this respect to that of Rievaulx. The

[42] Atkinson suggests 1251-1252

[43] The Dean and Chapter of York attested two quitclaims, one in 1154-1163. Riev Cart 226 and 227

springs in the fissured limestone of Griff and Tilstons could have been used for liturgical purposes, and the operation of such dual-supply water systems will be considered further in Chapter 6.

Espec's second grant added rights to the upland resources of Bilsdale (Table 4:1), thus providing Rievaulx with extensive uplands with woodland, rough grazing, pockets of land suitable for small-scale arable, building stone, mineral resources (including ironstone and poor-quality coal) and the flowing water to process these. Building stone of various qualities also existed near the abbey site (Table 5.4).

The productive potential of Espec's gift is therefore clear, even if many precise locations of pre-Cistercian activities therein are uncertain. Later documentary evidence suggests that Rievaulx subsequently developed these areas. Griff became the most valuable of Rievaulx's Rye Vale granges. In the 1301 Lay Subsidy (Brown 1897), Tilstons is not mentioned, suggesting that it had been incorporated with Griff by this date. (Table 4:7). Griff's value was calculated at £3 1s 4d. Rievaulx also made the limestone plateau north and east of Griff and Tilstons productive, with units established at Ouldray and New Leys. The name of the latter suggests a new establishment (so probably after 1131), and which lay within 100m of a lens of brown earth in the same high land-use potential category (2) as Griff and Tilstons. On the west bank of the Rye, Sproxton cote's name suggest sheep rearing.

Abbot of Rievaulx	xvijs ixd o.
Griff	lxjs iiijd
Newlathes (ie High Leys)	xlvjs iiijd
Hulwra [Ulwraye or Ulthwaite, now Ouldray]	vijs iiid o.q.
Sproxton cote	Xjs iijd o.

Table 4:7 1301 Lay Subsidy – Entries for Rievaulx in mid-catchment from 'Incrementum wapentagii de Rydale'

4.9 Dissolution-era Rye Vale (R2 and R3)

A collection of documents from the 16th century provide a snapshot of Rievaulx's land interests at around Dissolution. Atkinson published abstracts from a document he terms '*conventual leases*'[44](1889:348-358). Although these abstracts contain several entries for Rievaulx's Vale of Pickering granges, which will be discussed in the next case study (Chapters 7 and 8), the only entry that it is possible to associate with mid-catchment (R3) Rye Vale is that of a '*meisse and walkmylne in Airdaill*' namely a messuage (dwelling house and land) and 'walk' mill, possibly at the location now known as Harriet Air (Atkinson 1889:351). Without access to the original document from which Atkinson's excerpts are taken it is difficult to interpret this omission. Were Rievaulx's Rye Vale granges let out at the time of Dissolution? Leasing out was first permitted by the Cistercian Chapter General in 1208 (Donkin 1978: 17).[45] The practice of leasing out is also known at other Cistercian abbeys such as Fountains Abbey (Michelmore 1981) and Coupar (Rodgers 1879) and will be encountered again in the case study of Rievaulx's Pickering Marishes land.

The sale of Rievaulx and the abbey's assets are recorded in King Henry VIII's *Patent Rolls*.[46] The Duke of Rutland became the new owner of Rievaulx's assets in Helmsley parish, including Rye Vale. The assets within Rievaulx's precinct have been described by Coppack (1999b:226-237). Beyond the precinct, the *Patent Rolls* list Griff, Newlathes and Sproxton granges. The entry for the '*dominia et maneria*' (domains and manors) of Bilsdale and Raisdale mention Hawnby but not any identifiable parcels. Assets are described in what look like stock phrases, incorporating all manner of land and property rights, such as mills, warrens and fields. Because these entries relate also to lands in Northallerton and Leake, they offer no specific insight as to the condition of Rye Vale at the time.

[44] Reproduced from an unnamed source by Atkinson 1899 as *Cart. Riev.* 375
[45] *Statuta* 1:346
[46] Patent Rolls 30 Henry VIII p7 m.2, published by Atkinson 1899 as *Cart. Riev.* 376

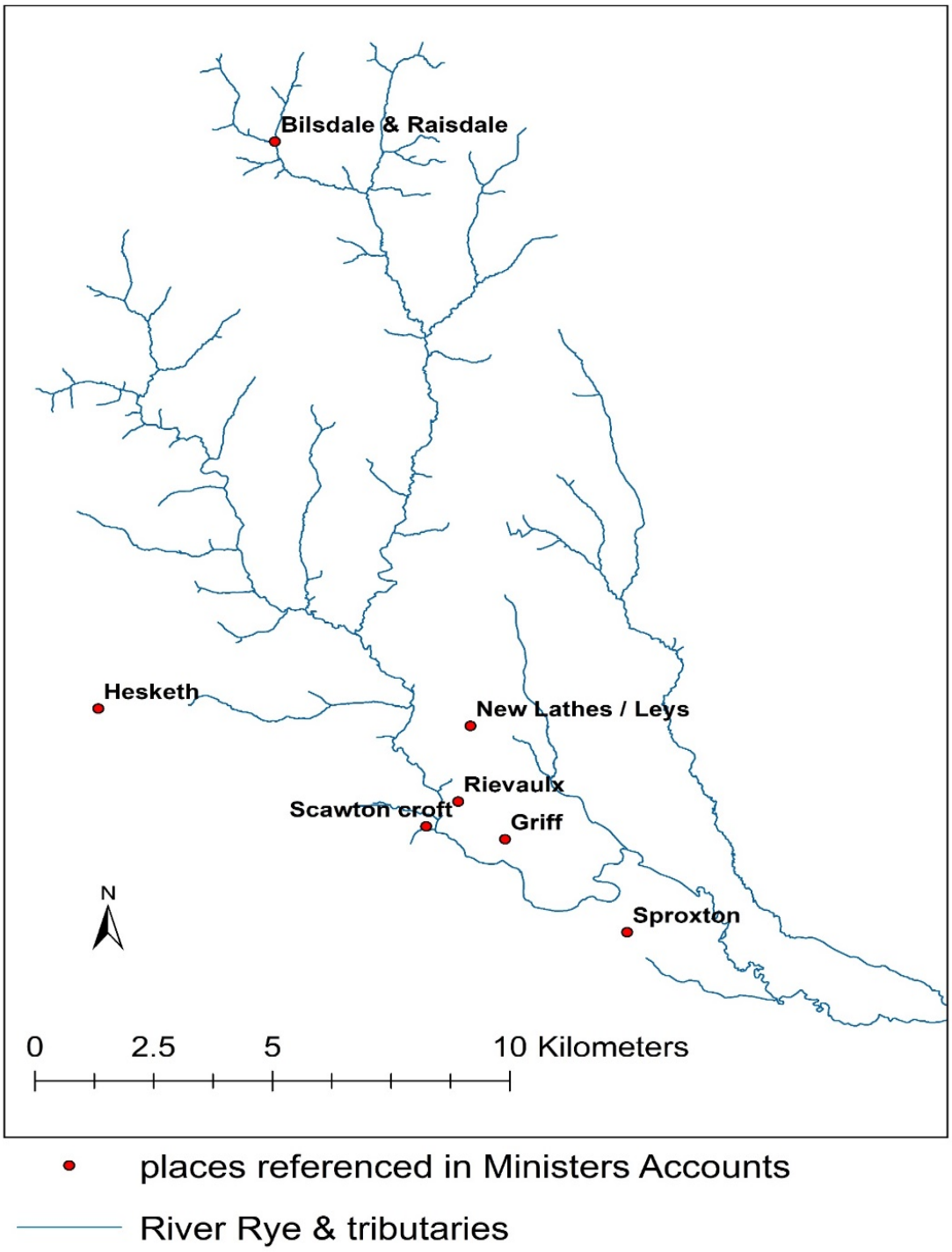
The *Ministers Accounts*[47] from the following year records an audit of the first year's income after the sale to Rutland (Coppack 1999a:177). Table 4:8 gives the income from upper and mid-catchment Rye Vale, namely study areas R2 and R3.

'manerium de Ryvalle' (manor of Rievaulx)	ix li vii s. viii d.
Griff	x li xis xd
New Lathes	vi li xv s. vid.
Bilsdale and Raisdale	iv ^{xx} viii li vi s. xd
Sproxton	lxx s.
Hesketh Grange	iv li xiiis ivd
'Skaton croft with Orlyaunce' (possibly Scawton croft)	xlvii li vi s

Table 4:8 Rye Vale – entries in Ministers Accounts

The entries for Bilsdale and Raisdale adds little insight into the specific land conditions here, other than to list rental payments from over 60 individuals of an itemised list of what look to be small land parcels and assets such as mills. These payments were probably from occupants of the settlements of Bilsdale and Raisdale and the adjoining lowlands. This suggests that the Rye Vale assets (Figure 4:24) were sufficiently valuable to have found lay people ready to take them on after Dissolution.

[47] 30-31 Henr. VIII No 162, published by Atkinson 1899 as *Cart. Riev.* 374



Watercourses derived from public sector information licensed under the Open Government Licence v3.0.

Figure 4:24 Rievaulx granges in Upper and mid-catchment Rye Vale by Dissolution

4.10 Summary

Compelling evidence therefore exists that occupation and settlement existed at locations across Rye Vale before the 12th century. The area was generally exploited from the Mesolithic onwards, and evidence of post-Roman use is also emerging through a better understanding of the multiple types of non-buildings evidence available. Along the upland reaches of the Rye catchment, exploitation in the Anglo-Scandinavian period included iron extraction and processing, activities which Rievaulx continued.

Direct evidence for pre-Cistercian stock rearing and arable production in the Bilsdale uplands is currently limited to tantalising DB references to ploughland. The fact that a specific value, at however reduced a level, was recorded in Rye Vale vills suggests that individuals remained from whom the Domesday clerks could ascertain geldable value and ploughland potential. The Domesday picture is of modest-sized vills with areas of ploughland each perhaps enough to sustain a social unit. The location of Griff and Tilstons possibly showed knowledge of soil properties by Anglo-Scandinavian settlers. Attached to the vills later given to Rievaulx were areas of woodland which would have provided pasture, pannage, fuel and other resources (Table 4:11). This therefore suggests several managed small holdings rather than a wilderness, whose locations showed selection of agrarian approaches. The mention of Steinton in Espec's second grant (*Cart. Riev*. 42), although not mentioned under this name in DB, suggests this vill existed before the abbey foundation. Rievaulx's activities in these uplands, such as stock husbandry and mineral extraction, thus extended a trajectory established by their Anglo-Scandinavian and early Norman predecessors. The pre-Cistercian traditions of Christian worship in Rye Vale require further attention.

It is known from elsewhere that animal pasturage over generations, such as inferred from the evidence above for Rye Vale, could successively have improved the fertility of the soils, in turn affecting animal grazing behaviour and hence plant species diversity (Soder et al 2017:416-425). The existence of such long-term human and animal interactions in Rye Vale would therefore have gradually altered the landscape inherited by the monastery of Rievaulx. The degree to which Rievaulx extended or introduced new activities is difficult to assess without more physical evidence. This account of pre-Cistercian development is at odds with the picture of Rievaulx's foundation in a

'wilderness' which was suggested by texts such as that of Walter Daniel quoted *in extenso* at the beginning of this chapter. The immediate utility to Rievaulx of Espec's 'starter package' suggests a considered, and possibly informed, donative decision by Espec, which will be discussed in Chapter 9. The next chapter focusses on land on which the conventual core of the new monastery was founded.

Chapter 4 Landscape orientation tables

Rievaulx cartulary number	Type	Main parties	Date	Substance
8	Agreement	William de Ros	Atkinson suggests c 1251x1252	Statement of de Ros and Rievaulx interests near Helmsley.
42	Grant	Walter Espec	Undated. A composite document postdating 1145, possibly after 1150 (Burton 1998a:30).	Land in Rye Vale
43-48	Grants & concessions	Espec's heirs		Various gifts, grants and concessions
70	Grant and concession	Roger de Mowbray	Undated, but witnesses present suggest 1145x1196	Confirmation of grant of vill of Steinton (in Rye Vale) "erga omnes homines".
71	Confirmation	Roger de Mowbray	Undated, but witnesses present suggest 1180x1190	Mowbray's confirmation of grant made by Stephen de Meinhil of Steinton and its appurtenances.
72	Grant	Stephen de Meinil	Burton (1998: 31) suggests grant predates 1147	Grant of Steinton in Rye Vale.
73	Quitclaim	Hugo de Malebisse		Steinton in Rye Vale
74	Grant	Hugo de Malebisse	Possibly by 1170, as *Oswaldenges* is mentioned in *Carta Caritatis*	Meadow of Oswaldenges in Scawton
75	Grant	Hugo de Malebisse	*Carta Hugonis Malabestia de Brochesholes*	Further grant adjoining Oswaldenges in Scawton.
76	Concession	Odo de Boltby		Boltby and Hesketh, including Murton

77	Grant	Adam de Boltby		Further land in Boltby
80 & 81		Robert & Simon de Sproxton		Pasturage and other rights in Sproxton
149	Agreement	Kirkham Priory		
156	Confirmation	Roger de Mowbray		Charter of Hugo de Malabisse re Oswaldenges
164	Grant	Stephen de Meinil		Green Howe
216	Grant	Espec to Kirkham Priory	1122	Copy of Espec's Kirkham Priory 'foundation' charter including grant of Helmsley church
227	Attestation	By Dean and Chapter of York		Quitclaim by Ralph FitzSerlo of Griff and Tilston
228	Attestation	By Dean and Chapter of York	1154x1163	Quitclaim by Uctred Fitz-Orm of Griff
234 &235	Cessation	Kirkham Prior and Convent		Tithes of Griff and Tilston
242	Agreement	Abbeys of Byland and Rievaulx		Scawton; tithes of Oldwaldenges
243	Agreement	Abbeys of Byland and Rievaulx	U/d but prob. agreed 1147x1167 and read in Chapter of both houses in 1170 (Burton 1998a)	Multiple matters. Mirror copy in Byland cartulary 988.
284	Memorandum	John Praepositus and wife		Grants in Raisdale
300	Grant	Richard Malebisse	Undated, but possibly 1190x1203 (Atkinson 1889)	Restatement of Hugh Malebisse's grants, new grant of Hanging Bridge Holm in Scawton
304	Confirmation	Richard Malebisse	Undated, but possibly 1190x1203 (Atkinson 1889)	Amended restatement of boundaries of Hanging Bridge Holm in Scawton

322	Grant	Simon de Ver		Manors of Great and Little Raisdale including rights formerly held by William de Moubray de Tanton
323	Agreement	William de Tameton		Tenement in Bilsdale
347	"Foundation" charter	Archbishop Thurstan of York and Walter of Durham	Undated. Signatories in post 1133xc1140	Second "foundation" charter of Kirkham Priory.
362*		Simon de Ver		Great and Little Raisdale
368	Composite list	List of benefactions	Undated. Compiled late 12th cent (Burton 1998a)	
370*			Undated	"Notice of the foundation of the houses of Kirkham, Rievaulx and Warden."
372*	Confirmation	Edward III	1332	Confirmation of grants made to the abbey, including holdings in Rye Vale,
373*	Confirmation	Richard II	3 Richard II	Inserted by Atkinson. Confirmation of all grants and concessions made to the convent, including holdings in Rye Vale

***Inserted by Atkinson from other sources**

Table 4:9 Rievaulx in Rye Vale – relevant documents in Cart. Riev.

Number	Place	Type	Parties	Date [1]	Comments
255	Dale Town	Grant	Ralph de Turp & Byland	1170xc1190	Wdekelda spring and road from Murton
256		Quitclaim	Ralph de Turp & Byland	1147x1186	Land in Sproxdale to midpoint of River Rye
257		Grant	William Engelram	C1180x1212	Wdekelda spring and road from Murton
258		Agreement of court case		1241	Spring in Dale, easements, and access from Murton
259		Agreement	William Engelram & Byland		Access to vill and pasture of Dale
260		Grant	William Engelram & Byland	1209x1212	Nettle Dale pasture
578	Murton	Grant	Hugh Malebisse & Byland	X1170x1186	Vill of Murton
579		Quitclaim	Hugh Malebisse	Before 1206	40s
580		Quitclaim	Abbot of Newbo & Byland	1243xc1257	Rent from Murton Grange
581			"Charter of Thomas of Arncliffe concerning 20s. Surrendered"	Late 13th cent	Nfd [2]
582			"Charter of Richard Malebisse concerning the same 20s. Surrendered"		Nfd
583		Quitclaim. Rubricated entry	"Quitclaim by William son of John Malebisse of 20s"	Before 1257	Nfd
584		Grant, confirmation and quitclaim	William Malebisse and Byland	1243x1257	nfd
585		Charter	John Malebisse and canons of Newbo	1214x mid-13th cent	nfd

586			*"Charter of the same [John Malebisse] appointing Thomas of Arncliffe to receive 20s from the monks"*	1214 x mid-13th cent	nfd
587			*"Charter of William Malebisse concerning the remaining 20s. Surrendered"*	Nd	nfd
588		Quitclaim	*"Quitclaim by Richard Malebisse of Murton, Snilesworth and Byland"*	Grantor still alive in 1301	nfd
589		Quitclaim	*"Quitclaim by William Malebisse of 20s which he granted to the abbot of Newbo"*	Nd	nfd
590		Quitclaim	*"Quitclaim by William Malebisse of 20s of John Caipun his villein"*	Nd	nfd
591		Letter	Letter of Richard Malebisse	1206	Dower of Constance in Hawnby and Murton, and service of William Engelram in Dale
592		Confirmation	Richard Malebisse	1280x1281	All lands and possessions of his fee held by the abbey
593		Notification	Archdeacon of Cleveland, Dean of Helmsley, and Dean [of unnamed place]	1170x1181	Payment by Byland of tithes of Murton to Hawnby church
594		Inspection	Archbishop of York	1177x1181	Inspection of 593
595		Memorandum of papal bull	Pope Hadrian IV	1156	Tithes of Murton
596		Memorandum of papal bull	Pope Alexander III	1163	Payment by Byland of tithes of Murton to Hawnby church

597		Summary of papal bull	Pope Alexander IV	1254x1255	Agreements reached between Cistercians and others to be kept firm
988	Rievaulx	Agreement: Concordia caritatis.	Rievaulx and Byland abbeys	originated before 1145, settled 1147x1167, read in both Chapters c1170	Composite agreement
988A		Agreement	Rievaulx and Byland abbeys		In rubric only. "Agreement between us and the monks of Rievaulx concerning certain injuries"
989		Agreement	Rievaulx and Byland abbeys	1277	Reiteration of existing agreements and addition of certain other matters
990		Agreement	Rievaulx and Byland abbeys	1181	Pasture in Hawnby
991		Agreement	Rievaulx and Byland abbeys	c1238?	Granges of Byland and Hesketh
992		Quitclaim	Rievaulx and Byland abbeys	c1236	Wood in East Witton
993		Confirmation of agreement	"*Confirmation of the agreement between the abbots of Byland and Rievaulx by the abbots and Citeaux and Clairvaux*"	nd	In rubric only.
1089	Scawton	Agreement	Richard Malebisse	1203	Settlement of court case over Scawton chapel
1090		Notification	William Malebisse	1247	Scawton chapel rent
1091		Agreement	John Malebisse	1211x1215	Scawton chapel rent
1092		Notification	Scawton rector	1279	Scawton chapel pension
1093		Attestation	Papal notary public	Nd	Scawton chapel pension
1094		Rubricated entry	"*Confirmation by Archbishop Geoffrey of York of an annual pension from the chapel of Scawton*"	Nd	Scawton chapel pension [see also 968 and 969 in Rillington entries]
1095		Notification	Judgement on court case	1333	Scawton chapel pension

1096		Attestation	"*Attestation by William of Carlton concerning the sentence of the said 20s*"	c1333	Scawton chapel pension
1097		Attestation	"*Attestation by the official of the archdeacon of Cleveland concerning the same*"	nd	Scawton chapel pension
1076	Snilesworth	Grant	Hugh Malebisse	1150xc1185	Snilesworth and Hawnby
1077		Confirmation	William Malebisse	Before 1206	Snilesworth and other grants
1078		Quitclaim	Richard Malebisse	1186x1187	Murton and Snilesworth
1079		Agreement	Stephen de Meinill	c1229	Perambulation of boundaries
1080		Notification	William of Cornborough and 12 named men	c1207?	Perambulation of Byland and Snilesworth moors
1081		Agreement	Stephen de Meinill	1230	Boundaries of the moor
1082		Attestation	"*Attestation of William of Cornborough concerning the same perambulations*"	nd	nfd
1083		Confirmation and quitclaim	William Malebisse	Mid-13th century	Hawnby
1084		King's writ	Henry III	1229	Byland- Snilesworth boundaries
1085		Quitclaim	Robert Breth	1294x1311	Whorlton-Snilesworth pasture
1086		Note of plea	"*Note of a plea between the monks and Stephen de Meinill*"	?c 1224	Snilesworth?
1087		Grant	Stephen de Meinill	1230	Snilesworth-Whorlton
1088		Notification	Nicholas be Meinill	1341	Inspection of 1087
1098	Sproxton	Grant	William of Sproxton	1210xc1220	Land in Sproxton "*with body*"
1099		Confirmation	"*Confirmation by William son of Simon of the same 3 acres and rent of 6d*"	Early 13th cent	Confirmation of 1098

1100			"*Charter of the said Simon concerning the whole tenement that William Drury formerly held of him for the service of 6d*"	Early 13th cent	nd
1101		Quitclaim	William of Sproxton	Early to mid- 13th cent	Land and easements of William Drury
1102		Notification and quitclaim	[Robert] of Sproxton	Late 12th or early 13th cent	William Drury's interests in Sproxton
1103		Quitclaim	"*Quitclaim by William Drury of 1 tenement in Sproxton surrendered to Simon son of William and William his son for 7 marks*"	Early to mid- 13th cent	William Drury's interests in Sproxton

Table 4:10 Byland cartulary – entries relating to Rye Vale

[1] Dates and all details from Burton 2004a:337-342 [2] Several entries in the Byland cartulary suggest documents which have not survived within the bundles, and therefore are listed by summary or rubric only. These entries are given here as nfd

Vill name	Faull & Stinson reference	Administrative area	1066 people named	1086 people named	DB Breve evidence	DB 'Summary' evidence	Approx height ASL* (m)
Griff	300c78; 380d 17	Maneshou	Grimr	King William Count Robert of Mortain	In Griff (farm) Grimr, 2 carucates taxable. Land for 1 plough No entry	The King 2 carucates The Count of Mortain 2 carucates.	147
Helmsley	306a50; 300c80; 380d 18	Maneshou	Uhtred Three thanes	Count Robert of Mortain King William	Uhtred had 1 manor of 8 carucates taxable, 4 ploughs possible. Now the Count has there 6 villagers with 2 ploughs. A priest and a church. Woodland pasture and arable field, 6 leagues long and 1 ½ leagues wide. Value before 1066, 32s; now 10s. In Helmsley 3 thanes, 3 ½ carucates taxable. Land [for] 2 ploughs	The Count of Mortain 7 carucates The King in Helmsley 3 ½ carucates.	51
Scawton	305d39; 320d14; 380d17	Maneshou	Asketill Uhtred	Robert Malet Count Robert of Mortain	In Scawton Asketill had 3 carucates of land taxable, where 2 ploughs are possible. Now Robert has [it]. Waste. Value before 1066, 10s In Scawton, Uhtred, 1 manor of 2 carucates	Robert Malet in Scawton 4 carucates No entry	201
Sproxton	300c77; 380d16	Maneshou	Northmann; Svartkollr; Thorlaug.	King William	In Sproxton, Thorlaug, Northmann and Svartkollr, 4 carucates and 2 bovates taxable. Land for 2 ploughs. Value before 1066, 10s	The King in Sproxton 5 carucates	101
Stiltons	300c79; 306a49	Maneshou	Uhtred Frithgestr	Count Robert of Mortain King William	In Stiltons, Uhtred had 1 manor of 2 carucates taxable; 2 ploughs possible. Now Count Robert has (it). Waste. Woodland pasture and field, 1 league long and 1 wide. Value before 1066, 20s In Stiltons (farm), Frithgestr, 1 carucate taxable. Land for ½ plough	The Count of Mortain 3 carucates The King 1 carucate.	136

(Old) Byland	320d17; 381a3	Yerlestre	Asketill	Robert Malet	In (Old) Byland Asketill had 6 carucates taxable, where 3 ploughs are possible. Now Robert has there 1 plough; and 7 villagers with 2 ploughs. There, a priest and a wooden church. Value before 1066, 20s, now 16s.	Robert Malet 6 carucates	214
Arden	327b8	Yerlestre	[Omr?]	Hugh son of Baldric	[These belong to Bagby] …Arden (Hall) 3 carucates.	No entry	187
Hawnby	300d137; 320d23; 381a11;	Allerton	Frithgestr Ulfr	King William Robert Malet	In Hawnby, Frithgestr, 1 ½ ploughs taxable. Land for 1 plough In Hawnby Ulfr had 1 ½ carucates of land taxable. Robert Malet has these lands, but they are all waste.	The King in Hawnby 1 ½ carucates Robert Malet in the same place 1 ½ carucates	127
Murton	320d21; 381a10	Allerton	Asketill	Robert Malet	In Murton, Asketill had 6 carucates of land taxable	Robert Malet in Murton 6 carucates	247
Dale Town	300d136; 381a10; 320d22	Allerton	Ulfr and Asketill Ulfr, Asketill and Frithgestr	Robert Malet King William	In Dale (town) Ulfr and Asketill had 1 ½ carucates of land taxable In Dale (town) Ulfr and Asketill and Frithgestr, 3 carucates taxable. Land for 2 ploughs. 8s	The King in Dale (town) 1 ½ carucates. Robert Malet in the same place 1 ½ carucates	200
Cold Kirby	299a1; 381a 20	Bulford	Morcar	King William	17 carucates. Part of manor of Easingwold.	Thorpe, Kelsit, Sutton and (Cold) Kirby 17 carucates	250

DB data from Faull and Stinson *estimated according to OS contours and spot heights on modern mapping.

Table 4:11 Domesday Book – Helmsley and Upper Rye Vale (R2-R4) with approx. heights

Soils

Map key	**1**	**2**	**3**	**4**	**5**	**6**
NSRI classification [1]	**343b** **Elmton 2**	**541f** **Rivington 1**	**652** **Maw**	**712a** **Dale**	**712b** **Denchworth** (Wilton)	**811a** **Enborne**
Extent	**On limestone: Griff & Old Byland**	**Helmsley & Scawton**	**Byland moor**	**River valleys N of Tylas**		**River alluvium**
Soil association	Shallow well drained brashy calcareous fine loamy soils over limestone.	Well drained coarse loamy soils over sandstone.	Loamy very acid upland soils over sandstone with a wet peaty surface horizon, often with thin ironpan.	Slowly permeable seasonally waterlogged clayey, fine loamy over clayey and fine silty soils on soft rock often stoneless.	Slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils	Deep stoneless fine loamy and clayey soils variably affected by groundwater.
Hydrology of soil type (HOST) [2]	2 Free draining permeable soils on 'brashy' or dolomitic limestone substrates with high permeability and moderate storage capacity	4 Free draining permeable soils on hard but fissured rocks with high permeability but low to moderate storage capacity	15 Permanently wet, peaty topped upland soils over relatively free draining permeable rocks	2424 Slowly permeable, seasonally waterlogged soils over slowly permeable substrates with negligible storage capacity	25: Slowly permeable, seasonally waterlogged soils over impermeable clay substrates with no storage capacity	10 Soils seasonally waterlogged by fluctuating groundwater and with relatively rapid lateral saturated conductivity
Soil parent	112 Jurassic limestone sandy limestone	18 Carboniferous and Jurassic sandstone	18 Carboniferous and Jurassic sandstone	16 Carboniferous and Jurassic clay and shale	104 Jurassic & Cretaceous clay	156 River alluvium
Natural soil fertility	2 Lime-rich	5 Low	12 Very low	5 Low	10 Moderate	10 Moderate

Simple topsoil texture	2 loamy	2 loamy	3 peaty	2 Loamy	2 Loamy	2 loamy
Typical habitats	9 Herb-rich Downland and limestone pastures; limestone pavements in the uplands; Beech hangers and other lime-rich woodlands	13 Neutral and acid pastures and deciduous woodlands; acid communities such as bracken and gorse in the uplands	6 Grass moor and heather moor with flush and bog communities in wetter parts	17 Seasonally wet pastures and woodlands	23 Wet flood meadows with wet carr	23 Wet flood meadows with wet carr woodlands in old river meanders
Hydro-geological rock type [2]	44 soft Magnesian, brashy or Oolitic limestone and ironstone	13 hard fissured sandstones	13 hard fissured sandstones	8 soft shales with subordinate mudstones and siltstones	15 river alluvium	15 river alluvium
Groundwater protection policy [3]	H1	H3	L	L	L	H1
L (low)	Soils in which pollutants are unlikely to penetrate the soil layer either because water movement is largely horizontal or because they have a large ability to attenuate diffuse source pollutants					
H1	Soils of high leaching potential, which readily transmit liquid discharges because they are either shallow, or susceptible to rapid bypass flow directly to rock, gravel or groundwater					
H3	Coarse textured or moderately shallow soils of high leaching potential, which readily transmit non-adsorbed pollutants and liquid discharges but which have some ability to attenuate adsorbed pollutants because of their relatively large organic matter or clay content					

[1] *after Avery 1973 & Avery 1980.* [2] *classifications after Boorman et al 1995.* [3] *after Hollis 1991, Palmer et al 1995.*

Table 4:12 Soils in Rye Vale study area. Data from NSRI 2018

Soil Survey code	$Si_{1,2,}$	$MR_{1,2,}$	$Fv_{1,\ 2}$	$HB_{1,2}$	$MA_{1,2}$	Rw	$rB_{1,2}$
Soil type	Rendzinas - fine loamy over limestone, sloping 1: slightly 2: steeply	Typical Brown earths, fine loamy, drift over limestone 1: shallow (30-45cm) 2: deep (>45cm)	Typical Brown earths, coarse loamy over limestone sloping 1: gently 2: steeply	Stagnopodzols, ironpan, loamy-skeletal; over sandstone, uncultivated, 1: gently 2: steeply sloping	Stagnopodzols, humus ironpan, coarse loamy, over sandstone, sloping 1: moderately 2: steeply	Cambic stagnogley. Fine loamy over clayey; drift (containing sandstone) over clay, clay shale or mudstone	Typical podzols, loamy-skeletal, over sandstone, sloping 1: gently 2: steeply
Examples of location	Most of west bank of Rye incl Murton, Old Byland, Cold Kirby, Scawton and areas of east bank	Griff, Stiltons Farm, Abbot Hagg Farm, High Ley Farm, New Leys Farm is c100m from an area of this soil	Lenses between Stiltons Farm and Helmsley	Rievaulx Moor	Wass – (New) Byland Moor	Present along course of Rye and Seph. Hawnby entirely on Rw. Dale Town and Arden Hall are on edge of a band of Rw / Si.	Bilsdale West
Land use capability	3s/3, 6g/1	2s/2	3s/4	4s/1	3s/1; 3cs/1	4ws/1	4s/1
	3: Moderate limitations that reduce choice of crops and / or demand careful management	Minor limitations* that reduce choice of crops and / or interfere with cultivation Good yields of grass, cereals & brassicas with moderate fertiliser use	3: Moderate limitations that reduce choice of crops and / or demand careful management	4: Moderately severe limitations that reduce choice of crops and / or require very careful management	3: Moderate limitations that reduce choice of crops and / or demand careful management	4: Moderately severe limitations that reduce choice of crops and / or require very careful management	4: Moderately severe limitations that reduce choice of crops and / or require very careful management
	6: Very severe limitations that restrict use	*Climate, height & exposure.	4: Moderately severe limitations that reduce choice of crops and / or require very careful management				

Also present in mapping: Undifferentiated loamy or clayey alluvial soils (eg along course of Rye & Seph); U: unsurveyed (small pockets)

Table 4:13 Soil survey data 1979 (Bendelow and Carroll) Sheets 58 & 49 (part)

Site	Function	NGR
The Grange	Bloomery c 1300	SE 573 962
Kyloe Cow Beck which flows through *Smiddesdala*	Bloomery iron furnace and slag heap. Last firing date range AD 1300–1350.	SE 583953
Woolhouse Croft	Bloomery	SE 562 912
Malkin Bower		SE 569 942
Tarn Hole		SE 56
Timberholme	proto-blast furnace or high bloomery, a structure about 5m high dating from c AD 1500. This may be the 'fabrica' mentioned in Dissolution surveys	SE 564 903
Ewecote	Trench 1 — iron bloomery shaft furnace (last firing date range AD 1250–1430) Trench 2 — iron bloomery furnace (undated). Ewecote may also have been location for a glass / ceramic kiln	SE 561918
Hagg End	iron bloomery furnace and slag heap (last firing date range AD 1160–1320)	SE 569924
Stingamires Gill	Trench 1 — iron ore-roasting platform (undated). Trench 2 — iron bloomery furnace (last firing date range AD 1340–c1390, operational date possibly from 1140).	SE563958 - SE565956
Within monastic precinct		
Furnace Hill	Hammer-smithy: c1540. Charcoal blast furnace and ore preparation area. Operational date range: 1550 / 1576-7 to 1647/1670	SE 576 851
Rye House	Waterpowered hammersmithy / chafery. Operational date range c. AD 1541–1647	SE575847
Forge Farm; Forge Farm (East); Forge Farm (North)	Finery / chafery	SE 577 843 / SE 577 844

Data from Vernon 1995; Vernon et al 1998; Wheeler 2007; Wheeler 2011; Wheeler and McDonnell 2011. *The above is an indicative selection only. For a complete listing of known locations, the HER should be consulted.*

Table 4:14 Examples of locations associated with iron extraction and working as recorded from survey and geophysical investigations by Bradford University

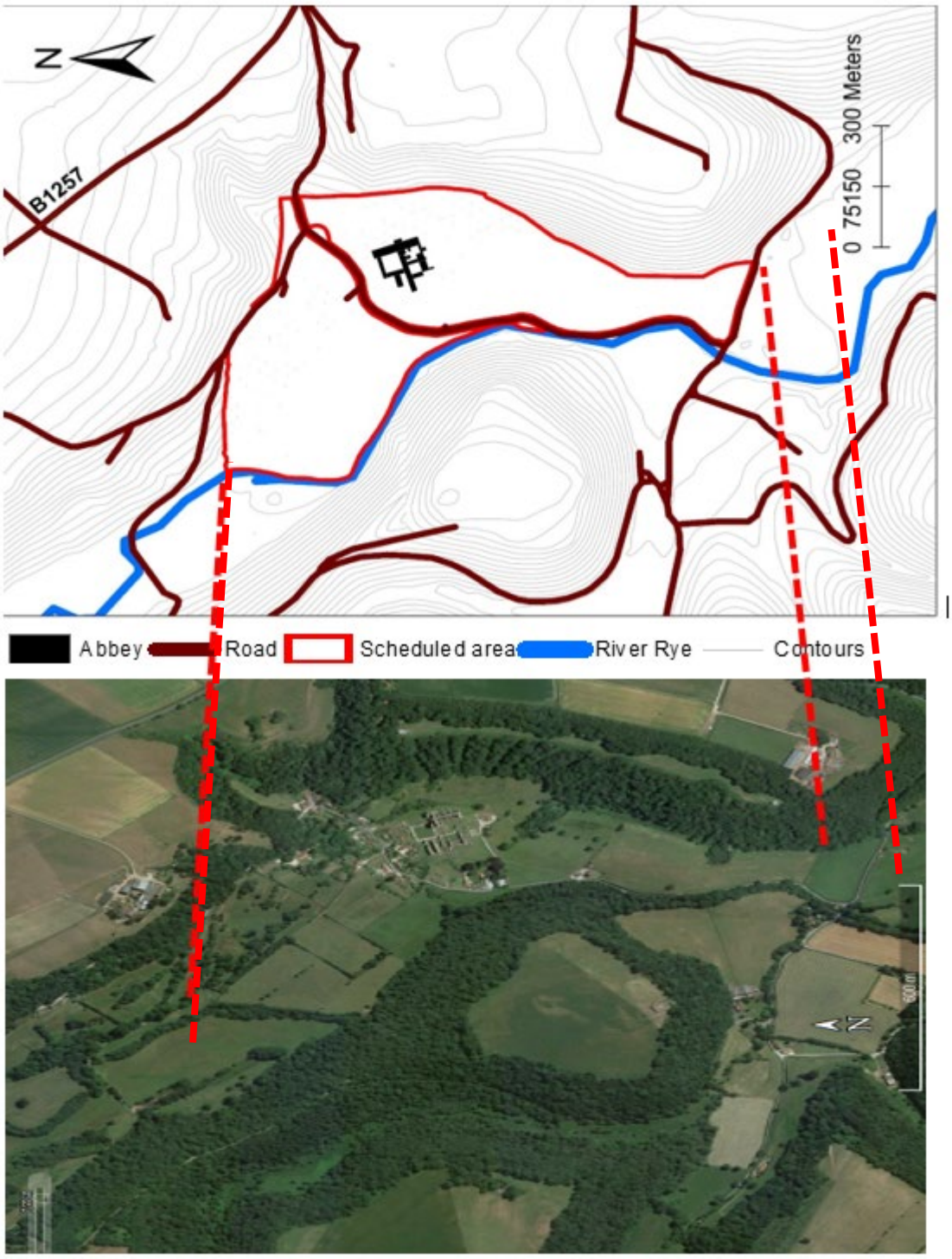
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Chapter 5 Rye Vale: monastic core (R4)

5.1 Structure and overview

This chapter considers 'transformation' of the conventual complex at Rievaulx. The conventual complex, or monastic core, contains the area of greatest spiritual significance for a monastery (Cassidy-Welch 2001). This chapter outlines a chronological framework within which landscape features within the study area, R4, will be interpreted, to understand the degree to which Rievaulx may have physically altered its monastic core.

This overview first considers previous analytical attention given to Rievaulx's monastic core, before outlining the broad chronology of Rievaulx's conventual complex. This chronology pays particular attention to the 12th century, as being the period encompassing the transition from pre-Cistercian to the most populous period of the monastery (section 5.2). The chronology also contextualises a discussion of the key role played in the traditional narrative of a specific theory about Rievaulx's management of the River Rye (section 5.3). The post-12th century developments are then summarised, (section 5.4), as having potentially played a role in the formation or alteration of features in the study area pertinent to the core question of 'transformation.' A final section provides a summary (5.5).



Scheduled monument area derived from Historic England GIS Data obtained on 2020/07/20 © Historic England 2020. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk. *Contours, road & water lines derived from* Ordnance Survey data OS VectorMap® Local Scale 1:10000. Ordnance Survey data © Crown copyright and database right 2020 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk

Figure 5:1 Overview: Study area R4 - Rievaulx's monastic core

5.1.1 Previous studies of Rievaulx's monastic core

Previous analytical attention at Rievaulx's core is summarised in Table 5:1 (at end of chapter). Briefly, the élite architecture has attracted substantial research. The wider precinct has received more limited attention, beginning with Atkinson (1899) and Rye (1900). Atkinson and Rye's theory of an expansion to Rievaulx's precinct extent by an elaborate scheme of river diversion and canalisation has been very little altered by subsequent studies and continues to dominate the traditional interpretation of the precinct (5.3). More recently, detailed topographic surveys have begun to articulate the very complicated set of features within the precinct. The present author's Master's research (Horsfield 2014) used lidar intensity data to investigate the field to the north of the precinct, and the north precinct, making this the only investigation so far to use data which can represent properties of the subsurface here. Nick Hannon and Trevor Pearson for Historic England used low-level drone-collected aerial imagery and Environment Agency lidar elevation data to carry out an archaeological survey across the precinct, which was reported internally within Historic England (Hannon 2015, unpublished). In 2019, Trevor Pearson reported the 2015 survey with some fresh survey conducted in 2018 (2019:13-21). Hannon and Pearson's work provided new insights into water management within the precinct, including a reinterpretation of the 'second canal' as a linear millpond (Pearson 2019: 33-48). Their comments are incorporated as appropriate in Chapter 6. Regrettably, however, neither Hannon nor Pearson engaged fully with the charter evidence, thus leaving unaddressed one of the most important sources of evidence which underpin the 'traditional' interpretation of the site. The charter evidence is therefore considered in some detail below (5.3.4).

5.2 Conventual complex: foundation and early stages in 12th century

As noted in Chapter 4, relatively little is known about the pre-Cistercian history of Rye Vale. Similarly, little is known of the early stages at Rievaulx's conventual complex. As outlined in Chapter 3, documentary evidence for the foundation and early development of Rievaulx is fragmentary and problematic. Several different foundation dates are suggested by the sources, 1131, 1132 and 1133 (section 4.2 above). The latter dates may have been the foundation ceremony (Fergusson and Harrison 1999:38). Gatherings at the

foundation ceremonies were an important event for both the founder and abbey. Rievaulx's foundation ceremony may have included Espec, his nephews (his heirs), Eustace Fitzjohn (Espec's colleague as justiciar in the north), local clerics, and certain of Espec's neighbours and tenants (Fergusson and Harrison 1999:38).

5.2.1 Early buildings

The social contracts for the foundation of the abbey would have been followed by practical activities. A group appears to have been sent from Clairvaux, including St Bernard's secretary, William, who became Rievaulx's first abbot (Burton 1999a:99; Fergusson and Harrison 1999: 45). Convention has it that a founding community would include twelve monks in addition to the abbot, lay brethren, and servants, but there is no evidence for specific numbers of Rievaulx's founder community (Fergusson and Harrison 1999:38).

The actual foundation process, erecting temporary lodgings for the monastic community and a temporary church, very likely took longer than the year between 1131 and 1132. The average time to complete a stone Cistercian church and claustral complex has been estimated at between 19 and 40 years (Astill et al 2004: 150). It was common for the foundational donor to arrange for the basic facilities of a monastic site, namely a church and accommodation for the monastic community (Coppack 2004). For example, Henry de Lacy, the founder of Kirkstall, another Yorkshire Cistercian house, was actively involved in the construction of the monastic buildings (Jamroziak 2005: 32).

Walter Daniel records a visit by his friend St Ailred to Rievaulx as Espec's guest in 1134. Daniel's account suggests that certain buildings were standing by that date, including a church, some form of delineation of the monastic space, with access controlled by a gate and a keeper, possibly a chapter house and a guest house, with the latter recorded as damaged by fire in 1134 (Fergusson and Harrison 1999: 45-46). The Cistercian General Chapter of 1119 mandated certain buildings be constructed for new monasteries, including a church, gatehouse, and wall (Table 2:2).

The focus of Peers' (substantially unpublished) crude clearance of the site (1920-c1950) appears to have been the elite stone architecture (Fergusson and Harrison 1999). It is

therefore difficult to establish from the little published evidence whether any remains of timber buildings were excavated. The date is still disputed at which the Romanesque stone church was built, with debate polarised between proponents of the 1130s and 1150s (Fergusson and Harrison 1999: 69-81). To the south of that church, an earth resistance survey by John Szymanski in 1996 (reported only briefly, without scale values, in Fergusson and Harrison 1999: 46-47), detected under the cloister garth of the stone church an aisleless, rectangular building which may have been part of an early church, the size of which would have served no more than about 60 men (Fergusson and Harrison 1999:46-48). This early building has not been excavated or sampled so its date and construction details are unknown.



Figure 5:2 aerial image of extent church and claustral complex, showing cloister garth

5.2.2 Evidence from early Cistercian buildings elsewhere

Specialists may have been involved in various ways in the construction of some Cistercian abbeys. For example, Geoffrey of Ainai, who was based at Clairvaux, may have visited Rievaulx in 1131/2 (Fergusson 1983: 74-86; Coppack 1998a:25-26). Geoffrey also visited Vauclair (France), and Fountains (Yorkshire), possibly training others, such as Adam of Meaux (Fergusson 1983; Fergusson and Harrison 1999: 55). In turn, Adam and Robert of Fountains variously helped set out Cistercian monasteries at Kirkstead, Woburn, Vaudey, Meaux and Newminster (Coppack 1998:26). This Cistercian tradition of specialists overseeing the construction of new abbeys means that evidence from the early stages of other Cistercian abbeys in the Clairvaux 'family' in Northern Britain may offer analogies for the setting out of early buildings at Rievaulx.

The first buildings at Rievaulx are presumed to have been of timber (Coppack 2004:43). Temporary buildings of other materials may have existed. Meaux Abbey was a Yorkshire Cistercian abbey founded 20 years later than Rievaulx, in 1151 (Burton 1999a:11)[48] References within the 14th-century Chronicle of Meaux suggest early mud and wattle accommodation was provided for the lay brothers, and a combined church and dormitory (Coppack 2004: 38). At Rievaulx's mother abbey of Clairvaux, observations recounted in 1517 and the 17th century suggest timber buildings still survived at those dates (Coppack 1998a:25), including a building tentatively interpreted as a timber staved church (Fergusson 1983:82). Such a time gap between the 12th century and the observation of these buildings however limits the direct applicability of that evidence to early 12th-century Rievaulx.

Physical evidence for Cistercian early timber buildings has been found at Fountains (Yorks), Sawley (Lancs) and Bordesley (Worcs). At Fountains, construction of the first stone church began in 1136, four years after foundation, where the first masonry church lay over the remains of two timber buildings, interpreted as an early oratory with domestic building, possibly a combined dormitory and refectory (Gilyard-Beer and Coppack 1986; Coppack 1998a: 27-28; Coppack 2004:35-45). At Sawley, founded in 1147, timber remains were found, interpreted as the foundation of five buildings: kitchen,

[48] Meaux was founded by William of Aumale, whose interaction with Rievaulx's Vale of Pickering interests will be discussed in the next case study.

refectory, dormitory and possibly a guest hall (Coppack et al 2002: 30-45;101-111; Coppack 2004). At Bordesley, wooden grave covers may have been a symbolic re-use of fragments of the early church there (Astill et al. 2004:126). Fergusson commented on early Cistercian architecture generally (1983:82)

> 'a wider range of forms was employed for the first architecture than might be expected from reading the provisions in the *Summa cartae Caritatis* …All that a new foundation was probably required to have were functionally distinct spaces for standard Cistercian activities, and allowances were made for a number of different forms and combinations of them.'

5.2.3 Practical building constraints of site

In addition to the possibility of non-standard early buildings at early Rievaulx, it is conceivable that other early buildings at Rievaulx existed elsewhere than within the footprint of the extant abbey buildings. It was not uncommon for monasteries to change location for various reasons, as evidenced by the history of Byland Abbey noted in chapter 4. Rievaulx's monastic core was established on a combination of Oxford clay and river sediments, factors that would contribute to landslip and subsidence of buildings and there is architectural evidence for buttressing and terracing at Rievaulx (Senior 1999:2015-220). The above-ground elements of the extant claustral complex adopted liturgical directions about 75 degrees distinct from cardinal directions, namely south-east rather than east (Fergusson and Harrison 1999 :47). This orientation has been attributed to the constraints of the site, including the westward slope towards the river which had to be corrected by terracing to underpin the complex buildings, and the shape of the land on which the claustral complex was developed (Fergusson and Harrison 1999: 47-48). Other explanations have, however, been offered such as that the orientation permitted maximum daylight (Gerry McDonnell pers. comm.), factors which may only have been apparent after some period spent living on the site, possibly suggesting a certain amount of trial and adaptation in living on this land.

5.2.4 Rievaulx's claustral complex: developments under 12th-century abbots

The development of the claustral buildings has been treated substantially elsewhere (Fergusson and Harrison 1999). Briefly, therefore, William's abbacy (1132-1145) saw the construction of the earliest extant building elements, the west range (the domain of the lay brothers), with the extent of the south and east range, and that of the cloister, inferred from building fragments and settlement of later buildings (Fergusson and Harrison 1999: 47-58, 83). Kellaways sandstone from Penny Piece, a quarry site approximately 50m north of the precinct tip (Senior 1989, Senior 1999, Table 5:4 and Figure 4:17) used in the west range, demonstrates that this source of stone was within the monastery's land at even the earliest stages of construction. The abbey's early rights therefore certainly included areas of the valley beyond the northern extent of the precinct even before Espec's later grant of Bilsdale. Abbot Maurice is believed to have made little physical change in the abbey in his short period in office (1145-1147) (Fergusson and Harrison 1999:64,95,225).

Ailred stated that when he joined the abbey in 1143 under Abbot William, 300 persons were subject to the abbot.[49] Daniel records that under Ailred's own abbacy (1147-1167) this rose to 740, namely 140 monks and 500 lay brothers (*Vita Ailredi* Chapters 14 and 30). Powicke estimated this latter figure as comprising as c.240 lay brothers and c.260 hired servants (*mercenarii*) (Powicke 1994 [1950]: 119; 164 note 84). A degree of exaggeration in such figures is to be expected, however, because of the nature of the writing concerned – instructional in Ailred's case, hagiographic in Daniel's. Although the precise number of the community must therefore be somewhat conjectural, the mid-12th century saw significant construction efforts. The uncertainty over the date of the Romanesque stone church building (either 1130s or mid-12th century) was noted above. Other building and remodelling included the chapter house (early 1150s). According to Walter Daniel, Ailred ordered the construction of the abbot's residence, and may have established buildings round the east range, namely the infirmary hall and novitiate (Fergusson and Harrison 1999: 66-67).

Silvanus' abbacy (1167-1188) saw more rebuilding, including of the cloister south range

[49] *Speculum Caritatis* (PL 195: 563; CF 17:195)

and Abbot William's west range (Fergusson and Harrison 1999: 130). The later 12th century saw the construction of separate dining facilities for abbot and guests, reflecting a wider trend in monastic hospitality (Fergusson and Harrison 1999:130-132; Kerr 2007:121-161). Rievaulx's disputes over tithes including in the Vale of Pickering forms part of the case study in Chapters 7, 8 (and Table 7:14) may partly reflect the abbey's need for income for this ambitious building programme.

Other than claustral buildings, the material culture from the expansionary 12th century at Rievaulx is curiously under-represented in published excavation data. For example, less than 5% of pottery from Rievaulx was Scarborough Ware dated to the 12th century (Drummond 1988: 31-46). In contrast, a recent excavation of a small Cistercian monastery, Rushen on the Isle of Man, produced 111,320 finds from 1551 contexts (Davey 2020:124). This anomaly, between a highly populous phase of the monastery and its representation in the pottery, may partly represent Peers' focus on architecture over archaeology (reflected in his slight attention to the latter in his limited, publications on the site (Table 5:2 – at end of chapter). It may also reflect the lack of publications of the archaeology overall and offers an insight into the scale of the evidence gap at Rievaulx.

5.3 12th century monastic precinct and boundary

The evidence gap at Rievaulx is also notable on the question of the boundary and early development of the 12th-century precinct. This is curious, as the precinct boundary was an important feature of the monastic complex. Cistercian precinct boundaries were charged with practical and symbolic importance, as encompassing the conventual complex (Cassidy-Welch 2001). In Cistercian *exempla* which tell of runaways and other violations of the principle of *stabilitas*, Cassidy-Welch (2001: 197) notes:

> 'the stone walls that marked the end of the precinct … also miraculously functioned as spiritual guardians and instruments of deterrence to those who attempted to violate the boundaries of the monastery or convent'

5.3.1 Atkinson-Rye theory of river diversion and canalisation

Despite the significance of the precinct boundary, there has long been uncertainty about whether, when and why the extent of the precinct at Rievaulx was altered during the life of the monastery. The boundaries of Rievaulx's land in this valley, and the relationship of these to the river Rye, have been the subject of discussion for over 800 years. This discussion began in the 12th century, when agreements were reached between Rievaulx and Byland abbeys regarding the River Rye where the rights of both houses intersected (Table 4:9; Table 4:10; Burton 1998a; 2004a).

Discussions in the 19th century, between two local men with enquiring minds, were responsible for a theory that Rievaulx substantially moved the course of the Rye. John Atkinson spent over forty years as clergyman at Danby in Cleveland (Atkinson 1891; Shiels 2004). Atkinson was also an industrious antiquarian, who for the Surtees Society prepared editions of the Furness Coucher Book (Atkinson 1886, two volumes), the Whitby Abbey cartulary (Atkinson 1879, two volumes) and Rievaulx's 12th-century cartulary and other documents (Atkinson 1899). While preparing the Rievaulx volume, Atkinson was puzzled by references such as to *fossata* and *insula* where no ditches or islands appeared to exist. (Atkinson 1889: lxviii). Separately, Henry Rye had been working at Rievaulx as superintendent of repairs to the ruins from c.1878 as estate clerk of works and surveyor to the Earl of Feversham, whose Duncombe Park estate incorporated the abbey site (Rye 1900:69-70). Rye had been intrigued by a local tradition that the building stone for the abbey had all been brought by boat (Rye 1900: 69).

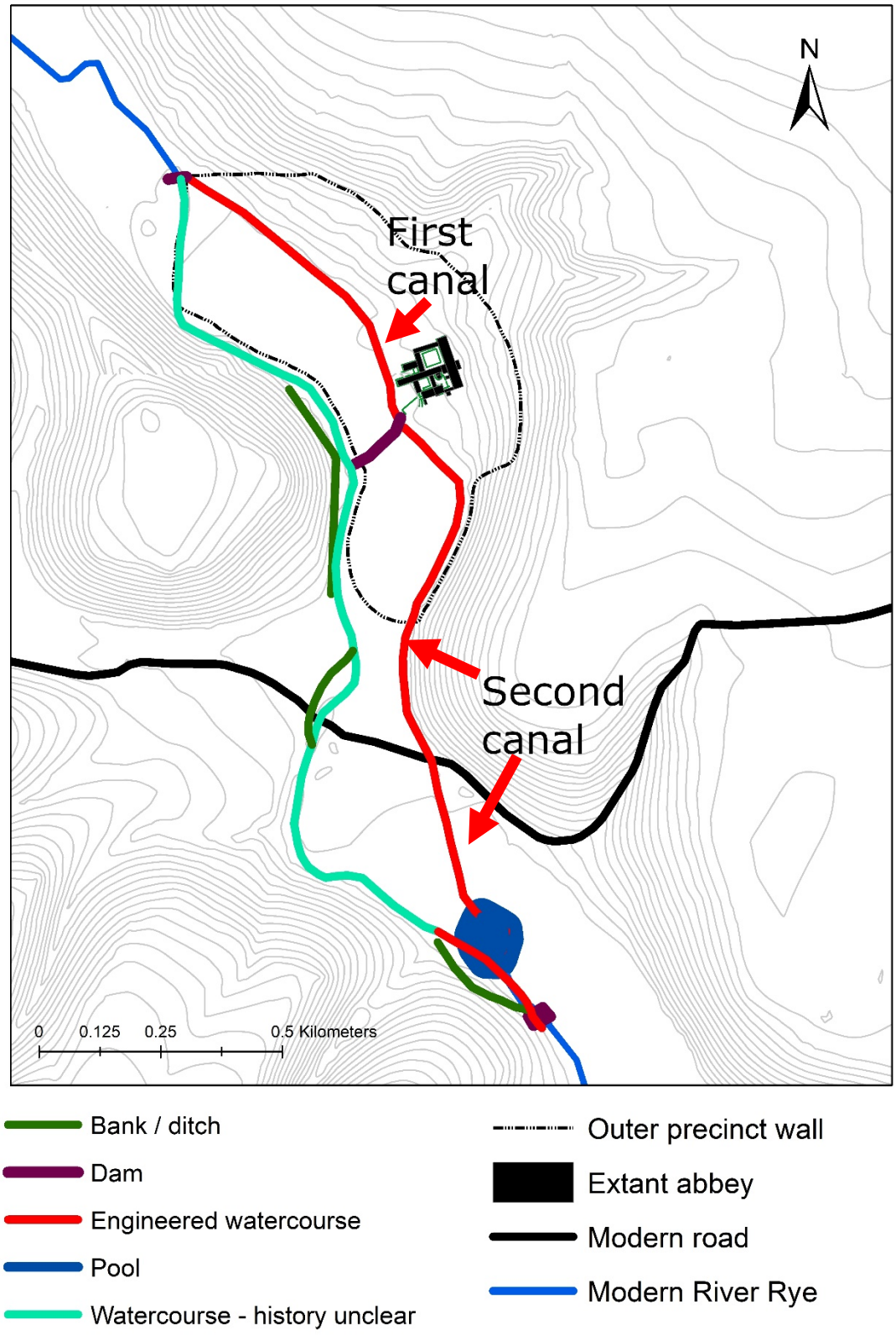
The vicar of Helmsley introduced Atkinson to Rye, and together, the latter two men used the medieval documents being edited by Atkinson to interpret the late 19th-century landscape (Atkinson 1889: lxviii-lxxiii; Rye 1900:69-77). Briefly, the Atkinson-Rye theory interpreted references in a handful of documents (Table 5:3). The selected documents relate to a permission granted by Byland Abbey to manage the Rye at the foot of Ashberry Hill (*Cart. Riev.* 243 and 244) and two grants made by Hugh Malebisse (pasturage and other rights at *Oswaldenges*, in Scawton wood and near *Brochesholes*, made in Cart Riev 74 and 75) confirmed later by Richard Malebisse with an additional grant of *Hemderdebrig* (*Cart Riev* 300 and 304).

Atkinson and Rye suggested that these documents were evidence for the wholescale diversions of the Rye by Rievaulx in several stages. The suggested motivations for such major engineering activities were: to extend the amount of usable land in the valley floor, argued to have been necessary because the initial foundation grant was insufficient for the abbey's needs; and to transport stone for abbey construction (Rye 1900, Atkinson 1899). All of this necessitated an extremely intricate and contingent reading of a very slight body of material (Table 5:3).

Atkinson's edition of the Rievaulx documents (Atkinson 1889) was published before Rye's paper. Atkinson suggested two diversions of the River Rye and three dams. Rye's account, in which he suggested three diversions and two dams is, however, more coherent and developed than that of Atkinson. Rye's account was read to a meeting of the Yorkshire Archaeological Society in 1895 and published in the *Yorkshire Archaeological Journal* thereafter (Rye 1900: 69-77). The theory is henceforward termed the Atkinson-Rye theory, respecting the order of publication. It is likely that this theory was discussed and propagated through local antiquarian networks before publication. [50]

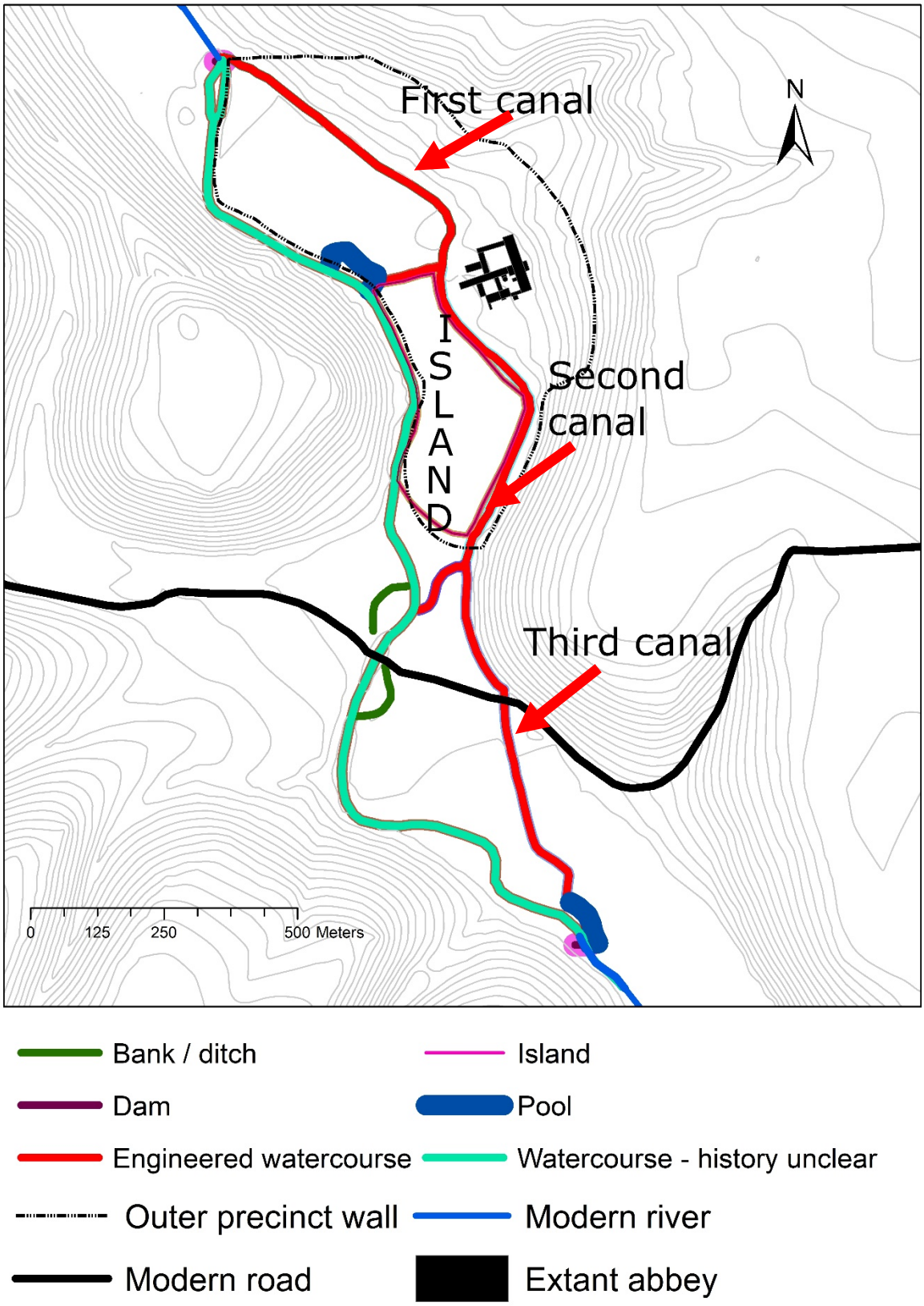
The maps which follow attempt to articulate the aspects most pertinent to the assumptions made by Atkinson, Rye, and later scholars pertinent to the question of whether Rievaulx, by means of major river diversions, 'transformed' the land within and adjoining the precinct. The figures in section 5.3.1 – 5.3.11 therefore are selective in data presentation and should be regarded as schematic in nature. The interested reader is directed to the original source material for the details suggested by each scholar.

[50] For example, the theory appears in the 4-page article, including illustrations, published in 1894 by WHS Hope. This article covered mainly the various developments in Rievaulx's monastic church. It is clear from Atkinson's comments (1889: cxi) that he had been in touch with Hope.



After Atkinson 1899. Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk. The Historic England GIS Data contained in this material © Historic England 2021 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

Figure 5:3 Atkinson's theory



After Rye 1900. Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk. The Historic England GIS Data contained in this material © Historic England 2021 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

Figure 5:4 Rye's theory

5.3.2 Problematic factors in Atkinson-Rye theory

Considerable respect is due to Atkinson and Rye for their innovative approach, which for the first time integrated historic documents with interpretation of this physical landscape. Investigative methods have however advanced considerably since the theory was devised in the 19th century. It is now clear that the data, methodology and inferences of the theory are all insecure. In evidentiary terms, the theory adopted a specific reading of problematic documentary evidence based on assumed rather than demonstrated facts. Further, aspects of the theory depend on vulnerable logic. Both evidence and interpretation therefore merit reconsideration. The various practical objections to the theory are best considered in their physical context so will be discussed as appropriate in the next chapter. This section therefore focusses on the underpinning assumptions and inferences of the Atkinson-Rye theory, and the somewhat uncritical acceptance of these by many subsequent scholars.

5.3.3 Underpinning assumptions

The principles of hydrological connectivity suggest that water must start from one place before it flows to another. This is also a metaphor for a logical argument, which must start from a premise. Atkinson and Rye's theory is flawed in terms both of hydrology and logic. These flaws make their theory impractical and incoherent. Because this theory is important in underpinning the current interpretation of the precinct, some problems in the Atkinson-Rye theory are articulated here.

Neither author explicitly states their starting premise, namely the course of the Rye before Rievaulx's interventions. This must be inferred from the text and diagrams in both accounts. These sources suggest that both Atkinson and Rye thought the precinct tip was the beginning of the 'first canal.' Assuming this start point, two interpretations of the initial premise and 'diversion' direction are possible:

> (a) that when the monks arrived in the Rye Valley, the River Rye flowed along the north-eastern side of the valley, and was then diverted / canalised **south**

westwards by Rievaulx **or**

(b) that the Rye originally flowed on its modern course and was successively diverted and canalised **north eastwards**.

If the Atkinson-Rye **south westwards** diversion assumed in (a) were correct, why is the north eastern feature mapped in both accounts as the 'first canal,' when it would have been the **south western** extent which had been newly created? If the **north eastwards** diversion assumed in (b) were correct, why did Rievaulx need to gain Byland's permission to divert the river and thus enclose some of Byland's land (*Cart. Riev*. 244), when the land affected would already have been on Rievaulx's (eastern) side of the river by virtue of Espec's grant (*Cart. Riev.* 42)?

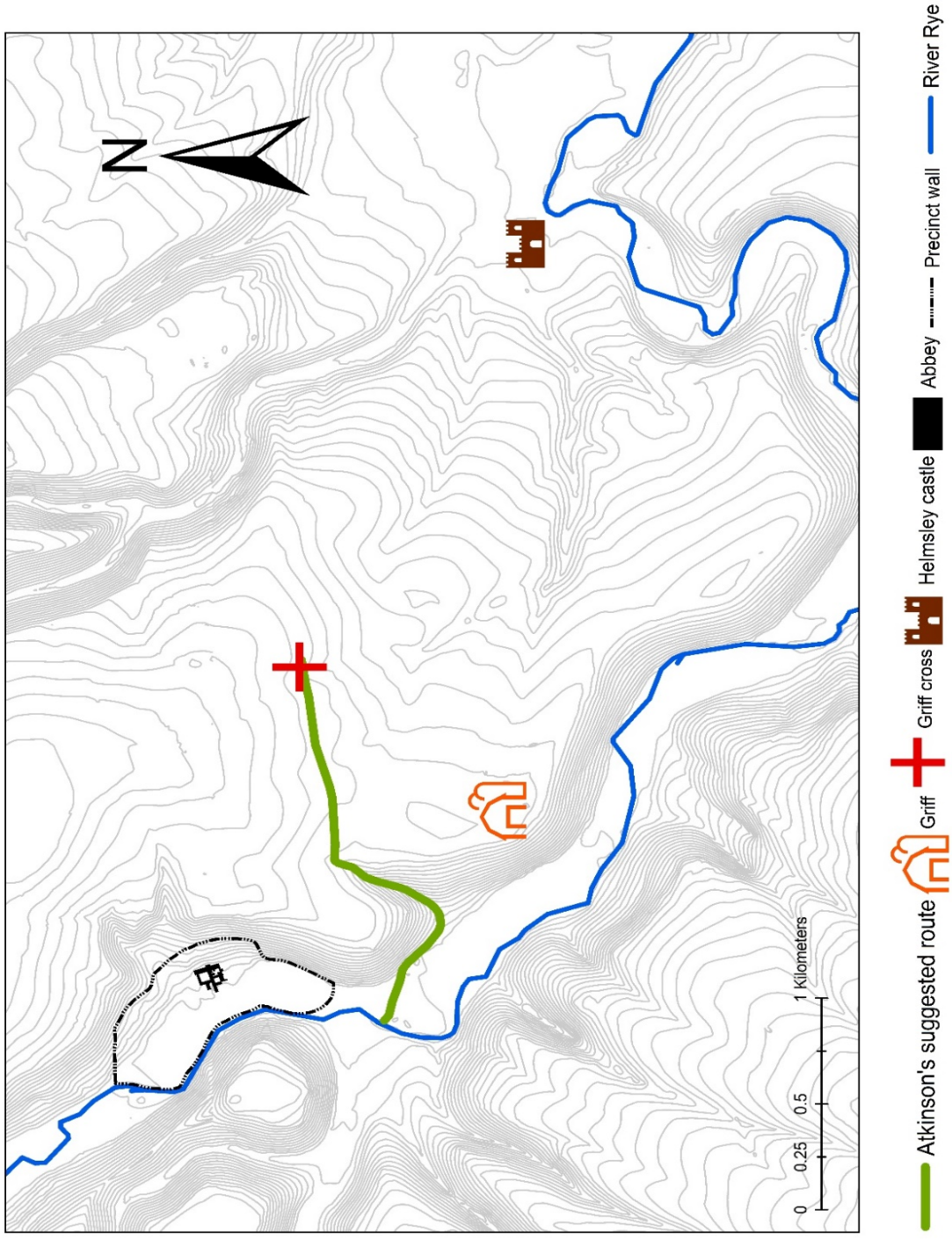
There are other problems with the Atkinson-Rye theory and its variants, including the locations referred to in the various documents, the dates at which the relevant agreements were concluded and the nature of the physical interventions by Rievaulx associated with these agreements. These will now be addressed in turn, followed by a briefer indication of some related, problematic, interdependent assumptions which will be addressed thematically.

5.3.4 Location and dates of agreements relied upon by Atkinson-Rye 'canals' theory

Sperragate

The southern boundary of Espec's grant to Rievaulx in the Rye valley, and hence where any grants made by other donors may have added to that extent, depends on identification of *Sperragate* (*Cart. Riev.* 42, and table 4:1). As discussed in Chapter 4, Atkinson identified Sperragate as near to what is now marked by Griff cross. From there, Atkinson suggested the route to the Rye, and hence the southern boundary of Espec's grant, ran to Rievaulx Bridge (Figure 5:5). As has been argued above (Ch 4), the location of Sperragate suggested by Atkinson and his suggested route to the Rye would have omitted much of Griff's land on the plateau. The likelier location for a 'gate' is the outer wards of Helmsley, to the north west of Espec's castle. A route between a more southerly Sperragate could therefore have transferred a larger area of the valley floor from Espec to

the abbey than traditionally considered, but this must remain conjectural.



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Figure 5:5 Sperragate in relation to Rievaulx's precinct

Agreement with Byland Abbey by 1145

Other factors in Atkinson and Rye's theory depend crucially on inter-dependent interpretation and dating of a tiny number of grants and agreements by two donors: Byland Abbey and the Malebestia family. The agreement with Byland Abbey (*Cart Riev*. 244, re-stated in a sentence within 243) permitted Rievaulx to create a ditch through, and thus enclose, Byland's land at the foot of Ashberry Hill (Table 5:3). This agreement is now considered to have originated much earlier than Rye's estimated date of 1176. Burton (2004:340) considers that *Cart Riev.* 243 (termed the *Conventio Caritatis* between Rievaulx and Byland) was in fact a composite. It recorded the settlement of multiple issues which had arisen over many years, beginning before 1145, with elements added c1147-1150, and finally ratified c.1170 and read that year in the chapter of both houses. The constituent disputes and agreements are therefore difficult to date. Based on the mirror copy in Byland's cartulary (Byland charter 988, and Table 4:10) and the fact that the agreement was concluded between named abbots in both houses (William for Rievaulx, and Roger for Byland) (*Cart.Riev.* 244:180-181), this agreement was reached between 1142-1145/6 (Burton 2004a:337-340). The location of the permission granted by Byland must remain speculative, as the Rye runs by the foot of Ashberry Hill for a considerable length, including land that abuts but is beyond the precinct.

Grants by Hugh and Richard Malebisse

Four grants, *Cart*. *Riev.* 74, 75, 300 and 304, were made to Rievaulx by Hugh and Richard Malebisse. The initial grants by Hugh (74 and 75) are undated. These granted common pasture in Scawton wood, a meadowland known as Oswaldenges (*Cart. Riev.* 74) and an adjoining parcel that lay between Oswaldenges, a hill known as Broches Holes, the river Rye and a certain *guteriam* (*Cart. Riev.* 75). As Oswaldenges is mentioned in *Carta Caritatis* between Byland and Rievaulx (Table 4:9; Table 4:10; *Table 5:3*), the gift may have been made by 1170.

The tithes of *Oswaldenges* were owed to Scawton church and hence to Byland Abbey (Burton 2004a:XX). When Hugh Malebisse granted *Oswaldenges* to Rievaulx, tithes were owed between two Cistercian abbeys, an uncomfortable scenario which was clarified in the time of Roger's abbacy of Byland (1142-1196) (*Cart. Riev* 226; 242). The Archbishop of York confirmed the arrangement between Rievaulx and Scawton over the tithes of Oswaldenges and Scawton. Based on Atkinson's dates (1889:167) for the testators, the

Archbishop's confirmation was issued between 1154 and 1184, possibly before 1163. It is likely therefore that the initial grant by Hugh Malebisse of *Oswaldenges* (*Cart. Riev*. 74) was made in the mid-12th century, by 1163. The agreement relating to *Oswaldenges* and the associated ditch made to 'conduct the Rye' had certainly been concluded before 1170, as this matter was mentioned in the *conventio caritatis* (Byland Cartulary 988, page 339), the final version of which was read in Rievaulx and Byland's chapters at that date (Burton 2004a:340).

It is possible that Scawton chapel arrangements, and not a grand river engineering scheme by Rievaulx, was the main factor in Richard Malebisse's confirmation of his kinsman's grants between 1193 and 1203. Scawton chapel arrangements caused a flurry of legal paperwork around the turn of the 12th to 13th centuries (Burton 2004a:330; 369-372). The Archbishop of York confirmed the pension due from Scawton chapel between 1191 and 1204, probably 1203 (Burton 2004a:330). Richard Malebisse's charters (*Cart*. *Riev* 300 and 304), may therefore have been principally *post-hoc* confirmations, intended to prevent any future misunderstanding over rights and responsibilities previously exercised.

Another contextual factor illustrates the need for a clear understanding over rights and responsibilities. A (later) Richard Malebisse had a disagreement with Byland Abbey over Malebisse's right to hold and repair a 4-foot-wide watercourse in Old Byland under Reins [Wood] that flowed towards Richard's mill at Scawton. The case was heard in 1280 by the Justices in York (Byland Cartulary 1068: Burton 2004a). The Reins watercourse case demonstrates that no grand scheme for canalisations was necessary to create tensions between an abbey and lay society. Mundane arrangements such as for milling were able to create sufficient disagreement to merit a legal case.

Atkinson's suggestion of a 'canal' from near Hollins Wood rested on his interpretation of the boundaries of Richard Malebisse's grants. Rievaulx's cartulary includes two documents in the name of Richard Malebisse, *Cart. Riev.* 300 and 304. In *Cart. Riev*. 300, although Richard uses the term *dedi* (given), the substance of the text makes it plain that much of this charter is a confirmation of Hugh's gifts, clarifying certain boundaries and extents including of Scawton wood pasturage, *Oswaldenges* and the land at the foot of *Brochesholes,* including the right of the monastery to make a ditch there to lead the Rye

and to hold the land thus accrued on the monastery's side of the ditch. Richard made a new gift: of the holm of a place called *Hemgerdebrig[gam]* in *Cart Riev 300,* and *Hengendebrig[gam]* in *Cart. Riev.* 304*,* which is stated as being in Scawton (*Table 5:3*). *Cart. Riev.* 304 is however much shorter than 300, does not mention his kinsman's grants, but instead restates the boundaries of *Hemgerdebrig* in slightly revised terms.

Cart. Riev. 300 states (emphases added):
…in territorio de Scaltona inter Aldenetoftes et aquam de Ria sicut ***fossatum eorum circuit***

Cart. Riev. 304 states
…in territorio de Scaltona inter Aldwinetoftes et aquam de Ria sicut ***rivulus fontis circuit et cadit in Riam***

The slightly different formulation of *Aldenetoftes/ Aldwinetoftes* in the two documents may be a trivial variation in orthography common in medieval charters. The text relating to *Hemgerdebrig* in 300 and 304 is otherwise identical apart from the phrase '***fossatum eorum circuit'*** in 300 and ***'rivulus fontis circuit et cadit in Riam'*** in 304.

Atkinson may not have noticed this difference in wording between the two documents or may have inferred that 300 and 304 supplemented each other, and thus that the monks created a *fossatum* here (*fossatum eorum circuit)*. It is this assumption on which his notion of a 'canal' near Hemgedebrig rests.

What is apparent is that as the only substantive difference between the otherwise near-identical section in these two documents, it was this boundary which may have required re-statement in a revised formulation. So, whether the boundary was the monk's ditch (*Cart. Riev.* 300) or that of a specific watercourse which (naturally?) encircled a 'fontis' and fell into the Rye (*Cart. Riev.* 304), it is unclear which was the final, agreed boundary. What is clear is that **only one** of the **two** documents refers to construction of a monastic *fossatum* here. The most likely explanation, however, is that 304 corrected, rather than supplemented, 300, and that the boundary feature here was a natural one rather than a monastic construction. This subtle difference between Richard Malebisse's charters appears to have been missed by previous studies but is of obvious importance as to the weight of evidence for canals or major diversions.

5.3.5 Problematic translations by Atkinson and Rye

The documentary evidence on which Atkinson and Rye based their grand theory of elaborate canalisations and diversions is extremely slight. Based on a substantial body of research into medieval Latin from British sources, originating from the work of Latham and Howlett from 1975, it is now clear that Atkinson and Rye somewhat over-interpreted certain key Latin words (Table 5:1).

Five out of the six documents refer to Rievaulx *creating* a water management feature, variously termed *guteria* or *fossatum*, as opposed to such a feature already existing. Only four contain clear statements that the creation of a water feature would lead to land accruing to Rievaulx, with a possible fifth (*Cart. Riev.* 304) in which the wording is ambiguous (above). Only three documents refer to 'leading' the Rye. An identical phrase occurs in both 300 and 304, *tenendum in perpetuum et claudendum et utendum sicut voluerint*: *et* ***ad ducendum per illud aquam de Ria quanto propius montem voluerint***…

Atkinson placed great weight on the term '*propius*' in Richard Malebisse's two charters, translating this as an adjective relating to height, and thus as permission for Rievaulx to lead the Rye to create a channel at great depth to convey lighters full of building stone. *Propius* is however a form of *prope*, a comparative adverb for proximity (DMLBS). The word in this context is hence better translated reflecting a **spatial** relationship, i.e as close as possible between the water channel and the hill (*montem*).

The translation of '*guteria*' and variants as 'canal' rather than 'ditch' or drainage dyke (DMLBS) is equally problematic. Although the first use of this interpretation of the term in the context of Rievaulx occurs in Atkinson it is clear from both accounts that the suggestion of 'canals' originated with Rye. By the 1890s, Britain had experienced a boom in canal-building for critical transport infrastructure linked to the Industrial Revolution, although canal-building had declined somewhat after the growth of the railways (Hadfield 1972). Rye reports that his suggestion of 12th century canals was met with derision, as documented precedents then were not well known. So, when Atkinson shared Rievaulx's charter evidence with Rye, the latter was enthusiastic '…the charters … supplied the missing evidence and enabled me to prove my theory up to the hilt' (Rye 1900:70).

Precedent for monastic canal construction is no longer an objection to the Atkinson-Rye theory. There is now abundant evidence that medieval actors were capable of major water engineering works, including the creation of canals or extensive stretches of artificial watercourse (Chapter 2). Early medieval canals are known in England (Bond 2007a: Table 9). The documentary evidence alone is inadequate on which to characterise the specific form of the water courses as canals, so these will instead be referred to as 'channels' in the next chapter. The physical improbabilities in many specific aspects of the 'canals' theory will be discussed more in their physical context in Chapter 6.

Word / *Cart. Riev.* ref	Atkinson	DMLBS	243	244	74	75	300	304
guteria	quasi-aqueduct (lxix)	drainage channel	x	x	x	✓	✓	✓
Fossata [*faciant*]		ditch, dyke	✓	✓	x	✓	✓	ambiguous
Propius	height	proximity	x	x	x	✓	✓	✓
Ducant Riam			x	x	x	✓	✓	✓
Land accruing to Rievaulx from construction of *guteria, fossata* or *ducant Riam*			✓	✓	x	✓	✓	? Not clear that it is the leading of the Rye which causes land to be held by Rievaulx

Table 5:1 Translation of key terms in Byland and Malebisse charters

5.3.6 Transportation of building stone

Rye did not have access to modern petrographic techniques used to characterise and provenance stone and did not state the method on which his conclusions were reached. Possibly based solely on visual inspection, he identified stone within Rievaulx's buildings as being from three main sources: Penny Piece quarry, which lies to the north of the precinct; quarries in West Bilsdale;[51] and a quarry to the south of the abbey at Hollins Wood. Atkinson and Rye suggested dams at various locations to create sufficient head of water on which to transport stone to the abbey downstream from Bilsdale and upstream from Hollins Wood (Atkinson 1889: lxviii – lxxiii, Rye 1900: 69-77).

[51] Rye called these Ventriss pits after their 19th- century occupant. Weatherill (1954) argued that they are better described by their location, namely West Bilsdale, Laskill, etc

It has now been established that stone used in the construction and adaptation of the abbey came from at least six or seven sources (Table 5:4; Figure 4:17). The earliest surviving buildings, sections of the west range, were built using stone from sources which with one exception lay within 1.1km from the monastic complex (Senior 1999: 214-219). Only from the late 12th century was building stone used from a significant distance from the abbey, such as the Deltaic sandstone from Bilsdale sites including Laskill (Senior 1999: 215-220). Senior has illustrated that it would have been possible to bring the stone from most of these quarries to the abbey by trackways rather than water transport, and that for the most distant quarries debris at these sites suggests dressing of the stone took place there, leaving relatively less volume to be transported (Senior 1989, 1999 and Table 5:4).

5.3.7 Need for precinct extension

A further problematic assumption by Atkinson and Rye, which has remained fossilised in the prevailing interpretation of the precinct, is their assumption that the early precinct extent was inadequate in some way, and thus required extension through river diversions. This assumption appears based on a view that the ploughland conveyed by Espec's foundation grant (*Riev. Cart.* 42) all lay on the valley floor.

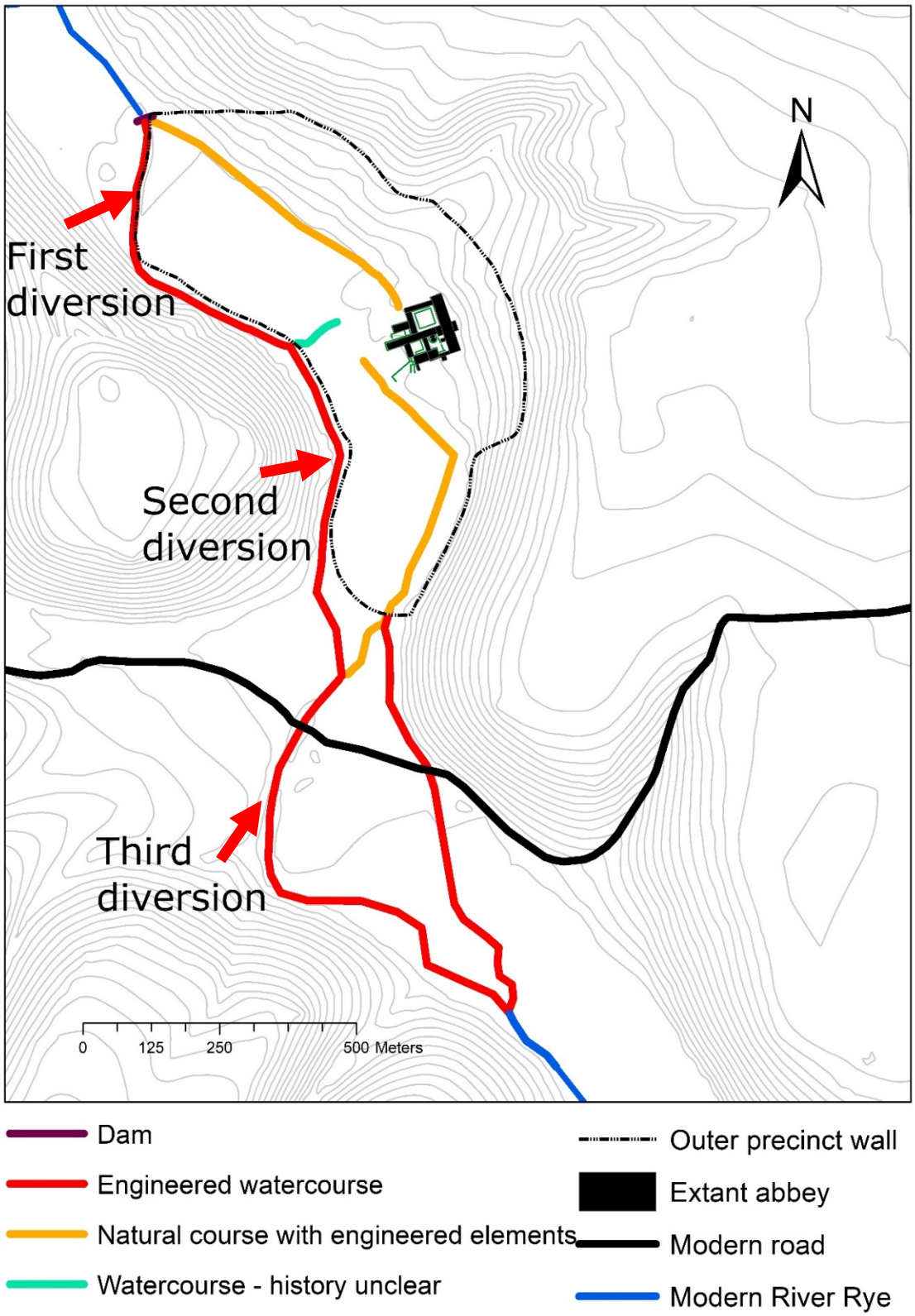
This may reflect a misunderstanding of the nature of 12th-century land holdings. Espec's gift of Griff and Tilstons does not define the land boundaries other than to state that the land granted was nine carucates. Even the ploughland implied by nine carucates (assuming a conversion rate of one carucate to 48.6 hectares) is greater than the area ultimately enclosed by the precinct boundary. It is likely that at least some of the ploughland conveyed was on the limestone plateau (i.e., the locations still known at Griff and Stiltons) rather than in the land by the river. The charter evidence is therefore insufficient evidence on which to assess whether the area within the precinct was adequate for monastic requirements. Another of Atkinson's apparent lines of enquiry was that the *fossata* charters enabled the land enclosed to accrue to the monastery. This is, however, no proof that the areas of land so enclosed were of any great size, and these need not have been encompassed within the precinct.

Many factors identified by Atkinson and Rye can now be accounted for without precinct extensions or canals. For example, natural processes are known to move river courses

(Lewin 2010). These processes are fully able to account for the divergence between the extent of Rievaulx township boundary and the river, observed by Atkinson (1899).

5.3.8 Russell's theory of river diversions

The underpinning assumptions in Atkinson and Rye's theory have however been accepted somewhat uncritically by many subsequent researchers. Ada Russell (in Page 1914: 485-505) however must have spotted the logical error in the starting premise of the Atkinson-Rye theory (above), because her account for the Victoria County History alters a crucial element in that theory. Russell states that the river diversion was towards Byland's side of the river, namely **south westwards**. This resolves the logical inconsistency noted above, by claiming that the feature running from the precinct tip, termed by both Atkinson and Rye the 'first canal,' was instead the former river course and that the modern river course was the 'first deflection.' Resolution of the logical inconsistency however serves to expose further the multiple other problems with the major river diversions theory. For example, Russell's account is the first to clearly articulate the western route of a 'first diversion.' Before the supposed 'second diversion,' this would have necessitated west-east flow (watercourse in green) in Figure 5:6 (see also Figure 6.10 and section 6.6.3) to reconnect with the hypothetical water 'original' watercourse past the extant abbey. Those who followed Russell, including Coppack (see 5.3.10) inherited the issue that this route would have necessitated uphill flow of water if medieval relative ground levels were similar to those in the modern day.



After Russell 1914. Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk. The Historic England GIS Data contained in this material © Historic England 2021 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

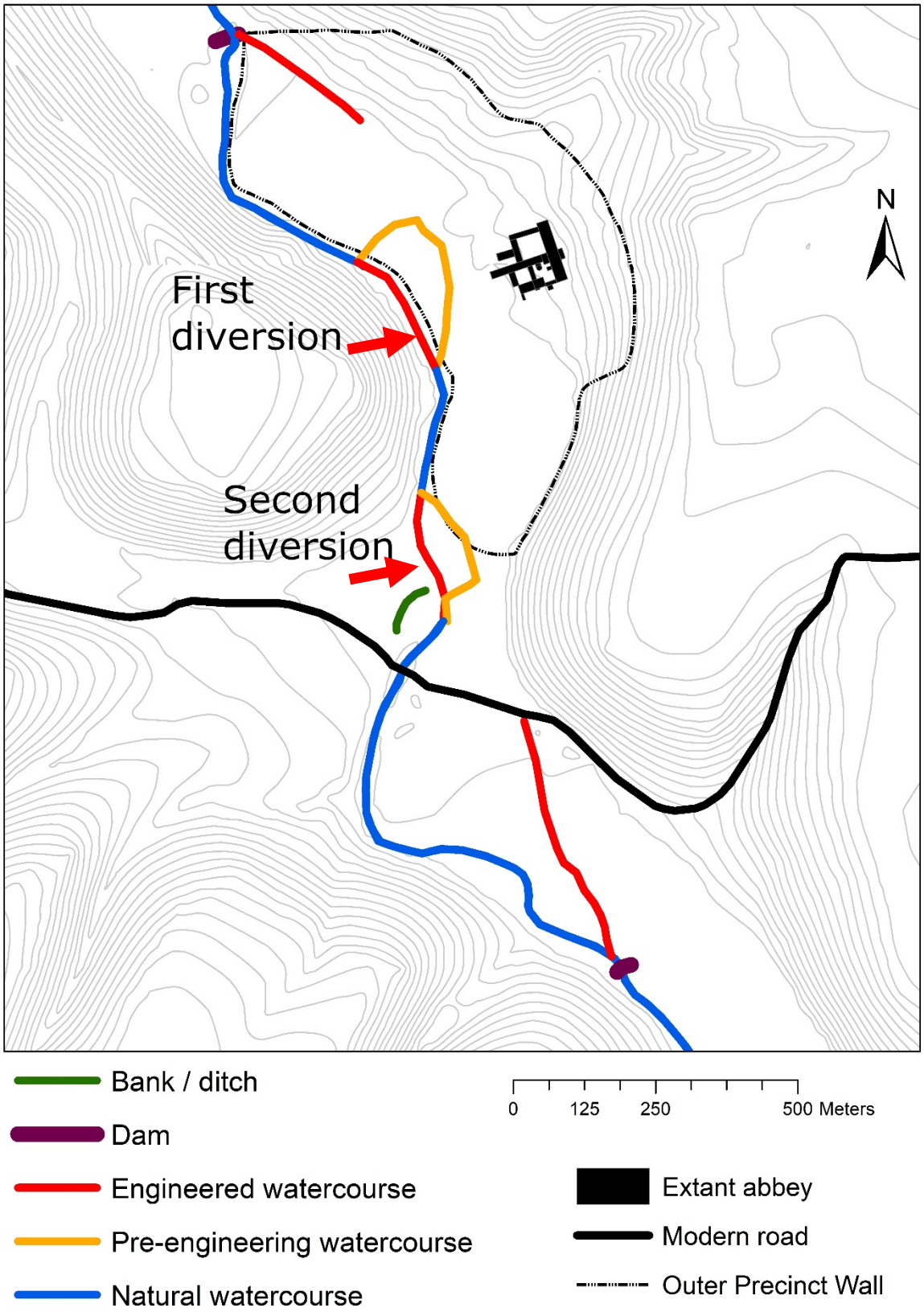
Figure 5:6 Russell 1914 revisions of Atkinson-Rye theory

5.3.9 John Weatherill's theory of river diversions

John Weatherill was a mason employed to work on the Duncombe/ Rievaulx stonework. Weatherill was also a shrewd local historian who identified several implausible elements in the Atkinson-Rye theory (Weatherill 1954: 333-354). By means of what may have been the first use of relative levels to interpret the landscape at Rievaulx, Weatherill pointed out the implausibility of the diversions and dams supposed since Atkinson-Rye to float stone from the quarries in Bilsdale and from the south of the abbey. Weatherill estimated that a dam at or near the precinct tip to hold up water to bring stone from Bilsdale would need to have been around 100 feet high (Weatherill 1954: 343, 347). He further demonstrated that a canal and dam to transport stone upstream from Hollins Wood would have required a lock to cope with the 9-foot difference in levels (Weatherill 1954:342-343).

Although there are problems with some of his suggestions (considered further in the next chapter), Weatherill demonstrated that the Byland and Malebestia grants could be accommodated in an interpretation of Rievaulx's management of the Rye that did not rely on the elaborate and large-scale river engineering posited by Atkinson, Rye and Russell. Weatherill instead suggested that the Byland and Hugh Malebestia grants had entailed much smaller river course modifications at the western boundary of the precinct, straightening out the river between Rievaulx Bridge and opposite what is now Rievaulx Village (Weatherill 1954:350; Table 5:4). He argued that the additional land granted by Richard Malebestia could have been further south on the river course than suggested by Atkinson and Rye, and in no way connected to the precinct (Weatherill 1954: figure 2, 333-354). Aston found Weatherill's theory more plausible than the established narrative and included it as part of his synthesis of monastic archaeology, although it is not clear whether Aston ever conducted any field investigations here (Aston 2000: 90-92).

Aspects of Weatherill's specific suggestions for short stretches of ditching / canalisation (Weatherill 1954:347-354), are however problematic and will be discussed in context in Chapter 6. Weatherill also clarified and extended Rye's identification of the sources of stone used in the abbey, to three main sources: near Wethercote in Bilsdale, Penny Piece, and Hollins Wood (Table 5:4; Figure 4:17).



After Weatherill 1954. Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk. The Historic England GIS Data contained in this material © Historic England 2021 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

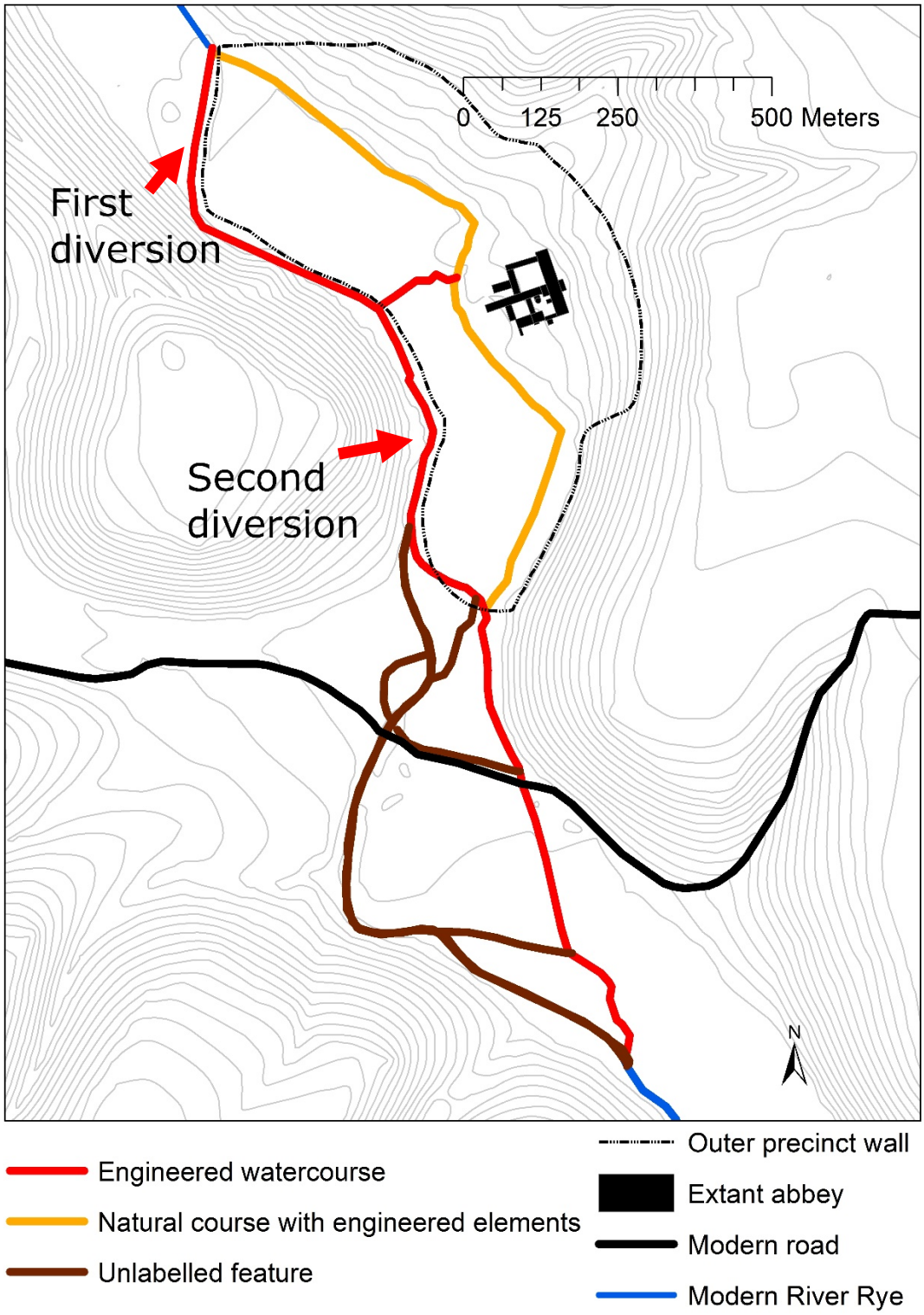
Figure 5:7 John Weatherill's theory of river diversions

5.3.10 Current interpretation of diversions theory

Unfortunately, Weatherill's practical insights into the physical implausibility of many aspects of the Atkinson-Rye-Russell theory seem not to have been incorporated in the current interpretation of the site. Coppack first set out his thinking about Rievaulx's early precinct in 1990 (Coppack 1990:95-97). Regrettably, this text contains a factual error – it was Hugh, not Richard Malebisse who gave Oswaldenges to Rievaulx (above, and Table 5:3). The inference from Coppack's 1990 text is that he followed Atkinson and Russell's reading of Richard Malebisse's charters in two key aspects: as evidence of a third Rye diversion and as providing the key date for the precinct boundary finalisation (Coppack 1990: 95).

Yet the map accompanying Coppack's 1990 text (figure 62 on page 96) contains a simple error, as it shows only two diversions. Coppack's next account of Rievaulx's precinct and water management (Coppack 1994: 421-5) introduced more errors. The map (figure 7) accompanying his text is labelled 'After Rye 1954.' No such work exists, but the details and appearance of the map suggest Russell 1914 as the basis for Coppack's map but that he was aware also of Weatherill's 1954 work. Coppack's 1994 map shows a set of unlabelled watercourses to the south of the precinct, presumably a third diversion, on the identical route suggested by Russell.

This interpretation of three diversions of the Rye remained in Coppack's later popular and specialist publications. For example, Coppack (1998a:44-45) states 'the site itself was modified, the River Rye moved from the centre of the valley by agreement with the Savignac monks of Old Byland whose common boundary it was.' Crucially, this interpretation informed the survey conducted by Caroline Atkins of Rievaulx's precinct (reported briefly in Fergusson and Harrison 1999:38) and the maps and narrative in the current guidebooks to the site (most recently, Fergusson, Harrison, Coppack and Carter 2016: 28). The Atkinson-Rye theory and its variants thus continues to underpin the prevailing interpretation of the monastic precinct. The monograph on Rievaulx states that 'Byland …consented to grant Rievaulx the southern land of the Rye, thereby opening the precinct for expansion' (Fergusson and Harrison 1999: 81). The traditional interpretation, accepted by Coppack and thereby embedded in the prevailing interpretation of the abbey, thus perpetuates the limitations of the Atkinson-Rye theory (above).



After Coppack 1990 & 1994 Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2020 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk. The Historic England GIS Data contained in this material © Historic England 2020 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

Figure 5:8 Coppack's re-articulation of Russell's diversions theory

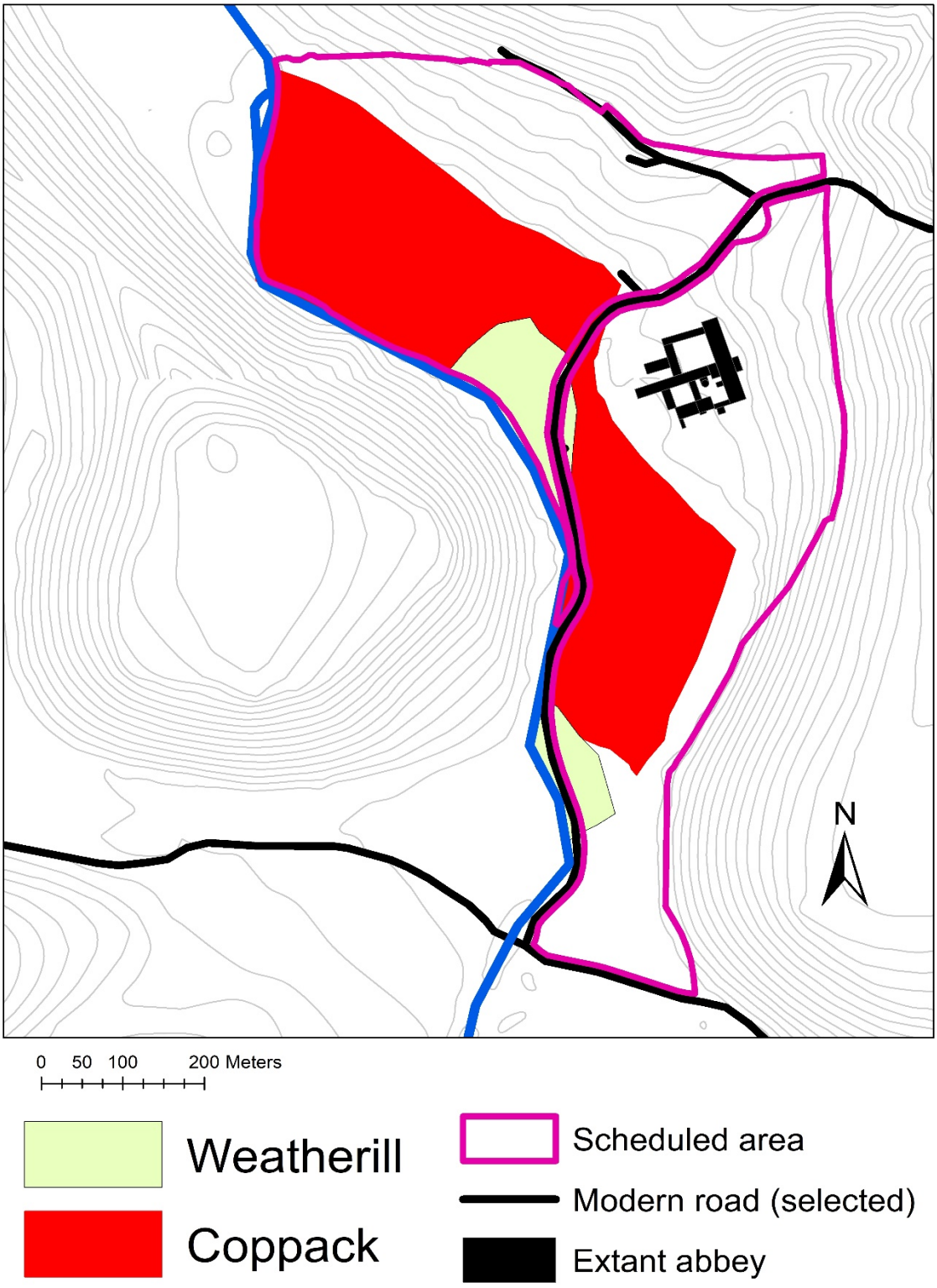
Relationship with Byland

There is evidence that the river was important to both Byland and Rievaulx. On the western bank of the Rye, Byland Abbey used the river also, if the interpretation of slight earthworks at Tylas Farm as a tile kiln is correct.[52] Tile kilns would have been common to produce the ceramic flooring appropriate to a major Cistercian monastery, and access to water would have been an important part of the production process. As many as five different tileries may have supplied Cistercian Melrose Abbey (Roxburghshire, Scottish Borders) (Anderson 2013). Did Rievaulx and Byland perhaps share the output of such kilns by the Rye? Byland's cartulary (Burton 2004a) also contains evidence that the Rye valley remained an area of interest for Byland even after the latter abbey had physically relocated to successive sites (Table 4:10). A narrative that relates Byland as ceding all rights to Rievaulx in the valley floor here is therefore likely to be over-simplified.

5.3.11 Implications of river diversion theories

The various theories outlined above are important partly because they underpin the prevailing interpretation of when and how much of the precinct was added by river diversions. Around 60.2% (18.649 hectares) of the core land within the precinct (as specified by the SAM listing 1175724) lies within the area supposedly added by the diversions first posited by Atkinson and Rye. The spatial implications of John Weatherill's theory are much smaller, representing a more modest proportion of the precinct land, around 9.7 % (3.022 hectares) of the total scheduled area (Figure 5:9). This is still a substantial proportion of the precinct, so is an important question for the abbey's overall narrative.

[52] HER 1884



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Re-presentation of Horsfield 2014 figure 2.3 and 2.5. Selected features only represented.

Figure 5:9 Schematic comparison of implications of Coppack and Weatherill theories for spatial extent of precinct created by river diversion

5.3.12 Summary: sequence and date of precinct boundary

In sum, then, the prevailing interpretation of the establishment of Rievaulx's precinct boundary rests on a theory devised over 120 years ago and which has been demonstrated as flawed in multiple terms. Although admirable in the attempt to interpret landscape and documents together, Atkinson and Rye's theory is physically implausible in multiple aspects. These factors are best considered in their physical context, for example the area (termed Area I in the next chapter) where the Atkinson-Rye theory would have required water to flow uphill. This is considered in the next chapter.

The documentary evidence on which the Atkinson-Rye theory depends is slight, two charters relating to each of Byland Abbey, Hugh Malabisse and Richard Malebisse. There is no *a priori* evidence to link the Byland or Malebisse grants to the precinct extent. The Byland agreement had probably been reached between 1142-45/6 (Burton 1998: 29-94). The argument that the precinct was substantially extended by the Malebisse grants, and that the final phase of this extension had to wait until 1193-1203 for Richard's grants, does not hold water. Hugh Malebisse's grant had been made and confirmed by early in the third quarter of the 12th century. There is no evidence to link the Malebisse grants to the precinct extent. Such interpretations depend crucially on the identification of the southern extent of Espec's gift as running between what is now Abbot Hag and Rievaulx Bridge. This study argued above that Atkinson's identification of this boundary proceeds from an erroneous identification of its starting location, Sperragate. Atkinson's Sperragate location is probably too far north on the road out of Helmsley and would unaccountably have bisected the extent of Griff vill on the limestone plateau (4.2.3 above). A more southerly starting point for Espec's boundary, closer to Helmsley, could have placed the boundary of his grant in the valley floor somewhat further south.

Atkinson and Rye had related the Malebisse grants to the precinct by means of an ambitious scheme to divert and dam a head of water sufficient to bring boats with stone from Hollins Wood and other southern quarries to the claustral construction site. The physical implausibility of that theory was convincingly demonstrated by John Weatherill in 1954. There has been a prolonged debate over the location of the land parcels to which the Malebisse agreements relate. Atkinson (1899), Rye (1900), Russell (1914) and Weatherall (1954) each made slightly different suggestions. The locations of many of the

places named in the charters cited by Atkinson and Rye however remain unproven and are likely to remain so, unless new evidence emerges.[53] The alternative locations for more minor river diversions offered since Atkinson-Rye (notably by Russell and Weatherill) are also physically implausible for various reasons. This is now of limited importance as references to drains and ditches in the charters cited have been demonstrated above as not necessarily bearing a relationship to the precinct.

Even if Hugh Malebisse's grants had extended the precinct, his grants had been confirmed by 1163/1170. The more likely interpretation of Richard Malebisse's two charters (1193-1203) were as clarification of boundaries and liabilities of his kinsman's earlier grants necessary in relation to arrangements for Scawton church rather for a major water engineering project for the abbey. A detailed examination of Richard Malebisse's documents revealed that there is a key difference between the otherwise identical substance of the relevant section in his two grants. The reference to a monastic construction at *Hemgerdebrig* (*fossatum eorum*, in *Cart. Riev.* 300) appears to have been corrected to refer instead to a possible natural feature *(rivulus fontis* in *Cart. Riev.* 304*)*. Further, Atkinson and Rye mistranslated key Latin terms in the charters, the correction of which error also erodes the old picture of a unified grand scheme of water engineering. Better understanding of Richard Malebisse's two charters thus dismisses the evidence on which Coppack dates the establishment of the precinct boundary to the 13th century.

The Atkinson-Rye interpretations have been perpetuated through subsequent studies which continued to associate the charter evidence with large-scale water engineering through attempts to identify locations that could address some of the problems with the Atkinson-Rye theory. The present study does not propose to add to the catalogue of document-based conjecture and circular reasoning about the locations of specific diversions and 'canalisations.' A fresh approach to understanding Rievaulx's management of the Rye in this valley is required. Chapter 6 will provide a broad summary of the likely locations of water management at and near Rievaulx's precinct. Suggestions for physical investigations will then be made in Chapter 11.

[53] The -enges (ings) element in *Oswaldenges* suggest that this was relatively flat, periodically watery land.

5.4 13th – 15th centuries

5.4.1 Costly changes and challenges

Based on the known architectural phases, Rievaulx's monastic core would have been in an almost perpetual state of building and industrial activity. Such activities may have altered water management arrangements within the precinct and thus complicate interpretation of archaeological features. Some changes were necessitated by doctrinal and liturgical developments, such as an increased role for intercessionary prayer and changes in understanding of purgatory (Cassidy-Welch 2001: 90). Such changes led to 13th- and 14th-century remodelling of the claustral buildings, and the construction of cult centres for William and Ailred (Fergusson et al 1999: 163-164). Changes made, such as to the east end of the church in the 1220s, included the addition of altars, altar chapels and a shrine to Ailred (Fergusson and Harrison 1999: 151-174). Around AD 1300 the reduced number of lay brethren led to remodelling of associated elements of the claustral nucleus (Fergusson and Harrison 1999:76). More women servants may have been used (Coppack 2002: 198). Changing approaches to memorialisation, such as reduced liturgical practices (including commemoration of kin groups instead of individuals) also led to changes in use of space in the conventual core of Cistercian monasteries. Lay burials within Cistercian monasteries were increasingly popular from the 13th century (Cassidy-Welch 2001:218). It was, however, the 14th century before Rievaulx's church became an important burial destination for lay people (Jamroziak 2006: 75). In addition to the costs of remodelling the abbey, the practice of monastic hospitality could incur substantial burdens (Jamroziak 2003:205; Kerr 2007). Papal taxation (such as the 1291 *Taxatio*) and royal levies could also be substantial (Jamroziak 2003: 205-207).

Such factors would have represented a significant burden on Rievaulx's resources. Rievaulx's periodic indebtedness is apparent in documents from the 1180s (Fergusson and Harrison 1999:146-147). Rievaulx's liquid capital depended crucially on its production of wool (Jamroziak 2003:197-218). [54] Many monastic houses, including Rievaulx, were major suppliers to international as well as British customers. The economic aspects of monastic wool production in Yorkshire as known from documentary sources has received substantial attention, such as Waites (2007:83-159).

[54] The list of one Italian merchant in 1275, Pegoletti, suggests that Rievaulx produced 60 sacks. Crosland and colleagues (1963: 115-6) calculated this, based on 240 fleeces per sack, to represent 14,400 sheep.

From the later 13th century, multiple factors including changing markets, animal and human diseases and climate change, led to crucial disruptions in Rievaulx's resources. Jamroziak has described the problems caused by conflict with Flanders in the 1260s, as before that date Flemish traders had been crucial trading intermediaries, with Italian traders becoming key intermediaries from the later 13th century. Rievaulx's trade with Italian intermediaries however led to increased exposure to future risk, as Italian merchants had access to greater liquid capital which enabled them to buy up to 20 years in advance and to make loans (Jamroziak 2003: 197-202). Monasteries' practice of advance sales of wool precariously exposed them to production fluctuations, and episodes such as the great sheep murrain. That disease spread to Yorkshire in 1278 and proved disastrous for Rievaulx (Jamroziak 2003:197-218).

Cistercian houses in England and Wales such as Rievaulx were also affected when the Statute of Mortmain (enacted in 1279 and 1290) prohibited further alienation of land to religious houses without royal licence (Raban 1974). The abbey's previous means of replenishing its assets, the gift of land from lay donors, was therefore constrained. The abbey became bankrupt twice in the later 13th century. Rievaulx was taken into king's custody twice (in 1276 and 1288), and some monks were temporarily dispersed in 1291 (Waites 1961; Jamroziak 2003: 197-218). Other Cistercian houses were similarly taken into royal custody for debt relief (Knowles 1963: Appendix IV).

Rievaulx's location placed it perilously close to the turbulence which periodically erupted between England and Scotland. Rievaulx was sacked by the Scots in 1314 and at the Battle of Byland in 1322. These events would have necessitated repairs in addition to the ongoing maintenance. Other societal factors led to changes in labour supply and disruptions to income. As the Medieval Warm Period (c. AD 900-1300) was replaced by the Little Ice Age, the annual variability in temperature in Atlantic rim Europe increased year on year from the first quarter of the 14th century (Campbell 2016:202-203). This variability would have significantly affected agrarian production by monastic as well as lay society. The trend for contraction in the number of (unpaid) lay converts in the 13th century was amplified by the Black Death (1348-1349) which led to a halving of the population. This led to Rievaulx having a greater need for the employment of lay labour from a smaller general population. In 1380 only 18 religious (15 monks and 3 lay brothers)

remained at Rievaulx (Crosland et al 1963:114). The claustral buildings underwent rebuilding and repair, including in the 15th century (Fergusson and Harrison 1999). Some works were necessitated by subsidence (Senior 1999: 215-220). The wider precinct continued to be used throughout this period. Exploratory excavation in 2005 of Rye House's kitchen and garden produced ceramic fragments dating from the late 14th to 18th centuries (Wheeler 2007 Appendix 2: 145).

5.4.2 16th century and Dissolution

The claustral core at Rievaulx also reflects dispositions of the 16th century and thereafter**.** Rievaulx Abbey surrendered to the agents of the Royal Commission on Augmentations on 3 December 1538.[55] At Dissolution, Rievaulx had 22 choir monks and 102 servants (Coppack 1986a FN10). The abbey's assets were sold to private purchasers (Carter 2019). Rievaulx's assets in Ryedale were bought by the Duke of Rutland, a descendant of the Ros family.[56] Rutland was a descendant of the Ros family whose ancestors had supported Rievaulx from the 12th century and who were related to Rievaulx's founder through Espec's sister (Coppack 1999a:175). Coppack used five documents dating to 1538-1539 to reconstruct some of the activities within Rievaulx's monastic precinct at and shortly after the Dissolution. A *Grant* of the abbey to the Duke of Rutland; an *Inventory* of the abbey's assets, probably dated prior to spring 1539; a *Survey*; a *Rental* of the abbey's assets; and an entry in Henry VIII's *Ministers Accounts* for 1538/1539 (Coppack 1986a: 101-117; Coppack 1999a:175-186; Coppack 1999b: 226-237).[57]

Coppack concluded that the detail provided by these documents showed clear division in the 16th- century precinct between religious and non-religious elements (Coppack

[55] PRO E 322/202.
[56] *Patent Rolls 30 Henry VIII* p7 m.2, published by Atkinson 1889.
[57] The *Grant* was recorded in Henry VIII's Patent Roll for 1538 and probably dates from between 3 December 1538 and 24 March 1539 (Coppack 1986a:101) [Coppack's 1986 reference to the location of an edited version of the *Grant* within *Cartularium Rievallense* is incorrect: the *Grant* is reproduced at *Cart. Riev*. n.376 pp 343-347]; the *Inventory* survived in the Duke of Rutland's archive at Belvoir Castle, was transcribed by Canon James Raine before 1887 and copied by Atkinson into the Rievaulx cartulary as Cart Riev. n. 375, with a revised transcription being checked against the Belvoir copy and published by Coppack (1986a:103-111); the *Survey* possibly postdates the Belvoir *Inventory,* survived in the Inspectorate of Ancient Monuments file, and was first published by Coppack (1986a: 101- 115); the *Rental* was probably 'broadly contemporary' with the *Survey*; the entries in *Ministers Accounts* may postdate all the other sources, being a *compotus* of the Duke of Rutland's income from the site and its estates audited by Sir Leonard Beckwith for the Court of Augmentations, recorded after September 1539 (Coppack 1986a: 115-117). Cart Riev. n. 374 p 310-334.

1986a:130). The non-religious area included pasture and service areas but did not record certain buildings which might be expected such as animal houses and great barns, which were possibly located beyond the precinct (Coppack 1986a:129-130; Coppack 1999a:186). Coppack's research however raises several further questions. An entirely documentary study of a functional area must be regarded as provisional, pending fieldwork. Also, Coppack's research considered the monastic precinct around the time of the monastery's suppression in the mid-16th century. It is therefore unclear to what degree this reflected preceding dispositions, including the vital question to this enquiry of the state of the land before monastic foundation.

5.4.3 Rievaulx's post-monastic 'second life'

Although the case study so far has identified limited evidence of 'transformation' caused by the monastic community at Rievaulx, the abbey did undergo a transformation after Dissolution. Post-monastic use would have affected the preservation of medieval evidence. A small settlement developed, incorporating many of the abbey farm and domestic buildings (Coppack 1994:421). As noted above, metal working continued within the precinct. The Duncombe family, to whom the Duke of Rutland had sold the monastery, developed a mansion, and associated park, with views of the abbey incorporated in the construction of one of the earliest 18th-century designed landscapes.[58] The abbey thus began a 'second life,' transformed into a consumed environment in which visitors could imagine themselves transported back to the medieval period. Rievaulx attracted artists, such as JMW Turner, writers, and (from the 1880s-1890s) antiquarian interest, such as the visits by the Yorkshire Archaeological and Topographical Association with expert guides.[59] Stewardship suggestions will be made in Chapter 11.

[58] Listing number 1001072. Linda Smith's unpublished Masters dissertation (2014:16) suggests landscaping begun under Thomas Duncombe between 1718 and 1730, with the terrace constructed under his grandson Thomas Duncombe III.

[59] EH https://www.english-heritage.org.uk/visit/places/rievaulx-abbey/history-and-stories/history/

5.5 Chapter summary

Management of the River Rye near the monastic complex is critical to the question of 'transformation' of Rievaulx's precinct. This question has long been coloured by a problematic 19th-century theory which associated precinct development with a series of supposed diversions of the River Rye. That theory, and its variants, also governs the current narrative about the date at which the bounds of the precinct were finally established. This study has demonstrated that the Atkinson-Rye theory and variations are not a valid underpinning for the interpretation of Rievaulx's precinct development. Although important at the time for its innovative approach, the theory relied on a very slender documentary basis.

The documentary evidence is very slight and problematic to bear such interpretative weight. Evidence for the supposed first diversion depends on a specific reading of the agreement with Byland Abbey. Coppack's study was conducted before publication of work by Janet Burton, which now allow the agreement with Byland to be re-dated to the mid-12th century (Burton 1998:29-94). At present, Coppack dates the precinct development to the 13th century, based on his acceptance of the Atkinson-Rye theory (Coppack 1994:421-425). This study has instead suggested that the documentary evidence cannot robustly support such a date. The argument for the second / third 'canals' and dating of the supposed precinct extensions to the early 13th century relies on very slight evidence: the four Malebisse documents. These short documents contain no evidence linking them to the monastic precinct. All the documents are undated, but a close reading suggests most of the land rights were conveyed by Hugh Malebisse by the third quarter of the 12th century. Only one parcel, *Hem[ger]debrig*, was added by Richard Malebisse. The two charters defining *Hem[ger]debrig* contradict each other in a key detail: whether a key boundary was a monastic construction or a natural feature, with the document order in the cartulary (*Cart. Riev.* 300, 304) suggesting the latter. Correction of Atkinson's mistranslation of a key word in the Malebisse charters – *propius* – as relating to relative position rather than height further erodes the notion of an elaborate scheme of canalisations. The importance of the Malebisse gifts may rather have been related to the matter of the tithes owed to the new church at Sproxton. Any role that these grants played in permitting monastic water management may have been secondary, but the evidence is currently too slight to say definitively what this role may have been.

There are broader reasons to query Coppack's 13th-century date for precinct establishment. River diversion early in the life of a Cistercian monastery is paralleled at Bordesley (Astill 1993:83-95; 103-107). The 12th century saw significant growth in Rievaulx's activities under its early leaders such as Ailred. It is questionable that the establishment of the precinct boundary, with its key role in both monastic practical activities and its symbolic importance, was left until the following century. Deconstructing the 'canals' theory therefore has potential implications for the traditional narrative of Rievaulx's precinct development.

This chapter has assembled evidence that the physical management of Rievaulx's conventual core requires much further attention to understand whether and how the monastery changed the physical landscape here. The archaeology of over 400 years of monastic occupation is not well understood. Peers' somewhat rudimentary excavations focussing on the elite stone architecture have not been fully published and there has been little work which can offer insight into the subsurface of the precinct. Attempts to map water management on the valley floor from documents have, since Atkinson and Rye, shared certain limitations. One such limitation is to assume if an activity is not documented it did not take place. This is the logical fallacy of 'argument from silence,' a common argument in historical study but one which is vulnerable to human cognitive bias (McGrew 2014). Empirical evidence is therefore a potential corrective to such bias.

The next chapter offers a contribution to these matters. The study area encompasses an extremely complicated set of features. Mapping, dating and interpretation of these features is difficult. Some features may be natural, and physical geographic interpretations will be provided where appropriate. Pre-monastic occupation is uncertain but possible, given the emerging lines of evidence for Anglo-Scandinavian occupation of this potentially productive catchment location with access to a range of ecological niches. Known activities on the site date from the medieval to modern periods, which may obscure and complicate the medieval evidence. Many features are difficult to date without physical investigation, and some questions may not be resolved without absolute dates.

Chapter 5 landscape-orientation tables

Statutory designations: The monastic site has multiple statutory designations. For the full, current list see https://magic.defra.gov.uk/MagicMap.aspx . The monastic core is a scheduled monument, listed as 1012065.	**References**
Documents: Robert Cotton (1571–1631) collected a 12th century cartulary from Rievaulx and other documents, a collection now held by the British Library. Based on his access to various documents, John Burton (1697-1771) published a short account of the abbey's foundation and a list of her properties (Burton 1758:358). John Atkinson (1814-1900) published an edition of the Cotton cartulary and other documents for the Surtees Society (1889). Modern historians Burton (eg 1998) and Jamroziak (2005) have published studies based on the Cotton *ms*. Documents created at Rievaulx exist in other collections, such as that of Durham Cathedral Priory (Cosin MS. V.I.11)	Atkinson 1899 Burton 1758:358 Burton 1998 Jamroziak 2005
Conservation and presentation of the site have been concerns which preceded national guardianship of the monastic core. Keevill edited a conservation plan by Caroe and Partners for English Heritage (Keevill et al 2010). The conservation plan incorporated field observations by various investigators. Specific condition surveys and conservation measures post-date this (e.g. Dennison and Richardson 2013). Rievaulx Terraces are in the care of the National Trust, which periodically updates its conservation guidance (e.g. Addyman Archaeology 2015).	Keevill et al 2000 Emerick 2013; 2014; Thurley 2014; Addyman Archaeology 2015 Dennison & Richardson 2013;
There is a long tradition of artistic impressions of the **architecture** of Rievaulx's **church and claustral complex**, such as by Whitaker (1820), Richardson (1844). This approach was gradually supplemented by systematic investigation of the architecture**,** such as brief attention by Hope (1894), and Ada Russell for the Victoria County History (Page 1914). The monastic site was taken into national guardianship in 1919. Popular guides have been regularly produced, most recently Fergusson, Harrison, Coppack & Carter 2016.	Whitaker 1820; Richardson 1844; Hope 1894; Russell 1914 Fergusson, Harrison, Coppack and Carter 2016
Wholescale **excavation** under the direction of Peers between 1919-1929 (Coppack 1986:100), and see Fergusson and Harrison 1999 and Emerick 2013 for the light rail system installed to transport excavated material). Little of this excavation was however published (Peers 1921, 1929, Harvey 1921). Excavation and curatorial records exist in various locations including the WORK series in the National Archive, and the holdings of English Heritage, Historic England and the National Trust. Fergusson and Harrison, with contributions by others including Coppack and Senior, produced a major volume on the complex architecture (1999). An earth resistance survey by Szymanski across the cloister garth was published briefly within that volume.	Peers 1921, 1929, Harvey 1921; Fergusson and Harrison 1999
Precinct Atkinson (1899) and Rye (1900) may have been the first to analyse the precinct beyond the claustral core. Weatherill commented on the precinct and nearby bridges (1954, 1963). Coppack considered several Dissolution-era documentary schedules of the physical assets at around the time of Dissolution, including some features in the precinct (Coppack 1986, 1999). Atkins conducted a topographic survey of the precinct in 1996, reported briefly (in Fergusson and Harrison 1999:38). Dunn and Pearson for English Heritage (2005) conducted a rapid topographic survey of the precinct and the immediate surroundings to Level 1 specifications. This was succeeded by a SUA survey (Hannon 2015; Pearson 2019). Rievaulx's precinct was included in the National Mapping Programme survey which used aerial photographs (Knight et al 2011).	Atkinson 1899; Rye 1900 Weatherill 1954; 1963 Coppack 1986; 1999a and 1999b Dunn and Pearson 2005 Hannon 2015; Pearson 2019
Granges: A topographic survey was conducted over the possible building complex at Griff grange for English Heritage (Hunt and Stone 2002/3). Abbot Hagg 'race' within Griff was investigated archaeologically (Dennison and Richardson 2013). New Leys grange is under investigation for Historic England (Went forthcoming).	Hunt & Stone 2003; Dennison and Richardson 2013; Went (forthcoming)

Material culture, portable finds and industrial processes: A small sample of decorative metalwork & a lead ingot from Peers' excavations was published by Dunning (1952; 1965). Other unstratified pottery from Peers' excavation was considered to date from 12th-18th century (Drummond 1988). Field walking of Forge Field produced some 'Cistercianware' pottery and Roman material. Exploratory excavation in 2005 of Rye House's kitchen and garden produced ceramic fragments dating from the late 14th to 18th centuries (Wheeler 2007 Appendix 2: 145). Ceramic roof tiles (from unspecified location) were characterised as possibly from Upper Ryedale, derived from Middle Jurassic exposures such as found in Bilsdale (Senior 1999, Vince 2006). Carter has published studies of some sculpture (Carter 2009). A Structure from Motion study of selected artefacts in the Helmsley store (Sou 2016). Investigation of **ironworking** at monastic core including through test pit, geophysical survey. Archaeobotanical study of wood used for ironworking. Dendrochronology of a timber from Rievaulx Bridge suggested a possible medieval date (Tyers 2008).	Dunning 1952; 1965; Drummond 1988; Senior 1989; 1999, Vince 2006; MAP 2000; Carter 2009; 2019; Sou 2016 Tyers 2008 Wheeler 2007; 2011; Wheeler and McDonnell 2011; Vernon, McDonnell, Schmidt

Table 5:2 previous work on the material remains of Rievaulx Abbey's monastic core

Cart. Riev. number 368	***Istae sunt possessiones* – Memorial of Benefactions** See table 4:1 for relevant extracts		
Atkinson's dating & comments		**Rye's dating & comments** Rye suggests Bilsdale grant (supposedly 1145) was when 'building began in good earnest' (Rye 1900:71)	**More recent views** This document was a composite stating the edited history of Rievaulx's foundation with the last entries dating to 1188 (Burton (1998:29). The date of constituent benefactions therefore cannot be firmly established from their position in this list, so Rye's date is not secure
'First canal'			
244	**Agreement between Byland and Rievaulx** '*…ut* ***faciant fossatum*** *per terram nostram ad pedem Montis Escheberch, sicut eis expedire cognoverint, et ut habeant in suos usus terram quam ex eorum parte eodem fossato includunt ita quiete et libere sicut quietius et liberius usque in hodiernum diem tenuimus…')* Rye's translation: 'Permission for Rievaulx to 'make a dyke through our land at the foot of the hill 'Eschebersch' in the manner they known to be needful and may have for their use the land which on their side they enclose by the same dyke as peaceably and freely as we until yesterday have held the same'		
Atkinson's dating & comments '…during the lifetime of William, the first Abbot of Rievaulx …This dates the guteria as ante 1145.' (Atkinson 1889: lxviii)		**Rye's dating & comments** Rye dated this to 1142x1146.	**More recent views** Names of the respective abbots suggests the original agreement was reached between 1142 (when Roger became Abbot of Byland – Burton 2004a: Byland Cart xxiv) and before death of Abbot William. William died in 1145 (Atkinson 1889:lxxxix).
243	***Conventio caritatis* between Rievaulx and Byland** Burton's translation (Burton 2004a, No. 988) of mirror copy in Byland cartulary: 'The land between Ashberry Hill and the river Rye as their ditch goes below Ashberry Hill shall remain with the monks of Rievaulx as laid down in the charter which they have of Byland, and the same applies to Oswaldehenges'		
Atkinson's dating & comments Atkinson does not comment on the dating of the document overall, but notes the references within it to both Abbot Ailred and Sylvanus of Rievaulx so may have interpreted the document as post-1170		**Other dating & comments** Rye dated to 1176 (Rye 1900:73-75). Russell 1914: 'to make a dyke (*fossatum*) through our land at the foot of Ashberry Hill, as they might deem advantageous to them, and to have to their own use the land which on their side they inclose with the same dyke.'	**More recent views** Burton suggests (2004a: 340) this is a complex artefact compounded of multiple agreements reached separately, some agreements dating to 1142-1146 and that the whole was read in the Chapter of both Rievaulx and Byland in 1170.

<table>
<tr><td colspan="4">Atkinson: Second canal. Rye: Second and third canals</td></tr>
<tr><td>74</td><td colspan="3">Hugh Malebisse's gift of 'Oswaldenges'
…pratum illud in territorio de Scaltun quod dicitur Oswaldenge, cum divisis, id est, sicut rivus fluit de fonte qui vocatur Brunesdalechelde et cadit in rivum quae dividit inter Scaltunam et Beilande, et per ipsum rivum qui easdem terras dividit usque ad fluvium Riam; et ex alia parte, a praedicto fonte—id est, Brunesdalechelde, in transversum sub monte in ora silvae, recta linea, usque ad vallem quae dicitur Brochesdale, sicut torrens in ipsa valle fluit et cadit in Riam ; et ita sicut fluit Ria usque ad divisam praedictam inter Scaltun et Beilandam. Praeterea concessi eis communem pasturam animalibus suis quibus colunt terram suam in Grif in silva de Scaltuna a Brochesheved usque ad divisas inter Scaltunam et Sproxtunam. Haec autem concessi eis libera et quieta ab omni terreno servitio et redditu et exactione saecculari. His T. Radulfo, Decano Ebor.; Johanne Thesaurario ; Thoma Canonico….

Translation: Meadow in the territory of Scawton called Oswaldenge, boundaries as follows: as from the [watercourse] called Brunesdalechelde as it flows into the watercourse between Scawton and Byland, and by that course to the Rye and on the other side of the above mentioned source, that is, Brunesdalechelde, across the hill on the edge of the woodland, in a straight line, as far as the valley / ditch called Brochesdale, as the watercourse runs and flows into the Rye, and thus by the Rye as far as the abovementioned boundary between Scawton and Byland. Further, it is permitted that animals be pastured in common in the wood of Scawton [at?] Brochesheved as far as the boundary between Scawton and Sproxton. This is made free of service and secular dues.</td></tr>
<tr><td colspan="2">Atkinson's dating & comments Atkinson notes the difficulty of dating this by the first testator, as no Radulfo is known as Dean of York.</td><td>Other dating & comments

Russell 1914 comments: Oswaldeshenges appears to have been the low-lying ground at the lower end of the valley east and west of the present Clogger's Bridge.</td><td>More recent views
If the Hugh Malebisse is the same grantor as Cart. Riev. 75, mid-12th century is possible. Confirmation by the Archbishop of York of the arrangement over tithes of Oswaldenges suggests this grant was made by 1163. The fact that the agreement was noted in the Conventio Caritatis between Byland and Rievaulx, as read in both chapters in 1170, make that the latest date for this gift.</td></tr>
<tr><td>75</td><td colspan="3">Charter of Hugh Malebisse
'…totam terram quae jacet inter montem qui vocatur Brochesholes et aquam Rie ab Oswaldenges usque ad guteriam et totam proximam insulam subtus guteriam versus Helmesleiam, ut monachi praedicti fossatum faciant per terram illam quam propius montem poterint et flumen Riam per illud ducant ; terraque quae ex parte eorum deinde contigerit illis perpetuo remanebit'.
Rye's translation: Grant of 'all the land which lies between the hill called Brochesholes and the river Rye, from Oswaldenges, as far as the canal and the whole of the adjacent island at the foot of the canal towards Helmsley, that the aforesaid monks may make a dyke through that land as near the hill as they can, and lead the river Rye through it, and the land which adjoins it on their side shall belong to them in perpetuity…'
Russell's translation: 'all the land that lies between the hill which is called Brockesholes and the water of Rye from Oswaldeshenges as far as the guteria, and all the nearest island below the guteria towards Helmsley, so that the monks may make a dyke (fossatum) through that land as near the hill as they can and lead the river Rye through it, and the land which may happen to be on their side afterwards shall remain to them for ever.'</td></tr>
</table>

	Atkinson's dating & comments 'from the identity of the grantor no less than from the names of the witnesses, would …date itself approximately about the middle of the twelfth century' (Atkinson 1889: lxviii)	**Rye's dating & comments** Rye dated this document to 1160x1170 by its location in the *Istae sunt possessiones* charter. **Russell's comments**: These grants enabled the monks to divert a further section of the Rye under Ashberry Hill to a point south of the land still called the Island, where it was again brought across to the original course opposite. This line is marked by a bank which formed an extension of the original boundary of the abbey precinct.	**More recent views** **n/d**
300	**Charter of Richard Malebisse**. Confirmation, in various terms, of rights given by Hugh Malebisse: '*Ricardus Malebisse . . . terram illam in territorio de Scaltona quae vocatur Oswaldesenges... inter Scaltonam et Beiland. Praeterea dedi eis communem pasturam bosci de Scaltona a Brockesheved usque ad divisas de Scaltona et Sproxtona ad sex carucatas boum...*. Land in Scawton called Oswaldenges, between Scawton and Byland. The right of common pasture over 6 carucates in Scawton wood, with boundaries between 'Brockesheved' and the boundary between Scawton and Sproxton. …*Dedi eis praeterea in eodem territorio* Also given in the same territory … *…totam terram ad pedem montis qui vocatur Brockesholes, et de Aldenetoftes ad Oswaldenges, usque ad illum locum ubi Huholm finitur in parte australi subtus Aldenetoftes;* ***ut faciant fossatum et ducant Riam quam propius montem voluerint****, et habeant totam terram quae devenit versus terram eorum de Grif ad orientalem partem aquae ipsius. Pontem etiam guttoriae suae dedi eis libere habendum et reparandum sicut voluerint.* **Russell's translation:** 'all the land at the foot of the hill called Brockesholes and from to Oswaldenges, as far as that place where Huholm ends on the south under Aldenetoftes, **so that they may make a dyke (*fossatum*) and lead the Rye as near the hill as they wish**, and have all the land which happens to be towards their land of Griff on the east side of the same water …and the bridge of their *guteria* to have and repair as they willed. A new gift: *Praeterea dedi eis totum holmum ad Hemgerdebriggam in territorio de Scaltona inter Aldenetoftes et aquam de Ria,* ***sicut fossatum eorum circuit****, Tenendum in perpetuum et claudendum et utendum sicut voluerint,* ***et ad ducendum per illud aquam de Ria*** *quanto propius montem voluerint…*' Further given is all the holm of Hemgerdebriggam in Scawton between Aldentoft and the River Rye, as their *fossatum* encloses, to hold freely, enclose and use as they wish, and to lead the water of the Rye **as close to the hill** as they wish'	

Atkinson's dating & comments Atkinson dates this to 1193x1203 using grantor and testators. '[244, 300, 304] speak of an artificial channel as made, or to be made, and made, moreover, **at as high a level as can be (*'quam propius montem poterint'*),** and of conducting the water from the river Rye along it, or by means of it.'		**Rye's dating & comments** Rye follows Atkinson in dating this to 1193x1203	**More recent views** n/d
304	**Charter of Richard Malebisse**. A restatement of the boundaries of the holm of *Hemberdebrig*, in slightly different terms: *Ricardus Malebissa . . . Sciatis me dedisse Ecclesiai S. Mariae de Rievalle . . . Malebise, patrui mei, et Hugonis filii ejus, in elemosinam, totum holmum de Hengendebriggam in territorio de Scaltona, inter Aldwinetoftes et aquam de Ria,* ***sicut rivulus fontis circuit et cadit in Riam****—Tenendum in perpetuum et claudendum et utendum sicut volueriut, et ad ducendum per illud aquam de Ria quanto propius montem voluerint, liberum et quietum . . . Et ego [warranty]. Hiis T. Andrea de Magnebi ; Hugone de Bestona ; Alano Malekake ; Gaufrido de Eomundebi ; Ricardo filio Roberti ; Ricardo de Albemarl[ia] ; Rogero de Valentin ; Rogero Viel ; Gaufrido filio Gerardi ; Henrico de Dala ; Simone de Sproxtun ; Waltero de Londonia ; Gaufrido de Dromundebi*		
Atkinson's dating & comments Atkinson does not date this document		**Rye's dating & comments** **Russell's comments**'	**More recent views** 304 identical to 300, but with a crucial difference in wording in relation to the boundary of the holm of *Hengendebriggam* (5.3.4 above)

Table 5:3 Documents relied on by Atkinson and Rye for 'diversions' theory

Map key in Senior 1989 & 1999	Abbrev.	Stone	Provenance	Used for	Transport
1, 2 & 3	DS	Deltaic sandstone. Saltwick / Ravenscar formation, Middle Jurassic.	Various locations in Bilsdale. Wethercote quarries 9km n of claustral complex; Firth Bank; Laskill Grange 6.3 km n of abbey	All: DA (incl late church & chapter house), RE Construction of Laskill woolhouse	Debris suggests stone dressed at quarries, gentle gradient trackways identifiable to abbey (Senior 1999:216). Short distance between Laskill quarry and woolhouse
4	KS	Kellaways sandstone (Osgodby, Middle Jurassic).	Penny Piece 0.8 km from complex.	DA, R (used extensively), RE, GS.	By sledge, cart or water?
5	LCG	Lower Calcareous Grit (Lower Oxfordian, Upper Jurassic).	Unnamed quarry 120m from church	FDG, R, GS (crude walling and rubble for most phases)	By hand / cart / sledge?
6	HO	Hambleton Oolite (Coralline, Upper Jurassic).	Quarry Bank / Griff Bank	Mainly FDG, DA,RE some rubble fill R	Debris suggests rough dressed at quarry, material transported on sledge or cart via holloway (Senior 1999: 217).
7	MCG	Middle Calcareous Grit (Coralline, Upper Jurassic)	Hollins Wood, c.1.1 km from abbey	DA Fine interior ashlar & sculpture	Visible trackways suggest stone manually transported along flat valley, not by water (Senior 1989:233-244; Senior 1999: 217).
8	MO	Malton Oolite (Coralline, Upper Jurassic)	Griff Bank, Quarry Bank & Rievaulx Bank quarry	GS, V	By hand / cart / sledge?

Abbreviations: DA: dressed ashlar; FDG face-dressed with galletting; GS galletting stone; RE reused ashlar; R: rubble; V: vaulting webs, barrel vaults & rough arches. Data from Weatherill 1954; Senior 1989; Senior 1999 unless otherwise shown.

Table 5:4 provenance and transport of ornamental stone used at Rievaulx – after Weatherill 1954; Senior 1988, 1999

	Contribution to knowledge including use of both documentary and physical evidence
Atkinson	Noteworthy industry in compiling charters for publication, but editorial choices and errors in place attribution have affected subsequent interpretations. Key probable errors include location of Sperragate (which affects definition of southern precinct boundary) and acceptance of Rye's argument interpreting channels south of the precinct as a 'canal' associated with supposed precinct extension. His identification of locations such as 'the island' (despite his recorded earlier reservations) have been perpetuated since. Logical incompatibility between elements of (unstated) starting premise of pre-diversion River Rye and relative levels between key locations make all elements in Atkinson's diversions and canals theory physically implausible. Over & mistranslated key Latin terms. His theory depends on wording in *Cart. Riev.* 300 and failed to identify key differences between phrase in that document and *Cart. Riev.* 304.
Rye	Noteworthy attempt to interpret landscape and texts together, and to consider monastic canals as a possibility. But created flaws in attempts to wrestle evidence into a theory. Physical impossibilities include levels for dams to hold up 100 and 9 feet of water respectively
Russell	Recorded buildings now lost and reconciled starting premise of river inconsistency. This reconciliation however revealed yet more problems with the underpinning theory, and her acceptance of the broad underpinning assumptions made by Atkinson and Rye, including the Sperragate-Rye boundary, made her suggestions problematic
Weatherill	First to consider relative levels at 'dam' sites. Offered alternative locations for Malebisse grants that did not tie these to precinct 'canal' system. His 'first diversion' suggestion is however physically implausible, requiring that water flow uphill at Area I.
Coppack	Published Dissolution-era surveys but made no new contribution to addressing problems with Atkinson-Rye-Russell issues.
Hannon and Pearson	Synthesis of landscape evidence, significant revised interpretation of 'second canal' as post-medieval millpond. Did not however consider charter evidence.
Horsfield	Identified inconsistencies in Atkinson, Rye and other's underlying assumptions and translations. Analysed charter evidence and offered a revised interpretation of documentary evidence. Did not attempt to identify alternative 'diversions' locations, focussed instead on synthesis and where 'canals' / diversion question may be physically investigated.

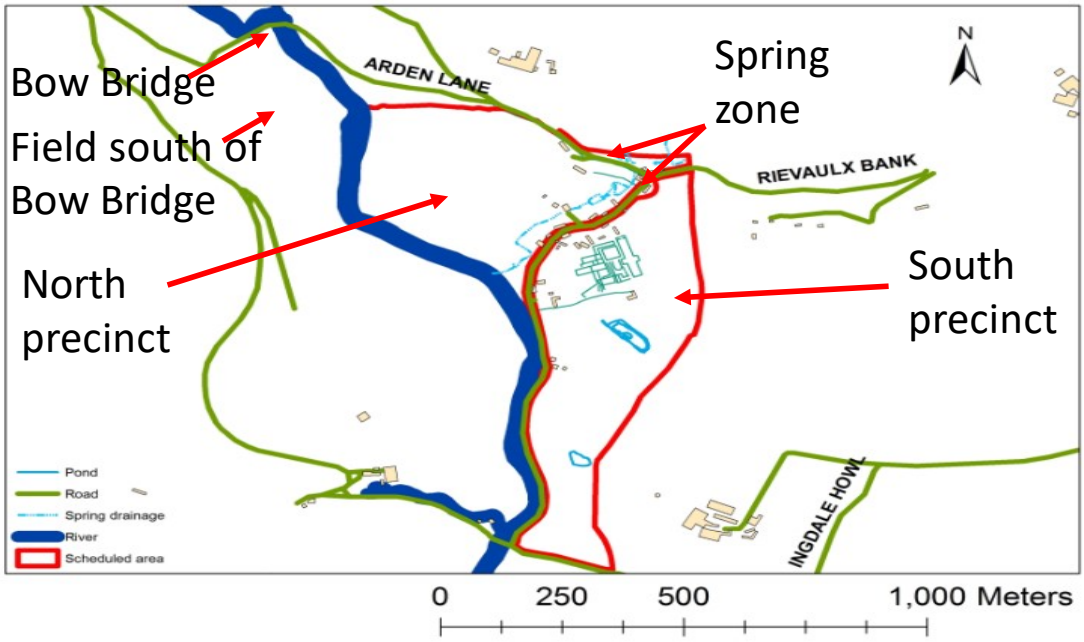
Table 5:5 Contributions to knowledge on Rievaulx 'diversions'

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Chapter 6 New light on an old theory: evidence from remote sensing and earth science for Rievaulx's monastic core (R4)

6.1 Introduction

The previous chapter argued that Rievaulx's management of the River Rye near the monastic core requires critical attention, as being crucial to understand whether Rievaulx 'transformed' the precinct. This chapter outlines work by the present author to address this question, synthesising recent parallel work elsewhere. This fresh work broadly follows the flow of water, namely beginning north of the north precinct at Bow Bridge; then considering in turn the north precinct; the spring zone; and the south precinct. As this is a complicated site, a schematic map is provided (Figure 6:1). Elements of this schematic are re-presented throughout the chapter, to aid reader orientation.



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Figure 6:1 Simplified orientation plan of precinct

Figure 6:2 Precinct overview -lidar elevation data

6.2 Geology and hydrology

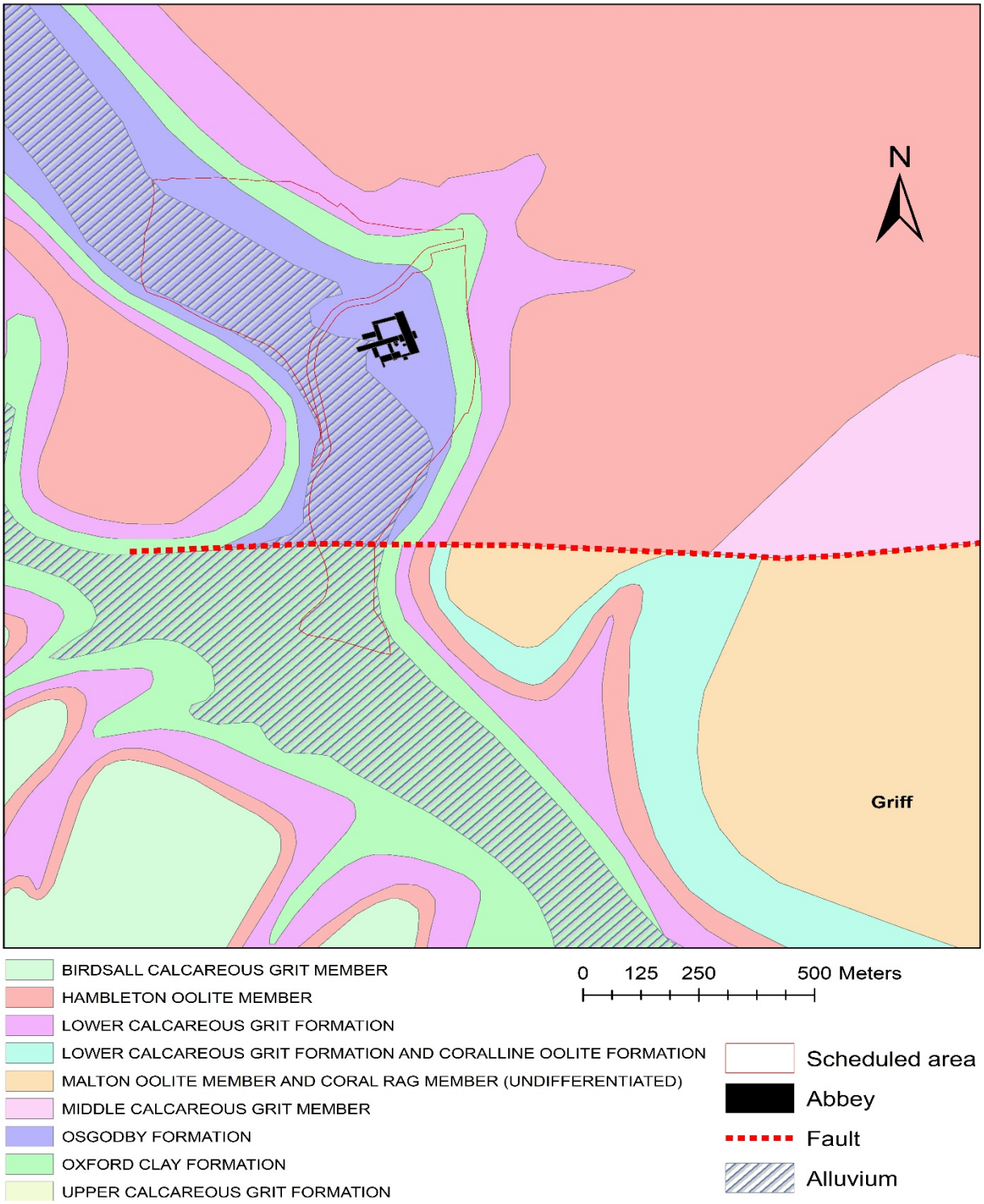
The modern course of this section of the river Rye flows along mid-Jurassic sandstone, flanked by both sandstone and Corallian limestone, with narrow (c40m) bands of Late Jurassic Oxford clay running parallel to the edges of the valley floor (BGS data 2020, Figure 6:3). It is unclear at what date the river shrank to the modern c10-14m width from its maximum extent. The breadth of the river deposits suggests that the river at one stage encompassed an area of the valley floor somewhat broader than in the modern day. A band of alluvium approximately 180-200m wide covers much of the valley floor, determined by a hand auger survey to be up to 5m of thick red-brown silty clay alluvial deposits (JBA Consulting 2015:7 BGS data 2020). Such deposits would typically have originated higher in the catchment and have been laid down as the decrease in river slope caused reduction in energy (Collinson 1993:37-82). The alluvial deposits here support stoneless fine loamy and clayey soils of the Enborne Association.[1] These soils are characteristic of seasonal floodplains (Pearson 2019:3). Much of this valley is under pasture in the modern day.

The Corallian limestone is prone to fissures and hence surface water loss. A catchment model using the web-based my.scimap tool reveals that Rievaulx lies at the drain-point for surface water from a wide area of uplands (Figure 6:4).[2] The upper catchment over which this run-off occurs towards Rievaulx includes areas of relatively hard and impermeable Jurassic mudstone (BGS data, Figure 6:3), cut through by many steep-sided valleys. The impermeable geology is overlaid in places by slow-draining upland soils which are clayey / loamy and seasonally waterlogged (NSRI 2018[3]). The upland catchment also has substantial areas of heathland cover which offers relatively poor surface absorption. Modern rainfall over the North York Moors can be unpredictable (Lee and Pethick 2004:20).

[1] Soil Survey data describes this deposit as "undifferentiated loamy or clayey alluvial soils" (Bendelow and Carroll 1979). NSRI data describes it as "River alluvium, 811s Enborne: Deep stoneless fine loamy and clayey soils variably affected by groundwater."

[2] http://www.scimap.org.uk/ accessed 20181020

[3] National Soil Resources Institute (2018) Soils Site Report for location 456674E, 485809N, 5km x 5km, National Soil Resources Institute, Cranfield University. Accessed 20180528 via: https://www.landis.org.uk/sitereporter



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Figure 6:3 Precinct geology - bedrock, superficial and faulting

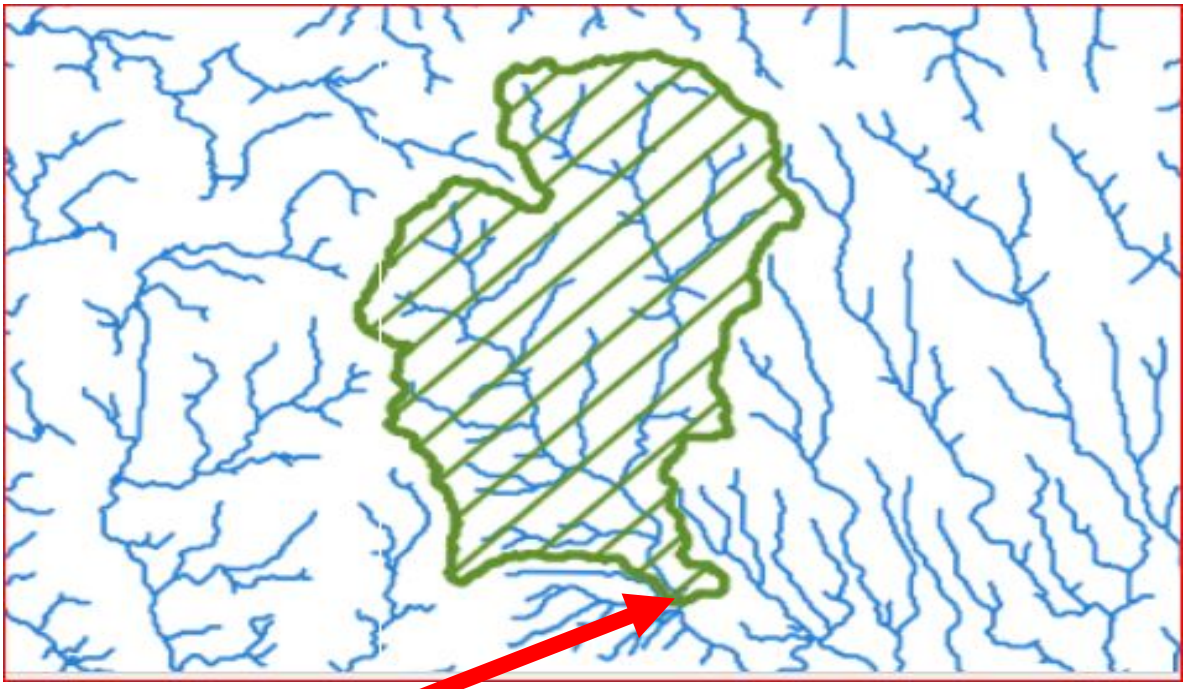
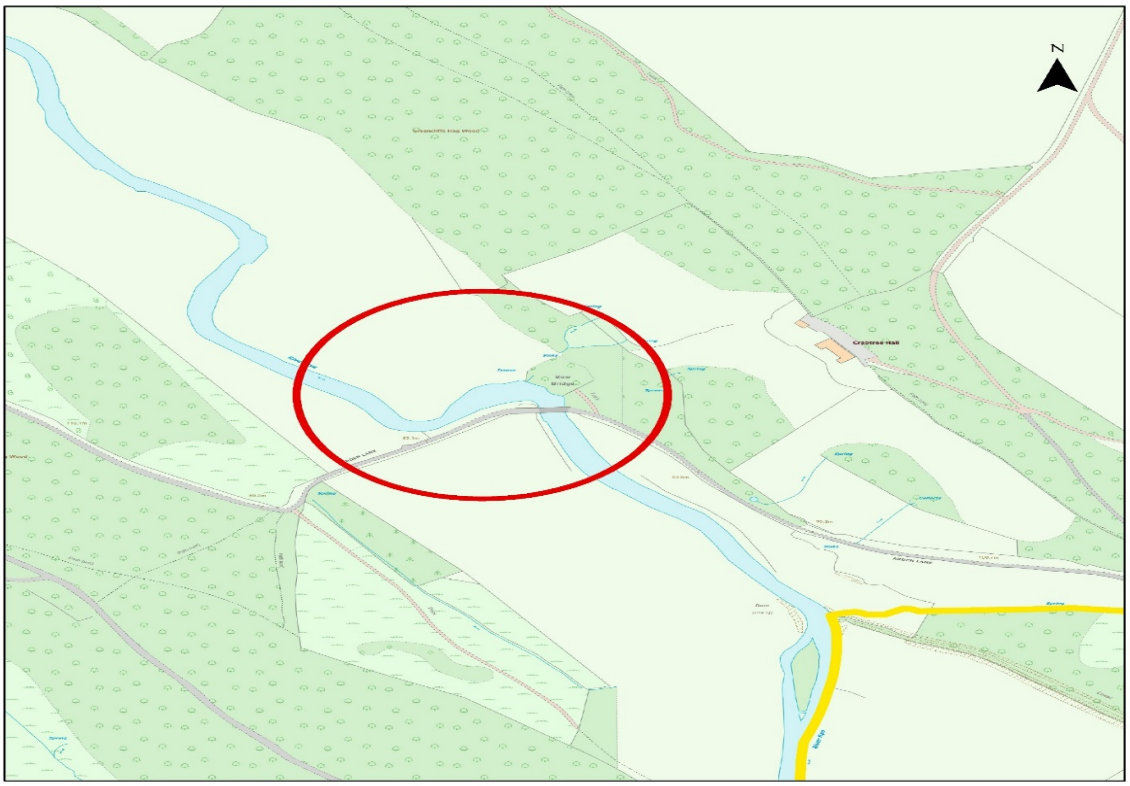


Figure 6:4 Catchment model of drainage to R4 created using my.scimap

These factors in combination create a hydrological response to rainfall events which can be very 'flashy' and quick, creating '…large amounts of runoff very quickly' (Hicks and Moore 2010: Section 2.2). Rye Vale is therefore prone to flash floods in which rainfall causes large volumes of surface water in unpredictable patterns. Such a flash flood occurred in Rye Vale in 2005 (Hopkins 2014), The abbey's core on the valley floor lies within flood Risk Zone 3, defined by the Environment Agency as having a 1 in 100 (or greater) annual probability of river flooding (Pearson 2019:3). The upland geology, land cover and rainfall unpredictability make mitigation of flood risk difficult, and complicate and obscure the physical record. The challenge of flash floods was one likely also experienced by the medieval monastery.

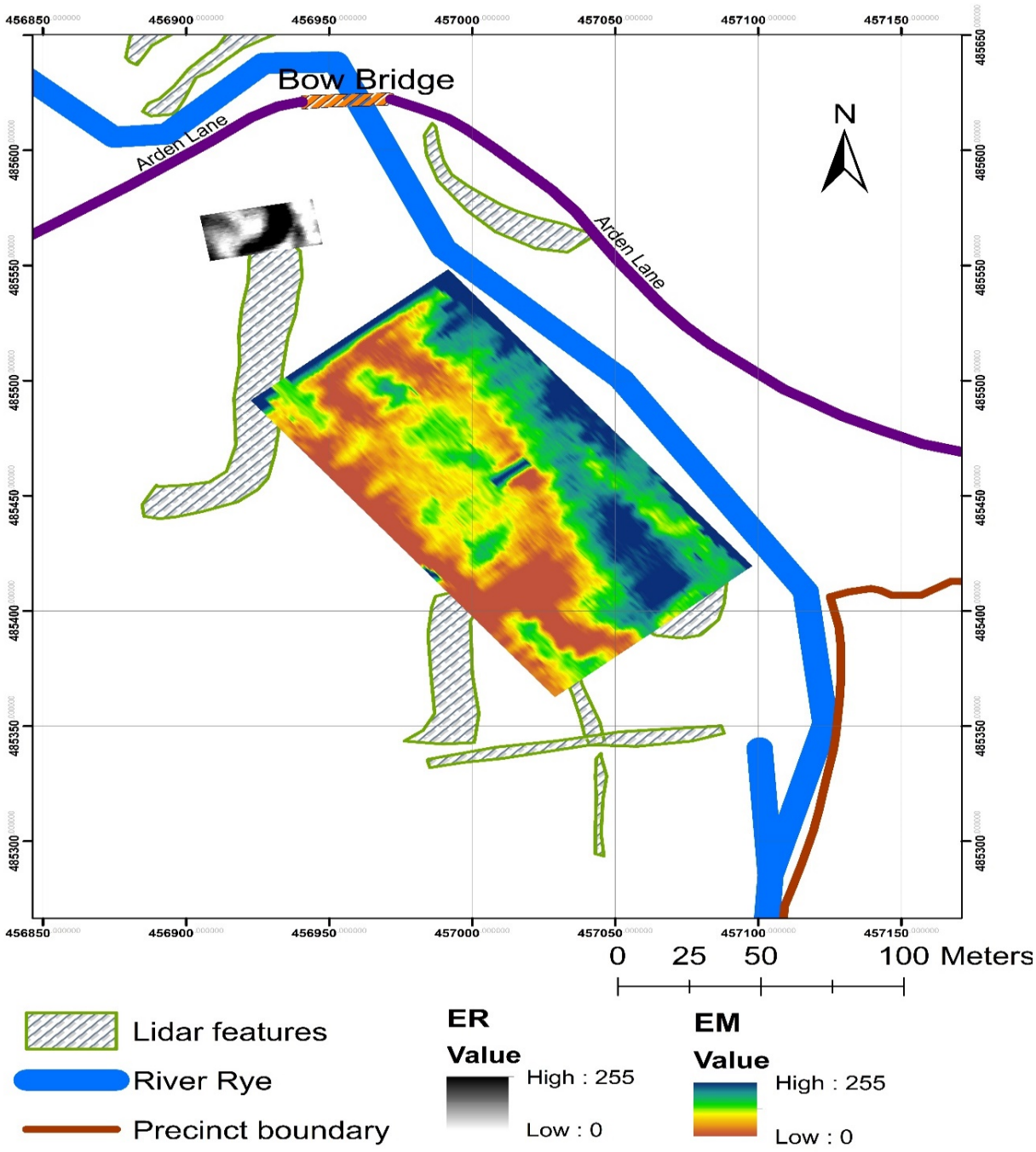
6.3 Bow Bridge and field to south

An earlier Masters study used lidar elevation and reflectance data, modern and historic mapping, geological mapping, and aerial imagery, to analyse the field between Bow Bridge and the north precinct (Horsfield 2014). The stone Bow Bridge (at SE5695 8562) replaced the wooden one destroyed by flooding in 1754 (McDonnell and Hayes 1963:76). The Masters study identified several features in both the LIDAR elevation and intensity data suggestive of palaeochannels to the south of Bow Bridge. Fresh work for doctoral study included geophysical survey in March 2015 over the field south of Bow Bridge by Bradford University with which the author assisted in data collection. Electromagnetic and earth resistance data were collected which confirmed that the features identified in desk-based analysis were present in geophysical data also (Figure 6:6).



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Figure 6:5 Bow in River Rye – Ordnance Survey

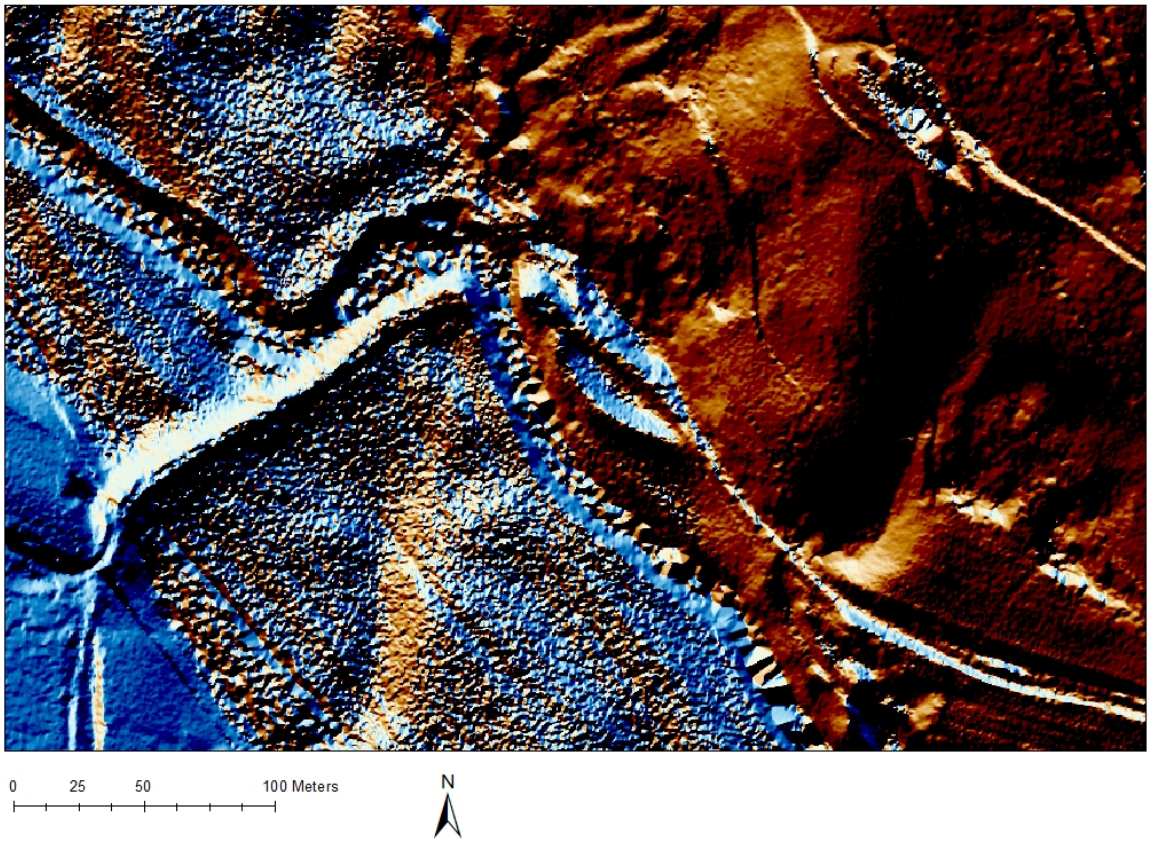


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Figure 6:6 Bow Bridge 2015 field geophysical survey results

The features in Bow Bridge suggest a fluvial history somewhat more complex than suspected by Rye and Atkinson. The bend in the river under Bow Bridge is wide (Figure 6:7). This may be caused or exaggerated by splashback such as might result from an obstruction here.

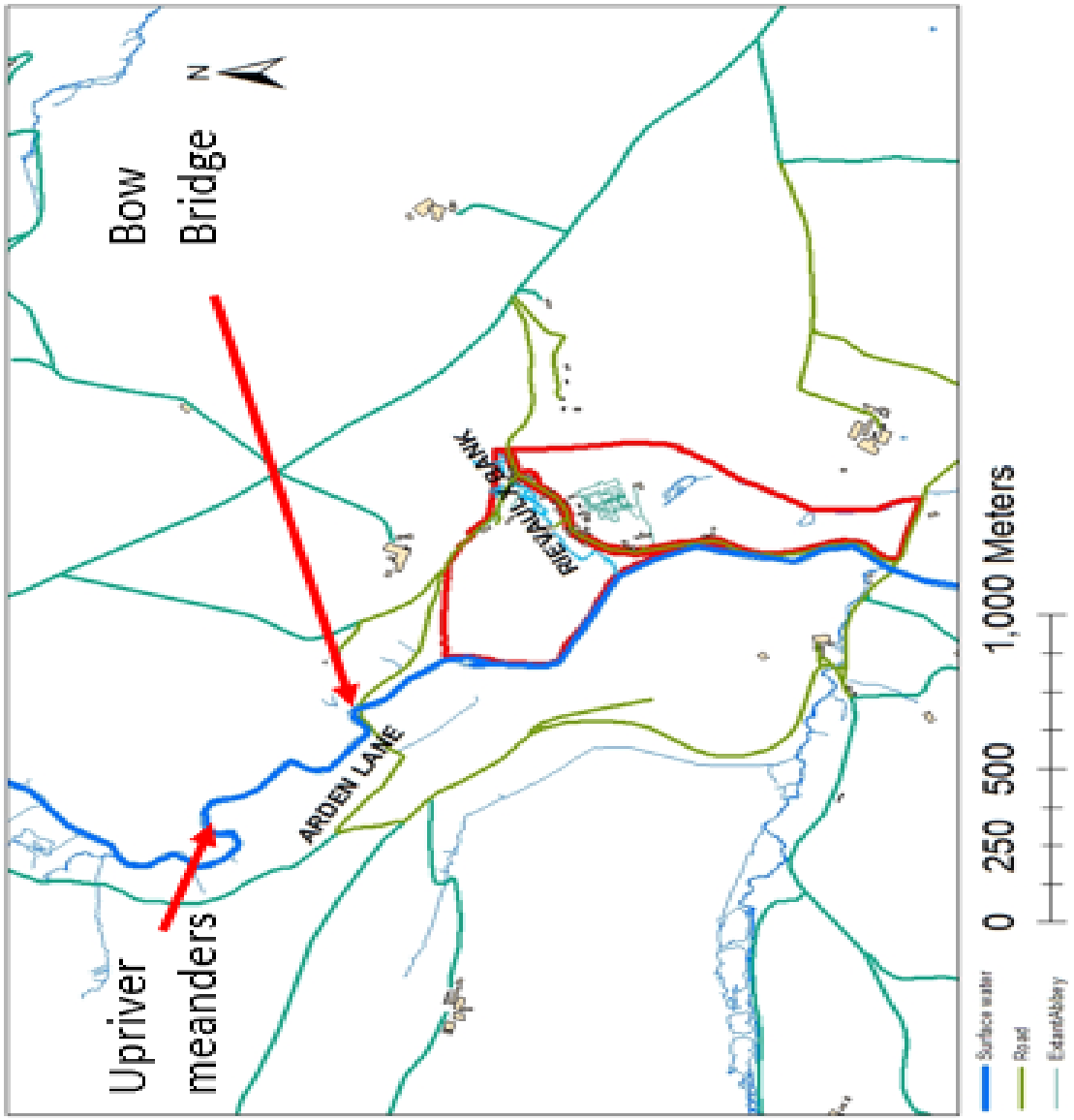


50 cm lidar elevation data from Environment Agency, used under Open Government licence v3

Figure 6:7 Bow Bridge and bow in River Rye

At Bow Bridge the course of the river changes markedly from its former meandering course, to flow curiously straight along the eastern riverbank to the precinct tip (Figure 6:8). An obstruction at Bow Bridge could have caused the river to flow along the eastern side of the valley floor, changing the connectivity to the palaeochannels in the middle of the field, possibly orphaning them of flow. *If* such a human-made obstruction at Bow Bridge had been constructed, it might have enabled the regularisation of the water flow to the tip of the north precinct. In the medieval period as today, flash floods (above) present a threat to assets such as agriculture and infrastructure. An arrangement which created a barrier behind which peak flow

could be impounded and regularised could therefore have protected the abbey's assets downstream. Such a barrier could have incorporated a base sluice mechanism, as suggested by Jecock and colleagues (2011:82) for feature DM2 at Cistercian Byland (Yorks) which was re-interpreted as an 'occasional flood barrier.' The road which crosses Bow Bridge is known in the 1st edition OS maps as Arden Lane. As Arden is mentioned in DB (table 4.11), this route may be an ancient one.



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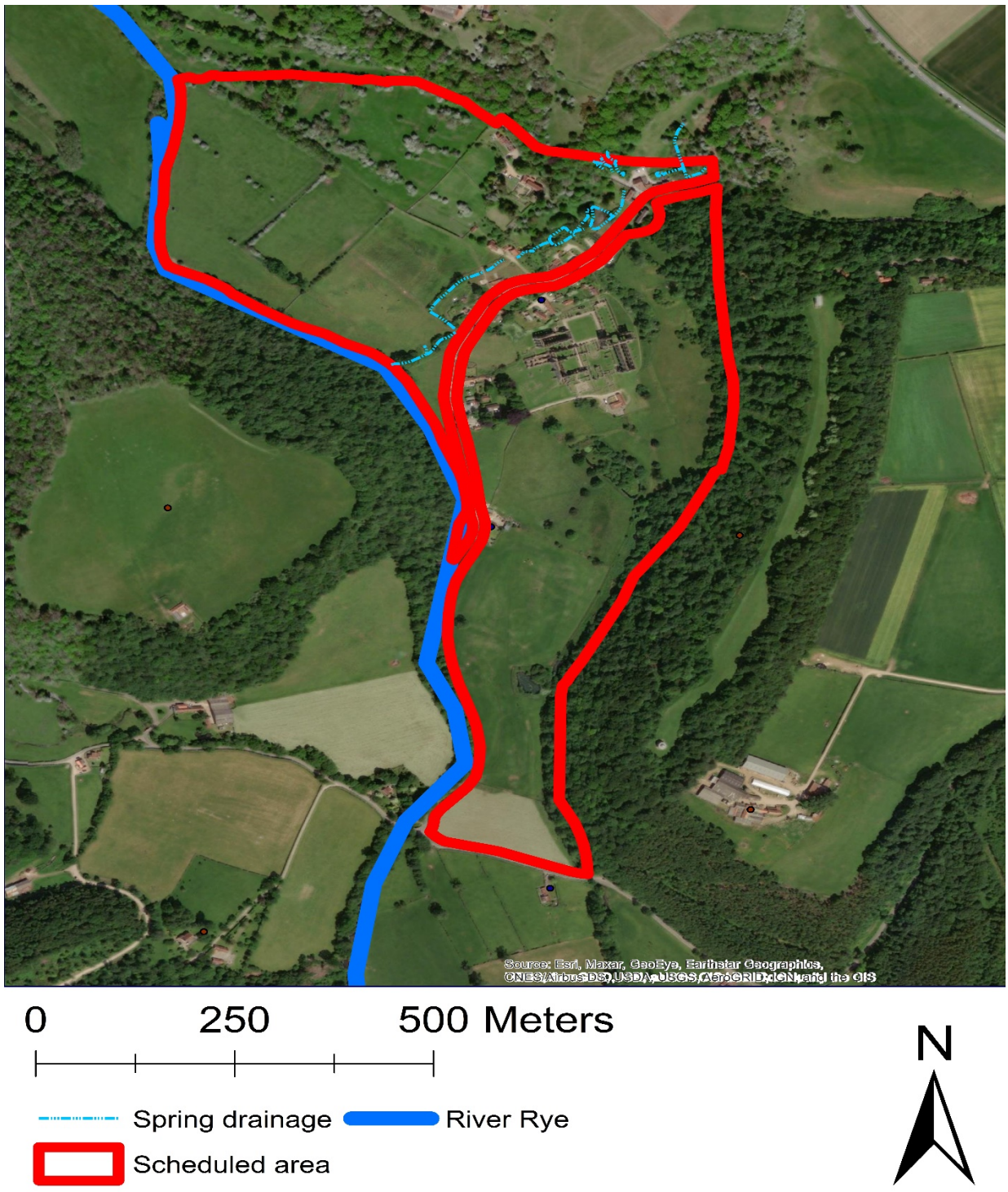
Figure 6:8 Course of Rye up and down river from Bow Bridge

6.4 Monastic precinct

6.4.1 Precinct overview and definitions

The River Rye defines the northern, western, and part of the southern extents of land interpreted as Rievaulx's monastic precinct.[4] Extant walling defines many sections of the precinct (Pearson 2019:23). A modern road leading downhill from Rievaulx Bank bisects the precinct, running through a zone where in the modern-day multiple springs emerge from the fissured limestone bedrock. The south precinct lies beyond this and includes the claustral complex, ending at a curved low bank with occasional stones (Pearson 2019:27). The monastic precinct therefore includes water and land upstream (north) and downstream (south) of the core claustral complex, and a spring zone, and will be considered in these terms.

[4] Listing entry for Rievaulx Abbey's precinct and features – 1012065. At: https://historicengland.org.uk/listing/the-list/list-entry/1012065 (Accessed: 28 May 2020).



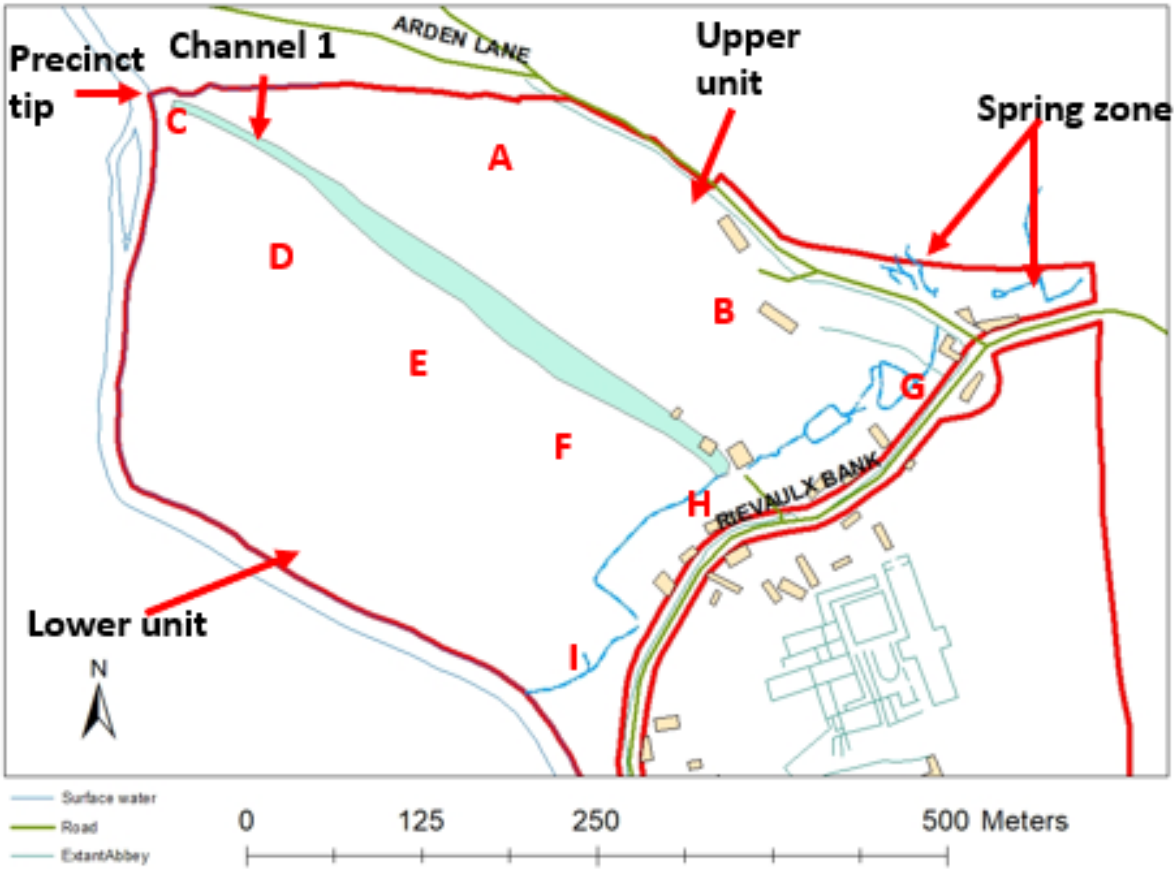
Scheduled monument extent derived from Historic England data © Historic England 2018. The Historic England GIS Data contained in this material was obtained on 29.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk. *Watercourse extent derived from* Ordnance Survey data © Crown copyright and database right 2020.

Figure 6:9 Satellite overview of precinct

6.5 North precinct

6.5.1 North precinct overview

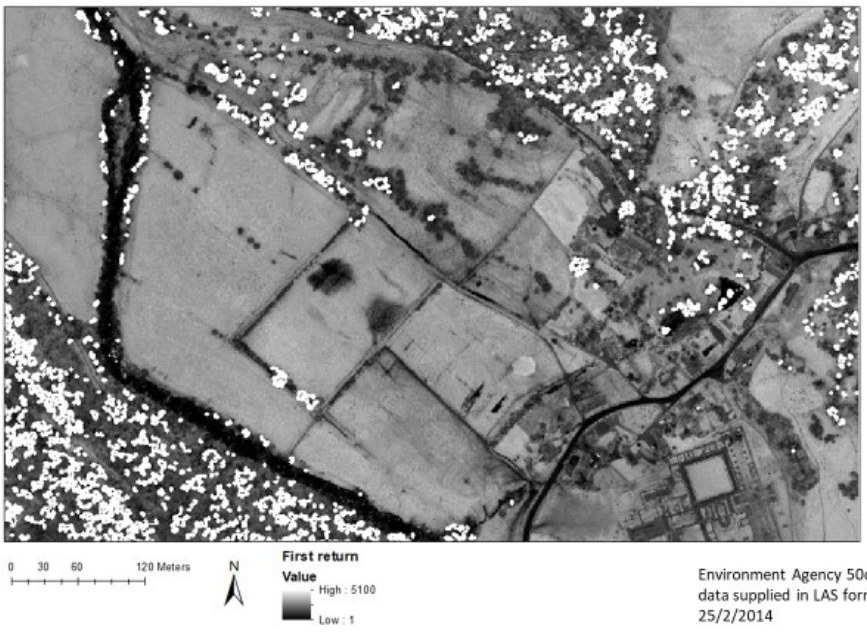
The north precinct can be described in terms of four broad topographic units: the upper unit; the precinct tip and a feature which for most of the precinct length separates these units which has been known since Atkinson-Rye as the 'first canal' but which is here termed Channel 1; the lower unit; and the spring zone (Figure 6:10). The last-named will be considered separately (6.6.3 Spring zone), as it may have been functionally associated with the claustral core. The lidar intensity data provides an overview of the physical features of the north precinct (Figure 6:11).



Red letters denote areas which will be addressed in 6.5.2-6.5.4

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Figure 6:10 Orientation plan of north precinct



Overview of north precinct – lidar intensity data first return

Re-presentation of data processed for Horsfield 2014

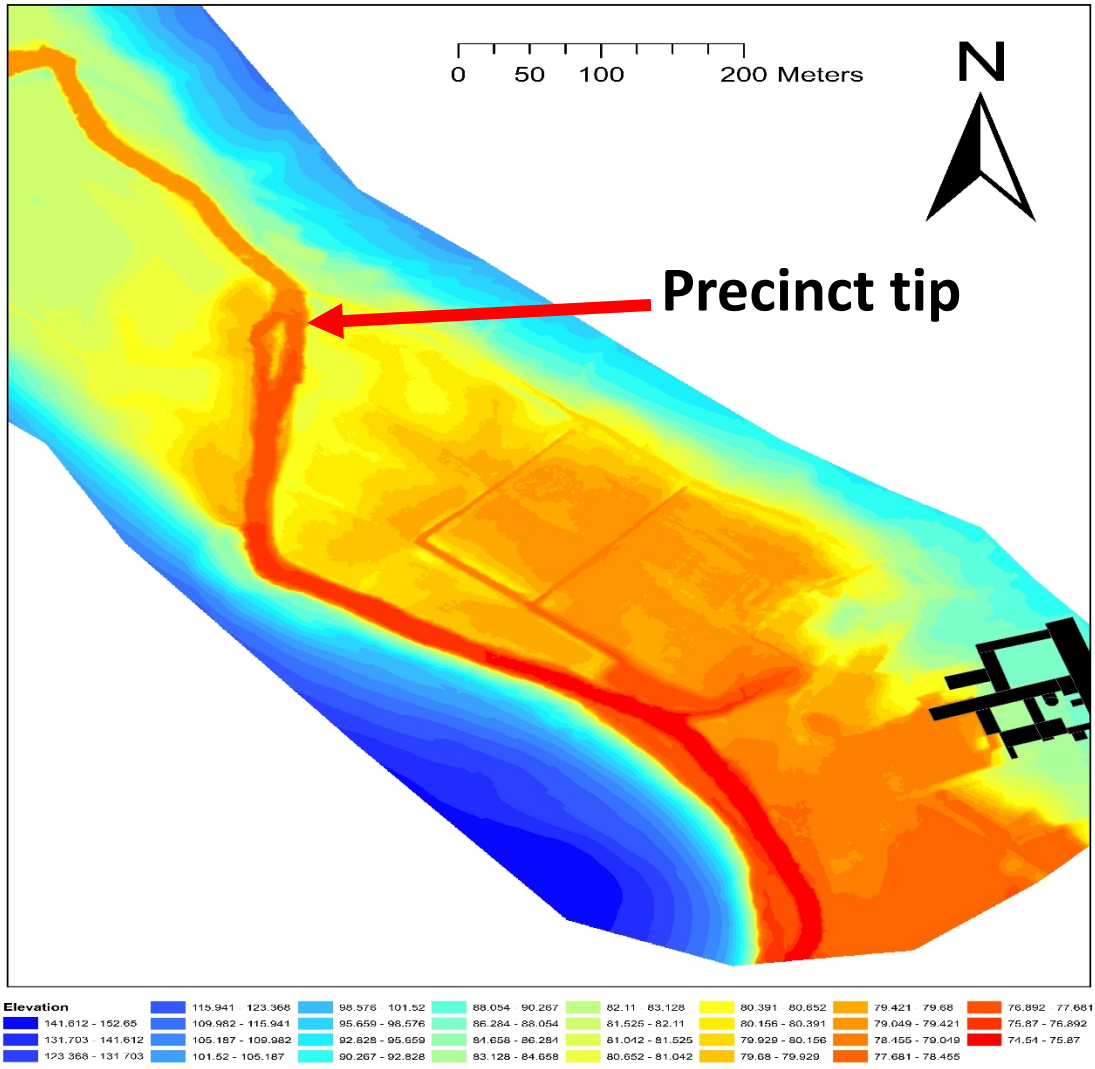
Figure 6:11 Lidar intensity data overview of north precinct



GE overview – image from 7/2/2009

Figure 6:12 Orientation north precinct - Google Earth

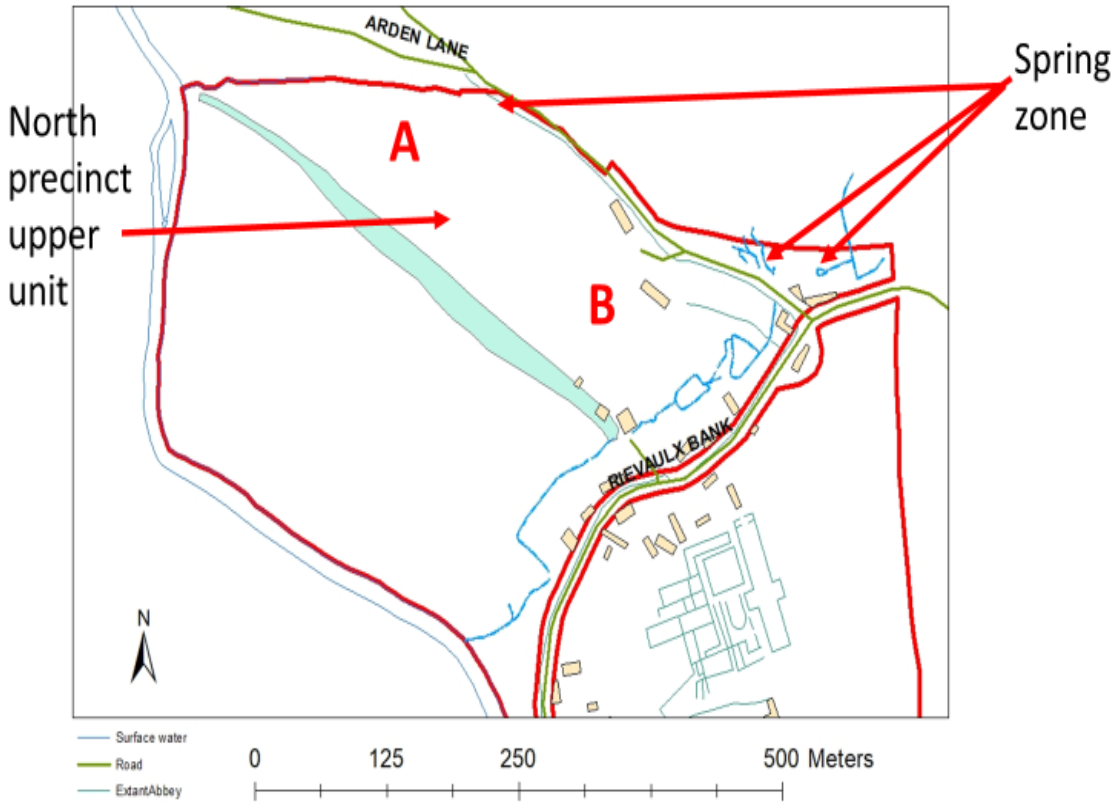
The relative ground levels across the precinct are relevant to water flows. An illustration of the levels in the north precinct is therefore given below, generated as a Triangulated Irregular Network (TIN) from the lidar elevation data (Figure 6:13). The areas shown red have the lowest elevation, blue the highest. The TIN visualisation enables comprehension of relative levels. The medieval ground levels may now be covered by successive layers of alluvium laid down by centuries of run-off, so the 12th-century ground levels are unknown.



Visualisation demonstrates relative elevations as being relevant to water flow. Blue denotes lowest elevation, red the highest Re-presentation of data processed for Horsfield 2014. *Data:* Environment Agency 50 cm LIDAR digital surface data supplied in LAS format under licence 25/2/2014 via Geomatics Group. The Historic England GIS Data contained in this material © Historic England 2021 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

Figure 6:13 Triangulated Irregular Network visualisation of relative levels in north precinct using lidar elevation data.

6.5.2 North precinct – upper unit



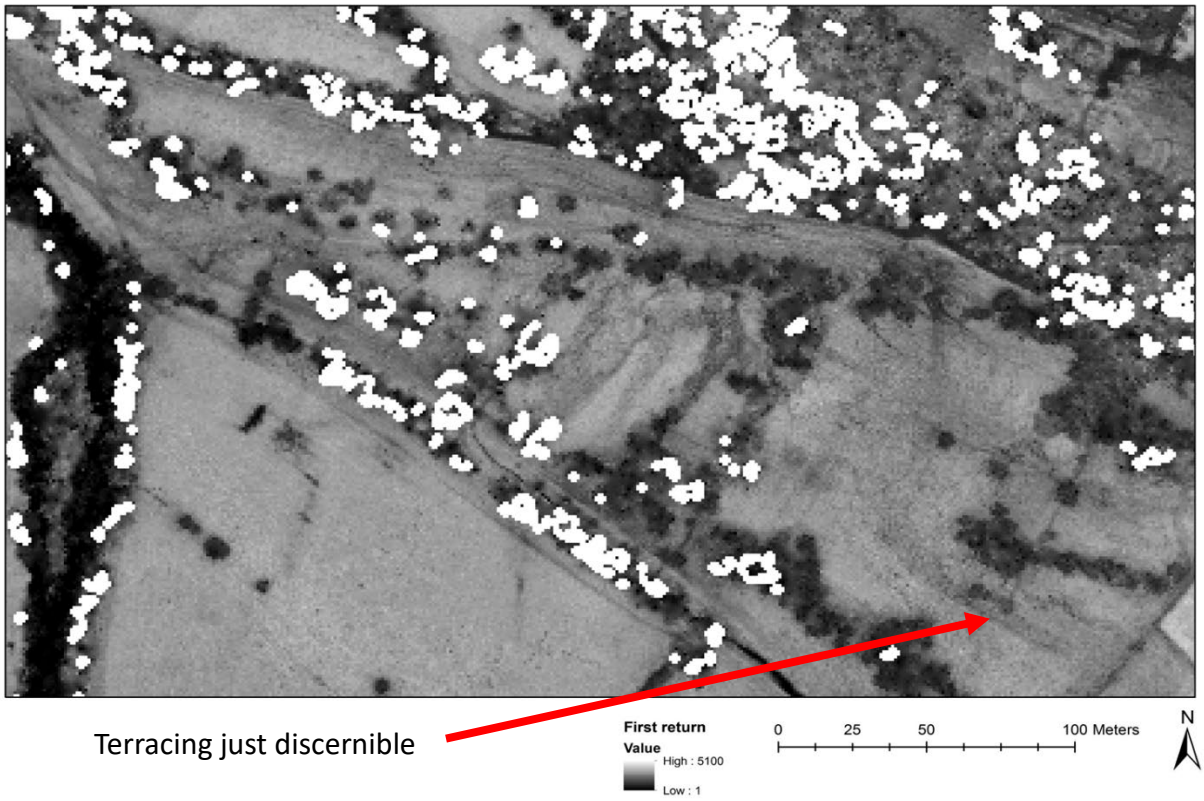
The upper unit of the north precinct has been divided into two areas for descriptive purposes, namely Area A and Area B.

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Figure 6:14 Schematic orientation plan of north precinct upper unit

The surface of this upper unit slopes downhill, broadly from northeast to southwest. Although partially obscured by 'noise' from the vegetation cover, several gullies in **Area A** are just observable in the lidar intensity data (Figure 6:15). These gullies were recorded from HE's mapping of the SUA data also (Figure 6:16; Pearson 2019:39-41). Pearson (2019: 51-53) interpreted these as terraced platforms and enclosures, representing 'interlinked working areas, paddocks, buildings and yards.' Some of these features were discernible in the lidar intensity data, such as the southern extent of one putative platform (Figure 6:15). Pearson also noted

that some features could relate to post-monastic usage as the precinct continued in use post-Dissolution, including for a corn mill in the 18th century.



Re-presentation of data from Horsfield2014. North precinct upper unit west: Lidar intensity data (first return) Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014, used under Open Government licence

Figure 6:15 North precinct Area A and B in lidar intensity data

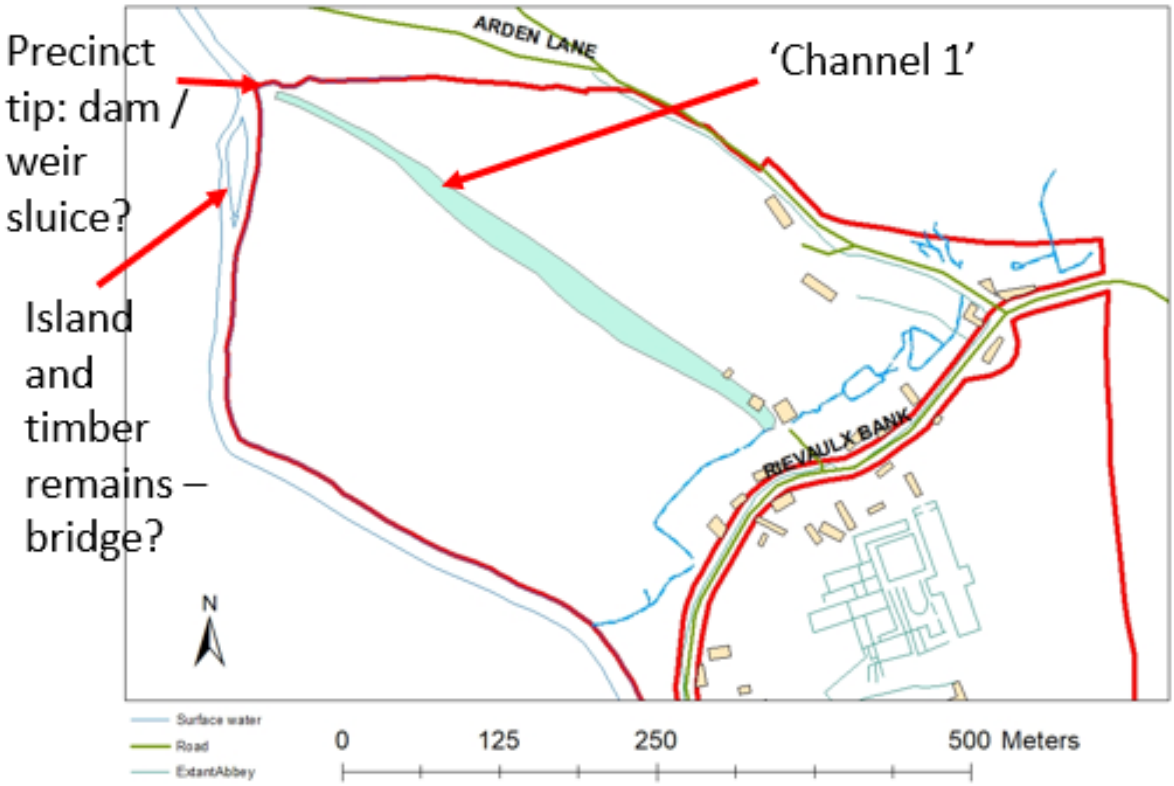
Based on documentary references from around the time of Dissolution, Coppack interpreted this area as containing the multiple units described in the Dissolution surveys including mills, swinehouse and other production units (Coppack 1986a:100-133; 1999a). A schematic plan of Coppack's interpretation of the Dissolution documents and Atkins' 1996 field survey are reported in the Rievaulx monograph (Fergusson and Harrison 1999: 175-186; 226-237). Coppack's interpretation however relates to the area at and shortly after Dissolution. The SUA data, lidar intensity and documentary data therefore offer no insight as to the date at which these features were formed or for the early development of the precinct.



Historic England (Hannon and Pearson) transcription of SUA data: north precinct upper unit.
Historic England data © Historic England 2021. The Historic England GIS Data contained in this material was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk

Figure 6:16 Historic England transcriptions of north precinct Area A and B in SUA data

6.5.3 Features at tip of north precinct and 'channel 1'



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Figure 6:17 Schematic plan of north precinct

North precinct bridge?

At the tip of the precinct, the river abruptly changes course diagonally, to run along the western side of the valley floor. The river divides round a small island in the middle of the Rye near the tip of the north precinct. Tony Pacitto observed (reported in Keevill 2000 Vol 2:18) two socketed timbers on the riverbed here which appeared aligned parallel to the direction of flow and suggested that they could have been remains of a timber bridge.

Dam / weir / sluice?

At low water, a stone and timber construction is visible at the tip of the precinct. Tony Pacitto observed (reported in Caroe and Partners 2000 Vol 2:18) this feature as

> ‘masonry facing with what appears to be a timber core …a large timber running east-west [with evidence for] bases of several uprights jointed into it …[nearby, on the abbey side of the river is] … the flank of a substantial masonry wall ’

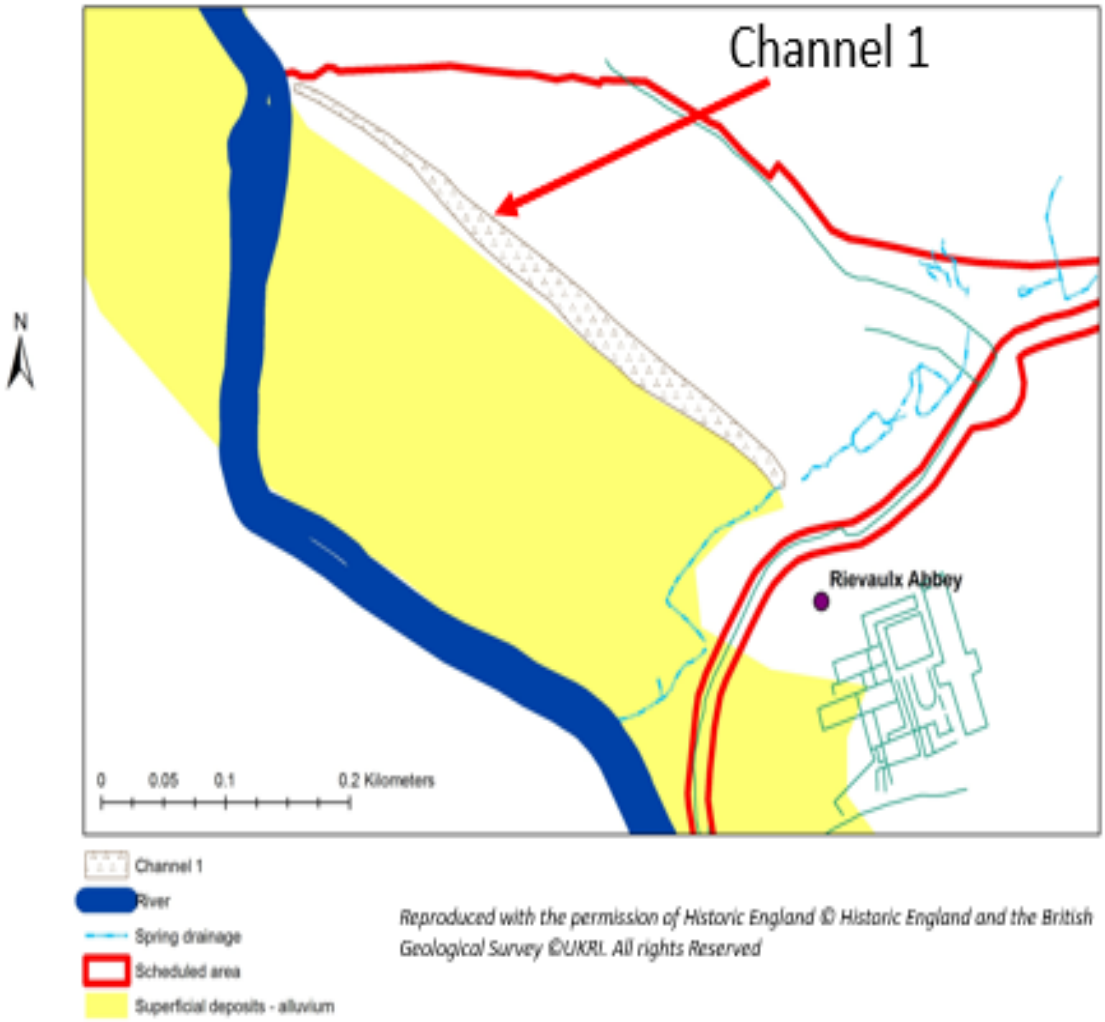
This feature has been interpreted as a water management feature of some kind since Rye’s suggestion in 1900 of a dam here. Hannon (2015) and Pearson (2019) however observed that the land level on the south bank of the river is lower than that on the north, so there would be no means to hold up a head of water higher than the level of the south bank. This is persuasive argument against anything more than a very modest dam at this location. Alternative suggestions include a simple feature to divert the water towards the abbey (Keevill 2000 Vol 2:18; Hannon 2015; Pearson 2019). Another possibility is a weir. Cistercian construction of such features is known at Alcobaca (Portugal), where a stone weir and sluice regulated flow (Maduro et al 2017). Alcobaca’s water management however extended until the 17th century (and see discussion 6.6.3 below), so is of uncertain equivalence. Further physical investigation and characterisation of this feature at Rievaulx is required.

Channel 1

The location of the stone and timber construction (above) suggests a functional relationship with a linear feature which bisects the north precinct. This linear feature is here termed Channel 1, but it is this feature which has, since Atkinson and Rye, been termed the ‘first canal.’ The feature is observable in field inspection, the SUA (Figure 6:19), and lidar intensity data (Figure 6:20). A layer of superficial deposits, mapped by BGS as alluvium – clay, silt, sand, and gravel [5]- appears to follow this feature also (Figure 6:18). Some imprecisions in BGS mapping are to be expected, given that such mapping is generalised from limited field observations.

The precise line of this feature is confusing to trace in the midsection of the SUA transcription among other topographic features (Figure 6:21). The line of Channel 1 appears more clearly in the lidar intensity data (Figure 6:20; Figure 6:22).

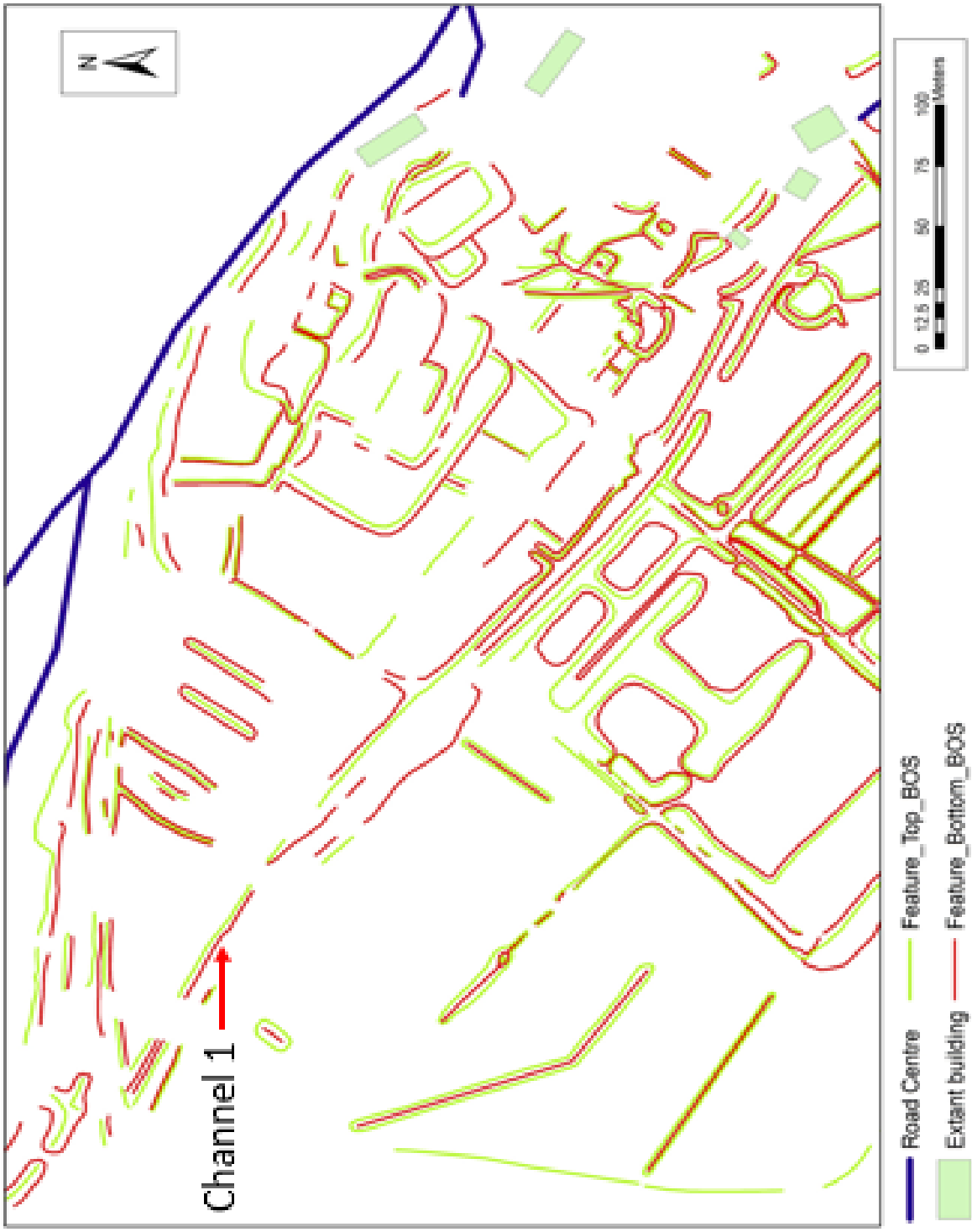
[5] In BGS Lexicon: 11101999_ALV-XCZSV In: British Geological Survey (2017) The BGS Lexicon of Named Rock Units. British Geological Survey. http://dx.doi.org/10.5285/c683034e-8f52-4a9a-9913-83a065228e99



Eastern edge of alluvium largely coincides with course of Channel 1. *Re-presentation of data from Horsfield 2014*

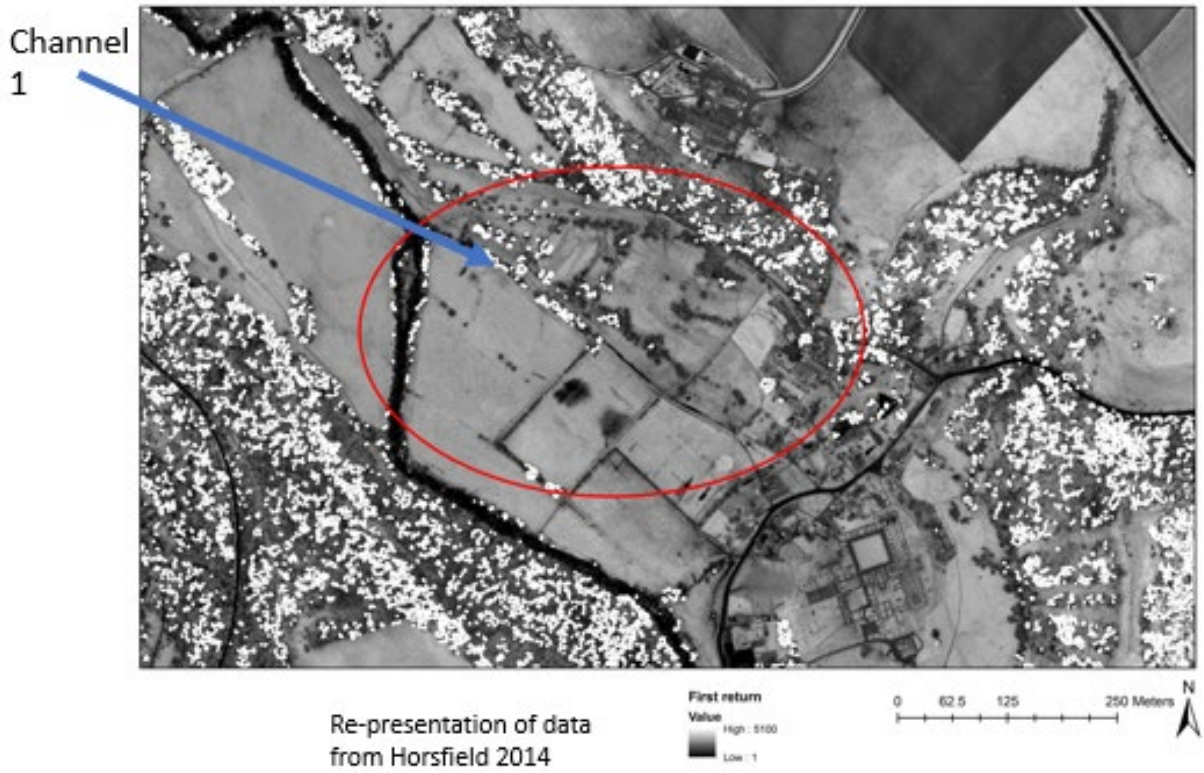
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The Historic England GIS Data contained in this material © Historic England 2021 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

Figure 6:18 Channel 1 in relation to band of alluvium in north precinct



Historic England (Hannon and Pearson) transcription of SUA data: north precinct first channel. Historic England data © Historic England 2021. The Historic England GIS Data contained in this material was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk

Figure 6:19 Historic England transcription of SUA data



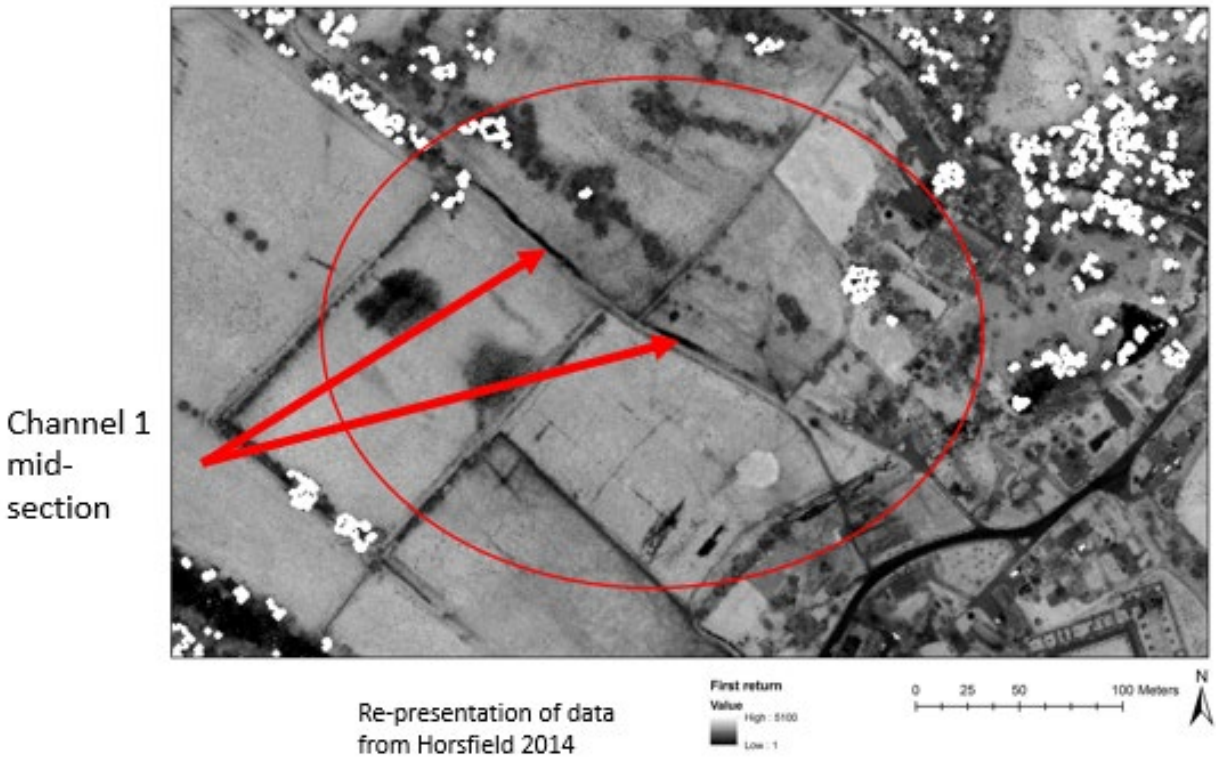
North precinct Channel 1 *Data:* Environment Agency 50 cm LIDAR digital surface data supplied in LAS format under licence 25/2/2014. Lidar intensity data (first return). Used under Open Government licence 3. Ellipse added for clarity.

Figure 6:20 Channel 1 in lidar intensity data



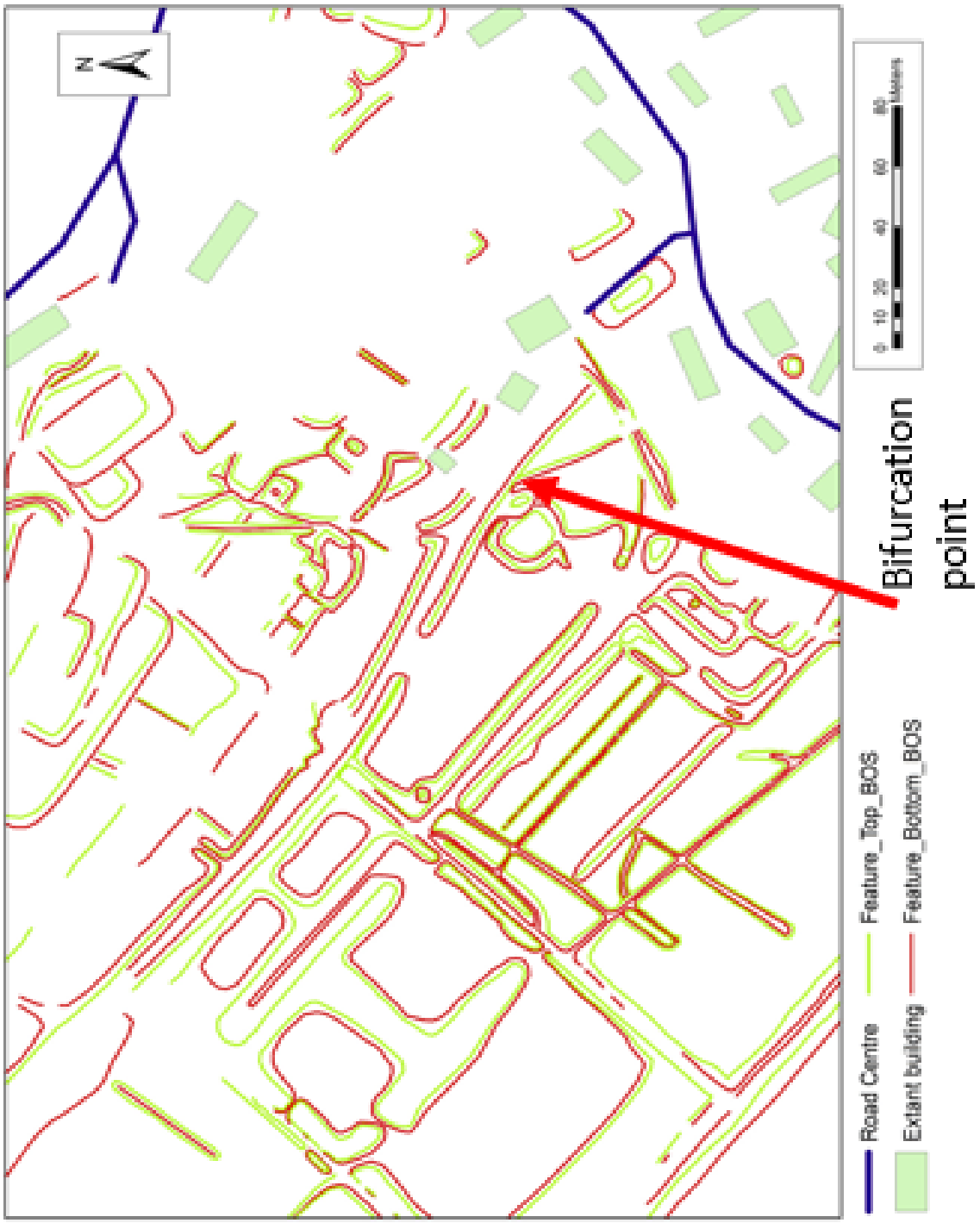
Historic England (Hannon and Pearson) transcription of SUA data: north precinct Channel 1. Historic England data © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk.

Figure 6:21 Channel 1 midsection in SUA data



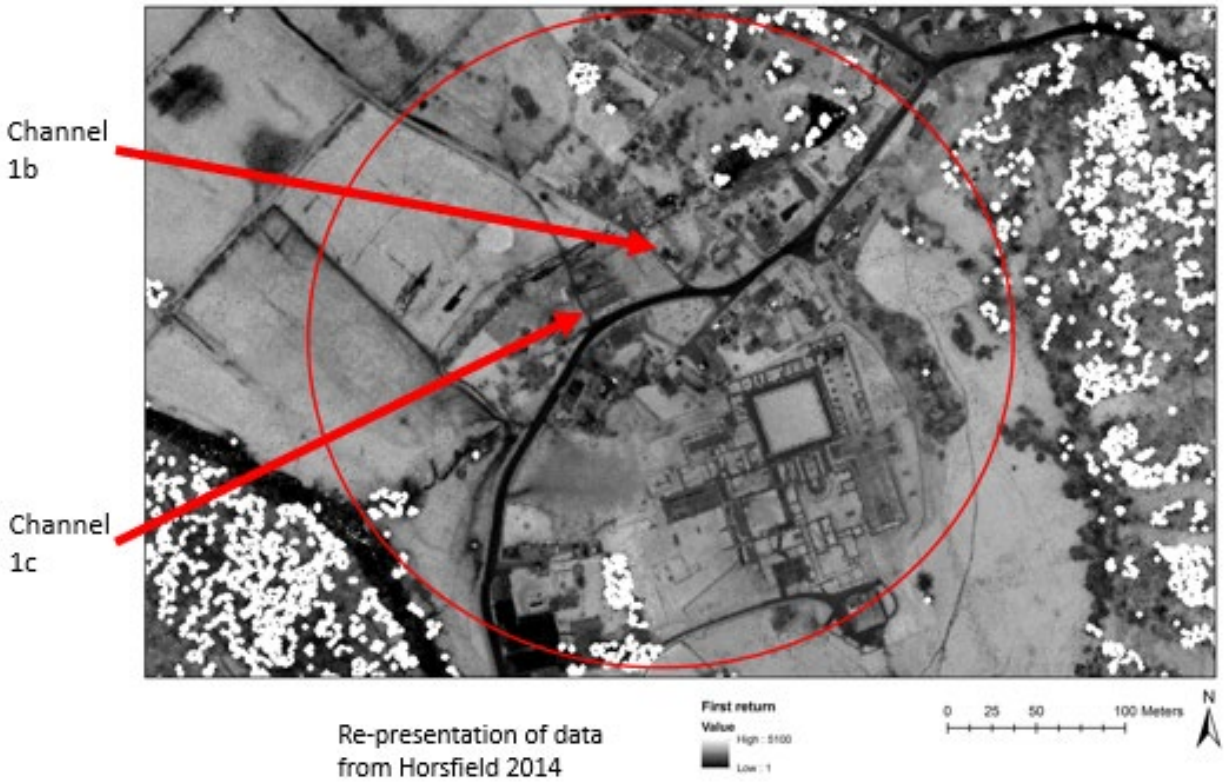
North precinct Channel 1 in lidar intensity data (first return) *ellipse added for clarity*. Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014. Used under Open Government licence 3

Figure 6:22 Channel 1 midsection in lidar intensity data



Historic England (Hannon and Pearson) transcription of SUA data. Historic England data © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk.

Figure 6:23 bifurcation point of channel 1 in SUA transcription



Lidar intensity data (first return) possible bifurcation of Channel 1. Derived from Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014. Used under Open Government licence 3

Figure 6:24 Channel 1 bifurcation point in intensity data

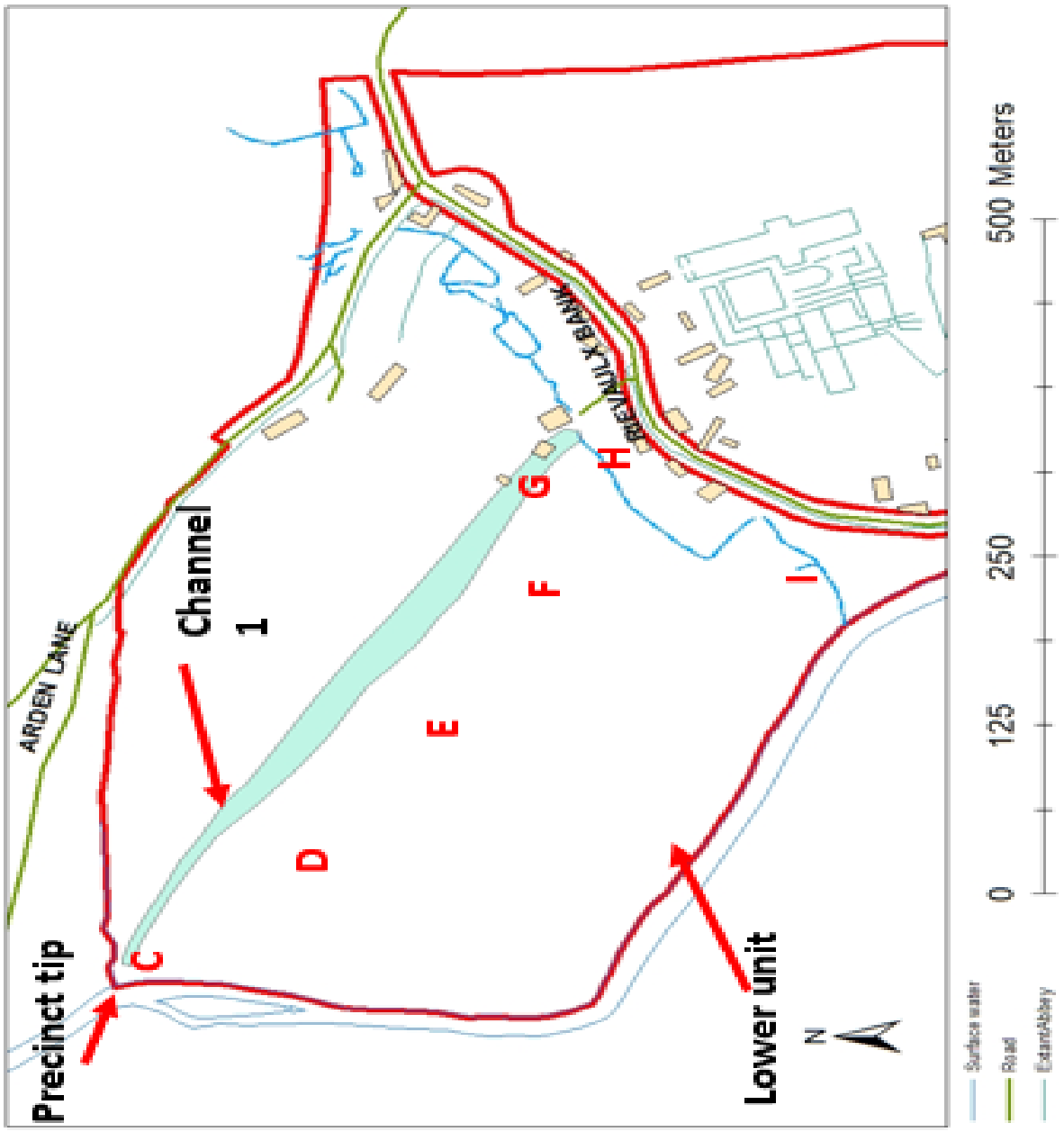
The surface evidence and lidar intensity data here, and in the spring zone, are obscured by land use. A post-medieval hamlet developed at Rievaulx, which may have re-used some of the monastic buildings. The area may have been subject to spoil dumping from metalworking at Furnace Hill and clearance activities in 1812 (Pearson 2019: 41). The possible onward course of Channel 1 is unclear in the SUA data but a bifurcation around 225m from the precinct tip was transcribed by Hannon (Figure 6:23; Hannon 2015:19 Pearson 2019:41).

The route of the two subsequent channels may be more clearly discerned in the intensity data. One channel, 1b, appears aligned to the claustral core and another (1c) aligns to the downslope drainage system of the spring zone (Figure 6:24). It is possible that Channel 1 was modified during the life of the monastery and thereafter, to supply various installations surmised along its

length. Pearson observed the embanked course of this channel to just shy of the location of an 18th-century corn mill (Pearson 2019:40).

There is insufficient evidence to support Atkinson and Rye's interpretation of Channel 1 as a 'canal.' The balance of evidence suggests a more cautious interpretation of this as a now-infilled water channel of unknown but possibly anthropogenic origin. Pearson interprets Channel 1 as a leat taken off the Rye (Pearson 2019:40). Physical investigation to characterise and date the development of this feature is recommended in Chapter 11.

6.5.4 North precinct lower unit



Areas C- I in north precinct lower unit. Area G contains possible Channel 1 bifurcation point

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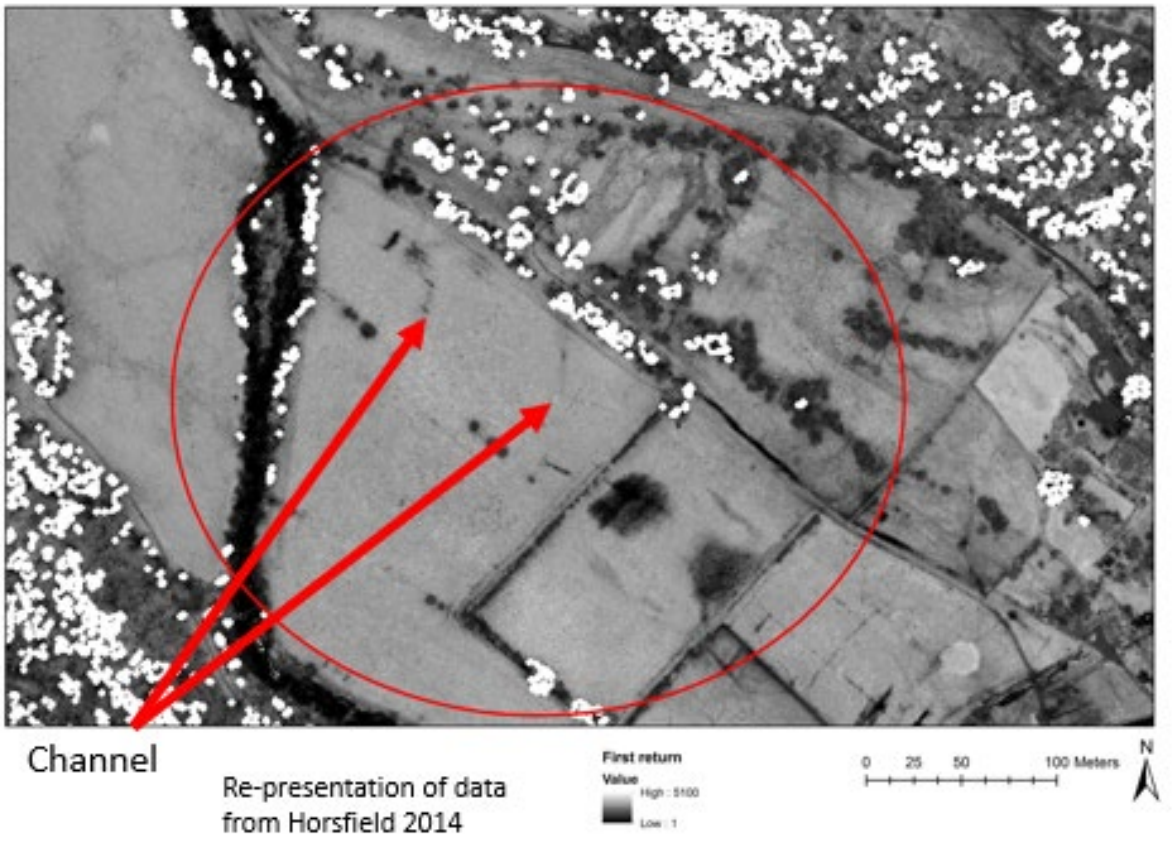
Figure 6:25 Orientation plan of north precinct lower unit



Historic England (Hannon and Pearson) transcription of SUA data. Historic England data © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk.

Figure 6:26 North precinct lower unit in SUA data

In Area D, very slight downslope features appear in Hannon and Pearson's SUA transcription (Figure 6:26). These features are much more clearly visible in the intensity data (Figure 6:27). These features may represent infilled but waterlogged areas of the subsurface. If these channels were natural downslope drainage routes before the creation of Channel 1 (Pearson (2019:40), dating their infill could provide useful physical evidence for the establishment of Channel 1.



North precinct lower unit north. Lidar intensity data (first return) Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014. Used under Open Government licence 3

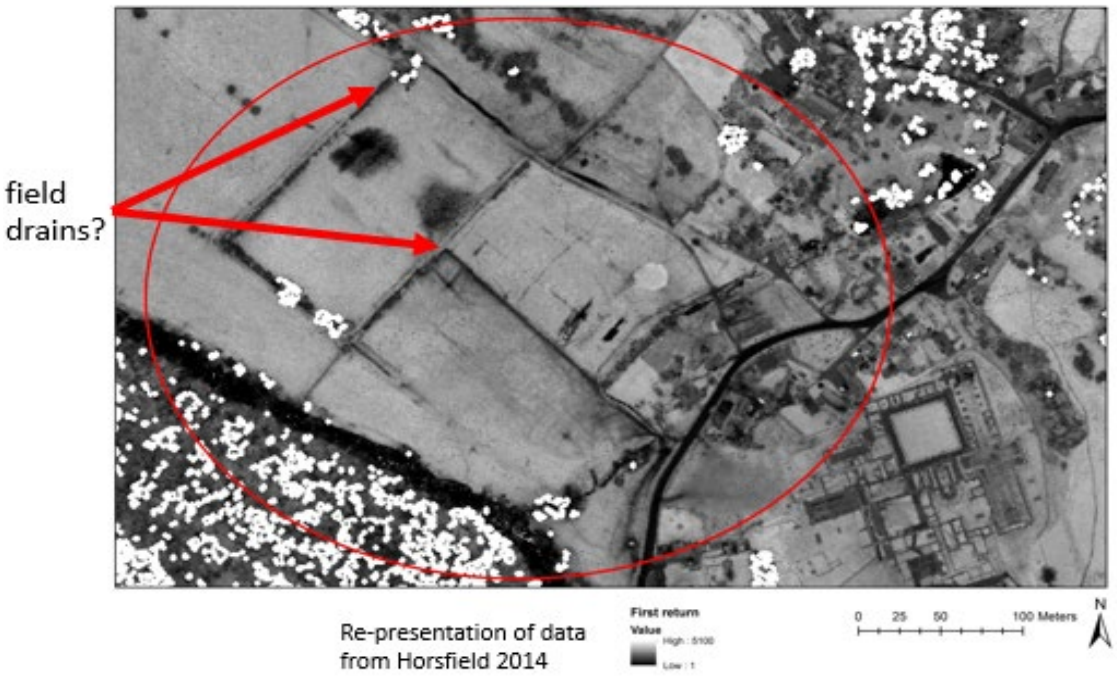
Figure 6:27 Downslope drainage in north precinct possibly pre-existing Channel 1

A system of very straight, parallel features appear to connect with Channel 1. These were interpreted by Pearson (2019:40) as field drains, but the date of these features is unclear (Figure 6:28). These features also appear in the lidar intensity data (Figure 6:29). Two areas within the northern rectangular field (Area E) appear markedly darker in the intensity data than the surrounding land and are thus tentatively interpreted as waterlogged areas (Figure 6:29).



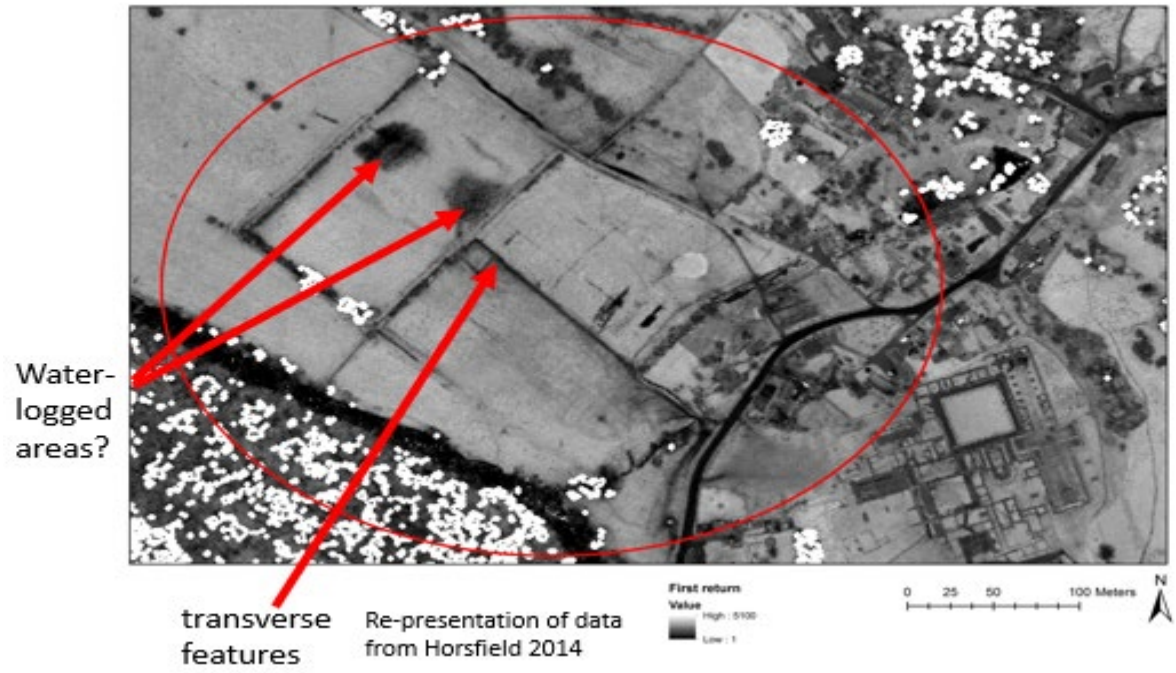
Historic England (Hannon and Pearson) transcription of SUA data. Historic England data © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk.

Figure 6:28 Possible field drains in lower section of north precinct transcribed from SUA data



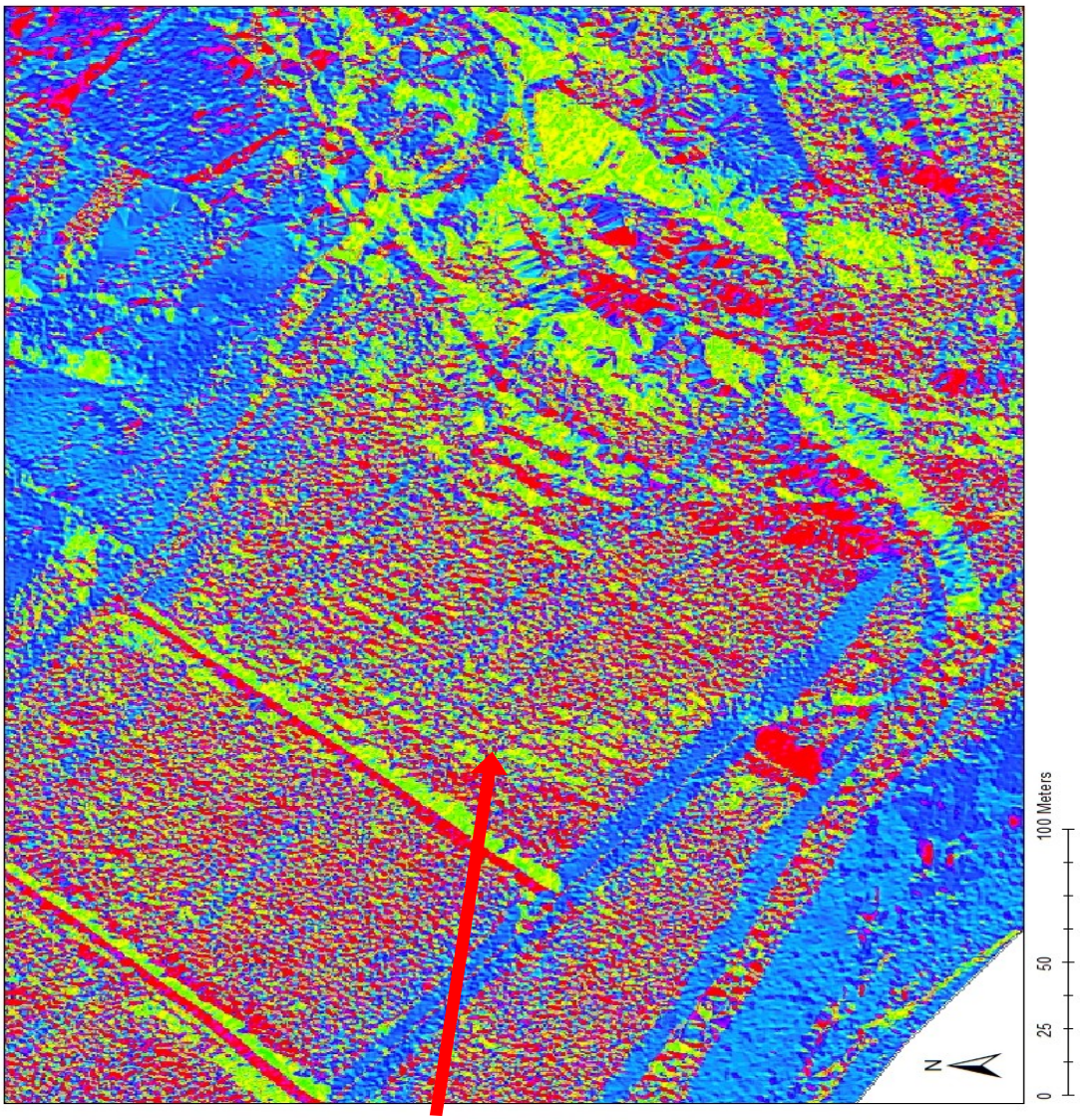
Straight features interpreted by Pearson as field drains. Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014 Used under Open Government licence 3

Figure 6:29 Possible field drains in lidar intensity data in lower section of north precinct



North precinct lower unit south. Lidar intensity data (first return). Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014. Used under Open Government licence 3

Figure 6:30 Possible waterlogged areas in north precinct identified in lidar intensity data up-flow of transverse features in Area F



Transverse lines just visible in multi-directional hillshade generated from Environment Agency lidar elevation data (indicated by red arrow). Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014. Used under Open Government licence 3) using ESRI's Terrain Tools. Slightly raised areas (green in image) can just be distinguished from slightly lower areas (red and blue in image). Modern drains or older water-management (fishponds?)

Figure 6:31 Transverse features in lidar elevation data in Area F

A series of transverse features in the adjoining field (Area F) are observable in in field visits in low, raking light. These are also just observable in lidar elevation data (Figure 6:31) and aerial images (Figure 6:32).



Orientation as Figure 6.31 - North is on left-hand side of image

Figure 6:32 Google Earth image of ladder-like features in Area F

Discussion

The development of the lower unit of the north precinct is not well understood. Based on documentary evidence for exemplars elsewhere from the 14th and 15th centuries,[6] Cook and colleagues (2003: 160-161) suggest that this area may have contained some form of irrigated grassland or meadow, possibly managed by controlled flooding. The extent of such meadow land is however unclear, but it would have been logical for this to encompass both the lower and upper units of the north precinct (6.5.1), to provide higher areas to which animals could retreat when flooding occurred, otherwise the lower unit may have been only intermittently suitable for animal pasturage.[7]

Water meadows were 'heavily invested agricultural systems' thought to have been a 17th-century development (Stearne and Cook 2015: 377-395). The principles behind such systems have however been evidenced much earlier. For example, a description of Clairvaux's hay-gathering suggests some of the principles of field irrigation were practiced at a Cistercian monastery in Northern France as recounted in a text from the 12th century.[8] There, water from the River Aube had been used to flood the meadow from which hay was gathered, probably to enhance crop yield (Matarasso 1993: 288). The Suppression-era documents considered by Coppack record several areas of meadow by the 16th century (Coppack 1986a and 1999a; 1999b). Pearson (2019) and Hannon (2015) have suggested that this area could have contained fishponds. This will be discussed below (6.7), as the question of fishponds at Rievaulx merits consideration in terms also of south precinct locations.

[6] At Bolton Priory (Yorkshire, Augustinian) payments were made for 'diverting the water of the Aire in the field of Kildwick' and at Fountains Abbey (Yorkshire, Cistercian) a flood in 1456-7 partly destroyed the 'water meadows' beside the rivers Wiske, Swale and Ouse (Cook et al 2003: 160-161).

[7] Pearson 2019:3 commented that the soils identified by the JBA auger survey across the valley 'are best suited to permanent grassland with stock rearing when the flood risk is low'

[8] *Descriptio Positionis seu Situationis Monasterii Clarae-vallensis* (*Description of the Position or Location of the Monastery of Clairvaux*). *Patrologia Latina*, vol. 185, columns 570-74, published in English translation in Matarasso 1993.

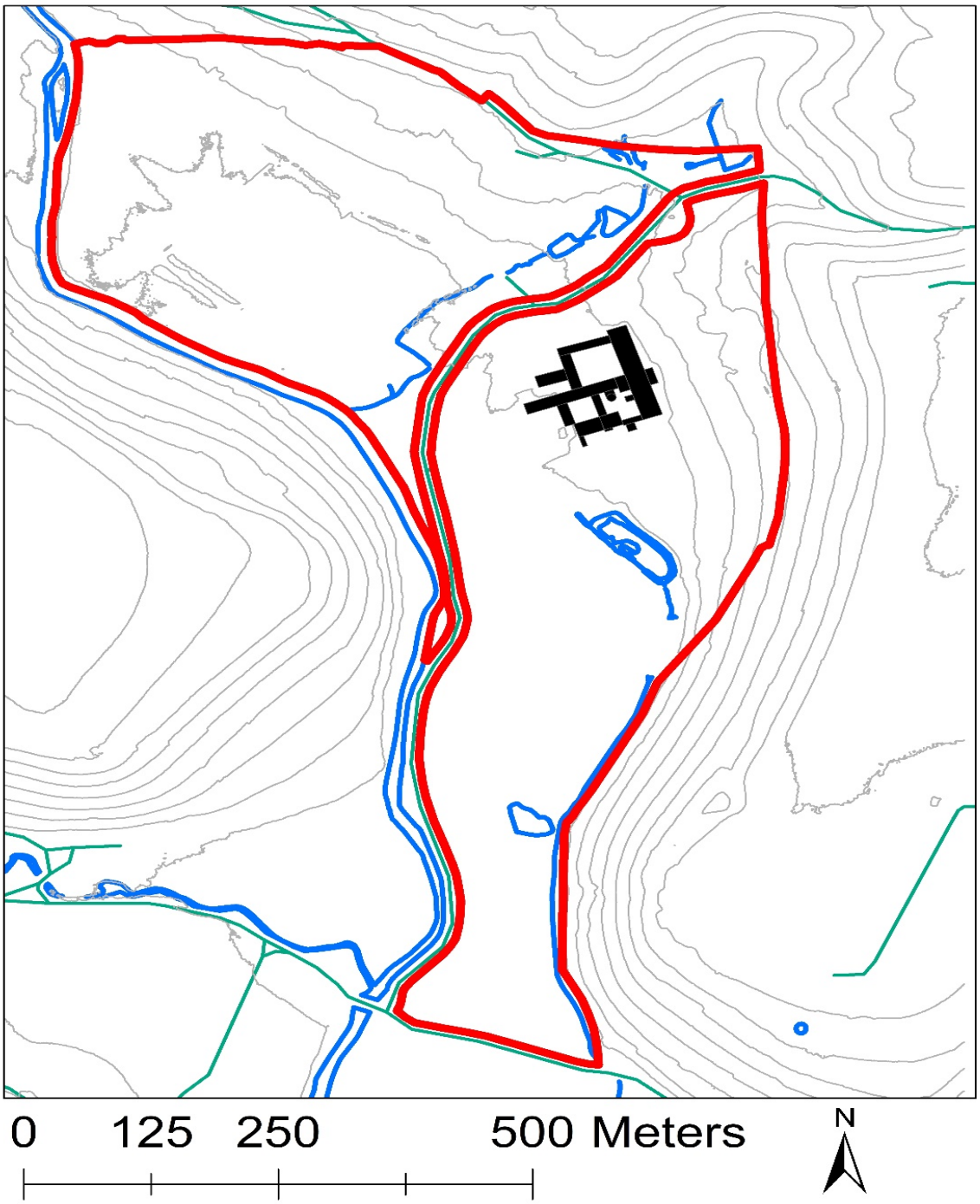
6.6 Conventual core, spring zone and south precinct



Figure 6:33 Google Earth orientation overview of spring zone [image captured1/7/2018]

6.6.1 Overview

The surviving buildings of the claustral complex are located within the largest area of relatively flat land just under the 100m contour (Figure 6:34). The levels in the south precinct, however, were considerably altered by extensive excavation and re-deposition between 1920-1950 and are thus substantially an artefact of the 20th century. The 12th-century ground levels are therefore unknown. The alignment of the church and claustral complex is around 75 degrees off the traditional west-east alignment, which has been suggested to represent the need to fit the buildings onto the available level land (Fergusson and Harrison 1999). Thus, the 'west' end of the church is effectively at the north of the building complex.



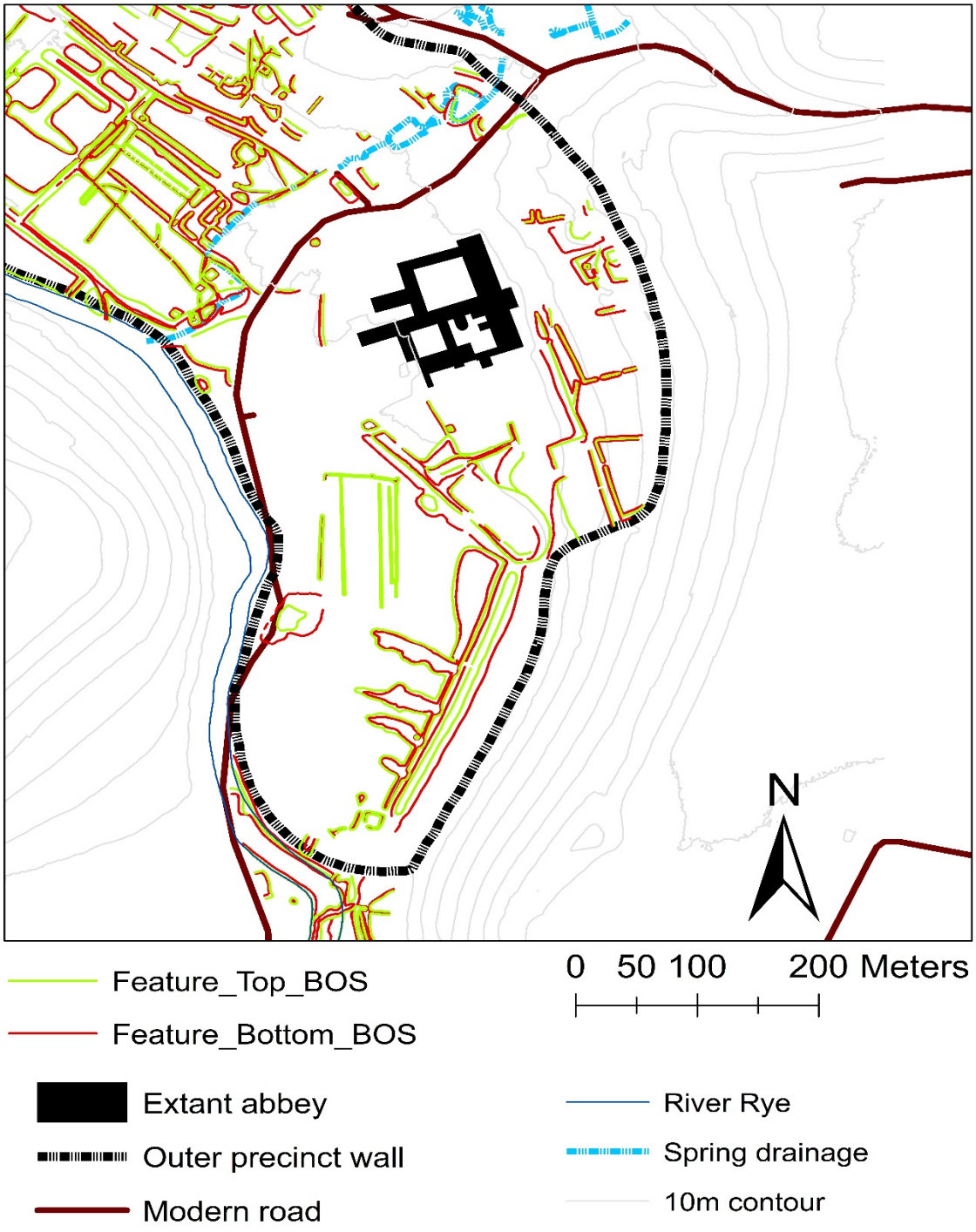
Contour lines indicate claustral complex lies on largest area of relatively flat land within the valley floor.

Historic England (Hannon and Pearson) transcription of SUA data © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk_ 10m contour dataset created by Historic England from EA lidar. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk**.**

Figure 6:34 claustral complex in relation to flat land in valley floor

6.6.2 Water at the claustral core and downstream

The development of water management at Rievaulx's conventual core is poorly understood. Much is unknown, even the relative sequence of activity. From the limited work so far, the water management system appears to contain gravity-flow arrangements nested within water/land matrix management (from the River Rye and surface water run-off), and a spring-fed system. A schematic and overview of the south precinct and claustral complex are inserted here to aid orientation (Figure 6:35; Figure 6:36).



Overview of spring zone, south precinct and claustral complex - **Historic England (Hannon and Pearson) transcription of SUA data.**

Historic England data © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk.

Figure 6:35 Schematic of south precinct

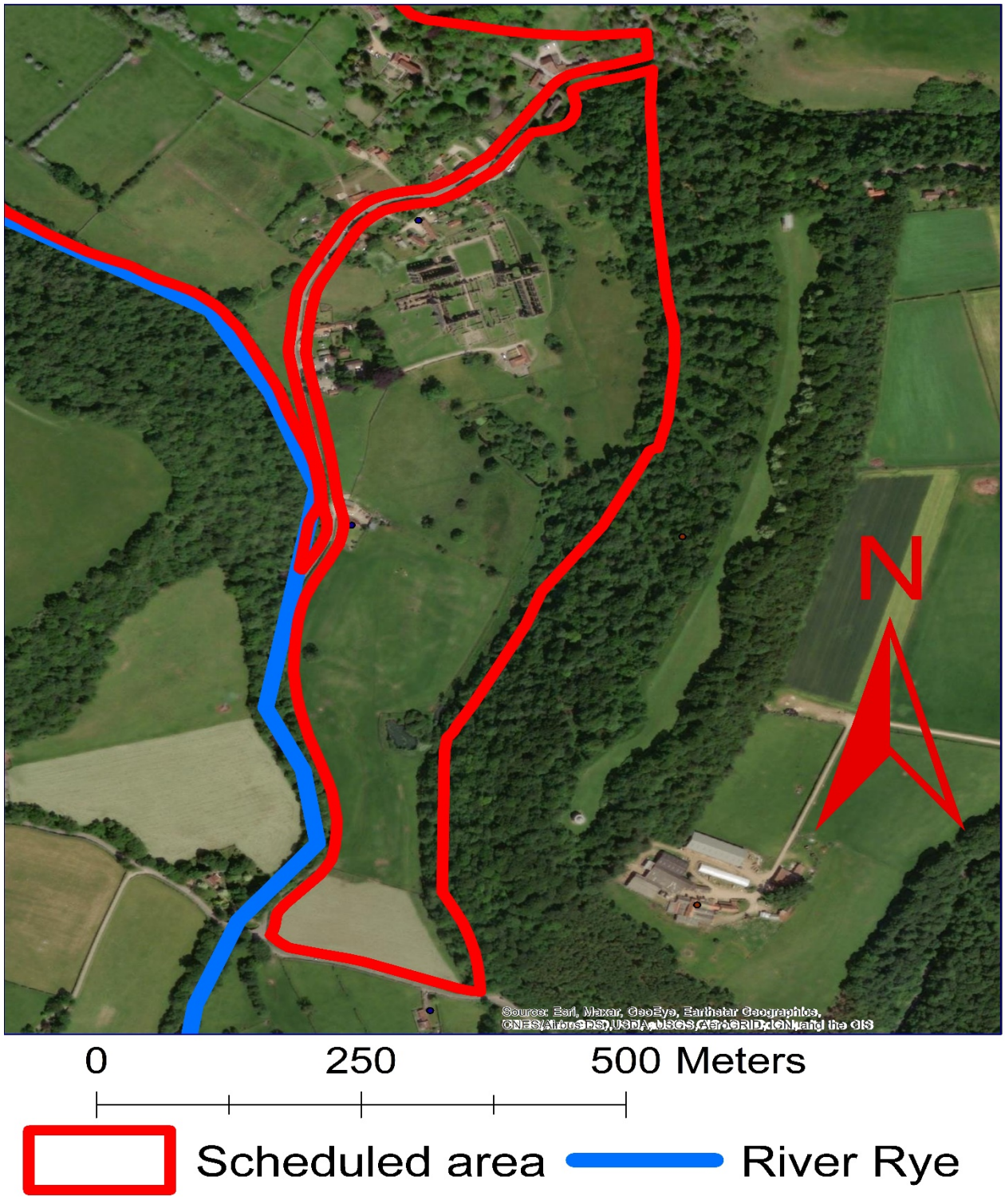


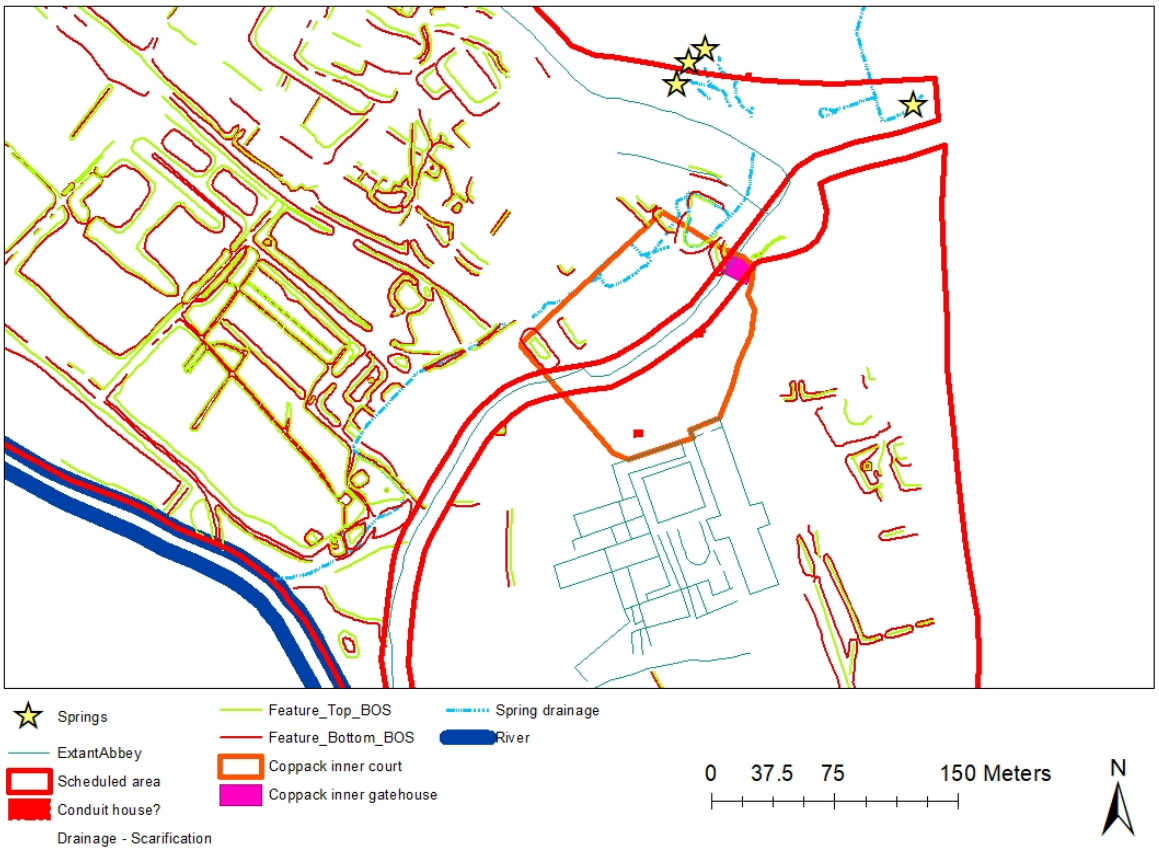
Image source: Accessed via ESRI ArcGIS platform under academic use licence

Figure 6:36 south precinct overview in satellite imagery

6.6.3 Spring zone

The centre of the precinct is bisected by a now-dry stream course, whose line is broadly followed by the later road, Rievaulx Bank (Pearson 2019:35). In the modern-day multiple springs emerge from the limestone bedrock in a zone encompassed by part of the extant walling of the north precinct. The modern locations of these are not necessarily the same as 12th-century ones, however. The combination of local mass movement -a downthrow fault is present near the south precinct (Figure 6:3) - and the fissiparous properties of the bedrock aquifer could have caused spring expression to shift over the nearly 900 years since the abbey's foundation.

Coppack suggested that the monastic inner court at Rievaulx extended from the conventual church to the far side of what in the modern day is a series of ponds. Coppack suggested that this was the location of the buildings documented in Dissolution-era surveys: the guest house, brewhouse and bakehouse, kiln house, 'house at the parlour door,' and stable. Coppack further suggested that masonry remains that lie on either side of the extant St Mary's church were part of the great or inner gatehouse (Coppack in Fergusson et al 2016:29). If validated, Coppack's reconstruction suggests that the extent of the inner court may have encompassed at least part of the spring zone.



Historic England (Hannon and Pearson) transcription of SUA data with Coppack's interpretation of inner court extent overlaid (red arrow).

Historic England data © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk.

Figure 6:37 Schematic of Coppack's suggested inner court extent overlaid on Historic England's SUA transcription and spring zone drainage route



Area I indicated by red arrow

Image source: Accessed via ESRI ArcGIS platform under academic use licence

Figure 6:38 Coppack's suggested reconstruction inner court overlaid on modern aerial imagery (GE) with modern surface watercourses and spring zone drainage overlaid.

Both Rye and Russell described seeing a building around 20m above the abbey around 100 years ago,[9] which may have included a stone settling tank (Pearson 2019:34). Another conduit house is suggested by Dissolution-era surveys.[10] Pearson postulates that this may have lain just outside the north (liturgically, the west) of the conventual church. He also identifies the water source termed 'Spout' on historic mapping as a possible third conduit house location (Pearson

[9] Pearson 2019:34: "A building in this area, described as a ruined cottage in 1914, was thought to have begun as a conduit house. It was then 'a narrow stone building …. roofless, without any architectural features' but with at one end 'the remains of a carefully built stone settling-tank' (Rye 1900, map facing page 76; Russell 1914, 496)"

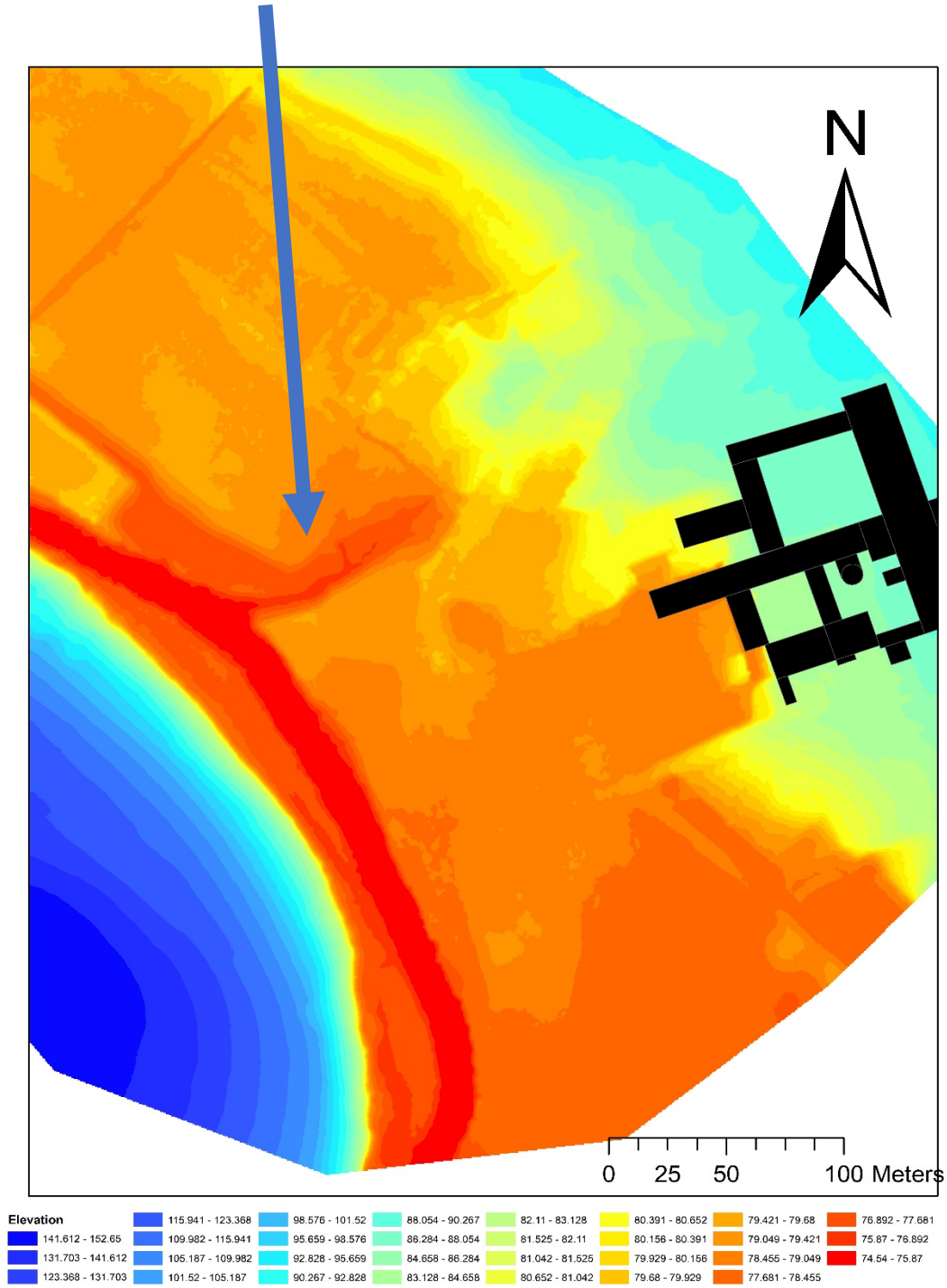
[10] A 'condyt' /'water' house is mentioned in Dissolution documents (*Inventory* xxxvii, *Survey* n.22 – Coppack 1999a:182).

2019:35). (Figure 6:37; Figure 6:38). The alignment of channel 1b in the north precinct (above) suggests that at least one channel taken from the river, possibly augmented by downslope drainage in the north precinct, could have continued towards the claustral core.

Outflow of spring zone to River Rye

The spring water system currently drains downslope, crossing the surmised lines of Channel 1b and 1c, channels seen in the lidar intensity data (Figure 6:24) to debouch into the Rye west of the claustral complex. This outflow route is here termed Area I. The lower section of drainage, where the spring zone drainage route joins the Rye, was a key element in the old 'canals' theory. Previous interpretations (including Russell, Coppack and Weatherill) have seen this as a river route flowing west to east towards the claustral complex after the 'first diversion.'

The TIN (triangulated irregular network) visualisation of lidar elevation data (Figure 6:39) gives an impression of the levels in the modern day. It can thus be seen that the water channel at Area I (red elevation) lies lower than the surrounding precinct (amber / orange elevation).
If monastic-era relative ground levels were similar to those in the modern day, the route towards the abbey suggested by previous interpreters would have necessitated water flowing uphill between the river and the claustral complex. Pearson similarly observed (2019:36-37) that Weatherill and Coppack's suggestion is 'contrary to the natural slope of the feature' suspecting also some cutting back as contributing to the gully here.



Visualisation demonstrates relative elevations as being relevant to water flow, blue denotes lowest elevation, red the highest. In Area I (indicated by blue arrow) flow between river and abbey in the modern day is east to west (amber to red elevation).

Re-presentation of data processed for Horsfield 2014. *Data:* Environment Agency 50 cm LIDAR digital surface data supplied in LAS format under licence 25/2/2014 via Geomatics Group. The Historic England GIS Data contained in this material © Historic England 2021 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

Figure 6:39 Spring zone drainage to Rye - TIN visualisation

Discussion

It is difficult at present to distinguish whether separate systems were maintained for river, field run-off, and for spring water. It is possible that spring water was a spiritual consideration for the buildings at Rievaulx's core. Walter Daniel's biography of St Ailred (Powicke 1950:lvi) refers to the latter's having built himself a tank for self-immersion (Pearson 2019:36).[11] The significance of Ailred's use of this water will be considered in Chapter 9, as this issue merits a broader discussion.

It is possible that spring water was used for spiritual (including, but not solely, liturgical) purposes, and the main (river) water channel for more mundane usage. The representation in the Eadwine Psalter[12] of 12th-century Canterbury Priory may be a parallel for this, depicting possibly two separate water systems using two colours, red and green. Such a division is also known from Cistercian Stanley Abbey (Wilts) which also had a dual source of water in the form of a river and a spring, with a channel constructed to bring the spring water of Loxwell to the monastic nucleus (Brown 2012:73-74). At Cistercian Alcobaca (Portugal), a well or spring within the abbey precinct formed the first water supply there, eventually carried through 3.2km of piping and aqueducts, gravity-flow system with curving course to maintain stable flow. A 1.5km ditch was cut between the River Alcoa and the abbey to bring to the abbey river water of lesser quality but greater quantity.[13] Alcobaca's river-fed system comprised open channels, earth bed and banks, with a flood relief channel. Alcobaca's water system is largely undated, but the abbey operated for nearly 600 years between 1178-1834 (Maduro et al 2017: 95-126). Its equivalence to Rievaulx therefore requires further evaluation.

[11] The (unpublished) records from Peers' 1928 excavations state that brick tanks were found under the novices' building at Rievaulx (PRO WORK 31/1616). An identification of these brick tanks as Ailred's documented self-immersion tank, cannot however be claimed. The mid-12th century would be very early for significant use of newly made bricks in England, and the brick features may instead be 14th-century tanning vats (James Bond pers. comm.).

[12] Eadwine Psalter psalter: f284-286. Trinity College, Cambridge R.17.1

[13] Maduro et al (2017: 95-126) "the first supply of water for use by the established religious community was obtained from a well or spring located within the abbey's grounds. A ditch was opened leading from the River Alcoa, with an inlet 1.500km upstream of the abbey, to provide water of less drinkable quality but in greater quantities for the community's other needs: irrigating the fields and vegetable gardens, waterwheels, mills and forges, washing out latrines, etc."

At Rievaulx's claustral core, some water could have been channelled through pipes as a gravity-flow system. Twelfth century evidence for piped water is known from other Cistercian houses. Temporary buildings at Sawley (Lancashire, Cistercian) which were stratigraphically dated to c1150-1180 included lead water pipes[14] (Coppack 2002:104; 2004:29-30; 40-42). Such knowledge as we have for Rievaulx's gravity-flow system is however dominated by the evidence for the 16th century and later. Documentary references suggest that at Dissolution, a conduit house may have been located next to the *garnard,* with pipes leading to the laver in the cloister, to the convent kitchen, to the Abbot's kitchen, to the buttery, to the brewhouse and kylhouse (*Inventory* xxxix-xli; Coppack 1986a; 1999a). Some physical water installations survive, such as the drains and troughs in the refectory, but these are as-yet undated.

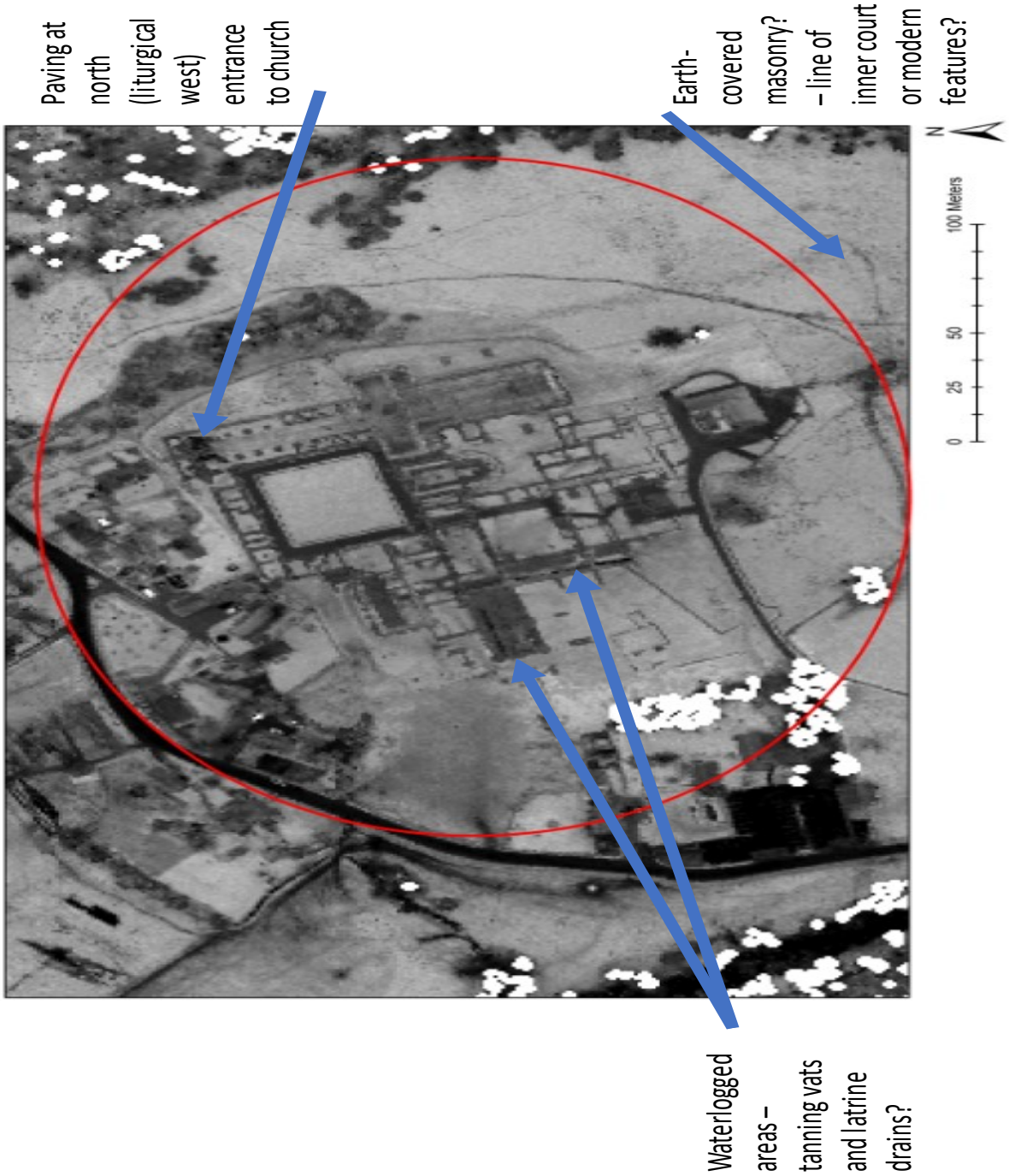
[14] 'The earliest dated piped water supply in England is that of Henry of Blois' episcopal palace of Wolvesey in Winchester of the early 1130s …Piped water has yet to be confirmed at Fountains before 1150' (Coppack 2004:40-42)

6.6.4 Productive processes

By analogy with other Cistercian abbeys, such as Bordesley Abbey, (Worcs.) (Astill 2011, Astill et al 2004, Astill et al 1993), productive processes necessitating water management would have formed part of the activity within Rievaulx's precinct. Certain of these, such as food production and small-scale crafts, would have been practiced from the earliest days of the abbey while others may have developed later. It is apparent from Dissolution-era documents that certain noisome activities were by then underway to the west of the claustral area in the mid-16th century (Pearson 2019:43). Running water would therefore have been required to supply (in order of flow, not necessarily contemporaneously) a blast furnace (the supposed site is under the 18th-century Mill House, SE 57542 85079), a tannery barn (SE 57547 84988), and a fulling mill (SE 57575 84945).

Lidar intensity data (Figure 6:40) suggests some differential in subsurface in the claustral core spatially associated with the vats and latrine in the (physical) west of the complex. A similar signal was however received from the stone paving at the north (liturgically, the west) entrance to the church, suggesting that waterlogging may not be the only factor which can cause differential in intensity signal. The claustral complex was however considerably disturbed by Peers' excavations and backfilling. Some features, possibly masonry uncovered in 20th-century site clearances and reburied, are also discernible in the intensity data.

Metalworking activity begun within the precinct during the monastic period continued into the mid-17th century (Figure 6:41). These activities may have significantly determined water management and have the potential to substantially overlay medieval deposits. This factor has presented a challenge for investigators since Atkinson and Rye.



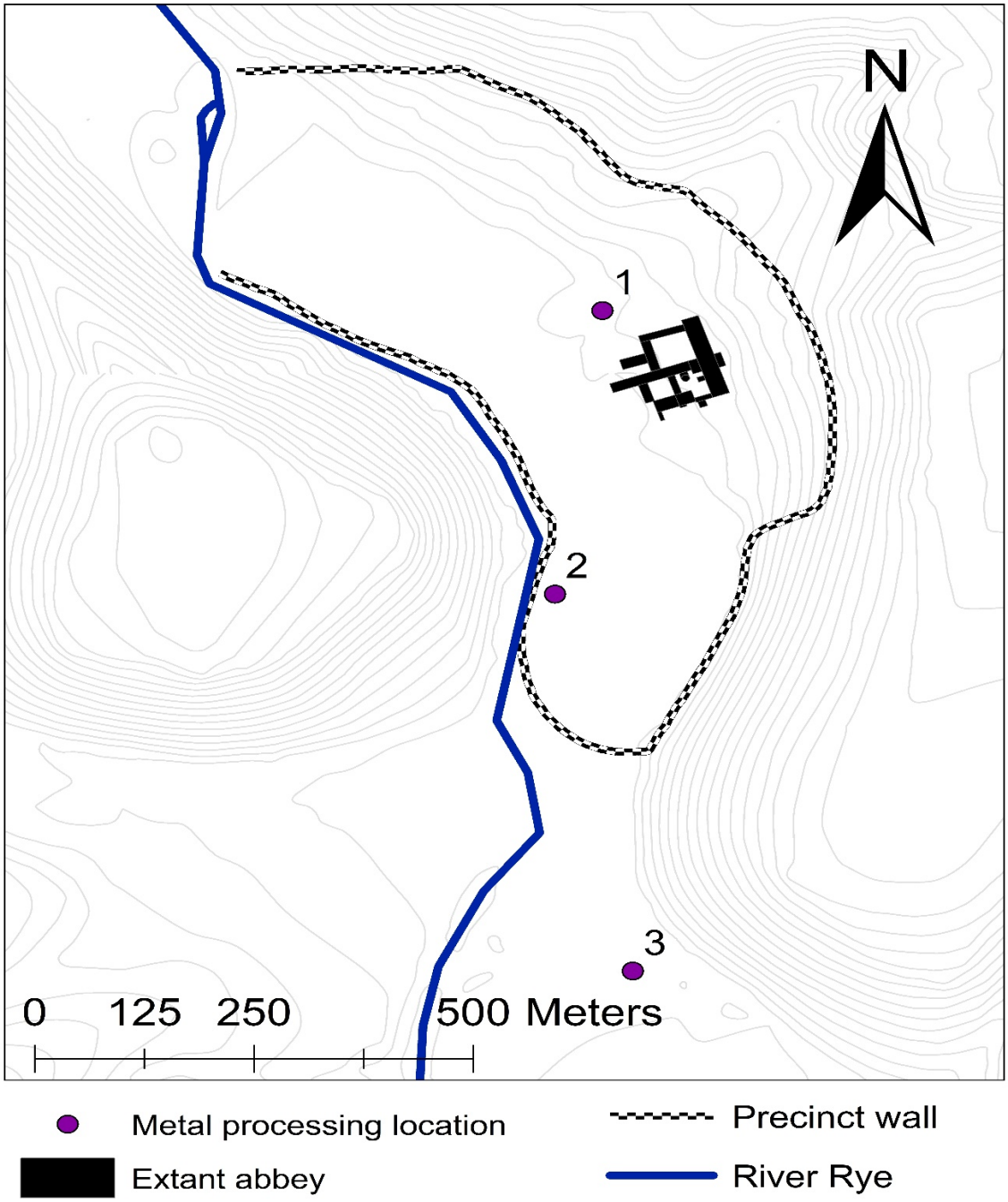
Lidar intensity data (first return) suggests variations in subsurface

Re-presentation of data processed for Horsfield 2014. *Data:* Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014 via Geomatics Group. Used under Open Government licence 3

Figure 6:40 lidar intensity data – conventual core

Documentary evidence suggests that after Dissolution a blast furnace was operational between around 1541 to c 1647, sited very close to the monastic core. Metal processing locations have been the subject of targeted geophysical investigations led from Bradford University (Table 4:14). Geophysical survey and excavation however failed to find the exact site of the blast furnace at the suggested site (Furnace Hill). Furnace Hill was however found to contain substantial amounts of blast furnace slag whose depth was suggested by sondage to a depth of 1.5m. A compacted rubble mound to the west of Furnace Hill may have been 'the remains of an enlarged bay (dam) that contained and was used to control water flow to the furnace during smelting campaigns' (Wheeler and McDonnell 2011:109).

Investigations (geophysical survey and testpit excavation to 2m) in the nearby refectory to determine whether this was the site of the iron or charcoal store necessary for the blast furnace were inconclusive, possibly in part because the clearance by Ministry of Works 1919/20-1929 appears to have removed all archaeological deposits in the refectory and undercroft (Wheeler and McDonnell 2011). Further south in the precinct, a hammersmithy is thought to have been operational near Rye House, and a finery / chafery at Forge Farm. (Table 4:14).



Locations: 1 Furnace Hill; 2 Rye House; 3 Forge Farm

Contains Ordnance Survey and Historic England data. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, https://digimap.edina.ac.uk. Crown Copyright/database right 2021. The Historic England GIS Data contained in this material © Historic England 2021 was obtained on 2020/07/20. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk.

Figure 6:41 Metal processing locations at monastic core 16th -18th century

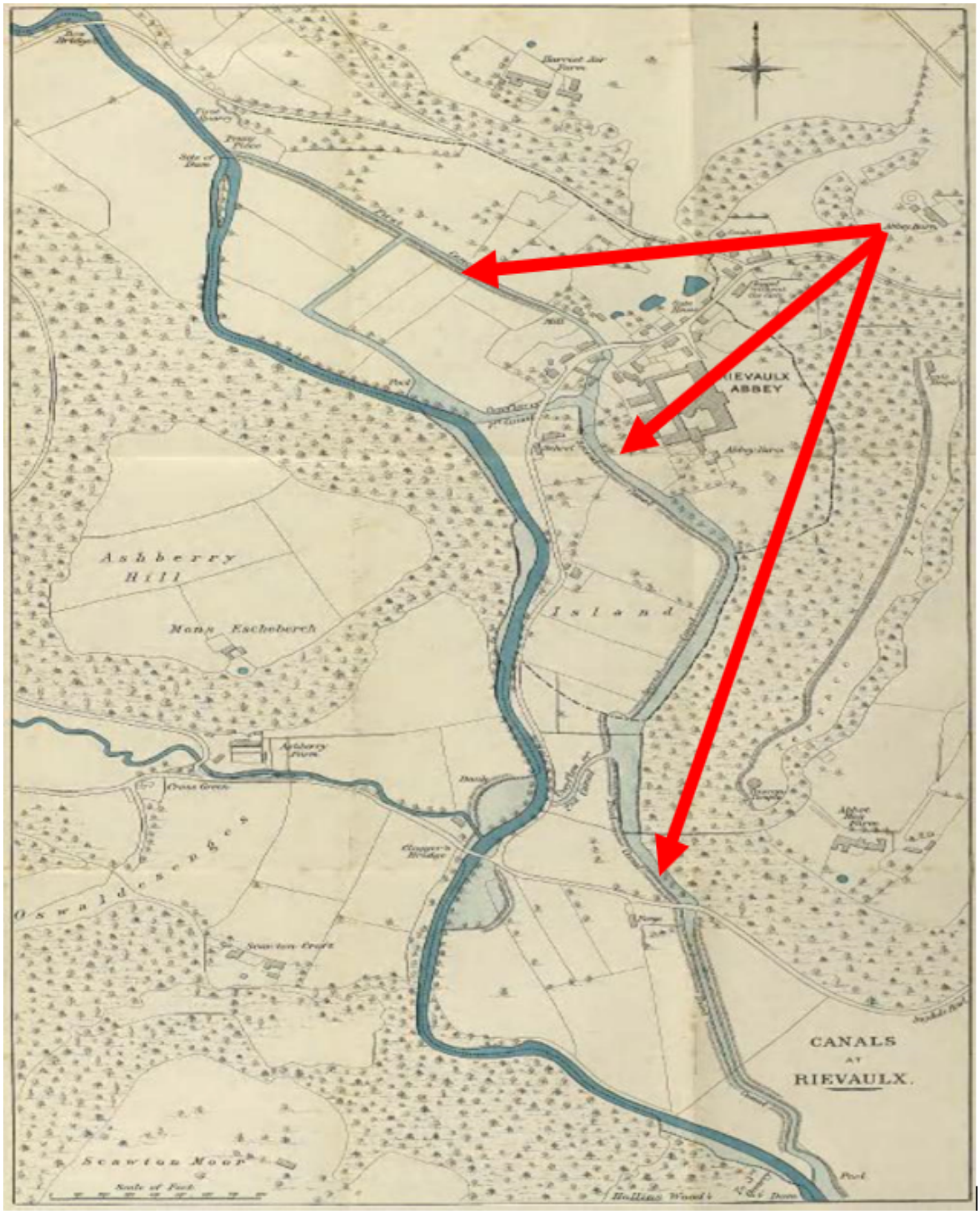
6.6.5 South precinct ponds and 'canals'

A series of ponds present in the modern day were interpreted by Coppack as features noted in the Dissolution-era documents, with the 100m by 30m pond suggested as the *Stanke* near to the 'Fysher closse' of Dissolution-era documents, and thus once a fishpond (HE list entry 1012065; Coppack 1986). JBA Consulting, however, concluded that this, which they termed the Top Pond, was created after the 1970s as no body of water was mapped here by Ordnance Survey before that date (Pearson 2019: 44-45). JBA similarly considered the south 'second' pond to be modern, also on the basis that no pond was noted there in historic mapping (Pearson 2019: 44-47).

A linear earthwork feature runs from the western extent of the claustral range due south. This was interpreted by Atkinson, Rye and those who followed the traditional narrative as variously the second or third 'canal' at Rievaulx.

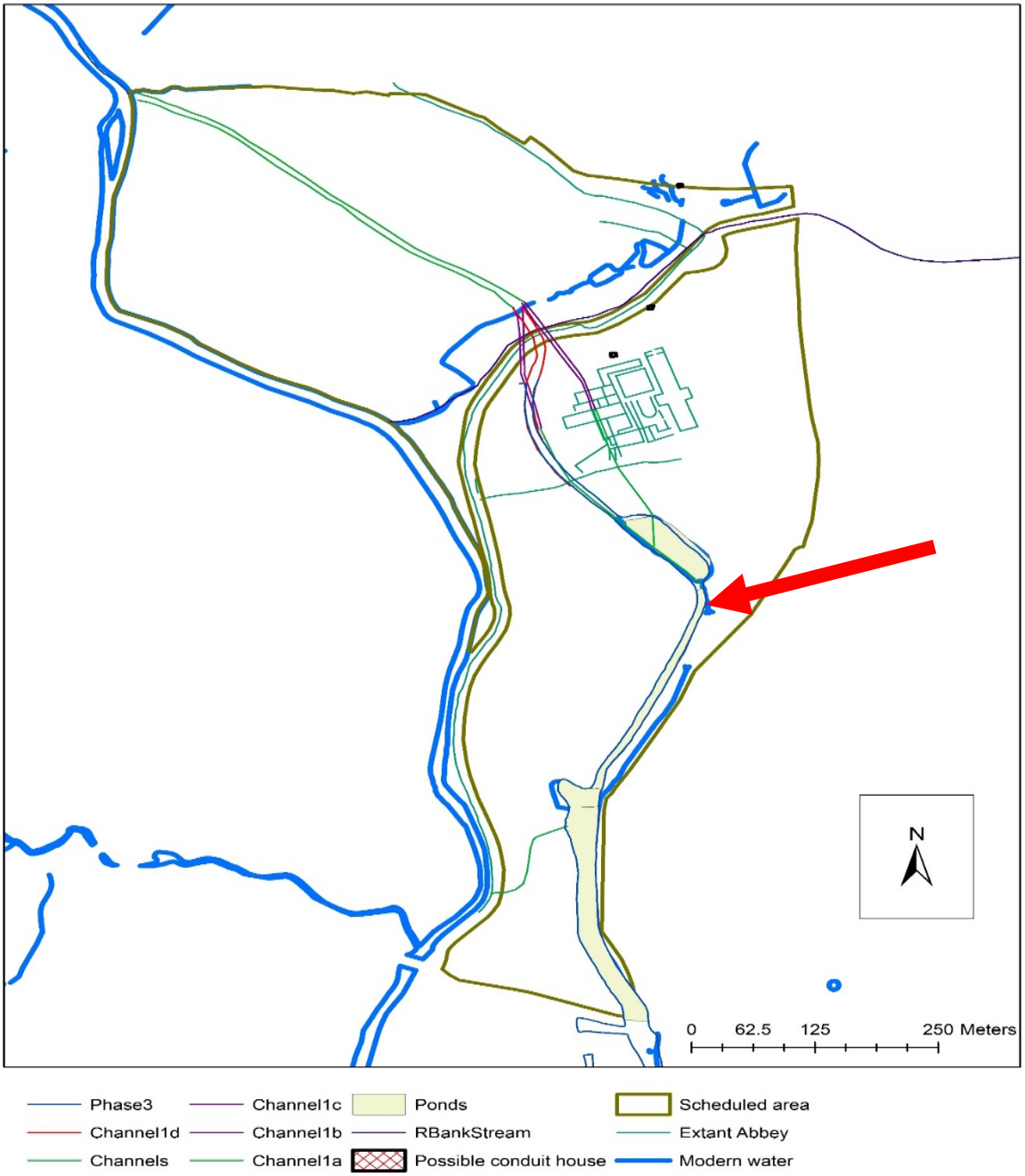
Recent work by Historic England has however suggested that the last life of this feature could have been as a post-medieval linear millpond[15] associated with Forge Farm and the post-Dissolution forge there, with this last usage possibly obscuring any medieval evidence (Pearson 2019: 44). More work is required on the history of this feature. Along the course of this feature, Hannon detected in the SUA data signs of under seepage, namely water erosion of the bank. The lidar intensity data for the same locations suggests this also (Figure 6:44).

[15] 'earthwork remains of a **broad channel**, cut into the foot of the valley side with a bank on the west, which Atkinson identified as the **'Second Canal'.** This feature is far too wide and long to be simply the outfall drain from the abbey. It may, however, represent more than one period of development, of which **the last** was as a linear mill pond associated with the post-Dissolution forge at Forge Farm'. (Pearson 2019: 44).



Plan from Rye 1900. Red arrows indicate what Rye considered to be first, second and third canals at Rievaulx.

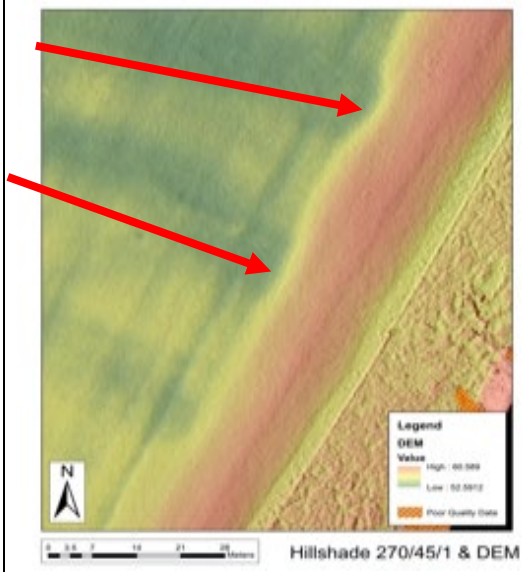
Figure 6:42 Second and third canals according to Rye 1900



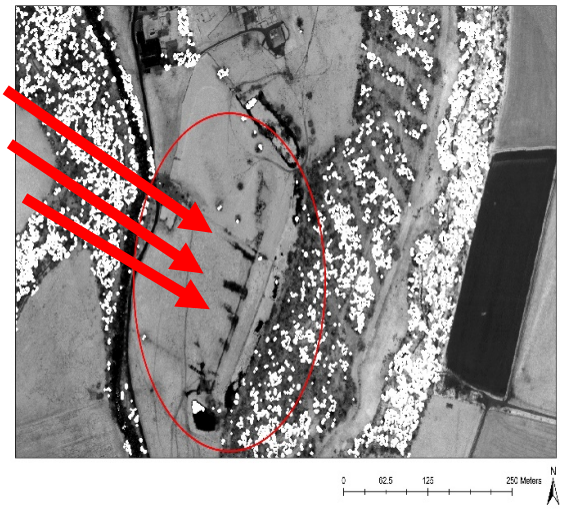
South precinct as transcribed by Historic England from SUA data (Hannon 2015, Pearson 2019). Linear millpond indicated by red arrow.

Historic England (Hannon and Pearson) transcription of SUA data. © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk.

Figure 6:43 Schematic of ponds and channels in south precinct - after Historic England



A. Seepage detected by Hannon in SUA data for south precinct. From Hannon 2015 Fig 36



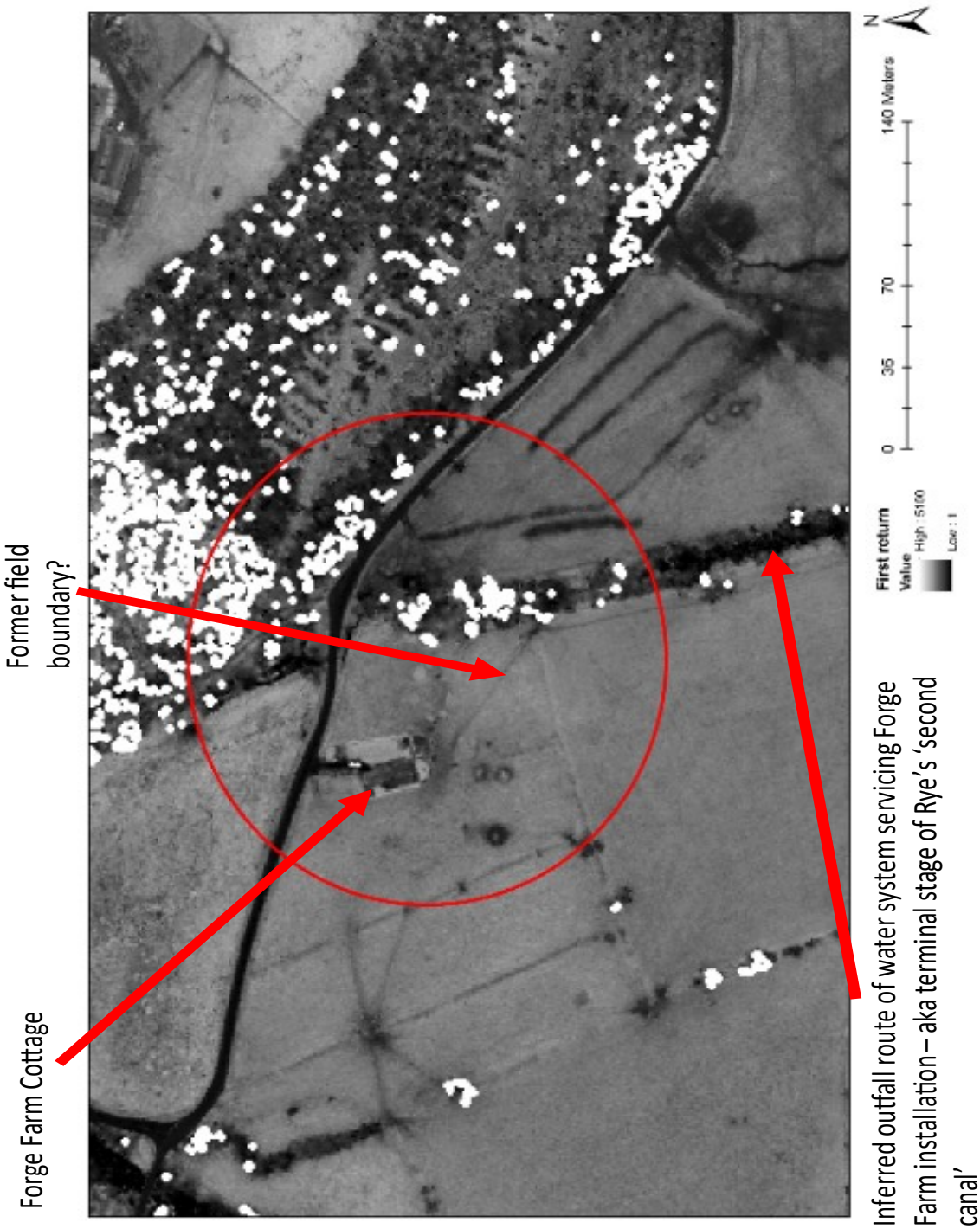
B. Seepage detected in lidar intensity data (first return). Re-presentation of data processed for Horsfield 2014. *Data:* Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014 via Geomatics Group, used under Open Government licence 3.

Red arrows indicate possible seepage from linear channel, discernible in lidar elevation and intensity data

Figure 6:44 Seepage in south precinct

The finery / chafery installations at Forge Farm would have required flowing water. This may have been provided by a continuation of the millpond system (Pearson 2019:44). Bradford University's geophysical surveys in 1996-1996 near Forge Cottage identified the beginnings of a feature leading from the south of Forge Cottage due south.[16] The surveyors interpreted this feature as a leat, but the basis of this attribution was not explained (Vernon et al 1998:191). The alignment of this feature makes it conceivable that this could instead have been a hollow-way. The lidar intensity data does not offer evidence for this as a particularly waterlogged area, although this absence of evidence is not definitive (Figure 6:45).

[16] Which also identified slag tips at multiple locations



Re-presentation of data processed for Horsfield 2014. *Data:* Environment Agency 50 cm LIDAR digital surface data supplied in LAS format 25/2/2014 via Geomatics Group, used under Open Government 3 licence.

Figure 6:45 features near Forge Farm cottage in lidar intensity data

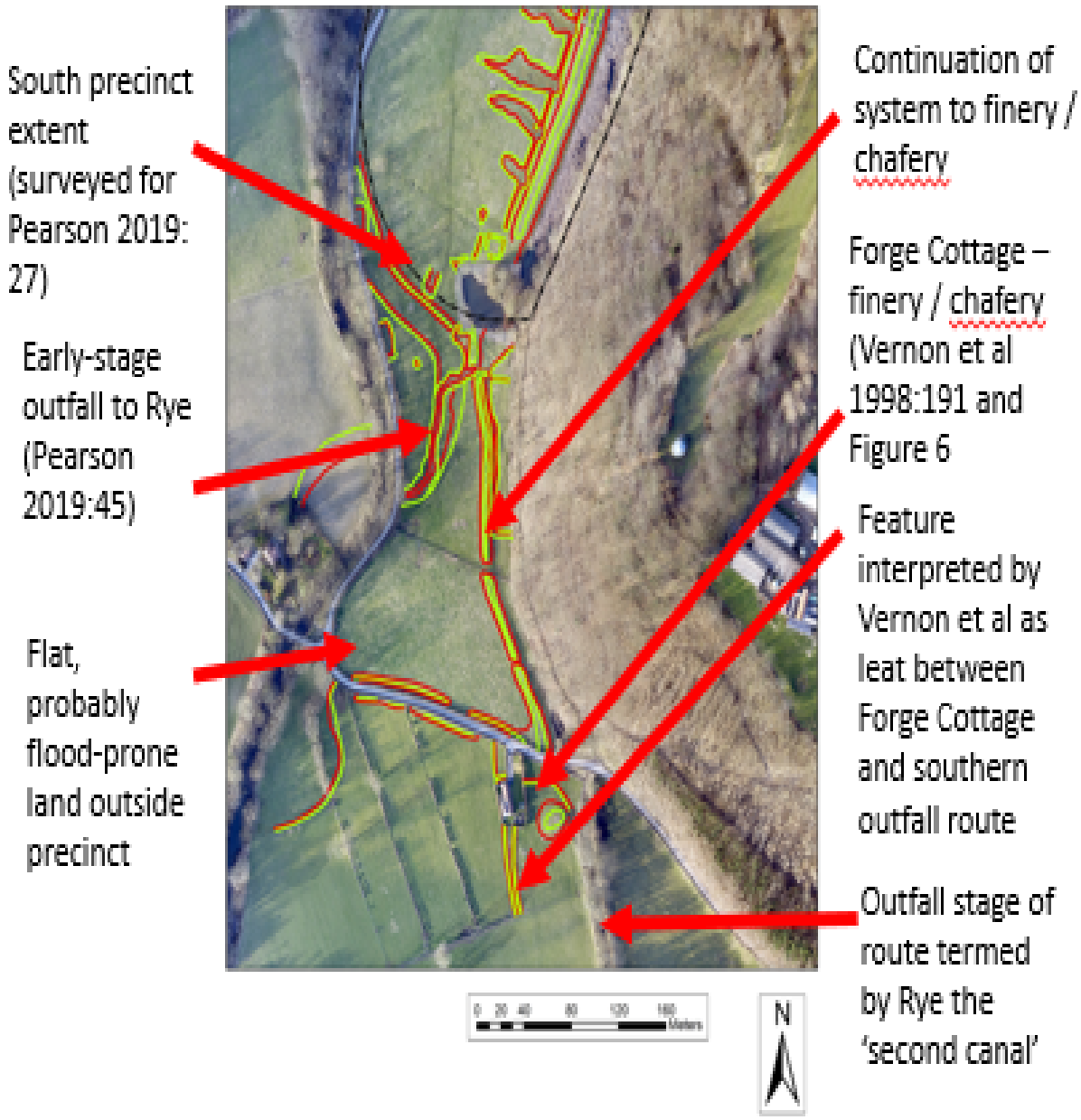
6.6.6 South precinct bridges

At least one 12th-13th-century bridge at the south precinct is known. An oak timber taken from Rievaulx Bridge (at NGR SE5741084288) during stabilisation works over the winter of 2006/7 was submitted for dendrochronological analysis but failed to yield a date. Typological features, including mortices, suggest this timber could have been a baseplate for a medieval trestle bridge, possibly from the 12th or 13th century (Tyers 2008). Rievaulx Bridge was destroyed in the 1754 flood (McDonnell and Hayes 1963:76). The subsequent rebuilding of this bridge may have re-used certain older elements. The 18th-century bridge contains masonry elements (such as old archstones) whose tool dressing marks suggest a terminal date of the 14th century (Weatherill 1963:80). Weatherill's interpretation may need to be revisited, however. It is now considered possible to distinguish between tool marks made before 1200 and those made afterwards (Stocker and Morris 1987; Stocker 1993). Crossing places between the east and west bank of the Rye would have been necessary, such as the route used by the men of Griff (on the east bank of the Rye) to visit the mill at Sproxton on the west bank. [17] As this route to Sproxton mill was definitional of the southern extent of Espec's first grant,[18] the location of medieval river crossings here merit further attention. A bridge, still marked as 'mill bridge' on modern OS mapping, lies nearby.

6.6.7 Outfall to River Rye

The location of the precinct outfall drain to the River Rye is currently unknown. Such an extensive system may however have had multiple outfall locations at different stages of its life. Pearson suggested that at one stage the outfall may have followed the line of a palaeochannel and ditch which begins just south of the southern precinct extent and flowed towards the Rye (Pearson 2019:45). (Figure 6:46)

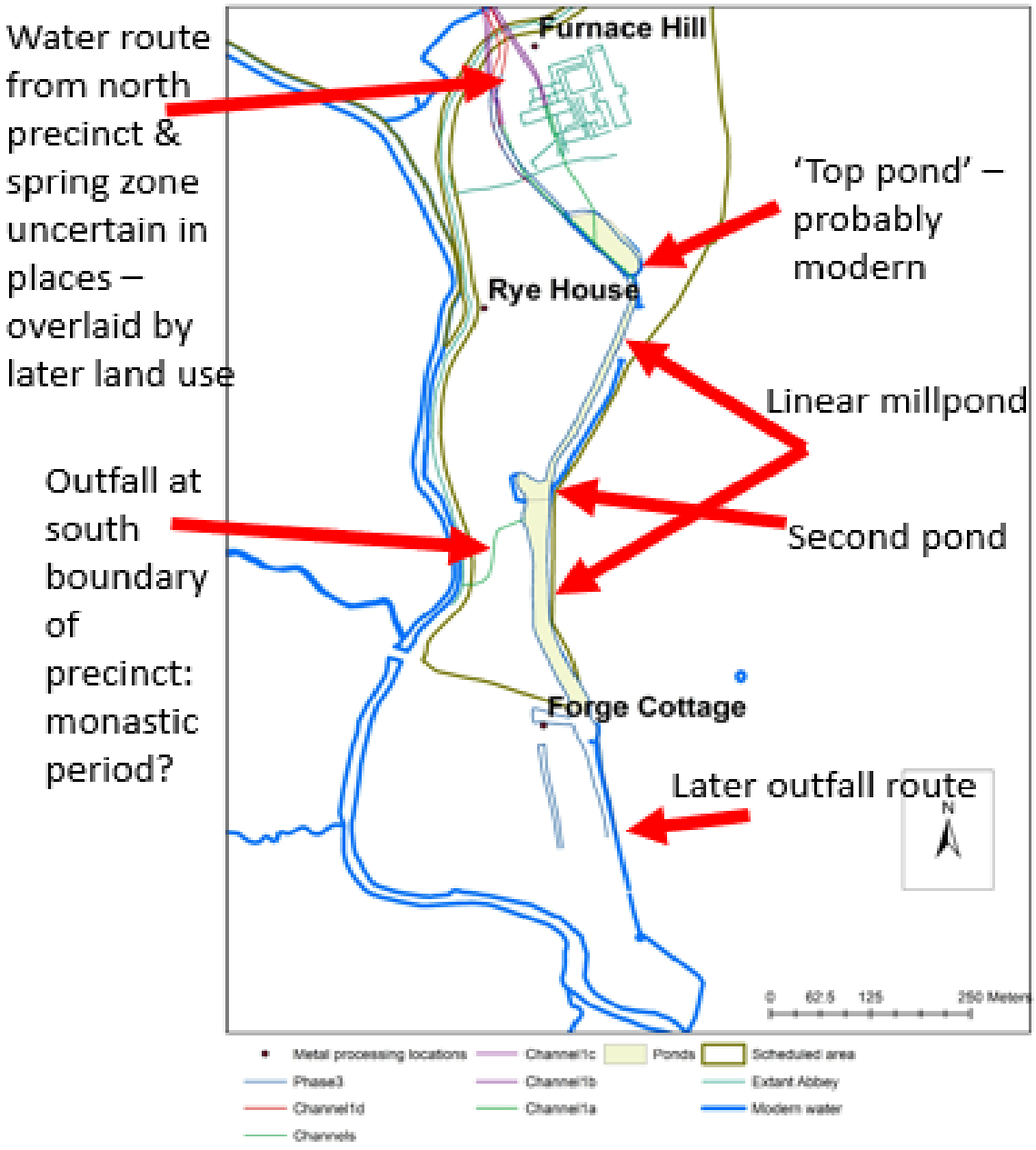
[17] The inception of this crossing place is unknown but is recorded secondarily in King Edward III's confirmation of Rievaulx's possessions (*Patent Rolls 6 Edw III pt 2 m.23*, published by Atkinson as *Cart. Riev.* 372, page 291).
[18] Atkinson was in error in attributing the southern extent of Espec's gift, between 'Sperragate' and the Rye, to a route past Abbot Hagg, as this boundary would not have included much of Griff on the plateau (Figure 5.5 in the present study). A more southerly route, beginning at the outer wards of Helmsley and aligned to Sproxton mill is more likely.



South precinct – outfall. Historic England (Hannon and Pearson) transcription of SUA data

Contains aerial imagery collected by IntelMapping and licensed to Historic England. Historic England data © Historic England 2021. The Historic England Data contained in this material was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk

Figure 6:46 south precinct outfalls – Historic England SUA transcription overlaid on aerial imagery



Historic England (Hannon and Pearson) transcription and interpretation of SUA data over south precinct

Historic England data © Historic England 2021. The Historic England GIS Data contained in this image was obtained on 23.5.2018. The most publicly available up to date Historic England GIS Data can be obtained from http://www.HistoricEngland.org.uk. OS VectorMap® Local Scale 1:10000. © Crown copyright and database right 2021 Downloaded: 2020-07-25 using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk.

Figure 6:47 South precinct ponds and channels

6.7 Agrarian activities in precinct

Knowledge of agrarian activities within Rievaulx's precinct is dominated by very slight references within documentary evidence from the 16th century. Coppack's examined five surviving documents from Dissolution and shortly thereafter. These recorded a garth planted with osiers and apple trees, a 'farmerye orchard' possibly rented out to support the infirmary, the keeping of swine (permitted various kitchen leftovers), stables, pasture, and watery meadows. No large animal houses or great barns were however recorded within the precinct, as these were possibly located instead on Rievaulx's granges (Coppack 1986a, 1999a&b).

Fish were an essential part of the monastic diet, partly because of the Benedictine prohibition on eating four-footed beasts, which was gradually relaxed throughout the medieval period (Bond 1988a: 69-70; Bond 2004:183). Posited fishponds within the precinct are however somewhat problematic for 12th-century Rievaulx, especially for the early to mid-part of that century. Currie (1988: 267-289) has argued that fishpond construction was an elite lay introduction of the later 12th century rather than a monastic innovation. Fishponds became a status symbol, for example being depicted in a 14th-century fresco at the *Palais des Papes* at Avignon (Bond 1988b). There is reference to 'stews' or fishponds at Bury St Edmunds in DB, with the next earliest documented construction of monastic fishponds being by Benedictine Evesham Abbey (Worcs.) under Abbot Adam (1160-1189) but the chronicler neglected to specify the location (Bond 1988a:92; 2004: 198). These fishponds could therefore have been located on Evesham's wider estate and hence cannot be a secure 12th-century precedent for precinct fishponds at Rievaulx. There are early 12th-century references elsewhere to *vivaria* beyond monastic precincts such as at Selby Abbey's 'stew' at Selby near Dayridding (Yorks.), c1115x1128.[19] The Eadwine Psalter contains a drawing of the water system at Canterbury Priory [20] under Prior Wibert of Canterbury (1153x1167), made before the fire-destruction of the system in 1174 (Tuck 2014). This depicts a *piscina* within the precinct but the elaborate,

[19] A early vivary is documented for Selby Abbey in late 11th / early 12th century. Farrer (1914 EYC 1 p366 No. 477) commented: 'A writ [c. 1115- 1128] of Henry I directing that the monks of Selby shall hold the vivary which existed when the abbey was founded by William I, his father, and that none shall fish there under pain of forfeiture. The vivary or stew of Selby lay near Dayridding and not far from the boundary of Brayton. There seems to have been some dispute as to its size or bounds; hence the king's writ.'

[20] Eadwine Psalter f284-286. Trinity College, Cambridge R.17.1

scalloped edges of this installation hint at a symbolic / decorative function rather than a primarily aquacultural one.

Hannon and Pearson offered suggestions for fishpond locations in the north precinct, but the extent of the feature they identified is relatively small (20m x 6m). Might this feature, located within the spring drainage, have taken advantage of the pure water best for incubation, as noted by Roberts elsewhere (Roberts 1988:13)? Pearson (2019:54) commented that fishponds to cater for the demands of a large monastic community probably existed elsewhere, such as in the south precinct.[21] Fish is likely also to have been supplied from beyond the monastery, with marine fish being generally preferred over freshwater fish (Bond 1988a:74). The chronology of possible fishponds within the precinct at Rievaulx, and concurrent use for other purposes, requires investigation. Mills in the north precinct would have required some physical division to prevent fish being washed into the mill system. Medieval fishponds usually included a series of ponds with dams, diversion channels and an outlet (Roberts 1988; Aston and Bond 1988; Bond 1988a; 1988b). Fishponds posited in the south precinct would have been downstream of waste inputs to the water system. Some of these could have operated concurrently with monastic-era waste from the reredorter, as in moderate amounts human effluent can contribute to a positive ecoenvironment for fish (evidence summarised by Bond 1988a:101). Supposedly concurrent tannery and fulling activities with fishponds, however, requires attention because of the pollutant effect of industrial processes on fish.

[21] 'It is very possible that there were other ponds to the south of the abbey along the line of the outfall drain. Possible locations have […] been discussed [above] and include medieval precursors to the Top Pond as suggested by Coppack and that section of the mill pond which extends from the Top Pond as far as the south boundary of the monastic precinct'. (Pearson 2019:54)

6.8 Summary: 'Transformation' of Rye Vale?

This section considers the evidence from all study areas in Rye Vale, namely RV1-4 (Chapters 4 to 6 inclusive). There has been a longstanding perception of pre-Norman occupation of the North York Moors as being almost non-existent: 'except in the valley of the River Esk, the North Yorkshire Moors appear to have been uninhabited in Domesday times' (Maxwell 1962: 98). In contrast to this established narrative, the evidence for pre-Conquest use of Rye Vale assembled in Chapters 4-5 has demonstrated that the landscape in which Rievaulx was established had been previously occupied.

The notion of a near-blank occupational canvas here can however no longer be sustained. The evidence for pre-Norman settlement in the Moors is certainly fragmentary (Vyner 2009:77-89). There is however evidence for pre-Cistercian occupation and use of the uplands. Occupation is evidenced from the Mesolithic (Waughman 2017) onwards. This study has compiled evidence from placenames, from DB, and mid-12th-century documents which suggest systematic Anglo-Scandinavian exploitation of Rye Vale by 1066 (Chapter 4). In the uplands, Rievaulx's stewardship continued a pre-existing development trajectory, rather than representing a 'transformation.' In the mid-catchment where the monastery's core was established, Rievaulx similarly continued a pre-existing agrarian trajectory on the former vill land of Griff and Tilstons (Chapter 5).

The foregoing has also demonstrated that the evidence used by Atkinson and Rye onwards to suggest a major 'transformation' through river diversion at Rievaulx's monastic core is slight. This evidence has been over-interpreted, and in some instances, misinterpreted, by many previous workers (Chapter 5). Recent topographic studies have provided alternative interpretations of the physical evidence, which give 'no support to [Atkinson and Rye's] idea that there were canals to the north and south of the abbey' (Pearson 2019:47). This study strengthens that conclusion. The notion of two or three major diversions or canalisations on the scale posited by Rye and Atkinson has been eroded in multiple aspects. Atkinson and Rye's

major diversions theory has been shown as physically unfeasible in multiple aspects, such as the uphill flow implied for Area I.

The canals theory is therefore no longer a tenable underpinning for interpretation of precinct development at Rievaulx. A combination of multiple lines of evidence suggests that at Rievaulx, water management may not have been the exceptional, large-scale, and one-off interventions first suggested by Atkinson and Rye over a hundred years ago. The work presented and synthesised here instead suggests that water management both upstream and within the monastic core is likely to have resulted from activities over an extended period. Contextualisation in the growing number of case studies of historic management of the water/land matrix (Chapter 2) suggests that water management activities, such as documented at Rievaulx and suggested by physical evidence by Bow Bridge, may have been only part of much longer-term maintenance and iterative adjustments which may be reflected only partially, if at all, in documentation.

This is not to suggest that water management and the diversion of the Rye did not take place at Rievaulx, but rather that physical investigation is necessary. The physical landscape factors meant a delicate balance between over and under-supply of water. Environmental factors could change this balance rapidly. Systematic physical investigation of the monastic precinct, and Rievaulx's life with the water/land matrix, will be necessary to understand the early development of the monastery. Chapter 11 will offer locations and strategies for this. The next chapters consider Rievaulx's impact on the second study area: land in the Vale of Pickering, given to the abbey by King Henry II.

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Chapter 7 Vale of Pickering part 1

7.1 Study introduction and rationale

Rievaulx's land described in 12th-14th-century documents as the 'waste below Pickering' (North Yorkshire) is significant for several reasons. The first is the donor who gave this land to Rievaulx, namely Henry II, king of England, duke of Normandy and Aquitaine, and count of Anjou (Keefe 2008). In 1157-58, just three years after becoming king of England at the age of 21, Henry directed the local wapentake jury to survey land south of Pickering, had the land declared as 'waste' and gave it to Rievaulx Abbey (Table 7:12). The Pickering 'waste' thus became the only land gift made to the abbey by a monarch as recorded in the abbey's 12th-century cartulary. Henry II's predecessors as monarch confirmed grants to Rievaulx by their subjects, and monarchs after Henry II confirmed the royal grant and permitted Rievaulx freedom from certain dues and obligations (Table 7:13). No other monarchs, however, went as far as Henry II in supporting the monastery.

Second, the Pickering 'waste' was suggested, by Donkin's seminal study of Cistercian settlement and estates in England and Wales, as one of the few examples of a Cistercian grange (monastic farm) founded entirely on 'new' land. Most Cistercian granges were established on land which had been previously occupied at least in part (Donkin 1978:58-60). Donkin further considered that at Pickering 'very likely all of this had been assarted, drained and ploughed up by the conversi' to produce 300 acres of arable land at Kekmarish recorded in the Hundred Rolls survey in 1275 (Donkin 1978:132). Interpretations in line with those of Donkin have long implied the primary reclamation by Rievaulx of primeval marshland over the whole of the Pickering grange extent. 'Reclamation of the marshland of Pickering Waste had already been undertaken by Rievaulx Abbey' (Aston 2000: 138); 'some new estate farms were carved entirely out of previously uncultivated land, such as at Rievaulx's grange at Pickering' (Bond 2004:71); 'One of Rievaulx's most important properties, Pickering; there was to be created one of the few English Cistercian granges carved totally from waste land' (Burton 1998a: 34). 'By 1276 there were 300 acres of arable in Pickering, near Marishes, probably drained and assarted by the abbey' (Burton

1998:53). Other historians have made even more extreme assumptions about the Pickering 'waste', such as terming the Pickering *vastus* as 'a deserted area' (Dutton 2006:194).

Third, the former Pickering 'waste' was important to Rievaulx Abbey itself. This was reflected by its location in the abbey's 12th-century cartulary, whose creators organised the documents relating to the royal gift, and the disputes it occasioned, in a cluster together (Jamroziak 2005:117-120).

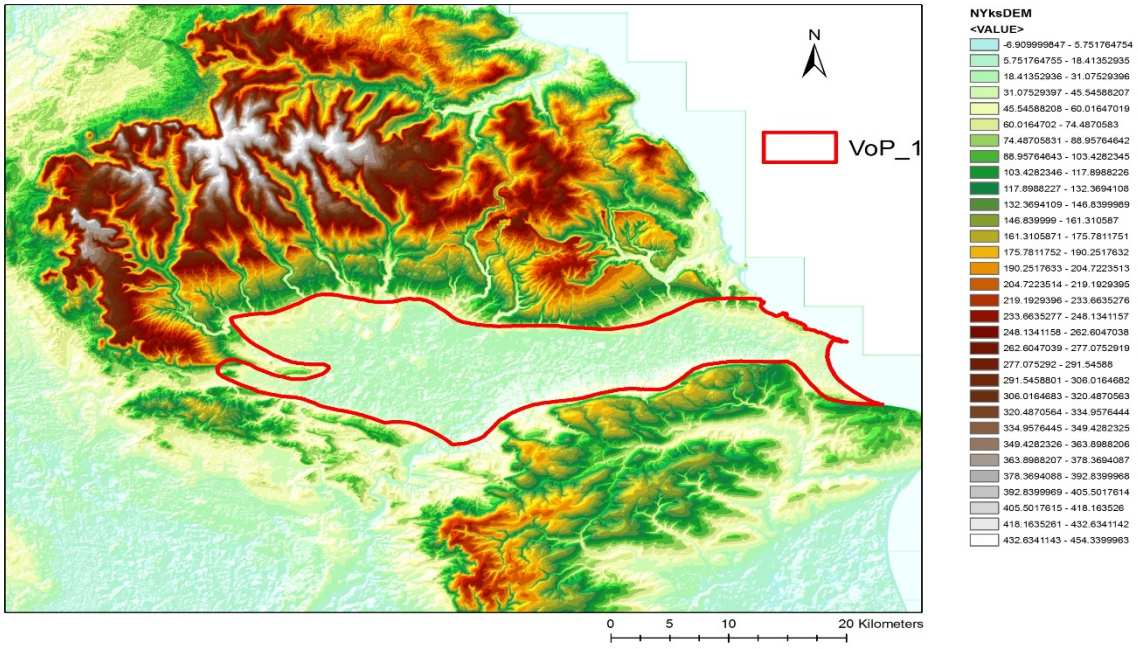
Previous archaeological investigation of the high medieval period in the western-central Vale of Pickering has however been limited, and no investigation of Rievaulx's involvement with the land south of Pickering has been conducted. This case study will therefore consider the evidence for Rievaulx's 'transformation' of the land given to it by King Henry II, as part of an attempt to understand the human / environment relationship as managed by a major Cistercian house. This chapter considers the physical and cultural contexts within which the gift was made to Rievaulx. Chapter 8 then discusses the possible interpretations of the term 'waste' used in relevant documents before considering holistically the question of whether Rievaulx 'transformed' the land given to it by King Henry II.

7.2 Case study area definitions

To address the question of whether Rievaulx 'transformed' the king's land it is necessary to discriminate change in the historic environment caused by humans, from change resulting from wholly natural physical processes, and from processes which result from interactions between humans and the physical world. Agrarian potential is affected by factors such as hydrology, which in the Vale of Pickering has been significantly shaped by physical processes such as glaciation. The nature of the research questions therefore necessitated consideration of questions at multiple scales. The possible origin of individual features, such as drainage dykes, need to be considered within interconnected cultural and hydrological systems. This necessitated a nested set of study areas which followed a logic of increasingly detailed focus, as defined by a combination of historical and physical factors and data availability.

VoP1

The broad study area was set within the Derwent catchment. The Vale of Pickering has been classified as a Natural Character Area (NCA), defined by landscape, geodiversity, biodiversity, and economic activity (Natural England (2014). The Level 1 study area, VoP1, was therefore the Vale of Pickering Natural Character Area (Figure 7:1). VoP1 also contextualises the extent of a complex succession of environmental regimes in the Vale including glacial and proglacial lakes (Eddey 2018).

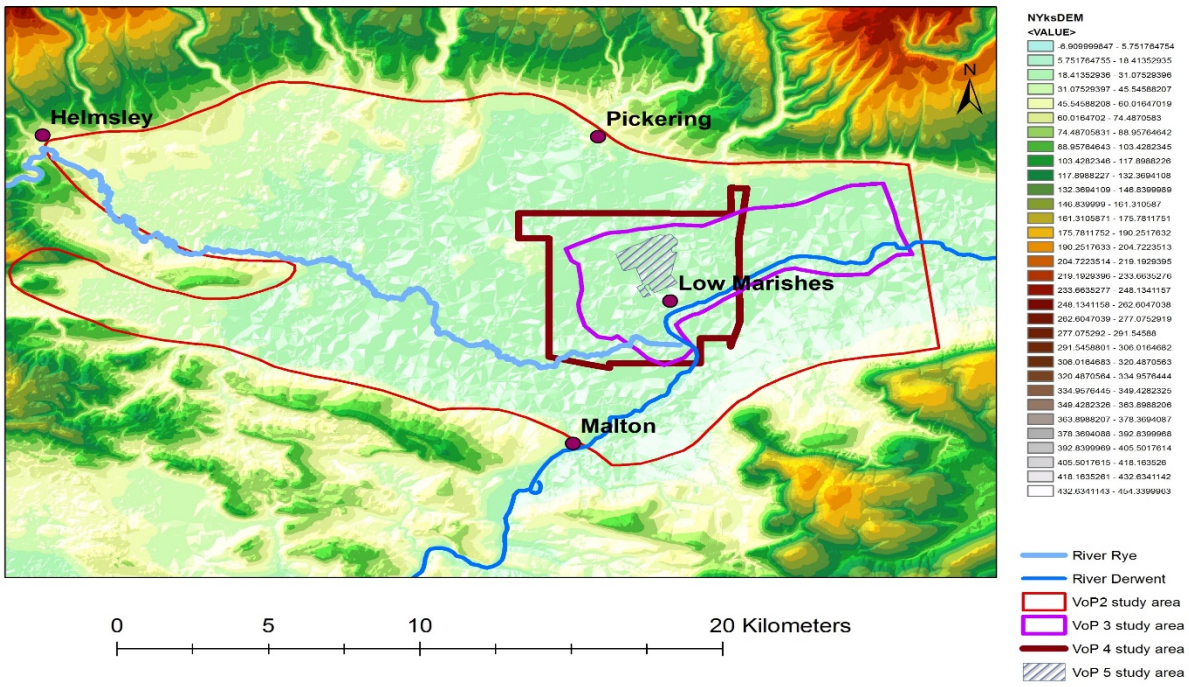


Digital Elevation Model of Vale of Pickering, derived from OS Terrain 5 [SHAPE geospatial data], Scale 1:10000 Using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk>, Downloaded: 2019-06-11.

Figure 7:1 Extent of Vale of Pickering Natural Character Area (VoP 1)

VoP2

VoP2 is the western-central Vale of Pickering, a unit where both hydrological and historical questions will be asked. It includes the floodplain confluence of the Rivers Rye and Derwent. It also incorporates the likely extent of the medieval royal estate of Pickering from which certain rights were given by King Henry II to Rievaulx Abbey in 1157-58.



Vale of Pickering study areas 2-5 overlaid on Digital Elevation Model. DEM derived from OS Terrain 5 [SHAPE geospatial data], Scale 1:10000 Using: EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk>, Downloaded: 2019-06-11.

Figure 7:2 Vale of Pickering study areas 2-5 overlaid on Digital Elevation Model

VoP 3

VoP 3 encompasses the possible extent of land given by King Henry II to Rievaulx, with a buffer area to allow for the uncertainties of the northern boundary and for some degree of watercourse shift since the 12th century. King Henry II is recorded as having visited Yorkshire in 1155 (EYC1 364) and Pickering in 1163 (EYC1 349). It was however at Caen when in a precept dated 1157-8, the king instructed the '*Vicecomiti* and ministers' of Yorkshire to direct the Wapentake and Forest of Pickering first to survey and then give to Rievaulx Abbey an area of land referred to as '*wastum subtus Pikeringam'.* (*Cart. Riev*. 206). Defining the boundary of this land 'south of Pickering' is however 'beset with manifold difficulties and perplexities' (Atkinson 1889:136). The document directing the recognition of the waste is brief and does not specify the boundaries. The boundaries are instead set out in a second grant by Henry II, *Cart. Riev.* 210*,* which was made at some date between 1163-1179.[1] A broad translation of this important document is below (Table 7:1). Henry II separately gave the abbey rights in *Kilverdemersch* (*Cart. Riev.* 205).

In *Cart. Riev.* 210, the boundaries of the waste are stated in terms of water courses, the 19th-century course of some of which can be traced on maps of that date. Successive English sovereigns, Richard I and King John, reconfirmed Henry II's gift in the same terms (*Cart. Riev.* 173; 380[2]). Certain boundary sections occur only in certain sources, however. This study assumes that such statements represent additions to the king's grant, but it is also possible that these are a correction of the other sources. For example, there is other evidence that *Eduiemersch* was not Henry's to give (section 7.9).

[1] Witness *Rogero, Episcopo Wig[orn]* suggests Henry's second document was dated to after 1163 when Roger was elevated to Bishopric of Worcester and before Roger's death in 1179 (Atkinson 1889:150; Le Neve and Greenhill 1971 Vol 2:99-102). Farrer (1914:317) suggests a tighter timeframe: 'after the eyre of Ranulf de Glanvill, Robert de Vaux, and Robert Pikenot in co. York, in 1175; and before the death of Roger, bishop of Worcester, at Tours 9th August 1179.'

[2] The latter an insertion by Atkinson from Charter Rolls 2 John No 57

Henricus, Rex Angliae et Dux . . . Archiepiscopis ... Sciatis me dedisse et... confirmasse ... S. Mariae et Ecclesia de Rievalle . . . pro anima gloriosi Regis, Henrici, avi mei, …in . . . elemosinam totum Wastum meum, et totam pasturam meam. subtus Pikeringam, . . . per metas et easdem divisas quas Wapentach de Pikaringlith juravit, ad meum proprium opus et in plenario Comitatu Ebor., coram Justiciis meis, recognovit – scil., quicquid est inter Alvestanebech et Tacriueling in longitudine, praeter pratum de Eduiemersc — per has, scil., divisas :—a loco ubi Alvestainebech cadit in Derewentam, [et inde] sicut eadem Derewenta currit usque ad locum ubi Ria cadit in Derewentam, et inde usque ubi Costa cadit in Riam, et inde per Costham ad Tacriueling, et inde per Tacriueling usque ad fossatum monachorum, et inde per idem fossatum sicut currit Lund et cadit in Costham, et inde per Costham contra Aquilonem sursum usque ad locum ubi Kiptoftesich cadit in Costham, et inde Kiptoftesich tendit ad Midsich, et inde per Midsich usque ubi Thorntonebech cadit in Midsich, et inde per Thorntonbech contra aquilonem usque ad fossatum quod circuit campum de Theokemarais, et inde per idem fossatum usque ad Blastam, et inde per sikettum quod ibi est usque ad Midsich, et inde sicut Midsich descendit in Alvestainebech, et inde sicut Alvestainebech descendit in Derewentam. Haec omnia dedi eis per prescriptas divisas, et concesssi similiter, ut infra ipsas divisas domos et bercharias aedificent, et terram colant et exerceant per totum, sicut eis placuerit. Quare volo, et regia auctoritate, et a Deo michi concessa potestate concede, statuo, corroboro praedictae Ecclesiae et monachis, sicut nunc et in perpetuum optinenda, in liberam elemosinam, bene et in pace, honorifice, integre et plenarie, sicut Rex Henricus, avus meus, ea tenuit in dominico suo die quo fuit vivus et mortuus libera et quieta de omni temanetala et Danegelda, et omnibus auxiliis et assisis, et omnibus consuetudinibus et occasionibus et placitis, et de omni terreno servitio quod michi vel successoribus meis unquam pertineat. Et prohibeo ne aliquis per dietas metas cum averiis intrare et turbam fodere, vel in aliqua re se intromittere aliquo modo praesumat, sine voluntate et licentia corum, super forisfacturam meam. T. Rogero, Archiepiscopo Ebor.; Ricardo, Episcopo Winton.; Rogero, Episcopo Wig[orn]; Hugone, Episcopo Dunelm.; Roberto, Comite Legerc.; Hamone, Comite de Warenna; Symone Comite; Ricardo de Luci; Rainaldo de Curtenai; Willelmo filio Aldelini, Dapiferro. Apud Westmonasterium,	Henry II to Archbishop [of York] . .. Let it be known that I have given, and confirmed to Saint Maria and Church of Rievalle. . .For the sake of the soul of Henry, my grandfather, in alms all my Waste and all my pasture below Pickering . . . by the boundaries as sworn to by the Pikaringlythe Wapentake as I had directed the *Comitatus* of York and my Justices to recognise, thus: That which is between Alvestanebeck and the length of Tacriueling except for the meadow of *Eduiemersc* with these boundaries. From where Alvestanebeck falls into the Derwent and from there where Derwent runs to where the Rye falls into the Derwent, and from there to where the Costa falls into the Rye, and from there to where the Costa and Tacriueling meet, and from there to where the Tacriueling as far as the monk's ditch, and from that ditch where the Lund runs and falls into the Costa, and from the North of the Costa as far as where *Kiptoftesich* falls into the Costa, and hence by *Kiptoftesich* towards *Midsich*, and hence by *Midsich* to where Thornton Beck falls into the *Midsich* and hence by Thornton Beck North as far as the ditch which surrounds *Theokmarais* field, and hence by this ditch as far as *Blastam*, and hence by the *sikettum* as far as *Midsich* and hence by *Midsich* to where it goes down to Alvestaine Beck, and hence by Alvestaine Beck to where this flows into the Derwent. All these things I have given to them, by way of the boundaries set out and let them build houses and *bercaries* and cultivate the land as they please. I wish, by the royal authority, and power given to me by God, grant, confirm, and corroborate [the gift to] the above-mentioned church and the monks, as it is now, and for ever, in free alms, well and in peace, with honour, wholly and fully, as King Henry, my grandfather held in his own demesne and exempt from all *temanetala*[3] and danegeld, and all aids and assistance and all the customs, occasions and pleas at any time and from all the earthly service that belongs to me or to my successors. And I forbid anyone to enter, disturb or dig up turbary or in any way to interfere without consent and permission. [Witnesses] From Westminster

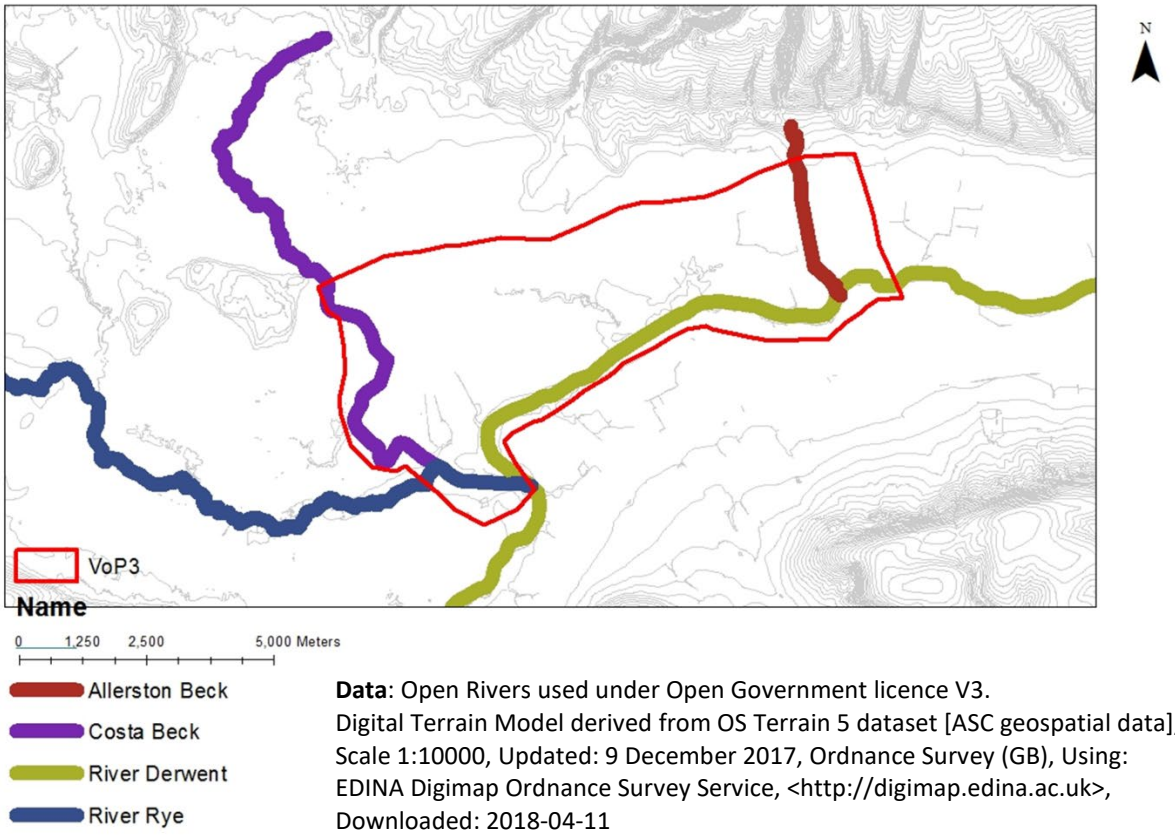
Table 7:1. Henry II's statement of Pickering waste land boundaries in Cart. Riev. 210

[3] Tax within a wapentake, possibly based on units of 10 men (Riley 1853: 317).

Segment	Comments	Reference
Allerston Beck to Derwent All that is between Allerston Beck and Tacheriveling	All grants and confirmations include this spatial extent. The exception of Eduiemersch exists only in Henry's second grant (*Cart. Riev* 210) and Richard I's confirmation	*Cart Riev*. 189, 210, 173, 210; EYC1 406
except for meadow of Eduiemersch *praeter pratum de Eduiemersc*	This phrase does not appear in original grant, and first appears in the later *Carta Regis*	*Cart Riev*. 210; EYC1 406
Derwent to Rye, Rye to Costa	This section appears in all Henry's waste charters	*Cart. Riev.* 189, 210, EYC1 406
Costa to Tacrieveling		*Cart. Riev.* 189,210 EYC1 406
At Tacrieveling by monks' ditch round Lund	Did some local reconsideration of the proper boundaries take place after 1158? The boundaries described in *Cart. Riev*. 210 adds a reference to Lund and an associated ditch, which appear to post-date the main grant from 1157-1158.	*Cart. Riev.* 173, 210. EYC1 406
Monks ditch from Lund to Costa		*Cart. Riev.* 173,210
Costa to Kiptoft syke		*Cart. Riev.* 189,210
Kiptoft syke to Midsyke		*Cart. Riev.* 189, 210
Midsyke to Thornton Beck	This section appears in all the charters	*Cart. Riev.* All
Thornton Beck to Theokmarais field	By Thornton Beck to ditch round Theokmarais field. In Cart. Riev. 210 this boundary is specified as *fossatum*	*Cart. Riev.* 189, 210 EYC1 402, 406
A certain ditch to Blastam	This section may postdate 1157-8 as reference to it appears only in Henry II's second grant. 'Blastam' is unintelligible, but the course of a 'Friar's Dyke' runs by *Blue Stoops* (SE 80218 79376) on 1st edition OS County maps. This dyke divides Pickering Township from Pickering Marishes in 19th century tithe district mapping.	*Cart. Riev.* 210
Syke between *Blastam* to *Midsyke*	This 'syke' may postdate 1157-8 as reference to it appears only in Henry II's second grant. A Midsyke defines the eastern boundary of Pickering Township in tithe commutation map	*Cart. Riev.* 210
Midsyke to Allerston Beck		*Cart. Riev.* 189, 210 EYC1 402, 406
Kilverdemersch	Grant by Henry II of pasture, 2 carucates at 'Kilverdemersch,' confirmed by bull of Pope Alexander III (1159-1181)	*Cart. Riev*. 205, 250, EYC1 403

Table 7:2 Boundaries of the king's wasteland as defined in 12th century documents

The eastern boundary of Henry's grant was thus defined by *Alvestanebech* (Allerston Beck), the southern by *Derewentam* (River Derwent) and the western by *Ria* (River Rye) and *Costa* (Beck). The northern extent presents difficulty, as it is defined by a feature which appears to have disappeared since 1157. This is known in the cartulary as *Tacriveling,* or variants such as *Tacriueling,* or *Tacrineling*, a feature which apparently met the Costa at one location and a *fossatum monachorum* at another. As the name does not appear on any maps consulted for this study, it is possible that it was a watercourse which has vanished since the 12th century or has been diverted into the complex drainage network of this low-lying land. Henry II's gift can thus be identified as lying within the western-central Vale of Pickering, in an area now known as Marishes. Study area VoP3 is therefore the possible extent of the land given by Henry II, with a buffer to account for the lost Tacriveling and a degree of post-medieval watercourse shift.



Data: Open Rivers used under Open Government licence V3.
Digital Terrain Model derived from OS Terrain 5 dataset [ASC geospatial data], Scale 1:10000, Updated: 9 December 2017, Ordnance Survey (GB), Using: EDINA Digimap Ordnance Survey Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-04-11

Figure 7:3 Study area VoP3 defined by boundary watercourses

VoP 4

Historic England guidance recommends collecting data beyond the immediate site, to reduce the loss of information through 'edge effects' and to contextualise any deposit model (Historic England 2020:20). The extent of lidar at 50cm resolution was therefore used as VoP4. The fact that 50cm lidar was not available across the whole of VoP 1-3 is a constraint on the hydrological analyses, a factor that will be discussed in Chapter 10.

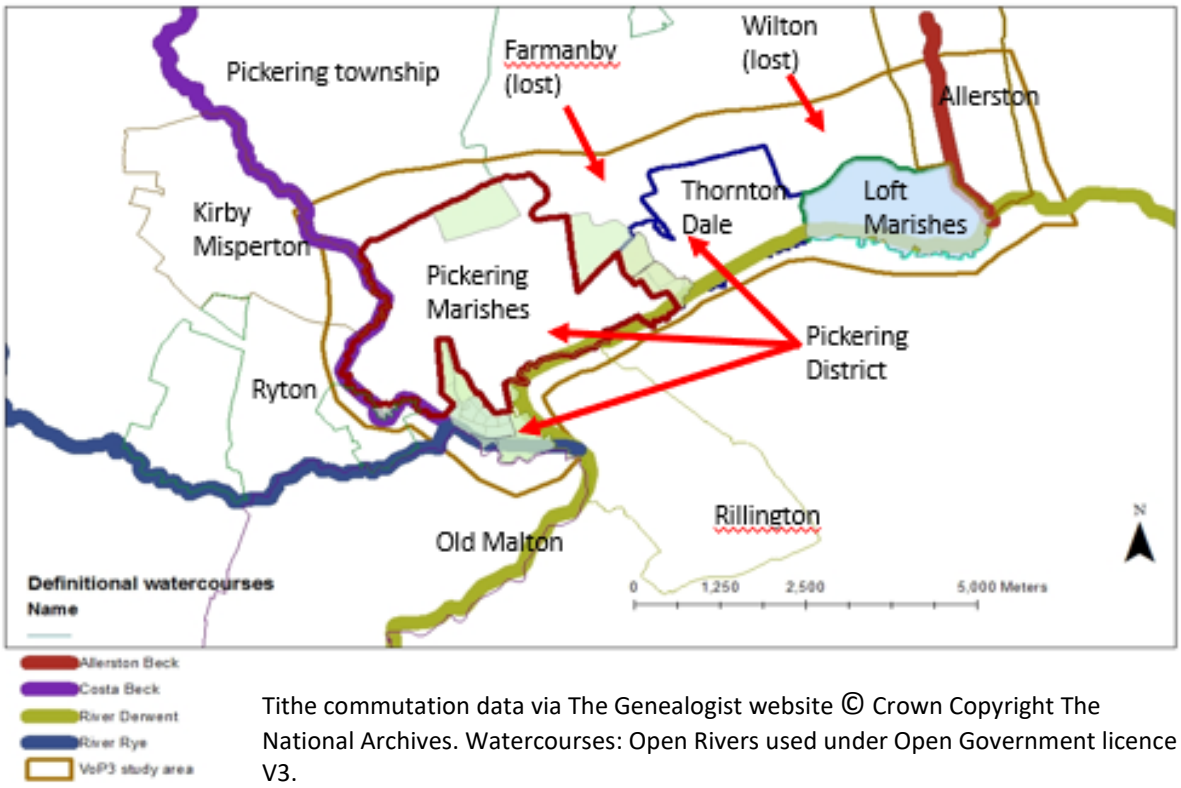
VoP5

Within VoP 3, Deerholme Grange (VoP 5) contains land parcels for which there is strongest evidence for land newly cultivated by Rievaulx. The study area was defined using tithe commutation data and medieval records. Tithe Commutation Act records for VoP3 suggest a complex pattern of tithe liability. By the 19th century, the land south of Pickering which had been given to Rievaulx by King Henry and subsequently supplemented by various neighbours, was divided into multiple different tithe districts, and bordered by several other tithe districts (Table 7:3).

Tithe district	**Tithe file**	**Tithe map**	**Tithe apportionment**
Pickering township	IR 18/12165	IR 30/42/297, images 1_index & 001-005	IR 29/42/297
Pickering district	IR 18/12164	IR 30/42/298	IR 29/42/298
High and Low [Pickering] Marishes	IR 18/12092	IR 30/42/236	IR 29/42/236
Thornton Dale	IR 18/12258	IR 30/42/377	IR 29/42/377
Allerston (Loft Marish is on plan 002)	IR 18/11819	IR 30/42/9: images 001, 002, AA3	IR 29/42/9
Old Malton	IR 18/42/234	IR 30/42/234	IR 29/42/234
Ryton township	IR 18/42/317	IR 30/42/317	IR 29/42/317
Kirby Misperton	IR 18/12058	IR 30/42/207	IR 29/42/207

The complexity of tithe liabilities south of Pickering was reflected in multiple tithe districts recorded in 19th century Tithe Commutation documentation

Table 7:3 Tithe liabilities south of Pickering reflected in multiple tithe districts



Tithe commutation data via The Genealogist website © Crown Copyright The National Archives. Watercourses: Open Rivers used under Open Government licence V3.

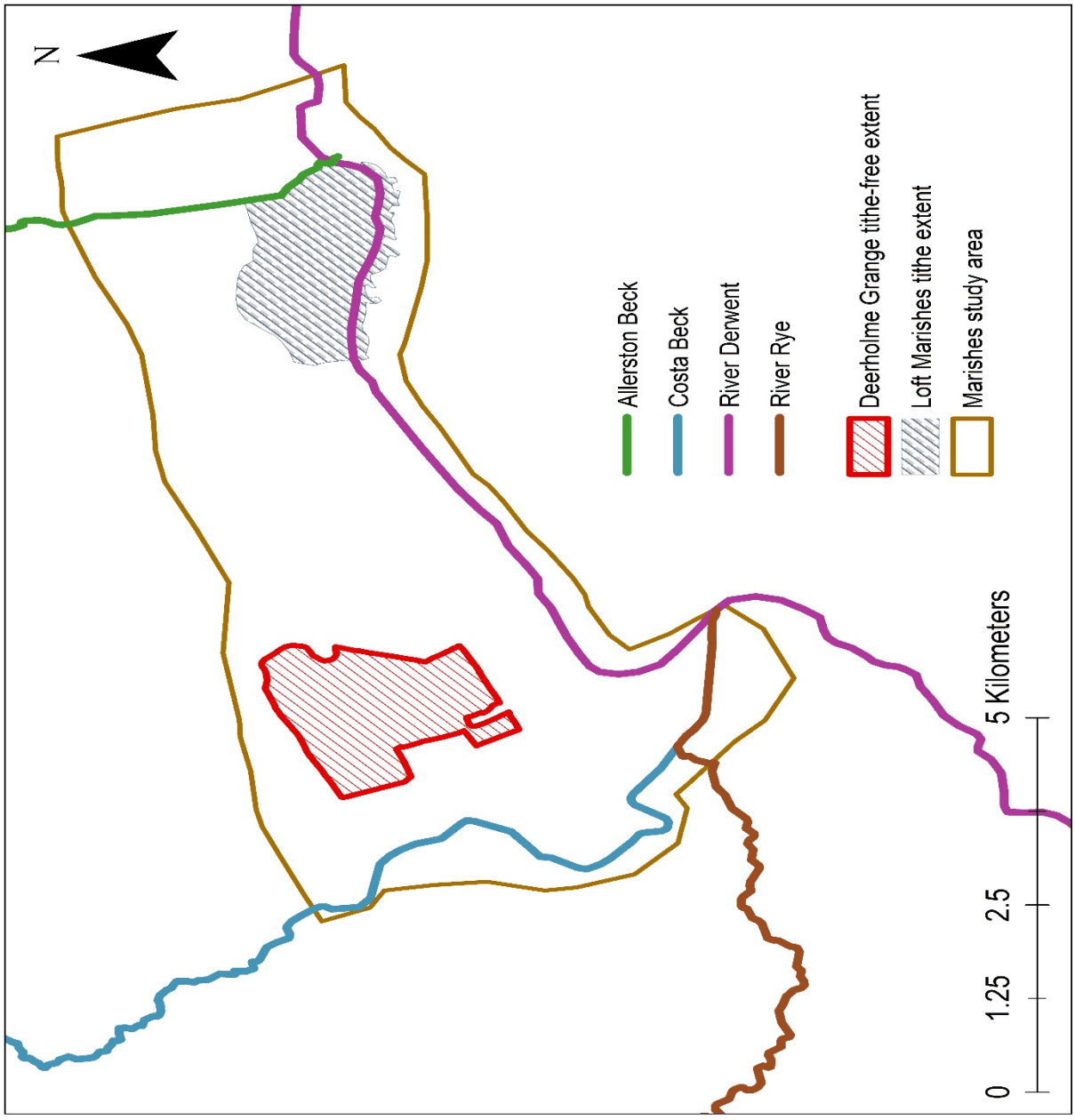
Figure 7:4 The tithe districts south of Pickering interdigitated in a complicated pattern

Within VoP 3, only one land parcel was recorded in tithe commutation records as tithe-exempt for a reason associated with monastic privilege. This parcel comprised several fields described in the district of Pickering as 'tithe exempt, part of Deerholme Grange' (Table 7:4). Deerholme was listed in Dissolution surveys as one of the granges of Rievaulx Abbey (Atkinson 1889:310-358). Only part of Deerholme Grange was recorded as tithe-exempt, however, and the intricacies of the distinction between tithe-liable and tithe-exempt areas will be considered below and in Chapter 8. The whole extent of Deerholme Grange, including both tithe-liable and tithe-exempt areas, was used as a study area **VoP5.** Tithe commutation data also permitted the definition of Allerston Loft Marishes (Figure 7:5). A combination of evidence (7.7.1 below) however excluded Loft Marishes as 'noval' land when inherited by Rievaulx.

Number on tithe map	Name & description	State of cultivation	Number on tithe map	Name & description	State of cultivation
66	1st over road Close	ara			
67	1st over road Close	ara	110	Stack garth field	ara
68	Crabtree Close	Gr	111	Horse pond field	ara
79	Stack yard & garth	n/d	112	Rape field	ara
80	(Ho) Garth Gdn & Premises	n/d	113	Black piece	ara
81	Calf garth	n/d	114	Great Hill	ara
82	orchard	n/d	115	Brick garth field	ara
83	East (closes? Acres?)	Gr	116	Aspen field	ara
84	Three (cornered?) piece	ara & pas	117	Far Fallow Close	ara
85	Howls	Gr	118	Middle Low Close	ara
86	Garth	Ara	119	Dring Wife field	ara
87	House & garden		120	Plantation Close	ara
88	Howls	Gr	121	Trod field	ara
103	[unnamed]	ara	122	Garth end close	ara
104	Brick yard field	ara	127	Third front field	ara
105	Plantation & pond	n/d	128	Second front field	ara
106	Brick garth field	ara	129	Front field	Gr
109	Low stack yard field	ara	130	Garth	Gr

Data source: *Tithe Apportionments*, 1836-1929 [database online]. TheGenealogist.co.uk 2018

Table 7:4 transcription of tithe-exempt parcels from Deerholme Grange in High and Low (Pickering) Marishes: piece number 42-236-2



Tithe commutation data via The Genealogist website © Crown Copyright The National Archives. Watercourses: Open Rivers used under Open Government licence V3.

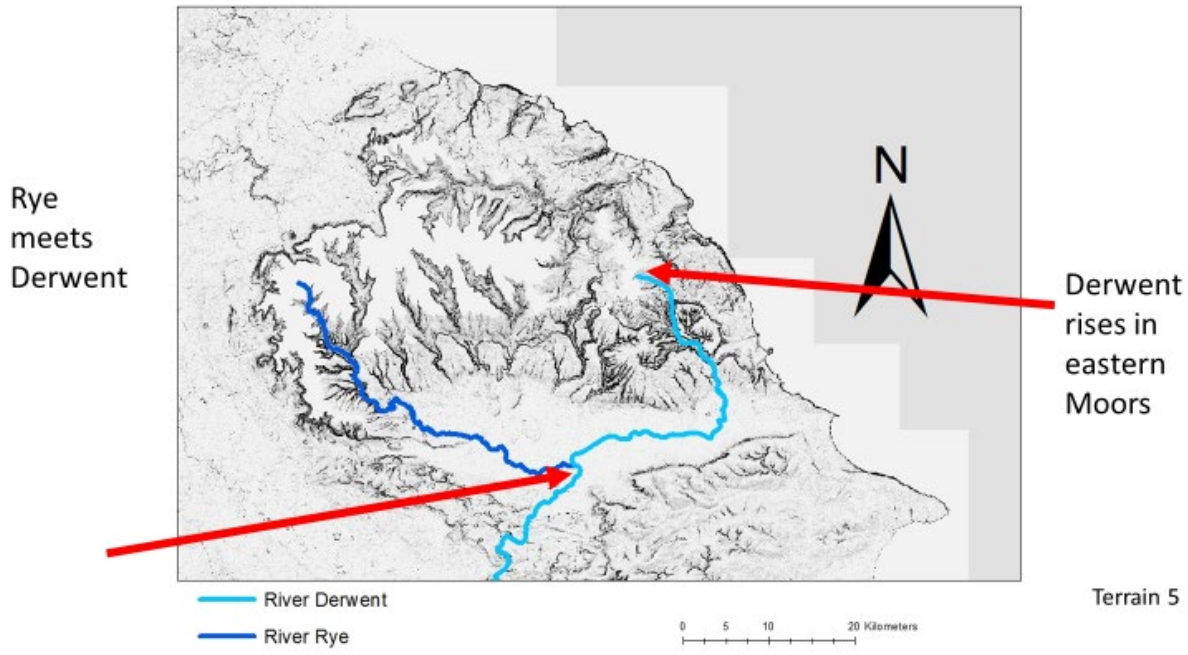
Figure 7:5 Tithe commutation data enabled identification of Deerholme and Loft Marishes

7.3 VoP1. Formation of a hydrological basin

7.3.1 Physiography and geology

This work argues that the physical properties of certain places played a part in decisions by specific monastic patrons to give land to Rievaulx Abbey. Although medieval people did not have access to the modern scientific understanding of the physical development of the Vale of Pickering, they appear already to have conceived of this landscape as a 'place.' The Vale of Pickering is so named by the 13th century (Smith 1928: 87; Anderson 1934: 4-5). An important part of the subjective experience of this place derives from the physical properties of the Vale, which were formed through a complicated set of processes, many of which are still not well understood.

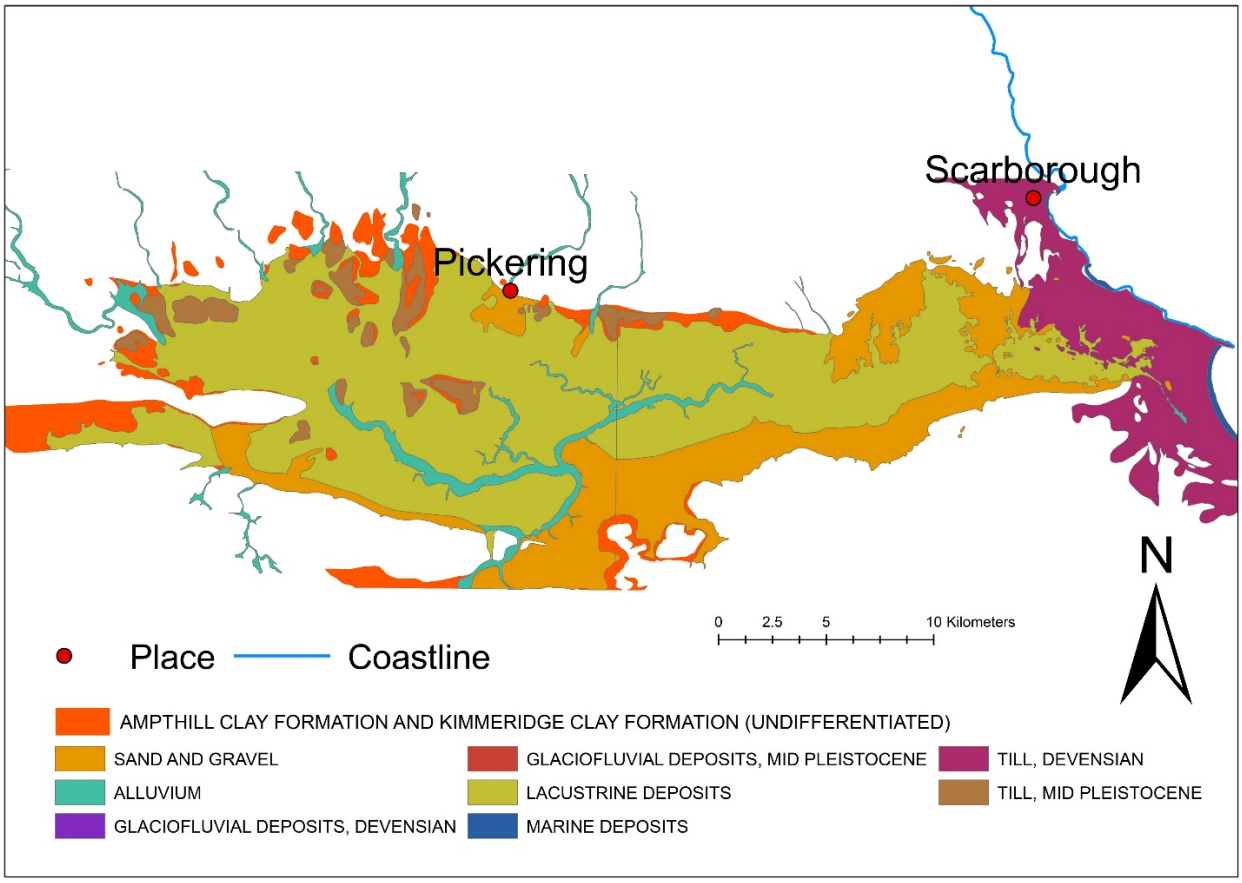
Overall, the Vale covers approximately 500km^2 from Helmsley in the west to Filey in the east, with a maximum width of around 12km between Pickering and Malton (Eddey 2017:2). Elevation declines along a central axis from 40m OD at Filey to 20m OD at Marishes, before grading upwards to 60m OD at Helmsley (Eddey 2017:2).



Digital Terrain Model derived from OS Terrain 5 dataset [ASC geospatial data], Scale 1:10000, Updated: 9 December 2017, Ordnance Survey (GB), Using: EDINA Digimap Ordnance Survey Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-04-11

Figure 7:6 Digital terrain model of Derwent catchment and Vale of Pickering

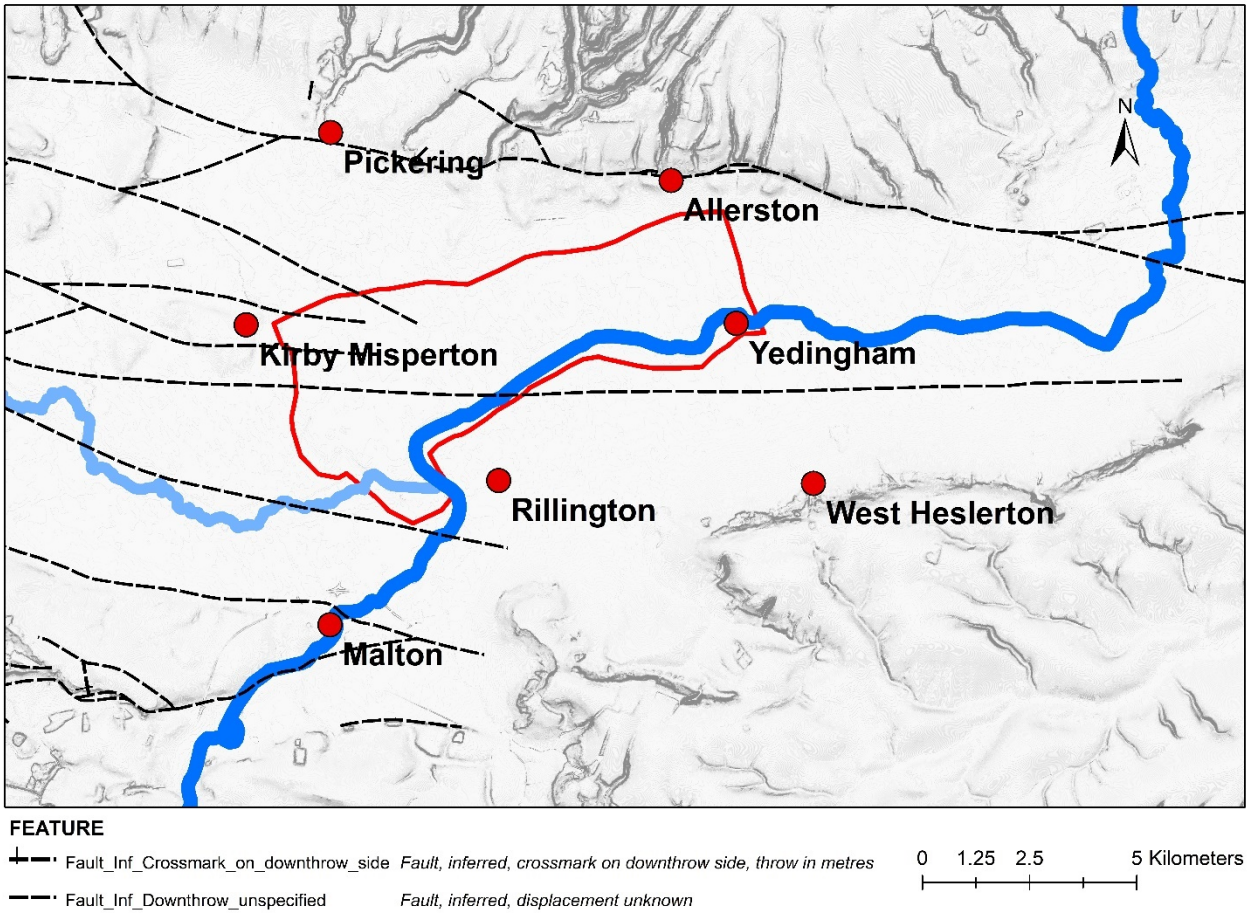
The Vale is bounded to the east by the North Sea basin and morainic hills (Kent 1980:7; Eddey 2017:2), and to the north, west and south-west by Jurassic rocks of the Tabular and Hambleton Hills (Eddey 2017:2), the latter cut through by lower land at the Coxwold-Gilling Gap, a faulted trough (Jecock et al 2011:5) and the Kirkham Gap. The Vale is bounded to the south by the Lower Cretaceous chalk of the Yorkshire Wolds (Powell 2017a:2). The bedrock of the Vale is principally Upper Jurassic and Lower Cretaceous mudstones, with the Corallian strata of the Upper Jurassic which underly a major part of the Vale cropping out at the western and northern margins (Figure 7:7) (Powell 2017a:4). The basin surface of Ampthill and Kimmeridge Clay, up to 297m deep in places, is interspersed by small clay hills capped by diamicton, some of which may possibly be mid-Pleistocene in date (Ford et al 2015; Powell et al 2016; Powell 2017a:2-6). These strata are overlain in places by Quaternary and Holocene unconsolidated sediments (Eddey et al 2017: 12-22).



Crown Copyright/database right 2021. A British Geological Survey/EDINA supplied service. DiGMapGB-50 [SHAPE geospatial data], Scale 1:50000, Tiles: ew053, ew054 Updated: 30 November 2016, BGS, Using: EDINA Digimap Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-03-03

Figure 7:7 Outcrops and unconsolidated deposits in central Vale of Pickering

During the Jurassic, the Vale formed part of the Cleveland Basin, and was thus part of a system of small extensional tectonic basins and shallow epeiric seas (Powell 2010: 21). The Vale is a valley, with low-lying topography resulting from the inversion of the Cleveland Basin and subsequent downthrow of part of the resulting dome along east-west fault structures (Powell 2017a:2-6). Broadly east-west faulting is present throughout the Vale (Powell 2010). In the centre of the Vale, VoP3 has nine inferred faults within a radius of under seven kilometres (BGS data and Figure 7:8).



Open Rivers data used under Open Government licence V3. Other data: Crown Copyright/database right 2021: **British Geological Survey**/EDINA supplied service - DiGMapGB-50 [SHAPE geospatial data], Scale 1:50000, Tiles: ew053,ew054, Updated: 30 November 2016, BGS, Using: EDINA Digimap Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-03-03 **Digital Terrain Model** derived from OS Terrain 5 dataset [ASC geospatial data], Scale 1:10000, Updated: 9 December 2017, Ordnance Survey (GB), Using: EDINA Digimap Ordnance Survey Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-04-11

Rye and Derwent shown in blue, modern places indicated for orientation

Figure 7:8 Multiple faults occur across the central Vale of Pickering

In hydrological terms, the Vale of Pickering is a drainage basin with constrained outflow. Glacial and post-glacial processes have significantly affected the hydrology of the Vale so are pertinent to investigation of human manipulation of that hydrology. The modern River Derwent originates near Hackness in the North York Moors and flows through the Forge Valley into the Vale at Great Ayton (Eddey 2017a:2). Before the Devensian glaciation, drainage of the Vale may have continued eastwards to the North Sea. That route was ice-impounded during the Late Devensian and a series of pro- and post-glacial lakes developed in the Vale (Kendall 1902; Edwards 1978; Eddey and Lincoln 2017:12-22; Eddey 2018). The pre-Devensian cut now known as the Kirkham channel became the main drainage route of overflow waters from Lake Pickering into Glacial Lake Humber at successive heights of 42-15m OD (Edwards 1978, Ford et al 2015; Eddey and Lincoln 2017:56).

Based on limited existing research[4] it is known broadly that the post-glacial hydrology of the Vale significantly differs from that of pre-glacial periods. Since the Devensian, most of the Vale had only one major outflow route: southwards via the Kirkham Gap. Across most of the Vale the River Derwent therefore flows westwards and thus away from the sea. A much smaller basin in the Vale near the east coast now drains eastwards via the River Hertford towards the North Sea, facilitated by 19th century engineering works to the River Hertford, and the creation of a 'sea cut' near Scalby (Kent 1980:7; Menuge 2004b:157-158).

The post-glacial drainage of the Vale incised a river network into the lake deposits forming channels and alluvium deposits of silt, clay, sand, and gravel (Bearcock et al 2016:9). Fluctuations in lake levels may have caused the shoreline, streams, and rivers to shift (Ford et al 2015). Eddey and colleagues have emphasised the need for sedimentary analysis in the Vale to understand the deposits and changes in lake levels and transitions from subaqueous to

[4]The pattern and rate of post-glacial drainage of the Vale requires further attention. Kendall's theory of glacial and pro-glacial lakes in the Vale of Pickering and the North York Moors was developed from field observations prior to modern scientific techniques (Kendall 1902, plate 28). June Sheppard's study of the historic hydrology of the Vale of Pickering was the third case study area in her doctoral research and received much less attention than her studies of the Holderness and Vale of York areas. Sheppard suggested that there may have been multiple lakes in the Vale in periods of human occupation, for example a possible Lake Costa to the west of Pickering (Sheppard 1956:358). It is unclear on what physical evidence Sheppard attributed some of the earliest drainage of the Vale to monastic activity as her thesis in this section cited solely documentary evidence (Sheppard 1956: 329-408).

subaerial environments (Eddey et al 2017:22).[5] Specific deposits are not well understood.[6] The existing mapping of lithological variation, lake succession and superficial deposits may be locally uncertain, due to variable borehole sampling and subjectivity of interpretation (Ford et al 2015:8). Previous boreholes revealed up to 12m of fine-grained laminations over bedrock, covered by up to a further 12m of interbedded sequences of gravels and sands (Evans et al 2017:297). Geological features have potential to be confused with features caused by land-use.[7] Peat deposits are not mapped on the (BGS) Pickering 1:50 000 scale data, but bodies of peat are likely to be present, especially alongside or within modern river or floodplain deposits, especially in low-lying, marshy areas (Ford 2015).

[5] Ongoing research by Sheffield University aims to date the glaciolacustrine deposits and consider evidence for drainage and refilling of Lake Pickering. Investigation at Ings Farm Quarry, Yedingham (SE90562 79516) suggest topsoil here extends to around 0.3m (in Quarry 1), but no organic material was noted in the two cores extracted or in the open quarry exposures at Quarry 2 (Eddey and Osguthorpe 2017).

[6] Such as the member near East Heslerton at the foot of the Wolds dipslope, first mapped as a scarp foot bench (King 1965), which is now interpreted as a scarp base fan delta graded into shelf formation within the Sherburn Sands (Evans et al 2017: 299-306). Foster (1985) considered features south of the town of Pickering to represent the most westerly extent of the ice margin, but Evans and colleagues reinterpreted the Pickering deposits as relating to a delta when the lake was at 30m OD around 18-17ka (Evans et al 2017).

[7] Gravels in the Vale, possibly outwashed, display ridge-like appearance in places (Musto 1962:14-17). This has consequent potential for confusion of topographical interpretation.

7.3.2 Humans and palaeodrainage in the Vale of Pickering

The Vale of Pickering is significant in multiple terms (Cooke 2012).[8] Understanding of the archaeological significance of the Vale of Pickering however came relatively late, catalysed in part by discoveries resulting from aggregate extraction for post-Second World War building and agricultural intensification, both of which created ground conditions that exposed archaeological features (Roskams and Whyman 2007 YARF:7). The Vale is suggested as the sole place in the UK '…where the gathering of knowledge in the latter half of the 20th century lets us begin to understand a continuous sequence of human activity since the late Palaeolithic.' (Powlesland reported in Cooke 2012:13).

Despite this archaeological significance, and significance in multiple other terms, systematic archaeological mapping of the Vale has been patchy and some areas and certain periods are better understood than others. The Vale of Pickering forms a gap in coverage by the Historic England-funded National Mapping Programme, between the North York Moors (2 reports – Knight et al 2011, Knight and Bax 2013), Yorkshire Wolds (Stoertz 1997), and Howardian Hills (Carter 1995). Post-medieval land use,[9] and intensive drainage and agriculture, is highly likely to have affected the preservation and visibility of archaeological evidence within the Vale.

The gaps in knowledge of the Quaternary hydrology of the Vale (above) are of concern partly because early human occupation here is closely associated with watercourses and bodies of water. Depending on the date and pattern at which the post-glacial lakes drained,[10] sediments

[8] *Statement of Significance* produced for the *Vale of Pickering Historic Environment Management Framework Project* convened by English Heritage. The Derwent course and associated land contains 21 Sites of Special Scientific Interest (SSSI) (River Derwent Restoration Action Plan 2010:3). The Vale is also a Special Area of Conservation and contains spatial areas of priority under schemes such as the Woodland Priority Habitat Network (England) and as a National Character Area (Natural England 2015). The Late Quaternary deposits are of great importance to understanding the glaciation and deglaciation of Northern England (Evans et al 2017). 'The quaternary geological deposits of this area … are particularly important, forming the most complete sequence of post glacial origin known in Europe' ("Yorkshire's Hidden Vale report 6.3.3). Historic Landscape Characterisation has been carried out at the level of North Yorkshire County (Dalton et al 2013).

[9] Modern settlements, including Helmsley, Pickering, Malton and Scarborough are located around the edges of the Vale. The lowland of the western Vale (VoP2) has few settlements of any size, apart from Great and Little Barugh which are located on the slight areas of raised ground mapped as Kimmeridge clay (BGS data), and Kirby Misperton. Within VoP3, (Pickering) Marishes is a scattered hamlet at the junction of the Derwent and he Rye.

[10] Bearcock and colleagues observed (2016:9) that it is likely (emphasis added): 'that the rivers were active at times during the Late Devensian and that sand and gravel that is mapped at surface may extend into the lake succession

in the Vale may have the potential to overlay archaeological evidence. The palaeo-lakeside context further east in the Vale at Star and Seamer carrs (Milner 2018) illustrates the potential for Mesolithic evidence under as-yet unassessed deposits by palaeo-watercourses elsewhere in the Vale.

The limited synthesis of knowledge about the archaeological landscape of the Vale of Pickering, and even more limited palaeohydrological investigations there, have led to some assumptions which are problematic in their implications for understanding and stewardship of the archaeological resource. One such is a view that the former wetlands in the centre of the valley were drained only in the 19th and 20th centuries and hence the historic landscape as visible today is the creation of 'just the last 200 years and in many instances a landscape created within living memory' (Cooke 2012: 2). As the current study will show, there is evidence that in certain places systematic drainage considerably pre-dated the 19th century.

at depth. Rivers that have little or no current expression at surface may have been active during the early stages of Lake Pickering. Such rivers may have deposited coarse-grained **sediment that is now entirely concealed**. Little is known about the lateral extent, continuity or orientation (i.e. if channel-like in form) of these rivers or any **corresponding deposits**.' YARF (2007:52) sounds a similar cautionary note (emphasis added): "The particular character of the main waterways across the Vale, with deep channels cut by the rivers in the early Holocene and subsequently infilled with sediment, may mean that Mesolithic **artefacts, strata** and, perhaps in places, **surviving ground surfaces** may be **concealed at depths of several metres along these corridors**."

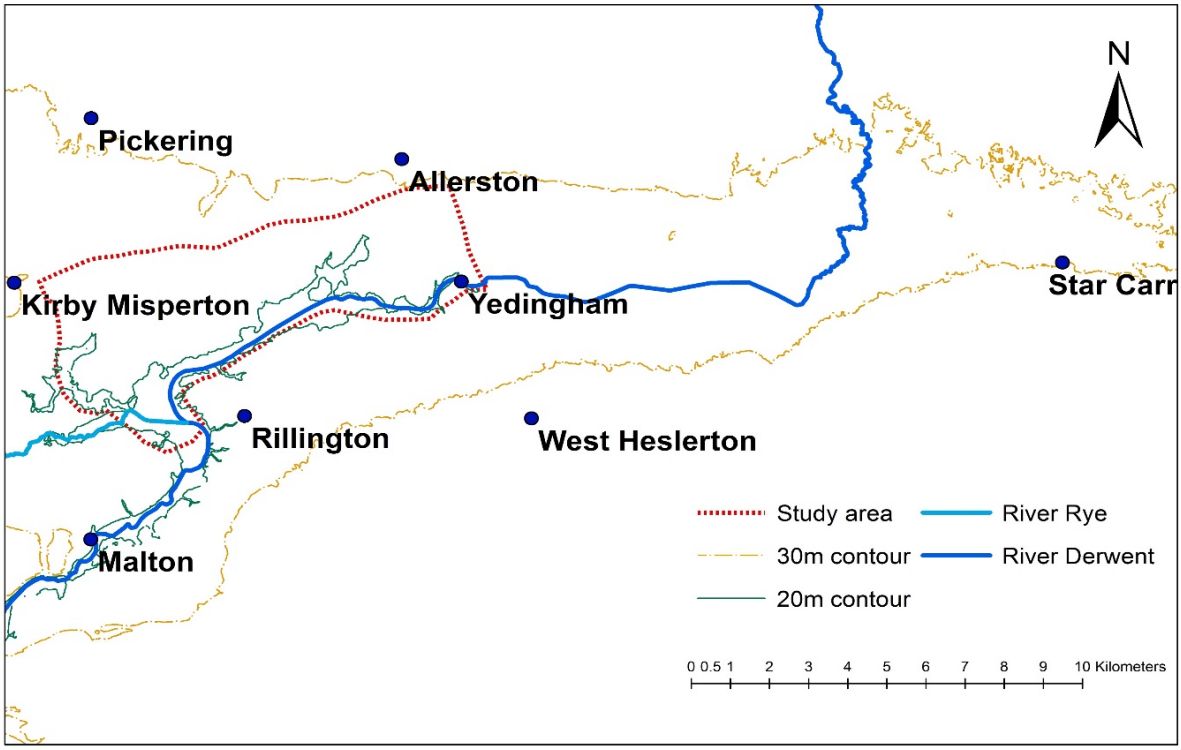
7.4 VoP 2 – The emergence of a special place: people, water, belief and authority

This study argues that the physical properties of the Vale of Pickering may have played a role in grants of land here to Rievaulx Abbey. The physical properties of the Vale of Pickering noted above create a subjective sense of place. The low topography of much of the Vale and its bounding by higher land on three sides can create a somewhat disorienting impression both of openness and enclosure. Even in the modern day, the Vale of Pickering has an intangible atmosphere. To a pre-modern observer, the west to east drainage of the Derwent in the Vale is counter to the expected direction of flow, as the river appears to drain 'backwards' away from the sea.

As with the Rye Vale study, this Vale of Pickering study considers the questions of pre-Cistercian authority as pertinent to whether land given to Rievaulx was previously unoccupied. Some relevant aspects of lay and religious authority here may have roots in the early medieval period. Much about the emergence of this authority is unknown, however. There are gaps in knowledge of the patterns in which this part of the Vale was settled. Occupation at specific locations is well attested for the Late Iron Age and Roman periods (Haughton and Powlesland 1999). Roman occupation is known in the western Vale. There was a military centre at Malton, which was connected by a road network (Margary 1967) and had an extensive vicus (civilian settlement) nearby (Oakey 2015). Roman-era villas have been identified at Hovingham and Beadlam (Mon numbers 58446, 1011365). Roman-period drainage was carried out in the Vale of York (Horne 2004: 58-61), which adjoins the Vale of Pickering. It is therefore logical to assume, but is currently only a matter of conjecture, that Roman-period drainage may also have been carried out in the Vale of Pickering.

Climate and weather are known to have fluctuated in the post-Roman periods in a manner that would have affected the agrarian potential of the land inherited by Rievaulx Abbey. A fourth-century climatic decline is known in the Vale, associated with increased rainfall and rising ground-water levels at East Heslerton (Haughton and Powlesland 1999). An excavated settlement and cemetery complex at West Heslerton may have shown continuity of ritual purpose over an extended period, from the Roman to Anglo-Saxon occupation (Haughton and

Powlesland 1999). Continuity of settlement at West Heslerton, based on differences in architectural styles, individual house plots and enclosures at the site, may however be less clear (Semple 2013:97). Isotopic analysis to determine ethnicity of burial population at Heslerton was also inconclusive (Montgomery et al 2005).

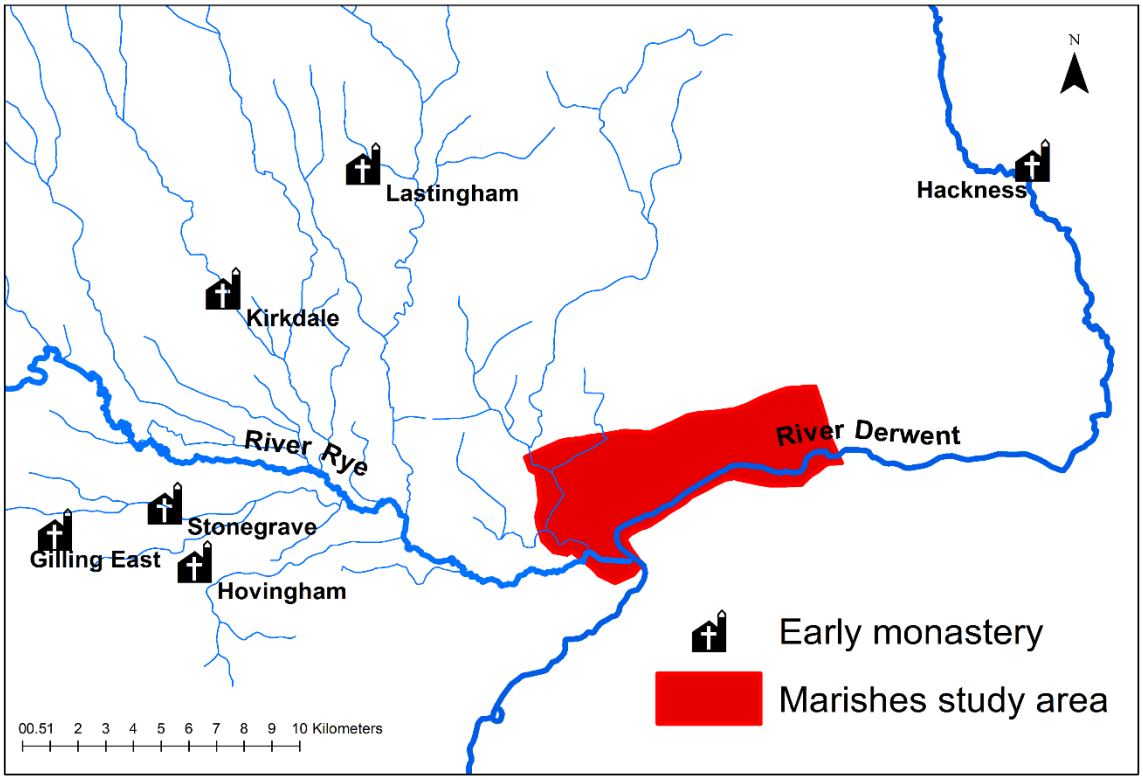


Contains OS data © Crown copyright and database right 2019.
Contours generated using Land-Form PROFILE Scale 1:10000 updated: 2009-11-05,
using EDINA Digimap Ordnance Survey Service, <https://digimap.edina.ac.uk>, downloaded 2019-10-04

Figure 7:9 locations mentioned in text

Rivers in the Vale may have been culturally important from at least early in the medieval period. The rivers Derwent and Hertford have been suggested as boundaries in the 5th-9th centuries between a British or mixed area to the west /north and an Anglo-Saxon or mixed population of the Kingdom of Deira to the east /south (O'Hare 1993:15; Higham 2000:41; Rahtz and Watts 2003:302).

The western-central Vale of Pickering became notable for early medieval ecclesiastical foundations (Hadley 2000:261-262). The Rye and Derwent and their tributaries were locations of a remarkable concentration of early medieval monastic houses established by the later 9th - century. These included Lastingham, Hovingham, Gilling East, and Stonegrave (Wood 2008). In the case of Kirkdale (Rahtz and Watts 2003), the abbey site lies next to the Hodge Beck which periodically completely 'disappears,' (David Petts pers. comm), probably drying up because of its location on the fissured limestone bedrock. Many of the religious foundations in the western Vale had associations with former Roman sites such as Hovingham, and with the rulers of the Northumbrian dynasty, such as Lastingham, Gilling (East), Crayke, Stonegrave, Coxwold, and Kirkdale *(*Wood 2008). Bede also refers to a monastic house associated with Whitby Abbey, either a nunnery or a double house at Hackness (HE 4 23). Hackness lies near the origins of the River Derwent in the high Moors. The early monastic occupation of many of these locations is currently known primarily from the documentary record, with physical investigations at only a few locations such as Lastingham (Rahtz and Watts 2003) (Figure 7:10).



Watercourses derived from Open Rivers data used under Open Government licence v.3

Figure 7:10 Early medieval monasteries by Rivers Rye, Derwent and their tributaries

Significant amounts of Anglian and Anglo-Scandinavian sculpture have been catalogued for the Vale (Lang 1991). The style of this suggests that Scandinavian settlement and cultural assimilation, including a degree of Christianisation, took place across the Vale of Pickering in the 9th to 10th centuries (Rahtz and Watts 2003:304-308). The settlement and occupation of the western-central Vale in the early medieval period is otherwise not well understood. This is partly because activity areas, other than those marked by sculptural stone, have proved elusive. Powlesland and colleagues observed (1986: 67, emphasis added):

> '**The lack of evidence [in this area] should not be seen as a simple indication of an unpopulated landscape**. The difficulty here is in identifying that population and their archaeology, an archaeology which may look little different to that of the Iron Age. Certainly, there is almost no evidence of Early Anglo-Saxon activity; however, the presence of churches and ecclesiastical foundations in the ninth century may be used to infer a larger population than we might otherwise identify.'

7.5 11th – 12th centuries: intricacy in authority increasingly apparent

Documentary evidence suggests that by the late 11th century the pattern of both lay and religious authority in the western-central Vale had become highly complicated. This intricacy will be suggested later as contributing to disputes between Rievaulx Abbey and her neighbours in the 12th century, and reflecting the value placed on this area by contemporaries of Rievaulx. The development of ecclesiastical and secular authority in the western-central Vale becomes visible through Domesday Book and other post-Conquest documents (Table 7:19).

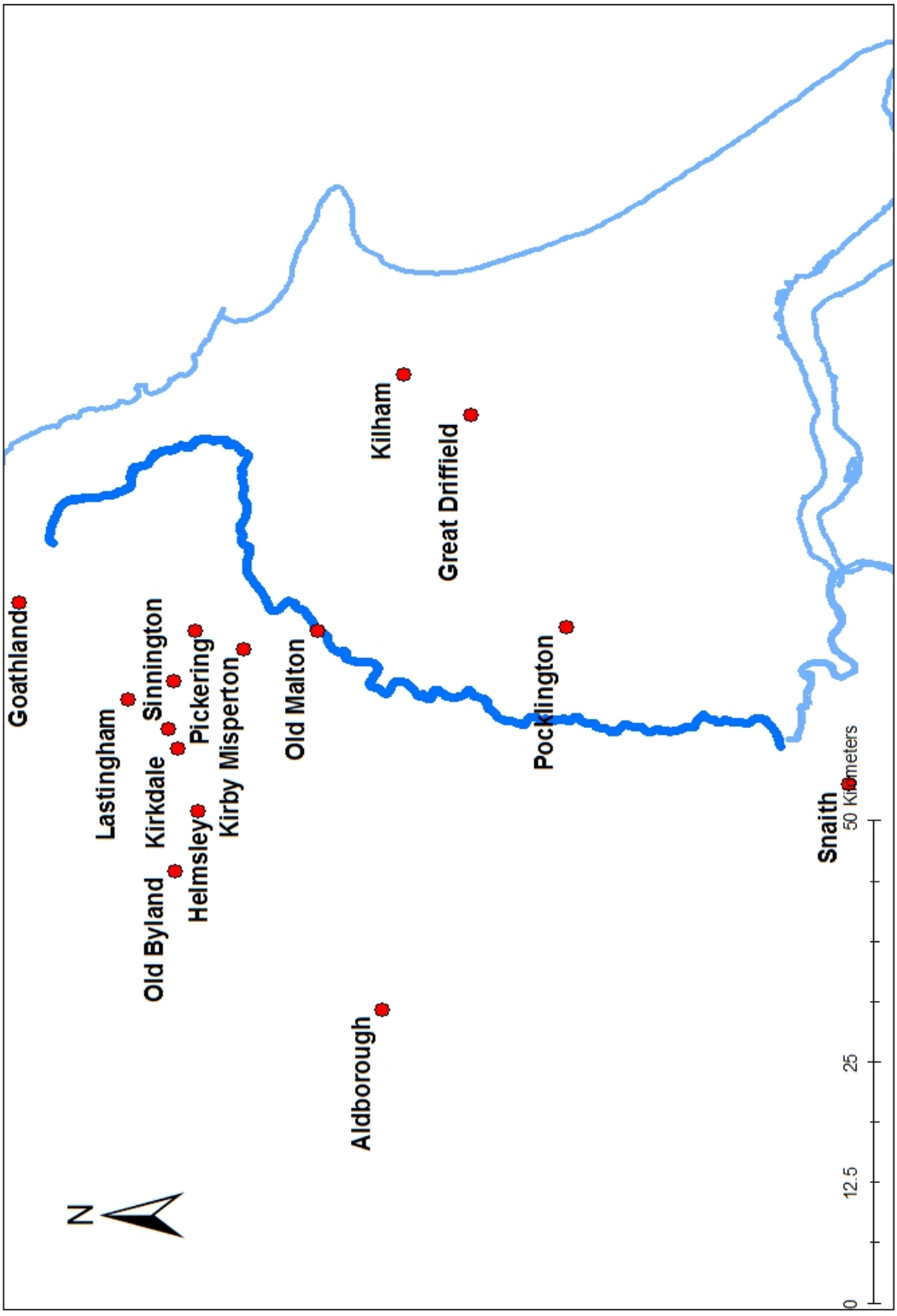
7.5.1 Ecclesiastical authority

Some level of organisation is visible in DB between the churches of Kirkdale, Kirby Moorside, Sinnington and Kirby Misperton (Kroebel 2003: 122).[11] A hermitage is known at Goathland.[12] The churches at Old Malton and Pickering may have been 'mother churches,' namely the primary church in an area (Hadley 2000:277). Charters of Henry I suggest that a parish may have existed at Pickering by the mid-11th century (Kroebel 2003: 125). The royal demesne churches in Yorkshire, including Pickering, were granted to the deanery of York by Henry I (Table 7:14; Figure 7:11; Hadley 2000:278).

Little physical evidence has however been found of the pre-Norman church at Pickering (Pevsner 1966: 282-283). The earliest above-ground fabric of the church of St Peter and St Paul is 12th century, with rebuilding thereafter (Pevsner 1966:282-3), and the creation of noteworthy 15th century wall-paintings (Giles 2000). The remains of foundations possibly earlier than the 14th century were found during an otherwise inconclusive small investigation (Dennison 2007). Pre-Conquest carved stone, including pieces of a cross and hogback stone, was found nearby (Lang 2001:199-201).

[11] Kirby Misperton possessed 'half a church' DB folio 314a1 transl. Faull and Stinson 1986

[12] This was possibly evicted to Whitby by afforestation during Norman / Angevin times, before being restored (Farrer 1914:309-310, EYC 1 396).

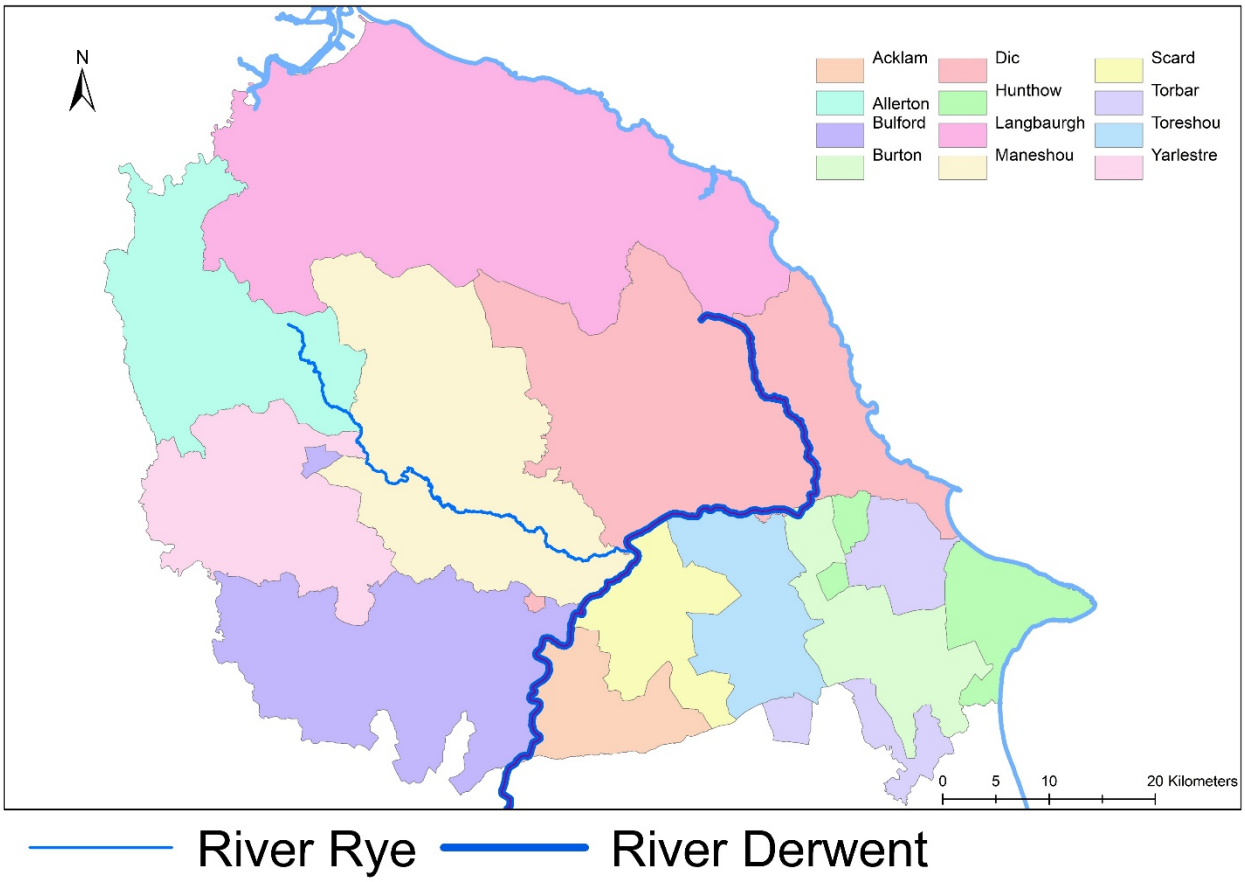


River Derwent (dark blue) and coastline derived from data used under Open Government licence v.3

Figure 7:11 Churches referred to in text, including royal demesne churches

7.5.2 Lay authority

DB evidence and placenames suggest that complicated ecclesiastical authority in the western-central Vale was mirrored by intricate patterns of lay authority. As was the case for neighbouring Rye Vale, the western-central Vale of Pickering was settled piecemeal by the time of the Domesday survey (Maxwell 1962:85-164; Skinner 2014). The role played by the River Derwent in defining cultural boundaries in the 5th-9th centuries continued into the 11th century, separating the North Riding from the East Riding. Settlement names in DB and other sources suggest that watercourses, namely the upper reaches of the River Seven and the Costa Beck, also separated Maneshou and Dic wapentakes (Skinner 2014).



Wapentake and hundred data from Domesday Shires and Hundreds of England (Brookes 2017), with boundary at Steinton amended to follow Skinner 2014. Used under Creative Commons Attribution 4.0 International License.

Figure 7:12 Wapentake and hundred boundaries in Vale of Pickering and adjoining areas

DB also provides evidence for cultural units on the opposing side of the River Derwent to Marishes. Scampston, Rillington and Wintringham are recorded within Scard hundred whereas Knapton and East and West Heslerton are recorded within Thoreshou hundred (Table 7:5).

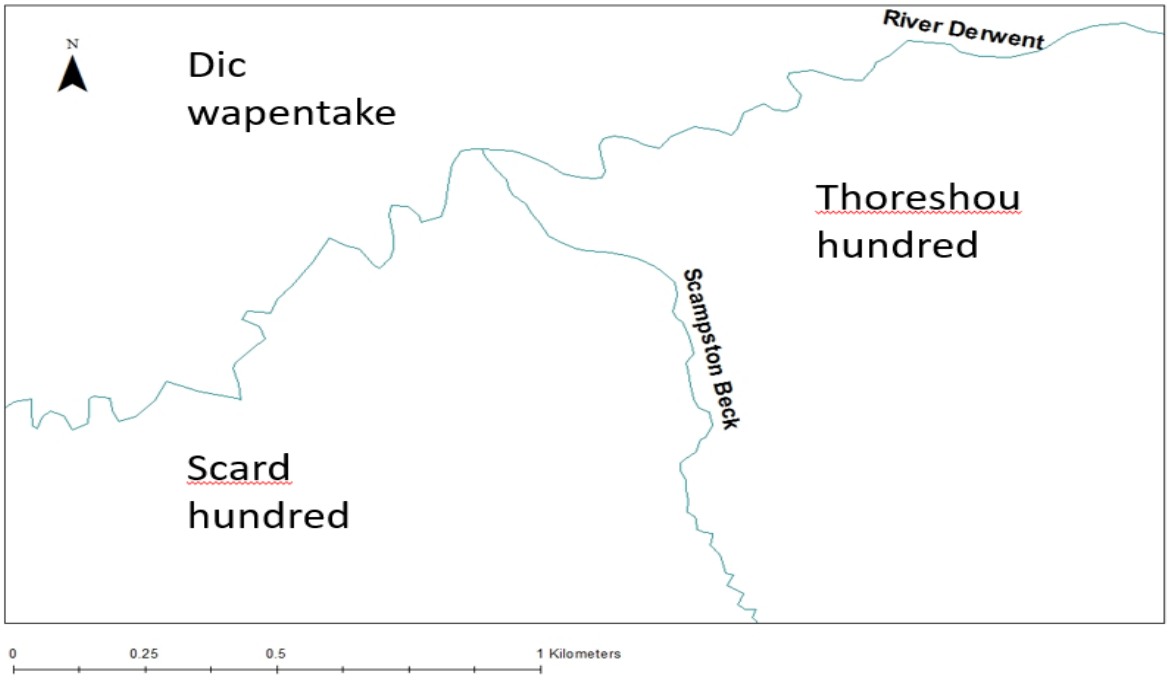
Hundred	Place	OS	Phillimore refs	PlacesIdx
Scard	Rillington	SE8574	1E43;46. 5E62. SE,Sc9(-10)	51846
Scard	Scampston	SE8675	1E43(-44). 15E13. 31E2. SE,Sc8 (-9)	54156
Scard	Wintringham	SE8873	15E12. SE,Sc8	71441
Thoreshou	[East] Heslerton	SE9276	8E1. 23E14. 29E22. 31E2. SE,Th2	31401
Thoreshou	[West] Heslerton	SE9175	29E23. 31E2. SE,Th3	31406
Thoreshou	Knapton	SE8875	15E14. SE,Th3	36911

Data: Palmer, J., Electronic Edition of Domesday Book: Translation, Databases and Scholarly Commentary, 1086; second edition [computer file]. 2nd Edition. Colchester, Essex: UK Data Archive [distributor], September 2010. SN: 5694 http://dx.doi.org/10.5255/UKDA-SN-5694-1

Table 7:5 Hundred names near Scard-Thoreshou boundary.

This is low-lying terrain with few visible natural features which might form a territorial boundary. The course of Wintringham Beck, Blakey Beck and Scampston Beck or a ford or crossing place near SE 85296 78838 are possible locations for a territorial boundary between Scard and Thoreshou. Wherever the precise boundary, the general area of this division would have placed it on the south of the Derwent, opposite Marishes (Figure 7:13).

A climate amelioration is known generally for Yorkshire between AD 1150-1350 (Menuge 2004a:23). Such conditions conducive to increases in agrarian productivity may have accelerated the development of communities and networks which helped shape the cultural environment in which Rievaulx developed. Post-Conquest England experienced growth in population and in the mercantile economy (Dyer 2002:95, Britnell 2009). This growth shaped the development of towns and boroughs (Platt 1978:30). Mints were based in boroughs (Creighton and Wright 2016:15). Such growth may have led to cultural pressures in the Vale, in that increasing prosperity and population could have brought people into conflict over access to resources. This potential conflict over resources is a factor that will be seen in play over the king's former waste land (below) and will be argued as having played a role in King Henry II's decision to give this land to Rievaulx.

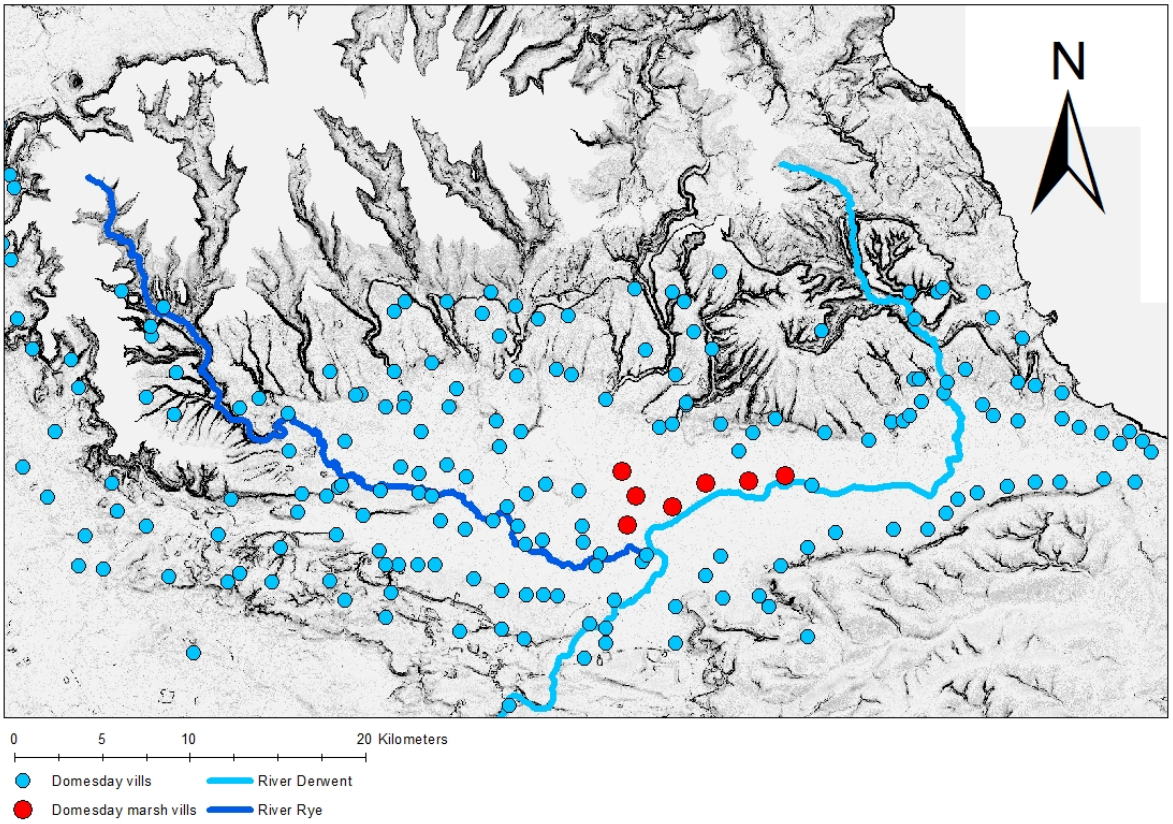


Watercourses derived from public sector information licensed under the Open Government Licence v3.0.

Figure 7:13 Marishes lay within Dic, opposite the boundary of Dic with Scard and Thoreshou

The underpinnings of this prosperity in the Vale can be seen in the Domesday picture of a mixed economy there in the 11th century. This included exploitable woodland, meadowland, and arable farming (Maxwell 1962:85-163; Darby and Versey 1975:513-540). Less-prominently reflected in DB, possibly because less amenable to taxation, are the resources available in water-rich land, such as fish, wildfowl, and diverse vegetation. DB is also curiously silent on the economic potential of the watercourses in the region, other than to note the presence of mills of which the western Vale of Pickering had several (Maxwell 1962:150-152).[13]

[13] 'From the Vale of Pickering westwards to the Riding boundary had more mills than most other areas, and yet it would appear to be an area that was particularly badly-stocked with plough-teams' (Maxwell 1962:152).



Digital Terrain Model derived from OS Terrain 5 dataset [ASC geospatial data], Scale 1:10000, Updated: 9 December 2017, Ordnance Survey (GB), Using: EDINA Digimap Ordnance Survey Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-04-11

Domesday vills in Vale of Pickering and surrounds with surmised location of 'marsh' vills in red. Locations after Wightman 1964 Appendix 3, except for conjectured locations of 'marsh' vills which follow Darby and Versey 1975.

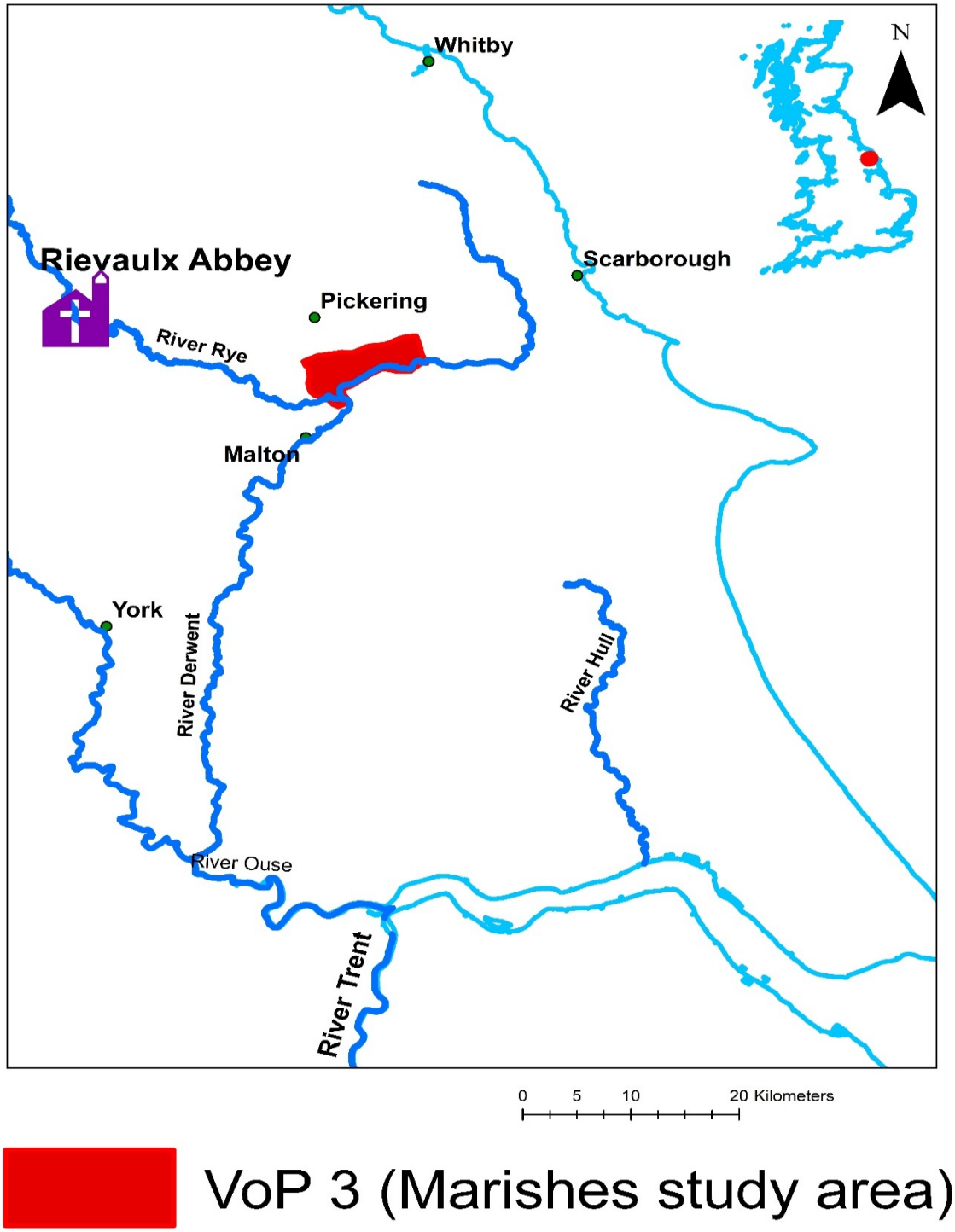
Figure 7:14 Domesday vills in Vale of Pickering (after Wightman, Darby & Versey).

As the mercantile economy expanded, in the Vale, as elsewhere, watercourses were vital to the production and transportation of certain goods and commodities. Rather than being remote, the land by the Derwent and its confluence with the Rye may have been an important territorial boundary (above) and an internal transport corridor. The profile of the River Derwent has been substantially altered in the post-medieval period, including by 19th century channelisation (Hadfield 1972:97-100; Hadfield 1973:316-325). Topography however suggests that transport in a shallow-draft vessel may have been possible from Yedingham to York, with the shoals near

Malton (Sheppard 1956:382) possibly requiring transhipment. River networks could thus have permitted the transport of agricultural goods from the Vale of Pickering to York and, via the Humber, to the North Sea trade routes. York waterfront was physically developed from the first century onwards and became an important international trading centre until supplanted by the development of Hull.[14] It is possible to conjecture, therefore, that the stretch of waterfront between Yedingham and Marishes, later to become the southern boundary of the land given by King Henry II to Rievaulx, could by the early 12th century have been a vital segment of the Derwent, conceivably containing installations for the storage and shipment of goods on this transport corridor (Figure 7:15)[15]

[14] By the late 13th century, multiple religious interests had riverfront properties in York, some of which were on reclaimed waterfront: Gilbertines, Benedictines, Benedictine nuns, Augustinians, Carmelites, and Franciscan houses were founded variously between 1080s and 1293, with the archbishop of York having riverfront property by the early 12th century (Hill 1991:177-190).

[15] Rievaulx could thus have transported her agricultural surplus to her house in York and the North Sea trade. That surplus included the high-quality fleeces which were sought after by the international trade, as evidenced from Italian merchant records (Jamroziak 2003).



Post-Conquest economy and connectivity of the Vale of Pickering via waterways to Malton, York, Humber & North Sea. Watercourses and coastline derived from public sector information licensed under Open Government Licence v3.0.

Figure 7:15 Marishes was connected by the Derwent to burgeoning mercantile networks

7.6 Pickering: a royal estate

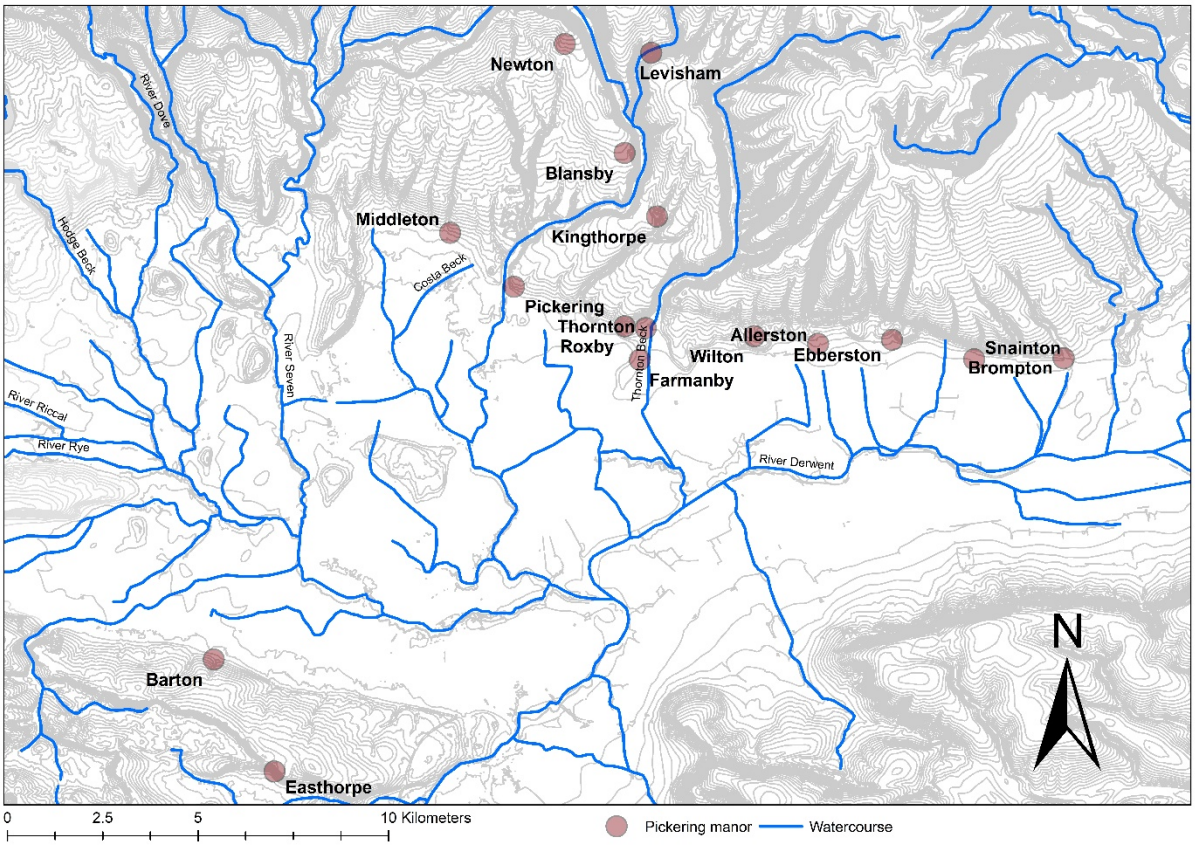
It important to understand the immediate pre-Cistercian history of this land, namely under Norman and early Angevin / Plantagenet rulers,[16] to understand its development history and the role played in this played by Rievaulx Abbey. A substantial proportion of the western-central Vale, some of which was given to Rievaulx in 1157-8, came into royal hands shortly after the Conquest. Along with Falsgrave and Scarborough, the manor of Pickering became part of '*terra regis in Evrvicscire*' (royal manors in Yorkshire) by 1086. The manor of Pickering had previously been held by Morcar, Earl of Northumberland, but (along with Morcar's other assets) was forfeit to the king following the Earl's involvement in the rebellion of 1070 and subsequent imprisonment (Le Patourel 1971:8). The royal manor of Pickering is described in the king's breve in DB (emphasis added):

> "*In PICKERING there are 37 carucates of land taxable, which 20 ploughs can plough. Morcar held this as one manor with its outliers: BARTON, NEWTON, BLANDSBY and EASTHORPE. Now the King has it. There is there 1 plough; and 20 villagers*[17] *with 6 ploughs. Meadow, 1/2 league long and as wide; nevertheless all the wood which belongs to the manor is 16 leagues long and 4 wide. Value of this manor before 1066 £88; now 20s 4d. To this manor belongs the jurisdiction of these lands: BROMPTON, 3 carucates; ODULUFSMARE; EBBERSTON; ALLERSTON; WILTON; FARMANBY; ROXBY; KINGTHORPE; CHILUESMARES; ASCILESMARES; MAXUDESMARES; SNAINTON; CHIGOGEMERS; ELLERBURN; THORNTON; LEVISHAM; MIDDLETON; BARTON. In all there are 50 carucates taxable which 27 ploughs can plough.* ***Now there are there only 10 villagers who have 2 ploughs****. The rest waste. However, there are 20 acres of meadow. In all, 16 leagues long and 4 wide*." (DB folio 299b4 transl. Faull and Stinson 1986).

[16] William I 1066-1087; William II 1087 - 1100; Henry I 1100-1135; Stephen 1135-1154; Henry II 1154-1189

[17] The Phillimore translation of *villanus* as villager is now widely considered to be problematic, with the term *villein* preferred since the 19th century (for example, Maitland 1897). Villeins could inhabit dispersed settlements such as isolated farmsteads or hamlets, rather than nucleated villages (James Bond pers. comm; Lennard 1946, Harvey 2014).

The description of the Pickering vills suggest meadow, ploughland, and substantial areas of woodland. The manor of Pickering as recorded in DB was geographically relatively compact, with most vills and soke (justice) areas located near to Pickering (Figure 7:16). Barton (le Street) and Easthorpe were exceptions which lay to the south-west of the other vills and may have related to a district known in 12th-century documents as *Holdelithe* (Farrer 1914:162-163; Skinner 2014: 304).



Pickering manor at Domesday, as recorded in the King's breve DB folio 299b4 transl. Faull and Stinson 1986. Locations after Wightman 1964 Appendix 3.

Contains OS data © Crown copyright and database right 2021. Contours generated using Land-form PROFILE Scale 1:10000 updated 2009-22-05 using EDINA Digimap Ordnance Survey service https//digimap.Edina.ac.uk downloaded 2019-10-04. Open Rivers data used under Open Government licence v.3

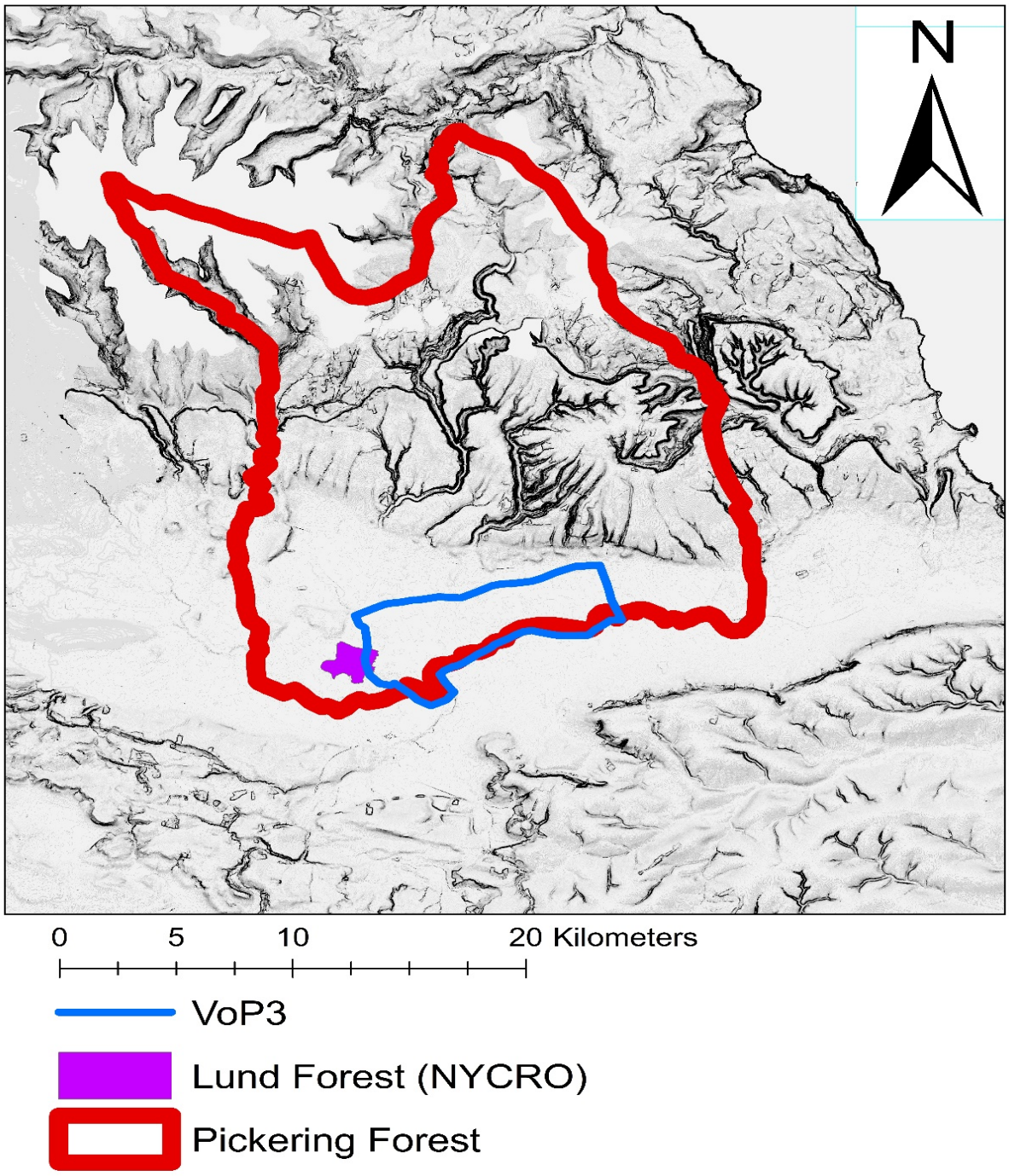
Figure 7:16 Pickering manor at Domesday

Despite the relatively compact nature of Pickering manor, authority in the area was significantly fragmented. Lordship was not unified in royal hands but was instead a patchwork of multiple interests. Analysis of the breves and Summary of Yorkshire Domesday show that the king's rights appear alongside those of the Count of Mortain and Berengar de Tosny (Table 7:6). This patchwork foreshadows the complex pattern of dues, services, and obligations at the time of Henry II's gift to Rievaulx of a subset of the Pickering vills, around Marishes, which will be discussed below.

The woodland recorded in Pickering in DB: '*16 leagues long and 4 wide'* may have formed the core of the substantial proportion of Dic wapentake that was later declared as forest (Wightman 1975:55-71). Afforestation was a phenomenon noted across England at the time. The term 'forest' did not necessarily imply woodland, but instead indicated that an area was subject to forest law and subject to specific dues and obligations. Breaches of forest laws and obligations were regulated by forest officers, and offences tried in a forest court (Jones 2010:53). The royal forest of Pickering may have been a creation of William I's reign, or early within that of Henry I, perhaps 1100-1110 (Farrer 1914: 269) (Table 7:19).[18] The extent of Pickering Forest in the 13th century is recorded in the Whitby cartulary (Figure 7:17).[19] Relatively little is known about such pre-AD 1500 forests, but what little is known suggests that the extent of such forests may not have been fixed (Langton and Jones 2010).

[18] A seat of justice, the Forest Eyre, was appurtenant to the Forest, and four volumes of the documents relating to the Honour and forest (mainly 13th century onwards) were edited by Turton (1894-1897). Pickering manor, castle and forest were granted to Edmund 'Crouchback' as first Earl of Lancaster in 1267 (Lawton 1842: 532; Waites 2007: 137). The Duchy of Lancaster, in the person of HM The Queen, is still a major landowner here (Duchy of Lancaster website https://www.duchyoflancaster.co.uk/ consulted 2019/10/19).

[19] Nearly half of this extent is identical with that of Whitby Liberty (Whit Cart 394 Vol 1, Atkinson 1879:337-340).



VoP study area 3 in relation to forest boundaries. Pickering forest boundaries after Jones and Langton 2010, Waites 2007. Lund forest boundaries after map ZDVVI66A4C held by North Yorks County Records Office.

Digital Terrain Model derived from OS Terrain 5 dataset [ASC geospatial data], Scale 1:10000, Updated: 9 December 2017, Ordnance Survey (GB), Using: EDINA Digimap Ordnance Survey Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-04-11

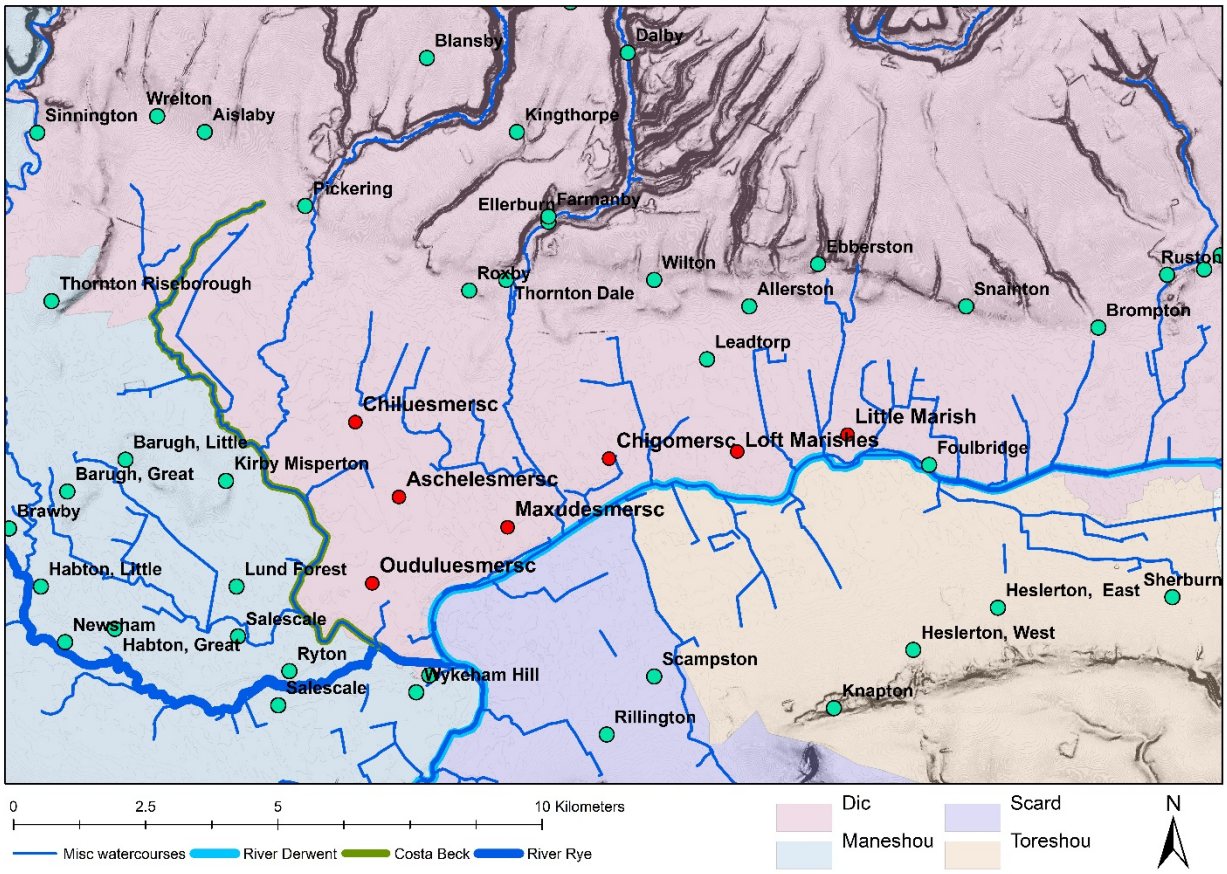
Figure 7:17 Pickering forest and Lund Forest

7.7 VoP 3 – Henry II's 'waste' land in the 11th century

7.7.1 Pre-Cistercian state of Pickering vills

DB records a set of vills in the broad location of land which was to be later given to Rievaulx by King Henry, and by holders of rights on either side. The land later given to Rievaulx is notable because of the substantial number of vills with a place name element of *-mersc* or variants such as *-marish, -mares* and *-marais* (Table 7:6). This placename element suggests marsh or wet land (Gelling and Cole 2014: 36). Such evidence is however qualitative rather than quantitative, and climate and weather fluctuations mean that it is uncertain how wet a specific location was at a given date. Some of these marshy vills south of Pickering can be located only generally, and others not at all. Loftmarais and Little Marish can be generally located on historic mapping. *Odulfesmare, Maxudesmares, Chigogemers, Aschilesmares, Chiluesmares* were considered by Darby and Versey 'lost within Pickering Marishes (Darby and Versey 1975: 513-540). The location of many DB vills is now unknown, and the marsh vills are among this elusive category. Darby and Versey's suggestion for the marsh vills' approximate location is reproduced at Figure 7:18. It should be noted however that Darby and Versey present no explanation for the location assigned to the lost marsh vills.

The marsh vills lay along a stretch of the Derwent which formed the boundary between the North Riding (Dic wapentake) and the East Riding. Marishes, in Dic wapentake, also lay immediately opposite the boundary between the two East Riding hundreds of Scard and Thoreshou (Figure 7:13).



Conjectured location of marsh vills (marked in red) and other vills (marked in green).

Vill locations after Darby and Versey 1975. Wapentake and hundred boundaries from Landscapes of Governance dataset Brookes 2017, used under Creative Commons Attribution 4 licence.

Digital Terrain Model derived from OS Terrain 5 dataset [ASC geospatial data], Scale 1:10000, Updated: 9 December 2017, Ordnance Survey (GB), Using: EDINA Digimap Ordnance Survey Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-04-11. Watercourses from Open Rivers data used under Open Government licence v.3

Figure 7:18 Domesday Book – marsh and other vills in Pickering and adjoining manors.

Vill name	Faull & Stinson reference	1066 people named	1086 people named	DB Breve evidence	DB 'Summary' evidence	Location - Darby & Versey 1975: page ref & grid square
Pickering	299b, 380d	Morcar	King	In Pickering there are 37 carucates of land taxable, which 20 ploughs can plough [*full entry above*]	The King in Pickering, Barton, Blandsby, Newton and Easthorpe 37 carucates	532:N6
Chigogmers	299b, 305d, 380d		King Mortain	Thorfinnr – 1 carucate 2 bovates	King: 1 carucate 2 bovates Mortain: 1 carucate 2 bovates	518: "Lost in Thornton Dale" Assigned to O6
Odulufsesmare	299b, 380d		King	A	B	531: "Lost in Pickering Marishes" Assigned to O6
Aschilesmares	299b, 380d		King	A	B	515: "Lost in Pickering Marishes" Assigned to O6
Maxudmares	299b, 380d		King	A	B	528: "Lost in Pickering Marishes" Assigned to O6
Chiluesmares	299b,380d		King	A	B	518: "Lost in Pickering." Assigned to O6
Loft Marish	300b,305d,380d		Mortain King	Arneketill 1 ½ carucates land for 1 plough Thorfinnr 1 ½ carucates	Mortain: 1 ½ carucates King: 1 ½ carucate	527:O6
Little Marish	314b,380d		Berengar de Tosny	2 carucates. Land for 1 plough	2 carucates	527:P6
Allerston	299b, 300b, 380d		King	Gospatric 3 carucates. Land for 2 ploughs. 20s.	3 carucates	514:O6
Thornton Dale	299b, 300b, 314b, 380d		King Berengar de Tosny	Thorbrandr, Gospatric and Thorr held land from the king (3 carucates, land for 2 ploughs). No mention of who held de Tosny's land	5 ½ carucates 1 carucate	536:O6

Conventions: 'lost' places shown in italics. A. Undifferentiated, part of Pickering listing quoted in full above
B. Undifferentiated, part of 'The King in OUDULUESMERSC, ALLERSTON, EBBERSTON, FARMANBY, KINGTHORPE, ASCHELESMERSC, WILTON, ROXBY, CHILUESMERSC and MAXUDESMERSC 27 carucates and 6 bovates'

Table 7:6 The central Vale of Pickering marsh vills in Domesday Book

7.7.2 The people in Marishes at DB

Lordship and occupation were fragmented in many of the marsh vills. By 1086, in Loft Marishes, Chigomersc, Allerston and Thornton Dale, either Mortain or Berengar shared lordship of the vill with the king. Loft Marishes was both in dual lordship and occupied by two individuals. Thorfinnr held half of the vill from Lord Mortain, as well as holding Chigomersc also from Mortain. No mention is made of occupation of the king's land in Chigomersc. A Gospatric held land in Allerston from the king. It is unclear whether the two references to the king's land in Allerston reflects a separate parcel of land or is a duplicate, and whether the three carucates were included in the composite assessment for Pickering manor of 37 carucates. At Thornton (Dale) Thorbrandr, Gospatric and Thorr held land from the king. The breve of Berengar de Tosny records his land at Thornton, but not in whose hands this was at 1086. Berengar's vill of Little Marish (now known as Yedingham) may have adjoined the manor of Pickering at its south-easterly extent (Table 7:6)**.**

Name-analysis of the occupants of the marsh vills (Table 7:6) suggests that many were men of Scandinavian descent. Arneketill of Loft Marishes could conceivably be associated with any one of the 113 references in PASE, as this name occurs in Yorkshire, Cheshire, Herefordshire, Leicestershire, Lincolnshire, Nottinghamshire, Shropshire, Staffordshire, Suffolk, and Warwickshire.[20] It is unclear whether the Arneketill of Loft Marishes is the same individual as an Arneketill who held 2 carucates of the king elsewhere in Dic, in Troutsdale. The distribution of Thorfinnr (of Thornton) is found in 37 other holdings, all in Yorkshire. A Gospatric is recorded as holding land in Pickering manor (at Allerston and Thornton), to the north of Thornton at Ellerburn, and to the south over the river Derwent at Heslerton. As all these names are somewhat common, attribution of personal names to unique individuals is not secure, but this does give an approximate distribution of contexts in which certain names were recorded by the DB clerks. DB descriptions are however somewhat vague as to tense, so it is not clear whether the men associated with the marsh vills were still in occupation in 1086 but with a new Norman lord.

[20] Prosopography of Anglo-Saxon England website. Consulted 20190607

7.8 12th-century boundary and infrastructure of the king's wasteland

Charter evidence from around 70 years after DB gives some further clues to the pre-Cistercian state of this land. Henry II instructed the '*Vicecomiti* and ministers' of Yorkshire to direct the Pickering wapentake to report the boundaries of the waste as it had been in the time of Henry I and give that land to Rievaulx (*Cart. Riev*. 206). The wapentake jury duly reported back (*Cart. Riev*. 189 - Table 7:7)

CLXXXIX. CARTA TORPHINI DE ALVESTAIN ET GAUFRIDI NEPOTIS EJUS DE JURATORIBUS VASTI.
Thorphinus de Alvestain et Gaufridus, nepos ejus, salutem. Sciatis quod isti homines juramento recognoverunt proprium wastum Regis esse ab Alvestainbech usque Tacriveling —scil., Rainaldus Forestarius, et Hugo Boia, et Alfwinus Hert, qui tres custodes fuerunt ejusdem wasti, et post eos juraverunt Thorold de Novavilla, et Gillebertus de Atuna, et Radulfus Luvel de Grisetorpe, Willelmus filius Normanni de Ecbrictestuna, Asketillus Malecaca, Gamel de Rodestuna, Theobaldus de Martuna, Gamel de Roaldesbi, Cospatricius frater ejus, Ricardus filius Rogeri de Thornetona, Eugenaldus de Wiltona, Theodoricus de Sextendal, Theobaldus filius Pagani de Wichami, Thor filius Acce de Snegintona, Rogerus filius Ucce de Rolestuna, Hugo filius Walthephi de Rolestuna, Stepbanus Manievilain, Walterus Bardulf, Liulfus de Kintorne, Ricardus de Galmetona, Willelmus filius Ketelli, Ricardus Rollevilain, Stephanus filius Gamel de Pikaringa, Robertus de Bonefelde, Walterus filius Arnaldi de Aselacbi, Willelmus filius Rostune, Lucas de Neutoua, Godefridus de Neutona:
Isti omnes, ut diximus, juraverunt, et nos cum ipsis, proprium esse wastum Regis ab Alvestainbeck, usque ad Tacrivelingam,- et ita, scil., sicut Midsich tendit de Alvestainbech usque ad divisas inter Theokemarescum et Thornetun, et inde per ipsas divisas inter Theokesmarescum et Thornetun usque in Midsich, ita quod totum territorium de Theokemaresco clauditur iu wasto, et inde per Midsich - usque in Kiptoftesich, et ita per Kiptoftesich usque in Costam, et ex altera parte de Costa usque in Tacriuelingam. Infra has divisas nominatas habebat Eustachius filius Johannis dimidiam carrucatam terrae et pratum quoddam—scil., in Eduiemersch, de quo prato singulis annis fenum auferre potuit, pro quo annuatim iiii s. solvebat socagio Regis de Pikeringe, nec aliquid amplius habuit in wasto, neque pasturam neque turbariam. Haec juravimus et hoc testari parati sumus.

Table 7:7 Pickering wapentake survey of King Henry's wasteland as recorded in Cart. Riev. 189

The boundary sworn to by the wapentake jury led by Torphin de Allerston reported the waste boundaries in an anticlockwise sequence, beginning at Allerston Beck (See Table 7:2 for translation of sections). In this charter, the jury swore that the royal waste lay between Alvestainbeck [Allerston Beck] as far as *Tacrivelingam*. Subsequent restatements of the waste boundaries (including *Cart. Riev*. 210), however, adopted a clockwise sequence. Was the anticlockwise presentation perhaps more meaningful to the local jury, thus dealing first with the detailed boundaries between the waste and the townships to the north from whom the men were drawn, rather than addressed last as in the clockwise description?

It is possible that some degree of infrastructure existed in the king's land before the gift of this to Rievaulx. The obligation to build and maintain bridges – *pontage* – was one of the fundamental obligations which could not be remitted even by gifts made in free alms (Lapidge et al 1999). Henry II required that Rievaulx be permitted to create bridges and roads as they were in the time of Henry I ('*et faciatis pontes et semitas et vias de eodem wasto esse sicut solebant tempore Regis Henrici, avi mei*' - *Cart. Riev*. 208). This may, however, be a stock phrase inserted by Henry's clerks without knowledge of the land in question.

Several ditches or dykes are mentioned in the charters. The wapentake jury recorded northern boundaries including *Midsyke* and *Kiptoftsyke* in 1157-8. These -*syke* names suggest drains or ditches already in existence, which could conceivably have been managed or created by the settlements to the north, namely Pickering, Thornton, Wilton and Allerston. In 1158 Henry also gave two carucates of land at 'Kilverdemersch' (*Cart Riev 205*, EYC 1 403) (Table 7:2). This grant of Kilverdemersch was confirmed by Pope Alexander III, in whose bull it was spelled "Culverthesmersch" (*Cart Riev* 250). If a true variant, rather than a clerical error, the latter spelling could suggest pre-1157/58 ditching within a marsh.

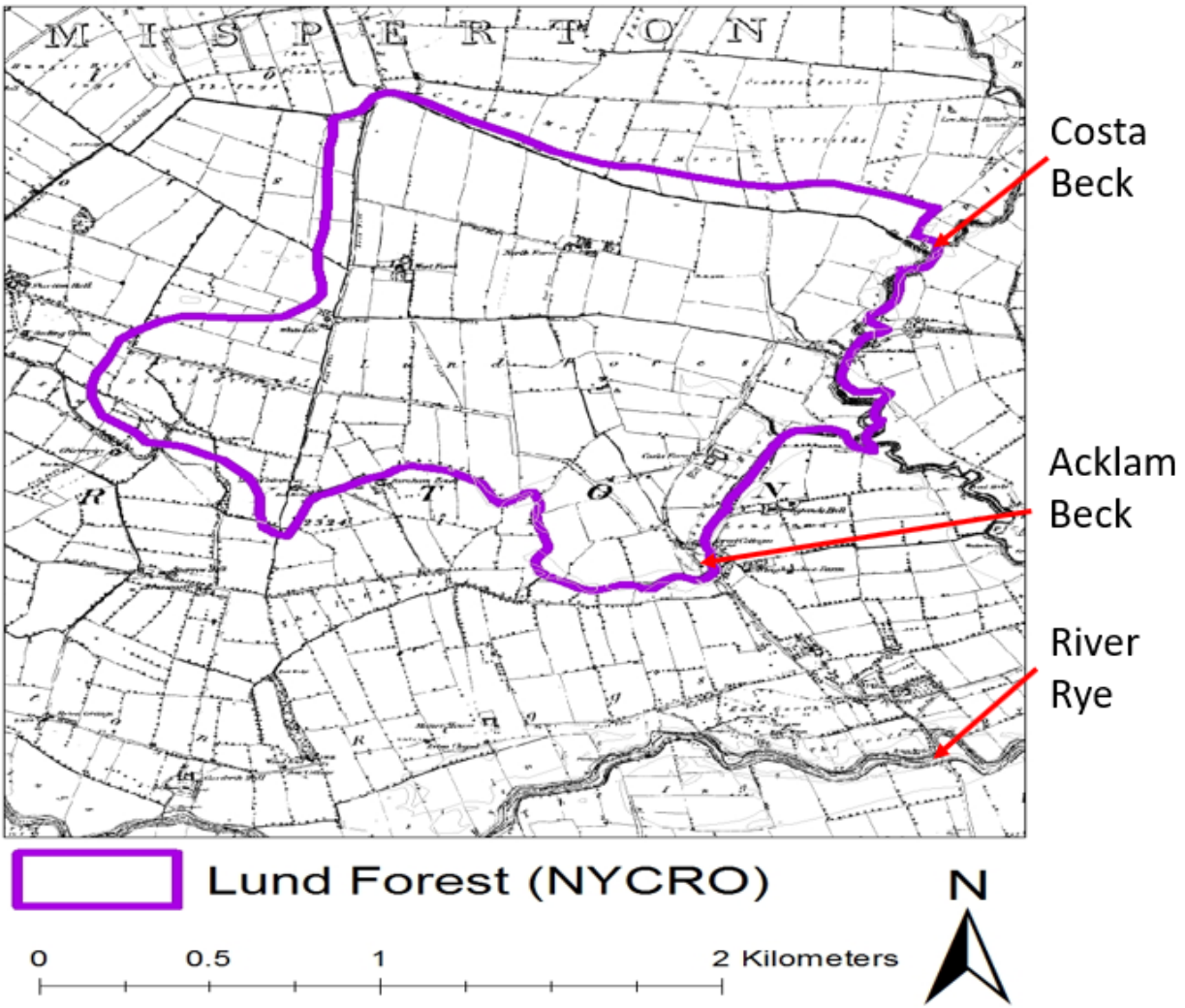
Henricus, Rex Angliae, Dux Normanniae ...Sciatis me . . . confirmasse S. Marise et Ecclesisae de Rievalle . . . in elemosinam, ***duas carrucatas terrae quae dicuntur Kilverdemersch*** *... Praeterea do eis et confirmo totam meam pasturam per totum wastum subtus Pikeringa per metas et easdem divisas quas wapent[achium] de Pikeringelid juravit, et in Comitatu Ebor., coram Justiciis meis, recognovit. Quare volo et firmiter praecipio quod haec omnia habeant et teneant sicut meam propriam elemosinam, bene et in pace.*

... T. T[heobaldo], Cantuar. Archiepiscopo ; Ricardo, London., Henrico, Winton., Hil[lario], Cicestr., Episcopis; Willelmo, fratre Regis; Reginaldo, Comite Corn[wal.]; Roberto, Comite Legrec. ; Willelmo, Comite Gloecest. ; Ricardo de Luci ; Willelmo de Braose; Manasse Biset, Dapifero ; Henrico filio Geroldi, Camerario; Johanne Mald[uit]. Apud Romesiam.

Table 7:8 Henry II's grant at 'Kilverdemersch' to Rievaulx - Cart Riev 205

Rievaulx was soon active here after 1157/8, adding to her land and creating physical distinction of it through the construction of *fossata*, ditches or drains. Henry II's renewal of the grant (*Cart. Riev.* 210) is undated but could date to between 1158 and 1179 (Jamroziak 2005:118-119 *and see Footnote 1 above for possible tighter date*). That document contains references to features which may have been added since the original boundaries of the wapentake survey. A *fossatum monachorum* around Lund, and a *fossatum monachorum* by Theokmarais field, may postdate the wapentake survey and Henry's original grant of 1157-8. King Richard I's confirmation charter (*Cart. Riev.* 173) reflects these additional areas also. Lund may have been the small Lund Forest, possibly a western ward of Pickering Forest (Figure 7:17; Figure 7:19) which is recorded in an 1849 map.[21] It is however unclear when this possible sub-area of Pickering Forest gained this identification of Lund Forest.

[21] 'Plan of Lund Forest in the township of Ryton and parish of Kirby Misperton ... the property of Sir Geo. Wombwell bart 1849. Section of historic map of Kirby Misperton 1849 Reference: ZDVVI66A4C. Available at: http://archiveshop.northyorks.gov.uk/historic-maps/ZDVVI66.html (Accessed: 21 August 2019).



Lund Forest extent derived by georeferencing NYCRO map ZDVV1664C, overlaid on First Edition Ordnance Survey map, County Series 10 560.

Although the general area is clear, it is inappropriate to determine specific boundaries because of the nature of the original source and errors potentially introduced by the georeferencing process.

Figure 7:19 Extent of Lund forest from NYCRO map ZDVVI66A4C overlain on OS map

7.9 12th-13th centuries: growth, disputes, and accommodations

The abbey's new interests quickly brought it into local conflict. Wightman's work compiling the noteworthy number of monastic land interests in the Vale of Pickering is reproduced with additions (Table 7:15). That compilation shows that a remarkable number of monastic houses held land in the Vale of Pickering during the high medieval period. This intense settlement is noteworthy also in relation to the early medieval monastic settlement in the Vale (7.4). Lay settlement in the Vale also continued to grow in this period (Allerston 1970:95–109). Favourable climatic conditions, as noted above, and population expansion may have been contributory factors to both growth phenomena in the Vale, as noted above for broader England.

Conflict, negotiation, and accommodation became recurring features in Rievaulx's relationships with other medieval actors across the North of England and beyond (Jamroziak 2005). Rievaulx's interests in the king's land present a microcosm of this. When the wapentake jurors swore to the boundaries of the king's waste land, they also swore, apart from Eustace FitzJohn's interests in Eduiemersch (which will be considered below), that no-one had any interests there, neither pasturage nor turbary (*nec aliquid amplius habuit in wasto, neque pasturam neque turbariam*). The wapentake survey of the extent of the king's land was explicitly endorsed by a later sitting of the York courts in August 1158 (Farrer 1914: 314; Skinner 2014:305).

Yet despite the 'official' wapentake view of the king's near-unqualified lordship here, Rievaulx was soon troubled by various trespasses and incursions onto her newly acquired land. Henry II issued several terse admonitions to the Sheriff of Yorkshire and authorities for the royal forest of Pickering that Rievaulx be allowed quiet enjoyment of his grant (Table 7:12). A series of quitclaims, namely a legal device by which a person cedes a right, of the king's waste land are preserved in the abbey's cartulary (Jamroziak 2005:118-119).[22] The quitclaims offer little qualitative evidence for the physical state of the land in the 12th century. They do, however, suggest a prolonged process of eviction, over nearly 30 years, of those who had encroached piecemeal on the king's land, reflecting that the land was hardly valueless.

[22] Jamroziak may have included *Cart. Riev. 164* relating to Green Howe erroneously within the 'waste' quitclaims list, possibly confusing this high moorland location north of Bilsdale with the Greenhill in Allerston.

The names and status of those who formally quit any claim in the king's land given to Rievaulx show that this lay at the intersection of multiple interests, from all ranks of society. Nobles included William of Mandeville (Earl of Essex), and William, Count of Aumale.[23] The latter's quitclaims were agreed around 20 years after the king's original grant. Aumale was offered fraternity by Rievaulx for his promise of protection and quitclaim of Micleholm (*Cart. Riev.* 185; Jamroziak 2006:75). At the working end of the feudal system was Walter Bardolf, a member of the wapentake jury who had attested the boundaries of the king's wasteland (*Cart. Riev.* 184; 189). The last of the surviving quitclaims was dated to 1184 (Jamroziak 2005:118-119).

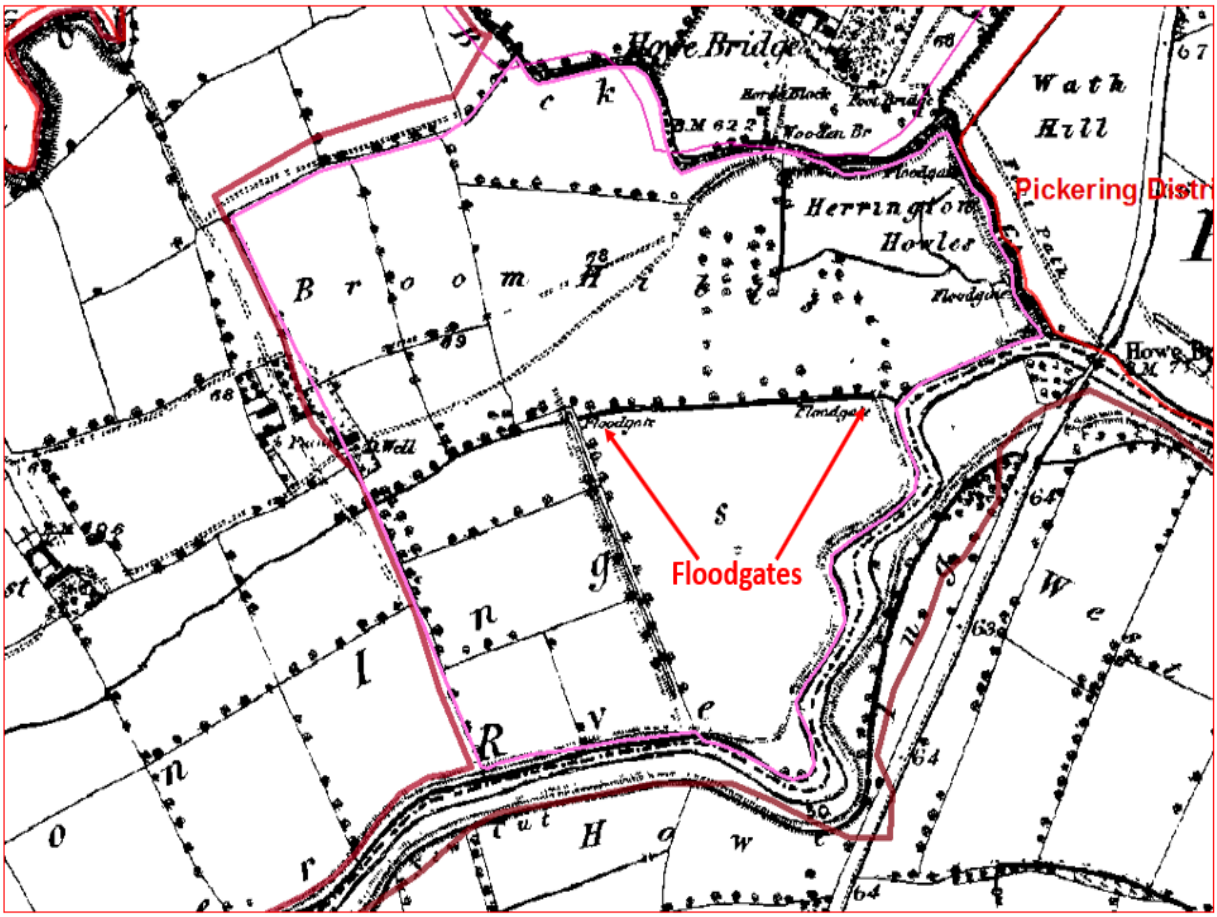
Rievaulx continued consolidation of its holdings in the Vale through piecemeal gifts, exchanges of land, and disputes (Jamroziak 2005). Eustace FitzJohn, a colleague of Espec's as Justice in the North, had given a carucate of meadowland near King Henry's gift, known as Eduiemersch, to the canons of Malton priory. One boundary of Eduiemersch, from Holme Bridge to Kipsyke, bordered the king's wasteland. By the mid-12th century, lordship of Eduiemersch had passed from FitzJohn to William de Vescy.[24] The turbary and pasture of Eduiemersch was the subject of a dispute between Rievaulx and the canons of Malton priory. This dispute was eventually settled by two agreements. One was between Rievaulx and de Vescy, and the other between Rievaulx and Malton priory, the latter confirmed by Henry II (*Cart. Riev.* 190;192; 193). De Vescy subsequently emparked Eduiemersch by consent of Abbot Ailred (*Cart. Riev.* 279).

Henry II confirmed agreement over Eduiemersch, whose locational attributes include Houm Bridge, Kiptoftesyke, 'domos monachorum'. Agreement to allow certain number of beasts to be pastured.	*Cart Riev*., 139-40; 190,192, 193, 408

Table 7:9 References to Eduiemersch in Cart. Riev.

[23] Atkinson (1889) terms Aumale by one of his other titles, Albemarle.
[24] A relative by marriage of Eustace FitzJohn

A tithe-exempt area, which the existence of floodgates in early OS mapping suggests was flood-prone, was identified in the records for Ryton district (Figure 7:20). This *may* have been Eduiemersch. As records suggest Eduiemersch had been cultivated by Malton Priory before it came to Rievaulx (above), it must however be excluded as 'noval' land reclaimed by Rievaulx.

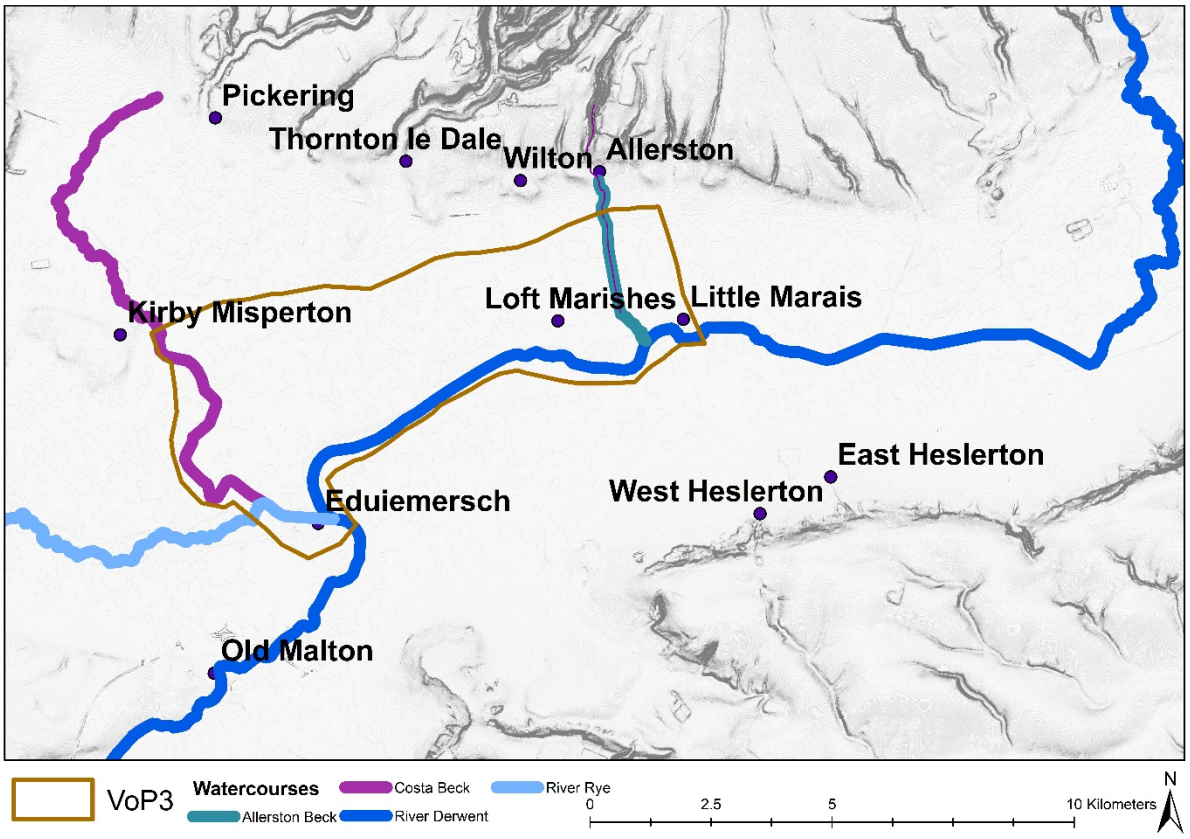


1st edition OS County map 1:10560 (1847-1853), downloaded via Edina Digimap 20191012. Word 'floodgates' added by author of current study

A tithe-free parcel of flood-prone land existed near Holme (Howe) Bridge. Was this the *Eduiemersch* under pasture first to Malton then Rievaulx?

Figure 7:20 Tithe-free parcel of flood-prone land near Holme Bridge

In 1160 Torphin de Allerston gave Rievaulx a carucate of land at Allerston to the east of Marishes, and other parcels, in exchange for the tofts of the carucate, land for a sheepfold and 500 sheep (EYC1 386). Other notable acquisitions near to the king's former wasteland included previously common moor near Welburn. This became the subject of a dispute with Alan de Ryedale, tenant of Roger Mowbray, which was legally settled first by a trial of battle then a hearing of twelve knights from the neighbourhood (Galbraith 1948; Jamroziak 2005:115-116). Rievaulx also acquired interests on the other side of the Derwent opposite Marishes, at Heslerton (*Cart. Riev.* 137; 172; 330).



Digital Terrain Model derived from OS Terrain 5 dataset [ASC geospatial data], Scale 1:10000, Updated: 9 December 2017, Ordnance Survey (GB), Using: EDINA Digimap Ordnance Survey Service, <http://digimap.edina.ac.uk>, Downloaded: 2018-04-11

Places mentioned in text, overlaid on Digital Terrain Model

Figure 7:21 12th-century Marishes in context – places mentioned in text

Records suggest agricultural productivity in the Vale was a significant source of income for temporal and spiritual authorities from the later 12th to 13th centuries (Waites 2007:86 *et seq*.). This prosperity was the source of many disputes. Under King Edward 1 (1272-1307) a William de Wyvylle disputed the boundaries between his holdings near Thornton (le Dale) and those of Rievaulx. The case was eventually resolved, with Rievaulx liable to pay compensation to the abbey's neighbour (Table 7:10).

Plea from a William de Wyvylle v Abbot of Rievaulx relating to land in Thornton (le Dale). Contains a statement of the Pickering waste boundaries	*Placita Ebor* 7 Edw 1 [127 8/9] No 1 4-2, f 30. Pub by Atkinson 1889 as Appendix 79 p 402
Plea by William de Wyvylle re Thornton in Pickering	*Abbreviatio Placitorum*, p 49 Pub by Atkinson 1889 as Appendix 80 p 403
Resolution of proceedings by William de Wyvylle when Abbot of Rievaulx ordered to pay compensation to William and his wife Alicia	*Placita Ebor* N 1/3 2, f33b 7 Edw 1 [127 8/9]. Published by Atkinson 1889 as Appendix 81 p 404

Table 7:10 Records of court action by William de Wyvylle against Rievaulx over an area of Marishes

Tax records show that by the early 14th century Rievaulx's Pickering Marishes estate was being worked as multiple units. In the 1301 Lay Subsidy, King Edward I levied a tax calculated as a fifteenth (Brown 1897). In the records of this taxation, Rievaulx's land in the wapentake of Pickering show five units: *Kekemarrays, Loftemarreys, Lund, Sellibrigg* (Selley Bridge) and a *'Novo Loco.'* The latter was possibly one of the two *Newsteads* in Marishes shown on 1st edition OS mapping and later recorded in Dissolution-era documentation (below). These records suggest that Loftmarais was considered administratively part of Allerston parish. Rievaulx's other Marishes granges, Kekmarreys, Lund, Selly Bridge and New Stead, each had a separate entry (Table 7:11).

Tithes on such agricultural productivity became the flashpoint for disputes between Rievaulx and the secular Church. These disputes are of greater relevance to this investigation than local

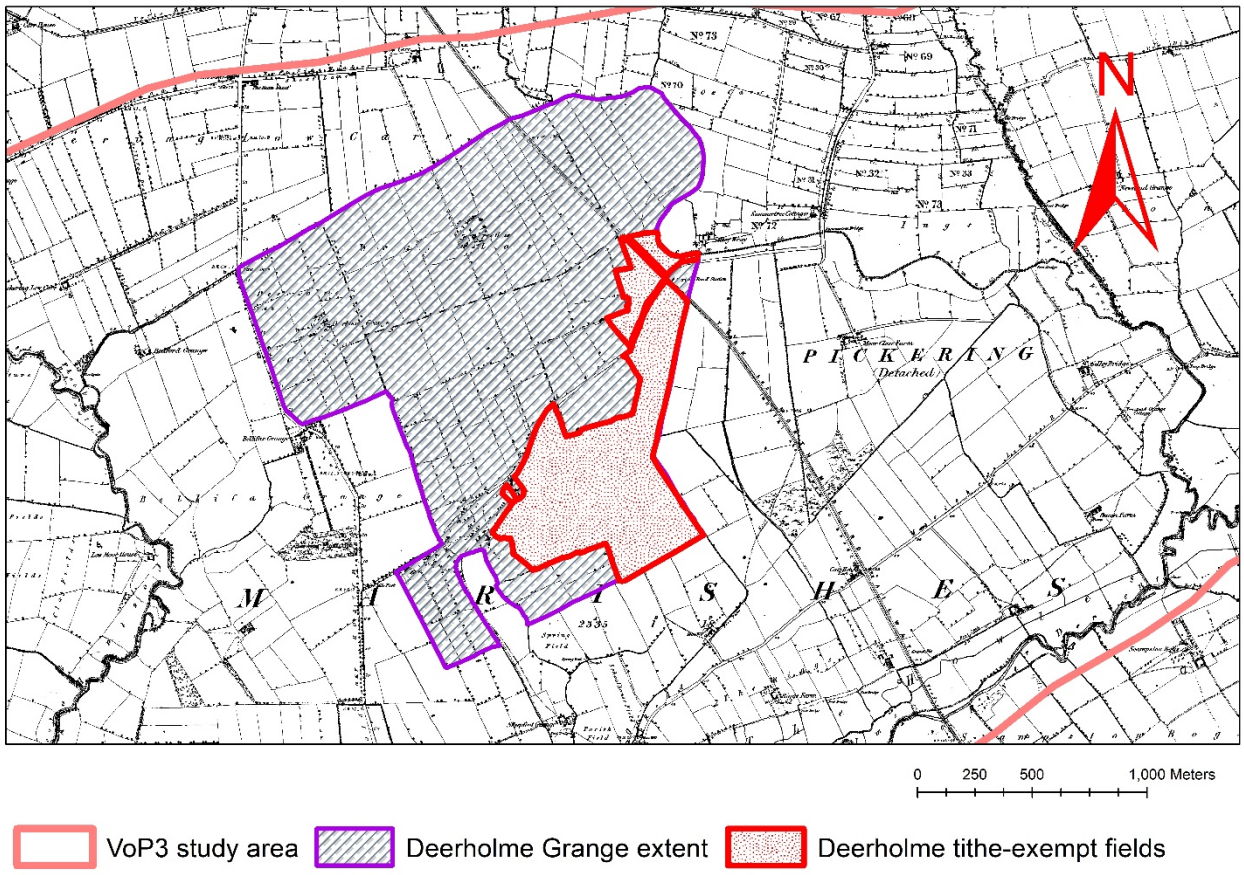
boundary quarrels, as they turned on the medieval Church's agreed definition of *novalia* ('new' land).

Alverstane [Allerston] 24 lay individuals are listed, before:	
De Priorissa de Edingham [Yedingham / Little Marais]	Iijs xjd q
De Grange de Loftemarrays	Xxvx o.q.
Edbriston [Ebberston] 48 lay individuals are listed, before	
De Priore de Malton De Priorissa de Edingham [Little Marish]	xxxvijs iiiid o.q. xlvs jd o.q.
The following appear under separate entries which follow those of Ebberston	
Kekemarrays De Kekemarrays supra patet	xxxviij*s* vij*d* o.q.
Lund De Lund supra patet	xvs vid q.
Selibrigg [Selly Bridge] De Selibrigg supra patet	vijd q.
Novus Locus [New Stead] De Novo Loco supra patet	xvjs o.

Table 7:11 Extracts from 1301 Lay Subsidy (Brown 1897: 58-61)

7.10 Deerholme Grange (VoP 5) and 'new' land in tithe disputes

Nineteenth-century records of tithe liability suggest that the medieval Church may have recognised only a sub-portion of King Henry's gift as having been newly cultivated by Rievaulx. Land described as 'tithe-exempt as part of Deerholme Grange' was identified in tithe commutation records for High and Low Picketing Marishes (Table 7:4). The extent of this land was however only part of Deerholme Grange, and hence only part of the total given to Rievaulx by King Henry II (Figure 7:22).



1:10 560 County Series 1st Edition York *surveyed 1847-53, pub* 1856-1857 **(***Oliver 1993:170).* TIFF geospatial data], Scale 1:10560 using: EDINA Historic Digimap Service, <https://digimap.edina.ac.uk>, Downloaded: 2020-06-09 Tiles: york-07200-1,york-07300-1,york-08800-1,york-08900-1,york-10400-1,york-10500-1, Updated: 30 November 2010

Figure 7:22 Tithe-exempt fields within Deerholme overlaid on historic OS map

If such records truly reflect the only area of Rievaulx's land at Pickering as tithe-exempt, the area reclaimed by the abbey from a primary state may therefore have been much smaller than

previously thought. The tithe status of a Cistercian grange, and - as the case of Deerholme shows - even individual fields within a grange, could be a complicated matter.

As noted in Chapter 2, certain monastic houses were periodically exempt from payment of tithes on land which they had newly brought into use. Policy on tithe exemptions however fluctuated. The papal dispensation which relieved Cistercian houses of the requirements to pay tithes was modified in 1155 to apply only to previously uncultivated land, then revised again by Pope Alexander III (1159-81). Rievaulx Abbey was the first house to benefit from this privilege (*Patrologia Latina* 200, cols 92-95; Jamroziak 2005:181). Church policy was finally agreed at the 1215 Lateran Council. That Council ruled that only land which had been newly cultivated by certain monasteries (including, but not exclusively, Cistercian houses) would be tithe-exempt (Constable 1964, Jamroziak 2005: 181-182). The classification of land as noval, i.e. not previously cultivated, was therefore critical to the freedom from obligation to pay tithes.

Freedom from tithe liability may therefore be one indicator that a monastery's land was newly cultivated. The converse, proof of tithe liability, is however not conclusive evidence that monastic land was not noval, as tithe liability could be re-introduced for various reasons. The contentious nature of tithes was epitomised by a long-running dispute with the Dean and Chapter of York over the tithe liability of two units within the king's former wasteland which were, ultimately, agreed as titheable: Kekmarreys and Loftmarais (Table 7:14). This dispute has been suggested as reflecting the greatly increased agricultural value of Rievaulx's Pickering estate after the 1150s (Burton 1998a, Jamroziak 2005: 197-198). The dispute is therefore relevant to the effectiveness of Rievaulx's agrarian interventions here. Henry I had given to the Archbishop of York the tithes and lands of the royal demesne churches in Yorkshire including those of Pickering (Figure 7:11; Table 7:14). Not surprisingly, therefore, King Henry II's gift to Rievaulx of a substantial proportion of Pickering prompted a robust response from the Church. The dispute between the Dean and Chapter of York and Rievaulx lasted for four decades. It was resolved only in the 13th century by the intervention of the Pope, who appointed judges to hear the matter**.** Rievaulx agreed in 1240 and 1241 to pay the Dean and Chapter sums in lieu of tithes for Pickering, even on those lands which had the status of *novalia*, 'new' lands (Jamroziak 2005:197-198; Table 7:14).

7.7 Late 13th century onwards

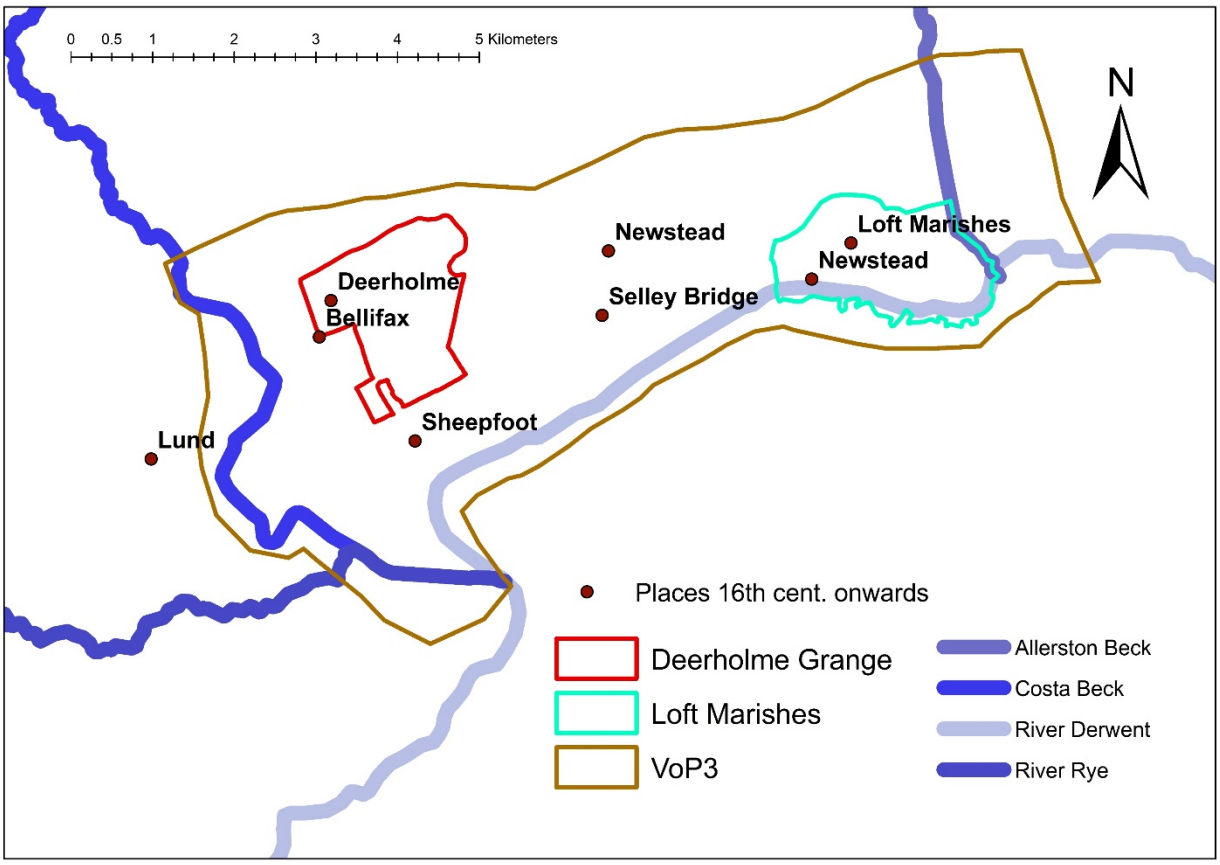
Incremental intake of land may have been partially responsible for the complex pattern of tithe liabilities reflected in the disputes with the Dean and Chapter of York. As will be seen below, incremental intake in the Western Vale was to continue up to and beyond the Dissolution of the monasteries in the 16th century. As only two units, Kekmarreys and Loft Marreys, were named in the tithe dispute this suggests that at this date Rievaulx's Pickering Marishes estate was being managed as two units. Just over 30 years later, the 1275 Hundred Rolls however refer to only one unit attributable to the land near Pickering, namely the grange of Kekmarreys which was '*300 acres of agricultural land, and 300 acres of pasture*' (*Rotuli Hundredorum Temp*. *Edw.* I. Vol 1, p 107). Previous scholars have interpreted this as representing the whole of the former waste extent (Donkin 1978:59). 300 acres however does not represent the full extent of the land encompassed by Henry II's gift.

In the later 13th century, multiple factors impacted on Rievaulx's activities in her Pickering estate. Changing economic circumstances, such as population decrease consequent on the Black Death and successive devastating animal diseases (Campbell 2016), forced adaptation on many elements of medieval society. It became increasingly common in this period for monasteries to break up their consolidated demesne estates, and to let out some of the constituent units. The Cistercian Chapter General permitted abbeys to lease to tenants from 1261 (Table 2:2).

Successive monarchs after King Henry II confirmed Rievaulx's rights in the royal grant. (Table 7:13). The Crown however retained certain rights in this land and the delineation and exercise of these were regularly re-examined. In the first year of Edward I's reign, 1272, Rievaulx's abbot was summoned to the court at York to answer a writ of *quo warranto* issued by the Crown. The writ claimed that the king had free warren over multiple of the monastery's possessions including the royal former wasteland. Nearly a century later the abbot of Rievaulx claimed in Kekmareys, Lund, Newstead and Loftmarreys, the right to construct *domos* and bercaries, namely buildings and sheep stations, and work the land without hindrance from the forest authorities, a claim upheld by an *inspeximus* in 1369 (Table 7:19). Another case in 1380 found that the Pickering waste and pasture had been given by Henry II free of all liabilities, of geld,

Tementale (a tax on ploughland) or land-service. It remained the abbot's responsibility to maintain Friars Bridge. (Table 7:19).

Incremental intake continued throughout the medieval and post-medieval here. Sixteenth-century Dissolution-era documents published by Atkinson (1899) expand the known list of productive units within Rievaulx's Pickering estate. (Table 7:16; Table 7:17). As well as Loftmarreys and Kekmarreys Selley Bridge, Lund, Newstead previously mentioned, units near Marishes included Newhouse, Cowhouse, Calfcote, Bellifax, Dereholm, Dereham, Ewe Cote, and West Ede. It is unclear when those units were established which were recorded at Dissolution but had not been mentioned in the 1301 Lay Subsidy. Some units may have been formed considerably earlier than the 16th century, but the reference to the tenant at *Kekmarres* for 'the new close in the Est more' suggests that incremental intake was still underway in the mid-16th century.



Deerholme and Loft Marishes outlines derived from 19th century tithe commutation data © The National Archive accessed via The Genealogist website. Watercourses: Open Rivers data used under Open Government licence 3.

Figure 7:23 Dissolution-era units in the king's former wasteland

The post-Dissolution fate of Rievaulx's Vale of Pickering interests was also piecemeal. The Dissolution surveys reflect that the units named above were by the mid-16th century all leased out, in a complex array of monetary and in-kind rentals and privileges. Ownership of Loftmarish and Deerholme came into the hands of the Archbishop of York at Dissolution (Page 1923: 461-476). Kekmarish was sold in 1544 to Sir Roger Cholmley of Roxby along with Lund, Bellifax, Ewe Cote and Newhouse (Page 1923:461-476). The complex pattern of tithe districts within Pickering parish by 1845 (Table 7:3) may reflect the longterm trend of piecemeal intake, reflected also in encroachments and incremental colonisation which continued in the townships and forest of Pickering in the post-medieval period, for example in Allerston and Kingthorpe (Turner 1987). Incremental intake is also suggested by the complex pattern of parliamentary enclosure (Table 7:19). Parliamentary enclosure acts typically awarded up to a third of all reclaimed land to the Crown or its agents (Taylor 1999:148).

Chapter 7 Landscape orientation tables

Date	Reference	Page in *Cart. Riev.*	Substance
u/d. Using Atkinson's dates for witness list suggests 1154x1159	*Cart.Riev*. 197	142-144	Confirmation of all donors' grants.
u/d Using Atkinson's dates for witness list suggests 1154x1162	*Cart.Riev* 198*	144	Charter of protection and immunities and forest privileges.
u/d	*Cart.Riev* 200	145	General charter of protection. Westminster
u/d Using Atkinson's dates for witness list suggests charter date 1189.	*Cart.Riev* 201	145-146	General charter of protection "Privilegium de Rievalle". Burum
u/d	*Cart.Riev* 202	146	Grant of immunity from various dues and customs. Lincoln
u/d	*Cart.Riev* 203	146-147	Confirmation of de Mowbray's gift of Welburn and Houeton. Nottingham
u/d	*Cart.Riev* 204	147	Confirmation of Bishop of Durham's grant of Cotum. 'Wintonam'
1158 (Jamroziak 2005:119).	*Cart.Riev* 205;* EYC1 403	147-148	Grant of Kilverdmersch and the pasture of the waste below Pickering. Rome
1158 (Jamroziak 2005:119) *Recueil* editor dates to 1157	*Cart.Riev* 206;* EYC1 401; *Recueil* Suppl V	148	Directing the *Vicecomiti* and his ministers of Yorkshire to commission the *legales homines* of the wapentake to survey the waste below Pickering as it was in the time of Henry I and without delay to give it to the monks of Rievaulx and to allow no injury or affront to them. 'Cadomum' (Caen)
After 1158 (Jamroziak 2005:119)	*Cart.Riev* 207*	148	Precept forbidding anybody to interfere with Rievaulx's rights in the Pickering waste.
After 1158 (Jamroziak 2005:119) *Recueil* editor dates 1158-1162	*Cart.Riev* 208;* EYC 1 404; *Recueil* Suppl XV	149	Directing the *Vicecomiti* and his foresters of Pickering to ensure that Rievaulx had quiet enjoyment of all the pasturage of the waste below Pickering previously given by the king. Cahors.
After 1158 (Jamroziak 2005:119). Recueil editor dates 1169-1172/3	*Cart.Riev* 209;* EYC 1 407; R*ecueil* Suppl XXIX	149	Directing the *Vicecomiti* of Yorkshire and his bailiffs to ensure that Rievaulx's monks have quiet enjoyment of their bercaries and ditches and other easements in the waste below Pickering. Burum
After 1158 and before 1179 (Jamroziak 2005:119). After 1163 (Atkinson	*Cart.Riev* 210*	149-150	"*Carta Regis Angliae*" Renewal of grant of waste and pasture below

1889:150). Possibly between 1175 and 1179 (Farrer 1914:317)			Pickering, with boundaries. Westminster
	Cart.Riev 192*	139	Confirmation of agreement by Rievaulx and Malton over *Eduiemersch* pasture. Stamford.
	Cart.Riev 211	150-151	Confirmation of grant made by de Ros. Knaresborough
	Cart.Riev 212	151-154	General confirmation of all grants made to Rievaulx. Westminster
	Cart.Riev 213	154	Confirmation of grants made to Rievaulx by de Balliol in Teesdale and Westerdale. Clarendon
Using Atkinson's dates for testator and Sylvanus as Abbot of Rievaulx: 1167-1181	*Cart.Riev* 199	145	Charter of protection for Rievaulx under Sylvanus. Caen
	Cart.Riev 368*	260	Undated, composite charter (Burton 1998a) including statement *Ao ab Incarnatione Domini Mo clviii dedit nobis Rex Henricus Secundus vastum subtus Pikering,* ***in escambio pro Steintona*** *quam nobis dedit Walterus de Gant ad Abbatiam construendam ibi*.

* relates to Pickering waste

Table 7:12 Henry II's charters relating to Rievaulx Abbey – Cart. Riev. and other selected sources

Monarch	Regnal dates	Charter date	References	Page refs	Comments and place of sealing (where given in sources used)
Henry I	1100-1135	u/d	*Cart. Riev.* 194	140	Confirmation of Espec's grant to Rievaulx and immunities from certain dues. Using Atkinson's dates for witness list suggests charter date 1129x1131, so conceivably before Rievaulx's foundation
		u/d	*Cart. Riev.* 195	141	Confirmation of Espec's grant to Rievaulx and immunities from certain dues
		u/d	*Cart. Riev.* 196	142	Confirmation of Espec's grant, immunity for Rievaulx from geld on the gift of Espec in Griff and Tilston (see Atkinson's footnote to Riev Cart 196), tolls and other dues. Archbishop Thurstan confirmed Espec's gift (Riev Cart 218)
Stephen	1135-1154				No charters in respect of Rievaulx in *Cart. Riev.* or EYC
King Richard I	1189-1199	1189	*Cart. Riev.* 171	123	Charter of protection
			Cart. Riev. 172	124	General confirmation of all grants made to Rievaulx
			*Cart. Riev.*173*	127-128	Confirmation of his father's grant of the waste below Pickering. Similar locational description used to that in Henry II's grants.
			Cart. Riev. 174	128-129	Confirmation of Espec's grant to Rievaulx
			Cart. Riev. 175	129	Charter of immunity from payment of various customs and dues "ad proprios usus suos"
King John	1199-1216		Charter Rolls 2 John No 57, printed by Atkinson 1899:380*	380	General confirmation of gifts, rights and freedoms, including those in the royal forests
			Charter Rolls 2 John No 58, printed by Atkinson 1899:381*	381	*Johannes D.G. … Sciatis nos … confirmasse Deo et S. Mariae et Ecclesiae de Rievalle, et monachis ibidem Deo servientibus, pro salute … in elemosinam, totum vastum nostrum, et totam pasturam nostrum, subtus Pikaringam, etc [as in N. CLXXXIII].* Atkinson (1899:381) comments "*This is another confirmation by King John, and as nearly as possible the same*

					*verbatim as in the confirmation by King Richard I [*Riev.Cart.173]*. One variation is Blastain for Blastam, which probably explains that obscure name, "bla stane" being intelligible"*
Henry III	1216-1272	1251	Charter Roll. 35 Henr. III. m. 6., published in Atkinson 1889:395	395	Confirmation of miscellaneous grants, but no mention of the waste
		1252	Charter Roll, 36 Henr. III, m. 7. published in Atkinson 1889:398	398	Confirmation of multiple grants, including several not apparently mentioned elsewhere, but no mention of the waste
Edward I	1272-1307		*Cart. Riev.* 179	130	Charter of immunity from certain services
		1272	Assize Rolls, Ebor. N. 1, 16-2, f. 13[b] Trinity Term. 1 Edw. I. [127 [2/3] f].] Pub by Atkinson 1889 as Appendix 78	401	*Quo warranto* issued by Crown over claim of free warren and other rights in Rievaulx's lands including Pickering former waste
		1280	Yorkshire Assize Roll N1. 21-1 Published by Atkinson 1889 as Appendix 82	405	*Quo Warranto* plea by Crown against Rievaulx, repeat of cause in Appendix 78 (above)
Edward II	1307-1327				*No confirmation yet traced*
Edward III	1327-1377	1332	Patent Rolls 6 Edw III, pt2 m.23 printed by Atkinson 1899	277-307	Confirmation of grants made to the abbey by his predecessors. Local information is likely to have informed the listings which are listed in a broadly spatial logic but with some exceptions. Pages 289-290 refer to grants made by various parties around Pickering, Thornton, Allerston, Morhou. Noteworthy that Henry's wasteland not mentioned, as it was by then a custom for this to be recorded separately, probably because of its importance. A separate reaffirmation of Rievaulx's right to the waste may therefore be looked for, perhaps this was a factor prompting the later *inspeximi*?
		1369	Patent Rolls 43 Edw III, pt1 m.33, Published by Atkinson 1889 as Appendix 98	415-419	*Inspeximus* of 1369, examining the claim by Abbot of Rievaulx to various privileges and freedoms in his [manors] of Kekmareys, Lund, Newstead, Loftmarreys, and all that belonged to these, with boundaries stated.

					Sufficiently important to be copied also into the Duchy of Lancaster Coucher book.
Richard II	1377-1399				
		1379?	Patent Rolls 3 Rich II pt2.m20. Pub by Atkinson 1899 as *Cart Riev* 373	307-310	*Inspeximus* of charters of previous kings. No direct reference to the Pickering waste, but does contain a restatement of various freedoms issued by Henry II to the abbey
		1380	Patent Rolls 4 Rich II pt1. M35. Published by Atkinson 1889 as Appendix 99	419-421	*Inspeximus* of Crown and Rievaulx rights in the waste (ie of Edw III inspeximus of 1369) including restatement of boundaries
Various		Transcribed 1640	Sections of misc. *mss* from records transcribed by Dodsworth (Dodsw 85- folio 71^{b} in Cotton Julius Di.). Published by Atkinson 1889	265-277	Many of convent's rights appears to be ordered by spatial attribute, rather than the social ordering of the main cartulary. In *Cartae Regum* item 8 (A viii) is "Cartus ejusdem [ie Henrici Regis Senioris] de vasto subtus Pykering, and item 21 (A xxi) is "Cartus ejusdem [Richard I] de vasto subtus Pykering."

* those pertaining to the waste

Table 7:13 Royal grants and confirmations to Rievaulx, as issued by monarchs other than Henry II as recorded in Cart Riev.

1088x1093	Confirmation by William II to abbot Stephen and the monastery of St. Mary, York, of the church and site of the monastery outside the city of York, and their possessions to be held in frank almoign with the same laws and customs which the church of St. Peter of York or that of St. John of Beverley has.	EYC 1 350
1100-1108	Writ of Henry I to Osbert, sheriff, and the barons of Yorkshire, directing them to permit Gerard, archbishop of York, to enjoy the customs and rights which his predecessors had in the time of William I and William II.	EYC 1 15
Easter, 1102.	Writ of Henry I to Osbert, sheriff, directing that Gerard, archbishop of York, should have within his lands and those of the archbishopric and all the laws and customs which Archbishop Thomas I had, and certain new privileges. The archbishop had 2 distinct estates: the *terra ecclesiarum suarum*, (capitular or conventual lands of St. Peter) and *terra Eboracensis* episcopates (feudal lands of the archbishopric)	EYC 1 14 Farrer 1914:32-33
1100x1108	Writ of Henry I to Osbert, sheriff (of York and Lincoln), directing him to cause Gerard, archbishop (of York), to hold his lands in Osbert's sheriffwicks with the same liberties and customs which these lands possessed when the king gave him the archbishopric, and likewise touching the lands which the king afterwards gave him, to hold as fully as his predecessor held them.	EYC 1 16
1100-1110	Writ of Henry I to Osbert the sheriff and the barons of Yorkshire notifying them of his grant to Stephen, abbot of (St Mary's) York, of the custody of the king's forest in the abbot's land.	EYC 1 351 Farrer 1914:267
1107?	Mandate of Henry I to Osbert sheriff of York, to cause Archbishop Gerard of York to hold the churches of the king's demesne manors with the chapels, tithes and lands and to order Walter and Euremar, ministers of Driffield, to deliver the tithes of this past harvest, if they have not done so.	EYC I 427
1100-1108	Henry I directed that the Archbishop of York was to hold sac, soc, and customs of the royal demesne churches in Yorkshire (Pickering, Pocklington, Great Driffield, Kilham, Aldborough and Snaith)	EYC 1 426
1101-16	Notification to the archbishop of York and the sheriff and ministers of Yorkshire of a grant to the abbey of St. Mary, York, of tithe of the royal venison in Yorkshire. Attested at Pickering	Henry I *Itinerary* 239. Farrer 1919:53
1108-1114	Notification to Archbishop Thomas, Nigel de Aubigny, Osbert the sheriff and all lieges of the confirmation to the brethren of Goathland (near Pickering) of the place of Goathland.	Henry I Itinerary 235. Farrer 1919:53
1110-1113	Precept of Henry I to Osbert, sheriff (of York), directing that the abbot and monks of St. Mary's, York, shall hold in peace their land and woodland from the water of Dove to the water of Seven, as they held them before the region was forest, that his foresters shall not interfere there; grant also that the abbot and his successors shall have the forestry and shall cause hart and hind, wild boar and hawk to be preserved to the king's use.	EYC 1 352 Farrer 1914:268
1110x1118	Grant made at Pickering by Henry I to the abbot of St. Mary's, York, of the tithe of his venison of Yorkshire, in flesh and hides by whomsoever taken.	EYC 1 353 Farrer 1914:269
1114-1128	Henry I directed the Yorkshire authorities to ensure the Dean of York received his tithes of Pickering, which Engeneouf de Fourneaux had seized	EYC1 399
1114-1135	Writ (of Henry I), issued by Roger, bishop of Salisbury (the chancellor), directing the foresters of Yorkshire to permit Archbishop Thurstan and his men to have their easements and necessaries in the underwoods of the archbishopric, which the king has put into his forest.	EYC 1 19

1119-x1133	Henry I grant to the Hospital of St Leonards pasturage etc in his forest	EYC 1 167
1119-1129	Henry I directed the Yorkshire authorities that the Dean of York was to have the tithes of the royal demesne churches including Pickering	EYCI 429
1119-1129	Precept of Henry I to Thurstan, archbishop of York, Nigel de Aubigny and Anschetill, sheriff (of York), to cause Hugh dean of York to have the rights which he gave to St. Peter in alms, from tithes, parishes, lands and chapels, as in the time of king Edward, William I, and William II.	EYCI 430
1132-1135	In 1132 Pope Innocent II granted to Cistercian order freedom from payment of tithes for goods produced by and for the monks, confirmed at the Council of Pisa in 1135.	Constable 1964: 220-242 Berman 1981:200
1136-1140	Archbishop of York reaffirmed the Deanery's rights to the tithes of Pickering and certain other churches	EYC1 431
1131-1139/40	Agreement by Kirkham priory to cede tithes of Griff and Tilston to Rievaulx	*Cart.Riev* 234 and 235
1136-1139	Notification by Stephen to his ministers of Yorkshire and to all lords of whom the canons of St. Peter [York Minster] hold land that he has granted that the canons may till all their lands, of whomsoever held, and thereon erect houses and buildings, **save on lands within his ancient forests**.	EYC 1 134
1142-1147	Writ of Stephen to all ministers in whose bailiwicks William, archbishop of York, has lands, directing them to keep and uphold the archbishop's lands and not to suffer anything to be taken therefrom save by the archbishop; anything wrongfully taken after he was made archbishop to be returned to him.	EYC 1 21
1152-1160	Formalisation of gift by Bishop of Durham to Rievaulx of East Cowton (Allertonshire)	Jamroziak 2005:188-191
1154-1170	Agreement between Rievaulx and Durham – compensation for tithes of Cowton	Jamroziak 2005:196 *Cart.Riev* 236. EYC II 956
1155-1158	Writ of Henry II to his ministers of Lincolnshire, directing that Roger, archbishop of York, shall hold his lands as fully and well, with sac, soc, tol, team and infangenthef, as any of his predecessors held them under Henry I.	EYC 1 22
1155-1158	Precept of Henry II directing that the abbot and monks of St. Mary's, York, shall hold in peace their land and woodland between Dove and Seven, as in the time of Henry I.	EYC 1 355
1156-1157	Confirmation by Henry II to the monks of St. Mary's, York, of the gifts made by William I, William II, Henry I and others	EYC 1 354
1157-1163	Confirmation by Henry II to the monks of St. Mary's, York, of the grant of tithe of his venison in Yorkshire, in flesh and hides, by whomsoever taken, by livery of his larderers, according to the tenour of the charter of Henry I. 1157x1163.	EYC 1 356 Farrer 1914:277
1155	Pope Hadrian IV decreed that Cistercians to be free of tithe payments on *novalia* only	Constable 1964:286
1159-1181	Pope Alexander reversed Pope Hadrian IV's ruling, to the effect that all Cistercian lands were exempt from tithe payments. Rievaulx was the first house to benefit from this ruling	Jamroziak 2005:181
1159-1181	Pope Alexander III's bull of protection to Rievaulx and confirmation of grants made to the abbey, with specific mention of the Pickering waste	*Cart.Riev.* 250

1159-1181	Pope Alexander III confirmed the right of Rievaulx to tithes in relation to certain churches, including Kekmareys and Loftmarays attached to the church of Pickering Kilverdmerch and Theokmersc	*Cart.Riev* 251: 188-189
1160-1185	Mandate by the chapter of St. Peter, York, to the parsons and vicars of the deanery of Ryedale, summoning parishioners who owe corn or bequests to the hospital of St. Peter (minster), to answer touching their default.	EYC1: 195
1162-1189	Confirmation by Durham Chapter of agreement of Rievaulx to pay compensation for tithes of Cowton	Jamroziak 2005:196 *Cart.Riev* 240
1170-1181	Writ of Henry II to the sheriff and his bailiffs of Yorkshire, prohibiting them from putting Roger, archbishop of York, in any plea touching his demesne, or any tenement held by him of the king in chief, save before the king.	EYC 1 23
1171-1181	Pope Alexander III – rebuke to Bishop and Prior of Durham for extortion in matter of annual payment by Rievaulx of East Cowton tithes	Jamroziak 2005:196 *Cart.Riev* 258
1174-1176	Pope Alexander to Archbishop of York and Bishop of Durham – instruction to excommunicate clerks who demanded tithes of Rievaulx from Welburn in Vale of Pickering	Jamroziak 2005:196 *Cart.Riev* 265
1159-1181	Precepts by Pope Alexander III on behalf of Rievaulx and rebukes to those, including Archbishop Roger of York, who oppress the monastery and deprive them of their property	*Cart.Riev* 253-260, 262-269, 271, 276-277,
1179	Third Lateran Council	
1206	First agreement between Rievaulx and Chapter of York in relation to tithes of Kekmarays. Rievaulx undertook to pay 20 shillings in lieu of tithes	*Cart.Riev* 363 p 255 which is 'incomplete' Jamroziak 2005:197
1215	Fourth Lateran Council, which 'limited exemption from tithes on any new acquisitions, even if the monks cultivated it themselves, unless the land was classified as novalia, that is, previously uncultivated so that no tithes had been paid from it'	Jamroziak 2005:181-182
1220	Agreement between Rievaulx and the Dean and Chapter after papal judges' intervention on *questio sit multotiens agitata.* Rievaulx to pay 5 marks yearly for tithes of Kekmarrish and Loftmareys	Jamroziak 2005:197 *Cart.Riev* 364 p 255-256
1233	Separation of Allerston, Ellerburn, Ebberston, and Wilton from the parish of Pickering.	Page 1923: 461-475
1240	Two documents recording agreement by Abbot Adam of Rievaulx to pay tithes to Pickering church on all lands which Rievaulx might thereafter acquire in the parish of Pickering; the second document specific to Dean of York (Fulk Basset)	*Cart.Riev* 365 p256; 277 p 200-201
1241	Settlement issued by the judges-delegate nominated by the Pope. Rievaulx to pay two marks of compensation for the tithes of Kekmarish and Loftmarish	*Cart.Riev* 366 p257-259
1252	A vicarage ordained at Pickering. In the 19th century the Dean of York was still the patron and impropriator	Lawton 1842:532-533.

1334	The Abbot of York's right to the tithes of venison was still being claimed in 1334, when liberties and quittances were examined by the Justices of the Forest.	Duchy of Lancaster Coucher Book, pub in Turton 1894 Vol 3 p 118.
19th century	Tithe commutation data: Deerholme recorded as tithe exempt extent within Pickering Marishes. Nearby land in Ryton parish (Eduiemersch) recorded as tithe-free estate	

References are to document number within each published source, with editorial comment referenced where pertinent

Table 7:14 Rievaulx, Church and tithes

Township	Institution	Bovates	Lands / acres	Assarts	Block grants	Source	Researcher
Aislaby	Malton	9				Malt. Cart. f. 2)1	WEW
Aislaby	Templars	1				Mon. Notes, vol. 1, p.122	WEW
Allerston	Rievaulx	8				Riev. Cart., no. 167	WEW
Allerston	Rievaulx			5a		Riev. Cart., no. 138	WEW
Allerston	Templars	16				Y.F. 1232-46, no. 1235	WEW
Allerston	Yedingham	6				Cal. Chart. R., vol. 1, p.104	WEW
Amotherby	Malton	12				Malt. Cart., f. 86-94	WEW
Ampleforth	Byland	8				Byland. Cart., f. 3-6	WEW
Ampleforth	St. Peter's	24				St. Peter's Cart., f. 181;D.B., f. 92; Lib. Alb., sec. 2, f. 55	WEW
Appleton-le-Moor	St. Mary's	32				St. Mary's Cart., f. 27	WEW
Ayton, East	Templars	3				Percy Cart., no. 73	WEW
Ayton, East	Whitby	4				Whitby Cart., no. 553	WEW
Ayton, West	Whitby	5				Whitby Cart., no. 125	WEW
Barton-le-Street	Kirkham	10				Kirk. Cart., f. 68-9	WEW
Barugh, Great	Ellerton	10				Cal. Pat. R., 1301-7, p.303	WEW
Barugh, Great	St. Peter's	20				St. Peter's Cart., f. 182	WEW
Barugh, Little	Keldholme	7				Mons. Ebor., p. 665	WEW
Barugh, Little	St. Peter's					St. Peter's Cart., f. 181	WEW
Beadlam	Kirkham		9a			Kirk. Cart., f. 53	WEW
Beadlam	Kirkham			5a		Kirk. Cart., f. 55	WEW
Bilsdale	Kirkham	16				Kirk. Cart., f. 50, 92	WEW
Bilsdale	Kirkham					Kirk. Cart., f. 51	WEW
Bowforth	Rievaulx		7a			Riev. Cart., no. 41	WEW
Bowforth	Newburgh	4				Newburgh Cart., f. 16	WEW
Bransdale	Keldholme					E.Y.C., vol. 9, p. 92	WEW
Brawby	St. Peter's	51				St. Peter's Cart., f. 182	WEW

Brompton	Malton	9		Malt. Cart., f. 142-3	WEW
Brompton	St Mary's	8		St. Mary's Cart., f. 59	WEW
Broughton	Malton	40		Malt. Cart., f. 75-80	WEW
Broughton	Malton, Hospital of			Malt. Cart., f. 76	WEW
Butterwick	St Mary's	3		St. Mary's Cart., f. 218	WEW
Cawthorn	Malton	1		Malt. Cart., f. 234	WEW
Cawthorn	Rosedale	4		Y D., 1246-72, no. 1380	WEW
Cawthorn	St Peter's	4		E.Y.C., vol. 7, p. 127	WEW
Cawthorn	Templars	6		Y.A.J., vol. 29, p.372	WEW
Cawton	Malton	1		Malt. Cart., f. 100-101	WEW
Cawton	Rievaulx	1		Riev. Cart., no. 293	WEW
Cawton	St Lennard's	1		St. Lenn. Cart., f. 71	WEW
Cayton	Byland	1		Byland Cart., f. 20	WEW
Cayton	Rievaulx			Riev. Cart., no. 217	WEW
Cayton	Rievaulx			Riev. Cart., no. 311	WEW
Cayton	Whitby	18		Whitby Cart., no. 108	WEW
Coneysthorpe	Holy Trinity	32		Y.D., vol. 3, no. 53	WEW
Coulton	Malton	1		Malt. Cart., f. 99	WEW
Coulton	St Mary's	4		St. Mary's Cart., f. 62	WEW
Cropton	Keldholme	4		Mons. Ebor., p. 665	WEW
Cropton	Malton	1		Malt. Cart., f. 117	WEW
Deepdale	Byland	32		Byland Cart., f. 22-4	WEW
Easthorpe	Malton		200	Malt. Cart., f. 73-4	WEW
Ebberston	Malton	2		Malt. Cart., f. 129-33	WEW
Ebberston	Wykeham			Malt. Cart., f. 131	WEW
Ebberston	Yedingham	20		E.Y.C., vol. 1, p. 305-9	WEW
Edston, Great	Malton	7		Malt. Cart., f. 113-16	WEW
Edston, Great	St Peter's	16		St. Peter's Cart., f. 182	WEW
Edston, Little	Ellerton	3		Mons. Ebor., p. 216	WEW
Edston, Little	Malton	8		Malt. Cart., f. 113-16	WEW
Edston, Little	St Peter's			St. Peter's Cart., f. 182	WEW
Ellerburn	St Lennard's	6		Y. Inq., vol. 1, p. 158	WEW

Ellerburn	Templars	3				Y. Inq., vol. 1, p. 158	WEW
Fadmoor	Keldholme	2				E.Y.C., vol. 7, p. 104	WEW
Farmanby	Malton		16a			Malt. Cart., f. 128	WEW
Farmanby	Rosedale	2				Mons. Ebor„ p. 317	WEW
Farmanby	St Lennard's	4				E.Y.C, vol. 1, p. 297	WEW
Farmanby	Whitby					Whitby Cart., no. 520	WEW
Farmanby	Whitby				3a	Whitby Cart., no. 617	WEW
Farndale	Keldholme					E.Y.C., vol. 9, P. 92	WEW
Farndale	St. Mary's					St. Mary's Cart., f. 174	WEW
Farndale	Rievaulx					Riev. Cart no. 212	WEW
Filey	Bridlington	5				Brid. Cart., f. 57-8	WEW
Flixton	Bridlington	4				Brid. Cart., f. 68-9	WEW
Flixton	Bridlington, Hospital of					Brid. Cart., f. 68	WEW
Flotmanby	Bridlington	15				Brid. Cart., f. 61-7	WEW
Flotmanby	Rievaulx					Riev. Cart., f. 340	WEW
Folkton	Bridlington	2				Brid. Cart., f. 65-7	WEW
Folkton	Kirkham		7a			Kirk. Cart., f. 66	WEW
Folkton	Rievaulx	4				Riev. Cart., no. 82	WEW
Folkton	Rievaulx			160a		Riev. Cart., no. 159	WEW
Foulbridge	Templars	16				Cal. Inq., vol. 7, no. 81	WEW
Ganton	Bridlington					Brid. Cart., f. 101-2	WEW
Ganton	Bridlington					Brid. Cart., f. 102	WEW
Ganton	Whitby	4				Mon. Notes., vol. 1, p.117	WEW
Gilling, East	Malton	4				Malt. Cart., f. 253-4	WEW
Gilling, East	Rievaulx		12			Riev. Cart., no 302	WEW
Gilling, East	St. Mary's	32	ea*			St. Mary's Cart., f. 213	WEW
Goathland	Whitby					Whitby Cart., no. 195	WEW
Goathland	Whitby			190a		N.R.R.S.„ vol. 2, p. 175	WEW
Griff	Rievaulx	48				Riev. Cart., no. 66	WEW
Grimston	St. Clement's	16				Cal. Chart. R., vol. 4, p. 18	WEW
Grimston	St. Mary's	12				Lib. Alb., sec. 3, f.60	WEW
Gristhorpe	Bridlington	18				Brid. Cart., f. 212-13	WEW

Habton, Great	Keldholme	8		Mons. Ebor., g. 665	WEW
Habton, Little	Ellerton	8		Mons. Ebor., p. 665	WEW
Habton, Little	Keldholme	4		Mons. Ebor., p. 665	WEW
Harome	Kirkham	2		Kirk. Cart., f. 16	WEW
Harome	Rievaulx			Riev. Cart., no. 334	WEW
Helmsley	Kirkham	11		Kirk. Cart., f. 49	WEW
Helmsley	Kirkham		11a	Kirk. Cart., f. 50	WEW
Helmsley	Rievaulx		9a	Riev. Cart., no. 42	WEW
Helmsley	St. Lennard's	16		St. Lenn. Cart., f. 71	WEW
Helmsley	St. Mary's	2		Mons. Ebor., p. 598	WEW
Heslerton, East	Guisborough	1		Guis. Cart., p. 438	WEW
Heslerton, East	Rievaulx	4		Riev. Cart., no. 330	WEW
Heslerton, West	Malton	9		Malt. Cart., f. 148	WEW
Holme, North	Rievaulx		17a	Riev. Cart., no. 297, 309	WEW
Holme, South	Guisborough	32		Guis. Cart., p. 446	WEW
Holme, South	St. Peter's	3		Lib. Alb., sec. 2, f.63	WEW
Hoveton	Rievaulx	16		Riev. Cart., no. 231	WEW
Hovingham	Byland		10a	Byland Cart., f. 43	WEW
Hovingham	Malton	11		Malt. Cart., f. 99	WEW
Hovingham	Newburgh	16		Newburgh Cart., f. 65	WEW
Howe	Malton		8a	Malt. Cart., f. 38	WEW
Hutton Buscel	Whitby	12		Whitby Cart., no. 65, 523	WEW
Hutton Buscel	Wykeham	7		Mons. Ebor., p. 275	WEW
Hutton-le-Hole	St. Mary's	40		E.Y.C., vol. 1, p. 269	WEW
Irton	Whitby	7		Whitby Cart., no. 168-72	WEW
Keldholme	Keldholme			E.Y.C., vol. 9, p. 92	WEW
Killerby	Whitby	6		Whitby Cart., no. 1	WEW
Kingthorpe	Malton	5		Malt. Cart., f. 123-5	WEW
Kirby Misperton	Malton	18		Malt. Cart., f. 104-8	WEW
Kirby Misperton	Kirkham	3		Kirk. Cart., f. 39	WEW
Kirby Misperton	Newburgh	1		Newburgh Cart., f. 137	WEW
Kirby Misperton	St. Mary's	68		Mons. Ebor., p. 548	WEW

Kirbymoorside	Rievaulx		12a	Riev. Cart., no. 129	WEW
Kirbymoorside	St. Mary's	1		St. Mary's Cart., f. 24	WEW
Knapton	Malton	4		Malt. Cart., f. 149-50	WEW
Knapton	St. Mary's	16		St. Mary's Cart., f. 62	WEW
Lastingham	St. Mary's	32		Mons. Ebor., p. 548	WEW
Laysthorpe	Byland	13		Byland Cart., f. 55-6	WEW
Lebberston	Bridlington	24		Brid. Cart., f. 219-22	WEW
Lebberston	Rievaulx	8		Riev. Cart., no. 326	WEW
Levisham	Malton	2		Malt. Cart., f. 116-18	WEW
Lockton	Malton	1		Malt. Cart., f. 121-2	WEW
Lockton	Rosedale	1		E.Y.C., vol. 1, p. 307	WEW
Lockton	Templars	10		Y.F. 1232-46, no. 1011	WEW
Lockton	Whitby		7a	Whitby Cart., no. 96	WEW
Malton, Old	Malton	12		Malt. Cart., f. 34-54;239-40	WEW
Malton, Old	St. Peter's	8		St. Peter's Cart f. 18	WEW
Malton, Old	Hospital of			Malt. Cart., f. 37	WEW
Marton (par Sinnington)	Malton	4		Malt. Cart., f. 110-12	WEW
Marton (par Sinnington)	Rievaulx	8		Riev. Cart., no. 172	WEW
Marton (par Sinnington)	St. Mary's	8		St. Mary's Cart., f. 221-3	WEW
Marton (par Sinnington)	Yedingham	2		Mons. Ebor., p. 273	WEW
Middleton	Rievaulx	2		Riev. Cart., no. 172	WEW
Middleton	Rosedale	8		Y.F. 1232-46, no. 1175	WEW
Middleton	Malton	6		Malt. Cart., f. 241	WEW
Muscoates	St. Peter's	2		Lib. Alb., sec. 2, f. 62	WEW
Nawton	Rievaulx	32		Riev. Cart., no. 319	WEW
Nesse, West	Byland		8a	Byland Cart., f. 55	WEW
Newbiggin	Bridlington	2		Brid. Cart., f. 216	WEW
Newsham	Malton	2		Malt. Cart., f. 249	WEW
Newton, East	St. Peter's	2		St. Peter's Cart., f. 181	WEW
Newton, West	Rievaulx	16		Riev. Cart., no. 285	WEW
Newton (par Pickering)	Malton	1		Malt. Cart., f. 129	WEW
	Rosedale	5		Mons. Ebor., p. 317	WEW
Newton (par Wintringham)	Malton	11		Malt. Cart., 151-5	WEW

	Kirkham		17a		Kirk. Cart., f. 17	WEW
Normanby	St. Mary's	24			St. Mary's Cart., f.19,92	WEW
Norton	Malton	7			Malt. Cart., f. 55-8	WEW
Norton	Malton, Hospital of				Malt. Cart., f. 57; 240	WEW
Nunnington	Keldholme	4			Mons. Ebor., p. 665	WEW
Nunnington	Rievaulx	8			Riev. Cart., no. 249	WEW
Nunnington	St. Mary's	24			Mons. Ebor., p. 545	WEW
Osgodby	Byland	16			Byland Cart., f.89-91	WEW
Osgodby	Newburgh		2a		Newburgh Cart., f. 62	WEW
Osgodby	Rievaulx	1			Riev. Cart., no. 34.9	WEW
Oswaldkirk	Rievaulx			12a	Riev. Cart., no. 335	WEW
Pickering	Malton	4			Malt. Cart., f. 125-6	WEW
Pickering	Malton, Hospital of				Cal. Pat. R. 1301-7, 13.214	WEW
Pickering Marshes	Rievaulx				*see Chapters 7 & 8 of this dissertation*	FH
Pockley	Kirkham				Kirk. Cart., f. 56	WEW
Potter Brompton	Bridlington	15			Brid. Cart., f. 117	WEW
Raisdale	Rievaulx				Riev. Cart., no. 322	WEW
Rievaulx	Rievaulx				Riev. Cart., no. 250	WEW
Rillington	Malton	33			Malt. Cart., f. 157-68	WEW
Rillington	Yedingham	4			Mons. Ebor., p. 273	WEW
Rookbarugh	Rievaulx		17a		Riev. Cart., no. 68	WEW
Rosedale	Rosedale				Mons. Ebor., p. 317	WEW
Rosedale	Rosedale		200a		N.R.R.S., vol. 2, p. 174	WEW
Roxby	Malton				Malt. Cart., f. 127	WEW
Roxby	Whitby		8a		Whitby Cart., no. 1	WEW
Ryton	Byland	2			Byland Cart., f. 96	WEW
Ryton	Malton	3			Malt. Cart., f. 102-3	WEW
Ryton	Rievaulx	8			Riev. Cart., no. 39	WEW
Salton	St. Peter's	47			St. Peter's Cart., f. 182	WEW
Sawdon	Malton	10			Malt. Cart., f. 102-3	WEW
Scackleton	Byland	24			Byland Cart., f. 111-13	WEW

Scackleton	St Mary's	8		Lib. Alb., sec. 3, f.24	WEW
Scagglethorpe	Bridlington		55a	Brid. Cart., f. 104	WEW
Scagglethorpe	Kirkham	6		Kirk. Cart., f. 17	WEW
Scagglethorpe	Byland	2		Byland Cart., f. 115	WEW
Scampston	Malton	12		Malt. Cart., f. 156	WEW
Scampston	St. Mary's	2		Mons. Ebor., p. 548	WEW
Scampston	Whitby	2		Whitby Cart., no. 1	WEW
Seamer	Whitby			Whitby Cart no. 1	WEW
Seamer	Whitby, Hospital of			Percy Cart., no. 564	WEW
Settrington	St. Lennard's		16a	St. Lenn. Cart., f. 226	WEW
Sinnington	Malton	6		Malt. Cart., f. 183	WEW
Sinnington	St. Mary's	3		St. Mary's Cart. f. 183	WEW
Sinnington	Yedingham	9		Mons. Ebor., p. 273	WEW
Sherburn	Guisborough	4		E.Y.C., vol.7, p . 171	WEW
Sherburn	Malton	7		Malt. Cart., f. 146-7	WEW
Sherburn	St. Lennard's	2		St. Lenn. Cart., f. 59	WEW
Skiplam	Rievaulx			Riev. Cart., no. 161	WEW
Slingsby	Kirkham	8		Kirk. Cart., f. 77, 91	WEW
Slingsby	Malton	6		Malt. Cart., f. 96-8	WEW
Snainton	Malton	12		Malt. Cart., f. 133-40	WEW
Snainton	Wykeham	2		Scld. Soc., vol. 56, no. 291	WEW
Snainton	Yedingham	2		Cal. Chart. R., vol. 1, p.117	WEW
Spaunton	St. Mary's	48		Mons. Ebor., p. 548	WEW
Sproxton	Byland		13a	Byland Cart., f. 111	WEW
Sproxton	Guisborough			Guis. Cart., vol. 2, p. 18	WEW
Sproxton	Kirkham		10a	Kirk. Cart., f. 54	WEW
Sproxton	Rievaulx	8		Riev. Cart., no. 218	WEW
Sproxton	St. Mary's	8		Mons. Ebor., P. 548	WEW
Staxton	Bridlington	7		Brid. Cart., f. 68-74	WEW
Staxton	Bridlington		26a	Brid. Cart., f. 72	WEW

Staxton	Bridlington, Hospital of			E.Y.C., vol. 7, P. 242	WEW
Stilton	Rievaulx	40		Riev. Cart., no. 60	WEW
Sutton	Byland	18		Byland Cart., f. 105-8	WEW
Sutton	Kirkham	2		Kirk. Cart., f. 19	WEW
Sutton	Malton	11		Malt. Cart., f. 42-4	WEW
Sutton	St. Mary's	16		Mons. Ebor., p. 54.8	WEW
Swinton	Kirkham	2		Kirk. Cart., f. 39	WEW
Swinton	Malton	26		Malt. Cart., f. 80-85	WEW
Swinton	Malton		4a	Malt. Cart., f. 127	WEW
Thornton Dale	Rievaulx	12		Riev. Cart., no. 305	WEW
Thornton Dale	St. Mary's	5		St. Mary's Cart., f. 152	WEW
Thornton Riseborough	Malton		2a	Malt. Cart., f. 162	WEW
Thorpe Bassett	Kirkham	10		Kirk. Cart, f. 17	WEW
Thorpe Bassett	Malton	1		Malt. Cart., C. 169-74	WEW
Welburn	Rievaulx	48		Riev. Cart., no. 223	WEW
Welham	Malton	12		Malt. Cart., f. 64-6	WEW
Willerby	Bridlington	36		Brid. Cart., C. 76-96	WEW
Willerby	Bridlington			Brid. Cart., C. 91	WEW
Willerby	Templars	4		Y.F. 1232-46, no. 1222	WEW
Wilton	Yedingham			Cal. Chart. R., vol. 1 p. 168	WEW
Wintringham	Malton	39		Malt. Cart., C. 177-209	WEW
Wombleton	Malton	4		Malt. Cart., C. 108-9	WEW
Wombleton	Newburgh	11		Newburgh Cart., f. 56	WEW
Wombleton	Rievaulx		10.5a	Riev. Cart., no. 47	WEW
Wykeham (par Hutton Buscel)	Malton	1		Malt. Cart., f. 241	WEW
Wykeham	St. Mary's	2		St. Mary's Cart., C. 32	WEW
Wykeham	Whitby	4		Whitby Cart., no. 272	WEW
Wykeham	Wykeham	11		E.Y.C., vol. 1, P. 299	WEW
Wykeham	Yedingham	3		Mons. Ebor., p. 273	WEW
Wykeham (par Malton)	Malton		4a	Malt. Cart., C. 42	WEW
Yedingham	Yedingham	16		Mons. Ebor., p. 276	WEW

Table 7:15 Vale of Pickering – high medieval monastic acquisitions after Wightman XXX with additions by FH

"***Lownde in le Marres**, cum membris. Compotus Roberti Hunter, Ballivi sive Collectoris reddituum ibidem per tempus praedictum. Arreragia, nulla quia primus Compotus. Summa nulla*" (Riev Cart 374: 325). Redditus et Firmae.[money and food / in-kind payments] Sed reddit compotum de ix li. iii s. iv d. de firma unius tenementi, cum una pastura terrae eidem pertinenti, vocati **Selley Brigge**, cum omnibus suis pertinenciis, etc., dimissi Rogero Cholmeley, Militi, per indenturam sub sigillo communi, ut dicitur; et de x li. de firma unius tenementi ibidem vocati **Dereham**, cum pratis et pasturis eidem pertinentibus, vocatis **Dereholme**, etc., dimissi Radulpho Ever per indenturam sub sigillo communi, ut dicitur; et de c s. de firma unius tenementi, cum diversis pasturis vocati **Yowe Cotte**, solvendis ad terminos B. Marise Virginia et S. Petri quod dicitur Ad Vincula, aequaliter, in tenura Roberti Seloo et Ricardi Raysyn; et de ivli. Xvi s. viii d. de firma unius tenementi, cum certis pasturis, vocati **Kekmaresse,** etc., in tenura Willelmi Adames; et de cvi s. viii d. de firma unius tenementi, cum certis pasturis eidem pertinentibus, vocati **Cowhouse**, etc., dimissi Rogero Jakson per indenturam, ut dicitur; et de vii li. vi s. viii d. de firma i tenementi cum certis pasturis, vocati **Newhouse**, solvendis ad terminos S. Martini, etc., dimissi Roberto Henryson et Rogero Evers per indenturam; et de xxi li. x s. de firma i mesuagii, cum certis pasturis ibidem, vocati **Westede,** etc., dimissi Roberto Hunter per indenturam sub sigillo communi; et de xi li. de firma i mesuagii, cum certis pasturis ibidem, vocati **Loftmaresse**, etc., dimissi Willelmo Burton et Radulpho Burton per indenturam sub sigillo communi; et de x li. de firma i tenementi ibidem, vocati **Londe**, cum certis pasturis . . . ad terminos B. Mariae Virginis, etc.,dimissi Radulpho Bawde per indenturam sub sigillo communi; et de iv li. de firma i tenementi, cum certis pasturis, vocatis **Bellyfaxe,** etc., dimissi Edwardo Blyeton per indenturam sub sigillo communi, ut dicitur. Summa iv^{xx}viii li. iv s. iv d.
Stipendia Computantis cum expensis necessariis.—Idem computat in feodo ipsius Roberti Hunter, Ballivi ibidem, ad xiii s. iv d. per annum, ei per nuper Abbatem et Conventum dicti nuper Monasterii de Ryevalle concesso nomine feodi sui, prout in quadam indentura de **Graungia de Newstede in lez Marres**, cum aliis eidem Roberto dimissa pro termino li annorum a festo Inventionis S. Crucis, A.D. millesimo quingentesimo quarto, data decimo die Augusti ejusdem anni, plenius apparet, solvendis ad terminos S. Martini, etc., viz., pro hujusmodi festo Pentecostes infra tempus hujus compoti accidente vi s. viii d. Et in stipendio Clerici Auditoris scribentis, etc., ii s. Summa viii s. viii d. Liberationes et exonerationes denariorum [Payments and discharges of money] . — Et in denariis liberatis Leonardo Beckwith, Armigero, Receptori etc., xxxix li. viii d.: Et oneratur in compoto xliv li. xx d. Summa iv^{xx}iiii li. ii s. iv d. Summa allocationum et liberationum praedictarum iv^{xx}viii li. iv s. ivd., quae summa coaequalis est cum Summa Totalis Receptae superius.

Table 7:16 Ministers Accounts (Riev. Cart.: 325-326)

871	*. …The[r] maner called **Lunde,** and all arable land and medowe grounde, common of moore, common of pasture*
872	22 June, 26 Henr. viii [1534]. Roland, Abbat of Rivaulx, demised to William Adams of Marres and his wife, and Joh[anna] Adams his doghter, or, after the death of them to Johan Harland his son-in-law, " ***ther Grange-place called Kekmarres*** *with all closes and all other thinges perteining to the said place as Robert Harland had when he departed of this worlde; that is to say, all that the said Robert . . . after a division and particion was maid betwix the said Roberte and **a newe place that W[i]lliam Norram latly was dwellyng uppon,** to which **newe place** was and is except a **greatt felde called the Est felde**, and a close called **Wyethe clos** and a **new clos** in the Est more,*" from the feast of the Invention of the Holy Cross called S. Helen day then next, for 31 years, at a yearly rent of £4, 16s. 8d.
883	May 24, 1533. Lease by Edward, Abbat of Rivaulx, to Robert Henryson of the **new house in the Marres in the Newhouse Lathe**, at a yearly rent of £7, 6s. 8d.
886	April 2, 1535. Lease by Abbat Rowland to Ralph Barton of **Loftmarees**, Yeoman, of " ***there grange-place of Loftemarres,*** *and the **halfe parte of Calfcoitt**, with all the landes, tenementes, etc.*" from the feast of the Invention of the Holy Cross, 1545, for the term of 35 years, at £11 a year.
888.	Dec. 10, 26 Henr. vm. [1534]. Lease by Abbat Roland to Thomas Jackson of Marres and Roger his son, or any son of the said Roger's lawfully begotten, of " *there **grange in the Marres called Cowhouse***" from the feast of S. Helen then next, for a term of 33 years, at a yearly rent of 8 marks.
891	Aug. 10, 1534. Lease by Abbat Roland to Robert Hunter, of their grange of **Newstede in lez Marres, Calfcote,** and **Cowhouse-yng,** from the Invention of the Holy Cross, 1535, for a term of 41 years, at a rent of £31, 10s.
892.	Oct. 10, 1524. Lease by Abbat William to Robert Hunter, of **the same premises**, from Holy Cross day 1523, for 31 years, at a rent of £21, 10s.

extracts from Dissolution surveys inserted by Atkinson" into Cart. Riev pages 348 – 358 from "Conventual leases of Yorkshire Monasteries. [emphasis added]

Table 7:17 Entries pertinent to Pickering former waste from 'Conventual leases of Yorkshire Monasteries'

Loftmarish and Deerholme	At the Dissolution *LOFTMARISH* belonged to the abbey, (1) and the grange, with Deerholme (Dereham) Grange, (2) was granted in February 1542–3 to the Archbishop of York and his successors. (3) The last mention found of Loftmarish is in 1649. (4)	1. Cart Riev 326; 2. Ibid. 325; 3. *L. and P. Hen. VIII*, xviii (1), g. 226 (66). Loftmarish is here said to be in Allerston parish; 4. *Cal. Com. for Comp*. 2008.
Lund, Kekmarish	"granted in fee in 1544 to Sir Roger Cholmley with Kekmarish, 'Yowe Cott' and 'Newhouse' in Pickering parish. (5) Henry and Richard Cholmley conveyed it to Sir William Belasyse and Henry his son in 1600, (6) and it was still in the hands of this family in 1717 when the estates of Thomas Viscount Fauconberg were registered. (7) In 1920s the owners were the trustees of the late Mr. James Lund of Malsis Hall, Crosshills, Leeds.	5 *L. and P. Hen. VIII*, xix (2), g. 166 (59); 6. *Yorks. Fines, Tudors* (Yorks. Arch. Soc.), iv, 144. In 1565 conveyance of the 'manor of Merish' was made by Roger Beckwith and Elizabeth his wife (ibid. i, 313), daughter of Sir Richard Cholmley, son and heir of the grantee (*Visit. of Yorks*. [Harl. Soc.], 53–4), to Sir Richard Cholmley.; 7 *Quart. Sess. Rec*. (N. R. Rec. Soc.). vii, 267.

from Page (1923) Victoria County History (North Yorkshire, Vol 2) https://www.british-history.ac.uk/vch/yorks/north/vol2/pp461-476

Table 7:18 Post-Dissolution disposal of Marishes

AD 1066-1086	Domesday Book. Vill names suggest water-rich land occupied by Anglo-Scandinavians. Pickering manor comprised 12 other vills as well as the marsh vills of *Aschelesmersc, Chiluesmesrc, Maxudesmersc, Ouduluesmersc,*. Nearby was de Tosny's manor of *Little Marish* (land for 1 plough) which was given in the 12th century to the Benedictine nunnery of Little Mareis (Yedingham).	Faull and Stinson 1986: 299-300; 305b; 380b. Farrer 1914:480-488. Placenames: Watts 2010; Smith 1928:84. Personal names: PASE
1100-1135	Royal charters of Henry I's reign. Afforestation of Pickering at some date between 1100 and 1110. Various royal statements and re-statements of Church rights in Yorkshire pertinent to Pickering. Henry I known to have visited Pickering c1101-1118 when granting tithe of his venison to the abbot of St Mary's, York. Henry I issued various confirmations and immunities in respect of Rievaulx Abbey.	EYC1: 14-16; 19; 167;351-353; 399; 426-427;430. Farrer 1914:267-269; 284; 351. Farrer 1919:53; 103. Riev. Cart. 194-196
1135-1154	Reign of King Stephen. Rise of William of Aumale (1110-1179), who was 'more truly the king beyond the Humber' than King Stephen.	Dalton 2004b
1154-1189	Reign of King Henry II.	Warren 2000
1155	Henry II is known to have visited Yorkshire 1 month after his coronation, when documents record Aumale's agreement to return various interests to the Crown including Pickering and Scarborough, Aumale retaining Great Driffield. It is thus possible that Henry II visited Pickering earlier than the document sealed there in 1163. In 1155, a 'regard' carried out of all royal forest boundaries and assarts.	Warren 2000:60. Amt 1990: 189-196. EYC 1 349. Farrer 1914:263; 285
1157-1158 to before 1179	King Henry II took Rievaulx into his protection, charged the Sheriff of Yorkshire to secure the survey and recognition by the Wapentake and Forest of Pickering of the royal land south of Pickering as it had been in the time of Henry I, declared the land 'waste' and gave it to Rievaulx, and issued various other confirmations and immunities in respect of the monastery including the right to cultivate and to construct bercaries. These rights and boundaries were confirmed by subsequent monarchs. The wapentake survey states the waste boundaries in terms of water courses. *Theokmarais field and Lund* added after 1158, with the former likely dating to 1163-1179. Various grants and agreements followed, including pasturage at *Eduiemersch* from Malton Priory.	Riev. Cart. 173; 189; 192; 197-213; 368. EYC1 401; 403 ; 407. Delisle & Berger 1916: Suppl. V; XV; XXIX. Atkinson 1889:381
1158-1190	Pickering 'waste' quitclaims. Aumale's quitclaim is relatively late, dated by Farrer to 1175-1179, Jamroziak to 1166-1184. *Grenehou* Included erroneously in Jamroziak's 'waste' compilation, perhaps confused with the *Greenhill* near Allerston. De Meinil's rights in Green Howe place this in the Bilsdale uplands some distance away from the Vale of Pickering	Jamroziak 2005:118-119 Farrer 1914:478
1159-1181 to 1241	Tithes due by Rievaulx on its Vale of Pickering lands including *Kekmarais* and *Loftmarais* became a matter between the monastery and the secular Church. Various Papal interventions. Rievaulx finally agreed to pay a sum in lieu of tithes.	Jamroziak 2005:177-198
1272	Crown's writ of *quo warranto* claimed Crown had free warren and other rights over Rievaulx's lands, variously listed. Rievaulx's abbot attended and stated to the contrary, that his predecessors had been given free warren and other rights over the lands listed	Assise Rolls, Ebor. N. 1, 16-2, f. 13^ Trinity Term. 1 Edw. I. [127f]. Published by Atkinson 1(889 Appendix 78 p401)
1274-5	Hundred Rolls Edw. I: 'grange called *Kekemareys* … 300 acres of arable and 300 of pasture'.	Illingworth 1812 Vol 1:107; Brown 1897
1301	1301, Lay Subsidy records 5 units: Kekemarrays, Loftemarreys, Lund, Sellibrigg (Selley Bridge) and a 'Novo Loco'	Brown 1897:59-61

1369 & 1380	*Inspeximi* under successive monarchs examined the claim by Abbot of Rievaulx to various privileges and freedoms in his manors of *Kekmareys, Lund, Neustede, and Loftmarreys*.	Patent Rolls 43 Edw. III, pt.i. m.33; Patent Rolls, 4 Ric. II. pt. i. m. 35 (both pub. by Atkinson 1889: 415-421)
1538	Units referred to in Dissolution-era documents include *Kekmarres, Loftmarees, Dereham, Deerholme, Newstead Grange, Lund, Bellyfaxe, Selley Brigge, Calfcoitt, Cowhouse, Yowe Cotte, West Ede*. Intake was still in process at Dissolution	Ministers Accounts & Conventual Leases, as published in Atkinson 1889
18th-19th cent	18th century Enclosure Acts for Pickering and Newton (1785); Thornton (1796); Allerston (1810). Tithe commutation records for High and Low [Pickering] Marishes identify certain fields as 'tithe free being part of Deerholme Grange'	PRO IR 30/42/236; PRO IR 29/42/236

Table 7:19 Summary of documentary evidence

(a) Record Offices	
B.	Beverley (East Hiding Record Office).
B..I.	Borthwick Institute of Historical Research, York
B.M	British Museum (London).
Bodl.	Bodleian Library (Oxford).
D.L.	Duchy of Lancaster Office (London).
NA	Northallerton (North Riding Record Office)

(b) Sources	
A.G.R.	Archbishop Gray's Register, Surtees Society, Vol 56 (1870)
Brid. Cart.	Bridlington Cartulary, B.M. Additional M.S no 40008
Byland Cart.	Byland Cartulary. B.M. Egerton M.S. no 2823
Cal Chart R.	Calendars of Charter Rolls. Record Commission Publications
Cal. Close R	Calendars of Close Rolls. Record Commission Publications
Cal. Cur. Reg. R	Calendars of Curia Regis Rolls. Record Commission Publications
Cal. Inq.	Calendars of Inquisitions Post Mortem. Record Commission Publications
Cal. Pat. R.	Calendars of Patent Rolls. Record Commission Publications
D.B.	Domesday Book. Dean and Chapter Library, York
E.Y.C.	Early Yorkshire Charters, Yorks.
Guis. Cart.	Guisborough cartulary. Surtees Society Vols 86 (1889) 89 (1891)
Hex. Cart., B.B.	Hexham cartulary, Black Book. Surtees Society vol 46 (1864)
R.H.	Rotuli Hundredorum Vol 1 Record Commission publication. London 1812
Kirk. Cart.	Kirkham cartulary. Oxford Bodl., Fairfax 7, m.s. no. 3857
Lib. Alb.	Liber Albis. Dean and Chapter library, York
Malton Cart.	Malton cartulary B.M. Cotton m.s. Claudius Dii
Mon. notes	Monastic notes, Yorkshire Archaeological Society Record Series vols 17 (1895); 81 (1931)
N.R.R.S.	The Honour and Forest of Pickering. North Riding Record Society, n.s., vols 1 (1895); 2(1895); 3 (1896); 4 (1897)
Percy Cart.	Percy cartulary. Surtees Society vol 117 (1909)
P.R.S.	Great Roll of the Pipe, Pipe Roll Society

Quo War.	Quo Warranto proceedings, Edward I, II, III. Record Commission publications. London (1818)
Riev Cart.	Rievaulx cartulary. Surtees Society vol 83. London (1889).
Seld. Soc.	Rolls of the Justices in Eyre in Yorkshire, Seldon Society vol 56 (1937)
St. Lenn. Cart.	Cartulary of St Lennard's York. B.M. Cotton m.s. Nero D3
St Mary's Cart.	Cartulary of St Mary's York. Dean and Chapter library,York
St Peter's Cart.	Cartulary of St Peter's York. B.M. Landsdowne m.s. no. 402
Test. Ebor.	Testamenta Eboracensia, Surtees Society vol 106 (1902)
Tes. Nev.	Testa de Nevill, Record Commission publication. London (1806)
V.C.H.	Victoria History for the County of York vols 1 (1912); 2 (1912); 3 (1913)
Whitby Cart.	Whitby cartulary. Surtees Society vols 69 (1878); 72 (1879)
Y.A.J.	Yorkshire Archaeological Journal
Y.A.R.J.	Yorkshire Assize Rolls,John and Henry III. Yorks Yorkshire Archaeological Society Records Series vols 1 (1909); 2 (1914); 3 (1922); 4 (1924); 5 (1926); 6 (1930); 7 (1932); 8 (1940); 10 (1956)
Y.F.	Yorkshire Fines. Yorks Yorkshire Archaeological Society Records Series vols 1 (1892); 2 (1898); 3 (1902); 4 (1906)
Y. Inq.	Yorkshire Inquisitions. Yorks Yorkshire Archaeological Society Records Series vols 1 (1892); 2 (1898); 3 (1902); 4 (1906)
Y.L.S.	Yorkshire Lay Subsidies. Yorks Yorkshire Archaeological Society Records Series. 1297. (Vol 16 1894); 1301 (vol 21, 1897); 1328 (vol 27, 1901)
Y.M.F.	York Minster Fasti. Yorks Yorkshire Archaeological Society Records Series vols 123 (1958); 124 (1959)

Table 7:20 ***Key to table 7:15 - abbreviations used by Wightman***

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Chapter 8 Vale of Pickering part 2: 'Transformation' of Marishes?

This chapter considers holistically the question of whether Marishes was cultivated *de novo* by Rievaulx Abbey. The physical state of Pickering Marishes when these lands came to Rievaulx is crucial to the question of 'transformation' by the monastery. This chapter therefore first considers the Domesday Book evidence for the 11th century condition of Marishes, as being relevant to the 'transformation' of that land (8.1). It then considers relevant factors in the period immediately after the Conquest (8.2) before discussing the interpretation of Marishes as 'waste' in King Henry II's grants (8.3). Sections 8.4 and 8.5 consider what may have motivated King Henry to give land to Cistercian Rievaulx. The possible development trajectory of Marishes is then outlined (8.6) before a discussion of the core question of whether Rievaulx transformed Marishes (8.7).

8.1 Marishes in Domesday Book

Evidence from the Domesday Book (DB) survey, which reported potentially taxable assets in 1066 and 1086 respectively, offers some insight (Table 7:6). The settlement and occupants named in DB suggest that the area south of Pickering was worked piecemeal from a dispersed set of small vills established by Anglo-Scandinavians long before the foundation of the Cistercian grange. Such references suggest the estate at Pickering, which came into royal hands from Earl Morcar, contained potentially taxable assets such as ploughland and woodland. The evidence from DB further suggests that within the Pickering newly-royal estate, some form of mixed-economy exploitation was underway in the broad area of Marishes by 1086. Several of the vills associated with or south of Pickering have a place name element of *-mersc* or variants suggesting marshy or wet land (Table 7:6). Except for Loft Marishes, which can be located on historic maps, the other marsh vills were considered 'lost in Pickering Marishes' (Darby and Versey 1975: 513-540). The elusive location of the marsh vills adds to the challenge of determining when and how their exploitation began.

Some of the Pickering marsh vills are recorded as 'waste' in DB (Table 7:6). This term may have a range of meanings in English documents of the period (Table 8:1). Interpretation of the term 'waste' therefore depends crucially on context. Spiritual -theological meanings of the term waste, in the sense associated with Biblical 'wilderness,' will be discussed in Chapter 9.4. This section therefore concentrates on practical interpretations.

References to 'waste' in DB have traditionally been linked to the reprisals by King William in the winter of 1069-1070 following several attempts at incursion and rebellion in the North of England. The Harrying of the North was reported second-hand by Orderic Vitalis, as the destruction of '*crops and herds, chattels and food*' which caused widespread famine and suffering (Le Patourel 1971: 8). Donkin linked the notable Cistercian settlement in Yorkshire with areas waste in Domesday to the 'Harrying' (Donkin 1978:44-45). The 'Harrying' is however now considered inadequate as a universal explanation for 'waste' entries in Domesday (McClain 2017). King William's campaign may have been conducted over as little as three months (Dalton 1994a: 24). It is therefore questionable what geographical extent a single 11th-century army could reach and devastate in such a period.

Chapter 2 suggested that medieval society and environment formed parts of an interconnected, social-ecological complex system. Within a complex system, change in one element can prompt non-linear changes in other elements of the system. Although not presented in these terms, some researchers have offered alternative explanations for phenomena documented in post-Conquest Yorkshire which are more non-linear than the traditional explanation of the 'Harrying' devastation. McClain considers that, in addition to the turbulence caused by localised warfare, multiple other factors such as the relatively low agricultural production and population density in Northern England recorded in DB, may have caused 'Yorkshire to lag behind agricultural capacity' (McClain 2017:206-207). Individuals or groups may have moved in the later 11th century for a range of reasons. Relocation of workers may have occurred as incoming Norman and Flemish lords attempted to organise their new fiefs. Disruption, violence, and uncertainty was endemic in the period (Roberts 2008).

Wightman suggested (1975:59) that some DB 'waste' references may have reflected reorganisation of holdings in the Vale of Pickering between 1066-1086/7. He went on to

suggest that the marshy areas of the Vale were however one of only five areas in Yorkshire where waste may really have meant either physical devastation or land which was not economically worth working (Wightman 1975:63). The latter assumption now requires revision. As was demonstrated in Chapter 7, the marshy land in the Vale had agrarian potential demonstrated before 1157, reflected in the DB survey and further evidenced by the trespasses on the king's land as recorded in the 12th-century quitclaims. The DB picture for the physical state of the Pickering marsh vills in the late 11th century must therefore be interpreted in context.

DB evidence suggests that the king's land at Pickering Marishes had two characteristics core to the current enquiry. First, specific identifiable areas within Marishes were already valued for arable cultivation by 1066. Loft Marishes and some of the 'lost' marsh vills were recorded as having ploughland. These vills would also have had economic potential not captured by Domesday Book which will be further explored below.

Second, the place and personal names in combination demonstrate that the marsh vills were occupied and exploited within a cultural milieu which extended well beyond the Vale of Pickering. This milieu was affected by a pattern of change and upheaval over several generations. The settlements south of Pickering experienced multiple changes of lay authority during the hundred years between the mid-11th and mid-12th centuries. Pickering had been held in lordship by Earl Morcar, but his estates came to the Crown at some date after 1071. Given Morcar's role as Earl of Northumbria and periodic revolts against King William and subsequent imprisonments and enforced stays at the royal court after 1066 it is unlikely that he spent much time at Pickering.[25] Throughout the 1060s and thereafter the occupants of Pickering would have experienced the fall-out from the Norman settlement and reconfiguration of estates and holdings, including the transfer to the Crown of Morcar's assets. Although DB is an important source, it was compiled more than 70 years before Henry II's gift to Rievaulx. Even if Marishes had been physically

[25] The Anglo-Saxon Chronicles record Morcar as son of Earl Ælfgar of Mercia (Swanton 2000 [1996]:190-192) and Earl of Northumbria (which then included Yorkshire) from 1065. Morcar's assets came to the Crown in 1071 or at some point during his enforced custody thereafter. Aird, W. M. (2004) 'Morcar, earl of Northumbria (fl. 1065–1087), magnate', *Oxford Dictionary of National Biography*. doi: 10.1093/ref:odnb/19160.

wasted at Domesday, post-Conquest factors suggest powerful motivations to ensure this extensive area of land was made productive thereafter, for reasons explored next.

8.2 Marishes under King Henry I and King Stephen

There were hierarchical economic imperatives which meant that royal land, such as the Pickering estate became, was unlikely to be unproductive if it were practically possible to make it productive. There was a legacy of dues and obligations from the Anglo-Saxon and Anglo-Scandinavian cultures. In Anglo-Saxon culture, land holdings came with a three-fold obligation: the *trinoda necessitas* (Stevenson 1914). These obligations were to serve in the militia (the *fyrd*), and to build and maintain fortresses and bridges (Lapidge et al 2014). The king held estates across the realm. Within royal estates, tenants owed a *feorm*, originally a food rent to the king as their lord (Oosthuizen 2006a:119-120). These royal 'farms' gradually became a mix of in-kind renders and cash rents owed to the king within royal demesnes (estates farmed 'in hand' i.e. directly for the lord). The survival of a 'farm' at Pickering,[26] and the relatively compact nature of the demesne there suggests that, in contrast to disparate, scattered royal holdings near Bourn (Cambridge) (Oosthuizen 2006a:119-120) the estate of Pickering had long been centrally managed.

Norman cultural practices after the Conquest made *all* land tenure dependant on the king, with each change in tenant or sovereign necessitating fresh homage and succession payments accompanied by a patchwork of dues and obligations (Green 2017:56-76). Under King Henry I (1100-1135), the integration of Yorkshire within royal administration and justice advanced substantially (Dalton 1994a:103-108). As set out in Chapter 7, Pickering by the early 12th century had become a royal manor, a royal forest, had a seat of justice, was located within a wapentake and a shire, as well as within ecclesiastical arrangements. King Henry I was known to employ "new men," such as lesser nobles, younger sons, and men of middle rank. Such men, when in royal service such as Sheriff of

[26] For the 'king's farm' at Pickering see Farrer 1914:322

Yorkshire, were typically unsalaried, so took some of the 'farm,' the dues owed to the Crown, as part of their office (Dalton 1994a:103-104; Green 2017: 63-64).

The Sheriff of Yorkshire was responsible for payment to the Crown of 'farm' for the demesne royal estates, such as Pickering, Falsgrave and Scarborough. In most cases, the sheriff of the county answered also for both the forest account (the census or 'cess') (Young 1979: 33-59) and for the produce of assarts (clearances) in the forest (Amt 1990:192-193). Forest eyres (the peripatetic forest court) may have provided up to 20% of royal income (Young 1979: 55,158). In 1165 the 'farm' of Pickering manor and socage (justice fees) was £40, 18s 6d (Farrer 1914:322). Henry I raised geld (tax) in 1110 and 1130 (Green 2017: 66-70). Unproductive land would therefore have placed economic pressure on those liable for the farm of the king's estate and forest of Pickering. This economic imperative potentially impacted on William of Aumale, sometime Sheriff, and by 1140 Earl, of York (Dalton 1990: 158).

The political situation between the death of Henry I and the accession of Henry II created additional factors possibly pertinent to Henry II's decision to give land to Rievaulx. Following the death of Henry I's direct male heir, Stephen became king of England (1135-1154). Stephen's right to rule was however contested by Empress Matilda, Henry I's daughter (Warren 2000). Stephen's efforts to maintain authority were viewed critically by chroniclers such as William of Newburgh, leading to characterisation of this period variously as civil war or anarchy. Based on recent archaeological analysis of siegeworks, castles and settlements, the mid-12th century has alternatively been suggested instead as an 'age of transition' (Creighton and Wright 2016:289). Stephen's reign left a legacy of change and instability to Henry II and his kingdom which will be explored next as being relevant to whether and to whom Pickering Marishes was valuable, and what the consequences of such value might be.

8.3 Marishes as ‘waste’ in Yorkshire under King Henry II

Pickering Marishes was potentially valuable to the English Crown. When he was crowned king of England in December 1154, aged 21, Prince Henry of Anjou acquired a turbulent inheritance. His lands by then comprised the extensive interests of his wife, Eleanor of Aquitaine, as well as Anjou, Normandy, and Maine. Henry’s priorities at his accession were pacification of the land so recently riven by conflict, and removal of causes for future conflict (Warren 2000:59). Henry II’s stated policy was to restore the country to the condition it was in at his grandfather’s death and ‘to assert royal control where it had lapsed and to do so at a profit where possible’ (Amt 1990: 195-196). The physical state of England at Henry II’s accession is however the subject of some debate (above, and Creighton and Wright 2016).

Henry II levied geld (tax) in 1155-6 and 1161-2, and pipe rolls for the former show a high level of entries recorded as ‘waste’ (Table 8:1; Green 2017:66-70.). Physical devastation after warfare has been suggested as the primary reason for this (Amt 1991: 240-248). Other suggestions have been offered, however. The use of the term ‘waste’ in the geld accounts for 1156 and 1162 may have reflected administrative problems including tenurial uncertainty and sheriffs' inability to collect revenues due (King 1994: 143-147). Disputes over liability as well as devastation caused by war may also have been behind the ‘waste’ term in geld accounts (White 2000:154-160). As noted above, documentary references to ‘waste’ require analysis in their specific context. Interpretations of ‘waste’ in DB need to be considered as distinct to references to ‘waste’ in the mid-12th-century records (Amt 1991). Most of the definitions compiled (Table 8:1) need not detain consideration here, as their specifics mean they are unlikely to have applied to Pickering Marishes.

Henry’s instruction that the land south of Pickering be declared as ‘waste’ may have entailed a pardon for geld payment. Waste in the geld collection of 1156 could have reflected land excused from collection by the royal exchequer, for whatever reason (Green 1981:241-258). It was noted above that under law and practice at the time, land carried service obligations, and monetary payments such as geld (a system of national land taxation) were levied periodically. Monastic land was exempt from liability only

under certain circumstances. If the land had been given 'in free alms' (*in elemosinam*), it was free of obligations of service other than prayer (Schenk 2012:35). The crown could excuse payments such as geld. King Stephen is known to have pardoned monasteries, including Westminster, of geld (Mason 1988). Henry II is also known to have issued pardons of geld to religious houses. Henry's pipe rolls for 1157 show that several monastic houses, including Rievaulx, were pardoned of their 1156 geld obligations (Amt 1991:244).[27] It was also common for a counter-gift to be made in respect of such pardons. In exchange for Henry II's gift of Pickering Marishes, Rievaulx gave 'Steinton'[28] to the king (*Cart. Riev*. 368). This may have been such a counter-gift.

When Henry II had his officials declare the land south of Pickering as waste, therefore, whether this was to clear the land of geld liability so that it could be given in free alms to Rievaulx, or to recognise the land as physical waste as a consequence of the turbulence of recent years, neither explanation necessitates that the land had previously been unexploited. The two 14th-century inquisitions (Chapter 7) show that the Pickering waste and pasture had been given by Henry II free of all liabilities for *Tementale*, land-service or geld. They thus confirm that the grant to Rievaulx was made in free alms, which strengthens the interpretation of 'waste' as geld pardon.

8.4 Henry II's motivations for gift to Rievaulx Abbey

It has been demonstrated, from documentary sources, that specific areas of Pickering Marishes had been exploited by 1157-8, and hence that is had demonstrated economic value. What else may be gleaned from these sources pertinent to Henry's decision to give this land to Rievaulx? The state of the royal forests was an early concern for Henry after his accession. In 1155, an investigation (a 'regard') of the royal forest boundaries and assarts, including those in Yorkshire, appears to have been carried out (Amt 1990: 189-196). In 1155, Henry would therefore have had knowledge of the economic value of the Forest of Pickering, part of which he gave to Rievaulx two or three years later. The king's

[27] Others pardoned of geld included: Battle, Buildwas, Combermere, Curridge, Drax, Farleigh, Fountains, Garendon, Kingswood, Kirkstead, Louth, Merevale, Revesby, Seez, Sawtry, Torrington and Vaudey (Amt 1991:244).
[28] This was possibly Steinton in Swaledale (Atkinson 1889) rather than Steinton in Rye Vale.

gift was however made at a time when Henry was attempting to increase the royal coffers (Warren 2000). From a purely economic viewpoint, therefore, Henry's motivation for giving to Rievaulx such a substantial and potentially valuable tract of the royal estate of Pickering appears puzzling. Considering wider factors, however, suggests this substantial donation to a prominent Cistercian house may rather have reflected a situated blend of possible motivations by young King Henry.

By the time of Henry's coronation, a period of civil unrest during King Stephen's reign had eroded royal power and interests. Stephen alienated royal rights and possessions to expand baronial power through the creation of 23 new earldoms (Creighton and Wright 2016:31-32). One of these newly created barons loyal to King Stephen was William, Count of Aumale, whose corpulence gained him the nickname *le Gros*. Aumale gained near-supreme authority in the north of England, strategically placed between King David of Scotland and King Stephen (Dalton 1994). Aumale's possession of the *'comitatus,'* and his control of royal castles and hundredal manors, were the key to his jurisdictional power and wealth (Dalton 1990a:160-165). The attributes of *comitatus* apparently included the royal manors of Pickering, Falsgrave and Scarborough. These were in Aumale's hands, along with Pickering forest and castle, and Scarborough castle, at the time of Henry II's accession (Dalton 1990: 160). Aumale was therefore a crucial figure with whom Henry needed to come to terms.[29]

An argument that Marishes were economically unproductive before being granted to Rievaulx in the mid-12th century is further weakened by what is known of Aumale's activities. As Sheriff of Yorkshire, Aumale 'farmed' dues nominally owed to the crown and is recently known to have issued coinage in his own name (Creighton and Wright 2016:146). Aumale's quitclaim (*Cart. Riev*. 185) suggests he held rights in Micleholm in the

[29] Stephen had been a noted patron of the Savignac order, which was absorbed by the Cistercian order in 1147. Aumale led the English army for Stephen against King David at the Battle of the Standard in 1138. 'The case of William of Aumale shows that it would be inappropriate to view Cistercian patrons as 'Angevin', or 'opponents of the king' (Burton 1999:122). Bernard of Clairvaux obtained a papal dispensation before 1150 for Aumale on the condition that he found Meaux, a Cistercian house in North Yorkshire, now levelled (Knowles 1963:706; *Chron Melsa* 1, 76).

waste. Micleholm has not been located but all locations in Marishes are relatively near to the River Derwent, and thus to the potential river connectivity via Malton to York and the North Sea (Chapter 7.5.2). It is questionable therefore whether a shrewd operator such as Aumale would have permitted areas within his purview in Marishes to remain economically inactive for long when such inactivity would have represented lost income for him in terms of fee-farm.

8.5 Marishes: gift as royal territorial definition

In 1155, within a month of his coronation, Henry marched to Yorkshire and compelled Aumale to give back royal possessions including Scarborough and Pickering. Aumale retained the manor of Great Driffield (Warren 2000:60; Farrer 1914:284). It is unclear whether the known fortifications at Pickering may date to around this time.[30] Henry would therefore have been acutely aware of the need to find a long-term solution to preserve this part of his new domain from future such encroachment.

Through donation of land to Rievaulx, Henry II established a religious order of Burgundian origin on an internal frontier. The River Derwent had long been an important boundary between territories and in the 11th-12th centuries, the Derwent formed the boundary between the North and East Ridings. Marishes lay in Dic wapentake opposite to the boundary between Scard and Thoreshou (Chapter 7, Figure 7:13)

The royal writ to permit Rievaulx quiet enjoyment of Marishes was not obeyed easily or rapidly. The picture which emerges from documentary sources is of multiple interests encircling the royal land at Pickering Marishes in the 1150s to 1190. The Norman settlement had led to extremely complicated feudal arrangements based on hierarchical obligations. The practice of layering feudal obligations is known as subinfeudation, and in medieval Yorkshire the degree of this 'passes understanding and is now quite inexplicable' (Farrer 1914:491). Questions of royal authority had been complicated still further by the disruption under King Stephen. The quitclaims made between 1158 and 1190 (1158-1190, Jamroziak 2005:118-119) suggest that individuals from all levels of society, from the earls down to individual tenants, were aware of the boundaries of the king's land yet nibbled away at it when they could. Crucially, the quitclaims show Henry II slowly prising the fingers of the earls, Aumale and William de Mandeville, away from key royal interests. This may be a microcosm of Henry's strategy which has been seen in pipe roll evidence elsewhere, 'that Henry was able to pursue a successful restoration policy with the actual

[30] In absence of material, the 'ringwork known as the Beacon adjacent to Pickering castle' (Cathcart-King 1983:523) is tentatively interpreted as a siege castle (namely not intended as permanent residence but constructed for martial purposes), possibly dated 1135-1154 (Creighton and Wright 2016:52-56). A siege at Pickering is however undocumented. (Creighton and Wright 2016: 47, 56). The stone Pickering castle (at SE800845) probably dates to later in the 12th century (Cathcart-King 1983: 522-523; Skinner 2014:315).

cooperation of the earls is the secret of his reign' (Keefe 1981:193). The prolonged struggle to recover the royal interests from Aumale is interesting also because Aumale was offered fraternity by Rievaulx for his promise of protection and quitclaim of his interests in Micleholm (*Cart. Riev.* 185, Jamroziak 2006a:75). Confraternity is interpreted by many scholars as the final stage of conflict resolution (Jamroziak 2006a: 75).

The two 14th-century inquisitions (Chapter 7) show that although King Henry took Rievaulx into his protection and alienated certain of his land rights to the abbey (including pasturage and permission to construct bercaries, namely sheep stations), the Crown retained certain important other rights in the Forest of Pickering including hunting. Royal forests could serve multiple functions.[31] The right of chase in a forest is perhaps best known, partly because of the critical comments made by contemporary commentators. Yet royal forests were not solely pleasure grounds. During Henry II's reign, forests may also have served as 'strategic and defensive royal enclaves' within which the itinerant court could be safely provisioned (Keefe 1990:179-188). Forests could also be vital to the military arsenal, a source of timber for transport and weapons (Jones 2010:61). A further strategic factor may have been the situation of Pickering Marishes along a key stretch of the River Derwent. Rather than being remote, the land by the Derwent and its confluence with the Rye may have been an important internal boundary, potentially connecting the Vale of Pickering to Malton, York, and the North Sea trade networks (Figure 7:15).

[31] The laws pertaining to forests in England were a complicated patchwork of customs and rules inherited from pre-Conquest societies and those imported from laws of the Franks (Jones 2010: 36-67). Some forests appear to have been extra-parochial, and the degree of freedom from taxes and feudal obligations would have been welcome to a Cistercian house. A liberty was a similar administrative 'bubble' and one that was enjoyed elsewhere in Yorkshire by Cistercian Byland Abbey. The liberty of Byland had at its centre the abbatial court at Sutton under Whitestonecliffe which enjoyed various freedoms such as wide judicial franchises, a court, and a gallows. (Burton 2004a: lxvii-lxxi, lxxix). 'The ability to hear civil pleas, and in what circumstances, is the true test of a liberty in the later Middle Ages' (Scammell 1966:449).

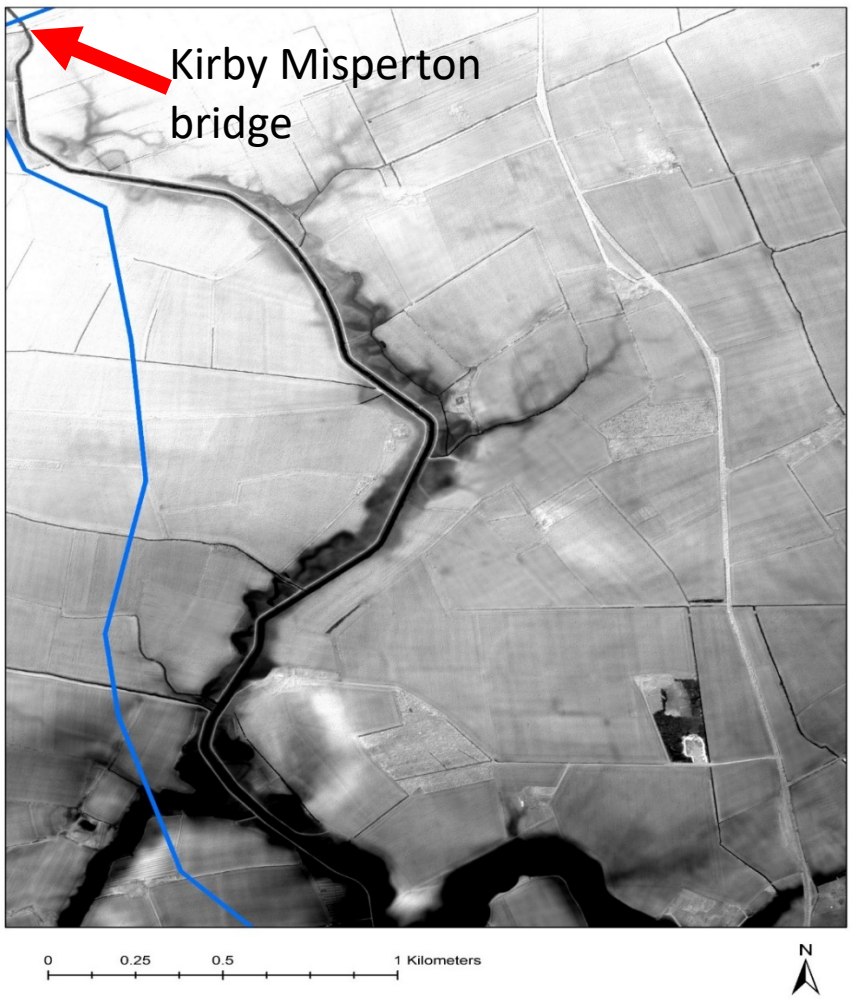
8.6 Landscape development within Pickering Marishes: Life with the water/land matrix

A provisional sequence through which Marishes may have been worked can now tentatively be suggested. The model of human interactions with marshlands elsewhere has been described as a spectrum, ranging from exploitation, through adaptation to complete transformation (Rippon 2000a:52-53). Integration of evidence suggests that it was through cumulative impact that Marishes was developed, both before Cistercian occupation and thereafter. Much of Marishes' development can therefore be viewed as a 'traditional landscape,' as defined by Antrop (1997), namely a landscape that evolved over centuries until substantially affected by modern changes. The gradual evolution of Marishes was subsequently disrupted by the mechanical power made possible by the Industrial Revolution, in the form of large-scale drainage and agricultural 'rationalisation'.

Early settlement in the western-central Vale may have reflected multiple factors. Based on the location of medieval settlements which have survived in some form into the modern day, a previous study of drainage in the Vale of Pickering argued that settlement there preferentially took place along the margins and springline that runs approximately along the 100 foot [c60 metre] contour, where the limestone and chalk geology meet silt and peat deposits (Sheppard 1956:362). Other, possibly periodic, forms of occupation in the Western Vale may however have previously eluded consideration. Earlier Domesday geography studies have emphasised the influence of geology on settlement of this area (Maxwell 1962: 99). Such studies however have not considered in detail factors such as drainage, soil, and aspect. This is regrettable, as such factors offer insight into the sophistication of knowledge held by early occupiers, who may have been better able to cope with different land conditions than has previously been acknowledged for this location.

In the modern day, from the settlement ribbon at approximately 100 feet / c.60m ASL, marked also by the modern A170 road, the land grades downwards before rising again to the margins of the River Derwent. To the unaided eye, the land to the north of the Rye / Derwent

confluence near Marishes now appears topographically highly uniform and somewhat unpromising in archaeological terms. The modern topography is however the product of multiple processes which are likely to have interacted in complex ways. The Derwent was artificially embanked and canalised along a substantial reach of its former floodplain in the Vale from the 18th century onwards (Sheppard 1956:379-408). Lidar evidence suggests Costa Beck has also been straightened (Figure 8:1).

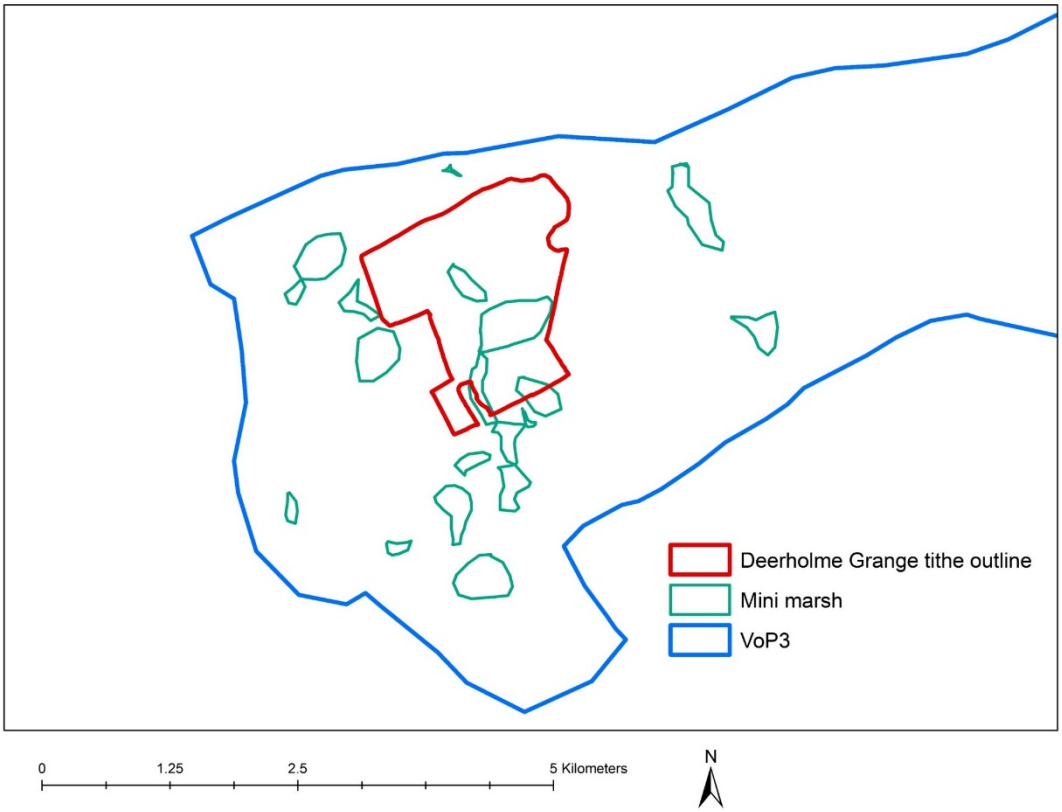


Meandering course of Costa Beck is fed by small affluents and appears to have been straightened in sections. Blue line represents edge of study area VoP3

EA Lidar Digital Surface Model England (2014) [ASC geospatial data], Scale 1:4000 downloaded: 2018-05-08 used under Open Government licence v3

Figure 8:1 Sections of course of Costa Beck appear artificially straight

Such alterations to hydrology are likely to have significantly affected sediment erosion, deposition, and floodplain performance. The 11th- and 12th-century topography and hydrology may therefore have been significantly different to that of the modern day. That caveat aside, in combination, lidar elevation and soil data suggest that even today the area is not as uniform as first appears. The topography may be described as a series of mini marshes interdigitated by areas of slightly higher and drier ground (Figure 8:2)

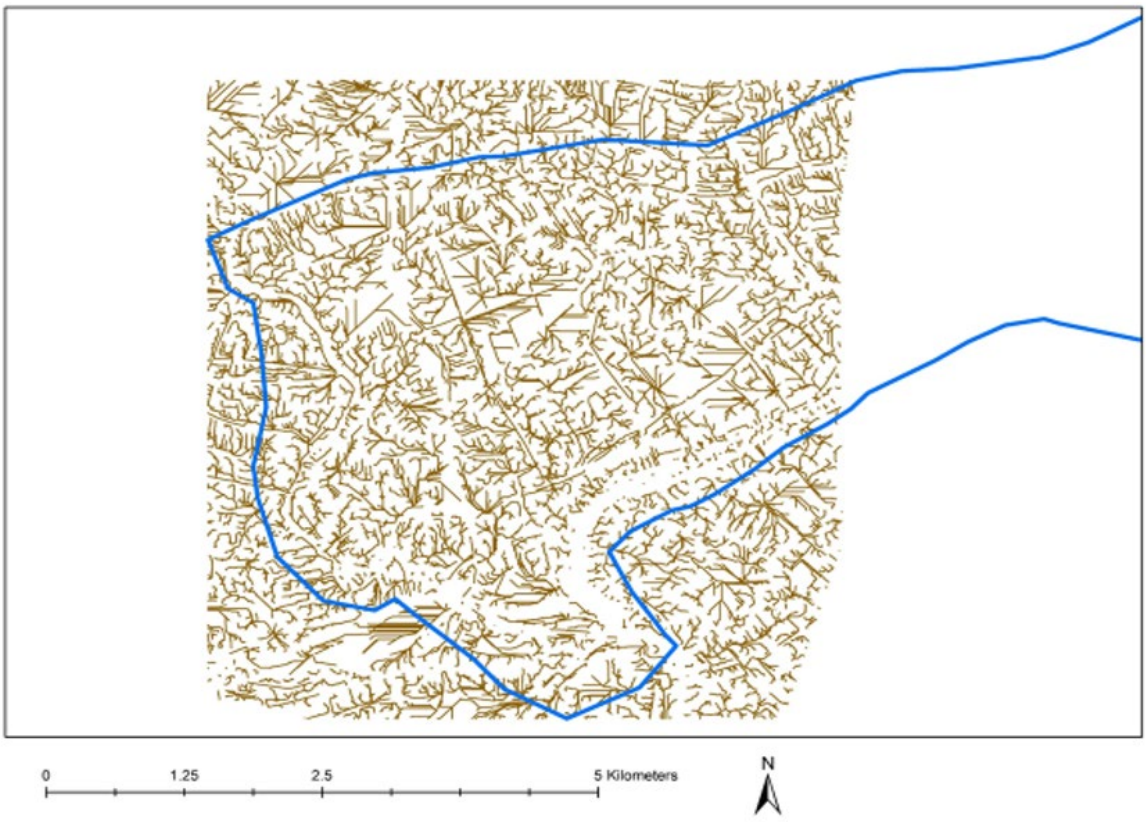


Transcription of marginally lower ground identified in DEM of 50cm lidar DTM. Such areas occur both within the extent of Deerholme Grange and beyond.

Environment Agency lidar data England Lidar Digital Surface Model England (2014) [ASC geospatial data], Scale 1:4000 downloaded: 2018-05-08, used via Open Government Licence

Figure 8:2 Topographic analysis of VoP4 suggests the presence of multiple mini-marshes

Hydrological analysis suggests that surface water at Marishes in the modern day is delivered through multiple routes (Figure 8:3).



Hydrological stream model created from 50cm resolution lidar, overlaid by VoP3 study area.

EA lidar data England Lidar Digital Surface Model England (2014) [ASC geospatial data], Scale 1:4000 Licence downloaded: 2018-05-08, used via Open Government licence v.3

Figure 8:3 Stream analysis of VoP4

8.6.1 Exploitation

The exploitation phase of human occupation is noted in the Mesolithic period at nearby Star Carr (Ford et al 2015 Fig 6; Milner et al 2018), which lies at similar height ASL to that of Marishes. In this phase, areas of drier land on the edge of watercourses would have offered access to a mosaic of natural environments.

8.6.2 Adaptation

Moving from exploitation to adaptation may have been somewhat related to the relative height of the land in question. Van de Noort (2004:149-152) has suggested the model of a 'concave landscape' for the diverse opportunities and resources of the Humber Wetlands (East Yorkshire). In this model, ecosystems varied according to height and drainage, whereby the higher ground (typically, hillslopes and higher 'islands' within a floodplain), were used for arable. Lower areas were used seasonally. The floodplain meadows and ings on rich minerogenic sediments were highly valued and often farmed as common lands within the township field system. Next lowest areas were the carrs, areas of peat formation from persistent high-water tables, whose resources could be used for grazing and fuel. The lowest areas were occupied by waterbodies, where fish, wildfowl, and marsh flora such as reeds could be found (Van de Noort 2004:150-151).

A similar model appears apposite also for Marishes. The Domesday evidence suggests specific locations in marshy land to the south of Pickering were productively exploited prior to the Norman Conquest (Table 7:6). A mixed economy may have existed here which would not have been recorded in the Domesday taxation assessment which focussed on assets such as arable land, meadow, and mills. Hydrological and topographic modelling (above) for Marishes suggests some areas may have been only periodically inundated and others may have been marshy for much of the year. Fauna such as waterfowl and water-tolerant flora could have colonised their respective ecological niches. Certain species could have tolerated boggy conditions, such as oak, alder, willow, as well as reeds, sedge fen and marsh hay (Cook and Wilkinson 1999:10). The marsh would have been a valuable local resource for hunting of wild animals, animal pasturage, building material and fuel. Norman afforestation would have placed the land under the watchful eye of the forest officers, tasked with overseeing the resources for provisioning the royal court and

providing timber for defences.

At Marishes, the mini marshes interdigitated by areas of slightly higher and drier ground could gradually have been adapted, enabling multiple benefits. Limited, if any, drainage may initially have been needed to enable grazing by certain herbivores. Stable isotope evidence has shown that sheep (*Ovis aries*) and cattle (*Bos taurus*) can graze on waterlogged land with dry islands, as shown at the Flemish coastal plain for 1-15th centuries AD (Müldner et al 2014). King Henry's charters permitted the construction of bercaries (sheep stations) which could have been established on the slightly higher and drier areas of land. Domesday Book entries record meadowland in Pickering manor, but the location of this is not clear. Water meadows are discussed in Chapter 5, in the context of Rievaulx's precinct. Some arable crops such as oats can tolerate waterlogging and have been recovered from a medieval wetland-edge context at Shapwick (Somerset) (Straker et al 2007:886).

Rievaulx had rights in neighbouring areas, such as the dispute over formerly common land near Welburn noted above (Chapter 7). The abbey would therefore have been able to move beasts from its lowland granges to upland pasture. Such movements have been termed 'lesser' transhumance, distinguished from the 'greater' movement between distant regions (Fox 2012). Intricate arrangements for commoning existed elsewhere, such as East Anglia (Oosthuizen 2017:111-134). Such practices could have formed part of a patchwork of rights and responsibilities that may not be well reflected in the documentary record.

It is conceivable that seasonal warping was practiced. This entailed the trapping of water-borne sediment by brushwood or timber, which would have progressively raised the level of the land (Jecock et al 2011:2). This would also have improved the fertility of the soil, although examples of this are best known in coastal and estuarine contexts. The Cistercians of Byland Abbey (Yorkshire) are known from documentary sources to have constructed banks against the River Derwent on the opposite side of the Derwent to Marishes, at Rillington Moor (Bond 2004:82). Such banks were typically formed from local materials such as earth, clay, stones, timber, sometimes with vegetation 'hassocks' for stabilisation (Silvester 1999:125). At the monastic core of Byland Abbey, banks against

flash-flooding have pitched stone sides (Jecock et al 2011:3). Banks could be accompanied by ditches, located on the landward side in the case of coastal environments (Jecock et al 2011:3), with ditches between parallel banks as on the (estuarine) Pevensey Levels (Rippon 2000a:187-190). Management of land affected by alluvial flooding is a delicate balance. As land dries it shrinks, thus lowering the land surface and making topsoils more vulnerable to erosion (Taylor 1999:144). The creation of banks, with the resultant withholding of regular alluvial replenishment, could therefore be a source of conflict. In 1346 the villagers of Rillington Moor broke down the banks constructed by Byland Abbey, so that their land could be flooded again (Bond 2004:82).

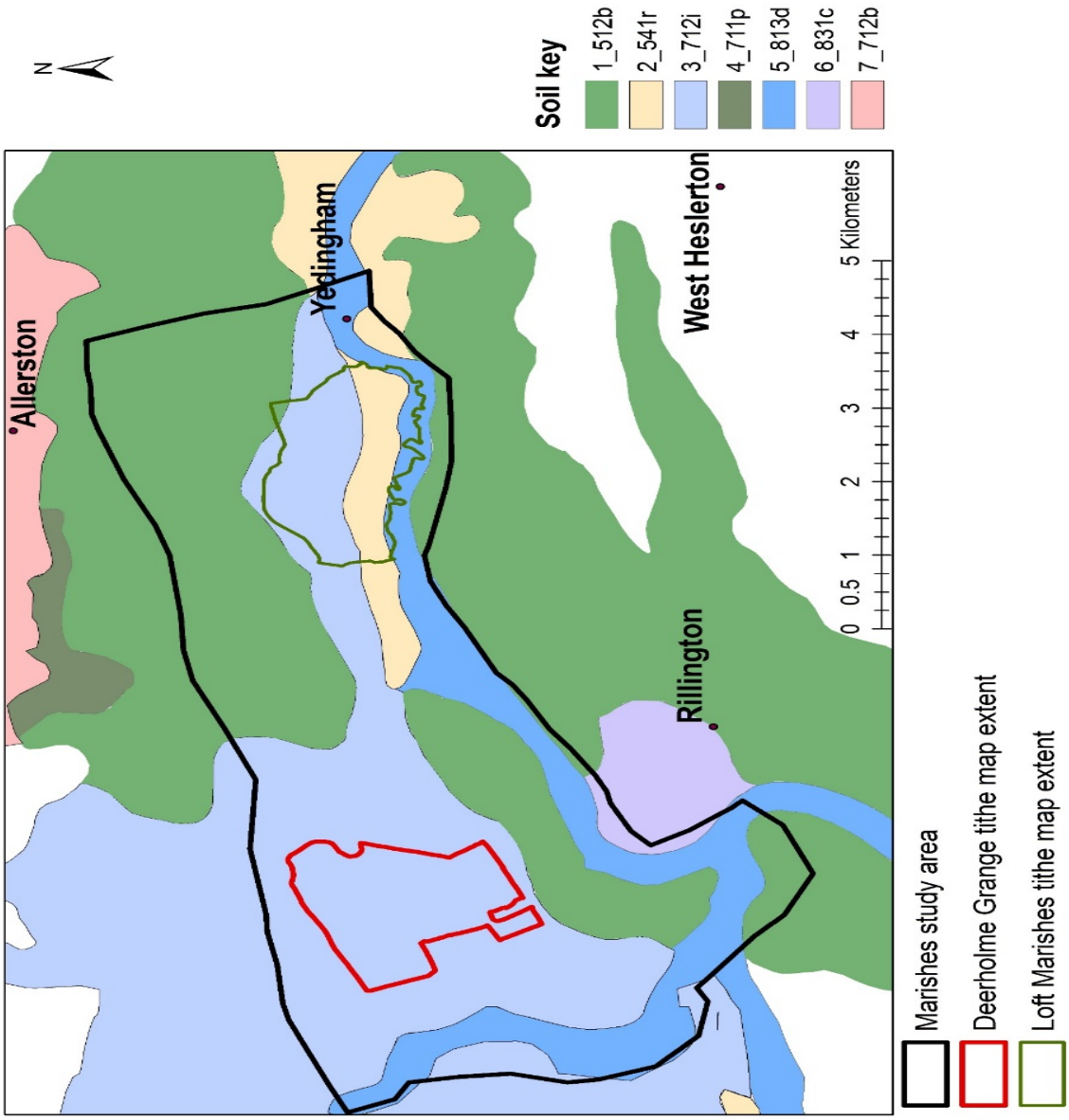
8.6.3 From adaptation to reclamation

Factors such as soil properties, climate, weather, drainage, aspect, groundwater, and surface water supply would all have governed the degree of waterlogging at a given point in time. There have been complex physical processes in the Vale, including glaciation and post-glacial lakes (Evans et al 2017). These have led to complex soil patterns. Seven different soils were identified within Henry II's gift and nearby (Figure 8:4, Table 8:2).

The agricultural potential of these soils is closely linked to their drainage properties, which in turn affect in-field runoff and field capacity to store water. As field water storage gradually reduces, soil becomes differentially suitable for cultivation. This potential could to some degree have influenced past settlement and exploitation choices. Within Henry II's gift, only two areal units have evidence which enables their broad spatial definition between the 11th and 13th centuries. Both have south-facing aspects.

DB evidence suggests that *Loft Marishes* contained ploughland by the late 11th century Table 7:6). Its extent, as defined in tithe commutation mapping (Table 7:3), covers three different soil types and is situated downslope from a further two types (Table 8:2; Figure 8:4). Each of these soil types has slightly different natural drainage characteristics and thus are suitable for different forms of exploitation. These differences could have provided some degree of resilience for periodic changes in surface water or other factors as well as supporting different cultivars. *Loft Marishes* was also close to spring water at the 100-foot/ c.60m contour.

In contrast, the tithe-exempt status of some of *Deerholme* in the 19th century (Table 7:4) suggests that some areas of Deerholme could have been noval land i.e. enclosed and brought into use by Rievaulx, at some date after 1157-8. The relatively later enclosure of parts of Deerholme may partly be attributed to soil conditions. In contrast to the soil diversity at Loft Marishes, Deerholme's tithe-mapped extent incorporates only a single soil type (Denchworth, 712b) which is known to be heavy and challenging to cultivate. The earlier exploitation of Loft Marishes than Deerholme may therefore suggest an understanding of the different agrarian potential of the two areas.



See Table 8:2 for soil type key details

Figure 8:4 Soil types at Marishes and nearby.

8.6.4 Incremental intake and drainage

Only part of Deerholme Grange survived into the 19th century as tithe exempt. This may reflect incremental intake and drainage which may gradually have extended the areas of dry land at Marishes. Drainage enables reclamation, defined as the creation of new land and the improvement of soils and vegetation (Taylor 1999: 141-2). Settlement in reclaimed inland contexts is currently suggested typically to radiate from a central area of higher ground (Silvester 1999:125). Drainage and reclamation conducted at Marishes may have been of a slightly different type and one which has received little archaeological attention.[32] Marishes lies at the floodplain confluence of multiple watercourses, including the Rivers Derwent and Rye, Costa Beck and minor affluents. Such settlement reclamation with multiple foci could have been more intricate than the 'radiating' type considered by Silvester. It could also be different from the protective function performed by installation against periodic floods in the oval or radiating type noted by Tys in the coastal context of Flanders (Tys 2013:215) and the coastal and estuarine embankments noted by Rippon (2002) for England and Wales. Iterative, intricate, small-scale intakes using drainage in inland, freshwater contexts such as at Marishes is likely to have left fewer traces on the physical landscape than features such as large embankments and walls typically seen in coastal and tidal contexts just noted. Marishes' reclamation must therefore be reconstructed based on a range of evidence.

The creation of drainage ditches and embankments were typical early actions to enclose parcels of land, thus improving surface drainage and reducing field water storage and lowering the water table (Jecock et al 2011). To deal with surface water, the foci of intake at Marishes could have been to work down slope from the areas of marginally higher land to direct water into a system of channels aligned to the major watercourses, and outwards from the watercourses to connect the two. Such drains may initially have been open courses. Underdrainage, such as bush drainage whereby a channel is cut and filled with free-draining matrix (such as stones and other material) before being covered over, is thought not to have been in widespread usage until the post-medieval period (Williamson 1999: 41-52). Drainage increases soil warmth, aeration and aggregation and the depth of

[32] But see Oosthuizen 2017 on reclamation of once-estuarine contexts in East Anglia.

'freeboard' above the water table. Drainage correspondingly decreases soil profile waterlogging, which is critical to the diffusion of atmospheric oxygen and carbon dioxide. This diffusion governs the ability of the roots of most plants (except water-tolerant species) to respire, and to avoid formation of organic and inorganic substances toxic to plant growth (Cook 1999: 15-18). Dykes such as Midsyke and Kiptoftsyke were already in place at Marishes before 1157-8 (Table 7:2). If the transliteration of *Kilverdemerch* as *Culverthemerch* is not a scribal error at the papal court, this may reflect the existence of a pre-Angevin culvert across the marsh. Documents suggest Rievaulx undertook ditching shortly after 1157-8, such as the boundary ditches recorded round Lund and Theokmarais (Table 7:2)

8.6.5 Ploughland and infield drainage

The DB documentation for Pickering manor and Loft Marishes suggest ploughland there by the late 11th-century (Table 7:6). Although the location of this ploughland is imprecisely recorded in DB, such ploughland would have necessitated infield drainage. Open field ploughing typically created surface furrows and ridges, the alignment of which in relation to topography would have affected the efficiency with which water drained. Local topography and drainage are therefore determinants of furrow alignment (Hall 1999:33). In their aerial survey of sites across areas of England, including Yorkshire, Beresford and St Joseph (1979:26-36) found an exact correspondence between open-field maps and ridge and furrow in aerial photographs. This suggests that ridge and furrow may be good indicators of medieval open field cultivation. Evidence for ridge and furrow indeed survive at Marishes. Possible cultivation ridges were identified in lidar and aerial photographs within VoP 3, for example at Sheepfoot (Figure 8:5; Figure 8:6), which suggests pre-modern infield drainage for agriculture. There is an aratral (reversed-S shape) curve in the ridges near to the farmhouse. Such curves may have been formed by the wide turn necessitated by plough bearing a mouldboard on the right-hand side, suggesting that the aratral ridges at Sheepfoot may have been formed by the 17th century (James Bond pers. comm., formation process described in Eyre 1955:80-94).

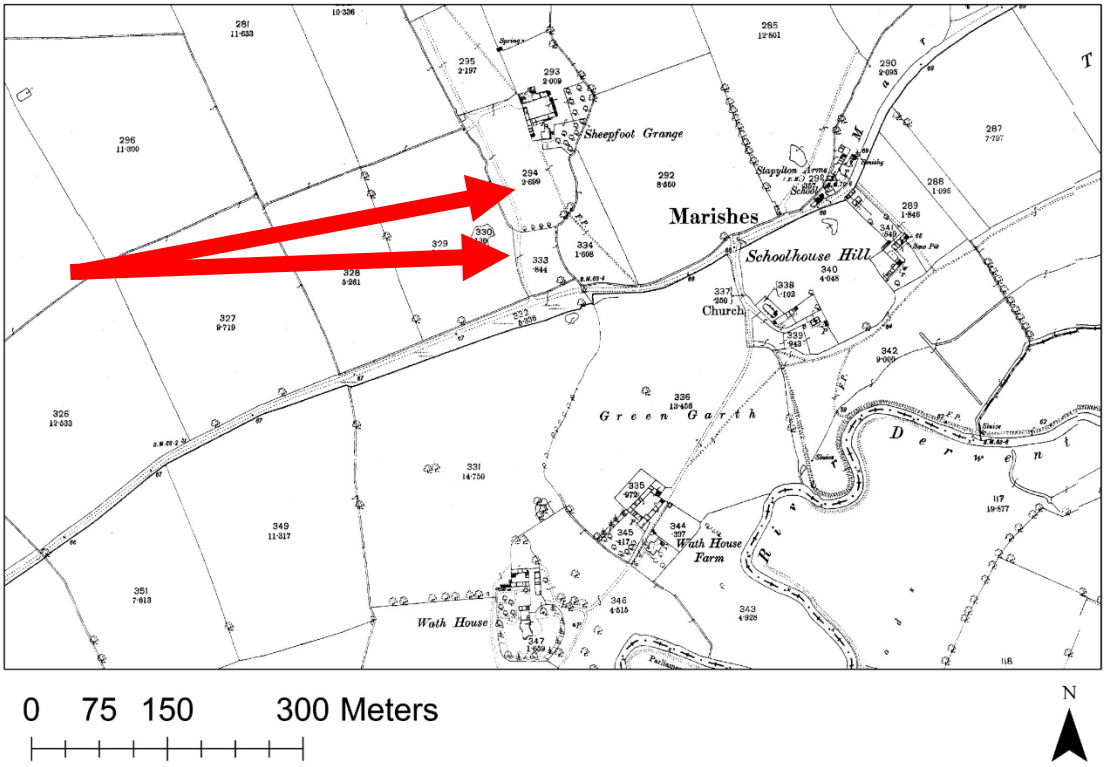
Depending on the configuration of drainage, outfall works and sluices may have been necessary. Timber was commonly used for sluices, gutters, and culverts (Silvester 1999:125). By the 1272 Hundred Rolls noted above, 300 acres of arable and grazing are recorded at Kekmarishes. Such usages could co-exist seasonally, so may represent the same 300 acres being used for pasturing animals on arable land in the fallow season (Table 7:19).



4-Band Vertical Aerial Photography (2012) [ECW geospatial data]. Scale 1:1000. Tile P00047806. Updated: 30 November 2012. Accessed using: EDINA Digimap Service http://digimap.edina.ac.uk. Downloaded: 2018-05-14

Cultivation ridges at Sheepfoot Grange, Marishes (SE 81615 77333). The aratral curves of some cultivation ridges, and an association with irregularly shaped small fields, suggest pre-modern infield drainage. The partial obscuring by water of these features and the road to the south illustrates an aspect of agrarian challenge common to the 12th and 21st centuries. Black diagonal lines visible on the image are artefacts of the photograph overlay process.

Figure 8:5 Example of medieval cultivation ridges and modern flooding in Marishes



Ordnance Survey County Series 1st Edition [TIFF geospatial data], Scale 1:2500, Tile: York-10703-1. Updated: 30 November 2010, Historic, Using: EDINA Historic Digimap Service, <http://digimap.edina.ac.uk>, Downloaded: 2016-12-26.

Sheepfoot Grange, Marishes - fields with medieval cultivation ridges indicated by red arrows

Figure 8:6 Fields at Sheepfoot Grange with possible medieval cultivation ridges

8.6.6 Tenants and drainage

From the later 13th century, several factors may have influenced changes in how Rievaulx's Pickering estates were managed. As changing circumstances prompted monasteries to let out their estates rather than manage them in demesne (in hand), responsibility for maintenance and drainage may have passed to tenants, as is recorded at Cistercian Coupar Abbey (Perthshire). Coupar had been given inland marsh at Blairgowrie by William the Lion, and at Meigle (both in Perth and Kinross), probably in 1249-1285 (Rogers 1879: xviii). In the abbey's rental book (1443-1538), tenants at Coupar whose holdings included a marsh were required to *'*labour for the gaining of the marsh' and *'*plant timber and drain the marsh'. This labour was directed by the monastery: 'according to the rules given to them by the cellarers' and 'under approval of the cellarer and persons of the monastery, with service.' (Rogers 1879: xxviii, 142-3).

Wet land might be stabilised through the planting of water-tolerant species. In his lease of Westhorn of Kerse from Coupar Abbey dated 1472, William Clerk undertook to plant 'ashes, osiers, and sauchs[33] …to gain the land . . . from submersion in water.' (Rogers 1879: xxx-xxxi). Coupar Abbey's tenancies agreed in 1473 included an instruction from the abbey to plant broom. Rogers (1879: xxxi) observes:

> *'*the tenant at Aberbothry undertook to plant on each side of his farm-steading a park of broom. His neighbours entered into a similar covenant. Admirably adapted for shelter, and abundantly decorative, broom was especially suited for wet soil, the plants attaining great strength, and becoming useful for domestic purpose. Broom plantations, as forming suitable covers, enclosed the rabbit warrens*.'*

The evidence from Coupar Abbey suggests that in the 15th century a Cistercian monastery retained the direction of maintenance and reclamation when its estates were let to tenants. Non-Cistercian abbeys were also aware of the need for consistent maintenance

[33] Sauch = willow. Old Scots c 1472. "Sauch *n.*" *Dictionary of the Scots Language*. 2004. Scottish Language Dictionaries Ltd. Accessed 16 Jun 2018 <http://www.dsl.ac.uk/entry/snd/sauch>] The term is preserved in Sauchiehall Street, Glasgow, on which there is a tearoom known as The Willow.

of drainage and could enforce oversight to ensure that proper work was carried out. Abbatial surveys from (Benedictine) Glastonbury Abbey's manor in Brent marsh (Somerset) between the 12-14th centuries set out feudal services expected of tenants including ditching, walling, and scouring of drains (Harrison 2011: 59). Brent marsh manor had hundreds of ditches, and failure to scour these was frequently a cause before the manorial court (Harrison 2011:50-72).

Even if Rievaulx had exercised some oversight of drainage maintenance in the Vale of Pickering, practices may have changed when passed to tenants whose interests may have been less long-term than those of the abbey. Given the subtle topography at Marishes, the land here could have been very sensitive to relatively small shifts in weather and alterations to management practices. A period of different or minimal management, such as might accompany even short-term neglect, may have caused field drainage to be overwhelmed by seasonal flooding and transported sediment. Such a scenario may be envisaged also for any drainage carried out by earlier occupants, such as the Anglo-Scandinavians affected by Norman settlement. The role of the medieval actors in draining Marishes may thus slowly have been obscured apart from the names of certain field features preserved in mapping, such as Friar Dyke.

8.6.7 Drainage and agricultural intensification in the western-central Vale of Pickering

As noted in the way the land came to the Crown in the 11th century, 12th-century quitclaims, and 13th-century tithe cases (Chapter 7), the history of Marishes was punctuated by disputes. Rievaulx's dispute with Malton over Eduiemersch was noted above. Drainage was a cause of conflicts of interest in the Vale, and Rievaulx was not the only landuser to suffer. The 1342 destruction of Byland's embankments at Rillington was noted above. Downstream on the Derwent from Marishes, two water mills at Malton were the cause of dispute for around 500 years. Complaints were made of Malton Abbey in 1370 that the dam for their mills had caused the River Derwent to rise over ten feet, and the Malton dams remained a cause of local dispute until they were finally removed in

1848 (Musto 1962:84, 93).

From the 1780s, various local landowners and farmers recorded concerns about the problems with drainage in the Vale of Pickering (Sheppard 1956:329-408; Musto 1962:83-94). This was the era of agricultural intensification and initiatives for a 'scientific' agriculture, as well as for major canal construction projects (Hadfield 1972; 1973). Many early modern initiatives aimed at speeding up the flow of water in key locations. In the Vale, plans prepared by William Chapman in AD 1800 (Figure 8:7) proposed shortening the course of the Derwent by three miles across its lowland meander belt (Musto 1962: 87-94).

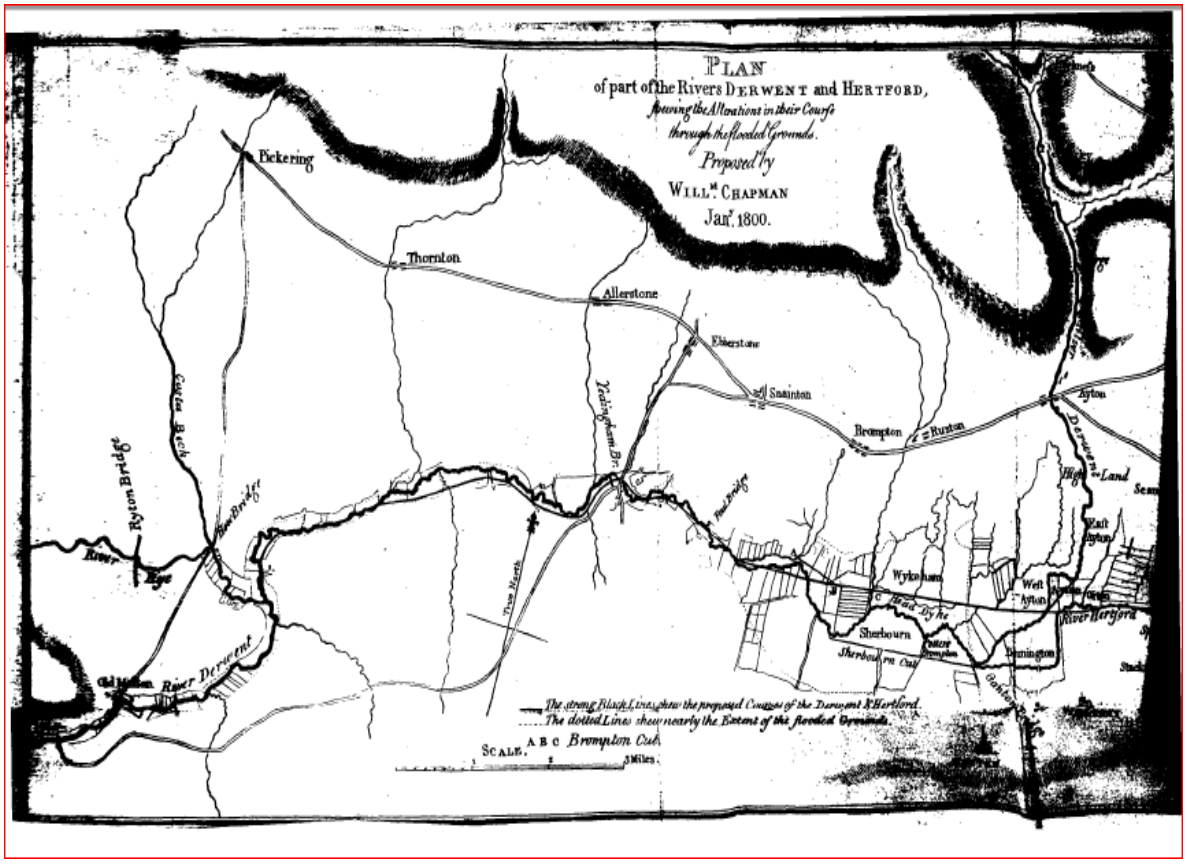


Figure 8:7 William Chapman's 1800 plan for canalisations and drainage of the Vale of Pickering

The result was that stretches of the Derwent were canalised (channelled) from the 19th century, following the Muston to Yedingham Drainage Act.[34] Stretches of notably straight watercourse are now visible features in the Vale of Pickering (Figure 8:8)



Figure 8:8 Straight watercourses are now visible features in the Vale

More recent research suggests that such initiatives to speed the flow of water in floodplains such as the Vale of Pickering may have been counterproductive. Research for 'Slowing the Flow,' a Forestry Commission project to investigate how better land management can help to tackle the flooding problem faced by communities, was carried out in the Vale of Pickering. That case study formed part of the growing body of evidence demonstrating that slowing the flow of watercourses, including retaining or restoring meanders, can aid drainage and reduce sediment erosion (Nisbet et al 2011, Nisbet et al 2015). The Vale's potential as a location for further work on better understanding the interactions between humans and the water/land matrix is discussed in Chapter 11.

[34] NYCRO records at BD 14 (MIC 2960-62, 3013). Chapman's report on draining the low grounds in the vales of Derwent & Hertford 1800; Acts of Parliament 1800, 1914, 1918, 1926.

8.7 Discussion: Transformation: 'New' land?

The combination of evidence in this study suggests that the narrative of Rievaulx's Pickering estate was more complicated than previously considered. Bringing this land into agrarian usage may have been a gradual process carried out by a range of actors, of whom the monastery was perhaps the most visible historically but not necessarily pre-eminent in practical terms. Constance Berman suggests tests which may be applied to documentary evidence to assess previous cultivation of Cistercian land. These tests are the 1) existence of established tithes; 2) evidence for peasant occupation; 3) the use of traditional terminology; 4) the size of sums paid by monks; 5) fragmentation of land parcels; and 6) references to 'development' (Berman 1986:12).

Using Berman's tests, 1) DB evidence suggests some land at *Loft Marishes* was plough land by the late 11th century, so the claim by the Dean and Chapter of York in the 13th century for tithes on *Loft Marishes* may have been justified. The use of that name as an areal descriptor in the 19th-century tithe commutation mapping also argues for a degree of occupational continuity (Table 7:3).

The parcel names and history of Rievaulx's land to the west of Loft Marishes is less straightforward to identify. Several commentators (including Page 1923) have assumed that the area to the west of Loft Marishes is the *Theokmarais* conveyed from King Henry to Rievaulx and have further identified this with *Kekmarish* which appears in references from the 13th century. Both attributions must however be regarded as provisional. Only the extent known later as Deerholme was both recognised by the Church as noval and whose tithe exemption survived into the 19th century. The evidence of *Loft Marishes* demonstrate that only part of the bounds described in relevant 12th-century documents was newly brought into use by Rievaulx. The documentary evidence for *Deerholme* suggests that intakes through drainage may have been an intricate, and possibly prolonged, process.

2) The multiple encroachments on the king's land reflected in the quitclaims suggest that some of this land was being productively exploited including by peasant tenants in the mid-12th century. 3) The use of traditional terminology may be reflected in the survival of

Anglo-Scandinavian placenames, such as Dereham, in 16th-century documents. 4) No record of a monetary transaction between Rievaulx and the royal exchequer in respect of this gift has been found. Henry II's gift as recorded in the 12th-century Memorial of Benefactions to Rievaulx (*Cart. Riev.* 368) suggests that the vill of Steinton was given to Henry II in exchange for Marishes. As this Steinton has not been securely identified, with several potential candidates, the value and hence the interpretation of this exchange must remain a matter of conjecture. 5) The land south of Pickering estate was highly fragmented in terms of tithe liability, as reflected in the patchwork of tithe mapping in the 19th century (Table 7:3). 6) No references to development were identified.

8.8 Summary

The foregoing evidence has demonstrated that the previous simple picture of the land given by King Henry as entirely noval 'waste' marshland in 1157-8 (Donkin 1978: 59), now requires revision. It is implausible that such an extensive and strategically important tranche of land had remained wholly unexploited before Rievaulx took possession. Documentary evidence indeed exists that specific locations within the 'waste' had been exploited before Cistercian occupation. The next chapter will address the implications of both case studies in wider context.

Chapter 8 Landscape-orientation tables

Domesday Book 1086

Interpretations of 'waste' in Domesday Book have been much debated. Accounts that a campaign by William I's army ('Harrying of the North') in 1069-1070 led to widespread physical devastation were recorded by near-contemporary chroniclers. Orderic Vitalis records the destruction of '*crops and herds, chattels and food*' as causing widespread famine and suffering. Symeon of Durham records that between Durham and York the land was so wasted that little was grown for 9 years. William of Malmesbury says that for 60 miles around York little was grown.[35] Many historians have accepted such statements at face value (e.g. le Patourel 1971: 8, Postan 1966:548).

Wightman (1975) however looked at the question afresh and discovered a more complicated and nuanced picture. 'the distribution of land described as waste [in DB] gives little support to the traditional theory that it resulted from the harrying of the north in 1069, or to modifications of that theory which postulate forcible removal of peasants from one part of Yorkshire to another …whatever may have happened seventeen years earlier had left few direct economic traces on the Yorkshire of 1086 …the word gives no clue as to whether the land itself was under cultivation or not; and if the land really was uncultivated it gives no hint of the reason…' Wightman identified potentially several different explanations for 'waste' references in Yorkshire DB. Broadly, these were administrative, fiscal, or physical:

- Administrative: explanations included tenurial change, manorial reorganisation which required a balancing entry in the records, temporary abandonment, or uncertainty. In the Vale of Pickering, a 'string of allegedly waste manors' were 'mainly in the hands of Berengar de Todeni, where a good deal of reorganization had taken place.' Also in the Vale, a remarkable growth in value took place under Hugh fitz Baldric, who may have taken over 'much of the apparent waste on adjacent holdings' including 'the small Todeni estates in the western portion of the vale of Pickering'. **Afforestation** may also have been an administrative factor. Substantial areas of the Vale of Pickering were to be afforested at some date in the early 12th century. The royal manor of Pickering had land termed in DB **almost entirely waste** (nine ploughs where there was potential for forty-seven) but included a vast quantity of woodland (sixteen miles long by four broad). 'This may be the beginnings of the later Forest of Pickering…as … **the term waste may also have been used when land was afforested**. It has been suggested that where Domesday evidence 'stops short at the borders of what we know was forest at a later day we may perhaps presume that the forest was of earlier creation and already there'.
- Fiscal arrangements were possibly associated in some cases with a 'waste' designation. 'As an administrative device waste seems to have been used so often as an alternative to the much simpler statement that one 1086 manor had previously been several that it is tempting to speculate whether the waste label carried a geld advantage, in the way that land "waste' after the wars of Stephen's reign was exempted at the beginning of Henry II's reign'.
- Physical: e.g. in relation to the quality of the land, such as cultivated but without arable: 'poor land that might perhaps at a pinch have been used for arable but was better left alone or otherwise employed or …used for manors still under cultivation but without arable, and for conversion of agricultural land to forest'.

[35] For Orderic's *Historia Ecclesiastica*, see Chibnall 1969:230-233; Chibnall 1973:94-95; for Section 154 in Symeon's *Historia Regum* see T. Arnold 2012; for William of Malmesbury's *Gesta Regum Anglorum* see Thomson and Winterbottom 1999.

Amt 1991 suggests that 'some pairs of manors which had been separate entities in 1066 which were combined by 1086; in Domesday Book the combined value was assigned to one, while the other was described as 'waste'. Thus 'waste' could have an administrative, rather than an economic, meaning'

Palliser 1993:13. Saw DB waste as a technical designation – the value of the manor.

Dalton 1994:25-25 Broadly supports Wightman's interpretation of Yorkshire DB waste as a mainly administrative or accounting device, considering that the 'harrying of the north may well have been exaggerated'

McClain 2017: **207**. Waste as 'lack of value in specifically arable production...wasteland cannot be definitely correlated with destruction [but] a picture of relative agricultural poverty in the north in the late 11th century'

Geld, waste, and 12th-century royal pipe rolls

Geld (tax) was 'a system of national land taxation which was the first to appear in western Europe since the fall of the Roman Empire…which dropped into disuse in the later twelfth century.' (Green 1981:241). Geld had been variously levied and withdrawn under pre-Norman kings, such as Edward the Confessor (Green 2017:67). William the Conqueror levied a triple geld in 1084 and geld was a key dispute under Rufus (Green 2017:67). Post-Domesday geld was levied on hides and carucates rather than the ploughland of Domesday (Green 2017:243). Henry I levied geld, including in 1100, supplemented by 'aids' from certain counties and boroughs, and this was levied annually by at latest 1130. The levy on Yorkshire in 1129-30 may have been on the rate of fourpence per carucate, so on the more than 10,000 carucates as listed in 1086, the county was charged £165 9s. 5d. (Green 1981:244). Henry I promised in 1131 to remit geld for seven years, a promise renewed by King Stephen who may however have broken his word (Green 1981:242; Green 2017:68-69).

Danegeld was revived by King Henry II in 1155-56, along with other levies. Danegeld was levied again in 1161-62 and ordered but not collected in 1174 (Green 2017:69). Increasingly thereafter taxation was targeted on commodities and services including periodic levies and tithes for specific military campaigns (Green 2017:66-77).

Waste in geld collection of 1156, recorded in first surviving pipe roll of Henry II

- 'provides one of the most important examples of the use of the term 'waste' on a large scale, with royal revenue amounting to LI,24i 6s. 3d. written off 'in wasto'; that is, excused from collection by the royal exchequer" (Amt 1991:240).
- land 'excused from collection by the royal exchequer from which no tax was forthcoming, for whatever reason' (Green 1981:252)
- administrative problems including tenurial uncertainty and the sheriffs' inability to collect revenues due (King 1994: 143-147)
- disputes over liability; devastation caused by war (White 2000).

Royal pardon of certain monasteries' obligations, including geld liability. • King Stephen pardoned monasteries, such as Westminster, of geld (Mason 1988). • Henry II issued pardons of geld obligations of 1156 to certain religious houses, reflected in 1157 pipe rolls. (Amt 1981:244).
Waste in 12th-century Exchequer treatise **Amt and Church 2007:xv,93** considered a treatise on the practice of the English Exchequer, the **Dialogus de Scaccario, written by Nigel fitzNeale,** King's Treasurer from c 1160. Section xiii within this deals with '*assart or waste, and the reasons for these names*' 'Assart is the common name for what Isidore calls 'occationes', namely when forests, woods, or any thickets that provide lairs or food for animals are cut down; after the trees have been felled and uprooted, the land is ploughed and cultivated. But if the woods are cut in such a way that someone standing by the trunk of a felled oak or other kind of tree and looking around can see **five other felled trees, it is called 'waste'**, which is short for 'devastated'. Moreover, such an offence, even if it is committed in one's own woods, is said to be so serious that it cannot be excused by the privilege of the exchequer, but instead is punished monetarily according to the perpetrator's rank.'
Later English references to waste: poor quality agricultural land 'not lands on which a society would draw for cultivation except in times of real land hunger.' **Postan 1966** (548 632) considered the term 'waste' to designate land which was marginal or substandard, including land 'not …suitable for the plough.' **Bennett 1976:56-60** Between c1200-1350, waste could mean unenclosed land on the outskirts of a settlement, previously unenclosed land beyond the common fields and meadows. "Many peasants had still other plots of ground they cultivated as a private matter. These were usually on the outskirts of the manor and were originally rough uncultivated waste, or land often bordering on the forest edge…[namely] assarts …the 'wastes' …stretched away on every side …over which villagers had rights of common." The **1235 Statute of Merton** stated that 'the lord was to leave 'sufficient pasture' for his free tenants according to their holdings'
Dunsford and Harris 2003 (Durham waste project) Project used broadly the same interpretation as Bennett, namely waste as open, unenclosed land between settlements, but differed from Postan (1966) in interpretation of the prevalence of 'colonisation' of such land in Northern England. In their study area of Northern England *c*. 1143-1333 "a total of 118 separate grants of waste …identified … a significant portion created [as] moorland farms, by which we mean isolated holdings held in severalty, carved *de novo* from the waste and frequently standing outside the territorial structure of the township or vill as it had then developed."

Table 8:1 practical interpretations of term 'waste' in c.11th-14th-century documents

Map key	**1**	**2**	**3**	**4**	**5**	**6**	**7**
NSRI classification [1]	**512b** **Landbeach** Loftmarishes	**541r** **Wick1** Loftmarishes	**712i** **Foggathorpe** **(Deerholme)**	711p Dunkeswick (Thornton le Dale)	**813d** **Fladbury 3** – (river course)	831c Wigton Moor (Rillington)	**712b** **Denchworth** (Wilton)
Soil association	Slowly permeable seasonally waterlogged stoneless clayey & fine loamy over clayey soils	Deep well drained coarse loamy and sandy soils locally over gravel	Permeable calcareous coarse loamy soils affected by groundwater over chalky gravel	Slowly permeable seasonally waterlogged fine loamy and fine loamy over clayey soils	Stoneless clayey, fine silty and fine loamy soils affected by groundwater.	Permeable fine and coarse loamy soils variably affected by groundwater, the drier soils being on slightly raised sites	Slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils
Hydrology of soil type (HOST) [2]	7: Free draining permeable soils in unconsolidated sands or gravels with groundwater at less than 2m from the surface	5: Free draining permeable soils in unconsolidated sands or gravels with relatively high permeability and high storage capacity	24: Slowly permeable, seasonally waterlogged soils over slowly permeable substrates with negligible storage capacity	24: Slowly permeable, seasonally waterlogged soils over slowly permeable substrates with negligible storage capacity	9: Soils seasonally waterlogged by fluctuating groundwater and with relatively slow lateral saturated conductivity	9: Soils seasonally waterlogged by fluctuating groundwater and with relatively slow lateral saturated conductivity	25: Slowly permeable, seasonally waterlogged soils over impermeable clay substrates with no storage capacity
Soil parent	95 Glacio-fluvial sand and gravel	92 Glacio-fluvial or river terrace drift	97 Glacio-lacustrine clay	172 Till from Palaeozoic and Mesozoic sandstone and shale	156 River alluvium	159 River terrace and glaciofluvial drift	104 Jurassic & Cretaceous clay
Natural soil fertility	2 Lime-rich	5 Low	10 Moderate	10 Moderate	10 Moderate	5 Low	10 Moderate
Simple topsoil texture	2 Loamy	2 Loamy	2 Loamy	2 Loamy	2 Loamy	2 Loamy	2 Loamy
Typical habitats	10 Herb-rich chalk and limestone pastures; lime-rich deciduous woodlands	13 Neutral and acid pastures and deciduous woodlands	17 Seasonally wet pastures and woodlands	17 Seasonally wet pastures and woodlands	23 Wet flood meadows with wet carr woodlands in old river meanders	20 Wet acid meadows and woodland	23 Wet flood meadows with wet carr

Hydro-geological rock type [2]	24 gravels	34 sand	21 glacio-lacustrine clays and silts	22 till and compact Head	15 river alluvium	25 loamy drift	15 river alluvium
Groundwater protection policy [3]	H2	H2	L	L	H1	H1	L

[1] *after Avery 1973 & Avery 1980.* [2] *classifications after Boorman et al 1995.* [3] *after Hollis 1991, Palmer et al 1995.*

Table 8:2 Soils in study area. Data from NSRI 2018a and NSRI2018b

Chapter 9 Discussion of objective 1

9.1 Introduction to discussions

The primary purpose of this project was to understand 'transformation' of landscape by the first Cistercian monastery in Northern England, Rievaulx Abbey. The research considered two specific areas of the Yorkshire Derwent catchment given to the abbey. The first was land by the course of the River Rye given by Walter Espec. The second was marshy land in the Vale of Pickering given by King Henry II. This chapter first discusses the findings of both study areas against the core question – whether Rievaulx 'transformed' its landscape (9.2). The study identified that both areas contained land whose productive potential had been demonstrated by the date of donation. The next section (9.3) therefore considers possible factors in the donations made by Espec and Henry II. Then a further section (9.4) considers the implications of this study for some broader questions about monastic environments and provides a summary (9.5).

9.2 'Transformation' by Rievaulx

Both case studies have eroded the notion of wholescale physical transformation by Rievaulx Abbey. Rather than rapid physical 'transformation,' the overall picture which is emerging of Rievaulx's management of Rye Vale and its main river is of an episode in a longer-term human / environment trajectory which had begun substantially earlier than monastic occupation and continued thereafter. In the upper reaches of the Rye (R2), Rievaulx's activities (Section 4.6), were in many aspects a continuation of a development trajectory established by previous occupants (4.3-4.5). Here, the monastery continued activities such as small-scale agrarian enterprises and iron-ore mining and processing. Without more evidence it is difficult to determine the degree to which Rievaulx's pastoral and arable activities extended that of previous occupiers (4.6.2).

In the mid-catchment valley of the monastic core (R3), the extent of 'new' land cultivated by the abbey may also have been limited. DB evidence suggests that the vills of Griff and Tilstons had previously been under cultivation by Anglo-Scandinavians (4.7 – 4.8). It was possible, however, that the monastery was better able to deal with specific physical challenges, such as limited water supply on the limestone plateau, and thus scale up production and establish new units at specific locations, such as New Leys and Ouldray (4.7-4.9).

Within the monastic precinct (R4) still relatively little is known about pre-Cistercian activities other than as the possible meadowland for the Domesday-era vills. A longstanding theory which attempted to fit the physical evidence into an elaborate hypothesis woven around a tiny number of documentary references has previously given the problematic impression that Rievaulx's management of the Rye here was a small number of large-scale interventions, namely diversions / canalisations (5.3; Atkinson 1889; Rye 1900). To the contrary, this study has suggested that Rievaulx's management of the River Rye here may possibly have been more extensive than previously thought by investigators influenced by Atkinson and Rye's theory of major river diversions. It is possible that the Rye was diverted, albeit in a relatively minor way, to the north of the precinct (6.3). The evidence for management of the water/land matrix synthesised in this study, drawing together original work by this author and research by Historic England (Figures 6.4-6.7 in the current work; Hannon 2015; Pearson 2019) rather suggests a complicated and extended series of interventions by Rievaulx. Overall, the picture from this study is of Rievaulx's interventions as part of a long-term relationship between humans and the physical environment in Rye Vale (6.8). Physical investigation will be required to determine conclusively how and when the monastery may have managed the Rye in specific locations. Chapter 11 will make recommendations for such field research.

The Vale of Pickering case study has demonstrated that Donkin's claim that Rievaulx's Pickering estate was founded on entirely 'new' land can no longer be upheld. The extent of 'new' land at Marishes is likely to have been substantially smaller than the entire extent of King Henry II's grants. The picture at Marishes, as in Rye Vale, is of Cistercian activity as merely one episode in a longer trajectory of human activities. Domesday Book evidence suggests exploitation of selected locations in the marshy land south of Pickering was well underway by the late 11th century. Although the precise location of most DB marsh vills is now lost, some parcels, such as Loft Marishes, were clearly not newly cultivated. Preceding the grant to Rievaulx by over 40 years, DB evidence suggests Loft Marishes contained ploughland by 1086 (7.7).

At present, the strongest documentary evidence for areas of land primarily reclaimed by the Cistercian monastery within Marishes are for the tithe-exempt parcels within Deerholme Grange (7.10). Physical investigation of the tithe-exempt areas of Deerholme, therefore, offer the potential for better understanding of Cistercian marsh reclamation, and suggestions for this are given in Chapter 11. There must however be reservations because of the use of 19th-century tithe commutation data to interpret the 12th century situation (8.7). This factor is considered in Chapter 10.3.

Overall, the findings of both case studies add to the body of evidence challenging the theological narrative of 'marginal' monastic land. Marishes was not 'marginal' but instead probably capable of multiple types of agrarian production (8.6). The areas within Marishes identified as containing possible medieval cultivation ridges suggest that certain fields there were capable of arable, as well as pastoral, production (8.6.5). The date of such activity is however unclear from morphological evidence alone. These findings echo the results from investigation of monastic lands elsewhere. A mapping of broad ridge and furrow (i.e., land possibly ploughed during the medieval period) at Wearmouth /Jarrow enabled researchers to suggest acreage held by that monastery was not poor and marginal as sometimes portrayed but extensive and capable of arable production (Turner et al 2013, Fig. 2.39). Brown similarly found Cistercian Stanley Abbey (Wilts.) to have been founded in a previously settled landscape (Brown 2012).

9.3 Diverse, interconnected, and interdependent factors in land donation to Rievaulx Abbey

Both case studies therefore illustrated that the lands given by their lay donors (Espec and King Henry II) did have productive potential which would have been known by the date of donation. Espec's 'starter package' contained the major elements required by the new monastery (4.8). Marishes was not valueless when given to Rievaulx, as evidenced by the 12th-century quitclaims (7.9), exploitation noted in DB (7.7), and 1155 forest 'regard.' What factors therefore might have led Espec and Henry II respectively to give such substantial tranches of land to a Cistercian monastery?

Scholars have traditionally considered such donations to a monastery in terms of their economic value. Based solely on 12th-century documents, Burton called Espec's gift to Rievaulx Abbey 'less generous' than his gift to Kirkham Abbey (Burton 1998a). Viewed through such a solely economic lens, however, Espec's gift of a substantial tranche of land, from the outer wards of Helmsley up to Snilesworth Moor, is somewhat puzzling to modern sensibilities. It is possible, of course, that having previously established Kirkham Priory, Espec simply had less land available to give. Environmental factors, such as water stress, could have somewhat affected the productive capability and hence value of Griff and Tilstons, with the abbey possible possibly better placed to deal with such challenges and scale up production there (4.7.3). A purely economic lens on Henry's gift also suggests the gift was somewhat puzzling, if the king's main objective were to increase Crown revenue. The 12th-century quitclaims suggest that Pickering Marishes was valued by people from across the social spectrum, from barons to peasantry. Additionally, the River Derwent frontage of Marishes could have offered valuable connectivity to a trade route to York and the North Sea. In both cases, therefore, a purely economic interpretation of the gift of these lands to Rievaulx appears inadequate.

9.3.1 Authority in the landscape: strategy and piety

Looking at both case studies through different analytical lenses offers fresh interpretations of the possible motivation by both Espec and Henry II. Previous studies have suggested possible non-economic motivations of Cistercian founders such as Espec.

Fergusson and Harrison (2000:37) offer a social plantation viewpoint for Espec's patronage, a process of visibly 'putting down roots' in northern frontier areas. Jamroziak argued (2005:34) for a spiritual viewpoint as well as an overt display of status and prestige, the 'quality of the religious life of the monastery' reflecting on the patron's salvific prospects and status. Others have suggested less-than-noble motives, including political manipulation using Cistercian monasteries in England during the upheavals of King Stephen's reign. Hill (1968: 38-40) suggested that founders of Cistercian monasteries used such monastic foundation to give land in free alms (namely, free of all services except prayer) to deprive the king of knight service due on the land granted.

Rather than a single factor in Cistercian plantation, such as Hill's political defensive theory, overlapping the analytical lenses identifies multiple situated factors in the major donations to Rievaulx. It can hardly have been a coincidence that in both cases Rievaulx was 'planted' on wapentake / hundred boundaries. Espec planted his monastery near what has been inferred from DB evidence as the boundary of Maneshou and Yarlestre wapentakes (Figure 4:21). Henry II's grants planted a grange of Rievaulx on the boundary of Maneshou, Dic, Scard and Thoreshou (Figure 7:12). Both men, or their advisors, must have appreciated at some level the multiple functions which could be played by a monastery in the landscape.

Land given to a religious institution generated a relationship which stretched over generations. Monasteries 'reproduced' themselves by autogenesis, self-replicating through the establishment of new monasteries and units such as granges. In such replication, the donor's generosity would be forever memorialised in prayer and liturgy.

The monks at the monastic core may not have been routinely visible to the local population, but the inhabitants of the granges would have been a normal part of the yearly round of the agricultural world. In donating to Rievaulx, Espec and King Henry eternally entwined their lay authority with the spiritual authority represented by one of the most populous and successful religious movements of the 12th century, whose origins lay, like their own, in Burgundy. Conceivably, some of the local community may have become Cistercian lay brothers. More certainly, it was from the local community that monastic servants would have been drawn, whether these were seasonal workers or longer-term employees. Rievaulx's agrarian presence would therefore have acted as an ongoing manifestation of the association of lay and religious authority.

In both cases, plantation was initiated by a donor who, by virtue of their other responsibilities, could not be present to oversee their interests. Espec, as Justice to Henry I, travelled regularly with the royal court, and had domains elsewhere in England, so could not be permanently at Helmsley. Espec's gift of Griff, Tilstons and Bilsdale planted Cistercian monks almost in the back garden of his caput at Helmsley, effectively putting a buffer in between his caput and the wapentake boundaries. Such a close spatial association between a patronal residence and monastery was not unusual. Similar examples are known from elsewhere in Yorkshire, such as Easby abbey, which was located near Richmond Castle (Burton 1999a:199).[1] Plantation of a Cistercian monastery therefore may, in part, have served to protect the hinterland of Espec's caput from encroachment, including by any surviving connections of those dispossessed by Norman settlement, such as the thegns at Helmsley mentioned in DB.

A similar compound of multiple factors including piety and pragmatism may have been behind Henry's grants. Monastic foundation is a more diverse phenomenon than may be considered here for reasons of space, but Henry II's activities in supporting religious houses of multiple orders is well-attested (Chibnall 2006). Monastic foundation may also have reflected a recognition by Henry of his limited resources to stabilise a zone

[1] Easby was a Premonstratensian house which was throughout its life an independent abbey (James Bond pers. comm.)

vulnerable after the turbulence of King Stephen's reign. By the time of his grant to Rievaulx, Henry II's domain encompassed Normandy, Aquitaine, and Anjou as well as England (Keefe 2008). The threat to the Crown posed by powerful local figures is illustrated by Aumale. It will be recalled that Aumale was a powerful figure in Northern England, who in his early and mid-career was politically aligned with King Stephen, an allegiance rewarded by advancement to Earl (Dalton 2004b). By the time of Henry's accession, Aumale held assets properly due to the Crown, including Pickering, Falsgrave and Scarborough (Chapter 7-8).

Marishes therefore may have been used by King Henry to manifest the royal writ in a manner that did not require the long-term commitment of royal defences. Instead, the local community was involved in statement of the king's rights, as men of the wapentake reported on the king's boundary, in 1157-1158. The regional law administration was then involved in the restatement of these rights, by a sitting of the court in York in August 1158 (Farrer 1914: 314; Skinner 2014:305). The legal system was also the mechanism for the quitclaims. This was a gradual process, as the last quitclaims may have been as late as the 1180s (Jamroziak 2005:118-119). The legal system ensured that due records were kept, and the king's writ was enforced, albeit slowly.

Burton (1999a:115-124) suggested that the case of William of Aumale demonstrated that Cistercian founders were not necessarily opponents of King Stephen. During King Stephen's reign, Aumale established his own Cistercian monastery in Yorkshire (Meaux) (in 1151, monument number 79060). Burton therefore considered that to suggest Cistercian founders as opponents of the king was over-simplified. Supporting a Cistercian monastery may have represented a socially acceptable way to acknowledge the new reality of the Angevin house (Burton 1999a). Aumale's ceding of any claim to Marishes under King Henry II may have represented such an acknowledgement.

That both Espec and Henry II selected a Cistercian house for such political stabilisation may have been considered choices. Cistercians were a favoured religious order for establishment in contested zones elsewhere. Revesby Abbey (Lincs) was founded in 1142-

3 after the 1141 Battle of Lincoln (Burton 1999a:116). A daughter house of Cistercian Melrose Abbey was founded in 1150 at Holm Cultram (Cumbria), in the 'debateable lands' of Northern England which periodically changed hands between Scotland and England. The foundation included the island of Holm Cultram, a large, discrete coastal block of land defined by mosses and watercourses (Newman 2014). Holm Cultram was founded under Scottish rule by Prince Henry, son of David, King of Scotland, but once under English rule again, the grant was confirmed by King Henry II of England (Newman 2014). Recent work shows that some monastic foundations were made in Wales from the 11th century at least partly for purposes of establishing secular power (Austin 2013; Bezant 2014). In 13th-century Estonia, monastic granges may have been involved in strategic 'colonising' in co-operation with Danish authorities (Markus 2009). In southern Italy, Cistercian foundations may have been a Norman means of achieving stability and peace (Peters-Custot 2017: 63-76). Religious foundation on royal territorial boundaries, including of Cistercian and other monasteries, was a practice known elsewhere in Europe at the time, such as Southern Transylvania (Țiplic and Țiplic 2016).

9.3.2 Folk-spiritual connections

Overlapping the landscape syntax and spiritual lenses to identify a monastic taskscape highlights other potential factors in the gifts to Rievaulx. Monastic foundation may have been a way to come to terms with places that may have been special in folk-spiritual terms. The close association of Rievaulx's core site with multiple landscape elements of possible folk-spiritual significance is compelling. Here, water behaves in apparently unaccountable ways. In the fissured Corallian limestone (karst) geologies such as Rye Vale, water disappears down swallow holes, creating dry valleys where it appears that a stream should run, such as between Roulston Scar and Hood Hill (Powell and Ford 2011:3). Water also bubbles up apparently randomly, such as the springs within Rievaulx's precinct, and the inferred location of these springs bear an intriguing relation to Rievaulx's claustral complex. (6.6.3).

Water may also have been definitional of territories in 12th-century Rye Vale. The northern boundaries of Maneshou may have followed the watershed, by way of following the highest land. The western boundary of Maneshou may in the mid-catchment valley have followed the course of the Rye, and thus have encircled the locally prominent Ashberry Hill (figure 4:21). The elements of earth and air behaved inexplicably also at the windy pits used for burials and deposits close to Rievaulx's monastic precinct. It is possible that evil spirits were thought to follow the up draughts of air in these fissures of the limestone bedrock. Were these updraughts associated with 'voices in the wilderness'? (Pam Graves, *pers. comm*.). Medieval supernatural tales were associated with the North York Moors (James 1922).

Clearly, the multiple roles of the Pickering royal estate as forest, judicial unit, defensive base, and manorial economic centre may have played a part in Henry II's decision to grant a substantial part of this estate to Rievaulx Abbey. Less clear, but tantalising, are pre-existing spiritual traditions which could also have been a factor in King Henry II's gift of substantial land at the meeting of the rivers Rye and Derwent. The intensive early medieval monastic occupation along the Rye, Derwent and their tributaries was noted by Ian Wood, who argued that the early medieval monasteries in the Vale performed a memorial function for the Northumbrian royal dynasty (Wood 2008:11-25). The multiple early medieval monastic settlements in the Vale of Pickering were succeeded by even denser monastic settlement there during the high medieval period (*Table 7:15*). There may be a parallel for the possible cultural significance of the Vale of Pickering in the density of monastic sites in the Witham valley between 7th –16th centuries. The Witham evidence prompted Stocker and Everson (2003:282) to suggest spiritual reasons for the monastic activities in which the liminal properties of the river may have been important:

> '…the river [Witham] formed not just the boundary for estates, parishes and manors, but in earlier times it was the boundary of the independent political state of Lindsey…The remarkable line of Witham monasteries along this boundary, therefore, are visible entries and exits into a different place; secular as well as spiritual'.

9.3.3 Rievaulx Abbey as mediator of royal memory and English identity

The choice of Rievaulx Abbey as recipient of Henry II's gift may have been an informed one. The campaign to Yorkshire in 1155 and the regaining of Pickering from Aumale could have prompted discussion at the royal court of monasticism in Yorkshire and the Vale of Pickering. There was a clear connection between Rievaulx and Henry I. Henry I had supported the Church generally in Yorkshire, having given the tithes of his newly afforested lands in Yorkshire to the Chapter at York (Figure 7:10; Table 7:14). Henry I had a more specific link with Rievaulx, having given consent for the abbey's foundation after an approach by Bernard of Clairvaux (4.2 above). Surviving members of Henry I's court may have known and valued the connections with Rievaulx and could have brought any traditional association between royal dynasties and the Vale to young Henry's attention. Rievaulx's founder, Walter Espec, was a justiciar to Henry I and witnessed many of Henry I's charters including two documents issued while at Pickering.[2] Although Espec did not attend King Stephen's court after 1138, he may have died just before 1158 (Dalton 1990:155; Dalton 2004a). Espec might therefore have still been alive and able to influence a gift by Henry II through his connections at court. One of Henry II's stated objectives was to 'restore England to the state it had been in at the time of Henry I' (Warren 2000). The opening section of Henry II's donation charter makes clear the overt memorial and spiritual function of the gift for the soul of his grandfather, Henry I (Table 7:12).

Rievaulx had become a mediator of royal memory and a narrator of English identity even before Henry II's reign. Rievaulx's abbot, Ailred, began writing to and for young Henry during King Stephen's reign (Dutton 2006:183-195). Ailred 'welcomed the accession of Henry II whom he saw as the cornerstone which was to bind together the English and the Norman races' (Burton 1998a:34). In writing *Genealogica regum angelorum* (*Genealogy of the Kings of the English*) some time before Henry II's accession in 1154 (possibly 1152-1154), Ailred emphasised the role of young Henry, as-yet uncrowned but the

[2] Memorialisation is however a complicated issue in the case of Espec's foundation of Rievaulx. Espec lacked a direct male heir, so his inheritance passed to the sons of his sister. The old assertion that Rievaulx was founded in memory of a deceased son of Espec was dismantled by Atkinson (1889: 263 and preface. pp. ix–xviii). Jamroziak instead suggests (2005: 29).that Walter Espec 'was advancing his career in the royal service, and his pious foundations were, apart from religious considerations, linked to his attempts to assert his newly acquired social standing"

acknowledged heir to the English throne, as ‘a new link in the long chain of English monarchs, chosen to carry the Anglo-Saxon past into Anglo-Norman England’ (Dutton 2006:183). Ailred became an adviser to Henry II (Chibnall 2006:9-22). Ailred also advanced canonisation of Henry’s ancestor, Edward the Confessor (Fergusson and Harrison 1999: 64-65). Ailred’s work, and by association, that of Rievaulx, therefore helped reinforce Henry II’s connection to previous kings and his legitimacy as their successor.

The evidence suggests that in both cases Cistercian patronage was not a simple economic choice to give away ‘marginal’ land. Overlapping the analytical lenses therefore suggests that Espec and Henry’s choices to establish Cistercian monks in Rye Vale and Pickering Marishes respectively, may have combined multiple factors. Possible factors outlined in this study included piety, memorialisation, strategy, and folk spirituality. In both case studies, the donative decisions may therefore have been complex sets of diverse, interconnected, and interdependent factors.

9.4 Monastic environments: beyond estates and economy

9.4.1 Monastic identity formation

In the account of Rievaulx's physical setting by Walter Daniel quoted *in extenso* in Chapter 4, Walter Daniel describes the physical beauty of Rievaulx Abbey's heartland as 'a second paradise of wooded delight' (Powicke 1994:98). The image projected in Daniel's account of undisturbed pristine tranquillity is however at odds with what the current study has elucidated was a far from untouched landscape. Given complicated relationships between theological metaphor and physical state illustrated by these case studies, what factors may have been involved in the development and survival of the monastic tropes of waste, wilderness, and transformation of landscape?

Rievaulx's case studies add to the argument for entanglement of religious and agrarian concerns suggested elsewhere, such as 15th-16th-century pilgrim ampullae unearthed from fields in Norfolk which were interpreted as votive deposits (Anderson 2010:182-203). The *English Landscape and Identities* project, which interrogated an extensive database of archaeological remains, finds, onomastic and documentary evidence, found 'a long-term entwinement of agricultural production and ritualised / religious practices from the middle Bronze Age to the early medieval period (c. 1500 BC – AD 1086)' (Harkel et al 2017:413-437).

The current study has suggested complex interactions between monastic donation and landscape, reflecting a diverse, interconnected, and interdependent blend of factors. Such results suggest a need for holistic interpretations of past landscapes to attempt reconstruction, however imperfect, of medieval worldviews. Medieval worldviews may have been rich and complex, although very different to that of modern industrialised societies (Gerrard and Petley 2013: 1051–1079). Such worldviews may have differed particularly from the tendency of post-medieval scholarship to view certain types of monastic space in different terms. The distinction drawn in modern scholarship between the activities within and beyond the precinct would have made little sense to a 12th-

century Cistercian monk or a lay patron. The distinction whereby the former is typically considered in spiritual terms, and the latter in solely economic, is anachronistic.

It is, however, difficult to access a 12th-century worldview, even had such a typical entity existed. Setting aside the degree to which specific beliefs were held by individuals, it is likely that the worldview of medieval monks and their lay patrons educated in the Western Christian tradition would have been informed by tropes embedded in wisdom literature and perpetuated through Christian proselytisation. Monastic identity formation did not remain static but developed and responded to the contexts in which it evolved. The concept of wilderness remained important yet definitionally-fluid within these changing contexts.

Oelschlaeger (1991:3) observed:

> 'Viewed … prospectively the idea of wilderness may be understood as lying along a continuum where it is, on one end, little more than a romantic anachronism and, on the other, a category intrinsically bound up with the emergence of an evolutionary viewpoint on cosmological process.'

Chapter 2 illustrated how paradigms of Christian spiritual endeavour arose in the specific context of first-millennium Egypt and the Levant. In that arid context, *exempla* co-opted relationships with the physical world in support of spiritual objectives. Withdrawal from the world - *ἀναχώρησις* (anachoresis) - was a theme much emphasised in writings on early monasticism. The development of the conceptions of withdrawal and spiritual journey are too complex to do justice to here, but in St Anthony of Padua's asceticism, which was to become a monastic paradigm, there was a *telos*, a final (locational) goal (Goehring 1999: 92). In arid-zone monasticism this *telos* was the desert. In the Pentateuch[3], the (desert) wilderness was both a place of refuge from the city, and the location of Yahweh's challenge (Oelschlaeger 1991:48). As Christian monastic practice developed in the arid

[3] The five books -Genesis, Exodus, Leviticus, Numbers, Deuteronomy -which relate Creation and the establishment of Mosaic tradition, common to both the Christian Bible and Jewish Torah

Levant and was then adopted in temperate Europe, the depiction of physical challenge inherent in wilderness remained important as the backdrop was adapted from desert to forest and waste (Goehring 2003). The 'waste' and 'wilderness' concepts thus became a kind of cultural code 'inherited' by European monasteries from their desert 'ancestors.'

The separation of self from 'other' can be an aspect of identity formation at both cultural and individual levels (Oelschlaeger 1991; Shepard 1998). As Christian monasticism developed, separation from the world continued to be theologically emphasised as a positive act, enabling closer engagement with a spiritual adversary. The movement into wilderness was important to spiritual attainment by monks who aimed to recreate the desert ideal. A penitential journey was a concept much to the fore in the cultural context in which Cistercian and other 'back to the desert' religious movements developed. This was an idea with a complicated development. It was based on a journey from the hostile land (*locus horribilis*) towards the paradise (*locus amoenus*) from which humans had been alienated by sin. This idea was founded in patristic theology, mediated by Classical learning and medieval theology, and from the 11th century received fresh theological emphasis and expression in the form of pilgrimage, and monastic focus, not least in Cistercian tradition (Bruun et al 2014). Gilchrist and Sloane (2005) have suggested that willow and hazel wands found in monastic graves in England may be an allusion to having made such a spiritual journey.

9.4.2 A spiritual landscape?

The question remains as to whether monastic land was perceived as qualitatively different, perhaps even spiritually different to non-monastic land. Is it possible to discern intangible connections between land outside the monastery and the monastic core itself? Might the concept of a spiritual journey towards a *telos,* be relevant here? As outlined above, a spiritual journey necessitated differential between the starting point and destination. There is some documentary evidence for Cistercian land beyond the precinct as being the venue for religious experience. James France has identified multiple Cistercian *exempla* which portray *conversi* undergoing spiritual experiences in their

countryside domain. These stories appear tailored to the activities of lay brothers whose humility is presented as instructional. One such tale records a vision experienced by a lay brother left alone on the grange to tend livestock while the others attended mass at the convent. Another tale relates that, at the death of one meritorious lay brother, a monk at a monastery far away had a vision of the arrival in heaven of a new saint (France 2012:199-230).

A 'spatialisation of [religious] charisma' is posited for a processionary route beyond the boundaries of the early medieval monastery at Inishmurray (County Sligo, Eire) (Ó Carragáin and O'Sullivan 2008). Could a similar extension of religious charisma have occurred from the monastic core to certain monastic granges? If so, may there have existed the potential even for the lowliest under Cistercian administration to achieve spiritual progression? This possibility is hinted at by McCrank's documentary work on Cistercian Poblet in post-Reconquista Cataluña. There, grange tenants or *mercenarios* (people with whom the monastery had a business relationship, including hired servants) could apply later to become a lay brother (McCrank 1976: 152-159). Could a Cistercian grange therefore have offered a first step on the spiritual journey for the ordinary country worker, where they could in some way participate in, and progress towards, the spiritual activities at the *telos* of the monastic core?

Is it possible that for Cistercian houses such as Rievaulx, physical markers would be encountered sequentially on a spiritual path from her granges, to monastic core *telos*? After leaving a Cistercian grange, such as in the 'special' Vale of Pickering, such barriers would first be in the wider countryside. By analogy with sanctuaries variously at a mile and a mile-and-a-half beyond the churches of Hexham and Beverley (Hamilton and Spicer 2005:7), some as-yet unidentified places or markers in the landscape may have existed. Rievaulx was only one of multiple religious establishments across the North York Moors and the Vale of Pickering. A journey of any length would have crossed monastic lands, such as those of Byland, Kirkham, and Malton.

As a person approached the monastery, they would encounter the outer delineation of the monastic core, namely the monastic precinct. In Cistercian *exempla* of runaways and other violations of the principle of *stabilitas*, 'the stone walls that marked the end of the precinct … also miraculously functioned as spiritual guardians and instruments of deterrence to those who attempted to violate the boundaries of the monastery or convent' (Cassidy-Welch 2001: 197). Close theological links may have existed between aspects of space at the Cistercian monastic core (Cassidy-Welch 2001). The chapel outside the gate (*capella extra portas*), such as at Tilty Abbey (Listed Building number 122121) was an important feature in Cistercian monasteries, as were gatehouses (Fergusson 1990). Once within the precinct, one or more courts would be encountered, within which lay the cloister, outer church walls, and then the various internal divisions of the church culminating in the most holy area, the high altar.

For those élite who reached the *telos*, the trappings and material support of the wider world that cushioned contact between a soul and the forces of evil would have been stripped away. *Regula Benedicti* mandated that a monk be armed only with the basic needs for human sustenance. Lightly equipped, therefore, the monk battled with multiple challenges at the *telos* of the monastic core. Powicke's evocative translation of Walter Daniel's account of Rievaulx's foundation (quoted *in extenso* in Chapter 4) described Rievaulx's monks as having come from the 'monastic wrestling ground' of Clairvaux (Powicke 1994:98). Only choir monks would carry out this most challenging of God's work, but if a spiritual pathway between grange and *telos* existed this could have offered at least a potential connection for the ordinary country dweller to such endeavours. Gasper (2016:51-65) has emphasised that monastic orders operated within two economies: material and spiritual. The spiritual journey which began at a Cistercian monastic grange enabled the grant of material goods, such as land and its appurtenances, to be transformed into the spiritual economy. In a medieval worldview, therefore, the task of Cistercian monasteries might truly be to transform landscape.

9.4.3 The selective 'hyper-mattering' of the environment

If the taskscape of Cistercian monasteries was to transform landscape into the spiritual economy, therefore, what roles might have been performed by monastic engagement with physical elements? How might these roles illuminate the apparent divergence between the pre-Cistercian history of Rievaulx elicited in Chapters 4-8 and the traditional accounts of untouched wilderness in the same locations? The broader practical challenges of winning a living from the water/land matrix have been considered earlier (Chapters 2-8). Such practical approaches to matters such as water and land husbandry did not preclude other aspects. In the medieval period, 'duality of views of a single event, involving both a natural and a supernatural explanation, was not uncommon' (Gerrard and Petley 2013:1062).

Duality of views, both Christian and pre/non-Christian, may also have associated monastic settlement with specific aspects of the physical world. A growing body of evidence suggests linkages between aspects of religious identity and the natural world in pre-modern Europe. Some pre-Christian belief systems may have accorded natural places, such as caves and springs, special status (Bradley 2000). Monastic efforts to live in such special places may have had compound purposes. The location of Rievaulx's core in relation to windy pits was noted in Chapter 5. Water behaving mysteriously is a noteworthy theme in both case studies, disappearing down swallow holes and bubbling up in springs in Rye Vale (6.6.3), and flowing 'backwards' in the Rye-Derwent floodplain (7.4).

The possible association between Rievaulx's core and 'special' landscape features is supported by evidence from elsewhere of non-trivial effort to incorporate pre-existing landscape 'special' places within monastic domains. Cistercian Stanley Abbey (Wiltshire.) constructed a 2.5 km channel to bring water from Loxwell spring to the abbey, which may have reflected the incorporation of an as-yet unidentified pre-Christian cult site (Brown 2012: 72-75). The 'Christianisation' of springs may have been linked to the foundation between AD 600 and 1150 of two Benedictine houses in the Ardennes (Belgium) (Arnold

2007: 447-76). The monasteries of Stavelot-Malmedy and Andages / St Hubert channelled watercourses and created miracle stories linking the activity to an explicitly Christian imprint on the landscape. Arnold (2007:447) considers that the monks used (emphasis added)

> 'their religious authority and their control of religious message to support and supplement their temporal powers. The **control of water resources was more than an economic or practical necessity; it was deeply connected to monastic identity and the relationships between monks and the secular world'.**

Cultural expectations of men and women may have differed as regards the element of water. A theory of humans as being composed variously of four humours, namely earth, fire, water, and wind, had been first articulated by Greeks such as Aristotle and Galen. Medieval medicine used the Greek theory, considering that women were naturally phlegmatic, namely composed of water (Rawcliffe 1995:172). Gilchrist suggests that a female association with water may have played a role in the location of nunneries in watery locales (1995:116). As being similar elementally to water, therefore, was it the role of religious women to intercede with or accommodate watery forces? The role of women was typified by the example of Mary, who as mother of Jesus was traditionally considered to intercede on behalf of sinners. It may therefore have been expected that women would not transcend their element but would instead find a way to live with it.

The evidence for nunneries 'transforming' the water/land matrix is patchy so interpretation here must be tentative. English female monasteries may not have practised land reclamation but abandoned or relocated sites if flooding became intolerable, but there is evidence for successive sequences of terracing at French nunneries, conceivably to raise the buildings above floods, as at Coyroux (Limousin) (Gilchrist 1994:68). Cistercian nuns were however able to commission work to manage water, such as the nuns of Doronzele who ordered the creation of dykes (here, standing banks rather than ditches) near Ghent (Flanders) to control existing canal water levels and the construction of a new canal (Jordan 2018:187-201).

A Cistercian monk on the other hand might be expected to overcome the forces represented by water. As men, they were the hot and dry opposite of women's coldness and wetness. As eulogised by Walter Daniel, St Ailred, abbot of Rievaulx, can be viewed as an example of both the ascetic and miraculous aspects of overcoming the force of water. Daniel recounts that as a novice, Ailred built a place for cold water under the floor at Rievaulx in which he could lie to purge himself of vice (Powicke 1994: 108). This may reflect the Northumbrian religious practice of daily immersion (Fergusson 1999, Pearson 2019:36), with which Ailred would have been familiar from his childhood at Hexham (Northumberland).[4] For example, Bede tells how St Cuthbert bathed in the North Sea *(Life of Cuthbert*, Chapter 10). Walter Daniel records that when Ailred visited Dundrennan, a daughter house of Rievaulx then under construction in Galloway (Scotland), the buildings were unfinished, so for six nights Ailred slept under a roof with many gaps, but the water diverted from its course so as not to fall on the saintly abbot (*Letter to Maurice*- Powicke 1994: 153).

Wood (2008) suggested that monastic locations may have required 'unmattering' so that they could be theologically reconfigured. In Cistercian practice, the foregoing suggests that aspects of the natural environment may therefore have selectively 'hyper-mattered', in other words to have assumed metaphysical importance out of proportion to their physical properties, in ways which are difficult for a modern culture to grasp.

[4] Immersion tanks possibly used in a healing ritual are also suggested beyond Northumbria, at St John the Baptist hospital at Oxford (Gilchrist 1995:38).

9.4.4 Persistence of Cistercian 'transformation' trope -the afterlife of a myth

The survival into the modern day of the myth of Cistercian land transformation may be due to several factors. Cistercians actively managed representations of their practice for theological reasons. Cistercian authors, such as St Bernard (2.3) and Walter Daniel (4.2) contributed to the development and endurance of tropes around Cistercians and landscape. Non-Cistercian medieval commentators also contributed to the Cistercian reputation, wittingly or otherwise. Walter Map, one of the 12th-century writers who depicted landscape as the location for the Cistercians' supposedly uniquely effective practical transformation, is now considered to have written in literary modes such as echoic irony (Sinex 2002:275-290).

After the decline in 'peak monasticism,' i.e., broadly from the 16th century, the *topoi* of the origins of monasticism in desert eremeticism (Chapter 2 and Goehring 2003) caught the wider post-medieval imaginings of landscape. These post-medieval ideas were stimulated also by the Picturesque movements in art, such as J.M.W. Turner's depictions of Rievaulx's gently decaying monastic buildings. A focus on the pastoral and elegiac also occurred in the Romantic literary movement in English writing from the 18th century (Johnson 2006). The poetry of William Wordsworth both epitomised and criticised such tendencies. In an early work, informally known as *Tintern Abbey,*[5] Wordsworth meditates how the memory of observing the setting of this Cistercian abbey by the River Wye offered him 'tranquil restoration.' Fay (2018:139) observed:

> 'Wordsworth's poetry... posits [a connection] between religion and imaginative poetry. For Wordsworth, this affinity is rooted in the mutual capacity of religion and the imagination to console the afflicted and raise the aspirations of the reverent and humble.'

[5] The formal title of this work is 'Lines Composed a Few Miles above Tintern Abbey, on Revisiting the Banks of the Wye during a Tour. July 13, 1798' and forms part of the collection published as *Lyrical Ballads*.

That such affinity could also be seen at the time as 'self-indulgent reclusion and generic conventionality' is reflected in Wordsworth's own critiques in *The Excursion*, part of *The Recluse* (Fay 2018:167).

The conception of monasteries as situated in marginal locations has been perpetuated also by post-medieval viewpoints of economic value. Marginality can be a relative term, closely related to cultural context. Uplands and wetlands have been viewed by earlier researchers as marginal (e.g., Postan 1972). This value judgement of 'marginality' is only slowly being challenged by researchers (Rippon 2004a). Rippon reflects (2009a:239) that 'traditional views of marginality have, however, changed radically, and we should now see various environments as offering different potential for human communities that will not always be based on cereal production (e.g., Bailey 1989; Fox 1996b; Rippon 2000, 3–6)'.

The application of the concept of 'marginal' to both Rye Vale and the Vale of Pickering is at odds with how interlinked medieval subsistence strategies could be. Access to different ecological zones allowed each zone to play a specific and important part. The growth of trade and exchange rewarded the creation of tradeable surplus goods such as grain. This shift in productive focus may have eroded knowledge of the intimate linkages between different elements of the medieval landscape, allowing a value judgement to emerge which privileged more 'developed' types of food production.

The survival of the monastic / environment linkage may also have been sustained by a recognition of stewardship challenges which are common to both the pre-modern and modern worlds. A Cistercian inspiration for modern environmental ethics has been proposed (Schaefer 2002: 187-203). Modern examples of this congruence may have helped sustain the association between monasticism and certain perspectives on landscape. For example, Bratton's research is interwoven by personal meditations on monasticism and wilderness (e.g., Bratton 1993). Some suggestions to help address modern stewardship challenges in the Derwent catchment will be made in Chapter 11.

9.5 Summary: Understanding Cistercian 'transformation'

A theological overlay clouds the modern view of Rievaulx Abbey's 400-year relationship with the natural world. Even through such obscured lenses, this study has clarified the evidence challenging the established narrative of one-off, large-scale transformations by Rievaulx Abbey. In both case studies, there is evidence for Rievaulx having continued a trajectory established by pre-Cistercian occupants of her land. Aspects of the natural world possibly 'hyper-mattered' to Cistercian monasteries somewhat independent of their physical state. Cistercian traditions reflected in positive textual accounts of labour in the natural world may have facilitated the translation of donations and practical activities in the material world into the spiritual economy. Messages about the physical state of landscape, such as Walter Daniel's writing about the foundation of Rievaulx in an untouched, paradisiac state, may therefore represent an elision of theological metaphor with selective portrayal of the physical world.

These case studies have illustrated the diverse, interconnected, and interdependent nature of the medieval physical and cultural worlds. Rievaulx's social relationships were illustrated as diverse, including with significant sponsors such as Espec and Henry II, and with other monasteries such as neighbouring Byland Abbey. Rievaulx's social, spiritual, and practical activities were interconnected and interdependent, and in turn interconnected and interdependent with the natural world. The complex system model which has illuminated these factors is considered in the next chapter, along with other methodological considerations (Chapter 10). Some factors relevant to wider stewardship which arose during enquiry are then discussed (Chapter 11), before overall conclusions are drawn in Chapter 12.

Chapter 10 Discussion of objective 2

10.1 Comments on model used: change in a complex landscape

The second objective of this study was to develop and evaluate a methodology to incorporate historic insights with modern methods for studying landscapes. This chapter therefore considers the methodology of the study and identifies lessons learned. The project used an integrated suite of research approaches designed around a complex system as conceptual model (sections 2.2.2 and 3.2). The complex system conceptual model was in turn used to frame investigation of the role of a specific agent, a Cistercian monastery, in causing change in the historic environment.

The results (Chapters 4-8) found that the agents were diverse, in that they ranged from institutions (Cistercian monasteries), the individuals who comprised the institutions' population (including religious professionals and lay servants), lay patrons (a Norman 'new man' and a king), non-human agents such as the cultural environment (the world views, institutions and norms within which human actors operated), and physical environments such as water and land. The cultural context was also diverse, in that it encompassed spiritual practices and ones which to 21st-century eyes appear wholly practical, such as agrarian activities.

Relationships between these diverse agents were found to be interconnected and interdependent. For example, Rievaulx's reliance on donors for the material means to establish the monastery in Rye Vale (Chapters 4-6) or expand their operations (such as at Marishes, Chapters 7-8) was interdependent with the donors' needs, in terms of status, memorialisation and defensive plantation (Chapter 9). The cultural context connected the human actors, who were in turn connected to the physical world by practical actions. Spiritual practices depended on a specific worldview: Cistercian theology. Cistercian monasticism in turn depended on connection to the wider world both for the initial gift of practical resources and for the ongoing societal consent to the monastery's activities.

Factors such as religious belief and physical practice were thus interlinked, in worldviews in which a Cistercian monastery could be considered to 'transform' landscape into the spiritual economy even in cases where evidence for physical transformation is limited (Chapter 9.4).

Although the results were highly provisional, they did illustrate in broad terms that Rievaulx's relationships with her cultural and physical landscapes met three of the four elements for one definition as a complex system. These definitional elements are diversity, interconnection, and interdependence (Miller and Page 2007:9-31). Given the constraints of this study, the fourth element in that definition, namely change, could be approached only in very broad terms. Rather than a 'transformational' intervention by a single actor (the monastery), which is the model implicit in the old accounts of Cistercian settlement, landscape change would have been a long-term trajectory arising from the various preceding activities from at least the Anglo-Scandinavian period onwards.

The current study was a largely desk-based one, and it was thus not possible to determine the date and phase of identified features. There is consequently a need for its conclusions to be tested by fieldwork, as recommended generally by Rippon (2004b:83). Recommendations for this fieldwork are included in Chapter 11.

It is not, at present, possible to draw general conclusions from this study about expectations of non-linear change in complex cultural-environmental systems. Although this study attempted theoretical engagement and considered, initially, the potential of using a model in this research (2.2.2), it proceeded to use the complex system model instrumentally rather than engaging with the full theoretical ramifications of this. Tools can be mistaken for theories with unfortunate consequences (Miller and Page 2007:4).

The results of this study are perhaps better described as situated interpretation rather than explanation. The implications of using a complex system model in interpretative landscape case studies requires further attention. One issue, the problem of equifinality, was highlighted earlier (3.3). Bates and Bates argue persuasively for a forward model

against which to test emerging assumptions from investigation (Bates and Bates 2016; Bates 2018:19). Chapter 11 of the present study further argues for fully diachronic modelling, incorporating both past and future.

10.2 Palaeo-hydrology as investigative method

Archaeological attention to palaeohydrology is not novel, but this study has suggested that it merits more attention as an investigative method. Given that the lidar data now freely available is collected by the Environment Agency primarily for purposes of flood risk management, there has been surprisingly limited routine use by archaeologists of lidar data to understand palaeohydrology as a crucial element of the historic environment. A review found that the interdisciplinary nature of 'socio-hydrological modelling' differs in nature and methodology from the problem-solving focus of the discipline of water management, the latter being the field substantially concerned with flood risk challenges in the modern day. The reviewers suggest that a focus on what they term 'socio-hydrology' should be (emphasis added) 'on **understanding the human–water system in a holistic sense …**and …models in socio-hydrology should be developed with a view to gaining new insight into these dynamics.' Blair and Buytaert (2016:443)

In broad terms, with certain reservations, this study validated the approach of using hydrology to define the units of investigation into human modification of the water/land matrix. The hydrological definition highlighted the limitations of document-driven hypotheses, typified by the logical and hydrological errors in previous studies such as the Atkinson-Rye theory of canals and major 'transformation' in Rye Vale. The hydrological framing also suggested how palaeo-hydrological research might better contribute to both knowledge of past human / environment relations and to future landscape stewardship, which will be discussed in the next chapter.

This study, however, did not model the whole water environment. Ground water supply, the perennial base flow, was not considered for this analysis, because the researcher possessed neither the appropriate skills, nor the additional data required, nor the

resource to acquire these. Surface water sources and flow routes were perhaps more important to this study than groundwater, an inversion of the situation in semi-arid Wadi Faynan (Jordan), where groundwater was considered a vital variable (Wade et al (2012). There are also potential sources of hydrological error from not investigating the entire catchment at appropriate resolution. Again, resource constraints (both of data and analysis) limited the potential for inter-comparisons so a recommendation to address this limitation is included in Chapter 11.

The choice of study areas within the catchment was a blend of hydrological framing, pragmatism, such as the availability of high-resolution lidar data, and experimentation. The Rye Vale case study used units in successive order of flow, while the Vale of Pickering investigated at increasingly granular scale within the floodplain. These choices, and the characteristics and data availability of the two case studies, affected analysis within and inter-comparisons between the two case studies. In Rye Vale, relatively steep topography meant the flow of water from catchment origins to the edge of the floodplain was well differentiated within the study areas. Following the flow of water through the Rye Vale study areas therefore proved constructive, for example in identifying hydrological absurdities in previous studies, such as uphill flow at Area I implicit in the Atkinson-Rye theory.

Data limitations particularly affected the Vale of Pickering study. There are known limitations to the usefulness of lidar where vertical accretion of the ground surface has occurred (Howard et al 2015:46). This was the case in the Vale of Pickering floodplain, where relatively low resolution of some of the lidar data and the flat terrain, caused by glaciolacustrine deposits, aeolian sand deposits, intensive post-medieval agriculture and drainage, meant the topography was highly uniform with relatively little differentiation visible at the surface. Few previously unknown archaeological features were therefore identified apart from possible cultivation ridges.

Different analyses of the lidar data were useful for different purposes. The nature of the topography meant that lidar **elevation** analyses traditionally used by landscape

archaeologists such as slope and hillshade provided little useful information for the Vale of Pickering. Instead, clip and stretch exploration within the Digital Elevation Model (DEM) allowed the identification of microtopographic detail, such as the units of marginally higher ground within Marishes. Although such microtopographic detail was visible to the researcher when working in the DEM, it proved difficult to create a visualisation suitable for print reproduction. Specific features had to be transcribed thus creating potentially spurious definitions of very subtle differences in topography. Use of the hydrological tools within ArcGIS, including stream analysis, provided a way to visualise the microtopography in a way that was more amenable to print reproduction than the DEM stretches, although the lack of surface differentiation meant that the results were not very informative (Figure 8:3). In the Rye Vale study, topographic visualisations using the elevation data, such as a Triangulated Irregular Network (TIN), provided a useful visual representations of elevation differences at the monastic core. This visualised the physical implausibility of an implication of the Atkinson-Rye suggestion theory for uphill flow at Area I.

Analysis of the lidar **intensity** data identified locations of possible subsurface waterlogging that was not discernible in elevation data, such as within the north precinct (Chapter 6). Elsewhere, in the claustral complex, the intensity data however showed differential in the subsurface that was possibly not associated with waterlogging, at the north entrance to the monastic church. Lidar intensity data as an indicator of soil moisture is imprecise. An evaluation in fluvial environments found that lidar intensity data as collected by the Environment Agency using Optech airborne systems, as used in this study, have values which are not constant, are not recorded on an absolute scale, and can vary within flights (Challis et al 2011). The interpretation of subsurface differential from this data was therefore impressionistic rather than scalar.

There were limitations to other spatial data. For example, soil and geological mapping is subject to significant interpolation. As of 1997, only 20% of England and Wales soils had been mapped (Hodgson and Avery 1997). The NSRI (2018) soil data was much less detailed than the older Soil Survey data, with the latter illustrating how the highly local variations in soil type can provide important archaeological clues, such as potential suitability for

arable production (Chapters 4 and 8).

10.3 Comments on historic data and wider analysis

10.3.1 Analytical lenses and historic data

The choice of analytical lenses, and the data used, affected the results of the study. The study did not consider social structure, although Campopiano (2013a:314) has persuasively argued that this affects factors such 'level of surplus extraction, kind of crops grown, and access to other resources.' Of the historic documents analysed using the overlapping analytical lenses, quitclaims proved useful in recording disputes reflective of the land's possible value. Assembling previous area studies (such as those of Wightman 1964, Loughbrough 1960, and Skinner 2014) was helpful in providing both an overview and detail on issues which it would have been impractical to collect afresh on a primary basis. For example, Wightman's (1964) unpublished doctoral data helped give the big picture of the high medieval monastic settlement in the Vale of Pickering phenomenon which would have been under-represented from the present study alone.

Domesday Book, personal names, and place names were useful in giving a broad picture of certain aspects of the study areas. Personal names in Domesday Book entries checked against the Prosopography of Anglo-Saxon England (PASE) database gave insight into the approximate distribution of the Anglo-Scandinavian cultural milieu. Conclusions drawn from place-name analysis must be regarded as tentative, as place-name evidence is subject to multiple issues which affect reliability. Place names are cultural artefacts and thus subject to alteration by the multiple actors through whose hands they pass (Jones and Semple 2012: 1-15). It was the early practice of the English Place Name Society to publish unknown names as personal names, to enable other scholars to offer their interpretation (Gelling 1984). Smith's 1928 interpretations of placenames as derived from personal names, such as Allerston and Eduiemersch, may therefore be insecure. A patchy documentary record leaves some key questions unanswered, such as why do places which may first appear in 16th-century documents, such as Deerholme and Dereham, have the Anglo-Saxon place-name elements of *-ham* and *-holme*?

Tithe commutation data recorded certain fields within Deerholme as tithe-exempt in the 19th century because of their status as a former monastic Grange. This data appeared conclusive in identifying the extent of noval land in the Pickering Vale case study. This apparent clarity may be spurious, however. Nineteenth-century tithe data does not have a direct relationship with noval land enclosed by religious houses in the 12th century. In the interim, tithes for some areas may have been extinguished for a variety of reasons including post-medieval enclosure. Alternatively, tithe liability may have been re-introduced by agreement, as was seen in settlement of the dispute between Rievaulx and the Dean and Chapter of York over Loftmarish and Kekmarish.

Tithe mapping is known to have been subject to errors (Kain and Oliver 2011). The complicated pattern of tithe liability in the central Vale of Pickering may have been a cause of errors in Marishes data, such as a field (centroid SE 83935 78421) which appears in both the Pickering Township and Thornton le Dale coverage. There are gaps in the historic documentation and maps. No tithe map survives for some adjoining areas, such as Wilton (TNA Reference: IR 90/42/411). Relatively few tithe maps survive for the land along the Rye between source and Helmsley, with only some specific areas of Helmsley parish, including Helmsley town and Rievaulx township surviving, not the areas in between (Hunt and Stone 2003). The tithe records for Rievaulx Township were consulted but nothing pertinent to the core of this research was found. There are gaps also in the survival of tithe maps from the East Riding, south of the Derwent.

This study did not have the scope to engage with enclosure data, thus omitting a potential resource for field names as an indicator of past land quality. Loughbrough's unpublished dissertation (1960) on the Vale of Pickering enclosure records could be a basis for a modern study. A previous study of enclosure in the North Yorkshire Moors found that 'a large number of separate Acts was involved, spread over a period of more than a hundred years, and both permissive and partial enclosures, as well as wholly compulsory ones, occur …In the common moors, so defined, considerable physical variations occur' (Chapman 1976). Chapman's study, however, unaccountably omitted a surviving agreement, namely the enclosure award of 950 acres in Kirkdale and Helmsley in 1806

(Slater 1907:313). Some data may be lost forever, as in the 19th century some of the Duncombe Park archive was destroyed as fuel for Helmsley gas station (NYCRO ZEW n.d. Smith 2014:15).

10.3.2 Doing interdisciplinary research as a solo researcher

Interdisciplinary research was important for this study, as illustrated by the range of data types outlined in Chapter 3. It was, however, challenging to conduct such interdisciplinary research as a lone researcher, even with three specialist supervisors and access to the resources of a research-intensive university. The researcher came to many disciplines new for the first time during this research, so her depth of understanding was undoubtedly limited. These factors impacted the depth of the analyses.

The researcher possessed only basic level of Latin comprehension, available charter evidence was voluminous, and the approach taken was necessarily selective. These factors may have led to the use of charters and other documents without full regard for their potential nuances. This is potentially problematic as charters are not neutral containers to be quarried for facts (Jamroziak 2005). On the other hand, the fact that analysis was conducted by one individual, meant that all data went through the same brain, enabling anomalies in one dataset to be interrogated against another. That process led to the identification of an error made by a previous researcher, namely the erroneous inclusion of *Green Howe* in the Pickering waste quitclaims, possibly confused with Green Hill in Allerston (Table 7:19; Jamroziak 2005:118-119). This inaccuracy may not have come to light had the present study been conducted by separate individuals.

This project was not a linear one and differed in that respect from the outcome-focussed, inductive-predictive approach used in the natural sciences. Interpretation by the researcher played an important role in the conclusions of research. The experience of conducting this research, including integration and interpretation of historic data (such as documents) and empirical data (such as lidar), highlighted the cognitive challenges of multidisciplinary research. Complex cognitive phenomena such as multidisciplinary

scientific discovery are rooted in the 'highly inventive cognitive process' of abduction, which attempts to find a plausible hypothesis to fit a given phenomenon (Andreewsky and Bourcier:2000).[6] Andreewsky and Bourcier (2000:837-839) also observed that multidisciplinary scientific discovery can be important in articulating hypotheses which may be tested through physical investigation. That is what happened in this project, and locations for empirical investigation of the findings of this study are suggested in the next chapter.

The research design facilitated a recursive approach which provided a supportive framework within which the subject could be explored in new ways as the expertise of the researcher deepened. The iterative process prompted cycling back when a finding from one source prompted a fresh take on another line of evidence. This iterative approach appears comparable to exploring other 'unmapped' topics, such as the offshore potential for prehistoric evidence (e.g., Sturt et al 2016). The multidisciplinary mapping, deepening and iterative exploration required time for thinking to develop and shift and permit serendipity and experimentation. The process enabled the identification of fresh insights into the relationships between humans and the historic environment (Chapter 9). The abductive process also enabled the researcher to see some of the flaws in her methodology, data, and assumptions (this chapter).

[6] Abduction is one of three modes of reasoning. Modes of thought were a concept first proposed by Aristotle: deduction (assumes a concrete external reality, moves from theory to facts), induction (also assumes an objective external reality, moves from facts to theory), and retroduction / abduction, which attempts to find a plausible hypothesis to fit a given unexpected phenomenon. The third category is highly creative but cannot, as [including] reaction to an unexpected result or datum, be anticipated from the outset of research (Andreewsky and Bourcier 2000: 837-839).

10.4 Summary: 'All models are wrong …some are useful' [7]

The study supported the conclusions reached elsewhere for the importance of an articulated general model as the basis for multidisciplinary research. The study also identified some issues relevant to use of a hydrological model as a preliminary stage before other investigative strategies. Specific developments could make the methodology of this project more robust in future. Some of the factors outlined above may be overcome with more, better, or different data, particularly physical samples. Suggestions for such sampling are given in the next chapter. The methodology would also benefit from deployment in a research team, to allow specialist insight into issues that could only be introduced in very broad terms in this study.

Overall, the study produced interesting results, thus validating the attempt at a holistic, interdisciplinary investigation into the landscape impact of a medieval monastery. The challenges of this interdisciplinary research are also potential seeds for future research development. Adding more specialisms and data could potentially assist in understanding the human role in change in the environment, some suggestions for which are set out in the next chapter.

[7] Box 1976: 791-799

Chapter 11 Discussion of objective 3

11.1 Stewardship of the water / land matrix in the Derwent catchment

The third objective of this project was to address the research questions mindful of their potential relevance to modern landscape stewards. Broadly, the results of this study have illustrated the potential for a catchment-based approach to historic landscape research. Human occupation and hydrology are interlinked in the Derwent catchment. The evidence for this ranges across Rippon's spectrum of exploitation – adaptation – reclamation. Exploitation evidence is known from Mesolithic occupation of both the watershed (Waughman 2017) and the floodplain, such as at Star Carr (Milner et al 2018). Given the limited work so far, evidence of adaptation of the water/land matrix within the Derwent catchment is presently diffuse. It was tentatively suggested above that adaptation of specific river reaches may have been conducted by medieval actors. Evidence has been assembled above that Rievaulx may have adapted the Rye near the monastic precinct. Near Bow Bridge, the Rye may have been realigned for flow regulation, and directed within the precinct for industrial processes (Chapter 6). The reclamation stage would have entailed intensive, sustained drainage activities such as suggested for areas within Marishes in the Vale of Pickering (Chapter 8).

The case for a catchment approach to hydrological management has been made elsewhere (EA 2018). The argument for a catchment perspective on the relationship between palaeo-hydrology and human activities flows from that case (Chapter 3). Simply put, human activities and the water cycle are interlinked, and upstream factors may have downstream impacts. It is evident from the evidence collected in this research that upstream activities, such as medieval and modern changes in agrarian and industrial activities in the upper catchment would have had impacts downstream in the catchment. For example, the need for sufficient head of water to power mills and metalworking within the precinct, during and after monastic occupation (Chapters 5 and 6), would have created a change in flow regime affecting those downstream of the abbey. Intensive

drainage for agriculture, a notable feature in the Vale of Pickering in the modern day, would have had multiple impacts. Land drainage affects 'the water balance of a landscape, [and] influences the susceptibility to erosion, nutrient cycling, transport of plant protection products (PPPs) and greenhouse gas emissions' (Gramlich et al 2018:84).

This chapter therefore notes some factors pertinent to the stewardship of the wider River Derwent catchment which were identified during the research project. Many of these factors relate to change and risk management, and potential research avenues which might help address these. These are grouped into broad sections, namely the Derwent catchment overall (11.1- 11.6), with specific questions for the Rye/Derwent confluence in the Vale of Pickering (11.7) and the upper and mid-catchment of Rye Vale (11.8 and 11.9).

11.2 Threats

The threat paradigm is one often adopted when considering the archaeological resource. From this perspective, the archaeological resource in the Derwent catchment faces multiple threats. Alterations to drainage in the Derwent catchment are already affecting archaeology. An archaeological assessment of the hydrology of Star Carr and the Hertford catchment, an area of the Vale of Pickering that lies at a similar level ASL to that of Marishes, shows that the water-table has been lowered by under-drainage by >0.5 m into the archaeologically sensitive zone (Brown et al 2011: 36-55). Similar issues affect the Ouse and Humber basins, into which the Derwent drains. Over the last 50 years, the water table at the Humber wetlands has been lowered by 2-3m, thus bringing within an oxidating environment land previously stabilised by anaerobic waterlogging (van de Noort 2004: 174).

Drainage is a factor in broader issues of landscape stewardship. It is increasingly recognised that human occupation of the flood environment brings substantial risks. Areas within the Derwent catchment are rated as high flood risk (Environment Agency 2010). The impact of flood vulnerabilities can be severe. A 'flood footprint' assessment, combining both direct and indirect socio-economic effects, calculated that the 2007 floods

caused a total economic loss of £2.7 billion to the economy of Yorkshire and Humberside (Mendoza-Tinoco *et al.* (2017). At a broad level it is recognised that land use strategies have potential to inform modern flood mitigation options. Emerging UK Government policy guidance is to avoid inappropriate development within flood plains (Environment Agency 2020:13). That is something a medieval peasant could have told us.

UK Government and agency decisions on mitigation of flood risk is based on probabilistic methods (Environment Agency 2013). Such decisions depend on predictive models aimed at 'understanding where flooding is likely to occur by flood risk mapping including detailed modelling of the rivers and recording major flooding in the catchment' (Environment Agency 2010:8). Such agency guidance requires that heritage assets be included within the system asset management plans for flood risk modelling. Heritage assets can however only be included, and modelled for, if they are recorded. In the Derwent catchment, some heritage assets are invisible in multiple senses: through a theoretical disconnect, through physical invisibility, and through research invisibility.

11.3 Theoretical disconnect

A dominating focus in environmental analyses on 'apparent' physical processes has underestimated past human contribution to significant environmental change (Lehouck et al 2007). Certain heritage assets may thus be vulnerable because of theoretical and descriptive disconnects between heritage management practice and the approach used in agencies responsible for managing environmental resources. In the UK, agencies such as Natural England and the Environment Agency use concepts such as 'ecosystems services' and 'natural capital.' These approaches offer a methodology for quantification of 'value' of aspects of the physical environment. The relative weight of features in the environment determined through such value quantification is in turn used to make policy, investment, regulatory and development management decisions.

Writing for Historic England, a study has raised multiple concerns relating to the role played by such 'service' approaches. The authors note that ecosystems services adopt

only a very limited incorporation of past human culture. Ecosystems services define the historic landscape and its role in making up the 'natural' environment in very limited terms. The historic environment is instead considered within 'cultural services' primarily relating to intangible aspects such as sense of place. The material role played by the historic environment in shaping the physical world not considered (Fluck and Holyoak 2017:1-7).

Categorisation of the historic environment as mere scenery, such as in the ecosystem services approach just outlined, is however problematic. Space and place are not neutral backcloths of human activity. Space is both culturally and physically constructed (Giddens 1984; 1985). As has been shown by the case studies in this work, situated factors and worldview can play a major role in human behaviour and consequently on practical impacts on the natural world. Failure to account for human motivations and situated factors thus potentially underestimates the ways in which human activities and the physical environment affect each other. In modelling terminology, this relationship is named *co-variance*, a process evocatively termed as 'dancing landscape' by Page (2010:93). In the field of ecology, understanding how organisms respond and co-vary under changing conditions can be important to understanding persistence in the face of disturbance, namely sustainability (de Paoli et al 2017**:** 8035–8040). Aspects of the historic assets in the Derwent catchment are thus vulnerable, given the disconnect between certain aspects of the historic environment and the approaches used by agencies to make investment and regulatory decisions pertinent to landscape stewardship.

11.4 Physical invisibility

The vulnerability of the historic environment is increased by the **physical invisibility** of certain heritage assets. This current study has identified a range of historic land use practices in the catchment. The heritage of land husbandry is however essentially invisible, traditional knowledge not valued in the modern era. The evidence for land husbandry strategies may also lack physical markers such as buildings. A range of evidence for human occupation may be concealed by the complex depositional sequences in the Vale of Pickering.

Evidence for human modifications of palaeo-drainage, and the consequences of this, may thus be invisible to investigative models without directed attention. This physical invisibility affects how areas of land are identified, and hence how they are protected in legal and practical terms. The current Historic Landscape Characterisation of the west-central Vale suggests limited evidence for medieval occupation. 'As can be seen, there is no evidence for settlement over two hectares within the central area of the Vale' (Dalton et al 2013:190). The current study, together with Wightman's collation of evidence for dense monastic occupation in the Vale of Pickering (Table 7:15) has demonstrated that the current HLC requires reassessment. The general invisibility of historic assets in the Vale of Pickering, other than buildings and some cultivation ridges, has led to an 'apparent 'blank' in statutory protection, general knowledge and aesthetic appreciation' of the Vale (Cooke 2012:10).

11.5 Research visibility

A third way in which heritage assets in the Derwent catchment are invisible is in terms of **research insight.** River science has evolved significantly over the last 60 years (Gregory 2019). The study of anthropogenic alluvium has contributed significantly to understanding the effect of humans on depositional regimes in general terms (Macklin et al 2014). There is, however, still much that is unknown. 'The range of anthropogenic impacts is perhaps even more various than the sedimentation systems with which they are involved.' (Macklin et al 2014: 27). There are limitations to anthropogenic alluvium's capacity to articulate linkages between specific aspects of human culture and hydrological systems. There has also been a focus to date on coastal, rather than inland, environments.

Considering the prevalence of major flood events in mainland Britain the continuance of this research gap is puzzling. The Natural Hazards Partnership (NHP) is an alliance of 17 UK public bodies (Hemingway and Gunawan 2018). The NHP's Hazard Impact Modelling (HIM) understands risk as being associated with factors particular to a specific location and set of circumstances. Land-use in that location, and within the wider geographical location, such as areas within the Derwent catchment investigated in this study, would fall under that category. Hazard impact is understood as related to the nature of the hazard itself, which in the case of the Derwent catchment is flooding, multiplied by exposure and vulnerability. The mitigation of such risks is made additionally challenging by uncertainty.

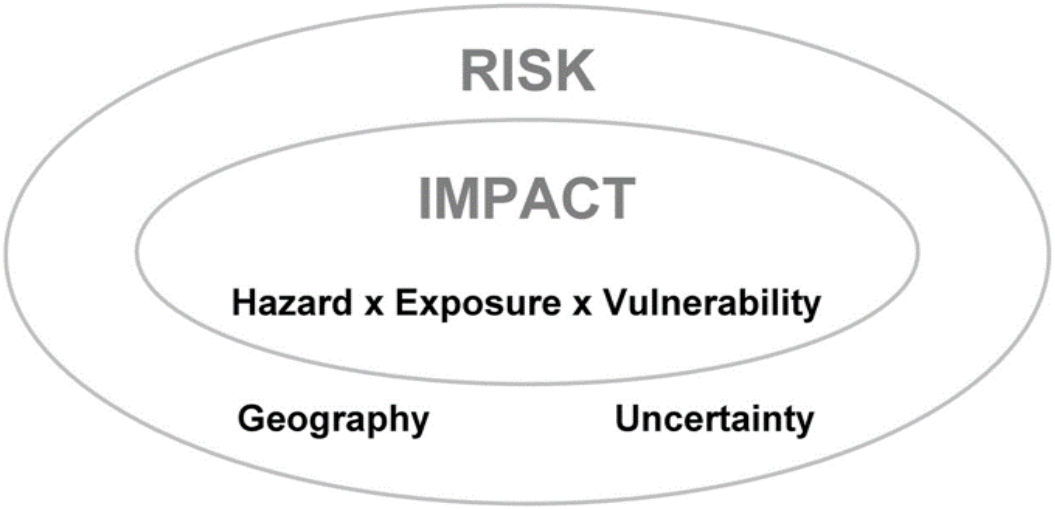


Figure 11:1 Natural Hazards Partnership understanding of risk impact – from Hemingway & Gunawan 2018

Flood hazard is now known to result partly from complex interactions between environmental factors and human activities. Coastal flooding and erosion are affected by factors such as sea level rise (from isostatic adjustments and increased ice/water transference) and regular high energy impacts (i.e. waves and surges) (IPCC 2019: 326-445). Freshwater inland contexts typically do not experience these factors, so flooding in such contexts tends to be exacerbated by weather events and land use factors implicated in erosion and sediment transfer. In the Ouse basin, into which the Derwent drains, flood events have increased since 1940. While climate change is the primary factor in this, drainage, and land-use practices, such as intensification of arable production and livestock grazing, are also significant factors (Howard and Macklin 2004:14-17).

Land use causes of inland freshwater flooding are therefore potentially more directly modifiable than those factors which cause coastal flooding. Historic landscape investigation thus has a potential role in understanding the long-term effects of human interventions in the water/land matrix. The long-term consequences of hard engineering interventions in the landscape, such as dredging, channelisation and flood 'defences,' are

now being appreciated. Case histories in Northern Europe show historically how reclamation created a lock-in between factors such as peat shrinkage, erosion of topsoil by wind and surface water, leading to lowering of the land surface and further erosion cycles. These factors are implicated in flooding, which is now a pressing modern concern, such as in Flanders (e.g. Tys 2013:199-240), Netherlands (eg Mol 2013), Dutch-Germany Wadden Sea (Lascaris and De Krakker 2013).

In the area of Atlantic saltmarsh and freshwater inland marsh of the Marais Poitevin (France), Sarrazin (1996:111-119) recounts how the Cistercian monasteries of Moreilles, Bois-Grolland, La Grace-Dieu, Charron, St Leonard-des-Chaumes (emphasis added):

> 'played a decisive role in the conquest of the Marais Poitevin. After a fairly anarchical, unmanaged and limited drainage period, the white monks undertook, starting in 1180-1190, a coherent drainage program, implemented within association agreements signed with the lay lords of Marans, Chaille and Lucon. They perfected the techniques of drained closures. However, by locking themselves up in their drained domains, and by systematically building polders on the median arc-shaped zone around the Baie de l' Aiguillon, **they eventually upset the hydraulic balance of the Marais and forced other abbeys, in turn, to embark upon drainage programs.'**

Better understanding of historic land-use strategies, and the effects of these, would add greater time-depth in which the contingencies and consequences of specific interventions can be seen to play out. A potential contribution of archaeology may lie in the 'deep-time study of complexity trajectories, assessing the long-term effects of mechanisms of complexity development' and system organization trade-offs (Daems 2019 :4).

In the Derwent catchment, the hydrology has been significantly altered by human activities. As this study has begun to explore, drainage (for example in the Vale of Pickering) likely was underway many centuries before modern interventions there. Drainage interventions in the Vale have included channelisation, a process defined as a

range of engineering interventions 'for the purposes of flood control, drainage improvement, maintenance of navigation, reduction of bank erosion, or (channel) relocation' (Brookes 1988). Such engineering interventions have affected a substantial proportion of the UK's water network, nearly 9,000km (Brookes et al. 1983). Channelisation is now known to impact on drainage in multiple ways, and to contribute to flooding problems by increasing flow velocity and reducing time to peak flow (CIWEM 2014). Sections of the Derwent and Hertford were channelised following the Muston and Yedingham Drainage Act 1800 (8.6.7). This is likely to have had significant adverse effects on flooding problems in the catchment.

11.6 Future research potential

Reframing the 'threat' model, therefore, suggests that the Derwent catchment offers a range of opportunities for research which could advance multiple priorities. Research has already demonstrated the potential for medieval practices to be applied to stewardship challenges in the Vale of Pickering. A bund (a containment bank) modelled on evidence from land associated with Byland Abbey was successfully used as one of the range of interventions in the 'slowing the flow at Pickering' project. That project was a Forestry Commission-led effort to tackle 21st century flooding (Nisbet et al 2011; 2015). An integrated strategy for the Yorkshire Derwent catchment might aim to incorporate modern stewardship challenges such as flood mitigation within an overall model in which the archaeological and geoarchaeological resource may be better understood.

Howard and colleagues noted, in their work on the paleo River Bytham system (Lincs.), that a coherent strategy for geo-prospection and palaeoenvironment reconstruction is an important early step for investigation of relict river systems (Howard et al 2018: 27-36). The River Derwent catchment lies within the intensively investigated Yorkshire Ouse basin (Howard and Macklin 2004). Within the Derwent catchment, the Vale of Pickering is a drainage basin with well-constrained pour points, namely where the river system disgorges from the drainage basin. Therefore, some parts of the hydrological system are relatively well understood and can be used to understand other elements of the system.

The Vale has physical records of data pertinent to the development of hydrology through a succession of climatic regimes, from glacial, pro- and post-glacial lakes (Lincoln et al 2017; Evans et al 2017) onwards. It also holds an archaeological data from the Palaeolithic through to the present day (Dominic Powlesland quoted in Cooke 2012).

Predictive and deposit mapping to create conjectural maps and cross-sections is especially valuable within / below deep deposits where remote sensing struggles to penetrate (Historic England 2020; Carey et al 2018). This is the case in the Vale of Pickering, where post-glacial processes have resulted in deposits which have not yet been fully quantified but may be of considerable depth (Ford et al 2015). Recent guidance identified that most deposit mapping has been conducted on prehistoric areas with a corresponding need for historic sites and landscapes to be thus studied (Historic England 2020:8).

11.6.1 Baseline assessment

Identification of landform elements and their evolution underpins the quantification of the geoarchaeological resource in temperate European river valleys (Howard et al 2015:43). A baseline assessment is also preparation for mitigation strategies for the effect of climate change on heritage sites (UNESCO 2008; Howard et al 2016). Physical research into the North York Moors and Vale of Pickering has given significant attention to landforms associated with questions of glacial history (Powell 2010; Lincoln et al 2017; Evans et al 2017). The attention to glacial history has however entailed a focus on superficial geology, rather than on temperate river landforms such as river terraces, palaeochannels, channel margins (potential locations for early human occupation traces), ridge and swale topography, scour basins with potential to preserve organic remains and evidence for the mobility or stability of these assemblages, which need also to form part of a baseline geoarchaeological resource assessment (Howard et al 2016:388-390; Howard et al 2018: 27-36). A preliminary stage would therefore involve a literature review and assembling existing data such as borehole logs and any cross-sections (Howard et al 2018: 30). An initial stratigraphic interpretation could then be created, calculating surface

altitude of boreholes and thickness, model upper and lower bounding surfaces of key lithostratigraphic units (Howard et al 2018:27-37)

11.6.2 Refining the deposit model

The deposit model may then be used to target further investigations, including geophysics, such as ERT (Electrical Resistivity Tomography) to map 2D sections or 3D models of sediment architecture (Bates and Bates 2016). Drilling (by borehole or auger, as appropriate) would then calibrate the geophysics results and provide access to palaeoenvironmental samples (Howard et al 2018: 27-36). Where organic remains are suspected, samples may be collected separately from an adjacent hole using U100 aluminium tubes (Howard et al 2018: 27-37).

Multiple methods exist for Holocene environmental reconstruction. The Vale of Pickering contains deeply stratified sequences (Chapter 7). Multidisciplinary approaches are important to evaluate deeply stratified sequences (Bates 2018). Flood episodes can be reconstructed, such as carried out for the Severn catchment, using inorganic element ratios (Zr/Rb) (Jones et al 2012:89-105). Sediment dates may be determined using radiocarbon, geomagnetic techniques, or optically stimulated luminescence (Jones et al 2012). Results may however be affected by reworking of sediments (Carey et al 2018:3-7). Hydrological assessment of wetland archaeological sites can be carried out even without a history of on-site monitoring (Brown et al 2011:36-55). Bayesian (statistically calculated probability) of multiple 14C dates has increased the robustness of inferences over those available from a single assay (Macklin et al 2010). Biomolecular methods such as sedDNA offer the potential of unifying modern ecological monitoring with the reconstruction of past ecosystems and their trajectories (Brown et al 2018). Stable isotope analysis of sub-fossil vegetation, such as trees, may help to reconstruct environmental conditions (Spurk et al 2002; Mayr et al 2003). Ostracode (mollusc) valves and Amino Acid Racemisation (AAR) were used to reconstruct the environment at specific dates in Pego-Oliva marshland in southern coastal Spain (Torres et al 2014). A Landscape Reconstruction Algorithm (LRA),

which depends on regionally variable Pollen Productivity Estimates (PPEs), can be incorporated with historic data and traditional percentage pollen data (Brown et al 2018).

11.6.3 Scenario modelling of catchment evolution and future responses

Understanding the past development of the Derwent catchment could form the basis for modelling future scenarios. One aim could be to understand catchment response under different climatic regimes, but with better information about human / environment interactions and the properties of the local subsurface than is traditionally invoked in hydrological modelling.

Multiple tools for catchment hydrology modelling exist. One that has been used in a heritage management context is CAESAR-LisFlood, which has been used to predict future channel change and flood events (Coulthard et al 2013; Howard et al 2016). The link between specific management practices and changes to sediment regime and hydrological response requires articulation. This includes identification of the risk multipliers, including physiography, antecedent conditions and landscape, and flood mitigation measures (Croft 2013; Howard et al 2016). For example, a combined palaeoclimate and palaeohydrology model was used to simulate diachronic changes in flood frequency and groundwater changes in the semi-arid catchment of Wadi Faynan, Jordan. That study found that the water cycle, rather than solely rainfall, affected conditions for farming and success of settlement (Wade et al 2012).

A systematic approach to vegetation history, climate change and sediment supply is important to establish and correlate chronologies and understand the drivers of change in a catchment (Howard et al 2015:42-50). Reconstruction could include of Holocene sediment-transfer coupling between slope erosion, and deposition at slope, minor valley, or floodplain locations (Lewin 2010:295). The part played by such sediments in floodplain topography and evolution, and changes in channel morphology, may be modelled. Understanding channel change, including differentiation between fine and large sediment transfer episodes, would help reconstruct the hydrological and erosional regimes which

are thought generally to be linked to archaeological preservation potential (Howard and Macklin 1999:527). Location within a catchment also affects archaeological preservation (Lewin 1981). Catchment location accordingly affects the suitability of specific investigative techniques.

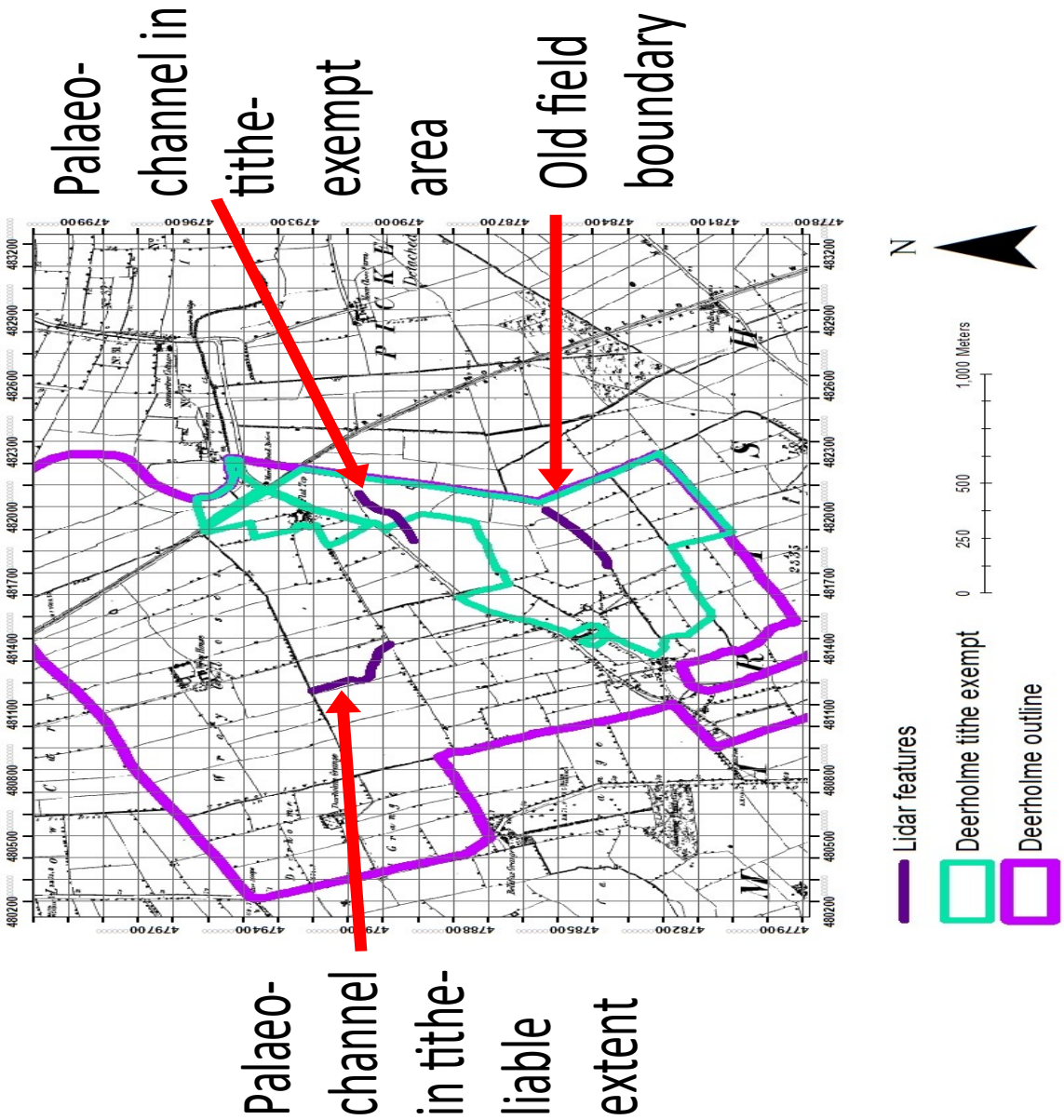
Cultural factors are important to drainage management in the modern day. There are plans to restore meanders, as part of the Environment Agency's 'Doing more for the Derwent' project. River restoration may however be more complex than simply managing meanders (Brown et al 2018). The issues caused by historic channelisation along the meander belt may also require changes in management practice. Evolving more sustainable ways to manage both flood risk and agriculture would require buy-in by land-users whose economic survival is tied to specific practices. Scenario modelling could be used in discussions between multiple stakeholders, including helping communities explore the consequences of land use practices. A digital 'catchment observatory' has been used elsewhere to facilitate collaboration between communities, researchers, and policy makers (Mackay et al 2015).

Historic evidence could help understand the evolution of the social context within which environmental management developed and hence better inform efforts to support changes in management practice. 'Social, economic and political matters are much more significant [than technology and engineering to drainage] …the history of fens and marshland shows that this has always been so.' (Taylor 1999:156). What were the cultural factors behind the massive expansion in medieval monasticism post-11th century (Table 7:15 and Wightman 1964)? That expansion followed intense early medieval monastic settlement (above, Chapters 7-8). Is there something going on here which is more complex than economic? Is this wholly attributable to population increase during the climate optimum? What role did the landscape features and resources play? How did this shape what was inherited by future occupants, and what are the stewardship decisions consequent on this? Associated historical research could include river names (Brown 2018); epigraphic sources (Brown 2019); and records of drainage authorities.

11.7 More targeted approach: Rye / Derwent confluence

As an initial step in this ambitious project, physical investigation could be targeted at the Rye / Derwent confluence, where multiple questions could be explored. Chapter 8 suggested that interpretations of the term 'waste' may have differed between the 11th-century DB references and 12th-century geld pardon. Marishes offers locations where the specific interpretations of this term may be tested against physical evidence. Wightman suggests (1975:63) that the marshy areas of the Vale of Pickering are one of only five areas in Yorkshire where waste in Domesday Book may really have meant either physical devastation or land which was not economically worth working. Other questions for this area include the location of 'missing' Domesday vills (7.6-7.7). Is it possible to locate the remains of Byland's medieval banks constructed at Rillington on the South of the Derwent, which were destroyed in the 14th century? (Bond 2004:82)?

Locations were identified within the extent of Deerholme where samples could be taken which may advance some of these questions. Sampling could target a palaeochannel within the tithe-exempt area, one within the tithe-liable extent, and a historic field boundary (Figure 11:2). At these locations, cores could be taken for sediment and organic material for dating purposes (by luminescence or radiocarbon techniques respectively), pollen, or biomolecular data such as sedimentary DNA (Brown et al 2018). Further environmental analyses could include testate amoebae, which permit 'semi-quantitative reconstruction of water-table fluctuations' (Chiverell and Menuge 2004:22). On pasture, more traditional archaeological traditional techniques may potentially be appropriate. Fieldwalking and shovel test-pitting has potential to collect dateable artefacts such as pottery which can provide chronological control for the constituent stages of the exploitation/adaptation/ transformation trajectory, as well as identify 'invisible' processes such as manuring related to arable exploitation (Jones 2004).



1:10 560 County Series 1st Edition York pub. 1856-1857 TIFF geospatial data, Scale 1:10560
Using: EDINA Historic Digimap Service, <https://digimap.edina.ac.uk>, Downloaded: 2020-06-09

Figure 11:2 Targets at Rye / Derwent confluence

11.8 Upper to mid-catchment Rye Vale

11.8.1 Questions which emerged from this research

Knowledge assembled by this study is tantalising, suggesting that there are important questions relating to the early and high medieval periods in the Rye Vale uplands which may now be approached archaeologically. This study has demonstrated that the traditional view of Rievaulx as a primary 'coloniser' of upper Rye Vale can no longer be sustained. The 'colonisation' viewpoint saw medieval cultivation in the uplands as 'marginal' (Chapter 4). This characterisation of marginality has survived possibly because aspects of medieval activities in the Rye Vale uplands are little understood.

It was noted above (Chapter 9) that the concept of 'marginal' locations is a relative value judgement, and one which does not represent the importance of interlinked ecological niches to pre-modern subsistence strategies. The uplands and interleaving valleys of Rye Vale offered multiple ecological niches that were being systematically exploited by the 11th-12th centuries. **What agrarian strategies** were used by medieval societies here and how successful was, for example, arable cultivation in specific ecological niches? Previous environmental analyses have been targeted on available peat deposits, so have correspondingly been dominated by the east and centre of the Moors (Albert and Innes 2015). In the western North York Moors, where peat deposits are sparser, other types of environmental sampling may be appropriate. For example, lipid biomarkers could help determine what animal husbandry was practiced (Simpson et al 1999).

How did cultural units emerge and operate here in the post-Roman periods? The 'lost' Domesday vills were one important element of the post-Roman territorial organisation, but vills and territories other than those recorded in DB clearly existed, such as Steinton, which may have been variably affected by the Norman carve-up of ownerships. What role did the upland landscape features play in territories here? Hill ridges (i.e. watersheds) and rivers may have been territorial boundaries in the North Riding (Skinner 2014), a phenomenon noted elsewhere (Phythian-Adams 2000:236-262). Where was the assembly site for the territory of Maneshou (Skinner 2014)? Green Howe (the highest point on the

Moors) merits investigation in this regard, as does the small prominence near Rievaulx now known as Ashberry Hill (Chapter 4.7.1). What impact did Christianisation have here? Some installations on the Moors, such as freestanding crosses (e.g. Lilla Howe)[8] appear related to territorial markers of deep antiquity. Maneshou may have been the 'only wholly-Scandinavian wapentake in the North Riding' (Skinner 2014). Why, and what did this mean?

How was Rye Vale connected culturally and practically? How did iron extraction and processing, such as at Steinton and *Smiddesdala* relate to Chop Gate, if the latter (undated) installation identified by Vernon and colleagues was functional then? Was Chop Gate a trading place, as its *Ch-* name may suggest, following the work of Britnell (Britnell 2009)? Conceivably some metal goods could have been fashioned in Rye Vale and transported elsewhere to a wider market (with 'market' defined in a broad sense). Anglo-Scandinavian metal knives have been found at York. What role might the navigable sections of the Derwent have played in linking metalwork produced in Rye Vale with markets elsewhere? Can the cross-upland routes now be better understood, building on the work by McDonnell and Hayes in 1963, and on more recent understanding of transhumance and other traditional land uses (Costello and Svensson 2018)?

Helmsley was not far from an important medieval route linking Durham to York (Fergusson and Harrison 1999:37). It was hardly a backwater, therefore. How and why did the settlement develop in the **pre-Norman** era? Roberts (2008:119) suggests that the town plan morphology suggests 'no evidence for pre-Conquest roots.' Yet Domesday references suggest thegns were resident here by 1066. Might a pre-Norman elite centre lie under the later Helmsley castle?

[8] https://historicengland.org.uk/listing/the-ist/list-entry/1010076

11.9 Monastic core

11.9.1 Questions which emerged from this research

The productive potential of mid-catchment Rye Vale differs in certain regards from that of the uplands but also has some commonalities such as the problem of managing periodic under and over-supply of water (Chapter 4 - 6). This study has identified where reconstructing changes in the water environment could be critical to understanding several important questions. Investigation could therefore usefully begin upstream of the precinct near Bow Bridge, then work along the possible flow routes, considering holistically the water/land matrix, spring system and gravity-flow systems. The underpinnings of 18th-century Bow Bridge require investigation. An obstruction may long have existed here, causing the notable bow / splashback curve to the north of the bridge and a suspiciously straight river reach downstream (Figures 6:6, 6:7). An installation at Bow Bridge could conceivably have formed part of a system to regulate water flow towards the precinct, whether for flood management or installations such as mills.

The silted-up palaeochannels in the field to the south of Bow Bridge (Figure 6.5) could be cored for sedimentary analysis. These sediments could help establish when disconnection from the river took place downriver from Bow Bridge, and better understand the ecology at that date. Changes in upland landscape management, and activities such as metal extraction and processing, can have impacts lower down the catchment, as demonstrated in the Swale catchment which may have been affected by (Cistercian) Jervaulx Abbey's activities (Foulds, Macklin and Brewer 2013). What effect did the medieval industrial and agrarian activities have on the Rye / Derwent catchment? Depending on when the Bow Bridge palaeochannels were orphaned of flow they could conceivably hold outwashed material from upstream mining and metal processing. A study of historic lead mining in the North Pennines found that most eroded sediments (97%) from the mining processes were deposited downstream in the catchment (Kincey et al 2018).

Rievaulx Abbey has been subject to multiple flood events, notably in 2005. The extent to which water has previously impacted on the site and may do so in future has implications for the management of the archaeological resource (Scheduled Ancient Monument

1175724). Rievaulx is one of 11 sites in English Heritage care most at risk of flooding (Pearson 2013:127). Limited geophysical survey here in 2015 (Figure 6:5) suggested that the layers of archaeological interest may be relatively close to the surface, and hence potentially vulnerable to damage by future floods.

Understanding the depth and nature of alluvial cover in the Bow Bridge field could offer a proxy site to understand specific vulnerabilities to future flooding which would not disturb the scheduled area. The evolution of this valley is not well understood. Was a sub-Devensian (MIS8) local icesheet, as suggested by Powell and colleagues (2016), implicated in the formation of the valley here? It is unclear at what date the river width shrank from its width of c180-200m, suggested by the extent of the alluvium mapped by BGS, to the modern c10-14m. There are considerable differences in levels between the present-day River Rye and the surface of the precinct. What were the causes and timescale of these changes? Depth of overburden and rate of vertical river incision by the Rye near the monastic precinct are unclear.

Better understanding of the date and nature of water management within the precinct is a priority. Geophysical survey in the north precinct could include the use of minimal-invasive 'push' sensors to define and characterise the profile of Channel 1. This method, whereby probes are inserted into the subsurface, was used to understand Charlemagne's (ultimately unsuccessful) canal begun in AD 793 that was intended to link the Altmühl and Schwabian Rezat rivers across the Central European Watershed in Germany. Such 'push' applications can include electrical conductivity logging, and measurement of colorimetric proxies in unconsolidated sediments. Together, these tools provide multi-proxy information about organic parameters, structure, texture, and depth, with high lateral and vertical resolution (Zielhofer et al 2014; Hausman et al 2018). Understanding the subsurface profile and nature of Channel 1 (including the presence of lining materials such as timber, ceramic or lead) would definitively address the vexed question of whether this feature was a wholly natural palaeochannel, a wholly human-made channel taken off the river, or some combination of the two.

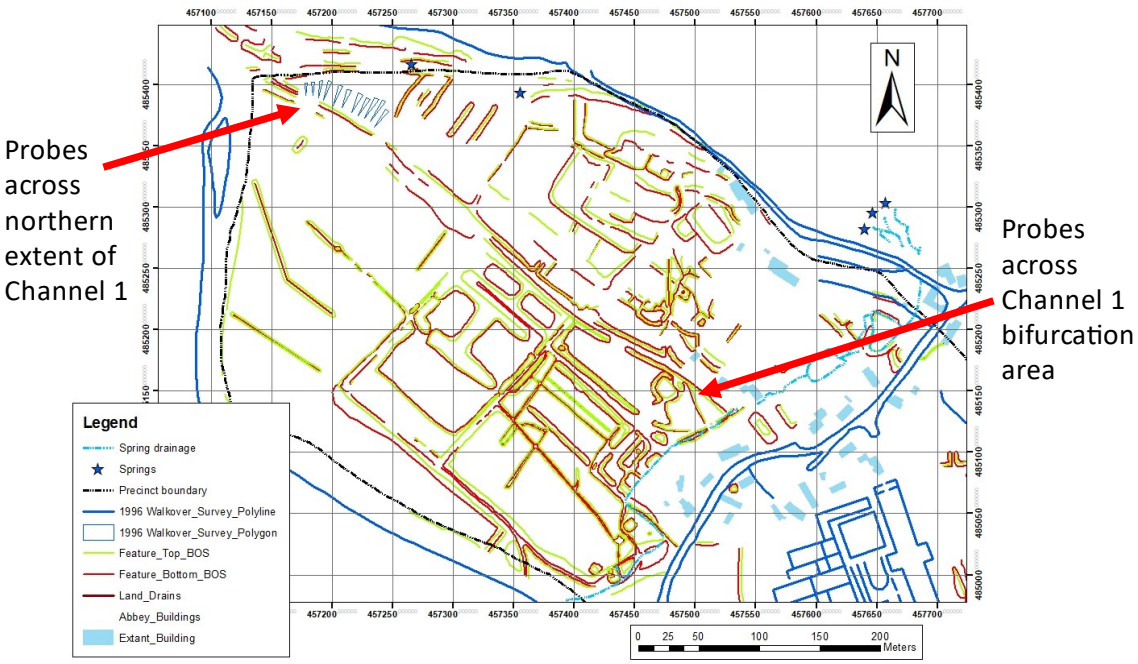


Figure 11:3 Locations for physical investigation - north precinct

The sequence of water uses within the precinct requires investigation in terms of both religious practice as well as food production and industrial processes . In re-examining the evidence for Cistercian Bordesley Abbey (Worcs.), Astill observed that Rievaulx possesses some of the best evidence for Cistercian industrial activities near to the claustral area (Astill 2011:378). Some of these usages could have been concurrent, others not. The supposed fishponds at Rievaulx require a better spatial and chronological definition, as from analogues elsewhere these are unlikely to have been present before the later 12th century (6.7 above).

Pearson noted the presence of at least seven springs within the precinct. Local mass movement, namely bulk movements of soil or subsurface, including movement associated with the nearby rock fault, means it is unlikely that an identical spring expression was

present in 12th-16th century. Can we trace the earlier springs or date when they functioned? Can we link these spring locations to elements of the precinct, specifically to the delineation of the inner court, to understand how such features may have been co-opted as part of spiritual practice?

Chapters 5 and 6 demonstrated the importance of management of the Rye to understanding Rievaulx's 12th-century precinct, and to the question of Cistercian 'transformation.' Rievaulx's precinct development is poorly understood at present, partly because of evidence survival, accessibility, the nature of previous investigations and the lack of publication of Peers' excavations. We know relatively less about the pre-monastic period and 12th century at the abbey than we do about later periods. The evidence for pre-Cistercian folk-spiritual associations with nearby landscape features is compelling (Chapters 4 and 9). It is possible that a previous ecclesiastical establishment may have existed here (Pearson 2019). Such an establishment may not necessarily be under the later Cistercian church. At Buckfast, for example, the later medieval monastery moved location from that of the early medieval ecclesiastical centre at Buckfastleigh (Reynolds and Turner 2004).

The earliest monastic buildings have not been found, apart from the outline of a possible church identified by earth resistance survey in 1996 under the cloister garth (Chapter 5). It is possible that early buildings lie elsewhere than under the final footprint. How did Rievaulx cope with the seasonal waterlogging? Senior (1999:215-219) identified successive shorings-up of the western range to deal with subsidence but might some buildings originally have lain elsewhere? At Rievaulx's mother house of Clairvaux, the footprint of the later complex was some distance away from the temporary buildings, to mitigate building disturbance to the community (Coppack 1998a:28). Cistercian precincts elsewhere have been estimated to contain around 60 buildings (Fergusson 1983; Brown 2012; Coomans 2013). We have nothing like that number identified at Rievaulx. We have some insight into some 16th-century dispositions within the precinct, thanks to Coppack's documentary work. The flaws in Coppack's reliance on the Rievaulx 'canals' theory, (Chapter 5), however makes his work at Rievaulx in need of revision in relation to the early

history of the site.

What we know of the post-medieval metalworking suggests that the south precinct was used for iron processing and production. There are documentary references to material from metalworking being spread over the fields. The existence of a barrier to the north of Furnace Hill, i.e., the road which runs through the village, may have encouraged such tipping to be concentrated to the S, E and W of Furnace Hill, although we cannot rule out the possibility that material was tipped to the north. The same logic applies to the spoil tipping we know was carried out under Peers. The railway constructed for Baines is likely to have encouraged the tipping of material within the south precinct. The northern end of the north precinct was therefore likely less disturbed than further south and is hence more likely to contain primary medieval deposits.

Improving access to Peers' and Baines' excavation records is a priority. The substantial excavations, involving the evacuation of 90,000 tonnes of material (Fergusson and Harrison 1999:200-201), remain unpublished, and some relevant Ministry of Works files appear to have been mislaid (Wheeler and McDonnell 2011:108-109). Full publication of these records in some form will ultimately be needed. A preliminary step may be the digitisation of the excavation records and Historic England archives.

Improving access to and understanding of Rievaulx's 12th-century cartulary is also important. Rievaulx's cartulary is one of the oldest known such objects (Jamroziak 2005). The cartulary forms part of the Cotton manuscripts which were inscribed with UNESCO in 2018 as cultural treasure.[9] The Cotton Julius Di *ms*, however, remains inaccessible except by personal visit to the British Library. The most accessible copy of Rievaulx's cartulary is the problematic edition prepared by Canon John Atkinson and published by the Surtees Society (Atkinson 1889). Many of Atkinson's editorial decisions, including substantial excisions, re-ordering of documents and insertion of secondary material, have been criticised as 'puzzling' and 'confusing' (Jamroziak 2005:19-37). Non-destructive scientific analysis of documents can be revelatory (Ellen et al 2018).

[9] https://blogs.bl.uk/digitisedmanuscripts/2018/06/sir-robert-cottons-manuscripts.html

The survey for this project could touch only briefly on questions relating to Cistercian buildings and installations generally, and in the uplands of Rye Vale specifically (Chapter 2, section 2.3.8, Chapter 4, Chapter 5). There are many issues which merit further investigation, such as the relatively low level of Cistercian grange building survival in the north of England in comparison with the south of England, which cannot be simply attributed to timber building survival factors.

11.9.2 Approach

The present study could only touch briefly on the experiential elements of Rievaulx's landscapes (Chapter 9) but this aspect merits further attention. What are the experiences of other land users, such as lay farmers (ancient and modern)? The peasant perspective was illustrated by detailed documentation for the period 1294-1324 in the small medieval settlement of Montaillou in France (Le Roy Ladurie 2008). How could some of these perspectives be incorporated into the story of this land, perhaps by 'thick mapping' integrating oral history and other sources? What contributions do the modern monastic communities elsewhere on the Moors (including a Catholic community at Ampleforth and Orthodox monasteries at Normanby and Langdale) make to these stories?

Many of the specific questions could explored as community / citizen science projects, appropriately supported from a research institution. Topographic interpretation, on the lines of the successful Altogether Archaeology project in the North Pennines, could form part of this, using the high-resolution lidar (25cm) available across areas of the National Park (Graham Lee pers. comm.) and the full coverage of lidar at 1m resolution which will be captured by the Environment Agency by the end of 2020.

Some of the above could be worked into the RyeVitalise project, scheduled to run from 2020-2022. Photography of the excavation records could be conducted by volunteers, with appropriate support. Publication of the Rievaulx excavations requires significant research, for which the reassessment of Glastonbury Abbey (Gilchrist and Green 2015) offers a model.

11.10 Summary

This chapter has made a variety of suggestions to support landscape heritage stewardship, ranging from physical investigations to ideas for stakeholder engagement. This variety has further illustrated the interconnectivity and interdependence of the landscape and heritage of the River Derwent catchment, as approached through the perspective afforded by investigation of a major medieval institution.

Chapter 12 Conclusions: significance and contribution to knowledge

12.1 Aim 1 and objective 1

The study attempted a better understanding of reputed Cistercian 'transformation' of landscape in a specific context. Overall, both case studies gave a picture of Cistercian activity as one stage in a change trajectory whose other stages had been established considerably earlier than the 12th century. Rievaulx Abbey's husbandry of the water/land matrix was more indebted to previous occupiers than has hitherto been considered.

12.1.1 Rye Vale

Older research may have somewhat misinterpreted the nature of pre-Cistercian Rye Vale. This study has demonstrated that the area experienced selective occupation since the Mesolithic period. Rye Vale then underwent more intensive medieval occupation, discernible from the Anglo-Scandinavian period, which suggests some sophistication in niche exploitation (Chapter 4). The specifics of how this created a trajectory which influenced post-1066 occupation require further elucidation.

This study is significant for understanding of the mid-catchment valley where the abbey was founded. It demonstrated considerable gaps in our understanding of the monastery that may have been intended as the mission centre for the Cistercian order in Northern Britain. The analyses in Chapters 5 and 6 suggest that Rievaulx's management of the water/land matrix in the Rye Vale may have been spatially more extensive and iterative than hitherto considered. The study demonstrated that the 19th-century theory of river deflections is flawed in multiple aspects. It thus undermined the evidence on which Coppack dated the precinct layout to the early 13th century (Coppack 1990; 1994).

Suggestions for future fieldwork to establish a clearer sequence of water/land matrix management were made in Chapter 11. Such fieldwork may lead to a revised chronology

for the precinct establishment which could have implications for our understanding of the development of the monastery overall, potentially placing precinct development during, instead of after, the period of Rievaulx's maximum expansion. This could have implications for our understanding of the development trajectory of a major Cistercian establishment.

12.1.2 Vale of Pickering

Prior to this research, the narrative about the relationship between Rievaulx Abbey and Pickering Marishes was simple. Donkin stated that the 'waste below Pickering' was 'primeval' marsh when given to Rievaulx in 1158 which the abbey went on to reclaim from a pristine state (7.1). That conclusion was followed by historians of the order (Burton 1998a; Dutton 2006:194). This study has instead demonstrated that at least one area within Marishes, namely Loft Marais (Loftmarreys) had in fact, been productively occupied prior to its grant to the monastery. The identification of the extent of Deerholme as containing possibly the only substantial tranche of noval land within Marishes newly brought into cultivation further erodes the evidence for Cistercians as primary 'colonisers' of land. This will have implications for historians of the Cistercian order. Further, the finding that the Dean and Chapter of York had a right to the tithes of Loftmarreys will have implications for our understanding of the periodically vexed personal relationship between the Dean and Cistercian monasteries such as Rievaulx. Based partly on Donkin's view of Marishes as wholly noval, Jamroziak drew conclusions about the erosion of Cistercian exemption from tithe payment (Jamroziak 2005: 197-8). These questions may need to be revisited.

12.1.3 Monastic landscapes as manifestations of relationships

This research has illustrated the complex relationships between a Cistercian monastery and landscape. Substantial scholarship into Rievaulx Abbey has tended to follow one of two perspectives. The perspective of Walter Daniel treated Rievaulx's landscape as a backdrop to spiritual matters (section 4.2.1 above). Alternatively, modern scholarship on Rievaulx has viewed the monastery's landscape as performing a purely economic function (Fergusson and Harrison 1999). This study has illustrated that landscape may have played

a much more nuanced role in the mission and history of Rievaulx Abbey than allowed for in either of these perspectives.

Rievaulx as a human community was affected by landscape. The natural world would have affected lived experience there in ways which are difficult for a modern, industrialised perspective to understand. In turn, landscape performed a range of functions which were not limited to subsistence. This study has illustrated commonalities between Rye Vale and Marishes, as places where, in addition to pragmatic considerations, a range of intangible meanings were played out, ranging from defensive plantation to spiritual alliance. Landscape was a vehicle through which the motivations of lay patrons, King Henry, and Walter Espec, was made manifest. This holistic viewpoint of monastic endeavour, of a situated taskscape, offers more nuance than previous dichotomising models which anachronistically saw an entirely spiritual landscape within the precinct, and particularly the claustral core, and a wholly economic one beyond.

Both case studies endorsed Newman's emphasis on the nature of the monastic landscape as forming a 'metaphorical condition' that was sought by Cistercians (Newman 1996: 69,94-6). The way Cistercians bridged any gap between the metaphorical and physical conditions of a specific site therefore entailed creativity in reframing and communication which may have been under-emphasised by older studies of the Cistercian order. This study has also offered a model of a complex system that is more nuanced and thus better able to consider the question of change associated with this major international medieval institution than dualistic paradigms, such as Lekai's ideals versus reality theory.

This work contributes to the growing body of revisionist studies of Cistercian monasticism and monastic landscapes more broadly, and to understanding of the relationship between medieval religious and secular power, such as articulated by contributors to Sanchez-Pardo and Shapland (2015), and Sanchez-Pardo et al (2020). The work reported above does not, however, offer insight into how exceptional or otherwise the land stewardship by Rievaulx was among Cistercian houses or wider monastic practice of the time, and many questions remain to be evaluated by ground investigations. Given the international

distribution of Cistercian monasteries (Figure 1.1), this question would require significant research collaboration.

This study has provided a more nuanced understanding of Rievaulx's relationships with its cultural landscapes. It contributes to a revised interpretation of the relationships between Rievaulx and Byland as a more co-operative, convivial enterprise than the anachronistic 'competitive' interpretation of some earlier studies. Historians are now suggesting that although Rievaulx and Byland undoubtedly experienced specific disputes (Burton 2006: 29), the two houses were allies in the monastic enterprise. The agreements reached in the mid-1140s relating to mid-catchment Rye Vale where both monasteries had land rights and water management requirements (Burton 2004a) may be interpreted as equable adjustments in an area of land which Byland's core community was about to quit for Stocking, changing Old Byland to the status of grange. Rather than a 'hostile land takeover' of the established narrative, it is now evident that the land along the River Rye was where Rievaulx and Byland met, negotiated, and reached accommodation. When the question of the Rye 'diversions' has been settled by physical investigation (Chapter 11), this issue may bear more scrutiny.

12.2 Aim 2 and objective 2: methodological contribution

12.2.1 Change and complexity

This study provided a novel application of the complex system model to change in a Cistercian monastic landscape. The study illustrated that, although not new in terms of archaeological application, the complex system model is a more nuanced model of change in the historic environment than more established linear models. Prior to this study, technology-driven theories of change, or accretive models, such as the 'palimpsest' metaphor (Chapters 2 and 3) had not elucidated the complex nature of change in the medieval landscape under investigation. This study illustrated the diverse, interconnected and interdependent nature of physical and cultural 'agents' in Rievaulx's landscape. The agents responsible for change were diverse, including human agents and physical processes. These agents were interconnected and interdependent, with human agents interacting with physical processes such as management of the water/land matrix, and with cultural processes such as changes in authority. Cultural contingency was also illustrated through variations in the use of the term 'waste' in documents from English medieval sources in successive centuries. (Table 8:1). Given the limitations of this study it was not possible to determine precisely how these factors co-varied, and the particular factors in play in specific contexts. That will be the work of future research, for which suggestions were made in the preceding chapters.

This study has illustrated how interdisciplinary approaches can help understand the links between worldview and change/ adaptation in a landscape. Integrating both spiritual and pragmatic factors as pertinent to the interactions between a religious worldview and the medieval environment has developed the scholarship by earlier workers in the estates and economy tradition. It provided an approach that, although flawed in aspects, has potential for development (Chapter 10). A future application of this approach might be to help understand how the history of Christianity was made manifest in landscape change. This question has been dominated by studies of the early medieval period, as adaptation and change can be less immediately visible in the archaeological record than new foundations (2.2.3). The study has illustrated how archaeology can challenge the narrative in

documents curated by the medieval Church. This supports a call for a new agenda which considers religious change and dynamic processes such as performative rituals, urging an approach (emphasis added) 'towards a **deeper understanding of how religious beliefs, practices and identity were renegotiated by medieval people in their daily lives**.' (Thomas et al 2017:300).

12.2.2 Palaeo-hydrology as research approach

This research developed an integrative suite of methodologies for the interdisciplinary investigation of a landscape, incorporating some of the potential of modern technology with historic insights. The research was designed around earth science principles, such as those of hydrology, rather than cultural / administrative units as has been more traditional in a landscape study. Possibly the most important findings from this definition were to identify factors which had been underemphasised by previous studies, the scale of the gap in existing knowledge (Chapter 2), and potential investigative avenues (Chapter 11).

The definition used in this study of the water/land matrix suggests there is potential for the practices of archaeology to be constructively widened using a framing which emphasises interconnections such as of flow (Edgeworth 2011), management, and worldview. The water / land matrix definition also provided metaphors which reflect the fluid and interconnected nature of relationships between human actions and landscape change coupled within a complex system.

12.3 Objective 3: Stewardship implications

The fluid and interconnected relationships between humans and the physical landscape illustrated by these case studies have potential to help understand change in the landscape more widely, including issues relevant to modern landscape stewardship (Chapter 11). It has become customary to frame discussions of heritage stewardship in terms of something that is finite, fragile and in need of protection. The threefold invisibility, in theoretical, physical, and research terms, of certain types of landscape evidence for management of the water/land matrix has stewardship implications. Both case study areas are under threat from flooding and associated processes. Reframing the 'threat' paradigm, this study has offered suggestions for how this research might also contribute to broader stewardship considerations in the Derwent catchment.

This study has added nuance to previous broad-brush statements about the Vale of Pickering. It has thus better articulated the time depth of humans as a factor in the drainage of the Vale of Pickering. At present, the Statement of Significance maintains that the former wetlands in the centre of the valley were drained only in the 19th and 20th centuries, and that the historic landscape as visible today is the creation of 'just the last 200 years and in many instances a landscape created within living memory' (Cooke 2012: 2). To the contrary, this study has demonstrated that management of drainage was likely underway at Marishes in the mid-12th century at least, and possibly even earlier (Chapters 7 and 8). The Historic Landscape Characterisation (HLC) described the western-central Vale as having only limited evidence of medieval occupation (Dalton et al 2013). Revisions to the Statement of Significance and HLC for the Vale of Pickering may therefore be required, to take account of the much deeper history of adaptation of this water/land matrix.

12.4 Conclusion

This study has illustrated the complex nature of human relationships with the physical world. The interventions by a specific actor - Rievaulx Abbey - were part of a longer-term dialogue between pre-modern people and the physical world. This was a long-term trajectory, in which human / environment relationships evolved successively, rather than the 'transformation' of the religious narrative.

Human actions, and the worldview which guided these, were only part of the forces acting on landscape. Multiple factors, including soil fertility and agricultural potential, landscape changes inherited from previous occupiers, power politics and worldview, all played a part in creating change in the environment. Management of the water/land matrix is inherently fluid and complex: diverse, interconnected, interdependent and subject to change. We need appropriate ways to understand this complexity. This study offered a small increment along that investigation.

Understanding human relationships with the water/land matrix not as reflecting a succession of immobile layers (the *palimpsest* of one dominant metaphor in landscape research), but as fluid, negotiated and iterative also provides a metaphorical way to understand other relationships in less static terms. In both case studies, Rievaulx was operating not on a blank canvas, but within physical and cultural boundaries established beforehand and to which the abbey's actions contributed in turn. As microcosms of the medieval worldview interacting with the physical environment, therefore, monastic landscapes offer potential to better understand the experience and impact of being human. Monasteries, as institutions which existed for an extended period and were generally well-documented, offer potential to be used as case studies to better understand human / environment relationships and path-dependency.

This research has synthesised multiple lines of evidence illustrating the connection between a monastery and its landscape as part of a long-term relationship between humans and the physical world. An assumption that humans have the means to maintain

the upper hand in this relationship would have been alien to someone in the medieval period, who would have been only too aware of the power of natural forces to upset human plans. Negotiation, accommodation, and adaptability are better paradigms for the processes illustrated above than the old trope of 'transformation.' These paradigms, and the case studies which illustrate them, may also offer investigative routes with potential to help us adjust to changes associated with the complex interaction of multiple factors such as climate and human activities.

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