7 FARMSTEAD TYPES

There is a diversity of scale and form of farmsteads on Jersey, which are shown on Figure 25. These will be explored in their fuller international context before they are examined in further detail.

The recording of the plan form of farmsteads as shown on the 1935 Ordnance Survey map has allowed the identification of the broad characteristics of the Island's farmsteads (see 2.4). This has been based on the identification of both Primary and Secondary attributes, as many farmsteads combine more than one element. Recording has, for example, demonstrated the importance of Regular Courtyard plans of all forms which represent 48% of the total recorded. Linear, L-plans with the house attached and Parallel plans are also significant in terms of farmstead character on Jersey. We shall see that this reflects developments in both south-west England and in particular north-west France, whilst the combination of these plans with the high proportion of Regular Courtyards and other regular plans presents an interesting contrast in farmstead types.

Figure 27. Plan forms of Jersey farmsteads. The farmhouse either faces away from the yard into its own garden (above) or into the main farmyard (below).

7.1 International Context

The layout of the farmyard is closely linked to its historic function and size, there being an obvious contrast for example between large arable-based farms that used wage labour and smaller family-based pastoral farms. A range of other factors – land use, terrain, weather, farm size, location in village or open countryside – also dictated farmstead layout. For example, in areas as far apart as West Cornwall and Exmoor, not only holdings but also the farm buildings could be intermixed in a seemingly random scatter of buildings. Whilst these could be condemned by observers (such as Billingsley 1797, 203, in his account of Somerset agriculture), it should be noted that smaller farmsteads could tolerate minor inefficiencies than farmsteads that covered a larger area.

The resulting diversity of form and scale is the direct outcome of the significant variation in farming practice and size that occurs both over time and from place to place. There are many variations, particularly in the manner in which fully evolved plan groups can, as a result of successive rebuilding, contain elements of more than one plan type. Quite simple layouts often developed into more complex forms as new buildings and yard areas were added. They may on the other hand result from the contraction of hamlets into single farmsteads or the rearrangement of buildings into more compact forms. The primary types are the following:

Linear plans, where houses and farm buildings are attached, are ideally suited to small farms (usually stock rearing and dairying). There was an obvious advantage in having cattle and their fodder (primarily hay) in one enclosed building. They display a wide range in scale and social status.

This group comprises farmsteads with farm buildings attached to, and in line with, the house. They are common across large areas of the uplands of England and Wales, in parts of south-west England and in north-west France. They are most strongly associated with areas of small-scale dairying or cattle rearing, where there was an obvious need to tend to the needs of milking cattle or young stock close to the house, and in hill farming areas marked by sheep farming. They extended in social scale from the smallest farms, including those with access to by-employment in manufacture and the longhouses of north and western Britain and north-west France, to large and high-status examples including the fine medieval longhouses of eastern Dartmoor and the manoirs of north-west France.

John McCormack has studied the development of longhouses in Guernsey and is studying domestic architecture in Jersey. It would be interesting to see how these

compare to surviving and documented examples in Britain and France. In Brittany, all farmstead functions were commonly combined in the longhouse into the 20th century, the consequence being the survival of hamlets to the present day with remnants of strip fields (Meirion-Jones 1982, 317-9). In Brittany, the longhouse typically only comprises a living room and byre, often with no physical separation and not hinged around the through-passage (Meirion-Jones 1982, 114-191). The consequence can, particularly when a window is inserted at the byre end, be a one-and-a-half-storey house with central door and flanking windows and little or no hint of its original purpose. Such structures could not be identified in any mapping exercise. Excavation and field survey in areas such as Dartmoor and Bodmin Moor has recovered the layout of abandoned medieval hamlets, for example Hound Tor on Dartmoor, in association with strip farming. These settlements had a characteristic mix of steadings arranged around cattle yards and longhouses of different sizes with one or two detached outbuildings, including a small barn (Johnson & Rose 1994, 94-98). The hamlet at Lettaford on the edge of Dartmoor is a remarkable survival of this type of settlement.

Parallel plans have the buildings ranged around opposing sides of the yard., and often represent developments from earlier linear plans, if they have not been constructed in a single phase. In NW France, as in Jersey, they include examples with dwellings sited opposite each other.

L-shaped and U-shaped plans often evolve from an original linear farm, or can represent the partial re-organisation of a dispersed plan. L-shaped plans are a dominant feature in the dairying areas of the Cheshire, Shropshire and Staffordshire plain in England, where they are associated with a widespread rebuilding of the mid-late 19th century, and they also occur in the dairying areas of Suffolk in the context of much earlier surviving buildings. In the former areas, as in Jersey, they are associated with throughways (termed driftways) which provide access for the movement of carts and livestock from the main yard into adjacent fields or tracks. The strongest resemblances to Jersey farmsteads are however in north-west France, L-shaped and U-shaped plans being a particular feature of parts of the Cotentin peninsula where they have one or two-storey cattle ranges attached. They and loose courtyard plans with buildings to one-three sides have been noted in Brier and Brunet as 'open-courtyard' plans and as dominant across the Cotentin (1984, 64-5).

Figure 28. Linear plans in south-west England and north-west France can derive from longhouses which were either isolated (Throwleigh, Dartmoor, top left) or clustered in hamlets (Kervaly, Brittany, top right). Longhouses have noted been positively identified on Jersey. Linear ranges in the Cotentin (shown on the remaining pictures) date from the medieval period. As in Jersey, they could be placed at right angles to the road, the one to bottom right being a parallel plan near Treaville.

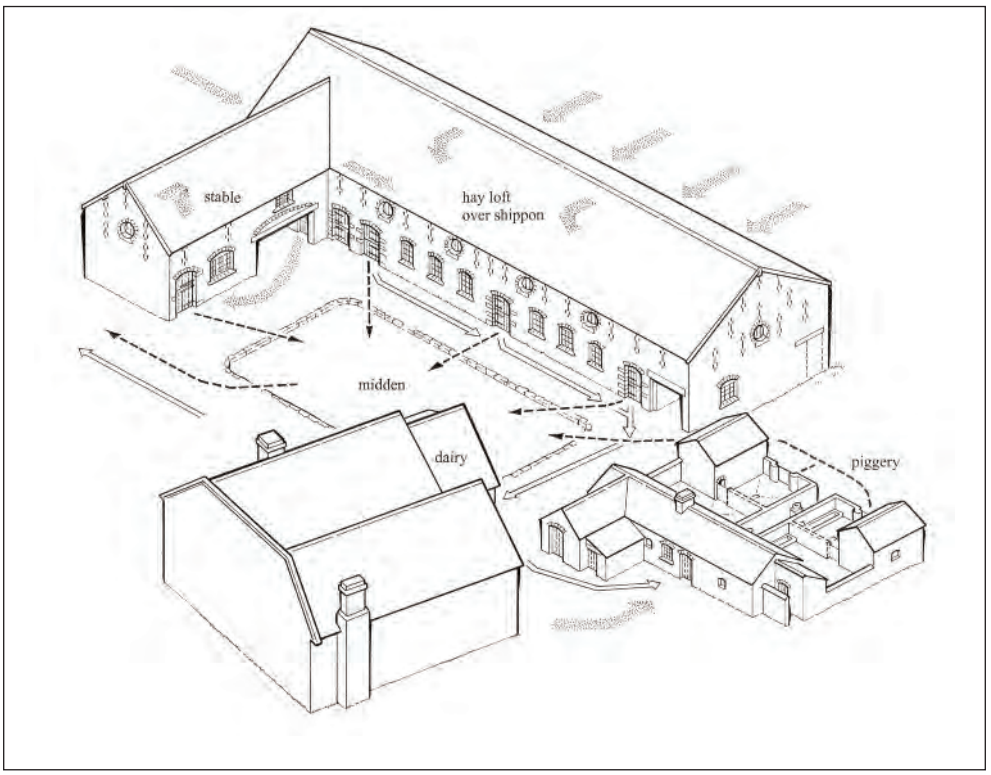


Figure 29. L-plans. On the Cheshire plain (top left) large regular L-plan steadings, with throughways for the movement of carts and livestock as in Jersey and north-west France, date from a comprehensive reshaping of its landscape and its agriculture in the 19th century. The overall form of an L-plan with a through-way is a far more common feature in north-west France, and especially in the Cotentin. The overall L-plan is also seen on family farms of the 16th-17th centuries in the Cotentin (top right, St Germain), in the 19th century (bottom left, Gonneville) and much earlier in seigneurial complexes of the 14th-16th centuries (bottom right, Rozel, Brittany).

Loose courtyard plans, where buildings are focused on one or all sides of a yard with or without scatters of other farm buildings close by. Most of these plans result from piecemeal development.

There are excavated and documented examples of this layout in England and France dating from the 13th century (in Hallam 1988, 860; 889) associated with the base courts of large baronial and episcopal establishments, with moated manorial sites (where the farm buildings were arranged either within or outside the moat) and with the farms of an emerging wealthier class of peasant, the latter often replacing two or more previous steadings with longhouses (Le Patourel in Miller 1991, pp.843–865). Archaeological evidence from deserted medieval settlements has shown how linear plans, including longhouses, were replaced by loose courtyard arrangements as owners prospered and their holdings grew larger (Lake 1989, 81–2; Gardiner 2000). This applies to other typologically earlier layouts, such as the dispersed farmstead plan and its replacement by increasing numbers of courtyard plans in 19th century Norfolk (Wade Martins 1991, p.199). Generally it was not until after the 1840s that some degree of rationalisation occurred with farmsteads re-organised around yards. In Cornwall few farm buildings pre-date 1800 and the rebuilding of farmsteads around yards in the early to mid-19th century was invariably accompanied by farm amalgamation (Barnwell & Giles 1999, 96, 98; Wade Martins 2002, 210). The rebuilding and rationalisation of yards with dispersed layouts between the tithe surveys of the 1840s and the Ordnance Survey maps of the early 20th century (which resulted in the appearance of L- and U-shaped complexes built around cattle yards in all areas of Devon), was the result of firstly the intensification of livestock farming from the 1840s and then its meteoric rise from the 1870s – grassland exceeded arable by 1889 and the number of dairy cattle doubled between 1866 and 1930, partly as a result of the post-1870s depression (Child 2001, 72; Wade Martins 2001, 20–54). There are examples throughout Europe, primarily in arable landscapes but also occurring in other areas where large capital farms developed. In north-west France, courtyard farms are found in pockets of land characterised generally by larger arable-based farms with ease of access to market, such as the 17th-18th century *clos-masures* of the Pays de Caux in Normandy, the manor farms of the area around Bayeaux and the more fertile coastal areas of Brittany (Brier and Brunet 1984, 67-71; Meirion-Jones 1982, 320-322; Couedic and Trochet 1985, 106-7). Manorial and large farms could equally well be set out in linear ranges.

Small-scale examples with buildings to one or two sides of the yard are found in pastoral areas of England. Large-scale examples with buildings to 3 or 4 sides of the yard are strongly associated with high status farms and with large arable farms

in both France and England. For example, many farmsteads on the downlands of southern England have one or more barns providing shelter to a south-facing yard (as recommended but not always followed), typically bordered by a stable, granary and later shelter sheds. By the early 19th century, for example, loose courtyard layouts were largely confined to arable areas (particularly in the Cotswolds, the chalk downlands and other arable areas such as the coastal fringe of Somerset), where 200- to 1000-acre farms (404.6 hectares) had replaced small farms by the mid-18th century (Thirsk 1984, pp. 322, 332; Riley and Wilson North 2001, 122-3).

Regular full courtyard plans, primarily arranged around 3 or 4 sides of courtyards, where the various functions were carefully placed in relation to one another in order to minimise the waste of labour, and where the manure could be conserved, were recommended from the mid-18th century. Courtyard plans are generally associated with holdings over 150 acres (60.6 hectares), and include the planned and model farms built for estates -known as 'la ferme Anglaise' in France. Such layouts were often built in accordance with ideas being spread through national literature and contacts.

The ultimate examples of courtyard farmsteads in Britain are the planned and model farms of the late 18th- and 19th-century estates, the ideas for which were widely disseminated in textbooks and journals (Wade Martins 2002). In England, they are generally associated with holdings over 150 acres and were mostly built on estates in order to attract high-value tenants. They are concentrated in landscapes of regular enclosure, such as the Yorkshire Wolds, and examples outside these areas generally fall into the High Farming period of the 1840s-1870s.The plan was loosely based on the Palladian villas and farmsteads developed in the 16th century Veneto in north Italy, and was developed on English and Scottish estates in the 18th and early 19th centuries. It is, interestingly, known as the 'ferme Anglaise' in France, although large regular plan farmsteads of the 18th-19th centuries without any apparent English influence are found throughout the arable areas of France. Significantly, no farms of this type of one build were noted by Meirion-Jones in Brittany (1982, 323), but regular courtyard plans have been noted in Normandy.

Dispersed plans display no obvious evidence for planning in the layout of the buildings, and there is no principal yard area. The buildings are typically orientated in relationship to routes, tracks and various working areas. The mapping of farmsteads in England, and observation of farmsteads in France and elsewhere, is indicating that they are strongly concentrated in landscapes of ancient enclosure, and in particular where cattle rearing – and the need for separate contained areas for livestock – was historically important.

Figure 30. Loose courtyard plans in much of England and Wales developed in response to the need to process and store the harvested crop (in a threshing barn) and the process of the straw into manure in a cattle yard (above). This group (below) in the Forest of Arden shows threshing barns to the outer ends, with stables and cowhouses flanking the house. It is an exceptionally rare example of a coherent group of 18th century and earlier buildings in England.

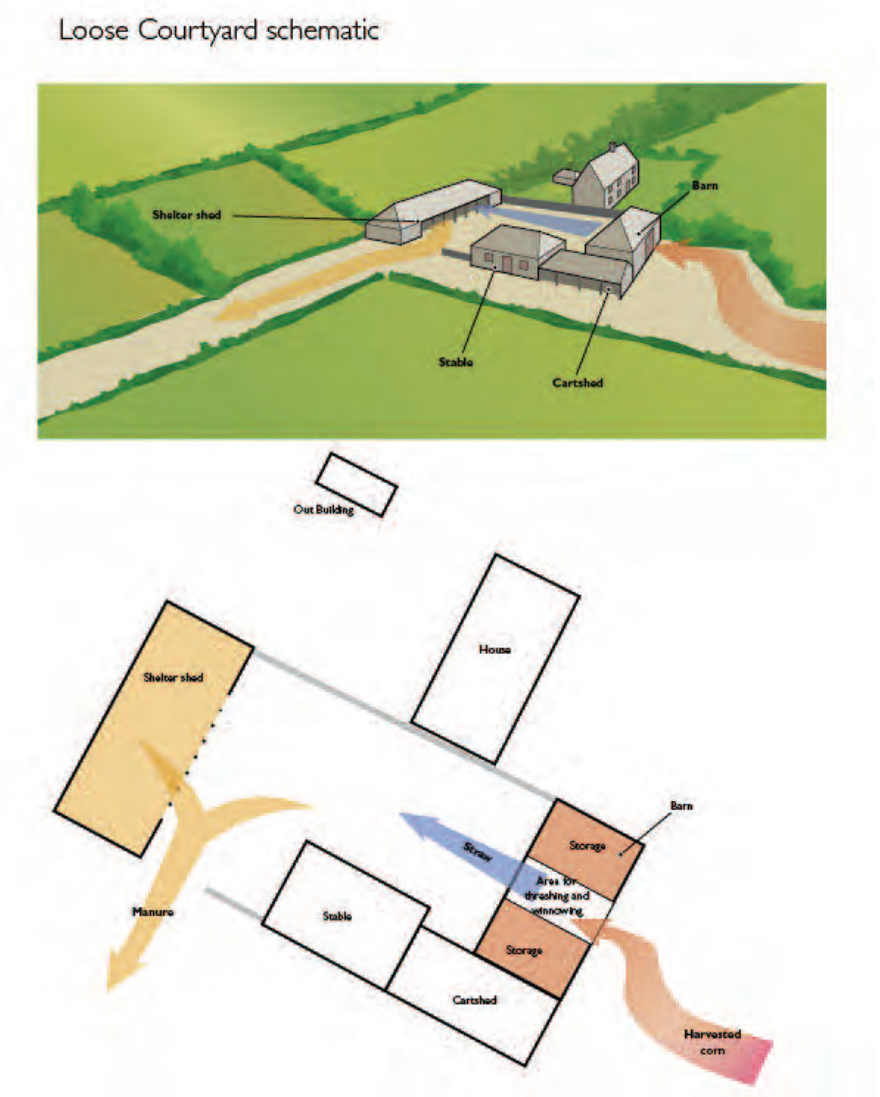


Figure 31. Large loose courtyard plans, where the buildings developed on 3 or 4 sides of a yard, are found associated with manorial and high status groups dating from before the 18th century in both England and France. To the top is a group on the west of the Cotentin near Carteret. To the centre is a large loose courtyard arrangement at Tapotin west of Valognes, with buildings facing each other across a yard with the house in the centre: this arrangement is a feature of farmsteads especially in Jersey's rich interior. To the bottom is a smaller example of this type, with a building to one side of the yard only.

7.2 Plan Form in Jersey: An Introduction

'The disposition of the dwelling and offices is frequently in the shape of a carpenters' square, with the roof meeting at right angles...The design probably was to obtain shelter in this windy climate, by presenting the external angle to the west; but this direction is not universally observed' (Quayle 1815, 49).

Quayle wrote his report on Jersey's agriculture exactly 20 years after Richmond's mapping of the island. Richmond's maps show a predominance of linear, loose courtyard, L-plan and U-plan forms. The latter two categories are easy to identify from these historic maps, and it is clear that Quayle considered compact farmsteads with interlinked ranges of buildings as the basic building block of Jersey farmsteads. Whilst linear and loose courtyard plans with buildings to one or two sides of the yard are commonly found on smaller farms in south-west England and north-west France, it is the L-plan and U-plan forms that comprise over 60% of mapped farmstead plans and that – whilst sharing in a general sense with farmstead types observable in south-west England - bear the strongest resemblance in combination with other aspects of farmstead architecture (notably through-entries and multi-functional ranges with cattle housing and full working lofts) to farmsteads in pastoral areas of north-west France, especially the Cotentin peninsula.

The 1935 map was used in order to map the range of farmstead types across the island, at a historical point that marked the end of the construction of traditional farmstead buildings, and that resulted from over 100 years of further change in farmstead architecture and the Jersey landscape.

There is a broad distinction between regular plans (44.7% of the total, and grouped under the term Regular Courtyard), where the buildings have been newly-laid out or remodelled to a regular template, and piecemeal evolved layouts. Regular layouts of different forms can include earlier ranges, but they are more likely than other types to result from 19th century rebuilding. They show a marked weighting in the east of the island, where after the clearance of orchards in the 19th century larger mixed farms developed. It will be seen, however, that all the farmstead types contain evidence to varying degrees for complete or piecemeal rebuilding. Earlier single-storey ranges are commonly revealed within present storeyed and multi-functional structures. It will be seen that there is a broad distinction between regular plans (44.7% of the total), where the buildings have been newly-laid out or remodelled, and evidently piecemeal evolved layouts as indicated by their more irregular forms.

Farmsteads differ in their scale and form, and in how access is provided to, within and around the steading and its buildings. Most farmsteads except the most formal regular plans contain evidence to varying degrees for complete or piecemeal rebuilding and even the absorption of smaller whole farmsteads. Earlier single-storey

ranges are commonly revealed within present storeyed and multi-functional structures.

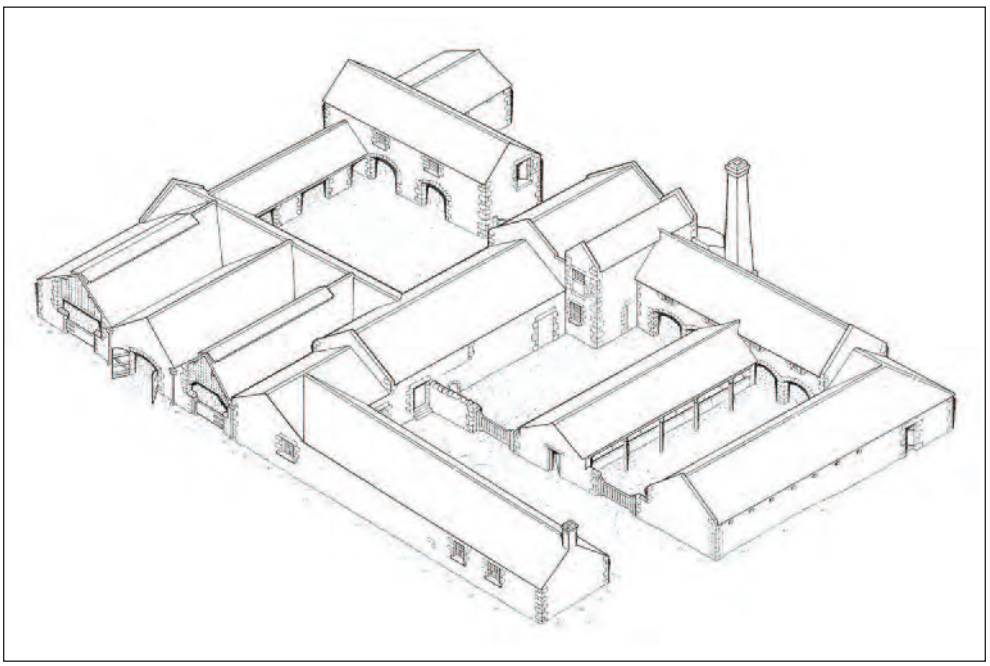
Farmhouses often face south, and are orientated so that they either face into or away from the yard. The majority of farmhouses are attached to their working buildings, those on the larger farms resulting from rebuilding in the 19th century being most likely to face into their own gardens and be detached from the main group.

The basic farmstead plan types are shown together on Figure 25 and in Table 6, and in order of their percentage total are:

- L-shaped plans, comprising those where the house and buildings are attached (16.1%, B on plan) and regular forms (14.2%, G on plan) where the house is often detached.
- Regular U-shaped plans (21.4%, G on plan).
- Loose courtyard plans (14.2%), where the working buildings have developed in piecemeal fashion mostly on one (D on plan) or two (E on plan) sides of a yard, sometimes on 3 or 4 sides of a yard and combined with an L-shaped range.
- Parallel plans, where the house (often in a linear range attached to working buildings) is sited opposite to a parallel range of working buildings (9%, C on plan).
- Fully-enclosed courtyard plans (7.4%, I on plan), which are concentrated to the east where the largest farms developed.
- Linear plans, where the house and working buildings are attached in one in-line range (6%, A on plan).
- Dispersed layouts (3%, K on plan)
- Z-shaped layouts (1.7%, J on plan)
- Regular T-shaped plans (1.5%) and F-shaped plans (0.1%).

This presents an analysis of dominant farmstead character, although it should be stressed that examples of all the farmstead types can relate to detached working buildings, such as cartsheds placed close to tracks, and farmhouses that are either detached from or attached to the main group. These have all been recorded in the GIS point data submitted by Forum Heritage Services to Jersey Heritage, and are thus capable of analysis in relationship to a diversity of datasets on the natural and historic environment.

Figure 32. Regular courtyard plans with buildings enclosing all sides of a yard often result from rebuilding in the later 18th-19th centuries, sometimes on earlier high status sites, as in the rich cornlands of the Charente (top left), Cosqueville in the north-east Cotentin (top right), a mid Devon barton farm (bottom left) or an industrial scale Northumberland farm (bottom right) of a type confined to the Paris basin in France.



7.3 Jersey Farmstead Types

7.3.1 Linear plans

Linear plans have the house and working buildings set out in one range – 'in-line'.

- They display a great range in scale.
- All the buildings typically present one main elevation, facing south onto a yard and a main entrance and circulation area.
- The rear elevations may be relatively blank and free of openings.

They comprise only 6% of Jersey farmsteads, but it is likely that many have been absorbed into L-plans and other farmstead types. They are particularly difficult to identify from historic mapping unless the division between house and working buildings is clear. Some recorded examples may be two adjoining houses – the 1935 mapping does not show divisions between properties. Therefore this group has a lower confidence level than the larger plan types.

The evidence for the absorption of smaller whole farmsteads into present farmsteads is significant. It may well explain the relative rarity of the linear plan in Jersey although it is a prominent feature in the landscape and it comprised the basic farmstead form across the island as in north-west France and south-west England. It would be useful to link mapped farmstead sites and data on farmstead type to documentary sources, and in particular Census data which from 1851 defined the farm as an agricultural holding which provided the principal means of employment to the occupier (Shaw-Taylor 2005, 159). Agricultural census data would also be very useful in this respect. 852 farmstead sites have been mapped. In 1930, there were 1,808 farms in Jersey, averaging 25 vergées (see 5.3.2) per farm of which 582 were below 10 and 447 below 25 vergées. Buildings falling into this smallholding category are least likely to have left any obvious archaeological, architectural or cartographic indication of their status, in contrast to the remaining 779 farms over 25 vergées (Le Feuvre 1998, 49-50; Crosby 1998). Looked at overall, therefore, a very high proportion of those sites recorded as farmsteads in 1930 were not provided with buildings that can be identified from the island map of the same decade: this is comparable to the situation in Brittany, where many small farms (invariably linear in overall form, and often with a single door to the dwelling and space for animals and implements) were not provided with buildings, and bears out Kelleher's analysis of the substantial increase in smallholders in the 19th century. Another factor meriting exploration is the extent to which some larger properties in particular had by the 1930s passed out of agricultural into purely domestic use.

These factors, and notably the absorption of linear steadings into larger mapped farmsteads, may explain why the linear and parallel types have no pre-1600 buildings and only one farmstead retains a 17th century building. The presence of a group of these plan types in the St Ouen's Bay Escarpment and Valleys character area in the west of the Island, where settlement may be associated with late 18th or early 19th century enclosure, indicates that on small farmsteads these plan forms continued to be used.

7.3.2 Parallel plans

Parallel plans comprise over 9% of mapped farmsteads, and have the farmhouse and an agricultural building lying parallel to each other with a small yard area between. Their distribution in the British Isles and France closely matches that of linear farmsteads. Some recorded parallel plans may represent two houses lying parallel to each other where an earlier house has been replaced by another. The old house may have been used for an agricultural function or continued in domestic use for extended family members. Some parallel plans are likely to have developed from linear plans.

7.3.2 L-plans

L-shaped plans typically:

- have the house, sometimes with working buildings attached in-line, sited at right angles to the working buildings;
- face towards a main entrance and circulation area. The rear elevations can be relatively blank and free of openings.

L-shaped plans comprise over 30% of mapped farmstead plans. Although L-shaped plans developed in dairying areas in England, those on Jersey most closely resemble those of north-west France and especially the Cotentin peninsula. Here many L-shaped complexes with extensive cattle ranges had developed by the 18th century. L-plans fall into two categories of:

1 L-plans with attached plans. Over 23% of L-plans with the house attached have recorded buildings dating from the 17th century or earlier. This represents the highest percentage of early buildings recorded in any plan type.

2 Regular L-plan yards are the third most common plan form recorded on Jersey - 14.2% of the total. The farmhouse is more likely than irregular L-shaped plans to be detached and face into its own garden area, sometimes with its own entrance.

A proportion of loose courtyard plans (2.4% of the mapped total) with buildings on 3 or 4 sides of the yard include L-shaped ranges on two sides of the yard.

The distribution of Regular L-plan farmsteads follows the distribution of the other regular plans with the concentration in the east of the Island within the Eastern Plateau character area, where in the 19th century the removal of orchards predated the establishment of larger and more intensively-farmed mixed farms. There are smaller concentrations in the northern part of St Peter's parish and in the north-west peninsula.

Field survey needs to examine the origins of these apparently planned steadings with a detached farmhouse. Some may actually represent L-plans with an attached farmhouse where the old farmhouse has been replaced by a new farmhouse on a separate site, leaving the old farmhouse to serve as a cottage or reduced to a working agricultural building.

7.3.3 Regular U- plans

Regular U-plan farmsteads are the most common plan type recorded on the Island, representing over 21% of recorded farmsteads. They are found across the whole of the Jersey, although there is a slight bias towards the east where Regular Courtyard plans are concentrated.

- A high proportion (73.8%) have the farmhouse attached to the main range.
- The farmhouse can also be detached and face into its own garden area, and sometimes with its own entrance.
- They are generally inward-facing to the yard, the external elevations having few if any openings.
- Despite their regular plan form, they include a high proportion (16%) of farmsteads with 18th century or earlier buildings.

It is possible that a high proportion of the Regular U-plan steadings are derived from Linear and L-plans with the house attached. Field survey of steadings where the farmhouse appears to be a separate building might demonstrate that some of the remaining 26% of U-plan steadings have an earlier farmhouse within the U-range. This would further confirm the origins of the majority of such steadings as being Linear or L-plan rather than representing examples of more formal planning of courtyard farmsteads.

Table 7 - Farmstead plan types in Jersey

Plan	No.	Overall %	Pre-1600	C17	C18	C19	C20
Dispersed (ALL)	23	3	1 (4.3)	3 (13.0)	2 (8.7)	4 (17.4)	13 (56.5)
Dispersed cluster K on Fig. 25	21	2.8	1	3	1	4	12
Dispersed driftway	2	0.2	0	0	1	0	1
Loose courtyard (LC) ALL)	88	14.2	2 (2.2)	7 (7.7)	14 (15.5)	19 (21.1)	48 (53.3)
LC1, with buildings to one side of yard D on Fig. 25	46	5.9	1	3	6	12	24
LC2 (2 sides) E on Fig. 25	35	5	1	4	7	5	18
LC3 (3 sides)	7	0.9	0	0	1	1	5
As above, but two buildings are attached creating L-plan (LCL3)	12	2	1	1	3	3	4
LCL4 (as above, 4 sides) F on Fig. 25	3	0.4	0	0	0	1	1
Linear A on Fig. 25	45	6	0	1 (2.2)	8 (17.7)	9 (20.0)	27 (60.0)
L-plan (attached house) B on Fig. 25	145	16.1	7 (4.8)	13 (18.9)	17 (11.7)	21 (14.5)	87 (60.0)
Parallel C on Fig. 25	69	9.2	0	2 (2.9)	7 (10.1)	8 (11.69)	52 (75.4)
Regular courtyard, buildings to 4 sides of yard I on Fig. 18	55	7.4	0	1 (1.8)	4 (7.2)	14 (25.5)	36 (65.5)
Regular courtyard L-plan G on Fig. 25	106	14.2	0	11 (10.4)	15 (14.2)	10 (19.4)	69 (65.1)
Regular Courtyard F-plan	1	0.1	0	0	0	0	1
RCh	2	0.2	0	1	0	0	1
Regular courtyard T-plan	11	1.5	2	1	1	2	5
Regular courtyard U-plan H on Fig. 25	158	21.4	0	9 (5.6)	16 (10.0)	31 (19.3)	104 (65.0)
Row plan	5	0.6	0	1	0	1	3
Single building only	1	0.1					
Z-plan	13	1.7	0	0	2 (15.4)	2 (15.4)	9 (69.2)
No defined character	4	0.5					

7.3.4 Loose Courtyard plans

Loose courtyard groups as a whole comprise 14.2% of mapped farmsteads. They comprise the highest proportion of farmsteads (47%) that can be dated through the presence of recorded buildings– mostly of 18th century or earlier date - within the farmstead. They include examples such as Hamptonne and Morel in St Lawrence parish, both of which have yards in front of high-status houses. They are concentrated in the western part of the Central Plateau Ridges character area, which retains the most coherent of the landscapes affected by 16th-17th century enclosure. This distribution strongly contrasts with that of the Regular Courtyard (fully enclosed) farmsteads which are concentrated in the Eastern Plateau character area (E7) and associated with the highest levels of 19th century landscape change.

* the cattle yard is the focus with buildings on one (5.9%), two (5.0%) or more (3.3%) sides; courtyard groups with buildings to 3 or 4 sides are typically high status;
* the farmhouse can be detached and face into its own garden area, and sometimes with its own entrance;
* they are generally inward-facing to the yard, the external elevations having few if any openings.

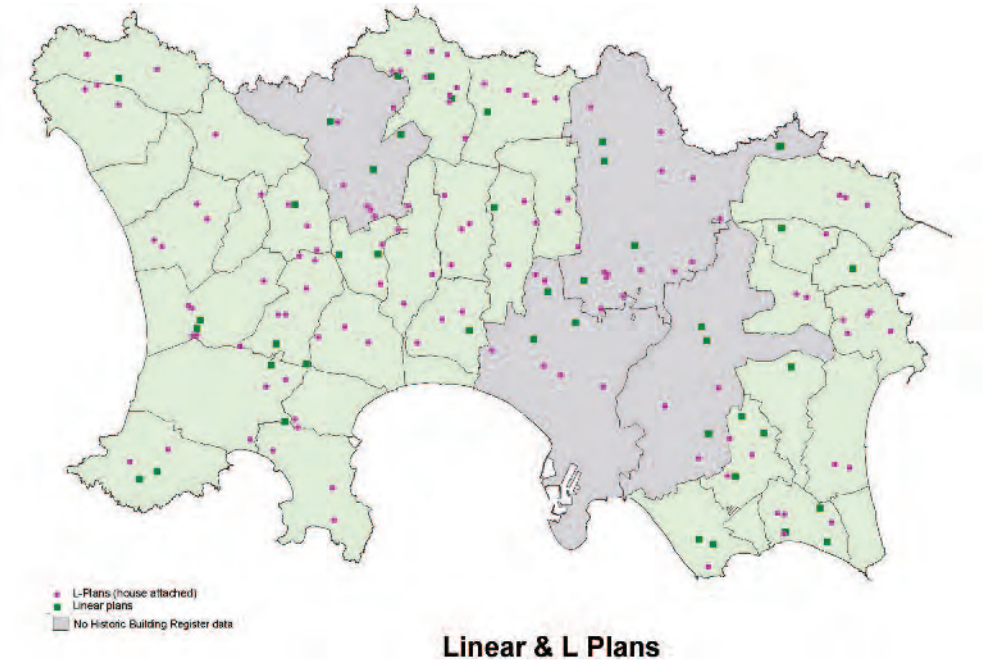
7.3.5 Enclosed Regular Courtyard plans in Jersey

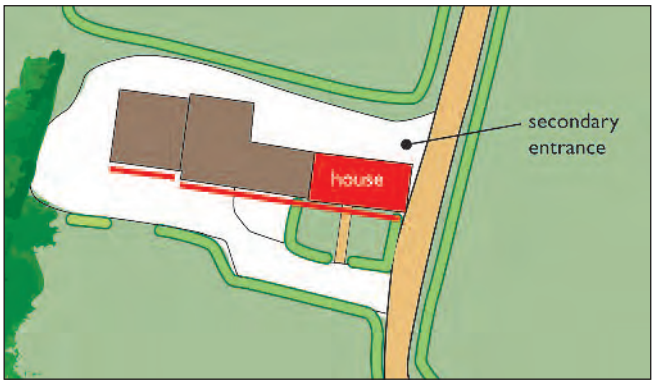
Fully-enclosed courtyard plans comprise 7.4% of mapped farmsteads and generally represent the largest planned farmsteads. They are concentrated in the Eastern Plateau character area:

- they are typically the largest-scale farmsteads on Jersey;
- the house is typically detached and faces away from the farm steading, often into its own garden;
- the buildings face into the yard, the external elevations having few if any openings;
- they can include open-fronted shelter sheds for cattle, which are otherwise very rare in Jersey;
- these farmsteads result from comprehensive re-planning or rebuilding in the 19th century;
- as a result they often display greater consistency in the use of materials and constructional detail, often employing more non-local materials like Welsh slate, than other farmstead types.

There are no mapped Regular Courtyard plans with a pre-1600 recorded building

Figure 33. Linear plans in Jersey, showing their distribution along with L plans (above) and two schematic plans showing main elevations marked in red.





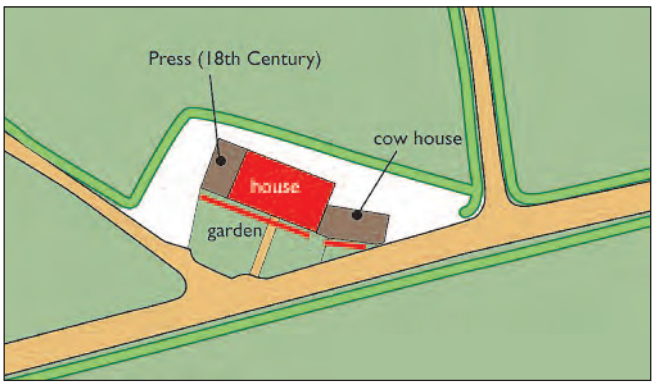
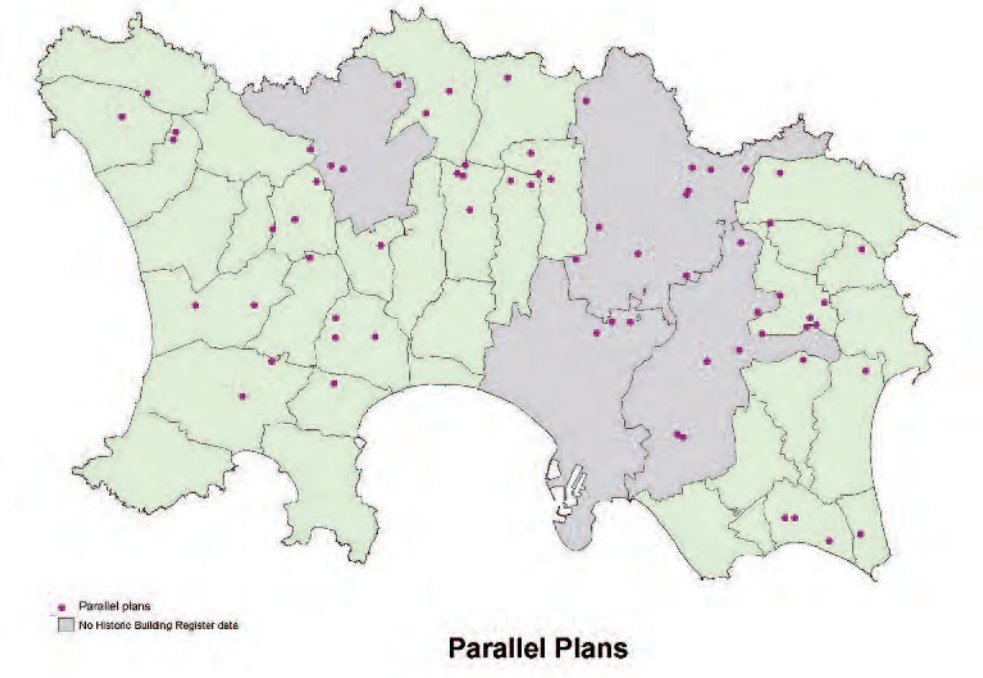
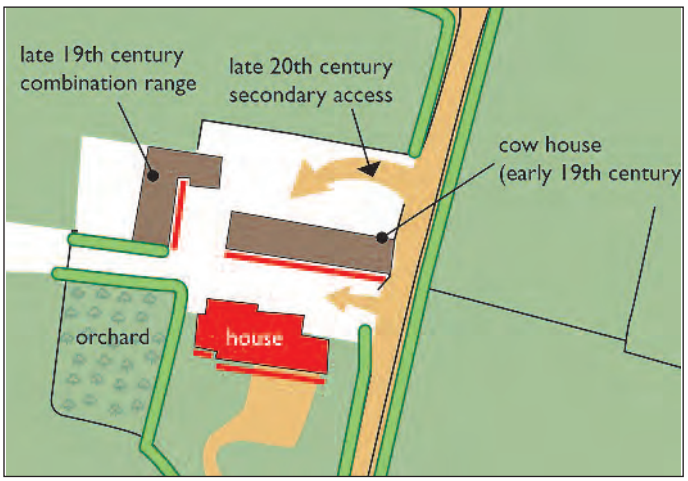


Figure 34. An aerial shot of a linear farmstead (top left) and linear farmsteads at St Saviour (top right), at Le Marais (bottom left) in St Mary's parish and in the settlement close to the church at St Ouen (bottom right, and note the bakehouse to the right).

Figure 35. Parallel plans, showing their distribution (above), a schematic plan showing main elevations and access and an example at St Ouen's Bay.





and only one with a 17th century building. This plan type has a higher proportion of recorded 19th century farmsteads (25.5%) than any other plan type. This matches the very low proportion of regular courtyard plans with multi-phase buildings noted in the field.

It is probable, although yet to be tested by detailed research and fieldwork, that this distribution matches the changing nature of island agriculture in the 19th century. As has been shown, and as was the case in the east of the island to a marked extent, mixed arable-based farming became increasingly important as cider orchards (especially dense in the eastern plateau) were removed and larger farms established. By the mid 19th century, this area was noted as having the richest and most productive land (Le Cornu 1859, 34).

7.3.6. Other Regular Plan Types in Jersey

There are small number of other Regular Courtyard plan types such as T-plans and F-plans. It is possible that some of these plans incorporate the farmhouse and have developed from Linear or L-plan steadings and so belong to that category of plan type.

7.3.7 Dispersed plans

They comprise clusters of buildings which display no obvious evidence for planning in the layout of the buildings, but instead the buildings can be orientated in relationship to routes, tracks and working areas and yard areas for cattle. As a result:

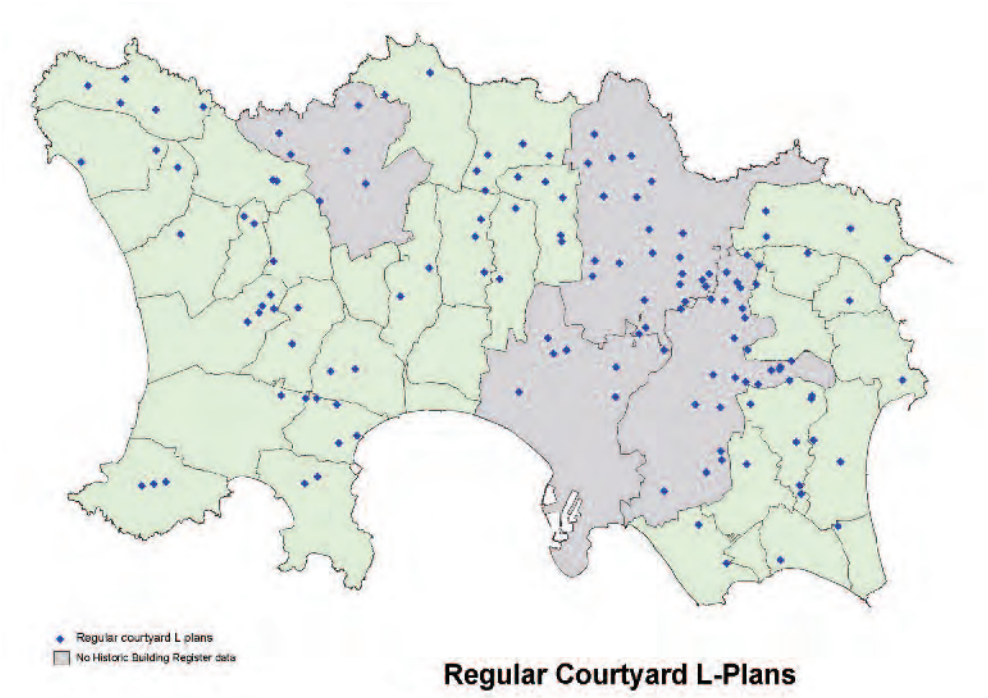
- they have no principal yard area
- the farmhouse can be placed to one side or within the main group
- buildings present many facets to the surrounding landscapes, which often provide open views into the groups.

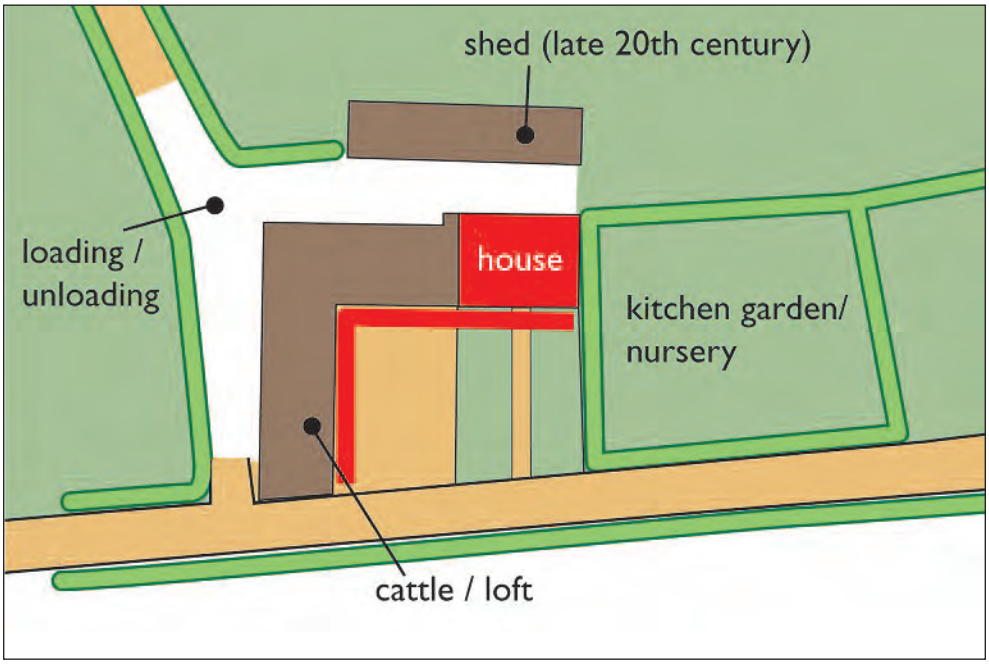
There is a small proportion of Dispersed Plans, predominantly dispersed clusters, representing only 3% of recorded farmsteads. A relatively high proportion of these farmsteads (44%) include a recorded building. Dispersed plan steadings have been recorded across the Island with a slight western bias and a notable lack of such plan types in the central northern area.

7.3.8 Other plan types

There are a few other plan types that have been recorded in Jersey, notably:

Figure 36. L-plans, showing the distribution of mapped regular L-plans (above) that can be contrasted with the distributions in Figure 32, and a schematic plan showing main elevations in red (below).





- Z-plans of conjoined ranges (1.7%), resembling some of the linear hamlet groups of north-west France, are another distinctive although relatively rare feature of the island.
- 'Row plans' (0.6%) of linked houses, which may have originated from linear farmsteads with an older house forming part of the row.
- Farmsteads where there is a single building. The latter appear from historic mapping to be a single house and have usually been identified by having a farm name.

7.4 Farmstead and Landscape Change

By comparing the modern mapping with the 1935 Ordnance Survey mapping it is possible to gauge the level of change farmsteads and landscapes have experienced in the last 70 years. The categories recording the amount of change are set out it Table 2, above.

Overall, the recorded farmsteads of the Island appear to have experienced relatively little change through the loss of buildings, in striking contrast to the situation with unrecorded structures which have are associated with the smallest holdings and have either left little identifiable trace or have been swept away (see 7.2). Over 80% of farmsteads have been identified as being little altered when compared to their 1935 form. 12.7% of farmsteads have experienced some change but still retain over 50% of the buildings recorded in 1935. Only 29 farmsteads (3.9%) were identified as being completely lost and 9 are now represented by the farmhouse only.

The high number of farmsteads that have experienced relatively minimal loss of buildings may be explained by the relatively short time period between the two sets of mapping but it is probable that the major factors in farm building survival are the robustness of the buildings themselves and the fact that it is common for the farmhouse to be attached to the working buildings. The predominant use of stone and, on many farmsteads, the provision of often large buildings erected in the later 19th century has produced farm buildings that are substantial and robust. Factors such as the use of large window openings has enabled many farm buildings to be converted to domestic use with relatively little external alteration. The fact that on many farmsteads the house is linked to the farm buildings has also meant that the retention of the farm buildings has been necessary and the link makes the conversion of the agricultural building to domestic use to form part of the farmhouse straightforward.

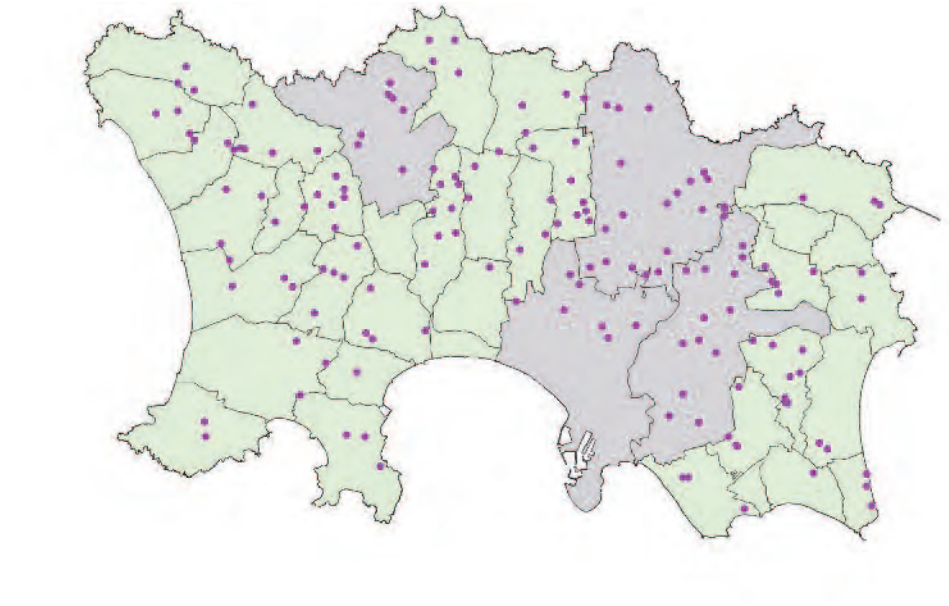
Within a broader international context, Jersey's landscape has shared in the processes of boundary removal and field enlargement that have characterised the

Figure 37. L-shaped plans. Rear of example in Grouville, with a single-storey range attached to house remodelled in 19th century (top left), and the fronts of both facing into a single yard. Front of an example at La Falaise, St Mary yard at the rear (top right). The example to north of St Ouen's Bay (bottom left) has the main elevations facing into the yard. The L-shaped plan to bottom right is concealed within a farmstead remodelled into its present Regular T-shaped form in the late 19th century the change in masonry clearly indicates where it has been heightened.

20th century – and the post-1950 period – in particular. The total number of holdings on Jersey has sharply declined in recent years, from 1,808 in 1930 to below 400 in 2000 and below 300 in 2006, and the average holding size to more than 83 vergées – still very small by international standards. By the 19th century small English farms were double this size, and in the 1950s-60s the process of *remembrant* in Normandy and especially Brittany has involved extensive boundary removal, the decline of smaller holdings of under 10 hectares in particular and the amalgamation of holdings (see Brunet (ed) 1984, especially articles by Canevet (on Brittany) and Dionnet (on Normandy) for details of the changes that affected French farming landscapes between 1950 and 1980). The total number of holdings has sharply declined from the mid 1960s, from 1,337 in 1967 to 416 in 1997 and 383 in 2001, as the average holding size has more than doubled to 90 vergées (40 acres, or 16.1 hectares) In 2001, 97 farm businesses over 100 vergées occupied 82 per cent of the total agricultural land area (Crosby 1998; Oxford Policy Management 2001, 29). This average farm size strongly contrasts with the United Kingdom (179 acres or 67 hectares, 50 for England) and around 45 hectares for France.

In parts of the island, the processes of boundary removal have been very marked, most notably to the east where fields for cropping and livestock replaced orchards in the 19th century. In other northern coastal and inland areas, as Dalido noted in 1951 (98, and Plates 16-18), the rate of boundary removal has been comparatively limited. The consequence is the survival of more historically coherent landscapes, where the patterns of 16-17th century enclosure relate to the rebuilding of houses over that period and the later enlargement of steadings.

Figure 38 Regular U-shaped plans, showing their distribution (above) and two schematic examples showing main elevations in red (below).



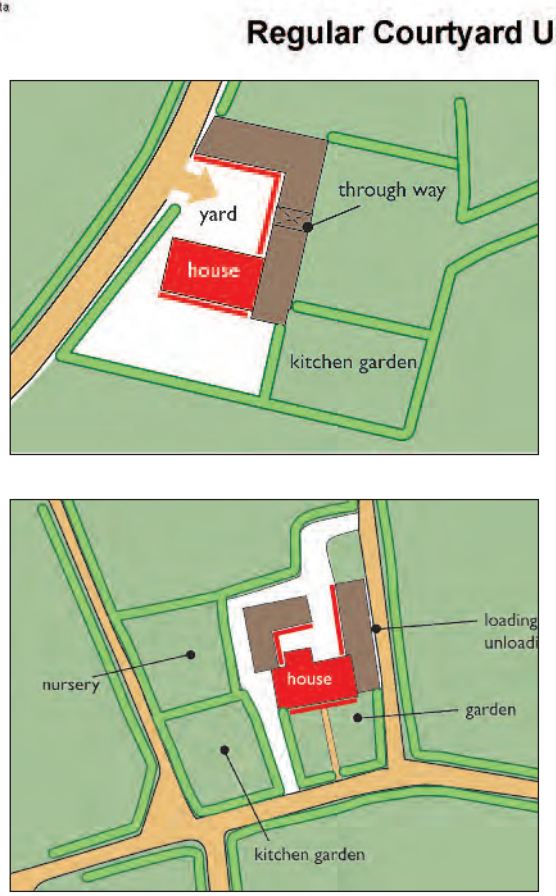
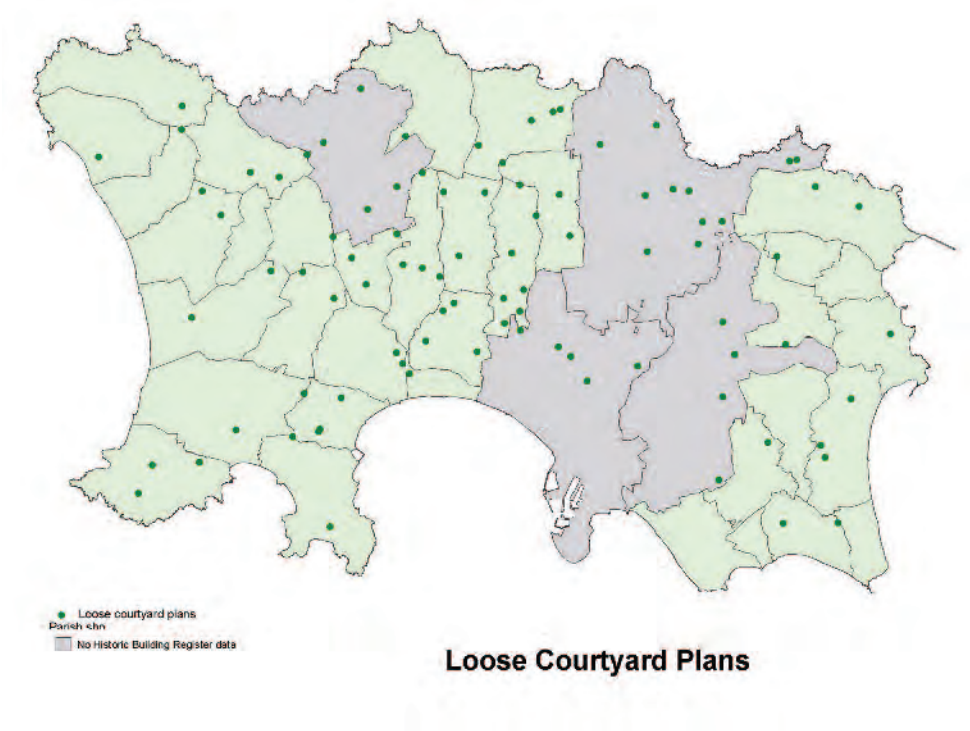


Figure 39 A late 19th century regular U-plan in the Eastern Plateau area, showing the blank elevations and through-entry presented to the road (top left) and the south-facing yard with the house detached and facing east into its own garden (top right). In contrast this group at Les Arches, Maufant, has large openings to the cattle housing and loft facing the road (bottom left). One of a group along the Grande Route de Faldouet, north of Gouray, rebuilt into their present form in the late 19th century but retaining evidence of earlier fabric and layouts (bottom right).

Figure 40 Loose courtyard plans, showing their distribution (above) and a schematic plan showing main elevations in red (below).



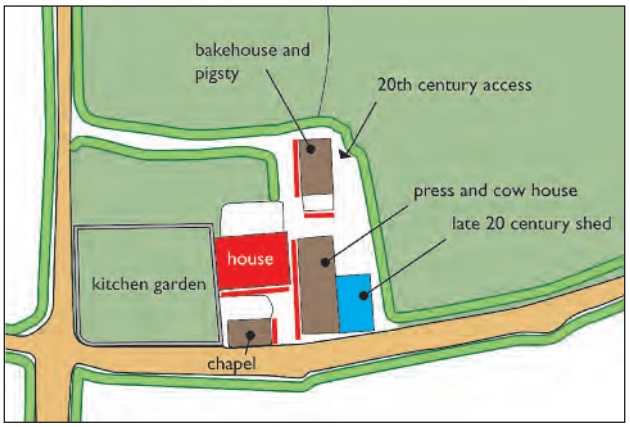
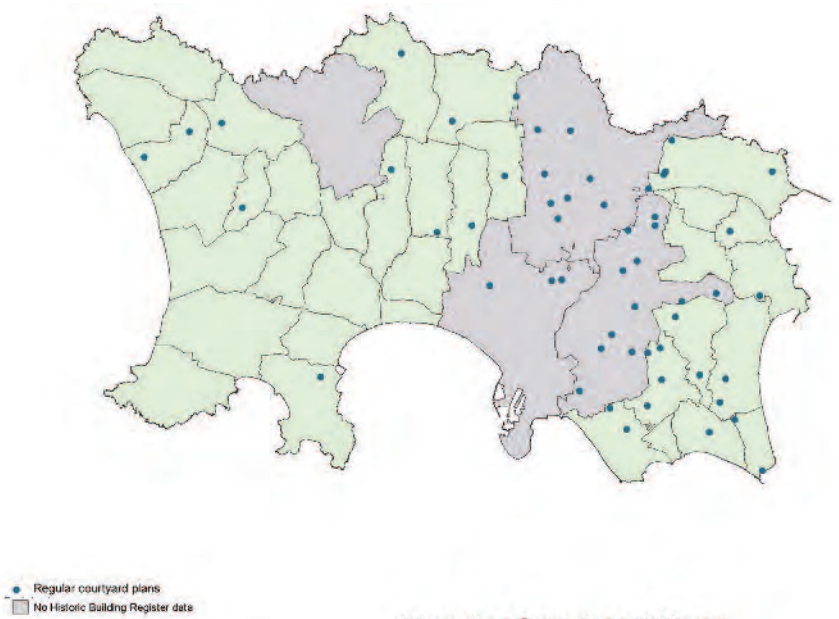
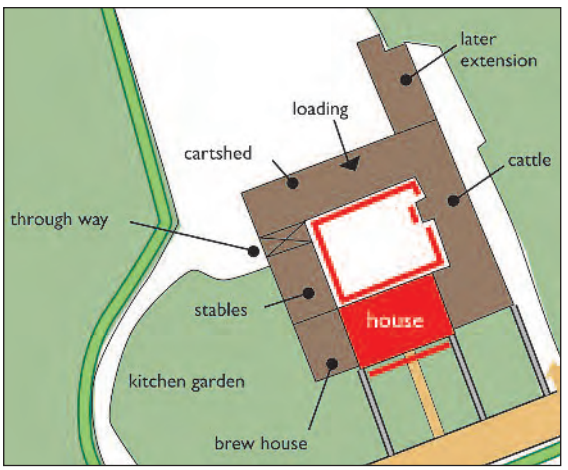


Figure 41 Loose courtyard plans have detached buildings focused on a yard area, but there are again variations on this theme. This late 19th century group (top) on the Western Plateau has the house facing into its own garden area, but the rear yard has the principal entrance to both the house and the combination range facing it. This group (upper middle) has both house and combination range facing the yard, the elevations to the surrounding landscape being relatively blank. Additional detached buildings are also common. Some of the larger loose courtyard groups are sited on the Central Plateau, with buildings to 3 or 4 sides of a yard (lower middle, The Elms, St Mary, and bottom, St Lawrence).

Figure 42 Full courtyard plans, showing their distribution (above) and two schematic plans (below) with main elevations marked red.





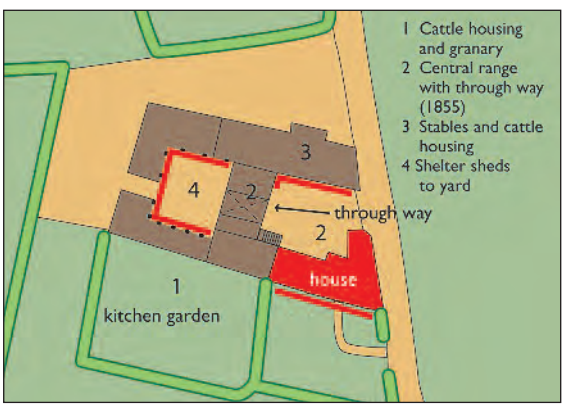
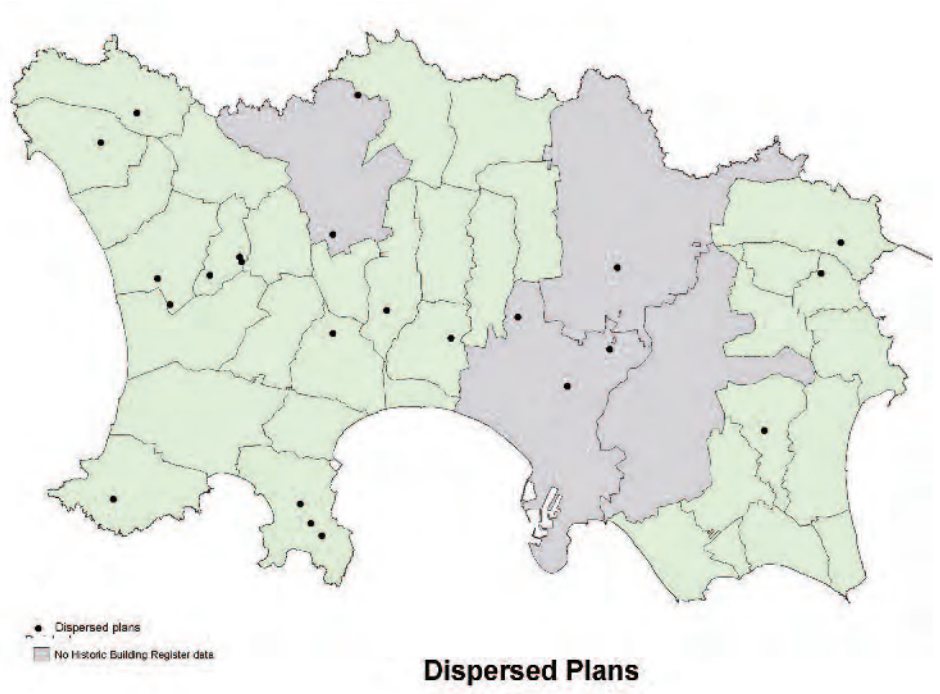
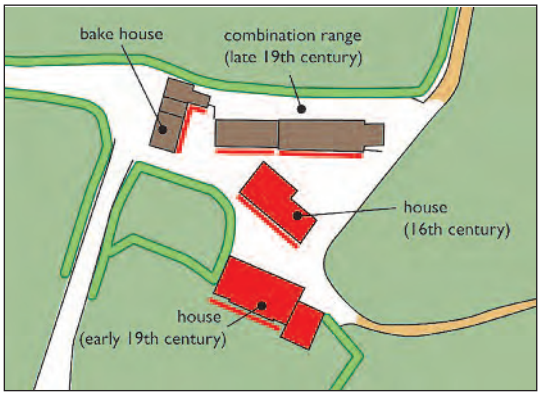


Figure 43 Full courtyard plans in the landscape in St Clement, showing large window openings to outer elevations with the main entries to the yards hidden from view.

Figure 44 Dispersed plans, showing their distribution (above) and two schematic plans (below) with main elevations marked red.





8 SUMMARY, CONCLUSION AND RECOMMENDATIONS

8.1 Conclusions

1 Jersey displays strong similarities in its pattern of dispersed settlement and fieldscapes with north-west France and a broader area of Atlantic seaboard provinces including south-west England.

2 Its domestic architecture reveals successive layers of French and English influence.

3 Its farmstead architecture displays the importance of family-based farming and their prosperity from the later 17th century in particular.

4 The planning of farmsteads, and the form and planning of individual buildings, reflect patterns observable in both Britain and France, but French influence – especially that of the Cotentin peninsula - is dominant.

5 This overlay of French and British influences, and the development of some distinctive building types, is unique to Jersey and the Channel Islands.

6 Despite the loss of the smallest farmsteads and some boundary removal, Jersey has in this broader context retained a largely coherent cultural landscape of farms and fields.

Jersey's farmsteads have experienced relatively little loss of buildings since 1935, over 80% of the total of 852 mapped farmsteads having been little altered when compared to their form as recorded on the 1935 map. The smallest holdings have always left little identifiable trace or have been swept away. 12.7% of farmsteads have experienced some change but still retain over 50% of the buildings recorded in 1935. Only 29 farmsteads (3.9%) were identified as being completely lost and 9 are now represented by the farmhouse only.

Landscape and Settlement

Outside the core areas of 19th and 20th century expansion concentrated to the south, Jersey's present landscape presents a predominant pattern of:

- Small-to-medium scale fields, with hedgebanks, walls and hedgerows, result from piecemeal enclosure (dating from the 16th century) which sometimes retains the outlines and /or curved sides of earlier long and narrow strips.
- Winding, narrow and sunken lanes.
- Scattered settlement of mostly comprising isolated farmsteads and hamlets.

These patterns are very similar to those established in north-west France and south-west England by the 12th century.

Despite boundary removal from the 19th century many of its landscapes display a remarkably coherent pattern of landscape and farmstead survival – comparable to areas of south-west England and north-west France least affected by boundary removal.

Historical Development

Historic farmsteads and their buildings make a fundamental contribution to the character of the Jersey landscape, and illustrate its long history of farming and settlement. The character of Jersey's farmsteads is the result of their historical function and development to the present day, and relates to the development from the 16th century of a cash economy based on the production of cider, dairy produce and later the export of the Jersey cow, potatoes and market produce. Farmhouses are commonly earlier than the buildings. Farm buildings have been generally affected by extensive rebuilding in the 19th century, the existence of earlier single-storey ranges being commonly revealed within present storeyed and usually multi-functional structures.

Farmstead Character

There is a broad distinction between regular plans (44.7% of the total), where the buildings have been newly-laid out or remodelled to a regular template, and piecemeal evolved layouts. Linear and L-shaped plans have often been absorbed into larger steadings. The basic farmstead plan types in order of their contribution to landscape character are:

- L-shaped plans, comprising those where the house and buildings are attached (16.1%) and regular forms (14.2%) where the house is often detached.
- Regular U-shaped plans (21.4%).
- Loose courtyard plans, where the working buildings have developed in piecemeal fashion to face one or more sides of a cattle yard (14.2%).
- Parallel plans, where the house (often in a linear range attached to working buildings) is sited opposite to a parallel range of working buildings (9%).
- Fully-enclosed regular courtyard plans (7.4%), which are the largest farms on the island and are concentrated to the east.
- Linear plans, where the house and working buildings are attached in one in-line range (6%).
- Z-shaped, dispersed and other layouts.

Farmhouses often face south, and are orientated so that they either face into or

away from the yard. The majority of farmhouses are attached to their working buildings, those on the larger farms resulting from rebuilding in the 19th century being most likely to face into their own gardens and be detached from the main group.

Multi-functional buildings are a key aspect of Jersey farmsteads. Lofted one or two-storey ranges date from the early 19th century or earlier. Intact examples are now very rare and representative of what were standard farmstead buildings across the island. These brought many processes under one roof and bear a strong resemblance to the storeyed farmstead buildings found in north-west France, including those found on manoirs from the medieval period. These had storage lofts sited above accommodation for horses and cattle, and frequently cider houses.

Combination structures which developed from the 1870s. They comprised a two-storey multi-functional structure (commonly termed a shed) with potato chitting/accommodation lofts, and sometimes a granary and an area for the cutting and preparation of roots and other feed for animals, above stabling for horses and cattle. They are distinguished by glazed windows – often sashes - to the upper floors, which served for promoting the growth of potato shoots in October/November. These buildings, although found throughout Jersey, appear to be unique to the Channel Islands.

Particularly distinctive functions, usually incorporated into these ranges, are:

- the cider house for the milling of cider apples, their pressing into cider and the storage of cider barrels. Surviving mills and presses are very rare.
- The use of twin arched entrances dating from the 16th century to farmyards, for vehicles and pedestrians. This is a feature found on high-status French farmsteads.
- Through-ways that provide access for livestock and farm vehicles from the main routeway into the farmyard. These do occur in L-shaped dairying farmsteads in England and Wales, but are a common feature of farmsteads in Normandy and the Cotentin.
- Cow houses, the average number of cattle per farm being six until the mid 20th century.
- Pigsties, including some with corbelled stone roofs. These are detached or lean-to structures.
- Underground manure tanks.
- Detached bakehouses.

Materials and Detail

The predominant building material is granite, with imported pantiles for roofing. Normandy and Welsh slate was also used, the former for high-status houses from the late medieval period and the latter in the 19th century.

Structural carpentry, even of the later 19th century, closely resembles that of France.

8.2 Recommendations

8.2.1 Conservation And Enhancement

Key recommendations are that:

Understanding of Jersey's farmstead architecture and landscape character should inform approaches to future change, and to new design and sustainable development

Future change must make a positive contribution to Jersey's cultural distinctiveness and landscape character

Successful delivery of these objectives should:

Landscape and Settlement

9 recognise how past communities have shaped the present dominant pattern of dispersed settlement and the relating patterning of boundaries, trees and woodland;

10 to use this understanding, and the understanding of traditional farmstead character, to inform opportunities for future sustainable development that either reinforce the existing settlement pattern or creates new settlement with a strong sense of identity;

Farmstead Architecture

11 use the understanding of overall farmstead character and form (offered by the dominant L, U and courtyard types) to inform approaches to adaptation and new architecture;

12. recognise the need of farmers to adapt traditional buildings to new uses, and construct new buildings that economise on labour and conform to animal welfare regulations;

13 recognise the growing importance of non-agricultural uses to the conservation of the traditional farmstead stock, whether this is intended to enable on-farm diversification or new (predominantly domestic) uses;

14 recognise that poor conversion is the key threat to the landscape and architectural integrity of farmstead buildings;

15 develop tools for pre-application appraisal of sites, in their landscape context, in order to inform approaches to future change and conversion to new uses at the pre-application stage;

16 link an understanding of local character, and the sensitivity to and potential for change of farmsteads and their buildings, to opportunities and constraints for future change.

The delivery of these objectives is dependant on an integrated approach towards the study of Jersey's archaeology, landscapes and buildings. This must rest upon a sound evidence base (see 8.2.2) which will then raise questions for future research (see 8.3), informed by an understanding of how Jersey relates to its broader international context.

8.2.2 Developing The Evidence Base

1 A robust evidence base plays a vital role in informing:

- Land use policy and planning
- The development of Historic Environment Records
- The context and guidance for applications relating to individual historic farm buildings
- The targeting of grant aid
- The development of research frameworks that can be used to guide the endeavours of individual researchers and groups
- Community and school involvement in the island's past, present and future

2 A vital first step is the creation of an Island Historic Environment Record (HER). This project has made an important contribution to the development of an HER, through:

- the mapping of over 800 farmsteads;
- using the Island's Historic Building Register to create a point data set of 2393 record of listed buildings, which includes the building status, Register Number, a Minimum and Maximum date range where included in the register description and a notes field which includes references to building or alteration dates derived from Stevens, Vol I;
- and the improvement of Listed Buildings Data.

3 The farmstead mapping data can:

- Assist in identifying and recording time depth in the built environment of Jersey
- Enable the production of a set of statements describing the range of farmstead types and buildings that, through their date, function, materials and detail, most strongly contribute to local character and distinctiveness
- Be related to landscape using the Landscape Character Areas as a framework for analysis and discussion
- Provide a basis for future data collection and analysis.

4 This project has also contributed a draft glossary of terms, which can form a substantial component of an illustrated Thesaurus of Monument Types.

5 Before the production of maps showing time-depth across the island can be completed, there are serious inadequacies in the present Island HER that can be simply addressed:

1 The recording of date on listing descriptions - three parishes did not have dating information accompanying the Register entries and so it was not possible to add dating information from this source to the farmstead records with St Mary's, Trinity or St Saviour's parishes.

2 The entry of Building Classification data.

3 Approach Alex Glendinning regarding his Jersey Datestones Project – an inventory of houses with initialled datestones cross-referred to Marriage Registers. This could be entered on the Island HER and cross-referred to sites.

6 In the longer term, it would clearly be beneficial to populate the Island HER with:

1 information on families from the research by Joan Stevens, cross-referred to farmstead and other sites and complementing 5.3 above;

2 the results of rapid survey, along the lines set out in Annexe 2.

3 published and more intensive survey data by John McCormack and other researchers on Jersey farms and houses.

7 In due course, the Island HER could be developed as an internet-based tool that can be used by tourists and the Jersey diaspora, as well the user groups defined above.

8 In order that the archaeology and architecture of the island can be better understood in relationship to historically conditioned landscape character and type,

it is recommended that the present landscape of the island is mapped in GIS, along the lines of Historic Landscape Characterisation as developed by English Heritage, in relationship to high-resolution scanning of earlier maps that would allow analysis of the degree of post-18th century change.

8.3 Research Questions

8.3.1 Landscape and Settlement

Pollen analysis could provide valuable information on the balance of grassland and arable, and thus the nature of land use, into the medieval and post-medieval periods.

How much of the settlement pattern predates the 11th/12th century, even the Norse raids? What indications are there of its development – at least in skeletal form - between the 6th and 10th centuries, as in the similar landscapes of north-west France and south-west England ?

What evidence is there of 14th century or later settlement shrinkage, from hamlets to individual farmsteads, as again seen in landscapes of dispersed settlement in France and England?

Historic Landscape Characterisation has great potential to reveal the inherited character of the present landscape, and provide through map regression a clear indication of settlement and boundary/enclosure change since the Richmond map of 1795. This will provide a deeper framework for future research and analysis against other date relating to the natural and historic environment, of particular relevance within the context of this report being

- The chronology, extent and organisation of strip fields across Jersey
- The extent, form and chronological depth of enclosure on the island
- The distribution of coastal and inland common (landes)
- The relationship of historically-conditioned landscape area and type to different settlement types (which require classification into different categories of clusters, linear groups etc) as well as to the built environment – including isolated farmsteads, single-storey cottages, high-status and seigneurial residences.

8.3.2 Relationship of the Built Environment to Landscape and Settlement

Cliffs and Headlands

Place name and documentary evidence indicates that these areas will contain evidence for medieval farming and settlements. These can reveal important evidence that will have been lost elsewhere through intensive cultivation and

settlement. This applies also, of course, to the prehistoric period.

Coastal Plain
These areas comprise a rich source of palaeo-environmental and archaeological deposits. Place name and documentary evidence indicates that these areas will contain evidence for medieval farming and settlements, and any shifts in agricultural practice that may be related to developments in settlement, that will reveal important material that will have been lost elsewhere through intensive cultivation and settlement. This applies also, of course, to the prehistoric period.

Inland Plateaux and Valley Heads
This area has the highest survival of pre-1700 fabric, particularly in the North Coast, Central Plateau Ridges and Valley Heads, and Western Plateau character areas. The Eastern Plateau area had the highest concentration of orchards prior to 1815, and appears to have been strongly affected by the remodelling of fabric after this period.

1 Detailed fieldwork should seek to explore the dating of fabric – based initially on external survey - in relationship to settlement and enclosure type and form, as rapid field walking for this exercise has highlighted the inadequacy of existing listing records as a research tool except in the broadest indicative sense.

2 Successive rebuilding. There is clear evidence for successive rebuilding, as McCormack has demonstrated for the medieval L-plan arrangements of hall/chamber blocks in the island (McCormack 1997), thus ensuring that a larger-capacity structure could still occupy the same footprint of its predecessor. Careful and detailed examination of fabric can reveal, therefore, a potential date of origin (or at the very least a *terminus ante quem*) for a farmsteading that could then be analysed in relationship to the landscape.

3 Resiting/settlement shift. There is also clear evidence, when comparing the Richmond map to field evidence, for the slight resiting of houses. This has archaeological implications – in alerting us to the potential for buried archaeological remains that can reveal much about the development of settlement on the plateau in particular, where deep ploughing and digging has removed much other evidence. Astill and Davies's study in Brittany showed that relocation was a strong characteristic of settlement pre-1500, and that building in stone was a major factor in fixing a pattern that was subsequently subject to alteration and modification of properties (Astill and Davies 1997, 250-251). Did this, and if so to what extent, happen in Jersey?

4 What is the relationship between the time-depth of the building stock (and in particular the rebuilding of farmhouses as 2-storey structures) and the patterns of enclosure of earlier strip fields and common pasture from the 16th century, associated with the development of the cider industry? To what extent did this involve the establishment of farmsteads on new sites, as opposed to the development of enclosure around existing sites that had formerly collaborated with neighbours in the farming of strip fields.

8.3.3 Farmsteads

Farmstead groups

This project has shown that the historic farmsteads of Jersey provide a rich field for future research, particularly in relationship to landscape and the understanding of geographic and historic context offered by this report. Detailed survey could reveal to what extent earlier houses in farmyards had their chimneys and other domestic features removed in order to avoid their identification as a 'tête de partie' in a partage.

Using census and other information, what is the relationship between the size of farm and the status of occupants (gentry, farmers or those with income from other activities) with mapped farmsteads, with single-storey houses and with other mapped examples of domestic architecture?

Do the key farmstead types reveal differences and patterns relating to the dating of fabric? It is clear, for example, that Regular Courtyard Plans are predominantly 19th century in date and relate to landscape change that affected the east of the island, in contrast to the Loose Courtyard groups associated with earlier dated fabric that are more strongly characteristic of the west of the island.

Examine the dating of fabric in relationship to the development of farmstead plans. To what extent do courtyard and U-plan groups absorb earlier L-plan and linear groups? To what extent do L-plan groups absorb earlier linear steadings?

Relationship of houses to steadings. To what extent are houses earlier than, contemporary with or later than associated farm buildings? Field survey needs to examine, for example, whether apparently planned steadings (of regular type) with a detached farmhouse actually represent L-plans with an attached farmhouse where the old farmhouse has been replaced by a new farmhouse on a separate site leaving the old farmhouse to serve as a cottage or reduced to a working agricultural building. It is also possible that a high proportion of the Regular U-plan steadings are derived

from Linear and L-plans with the house attached, rather than representing examples of more formal single-phase planning of courtyard farmsteads.

Buildings
What is the dating evidence for the development of multi-functional buildings, and what functions do they include?

What dating evidence is there for the development of two-storey multi-functional buildings, locally termed sheds, with glazed upper windows? Extensive survey indicates that they date from the mid 19th century, and that some include structural evidence for earlier single-storey buildings.

What dating evidence is there for the development of cattle housing? How much pre-dates the late 18th century? In view of the average number of cattle on Jersey farms being six, what evidence is there (especially on L-plan and courtyard-type farmsteads where there may be 20 or more head of cattle) for provision above this figure and (especially on linear farmsteads and on smallholding sites not mapped during this survey) for provision below this number?

What dating evidence is there for the development of liquid manure tanks. Do any predate 1850 or 1800?

What evidence is there for single-storey farm buildings, and of what date and functional type?

Ensure that site survey examines evidence for threshing barns, these being apparently absent from the island.

What evidence is there for the development of farmstead buildings on larger holdings, and did these in any way provide a model for others to follow?

Is there any evidence for buildings of a basic single-cell longhouse form, as recorded in Brittany?

8.3.4 Future Change

It is clear that a high proportion – far more so than is generally perceived – of traditional farm buildings remain in an unconverted state. Address change data can be matched to the farmstead data. This can provide an overview, useful for strategic purposes, of the proportion of the mapped resource that is in agricultural, economic

and domestic use. Consideration of the latter needs to be alive to the probability that owners may be contributing to the broader economy and social well-being through home working.

An agricultural buildings survey, as well as being alive to the research questions above, should also collate information on service provision and the capacity for change of surviving buildings, and their relationship to post-1950 sheds, in order to match building supply to demand.

Support should be offered to smaller farmers in particular, in order to enable the appropriate adaptation of traditional buildings for continued agricultural use and where necessary holding repair.

There is a case for integrating consideration of traditional farmstead buildings – and the problems posed by their redundancy as farm size and the functional importance of new buildings increases – into island-wide planning.

Poor conversion is the key threat to the landscape and architectural integrity of farmstead buildings. Strategies for future change need to align an understanding of the character of these buildings with their potential for and sensitivity to change.