THE CLWYD POWYS ARCHAEOLOGICAL TRUST

Flintshire LANDMAP Historic Landscape Aspect

Technical Report

CPAT Report No 753

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November 2005

Report for Flintshire County Council

EXECUTIVE SUMMARY

The Historic Landscape Aspect of the Flintshire LANDMAP identified 48 separate aspect areas, ranging in size from 0.8 to 58 square kilometres and representing 12 different landscape patterns (at Level 3 in the current LANDMAP Information System handbook). The patterns represented are *Irregular fieldscape* (17 areas), *Regular fieldscape* (10 areas), *Marginal land* (2 areas), *Reclaimed land* (1 area), *Water & wetland* (1 area), *Non-nucleated settlement* (6 areas), *Nucleated settlement* (5 areas), *Other settlement* (1 area), *Extractive industry* (1 area), *Processing/manufacturing* (1 area), *Communications* (1 area) and *Designed landscape* (1 area).

Historic Landscape aspect areas were identified using a number of digital and paper data sources, verified by rapid field visiting and drawn as a digital map against a 1:10,000 OS map background attached to a database of supporting information. These digital elements and this Technical Report contain the results of the Flintshire LANDMAP study and were submitted to Flintshire County Council and the Countryside Council for Wales on completion of the project.

Flintshire's historic landscape has evolved over the course of many millennia and shows considerable variety within the scope of relatively small county. Particularly notable are the diversity of fieldscape, settlement and industrial types.

Irregular fieldscapes are dominant and generally appear to include more anciently enclosed land, cleared and enclosed by a process of piecemeal enclosure from prehistoric times (Neolithic to Iron Age) onwards. A variety of historical processes are included within the category of *Regular fieldscapes* that largely relate to the later Medieval and Post-Medieval periods. These include firstly areas of strip fields which appear to result from the enclosure and amalgamation of Medieval open field strips associated with a number of the larger medieval settlements; secondly, patterns of regularly shaped, straight-sided fields which appear to represent 17th to 19th century enclosure of former common grazing in the lowlands and on the hill margins; and thirdly, straight-sided fields representing drainage and reclamation in the Dee estuary in the 18th and 19th centuries.

The settlement history of the county has been equally complex, especially in the Post-Medieval and Modern periods. The county includes an number of important smaller settlements of Early Medieval and Medieval origin, that are considered to be generally too small to be classed as aspect areas in their own right, and which have generally been considered to form an element of one or other of the fieldscape patterns described above. Likewise, there are a number of important dispersed and small nucleated settlement patterns largely associated with metal mining industries from the Medieval

period up to the 19th century, notable around the margins of Halkyn Mountain, which have been considered to be a component of an *Extractive industry* landscape rather than being classed as settlements. Aspect areas classed as settlements include the following. *Nucleated settlement* are represented by Flint, Mold, Caergwrle-Hope, Holywell-Greenfield, which are settlements of Medieval origin which underwent considerable expansion as industrial and commercial centres during the Industrial and Modern periods between the 18th and 20th centuries, together with the distinctive estate village at Hawarden. *Non-nucleated settlements* are generally linear industrial settlements such as Shotton, Connah's Quay and Bagillt, which emerged during the course of the Industrial and Modern period between the 18th to 20th centuries, partly on reclaimed land along the Dee estuary. The dispersed settlement pattern that grew up as a result of the coal mining, pottery and brick and tile industries in the Buckley and Ewloe areas is considered to be sufficiently distinctive to be placed in a category of its own and classed as *Other settlement*.

In the case of industrial landscapes, single examples of *Extractive*, and *Processing /manufacturing* aspect areas are identified. The former is represented by the relict Medieval and Post-Medieval metal mining landscape and Modern stone quarrying landscape of Halkyn Mountain. The latter is represented by the Modern manufacturing and processing complex at Shotton Mills, on reclaimed land in the Dee estuary.

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1. INTRODUCTION

The Flintshire *LANDMAP* forms part of an ongoing pan-Wales project of landscape assessment. The area studied extends over the whole of Flintshire and covers approximately 490 square kilometres of north east Wales. The Historic Landscape Aspect work, the subject of this report was undertaken by The Clwyd-Powys Archaeological Trust (CPAT) on behalf Flintshire County Council and the Countryside Council for Wales (CCW).

2. HISTORIC LANDSCAPE BACKGROUND

Historical and archaeological aspects of the landscape
History and archaeology form important visual components of the present-day landscape of Flintshire, illustrating many aspects of human activity since the end of the last glaciation.

There are many diverse sources of evidence that tell us about how the landscape of Flintshire came into being. In addition to the prominent field monuments that are visible in the landscape, information is also to be gleaned from historic buildings, parks and gardens, industrial sites, and transport history, as well as from historic documents and maps. Other important sources include environmental and vegetation history provided by the study of pollen and plant remains, the evidence of settlement and land use obtained by an analysis of settlement and field patterns, and buried archaeological sites revealed by aerial reconnaissance or geophysical survey.

We are still very much at an early stage in beginning to identify the forces that helped to create Flintshire's distinctive landscape. Relatively little analytical fieldwork has yet been undertaken in many areas of Flintshire, for example, and much undoubtedly also still remains to be learnt from an analysis of early cartographic and historical sources.

Outline history
The following provides a brief outline of some of the processes that have been influential in the creation of Flintshire's historic landscape (see also summary of historical and archaeological periods in Annex A).

Early Prehistory
Pleistocene animal bone remains of the Palaeolithic period in the limestone outcrop at Gwaenysgor Cave, but evidence of human activity at this period within the county remains elusive. A rapid rise in sea level was taking place during the Mesolithic and early Neolithic periods, flooding the former river valley of the Dee and submerging earlier land surfaces that now lie buried within the estuary. The sand dune system at the Point of Ayr also probably became established during the later part of this period, resulting in impeded drainage and the formation of marshland on the landward side. The earliest evidence of human activity in the area during the Mesolithic period is represented by lithic scatters, which appear to represent seasonal camps occupied by hunter-gatherer communities who were probably responsible for the beginning of woodland clearances in some areas, perhaps relating to hunting practices. Permanent human settlement had been established by the early and middle Neolithic period when a number of farming communities probably came into existence, indicated, for example, by the remains of an early Neolithic house was found during excavations inside the Iron Age hillfort at Moel y Gaer, Rhosesmor. More widespread and extensive settlement and land use in the later Neolithic and Bronze Age settlement is suggested by chance finds and by the presence of burial mounds and various ritual monuments, especially on north Flintshire plateau, which includes the Gop Cairn, the largest of such monuments in Wales.

Later Prehistory
The emergence of political or religious elites during the middle and later Bronze Age is suggested by a number of prestige finds such as the gold cape and jet beads found in a barrow near Mold. Further clearance of native broadleaved woodland will have continued during the later Bronze Age and Iron Ages resulting in the creation of grassland for grazing animals and arable fields. A number of small enclosure sites are known within the county that may represent enclosed and semi-defended farmsteads of these periods. Larger defended settlements were constructed on a number of prominent hills, including Moel y Gaer, Rhosesmor, and at Penycloddiau and Moel Arthur on the Clwydian hills

which appear to represent larger centres of population under the control of tribal chieftains, within the pre-Roman tribal area of the Deceangli.

Roman Period

No military forts of the Roman conquest period have so far been identified within Flintshire, though at present it is uncertain whether the local Iron Age population was quickly subdued or whether sites of this kind will still be found within the county. Like many other areas of Wales, failed to develop large or enduring nucleated settlements during the Roman period, however, and consequently appears to have continued to have been administered by the Roman army throughout much of the Roman period. Relatively few settlement sites of this period have as yet been identified but it seems likely that the local economy continued to develop from the mixed farming economies that had already emerged during the Iron Age. The large-scale exploitation of lead and silver deposits in areas such as Halkyn Mountain began soon after the Roman conquest, which probably supplied the Roman fortress and settlement at Chester and other places further afield. A high status settlement was established on the Dee estuary in the Pentre Oakenholt area that appears to have been associated with a contemporary lead smelting industry that may initially have been under military control. A relatively substantial settlement again possibly associated with the metalworking industry is also known at Ffrith. Transport is likely to have by means of a small boats along the estuary as well as by a network of Roman roads of which only part is known, and including a road following the line of the estuary.

Early Medieval and Medieval Periods

The end of Roman administration saw the emergence of a number of political entities from which eventually gave rise to the early Welsh medieval kingdoms, probably based on a series of estates and multiple holdings that had arisen during the later Roman period. At an early stage the area formed the cantref (hundred) of Tegeingl (Englefield) within the kingdom of Powys. A pattern of small nucleated church settlements had probably emerged throughout much of the lowland areas of Flintshire by the Medieval period, such as Cilcain, Nercwys, and Nannerch, Hawarden, Northop, and Soughton, many representing early manorial centres with open arable fields, with dispersed farmsteads in the surrounding hillier countryside. Offa's and Wat's Dykes were constructed across the area in the post-Roman and Early Medieval as linear earthwork boundaries separating the emerging Anglo-Saxon and Welsh kingdoms in about the 7th and 8th centuries. Many of the settlements in the eastern part of the county from about this period were probably of English origin, and though subsequently recaptured by the Welsh are shown by the Domesday Book to have fallen under English control at the time of the Norman Conquest in 1066. Viking activity in the 10th to early 11th centuries is suggested by a complex of burial monuments in the vicinity of the Maen Achwyfan decorated cross. The area covered by the county was disputed by the Welsh princes and the Anglo-Norman Marcher lords during the later 11th to later 13th centuries, eventually becoming a crown territory following the Edwardian conquest in the 1280s. This was subsequently designated as the county of Flint, which included new plantation towns associated with stone castles at Flint, Mold and Caergwrle, which became market towns. Woodland clearance for the creation of further arable and pasture land probably continued throughout the Early Medieval and Medieval periods though extensive areas of native woodland may still have survived, as suggested by the documented medieval forest of Blorent. A variety of field patterns is likely to have emerged during these periods, including irregular patterns of fields with hedged or woodland boundaries representing a continuing process of piecemeal clearance and enclosure associated with freehold farms and settlements, as well as more ordered open fields subdivided into strips and furlongs which seem to have been associated with manorial centres represented by nucleated settlements. A system of roads and tracks will have continued to develop, together with the development of small ports and harbours in creeks and landing stages along the Dee estuary. The Cistercian monastery at Basingwerk and St Winefride's shrine at Holywell, an important Medieval pilgrimage site, were both established in about the 12th century. Various industries continued to develop throughout the Medieval period, notably the possibly seasonally lead extraction

and processing industries on Halkyn Mountain and the pottery industries in the Ewloe area, both of which probably continued to have had a significant impact upon the environment in terms of the felling of native woodland for fuel.

Post-Medieval, Industrial and Modern Periods
The growth of freehold farms and estates between about the sixteenth and eighteenth centuries had a significant impact upon Flintshire's lowland rural landscape, involving the enclosure of Medieval open fields, the growth of country house estates, parks and gardens, and various agricultural improvements including the introduction of land drainage and the continued piecemeal enclosure areas of pasture around the upland margins. Large-scale enclosure of the upland and lowland commons took place during the late 18th and 19th centuries, giving rise to extensive areas of improved and semi-improved pasture that form a distinctive landscape type. Fieldscapes resulting from landscape reorganisation or late enclosure are often distinguished by areas of both large and small straight-sided fields bounded by single species hedges or post-and-wire fences. The enclosure of some marginal upland grazing was accompanied by the construction of drystone walls defining large polygonal enclosures. The large-scale reclamation of parts of the Dee estuary, initially for agricultural land began in the earlier 18th century but expanded considerably following the canalisation of the river Dee in 1770s. This resulted in a distinctive landscape of flood banks, drainage dykes and straight-sided fields, some of which has subsequently taken over for industrial and commercial uses. The period of agricultural improvements during the 18th and 19th centuries area also represented by scattered marl pits (as in low-lying areas to the south of Broughton), by a number of rural limekilns for the production of lime, and by the construction of improved farm buildings. A pattern of dispersed farms and smallholdings had probably emerged in the late Medieval and early Post-Medieval periods throughout most of the more rural lowland areas of the county. Few early houses survive, and a majority of surviving farms and associated outbuildings having been replaced in the 18th and 19th centuries, the earlier surviving ones generally being stone-built and those dating from the middle of the 19th century often being in brick. Existing centres of population such as Flint, Caergwrle and Mold which had emerged during the Medieval period continued to expand, and assumed administrative and commercial functions. Industry expanded considerably from the middle of the 18th century onwards in many parts of the county, based upon a variety of extractive and processing industries, including the mining of metal ores (principally lead), coal-mining, limestone quarrying for lime production, chert quarrying, clay extraction for brick and tile production. These resulted in the creation of distinctive industrial landscape associated with smelt mills, limekilns, brickworks and foundries and also gave rise to a variety of distinctive settlement forms. A pattern of dispersed and irregular settlements together with smaller encroachments and dispersed smallholdings grew up in association with many of the mining and quarrying areas, notably around the margins of Halkyn Mountain, as at Moel-y-crio and Brynford. Medium-sized industrial settlements of 18th and 19th-century origin emerged at Pantymwyn, Gwernaffield, Gwernymynydd and Leeswood, as well as the dispersed settlements based upon the coal-mining and pottery and brick and tile industries sprang up at Buckley, Ewloe and Mynydd Isa. Early processing industries based upon the use of water power supporting the emergence of various industries including metal processing, paper-making and corn milling emerged, notably in the Greenfield and Wheeler valleys. Larger industrial settlements associated with more capital intensive industries such as steel and chemical production and the manufacture of munitions, grew up along the Dee estuary, at Flint and Shotton, in some instances resulting in the expansion of an pre-existing settlement of Medieval origin, and the development and diversification of manufacturing and processing industries including Improved communications systems were introduced including a network of improved turnpike roads during the course of the later 18th and early 19th centuries, and the Chester-Holyhead railway line in the later 19th-century. Improved communications fuelled the expansion of industry and also led to the emergence of new settlements which sprang up along the course of the roads and railways at places such as Tanlan Banks, Afon-wen and Penyffordd. Small ports, harbours, ferries continued to develop along the estuary at places such as Ffynnongroyw, Mostyn, Llannerch-y-mor, Connah's Quay and Sandycroft,

in association with these industrial settlements. The second world war saw the establishment of a number of military airfields such as Broughton together with other facilities such as the chemical weapons factory at Rhydymwyn with its underground storage facilities. In the rural environment the post-war period saw the expansion of conifer forestry plantations, the growth of agricultural diversification, the amalgamation of farm holdings into larger units, the emergence of wildlife conservation reserves, and the proliferation of dispersed rural housing by new detached buildings, the renovation and enlargement of existing houses and cottages, and by the conversion of former farm buildings. The later 19th century saw a decline in many of the counties extractive and processing industries including lead mining, brick and tile manufacture, and many of the smaller collieries, leaving behind a significant industrial archaeological heritage. The 20th century witnessed a considerable expansion in industrial and commercial complexes along the Dee estuary, again often on reclaimed land, as at Deeside Industrial Park, the construction of modern housing such as Garden City and Sealand, and the later 20th century the development of the strategic road network, including the A55 and the new Dee crossing on the A548 and the development of housing estates associated with most of the existing nucleated settlements. The second half of the 20th-century also saw the decline in a number of established industries but the development of new industries as for example aircraft manufacture at Broughton, in conjunction with the recent improvements to Mostyn Docks, and the development of the large cement works at Padeswood. Caravan parks and holiday camps were established in the second half of the 20th century in the area between Talacre and Gronant, inland from the Point of Ay, often on drained and reclaimed land, as well as development here and elsewhere in the county of other commercial recreational facilities such as golf-courses. The development of landed estates especially in the 18th century onwards had witnessed the emergence of country houses and associated landscape parks and formal gardens which form distinctive and discrete landscape elements in parts of the county as at Mostyn, Downing, Hawarden, Pentrehobyn, Leeswood Hall, Nerquis Hall, Plas Teg, Heartsheath, Gwysaney, Soughton Hall, Penbedw, and Rhual. Some of these had developed from even earlier high-status deer-parks of the later Medieval and early Post-Medieval periods in the 15th, 16th and 17th centuries, though others were newly established by Victorian and Edwardian industrial entrepreneurs in the later 19th and early 20th centuries, or in association with a number of religious establishments, as at Talacre Abbey and Pantasaph.

3. METHODOLOGY

Overview
The study involved the following processes, which are described in more detail in the following sections.

- Preparation
- Generation of base-level polygonal data
- Definition of provisional historic landscape aspect areas
- Field evaluation
- Finalising boundaries of historic landscape aspect areas
- Database entry
- Quality Assurance monitoring
- Local User Information Group meetings

Preparation
The geographical limits of the project were set using a MapInfo table of community boundary data supplied by the National Assembly for Wales. Digital mapped sources that were used were the Ordnance Survey (OS) 1:10,000 and 1:50,000 raster maps and OS Landline and contour vector data for the whole of the study area. Digitally geo-referenced vertical aerial photography (AP) of Flintshire supplied by GetMapping, used under licence from CCW, was also used as a mapping source and in addition to this occasional reference was made to the four editions of early OS mapping available as geo-referenced digital data from Landmark, here used by arrangement with the National Assembly for Wales. A set of OS 1:25,000 folded maps was also consulted for additional topographical information. The GetMapping AP data also proved particularly useful for identifying (relatively) current land use, vegetation types and land cover as well as helping to identify the nature of many boundary features.

The primary source of historical and archaeological information was the Historic Environment Record (HER), maintained by CPAT. Much of the information in this record is point data, but it also included some polygonal data derived from a number of paper-based sources. These documentary and manuscript sources that were consulted included lists of listed buildings, the register of historic parks and gardens in Flintshire, and the historic landscapes registers, the historic landscape characterization reports for Halkyn Mountain and Holywell Common, and a study of the Dee estuary historic landscape (see references below).

A decision needed to be made at an early stage about the scale and significance of landscapes to be included in the study, the principal criteria for inclusion being that an historical or archaeological element should have a sufficient visual presence in the landscape. It was considered that this ruled out linear features such as roads and railways crossing open countryside, all individual buildings and archaeological monuments, many of the smaller settlements, a number of the smaller registered gardens, historically and culturally significant places with little landscape definition and small or isolated unenclosed commons of less than about a square kilometres.

Data collection and recording
At the beginning of the project it was decided that wherever possible data collection and recording should be undertaken digitally. From the outset all mapping was complied digitally (using head-up digitising), as was all database compilation. The limited programme of field visiting was designed to check decisions already taken in the desk-based assessment rather to record new data. Adjustments were made to the digital data set on a portable computer in the field and therefore did not generate a

paper-based record. No photography was undertaken during the field visiting. Consequently, there are no paper record forms, hand drawn maps or photographs submitted with this report.

Mapping was undertaken in MapInfo Professional Version 7.8. A database was created in version 2.0.7 of the XML based LANDMAP Collector software supplied by CCW. Associated texts were prepared in Word 2000, and submitted as both hard copy and Adobe Acrobat (version 5.0) PDF files.

Base-level polygonal data
A series of 1051 contiguous polygons were drawn from the sources listed above according to a discrete list of historic and modern land use types, to which a limited amount of data was attached. These are listed in Annex B. The polygons (which might perhaps be considered to fall between Level 3 and Level 4 data in *LANDMAP* terms) were drawn from a variety of map sources, to be used as the basis for defining provisional historic landscape aspect areas. Some of these base-level polygons, particularly those representing more specialist landscape types such as parks and gardens or settlement, could have been used to define Aspect Areas at Level 4. However, as the requirement here was to define a uniform aspect map at Level 3 this was not done, though this data could be refined and drawn on for such a purpose in the future.

The use of base-level polygons identifying landscape types, although not prescribed by the *LANDMAP Information System*, has been trialed in Wales by CPAT to create similar base-level data from which to define *Historic Landscape Character Areas* in *Historic Landscape Characterisation* projects promoted by Cadw and CCW, and as a means of presenting historic landscape information within *Tir Gofal*. In many respects it is a similar process to that currently used to define landscape types in *Historic Landscape Characterisation* projects promoted by English Heritage.

The accuracy of the base-level polygonal data has not subsequently been checked against a single map-base or verified against definitive sources, however, and has not been supplied with the other digital data produced by the project. This data is illustrated in Annex B.

Definition of provisional historic landscape aspect areas
About 50 provisional historic landscape areas were mapped in an essentially intuitive and iterative desk-based exercise, analysing the base-level polygonal data which had been created as part of the project in terms of the point data contained within the Regional Historic Environment Record.

Field Evaluation
Two full days were spent in the field following the definition of the provisional historic landscape aspect area boundaries. Additional time in the field would have been desirable but was not considered essential in order to complete the tasks in hand at the level of detail required, given our background knowledge from working in the area for many years and the fact that we were not required to carry out evaluation, provide management recommendations or to assess tolerance to change.

Rather than attempting to visit each of the provisional historic landscape aspect areas (a task that would probably have required many weeks of work), time in the field was spent in checking a number of specific points of detail that could not be resolved more remotely.

The principal issues that it proved helpful to check in the field were firstly the degree to which there was a sufficiently meaningful visual expression of historical and archaeological processes at particular points in the landscape which would enable boundaries to be defined more closely, and secondly whether some of the smaller provisional aspect areas had a sufficient landscape dimension.

In several instances points in the landscape were sought and which would enable otherwise diffuse aspect areas to be split on rational topographic grounds.

The fieldwork generally tended to confirm the desktop analysis, though a number of relatively minor changes were made including the redefinition of several aspect area boundaries, the amalgamation of several adjacent areas and the subdivision of several others.

Finalising boundaries of historic landscape aspect areas
A number of relatively minor changes were made to the provisional aspect area boundaries as a result of fieldwork, as noted above.

Slight boundary changes were also made as a result of checking the distribution of archaeological sites in the Historic Environment Record, to avoid unnecessarily placing neighbouring sites that are functionally or chronologically related to each other into different aspect areas.

Polygonal boundaries for historic landscape aspect areas for a number of earlier *LANDMAP* studies in contiguous unitary authority areas were made available by CCW, enabling edge matching to be attempted. However both the Denbighshire and Wrexham LANDMAP exercises were undertaken before the latest revision of the LANDMAP handbook which contained a revision of the Historic Landscape classification system, making an exact correlation unlikely. Strict edge matching was not therefore attempted as this would be better done once the adjoining areas have been assessed against the revised methodology as part of the Quality Assurance process.

As noted above (see section above on base-level polygonal data) various sources of OS mapping (namely LandLine vector data, 1:10,000 raster data, and 1:25,000 paper maps) and other digital data (GetMapping aerial photography) were used for the definition of aspect areas. Consequently the aspect areas defined in this study do not correspond precisely to any single source of mapping. Care was taken to ensure, however, that the drawn boundaries would be visibly accurate to at least the required scale of 1:10,000.

Database entries
Database entries were created for each of the historic landscape aspect areas in version 2.0.7 of the LANDMAP Collector software provided by CCW. Technical problems with more recent software releases meant that early attempts to use LANDMAP Collector version 3 had to be abandoned and a certain amount of data re-entered.

Quality Assurance Monitoring
The GIS data, associated database and draft of this report have been submitted to the Quality Assurance panel appointed by CCW.

Local Information User Group (LIUG) meetings
A short PowerPoint presentation outlining the approach to the project and illustrating its progress was given at the first LIUG meeting.

4. SUMMARY OF HISTORIC LANDSCAPE ASPECT AREAS

Hierarchy of Level 3 classes represented in the area of study
A summary list of historic landscape aspect areas is given in Annex C. The classes that are represented are as follows, the Level 3 classes being described in greater detail in the following sections.

LEVEL 1: STRUCTURE	LEVEL 2: LAND USE	LEVEL 3: PATTERN
Rural environment	Agricultural	Irregular fieldscape
		Regular fieldscape
	Non-agricultural	Marginal land
		Reclaimed land
		Water & wetland
Built environment	Settlement	Nucleated settlement
		Non-nucleated settlement
		Other settlement
	Industrial	Extractive
		Processing/manufacturing
	Infrastructure	Communications
	Other built environment	Designed

Summary description of Level 3 classes represented in area of study

Irregular fieldscape
A total of 17 irregular fieldscape areas are included, which varied in size from between about 5.3 to 56 square kilometres. As has been noted in previous studies carried out by CPAT, the classification of these areas is perhaps the least satisfactory element of the current *LANDMAP* classification system. It is felt that the term Irregular fieldscape was somewhat of a misnomer and that perhaps Mixed fieldscape might be more appropriate — with the term Mixed/evolved fieldscape, found in Level 4, being altered to Evolved fieldscape.

> Areas identified are; Babell FLNTHL622, Gadlys FLNTHL222, Gwernto FLNTHL947, Halkyn FLNTHL731, Helyg FLNTHL716, Kinnerton FLNTHL745, Leadbrook FLNTHL825, Leeswood FLNTHL349, Lower Soughton FLNTHL347, Middle Alyn Valley FLNTHL183, Northop Hall FLNTHL213, Padeswood FLNTHL636, Pantasaph FLNTHL608, Penbedw FLNTHL850, Saith Ffynnon FLNTHL421, Trellyniau FLNTHL757, Wheeler Valley FLNTHL794

Regular fieldscape
A total of 10 regular fieldscape areas are included, which varied in size from between about 2.9 to 19.3 square kilometres in extent. Most of these fieldscapes fall into two distinct types. Three of these are perhaps areas of former medieval strip fields attached to settlements — the most notable being that attached to Flint. The remainder arise from 18th and 19th enclosure of common or other open land

> Areas identified are; Axton FLNTHL712, Gwespyr FLNTHL204, Maes Gwyn FLNTHL207, Nercwys Mountain FLNTHL376, Pen Ucha'r Plwyf FLNTHL594, Penymynydd FLNTHL581, Sealand FLNTHL603, St Deiniol's Ash & Aston Hall FLNTHL538, Talacre FLNTHL590, The Rakes FLNTHL487

Marginal land
Two marginal land areas are included. These are 1.4 and 8.8 square kilometres in extent and are quite different in character. The smaller forms the coastal sand dune system at the Point of Ayr, while the larger comprises the eastern edge of the Clwydian range around Moel Arthur

> Areas identified are; Moel Arthur FLNTHL269, Point of Ayr FLNTHL124

Water & wetland
Only one area of open water — the edge of the Dee estuary being an area of about 51 square kilometres — was included in this class. The north eastern edge of this area was extends into coastal water to correspond with the county Flintshire county boundary.

> The area identified is; Dee Estuary FLNTHL326

Nucleated settlement
Five of the county's larger nucleated settlements are included, varying from about 0.7 to 4 square kilometres in extent. They comprise Caergwrle & Hope (in effect two anciently conjoined settlements), Flint, Hawarden, Holywell and Mold all of which originate in the medieval period, although all have seen some level of expansion at subsequent times.

> Areas identified are; Caergwrle & Hope FLNTHL579, Flint FLNTHL860, Hawarden FLNTHL354, Holywell FLNTHL390, Mold FLNTHL953

Non-nucleated settlement
Six areas of non-nucleated settlements have been identified, varying from about 0.8 to 10 square kilometres in extent. They comprise Broughton, Connah's Quay, Mostyn & Bagillt, Penyffordd, Rockcliffe Marsh and Saltney. They represent the county's major areas of post medieval industrial development and housing, and are primarily sited along the north-east facing coastal strip.

> Areas identified are; Broughton FLNTHL766, Connah's Quay FLNTHL456, Mostyn & Bagillt FLNTHL789, Penyffordd FLNTHL555, Rockcliffe Marsh FLNTHL572, Saltney FLNTHL826

Other settlement

One area has been classified as *Other Settlement —* Buckley & Ewloe. This covers an area of some 8 square kilometres and comprises two conjoined settlements and now partly abandoned industrial areas all of which may have had their origins in the later Medieval period but which do not conform to the classic medieval nucleated settlement pattern. This area was particularly noted for its pottery industry in the early post medieval period.

>   The area identified is Buckley & Ewloe FLNTHL846.

Extractive

One area of extractive industry has been identified — the former lead mining landscape centred on Halkyn Mountain. This area comprises extensive remains of abandoned lead workings dotted with small clustered settlements and isolated dwellings. The whole covered about 9.2 square kilometres.

>   The area identified is; Halkyn Mountain FLNTHL417

*Processing/manufactu*ring

One area has been classified as *Processing/manufacturing —* Shotton Mills which is a mixture of more modern industrial complexes interspersed with limited settlement and occupies an area of some 12 square kilometres.

>   The area identified is Shotton Mills FLNTHL743.

Designed

Two areas of designed landscape were identified in the study. These both areas of post medieval parkland surrounding Hawarden Castle and the adjoining estates of Mostyn Hall & Downing. Each covering an area of roughly 5.8 square kilometres.

>   The areas identified are; Hawarden Castle FLNTHL396, Mostyn Hall & Downing
>   FLNTHL262

	Communications	(1)
	Designed	(2)
	Extractive	(1)
	Irregular fieldscape	(17)
	Marginal land	(2)
	Non-nucleated settlement	(6)
	Nucleated settlement	(5)
	Other settlement	(1)
	Processing/manufacturing	(1)
	Reclaimed land	(1)
	Regular fieldscape	(10)
	Water & Wetland	(1)
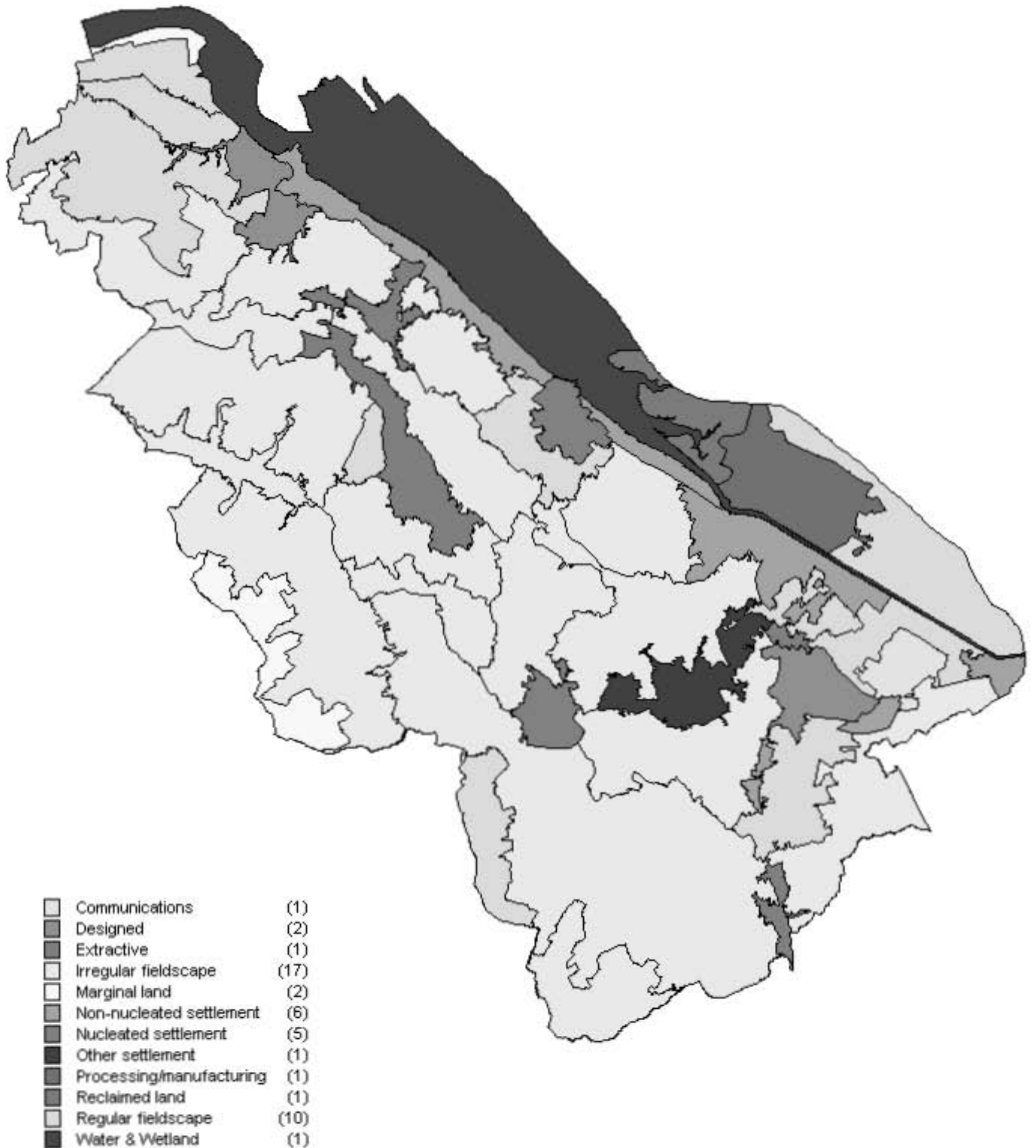
Historic Landscape Aspect Areas defined at Level 3 for Flintshire LANDMAP

Extent and relative proportions of the Level 3 classes represented in the area of study

The extent and relative proportions of the Level 3 classes represented in the area of study are given in the following table.

LEVEL 3: PATTERN	TOTAL AREA SQ KM	PERCENTAGE OF TOTAL AREA
Irregular fieldscape	262.78	51%
Regular fieldscape	77.16	14.8%
Marginal land	10.14	2%
Reclaimed land	5.88	11%
Water & wetland	51.29	9.4%
Nucleated settlement	13.48	1.6%
Non-nucleated settlement	23.22	3.6%
Other settlement	7.97	1.2%
Extractive	9.26	1%
Processing/manufacturing	11.97	1.8%
Communications	3.84	0.6%
Designed	11.58	2%

5. REFERENCES

Dee Estuary Historic Landscape: an initial study, CPAT Report 1998.

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ANNEX A

SUMMARY OF HISTORICAL AND ARCHAEOLOGICAL PERIODS

The following provides a summary of the dating of the historical and archaeological periods used in the narrative accompanying this study:

Palaeolithic	50,000 – 10,000 BC
Mesolithic	10,000 – 4,000 BC
Neolithic	4,000 – 2,300 BC
Bronze Age	2,300 – 700 BC
Iron Age	700 BC – AD 43
Roman	AD 43 – AD 450
Early Medieval	AD 450 – 1066
Medieval	AD 1066 – 1547
Post-Medieval	AD 1547 – 1700
Industrial	AD 1700 – 1900
Modern	AD 1900 onwards

ANNEX B

BASE-LEVEL POLYGONAL DATA: DESCRIPTION AND SOURCES

TYPE	DESCRIPTION AND SOURCE
airfield	Existing airfields, mapped from OS 1:10,000 raster data.
broadleaved plantation	More regularly-shaped broadleaved woodland areas, generally >1ha, having the appearance of plantations. Mapped from symbols given on OS 1:10,000 raster data.
broadleaved woodland	Broadleaved woodland generally >1ha, having the appearance of possibly semi-natural or replanted broadleaved woodland. Mapped from symbols given on OS 1:10,000 raster data.
caravan site	Caravan sites generally >1ha. Mapped from OS 1:10,000 raster data.
caravan site/holiday camp	Caravan sites and holiday camps, generally >1ha. Mapped from OS 1:10,000 raster data.
common	Unenclosed common and rough grazing.
conifer plantation	Conifer plantations, generally >1ha, mapped from symbols given on OS 1:10,000 raster data.
convent	Conventual buildings and associated land, as marked on OS 1:10,000 raster data.
drained fields	Areas of straight-sided fields, generally >3ha, bounded by drainage ditches or dykes, having the appearance of late drainage and enclosure.
enclosed moorland	Larger enclosed areas of marginal land, often with straight-sided boundaries, lying on and around the edge of open upland areas, generally assumed to have been enclosed in modern times (since about the latter half of the 18th century), sometimes somewhat arbitrarily distinguished from more anciently enclosed land on lower ground. Mapped from OS 1:10,000 raster maps and GetMapping AP data.
encroachment	Small isolated area of enclosed land, sometimes accompanied by buildings, within an area of unenclosed moorland or common, generally >1ha. Mapped from OS 1:10,000 raster data.
fishery	As marked on OS 1:10,000 raster data.
former brickworks	As marked on OS 1:10,000 raster data.
former colliery	As marked on OS 1:10,000 raster data.
former gravel pit	As marked on OS 1:10,000 raster data, generally >1ha.
former mine	As marked on OS 1:10,000 raster data.
former parkland	As shown on Landmark historic mapping 1:2,500 or 1:10,000 raster data, generally >3ha.
former quarry	As marked on OS 1:10,000 raster data., generally >1ha.
former works/depot	As marked on OS 1:10,000 raster data.
golf course	Golf course and associated buildings etc, as marked on OS 1:10,000 raster data or represented on GetMapping AP data, generally >3ha.
gravel pit	As shown on OS 1:10,000 raster data or represented on GetMapping AP data
heritage site	Boundary of larger heritage sites, generally >2ha, (such as castles, abbeys, hillforts) as shown on OS 1:10,000.
hospital	Isolated hospital complex, as marked on OS 1:10,000 raster data.

irregular fields	Areas of irregular fields generally >1ha, probably representing a process of piecemeal clearance and enclosure. Mapped from OS 1:10,000 raster data.
mean high water	As shown on OS 1:10,000 raster data and GetMapping AP data.
mixed plantation	More regularly-shaped areas of broadleaved and conifer areas, generally >1ha, having the appearance of plantations. Mapped from symbols given on OS 1:10,000 raster data.
mixed woodland	Less regularly-shaped areas of broadleaved and conifer areas, generally >1ha, having the appearance of replanted semi-natural woodland. Mapped from symbols given on OS 1:10,000 raster data.
natural lake	Assumed natural lake generally >1ha, mapped from OS 1:10,000 raster data.
open moorland	Unenclosed upland areas and rough grazing, mapped from OS 1:10,000 raster maps and GetMapping AP data.
parkland	Present-day parkland areas, generally taken from the *Historic Gardens Register*, generally >1ha.
quarry	Larger surface quarry workings and opencast workings, tips, levels, disused and in use and ancillary structures including limekilns, dismantled mineral railway, roads and other quarrying infrastructure, generally >1ha. Mapped from OS 1:10,000 raster data and GetMapping AP data.
reclaimed fields	Straight-sided fields having the appearance of late drainage and enclosure of land along the margins of the Dee estuary, generally >6ha.
regular fields	Contiguous areas of more regularly-shaped fields, having the appearance of enclosed former open pasture or possibly reorganised formerly irregular field patterns, generally laid out in relation to the contours. Mapped from OS 1:10,000 raster data, generally only in blocks >3ha.
reorganised strip fields	Contiguous patterns of fields, generally >3ha, which appear to represent amalgamation and reorganisation of former strip fields which might themselves have originated from the enclosure of medieval open field furlongs. Mapped from OS 1:10,000 raster data and Landmark historic mapping 1:2,500 or 1:10,000 raster data.
reservoir	Larger reservoirs and dams, including ancillary works such as treatment works, water works, filter beds and access roads, mapped from OS 1:10,000 raster maps, generally >1ha.
rifle range	As marked on OS 1:10,000 raster data.
saltmarsh	As shown on OS 1:10,000 raster data and GetMapping AP data.
sand dunes	As shown on OS 1:10,000 raster data and GetMapping AP data.
sands	As shown on OS 1:10,000 raster data and GetMapping AP data.
settlement	Nucleated and dispersed settlements of all periods and types, generally of more than about 10 houses, and including contiguous associated utilities and communications infrastructure, sporting facilities, cemeteries, schools, hospitals etc, generally >1ha. Mapped from OS 1:10,000 data and GetMapping AP data.
sinuous broadleaved woodland	Irregular narrow tracts of broadleaved woodland generally >1ha, mapped from symbols given on OS 1:10,000 raster data, and having the appearance of semi-natural or replanted broadleaved woodland.

sinuous mixed woodland	Irregular narrow tracts of broadleaved and conifer woodland generally >1ha, mapped from symbols given on OS 1:10,000 raster data, and having the appearance of semi-natural or replanted broadleaved woodland.
straight-sided fields	Contiguous areas of straight-sided fields, generally >3ha, having the appearance of late enclosure of former open common grazing or late landscape reorganisation, or late partitioning of drained and reclaimed land. Mapped from OS 1:10,000 raster data.
strip fields	Contiguous areas of narrow elongated fields, generally 1ha, having the appearance of enclosed medieval open field furlongs or in some instances possibly post-medieval landscape reorganisation. Mapped from OS 1:10,000 raster data.
waste tip	As marked on OS 1:10,000 raster data, >3ha.
water works	As marked on OS 1:10,000 raster data.
works/depot	As shown on OS 1:10,000 raster data and GetMapping AP data, generally >3ha.
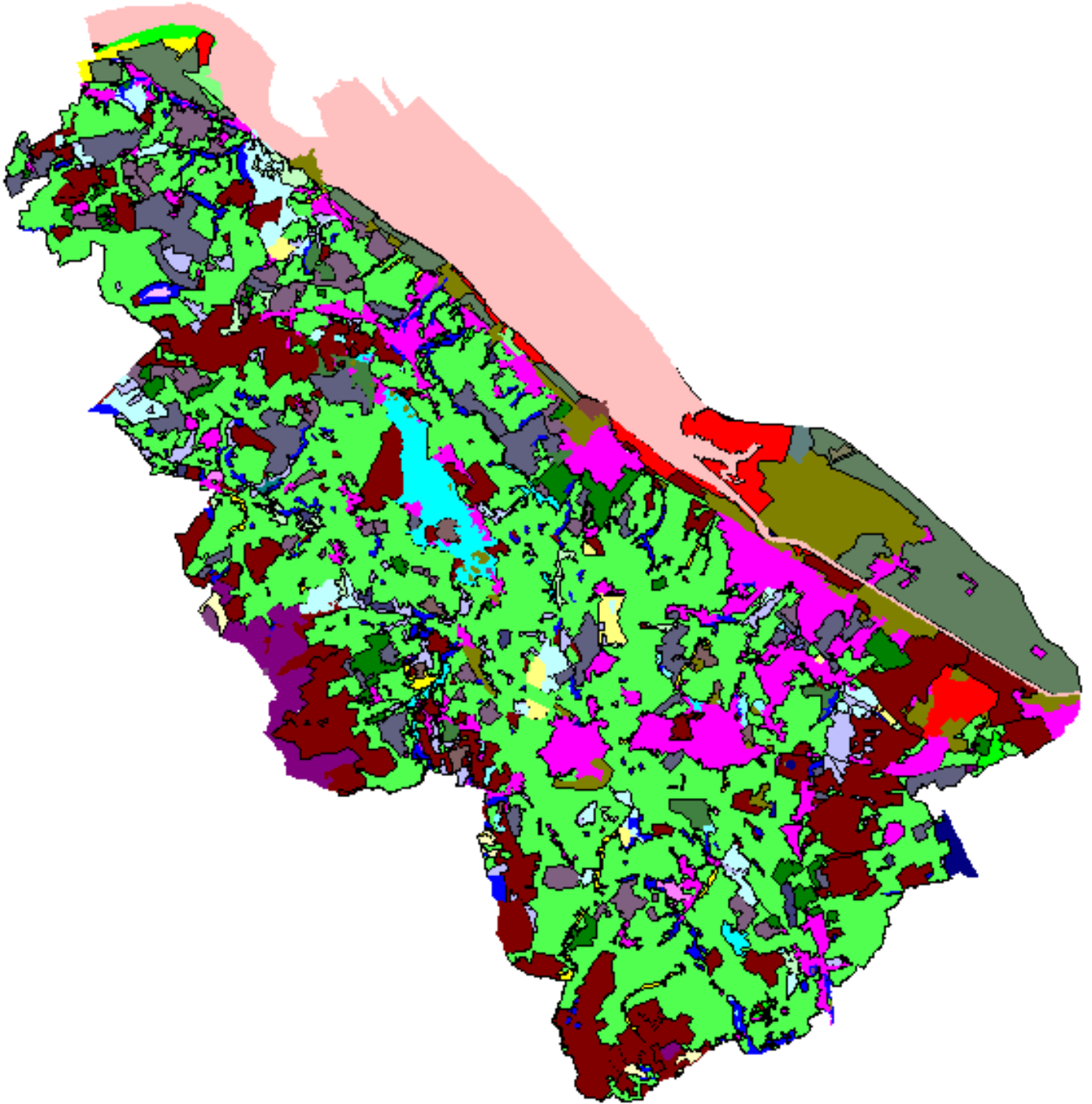
**Landscape Class polygons used to derive Historic Landscape Aspect Areas
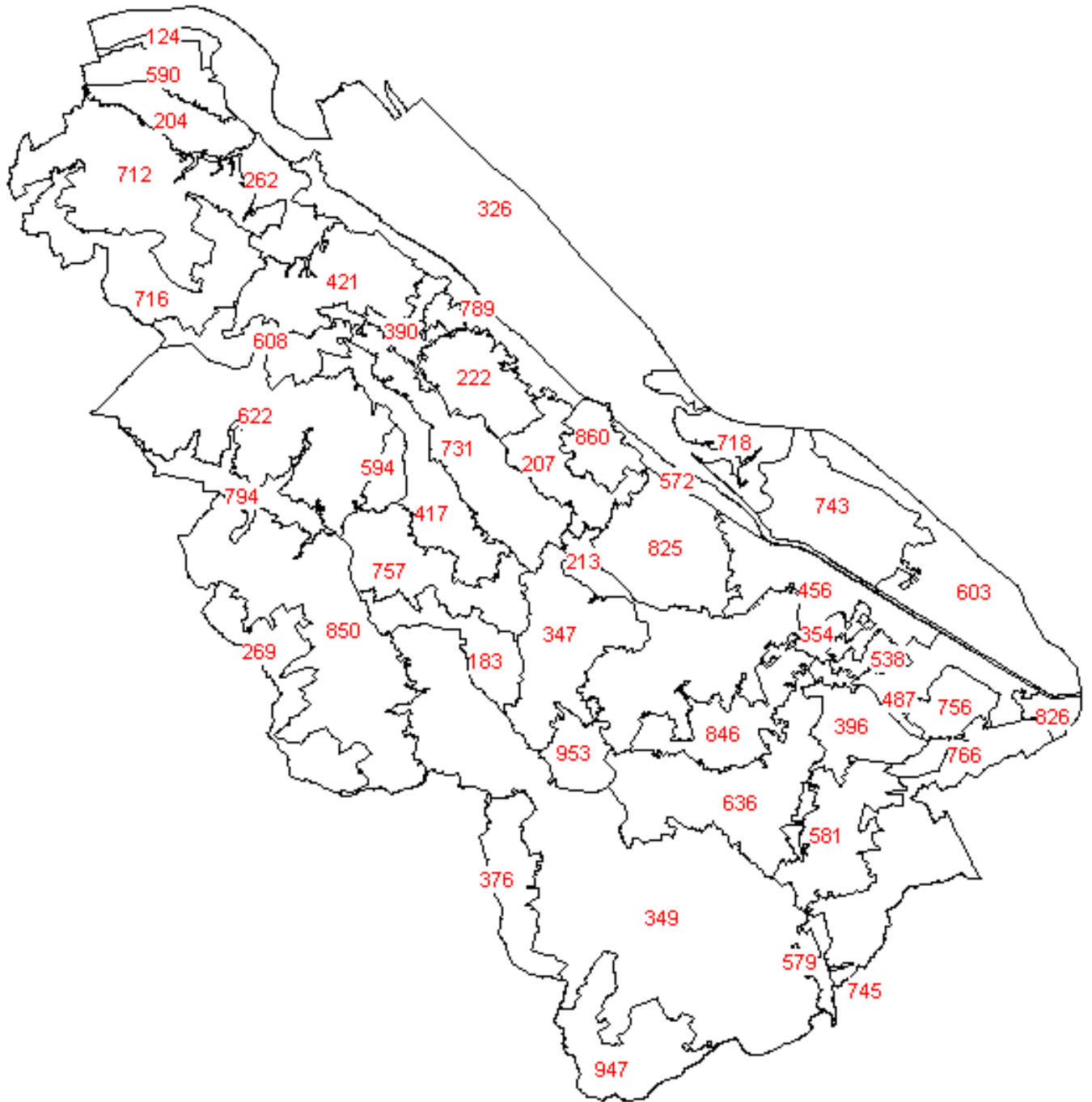at LEVEL 3 for Flintshire LANDMAP**

Key to base level data

■	airfield	(1)
□	broadleaved plantation	(6)
■	broadleaved woodland	(159)
□	caravan site	(9)
□	caravan site/holiday camp	(2)
□	common	(4)
■	conifer plantation	(65)
■	convent	(2)
■	drained fields	(1)
■	enclosed moorland	(4)
■	encroachment	(14)
■	fishery	(1)
□	former brickworks	(2)
□	former colliery	(2)
■	former gravel pit	(5)
□	former mine	(5)
□	former parkland	(8)
□	former quarry	(30)
■	former works/depot	(2)
■	golf course	(9)
■	gravel pit	(8)
■	heritage site	(6)
■	hospital	(1)
□	irregular fields	(137)
□	mean high water	(1)
□	mixed plantation	(18)
□	mixed woodland	(83)
□	natural lake	(3)
□	open moorland	(6)
□	parkland	(29)
■	quarry	(11)
■	reclaimed fields	(11)
■	regular fields	(41)
■	reorganised strip fields	(45)
■	reservoir	(5)
■	rifle range	(1)
■	saltmarsh	(7)
□	sand dunes	(1)
■	sands	(4)
■	settlement	(111)
□	sinuous broadleaved woodland	(34)
□	sinuous mixed woodland	(4)
■	straight-sided fields	(86)
■	strip fields	(30)
■	waste tip	(1)
■	waterworks	(1)
■	works/depot	(35)

ANNEX C

SUMMARY LIST OF HISTORIC LANDSCAPE ASPECT AREAS

AREA NUMBER	AREA NAME	LEVEL 3 CLASS LANDSCAPE PATTERN	AREA SQ KM
FLNTHL124	Point of Ayr	Marginal land	1.35
FLNTHL183	Middle Alyn Valley	Irregular fieldscape	5.93
FLNTHL204	Gwespyr	Regular fieldscape	5.14
FLNTHL207	Maes Gwyn	Regular fieldscape	6.47
FLNTHL213	Northop Hall	Irregular fieldscape	18.16
FLNTHL222	Gadlys	Irregular fieldscape	7.91
FLNTHL262	Mostyn Hall & Downing	Designed	5.79
FLNTHL269	Moel Arthur	Marginal land	8.79
FLNTHL326	Dee Estuary	Water & Wetland	51.29
FLNTHL347	Lower Soughton	Irregular fieldscape	12.32
FLNTHL349	Leeswood	Irregular fieldscape	57.98
FLNTHL354	Hawarden	Nucleated settlement	0.67
FLNTHL376	Nercwys Mountain	Regular fieldscape	6.44
FLNTHL390	Holywell	Nucleated settlement	3.33
FLNTHL396	Hawarden Castle	Designed	5.79
FLNTHL417	Halkyn Mountain	Extractive	9.26
FLNTHL421	Saith Ffynnon	Irregular fieldscape	11.03
FLNTHL456	Connah's Quay	Non-nucleated settlement	9.90
FLNTHL487	The Rakes	Regular fieldscape	5.80
FLNTHL538	St Deiniol's Ash & Aston Hall	Regular fieldscape	3.10
FLNTHL555	Penyffordd	Non-nucleated settlement	0.81
FLNTHL572	Rockcliffe Marsh	Non-nucleated settlement	2.34
FLNTHL579	Caergwrle & Hope	Nucleated settlement	1.72
FLNTHL581	Penymynydd	Regular fieldscape	8.90
FLNTHL590	Talacre	Regular fieldscape	5.01
FLNTHL594	Pen Ucha'r Plwyf	Regular fieldscape	2.09
FLNTHL603	Sealand	Regular fieldscape	14.92
FLNTHL608	Pantasaph	Irregular fieldscape	6.28
FLNTHL622	Babell	Irregular fieldscape	24.79
FLNTHL636	Padeswood	Irregular fieldscape	16.48
FLNTHL712	Axton	Regular fieldscape	19.29
FLNTHL716	Helyg	Irregular fieldscape	12.64
FLNTHL718	White Sands	Reclaimed land	5.88
FLNTHL731	Halkyn	Irregular fieldscape	12.06
FLNTHL743	Shotton Mills	Processing/manufacturing	11.97
FLNTHL745	Kinnerton	Irregular fieldscape	14.77
FLNTHL756	Broughton Airfield	Communications	3.84
FLNTHL757	Trellyniau	Irregular fieldscape	9.92
FLNTHL766	Broughton	Non-nucleated settlement	1.14
FLNTHL789	Mostyn & Bagillt	Non-nucleated settlement	7.47
FLNTHL794	Wheeler Valley	Irregular fieldscape	5.34
FLNTHL825	Leadbrook	Irregular fieldscape	11.80
FLNTHL826	Saltney	Non-nucleated settlement	1.56
FLNTHL846	Buckley & Ewloe	Othersettlement	7.97

FLNTHL850	Penbedw	Irregular fieldscape	25.89
FLNTHL860	Flint	Nucleated settlement	3.91
FLNTHL947	Gwernto	Irregular fieldscape	9.48
FLNTHL953	Mold	Nucleated settlement	3.85

Historic Landscape Aspect Areas defined at Level 3 for Flintshire LANDMAP