What Lies Beneath?: Three Non-intrusive Archaeological Surveys to Identify Dorset Palaeoeskimo Dwellings at Phillip's Garden, Port au Choix, Newfoundland.

By
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Abstract

This thesis presents the data from the successful use of three non-intrusive surveys that created the first complete topographic and subsurface map of the Dorset Palaeoeskimo site of Phillip's Garden, Port au Choix, Newfoundland. From this map the number of identified potential dwellings was increased to 198 from the previously recorded 68 dwellings (Renouf 2011a:132). In addition to increasing the dwelling numbers, distribution trends were identified that challenge the previous concepts of spatial, social and chronological organisation of Phillip's Garden. Furthermore, the ratio of excavated central depressions to the total area of excavated dwelling structure was identified which could lead to a potential chronology for central depressions.

Acknowledgments

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1 Introduction

1.1 Introduction

This thesis presents and analyses the results of three non-intrusive surveys performed at the Dorset Palaeoeskimo site Phillip's Garden (EeBi-01), Port au Choix National Historic Site, northwestern Newfoundland (Figure 1.1). Phillip's Garden is set in a rich and diverse archaeological landscape with a number of identified precontact and historic sites in the area. Three sites in the area of Port au Choix are connected in both proximity and functionality to Phillip's Garden (Figure 1.1). Firstly, Point Riche (EeBi-20), another Dorset Palaeoeskimo site, is located to the south of Phillip's Garden. Secondly, directly to the east and west of Phillip's Garden are two earlier sites dated to the Groswater Palaeoeskimo period (2990-1820 cal. BP [calendar years before present] [Renouf 2011b:3]) of Phillip's Garden East and West (EeBi-01 and EeBi-11).

Phillip's Garden is a 2.17 hectare meadow located on the Point Riche Peninsula and four kilometres west of the town of Port au Choix. The coastal meadow is comprised of a series of raised beach terraces, 6-11 m above sea level, and is bordered on three sides by thick stunted-spruce forest (Renouf and Murray 1999:119; Renouf 2006:121, 2009:91; Eastaugh and Taylor 2011:179). Currently, with 68 known dwellings and 800 years of occupation (1990-1180 cal. BP calibrated by Calib 6.0html [Renouf 2011c]), Phillip's Garden is one of the largest and richest Dorset Palaeoeskimo sites in the Eastern Arctic (Eastaugh and Taylor 2011; Renouf 2003, 2006, 2009, 2011a).

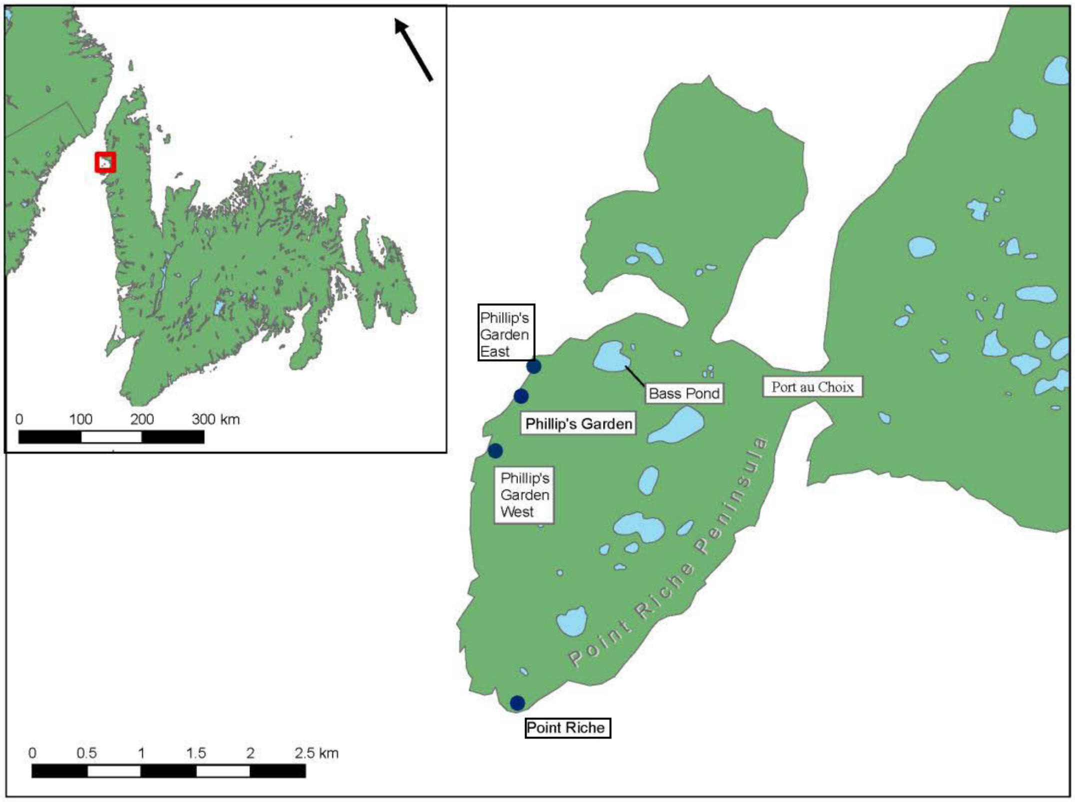

Figure 1.1: Phillip's Garden and other locations mentioned in the text of Chapters 1 and 2.

The 800 years of occupation at Phillip's Garden is divided into three arbitrary phases: early (1990-1550 cal BP), middle (1550-1350 cal BP) and late (1350-1180 cal BP) (Renouf and Bell 2009). The Dorset Palaeoeskimo site at Phillip's Garden was predominately occupied during the late winter/early spring for the seal harvest in the Gulf of St. Lawrence (Renouf 2011a). The vast majority of dwellings identified at Phillip's Garden, to date, confirm a cold weather occupation with a semi-subterranean component to the dwellings, each represented as a surface depression.

1.2 Research aims, objectives and questions

The aim of this research is, firstly, to quantify the number of potential dwellings at Phillip's Garden and, secondly, to assess whether the change in numbers of potential dwellings alters the current interpretation of Phillip's Garden. Although there have been numerous investigations by Harp (1951, 1964, 1976) and Renouf (1986, 1987, 1991, 1992, 1993, 1999a, 2002) which have developed a great knowledge base about the population that occupied Phillip's Garden, there is still uncertainty as to the number of dwellings at the site. With each year of archaeological investigation at Phillip's Garden the number of known dwellings has increased, from 16, Harp's initial count of recorded dwellings, to Renouf's most recent number of 68 recorded dwellings (Harp 1951; Renouf 2011a:132). In addition to the 68 recorded dwellings it was also noted that many more additional depressions became visible under changing light conditions and that other dwellings were obscured beneath midden deposits (Renouf 2011a:132).

With an acknowledged incomplete account of potential dwellings at Phillip's Garden the primary objective of this thesis is to produce the first complete map of this Dorset Palaeoeskimo site. The map is created using three non-intrusive archaeological survey techniques: visual inspection and recording of visible features, digitally recording and modelling the landscape using data collected with a Differential Global Positioning System (DGPS), and magnetometer survey. This comprehensive map of Phillip's Garden will then be interrogated with respect to three principal research questions: 1) How many potential dwellings are at Phillip's Garden? 2) Are there any distribution patterns/trends within the observable characteristics of potential dwellings? 3) Can a tentative phased chronology or typology be developed for central depressions at Phillip's Garden?

As introduced above, the primary aim and research question of this thesis is to ascertain a more accurate number of potential dwellings at Phillip's Garden. This is achieved through the analysis of the physical characteristics of those features with the potential to be dwelling structures identified through these surveys. The application of these three non-intrusive surveys enables a more complete picture of Phillip's Garden to be developed without the need to disturb the site through excavation. The immediate relevance of this applied research will be a more accurate number of potential houses and their precise spatial locations and relationships. In the long term, this information may be used to inform future research either for desk-based applications or the design of future fieldwork.

With a more accurate account of dwelling structures derived from answering the preceding research question, new models of dwelling distributions at Phillip's Garden are developed. Earlier studies at Phillip's Garden attempted to analyse distribution of dwellings with regards to their relative spacing and phasing (Erwin 1995, 2011), but little attention has been paid to the spatial distribution or positioning of dwellings within the landscape at the site as a whole. Within a Geographical Information System (GIS) environment the identification of distribution patterns/trends is achieved through a visual inspection of the spatial arrangement of all potential dwelling structures. The identified distribution patterns/trends will challenge extant interpretations and encourage the development of new interpretations for the Dorset Palaeoeskimo site at Phillip's Garden.

The creation of a tentative chronology and typology develops from recent research at Phillip's Garden identifying correlations in variations in dwelling sizes (Anstey

2011:93-95) to phase of occupation (Renouf 2011d:1-2). From received radiocarbon dates it has been concluded that the larger dwellings were mostly occupied during the middle phase at Phillip's Garden (1550-1350 cal BP), whereas the smaller dwellings were occupied during the early (1990-1550 cal BP) and late (1350-1180 cal BP) occupation phases (Renouf and Bell 2009; Renouf 2011d:1-2). To assess for the potential of a chronology based on the size of central depressions, a statistical analysis is undertaken to determine if a correlation exists between the excavated size and shape of central depressions and excavated dwelling structures. In turn, it may then be possible to link size of both excavated and unexcavated central depressions to phase. Thus it may be viable to provide a tentative chronology at Phillip's Garden of unexcavated and therefore potential dwellings and allow for distribution patterns/trends to be identified within the chronological phasing of the site. Additionally, a typology is attempted by assessing if there is a correlation between size and shape of both excavated and non-excavated central depressions.

1.3 Thesis organisation

This thesis comprises seven chapters. Chapter 2 provides a background to the Dorset culture with particular focus on settlement and dwelling sizes and then attention is turned to Phillip's Garden. Chapter 3 presents the three survey techniques employed during the 2012 field season with explanations of the principles, equipment and methods. Chapter 4 delivers the results of all three survey techniques and the process of feature identification. In Chapter 5 those results from Chapter 4 are further discussed with regards to analysis methods of the research questions, set out above. Discussions of the implications for each of the results regarding the three research questions are developed in Chapter 6. Conclusions are presented in Chapter 7.

2 Background

2.1 Introduction

This chapter introduces the Dorset Palaeoeskimo culture with a focus on settlement density and size of dwelling structures. The emphasis then shifts to Phillip's Garden with reference to past archaeological investigations and the current interpretations of the Dorset archaeology at the site.

2.2 Dorset Palaeoeskimo

The Dorset were Arctic-adapted hunter-gatherers of the Arctic Small Tool tradition (ASTt) (Irving 1957), emerging from the Eastern Arctic around 2500 years ago (Jenness 1925; Collins 1950). For almost 2000 years they occupied much of the Canadian Arctic (Maxwell 1985; McGhee 2001), the Québec Lower North Shore (Fitzhugh 1980; Pintal 1998), Labrador (Cox 1978; Fitzhugh 1972; Tuck 1975), Greenland (Andreasen 2000; Grønnow and Sørensen 2006), Newfoundland (Harp 1964; Renouf 1999a), and the Islands of Saint-Pierre and Miquelon (LeBlanc 2008) (Figure 2.1). Based on dates received from excavated cultural material and artefact typologies these 2000 years have been divided into three periods: Early (2500-2000 BP), Middle (2000-1200 BP) and Late (1000-500 BP) (Fitzhugh 2001:136). The Dorset occupation of Newfoundland is limited to the Middle period (Renouf 1999a).

For the purposes of this thesis only Dorset sites with dwelling structures identified will be considered. The definition of Dorset dwelling structures derives from Renouf's (2003) extensive review of Palaeoeskimo dwelling structures in Newfoundland and

Labrador. These dwelling structures include semi-subterranean dwellings, bilobate dwellings, tent rings/surface dwellings, and axial features. Dorset settlement sites can vary in density (Table 2.1 and Figure 2.2), from single dwelling structures, for example Franklin Pierce Site (Schledermann 1990:261), to multi-component sites such as Alarnerk with 208 dwellings (Meldgaard 1960:588). On the Island of Newfoundland only 13 settlement sites (Table 2.2 and Figure 2.2) have been identified, with the majority of those sites having only one or two recognisable dwelling structures. The two sites which are the exception are both located on the Point Riche Peninsula, with Point Riche having 17 identified dwelling structures (Eastaugh 2002, 2003) and 68, currently, at Phillip's Garden (Renouf 2011a:132).

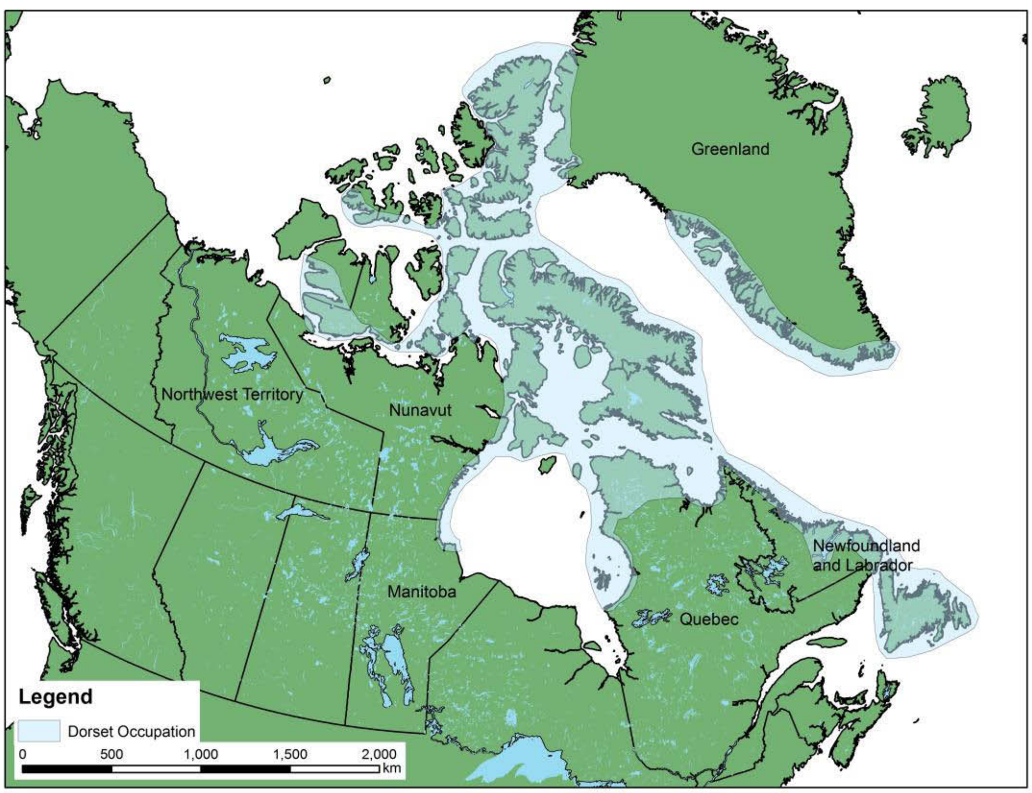

Figure 2.1: Dorset Palaeoeskimo distribution. Adapted from Graham 2006.

Table 2.1: A small selection of Dorset settlements outside Newfoundland showing variation in number of dwelling structures.

Site Name	# of Dwellings	Source
Franklin Pierce Site (SiFi-4)	1	Schledermann (1990:261)
Avayalik-7 (JaDb-18)	1	Jordan (1980:609)
St. John's Island (HeCf-1)	1	Nagle (1984:228)
Gulf Hazard-4 (HaGd-07)	1	Harp (1976:127)
Belanger-2 (AcHn-10)	3	Harp (1976:126)
Snowdrift Village (RaJu-1)	5	McGhee (1981)
Oldsquaw Site (SfFk-18)	8	Schledermann (1990:253)
Gulf Hazard-9 (HaGd-12)	10	Harp (1976:127)
Nunguvik (PgHb-01)	30	Mary-Rousselière (2002:18)
Igloolik Island (NiHe)	146	Murray (1997:141-143)
Alarnerk (NhHd-01)	208	Meldgaard (1960:588)
Kap Skt. Jacques	303	Grønnow and Jensen (2003:280)

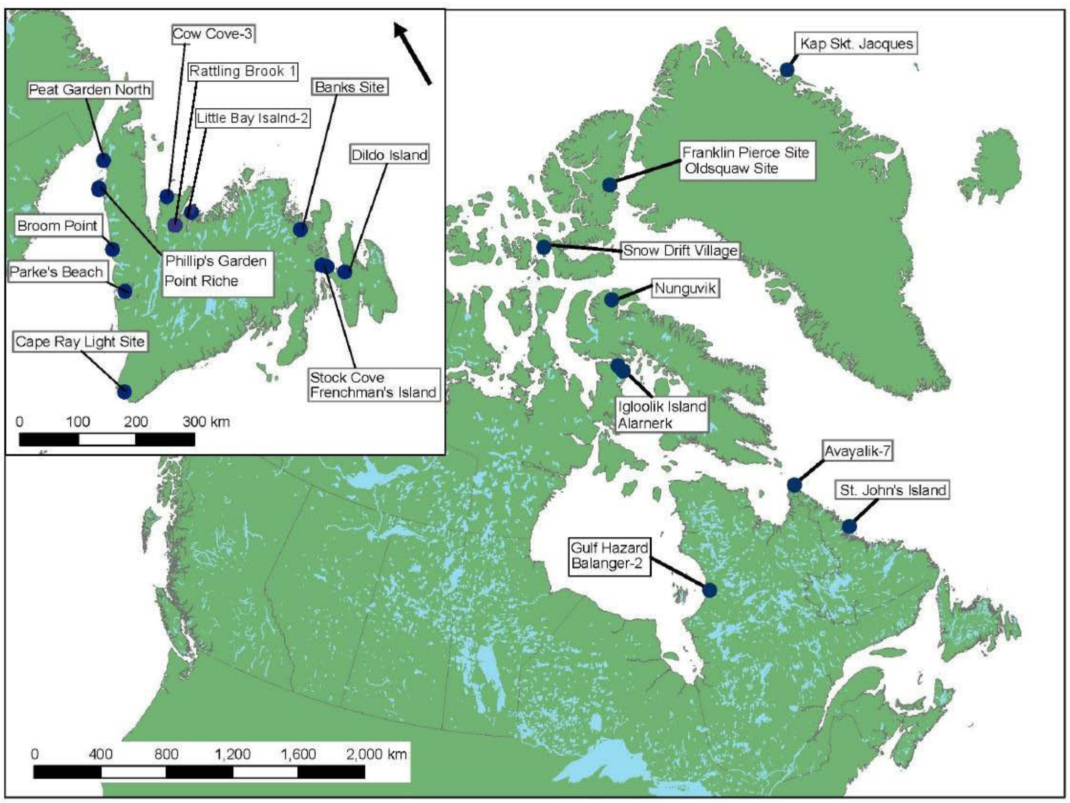

Figure 2.2: Place names and site locations mentioned in Chapter 2.

Table 2.2: Dorset sites on the Island of Newfoundland with identified dwelling structures.

Site Name	# of Dwellings	Source
Cow Cove 3 (EaBa-16)	1	Erwin (2003)
Rattling Brook 1 (DgAt-01)	1	Barnable (2008)
Cape Ray Light Site (CjBt-01)	1	Fogt (1998)
Stock Cove (CkAl-03)	1	Robbins (1985)
Little Bay Island 2 (DjAw-12)	1	Penney (1988)
Frenchman's Island (ClAl-01)	1	Evans (1981)
Parke's Beach (DgBm-01)	2	Reader (1997)
Broom Point (DlBl-01)	2	Tuck and Auger (1982)
Peat Garden North (EgBf-18)	2	Hartery and Rast (2003:474)
Bank Site (DdAk-05)	2	Curtis (2008:12)
Dildo Island (CjAj-02)	2	LeBlanc (2003:496)
Point Riche (EeBi-20)	17	Renouf (2011a:153)
Phillip's Garden (EeBi-01)	68	Renouf (2011a:132)

The dwelling structures themselves also vary in size (see Table 2.5 and Figure 2.2). From the smallest, at Avayalik-7 at 9.62 m² (Jordan 1980:611-12) to Alarnerk with the largest at 98 m² (Meldgaard 1960:589). In Newfoundland, variation in size of dwelling structures is also evident (see Table 2.4 and Figure 2.2). From the sample of measurements seen here the larger houses appear to be at large aggregation sites, coinciding with the idea that larger numbers of people were congregating with larger extended families co-habiting (Renouf 2011a:155).

Table 2.3: A small selection of Dorset settlements outside Newfoundland showing variation in dwelling type and size. S= Surface structure, SS= Semi-subterranean, TR= Tent rings, A= Axial feature.

Site Name	Dwelling Type	Area range of dwellings (m²)	Source
Snowdrift Village (RaJu-1)	A	2-7.65	McGhee (1981:45-54)
Avayalik-7 (JaDb-18)	SS	9.62	Jordan (1980:609)
Gulf Hazard 8 (HaGd-11)	SS	16.40	Harp (1976:132)
Igoolik Island (NiHe)	TR	6.99(average)	Murray (1997:45)
	SS	20.02(average)	
Oldsquaw Site (SfFk-18)	SS	14-27.5	Schledermann (1990:253-257)
	TR		
Franklin Pierce Site (SiFi-4)	SS	21.6	Schledermann (1990:291)
St. John's Island (HeCf)	S	28.26	Nagle (1984:228-229)
Gulf Hazard 1(HaGd-04)	S	29.22	Harp (1976:130)
Nunguvik (PgHb-01)	S	29.25	Mary-Rousselière (2002:21 and 71)
	SS	22.5	
Alarnerk (NhHd-01)	SS	20-98	Meldgaard (1960:589)

Table 2.4: Dorset sites in Newfoundland showing variations in dwelling type and size. S= Surface structure, SS= Semi-subterranean, TR= Tent rings.

Site Name	Dwelling Type	Area range of dwellings (m^2)	Source
Little Bay Island 2 (DjAw-12)	TR	?	Penney (1988:43)
Frenchman's Island (ClAl-01)	S	?	Evans (1981:90-91)
Bank Site (DdAk-05)	SS S	6 m long	Curtis (2008:12)
Stock Cove (CkAl-03)	S	15	Robbins (1985:190)
Parke's Beach (DgBm-01)	SS	12.25	Reader (1997:9)
Rattling Brook 1 (DgAt-01)	TR	15	Barnable (2008:49)
Broom Point (DlBl-01)	TR	15.2	Tuck and Auger (1982:5)
Peat Garden North (EgBf-18)	S	15.9	Hartery and Rast (2003:480)
Cape Ray Light Site (CjBt-01)	S	17 (internal) 27.5 (estimated)	Fogt (1998:69) Renouf (2003:409)
Cow Cove 3 (EaBa-16)	S	20	Erwin (2011:9)
Dildo Island (CjAj-02)	SS S	34.4	LeBlanc (1997)
Point Riche (EeBi-20)	SS	30-33	Renouf (2011:153)
Phillip's Garden (EeBi-01)	SS S	30-110	Renouf (2011:153)

2.3 Phillip's Garden

2.3.1 History of Archaeological Investigations at Phillip's Garden

The first preliminary investigations at Phillip's Garden were undertaken in 1927 and 1929 by William J. Wintemburg, of the National Museum of Man (Wintemberg 1939). The location of trenches and features were not recorded during this phase of investigation. The first major archaeological investigations were conducted by Elmer Harp Jr., of Dartmouth College, from 1949-50 and 1961-63 (Harp 1951, 1964, 1976). The primary focus of the excavation was on individual features. Full excavations targeted seven of the most visible depressions and 13 more were partially excavated. As well as the excavation Harp also focused on the wider cultural landscape of Phillip's Garden and produced three maps, with 16 depressions recorded on the first map and 37 depressions recorded on the two final maps (Figure 2.3, Figure 2.4, Figure 2.5). The latest phase of investigations was started in 1984 by M.A.P. Renouf, director of the Port au Choix Archaeology Project, Memorial University. Renouf's initial work at Phillip's Garden involved mapping visible features, locating and mapping Harp's excavations and test-pitting across the whole of the site (Figure 2.6) (Renouf 1985). Since 1985 excavation has been the primary focus at Phillip's Garden with the re-excavation of four of Harp's dwellings (Cogswell 2006; Cogswell et al. 2006; Renouf 2006, 2007; Renouf et al. 2005) and the investigation of three previously unexcavated dwellings and a number of midden features (Wells 2012:14). Within these 29 years of excavation site maps were regularly updated, with a full re-survey undertaken in 2001 by Renouf and Hodgetts (Figure 2.7) (Hodgetts 2002).

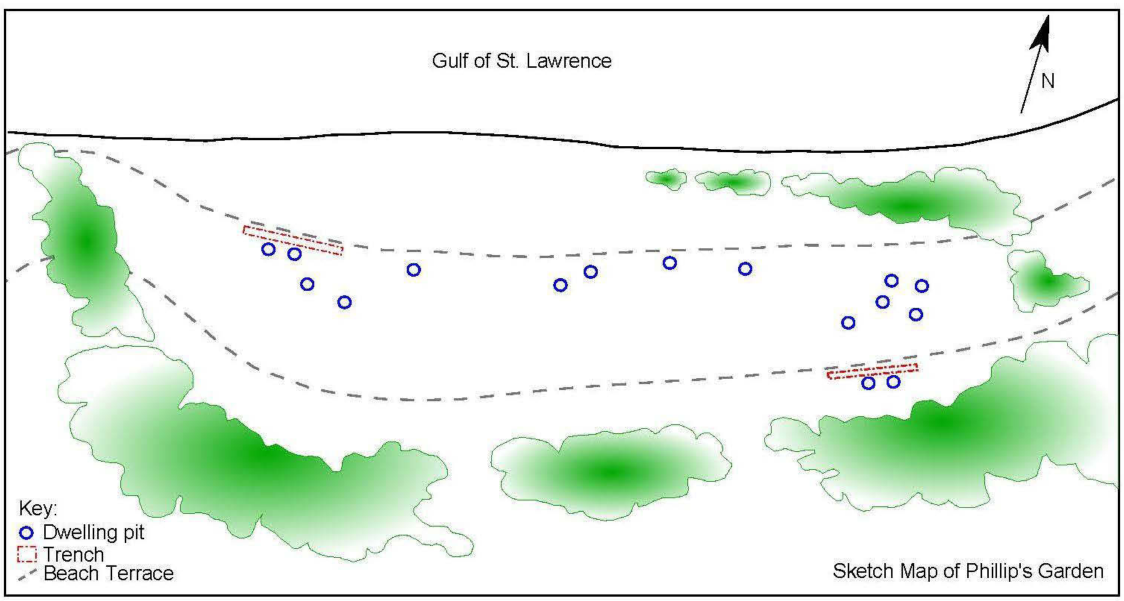

Figure 2.3: Harp's initial map of Phillip's Garden. Image: Adapted from Harp (1950).

In addition to mapping physical features visible on the ground, three geophysical surveys were carried out at Phillip's Garden. The first was a magnetometer survey performed in 2001 by Eastaugh and Taylor covering a small area of 2600 m² (Figure 2.8) (Eastaugh and Taylor 2011). The most recent geophysical surveys were conducted by Tudor in 2011-12 employing both magnetometer and ground penetrating radar (GPR) targeting individual dwelling structures (Wells et al. 2012).

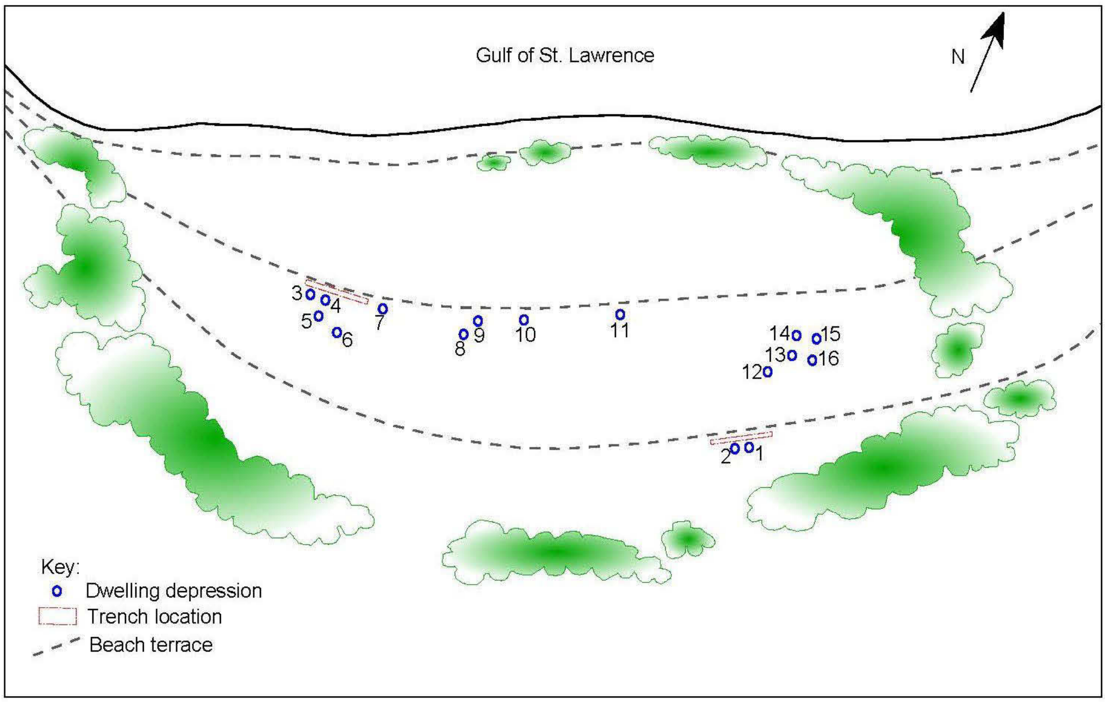

Figure 2.4: Harp's 1964 map of Phillip's Garden. Image: Adapted from Harp (1964)

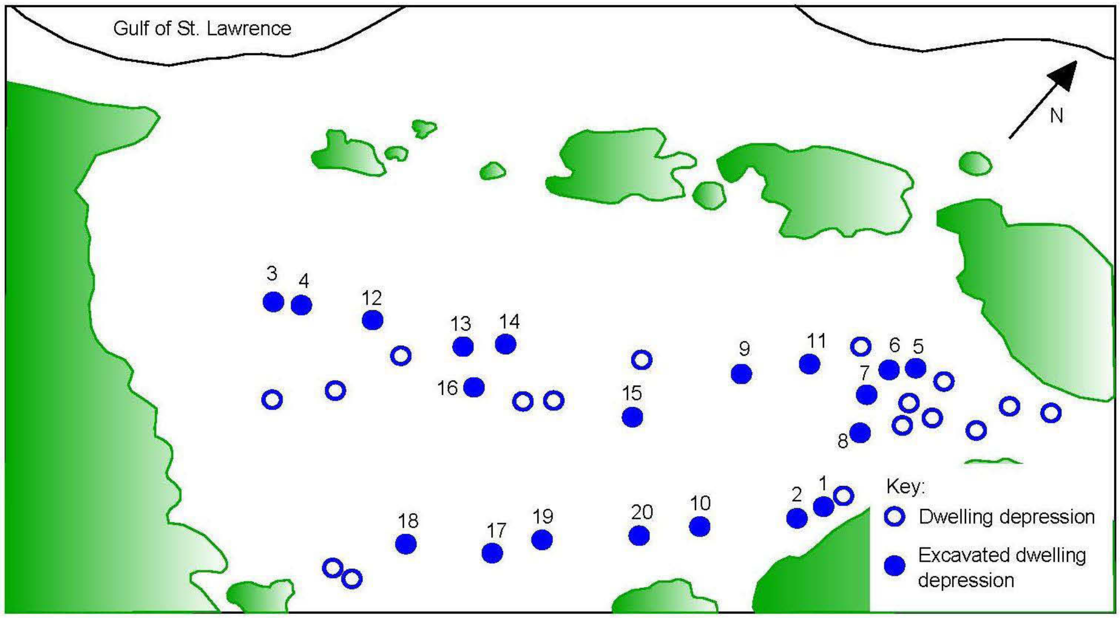

Figure 2.5: Harp's final map of Phillip's Garden. Image: Adapted from Harp (1974).

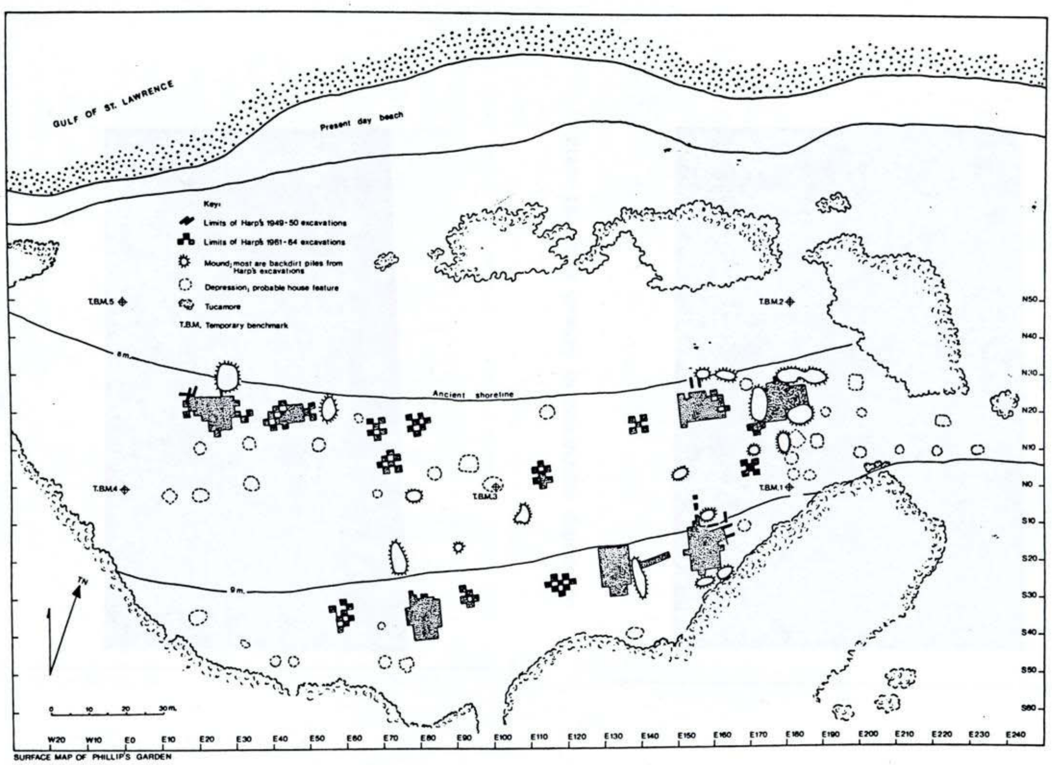

Figure 2.6: Renouf's initial map of Phillip's Garden with Harp's excavations located (Renouf 1985:39a). Image: PAC Archaeology Project.

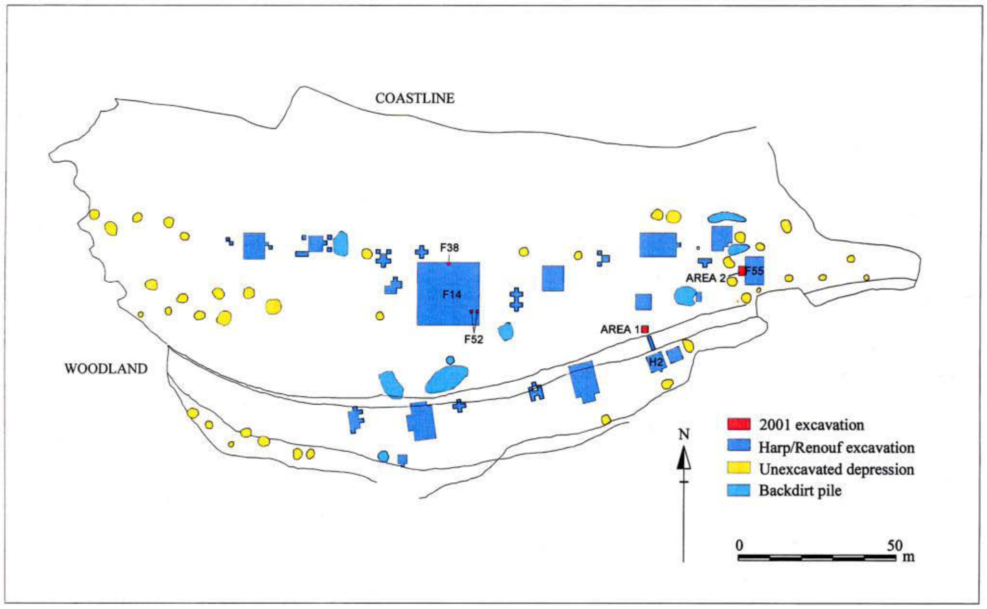

Figure 2.7: The re-survey of Phillip's Garden from 2001 performed by Renouf and Hodgetts (2002:3). Image: PAC Archaeology Project.

Figure 2.8: Previous areas of geophysical survey performed at Phillip's Garden.

2.3.2 The Dorset Archaeology at Phillip's Garden

The Dorset occupied Phillip's Garden for almost 800 years. Those 800 years are divided into three arbitrary phases: early (1990-1550 cal BP), middle (1550-1350 cal BP) and late (1350-1180 cal BP) based on 32 charcoal-based dates from 15 dwellings (Renouf and Bell 2009). There have been additional dates since (Renouf 2011c).

Currently, at Phillip's Garden, there are 68 mapped dwellings (Figure 2.9) with many more visible in changing lighting and vegetation conditions (Renouf 2011a:132). Other dwellings are also known to be masked by midden deposits that in-fill them. The magnetometer survey undertaken in 2001 by Eastaugh and Taylor identified four hidden dwellings (Eastaugh and Taylor 2011), while a single dwelling was identified beneath a midden excavation (Renouf 1986). Test pitting by Renouf (1987), in 1986, also identified thick midden deposits in areas with no depressions, which would suggest that some abandoned dwellings are filled in (Renouf 2011a:133).

Of the 68 dwellings 24 have been excavated, with the majority of excavations targeting the larger dwelling structures on site. From these excavations a number of common components that make up the semi-subterranean Dorset dwellings at Phillip's Garden were identified: the semi-subterranean component known as the central depression/living area, axial feature, rear storage pits, side and rear sleeping platforms, perimeter and central post-holes and external middens (Table 2.5). However, there are variations within the size and shape of dwelling structures, from 16.61 m^2 to 105 m^2 in area and subrectangular, trilobite, oval and circular in shape (Renouf 2011a; Anstey 2011; Wells et al. 2012). Some of the variation in size and shape can be attributed to seasonality of warm and cold weather occupations (Renouf 2011a). Harp (1976) first differentiated between cold and warm season dwellings based on variations in architecture. For example, the cold season dwellings consisted of a central depression and sleeping platforms, whereas warmer season dwellings were much more ephemeral with no central depression or sleeping platforms. This argument was reinforced with remains of seal bones associated with the larger and more substantial houses that reflected a harp seal hunt in March (Harp 1976:132). This idea was further strengthened with excavations and analysis of newly excavated and re-excavated features by Renouf and the PAC Archaeology Project (Renouf 1986, 1987, 1991, 1992, 1993, 1999a, 2002).

Some of the size variations have also been attributed to phase of occupation and population density at Phillip's Garden. The largest of the Phillip's Garden dwellings dated to the middle phase which was the height of population density (Harp 1976:124; Erwin 1995:42). In contrast, the smaller dwellings largely date to the early and late phase of occupation at Phillip's Garden (Renouf 2011d).

As well as population densities Erwin (1995, 2011) also considered the temporal and spatial organisation of Phillip's Garden. This study identified a unique arrangement to the dwellings at Phillip's Garden as many Dorset sites on beach terraces are often reported to reflect a relative chronology, such that on emerging coastlines the earlier the dwelling the higher up the beach terraces it would be located (Savelle and Dyke 2009:272; Murray 1997:32). At Phillip's Garden it was observed that dwellings that were closely associated spatially were more likely to be temporally related (Erwin 1995, 2011:169).

Based on the material culture, faunal remains and architecture, the primary subsistence function of Phillip's Garden during the Dorset period was to exploit the biannual migration of harp seals (Renouf 2011a). The seals arrive in the Port au Choix area, firstly, in mid-December when swimming south from their summering grounds off Greenland to their whelping grounds in the Gulf of St. Lawrence and again on their return journey in March-April (Sergeant 1991; Murray 2011; Renouf 2011a). At Phillip's Garden there are also activities subsidiary to the hunt, such as butchery and hide processing, and diversification occurring with evidence of a year round presence (Renouf 2011a:148-149). Together with the large number and sizes of dwellings, this makes Phillip's Garden unique in Newfoundland and more comparable to large intensively occupied Arctic sites (*ibid*. 2011a:131), such as Kap Skt. Jacques, Alarnerk, Igloolik Island and Nunguvik (Figure 2.2 and Table 2.1).

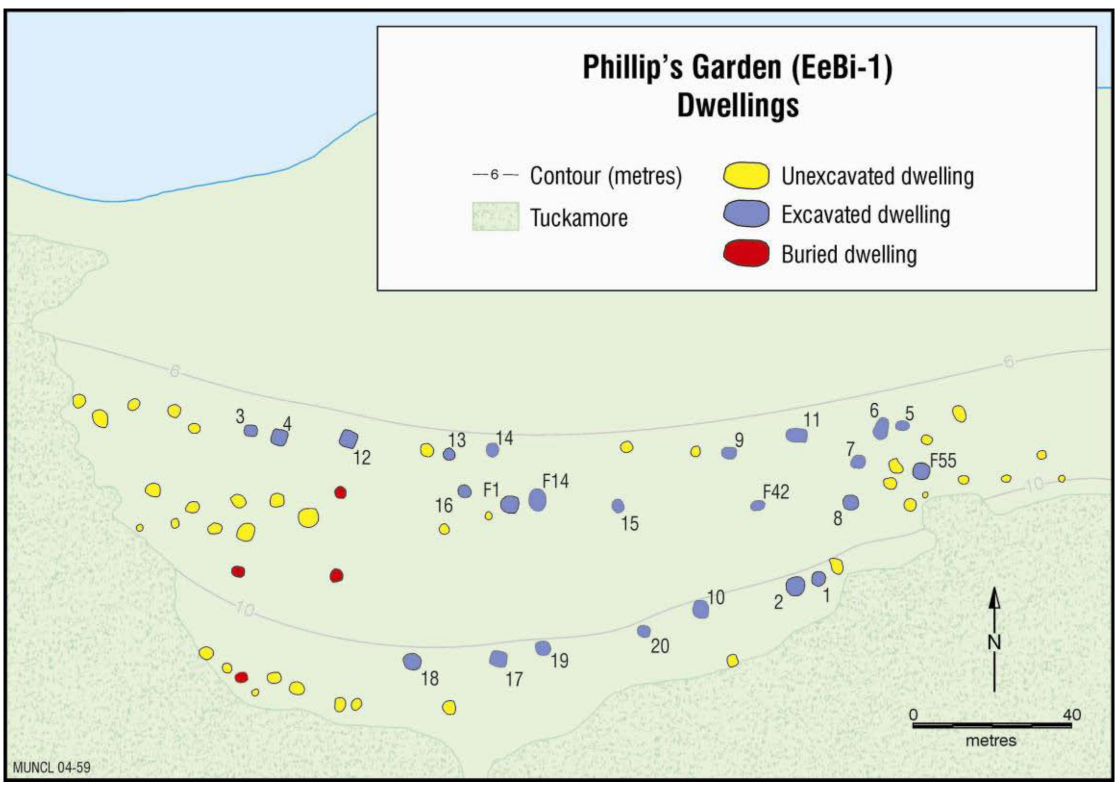

Figure 2.9: Current map of Phillip's Garden with 68 dwellings recorded. Image: PAC Archaeology Project.

2.4 Summary

This chapter gave a brief background to the Dorset concentrating on settlement and dwelling variations, which highlighted the uniqueness of Phillip's Garden in Newfoundland in terms of the large number and sizes of dwellings at the site (Table 2.2 and Table 2.4). This was followed by a detailed account of the investigations and the archaeology at Phillip's Garden. From the extensive archaeological investigations it has been established that Phillip's Garden was a large seasonal aggregation site with occasional year round occupation. However, it is likely that the number of potential dwellings will increase as it is evident from past investigations there are more potential dwelling depressions to be recorded (*ibid*. 2011a:132). Within the following chapters it is the aim of this thesis to provide evidence for a more complete number of potential dwellings and consider the implications of these new numbers.

Table 2.5: All houses from Phillip's Garden with state of excavation, shape, size, major components and phase were possible. Components: PL=platforms, CA=central depression/axial feature PH=post-holes, SP= storage pits, EXM=external midden
Phase: E=Early (1990-1550 cal BP), M=Middle (1550-1350 cal BP), L=Late (1350-1180 cal BP)

Feature Number	Fully Excavated	Shape	Size (m^2)	Components	Phase	Source
House 1	✗	-	-	-	-	Harp (1961)
House 2	✗	Subrectangular	94.5	PL, CA, PH, SP	E/M/L	Harp (1961) Renouf et al. (2005)
House 3	✗	-	-	-	-	Harp (1963)
House 4	✗	Subrectangular	84.3	PL, CA, PH	M	Harp (1963) Anstey (2011)
House 5	✓	Circular	16.6	-	-	Harp (1961) Anstey (2011)
House 6	✓	Subrectangular	84.6	PL, CA, PH, SP	E/M	Harp (1962) Anstey (2011)
House 7	✗	-	-	-	-	Harp (1962)
House 8	✗	-	-	-	-	Harp (1962)
House 9	✗	-	-	PL	-	Harp (1962)
House 10	✓	Subrectangular	105	PL, EXM, SP, PH, CA	E/M	Harp (1962) Wells et al. (2012) Renouf et al. (2005)
House 11	✗	Subrectangular	87.4	CA, PL, SP, PH	M/L	Harp (1962) Anstey (2011)
House 12	✗	-	-	CA	M	Harp (1963)
House 13	✗	-	-	SP	-	Harp (1963)
House 14	✗	-	-	PH, CA	-	Harp (1963)
House 15	✗	Ovoid (central depression)	17.41 (central depression)	CA, SP	-	Harp (1963)
House 16	✗	-	-	CA, EXM	-	Harp (1963)
House 17	✗	Trilobate	88	PL, EXM, SP, PH, CA	M/L	Harp (1963) Renouf (2007)
House 18	✓	Oval	103	PL, CA, PH, EXM, SP	E/M	Harp (1963) Cogswell et al. (2006)
House 19	✗	-	-	CA	-	Harp (1963)
House 20	✗	Oval	29.2	PL, CA, PH, SP	L	Harp (1963)

Feature Number	Fully Excavated	Shape	Size (m^2)	Components	Phase	Source
						Anstey (2011)
House Feature 1	✗	Oval	51.5	PL, SP, CA	E	Renouf (1986)
House Feature 14	✗	Oval	74.7	PL, SP, CA, EXM	E	Renouf (1991)
House Feature 55	✓	Circular	28.3	PL, PH, CA, EXM	L	Renouf (1993)
House Feature 2u	✗	-	-	Poss. CA/SP	-	Renouf (1986)
House Feature 42	✓	Circular	23.75	PH, CA	-	Renouf (1991)
						Anstey (2011)

3 Field Survey: Principles, Equipment, and Methods

3.1 Introduction

This chapter introduces the basic principles of the three non-intrusive survey techniques employed at Phillip's Garden during the 2012 field season: a two-tier topographic survey and a magnetometer survey. The equipment and technologies used in conducting the surveys are presented and described for each survey. This is followed by a discussion of the methodologies of each survey and processing techniques.

The number of dwellings at Phillip's Garden has never been satisfactorily quantified through past investigations, though with each subsequent investigation the number of dwellings has increased, the last published account at 68 (Renouf 2011a:133). The multi-level survey approach employed within the 2012 fieldwork was designed to maximise the opportunity of identifying potential dwelling depressions at Phillip's Garden. The survey area (15830 m^2) targeted the two upper beach ridges where previous activity had been identified (Figure 3.1) (Harp 1964, 1976; Renouf 1986, 1987, 1991, 1992, 1993, 1999, 2002).

3.2 Principles

3.2.1 Topographic survey techniques

Topographic surveys are often used to digitally record and recreate the landscape (Bannister et al. 1998; Chapman 2009), and a number of technologies and methodologies may be used to achieve the end result. During the 2012 field season at Phillip's Garden two different, yet complementary, survey techniques were employed.

The first survey (feature survey), using a total station, mapped individual features and earthworks within the landscape. The second survey (landscape survey), using a Differential Global Positioning System (DGPS), recorded a gridded set of 3D points across the whole of the site to digitally capture the physical landscape, including archaeological features. Thus, the landscape survey creates the digital landscape; and the feature survey records features within that landscape.

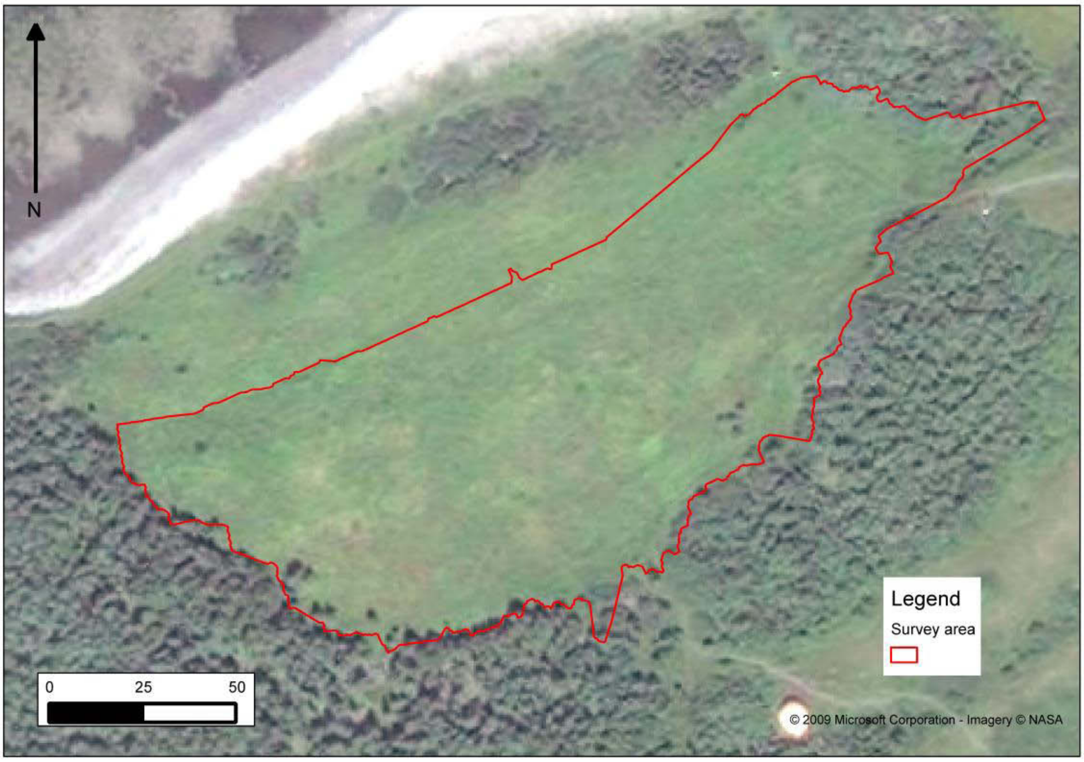

Figure 3.1: The survey area covered in the 2012 field season.

3.2.2 Magnetometer survey techniques

The basic principle of this type of survey is to detect the variations of magnetism within the Earth's magnetic field. These variations can occur due to geological effects (Oswin 2009:19), as most rocks and soils contain magnetic compounds (Clark 1996:64), but smaller and more localised variations can be caused by human activity (Aspinall et al. 2008:21; Oswin 2009:19).

There are several ways by which these anomalies can appear in the archaeological record. There are variations that can be produced by the simple movement of soils, for example the digging of a ditch and the accumulation of soils within the ditch (Clark 1996:65). The addition of magnetic materials to the topsoil, such as brick or ceramics which have magnetic properties due to the firing process, can also affect the magnetic signature (Aspinall et al. 2008:25). Also associated with human occupation is the production of organic waste material. Features, such as middens, that contain organic matter have the desired environment for bacteria which promote decay and provide the conditions for material to be converted into magnetic minerals and enhance the magnetic readings (Linford 2004; Aspinall et al. 2008:25). The bacteria itself, within the organic material, can also enhance the magnetic readings by producing magnetite, a highly magnetic form of iron mineral (Faßbinder and Stanjik 1993; Aspinall et al. 2008:25). However, some of the strongest signatures are correlated with activities such as heating and burning which have long been associated with human activity (*ibid.* 2008:24), with certain materials heated or burnt, such as clay, known to produce high magnetic readings (Clark 1996:64; Aspinall et al. 2008:21).

3.3 Equipment

3.3.1 Total station

The Nikon NIVO 3.0 was utilised throughout this project, which consisted of a total station, external data logger and reflective prism on an adjustable pole (Figure 3.2). A total station is, essentially, an electronic theodolite with distance measuring capabilities using Electromagnetic Distance Measurement (EDM) (Bettess 1998:119; Bansiter et al. 1998:146; Evans and Daly 2006:37; Derwett 2011:64). This works by the EDM transmitting an infra-red beam that is reflected back to the instrument via a reflective prism, and measuring the time it takes for the beam to travel between the total station and the prism (Bettess 1998: 118; Evans and Daly 2006:37; Derwett 2011:65). The total station allows for real-time processing of locations, with only a textual output of the information. This information can be logged by total stations, either internally or externally, so that the operator does not have to write every reading down. The information recorded on these loggers can then be downloaded and entered into data visualisation packages, such as Geographical Information Systems (GIS) or Computer Aided Design (CAD).

Figure 3.2: The Nikon NIVO 3.0 used at Phillip's Garden with components labelled. Photo: PAC Archaeology Project

3.3.2 Differential Global Positioning System (DGPS)

For this project the Magellan ProMark 500 Real-Time Kinematic (RTK) DGPS was employed and consisted of two antennas, a hand-held data collector (Mobile Mapper CX), ranging pole, radio transmitter and receiver (Figure 3.3). This system, like all GPS equipment, works by calculating its three dimensional location through a series of equations based on the distance between it and three or more orbiting satellites (the more satellites the greater the accuracy). The distance between the GPS and the satellites is calculated through this equation:

Distance=Time x Speed.

The time is the time that the radio signal from the satellite takes to travel to the DGPS receiver. The speed is the speed that radio waves travel, known to be the speed of light (Ogaja 2011:11). The significant difference between a GPS and a DGPS is that, while a GPS relies solely on satellite data for its location, the DGPS has a base antenna (base) located over a known terrestrial control point and a second antenna (rover) used for positioning with both of the antennas tracking the same satellites. The rover uses the base as another point of reference which allows for further accuracy in the exact location of the rover (*ibid.* 2011:50). This can provide millimetre accuracy (*ibid.* 2011:50); the Magellan ProMark 500 was listed within the specifications to be capable of accuracies within <0.8 m (Ashtech LLC 2008:18), but, during the DGPS survey at Phillip's Garden, accuracies of ±0.01 m were actually achieved on the horizontal readings and ±0.03 m on the vertical readings.

The DGPS used at Phillip's Garden also had Real-Time Kinematic (RTK) capabilities which allowed for real-time processing of results, eliminating the need for post-processing, and allowed the exact location of the rover to be viewed on the data collector (Ogaja 2011:54). The kinematic aspect refers to the stationary base that does not move after initialisation (*ibid.* 2011: 56).

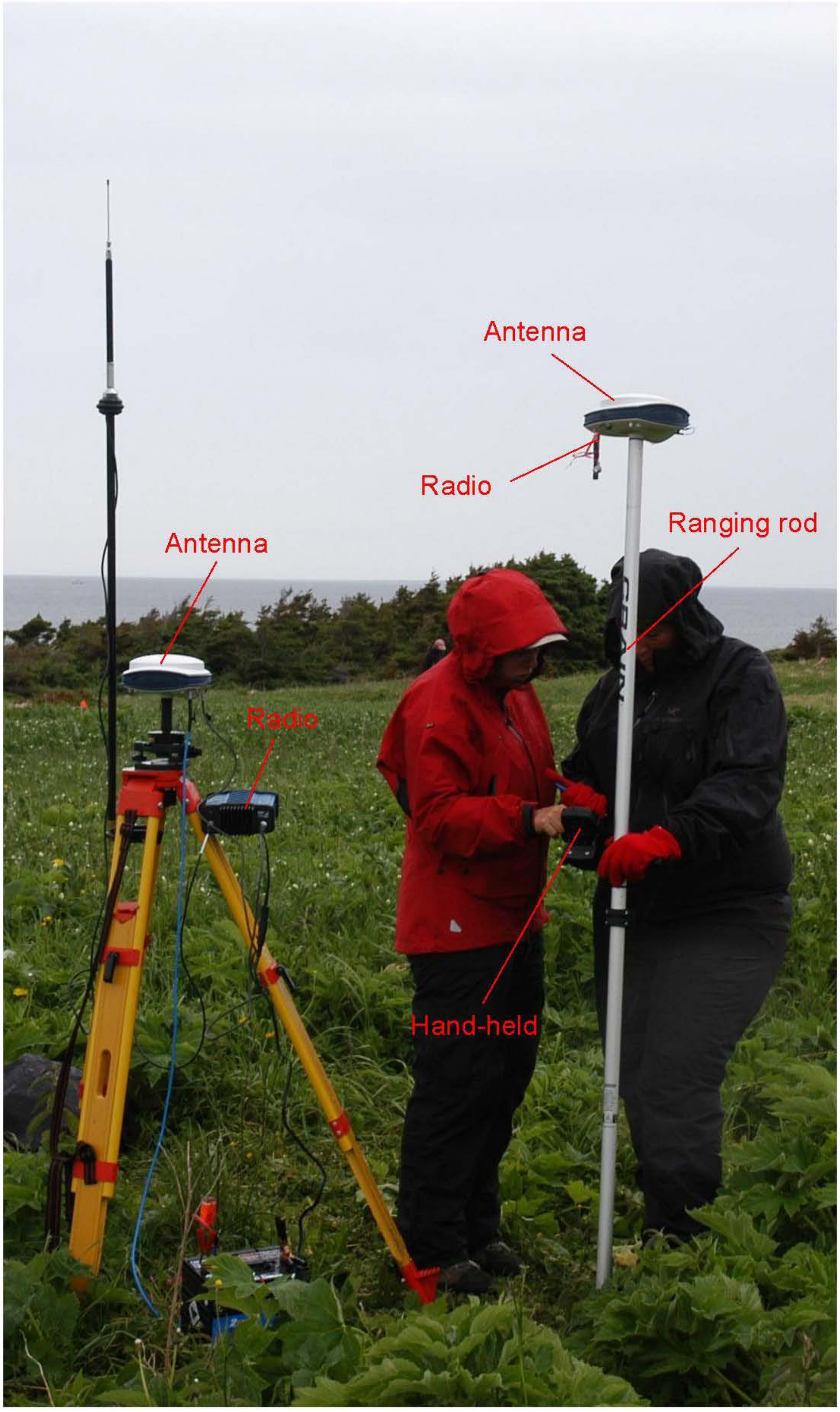

Figure 3.3: The Magellan DGPS in use at Phillip's Garden with components labelled. Photo: PAC Archaeology Project

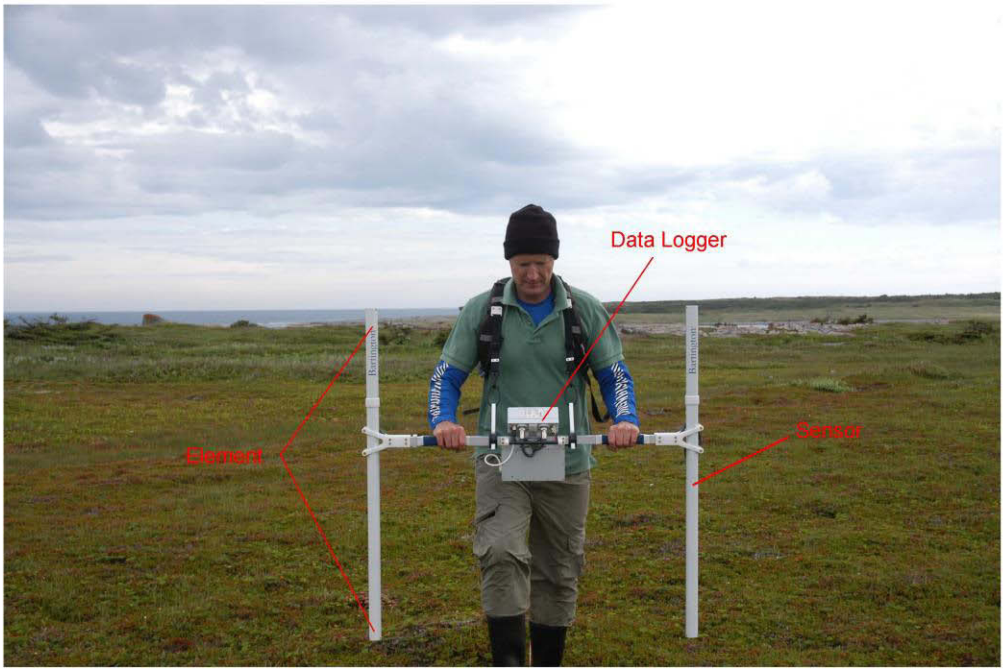

Figure 3.3: The fluxgate gradiometer used at Phillip's Garden with components labelled. Photo: PAC Archaeology Project.

3.3.3 *Fluxgate Gradiometer*

A Bartington Grad601-2 dual sensor fluxgate gradiometer, borrowed from Western University, London, was employed for this project which consisted of two sensors and a data logger (Figure 3.3). Each sensor consists of two sensor elements set vertically one meter apart. Each element is comprised of two rods usually made from mu-metal, a nickel-iron alloy (Ripka 2001:89; Tumanski 2011:131), that has a high magnetic permeability. These rods each have a single coil wrapped around them, one clockwise the other anticlockwise, known as excitation coils (Ripka 2001:75; Regtien 2012:134). Another coil is wrapped around both rods and is known as the detector coil (Figure 3.4) (Clark 1996:69; Mussett and Khan 2000:164; Aspinall et al. 2008:34). An alternating current (AC) flows through the excitation coils, known as a drive current, which periodically saturates the rods with a magnetic field (Clark 1996:69). When the rods are not magnetised with the electrical current any external magnetic fields can enter them, which causes an electrical pulse in the detector coil parallel to the magnetic field strength (*ibid.* 1996:69). Both elements detect the earth's magnetic field and the sensor element closer to the ground also detects any local magnetic fields. The results from the lower sensor element are subtracted from those of the upper sensor and the electrical output is proportional to the magnetic field of the local anomaly (Aspinall et al. 2008:40; Tumanski 2011:173). The dual sensors with the Bartington Grad601-2 allows for surveys to be completed in half the time than if only one sensor was being used (Bartington 2012).

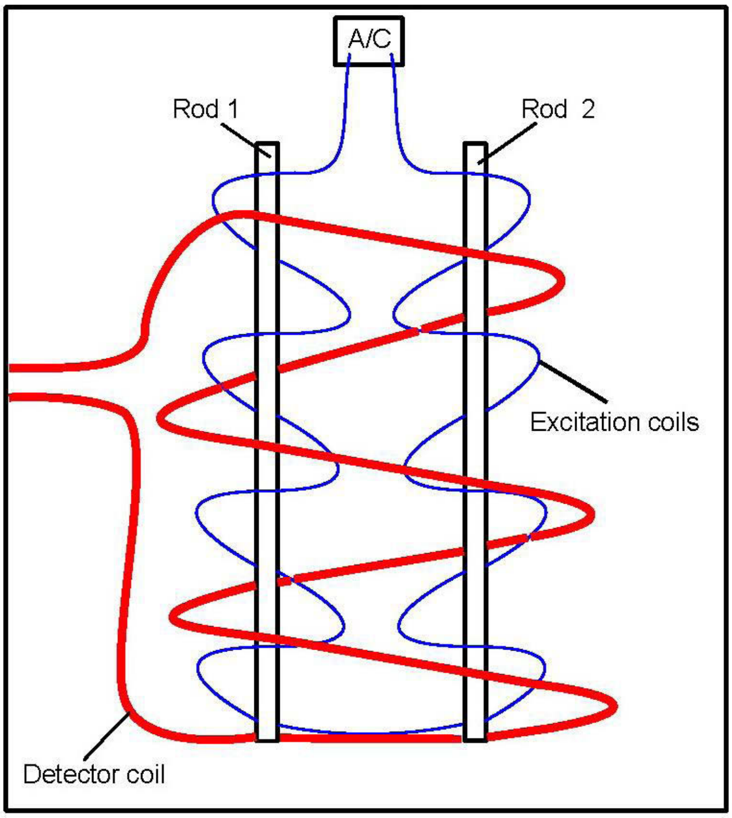

Figure 3.4: The configuration of a Fluxgate Gradiometer sensor element. Image: Adapted from Aspinall et al. 2008:35.

3.4 Methods

3.4.1 Feature Survey

This survey consisted of a systematic walkover of the site, including the forest, identifying visible depressions and other features. The depressions were felt underfoot with the highest limits of the sleeping platforms or walls mapped using a Nikon NIVO 3.0 total station (Figure 3.5), within the site grid established by Renouf in 1984 (Renouf 1985). Alongside the mapping of features, written descriptions of disturbance, depth, feature type and the possible presence of rear pits, berms, sleeping platforms or walls and entrance-ways as determined on site by M.A.P. Renouf, Patty Wells and Dominque Lavers. This information was not observable in every case (Appendix 2: Field Data).

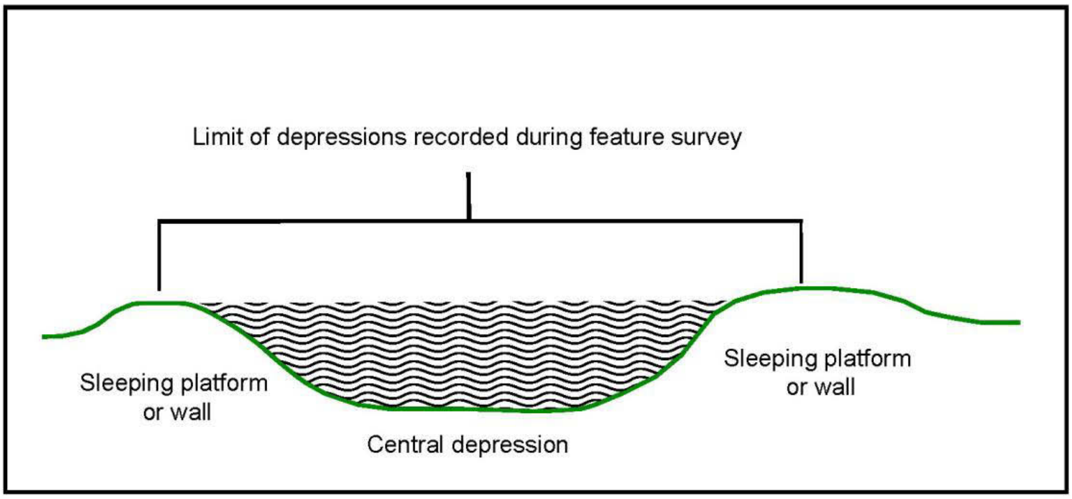

Figure 3.5: A representative profile through a dwelling structure with limits recorded during the feature survey and the hatched area representing what was recorded through the landscape survey.

Data from this survey were downloaded in text format, known as ASCII

(American Standard Code for Information Interchange), and loaded into GIS software where the points were then converted into polygons. As this information was surveyed on the local site grid, the data was then geo-referenced with points taken on the local grid with the DGPS in AutoCAD and re-exported to a GIS package. A database was then created and attached to the identified features to contain data, known as attribute data. Information gathered in the field, e.g. disturbance, possible entrance-ways etc. was added to each polygon along with further information regarding area, method of identification etc. gathered after the field season had ended (Appendix 3: GIS Data).

3.4.2 Landscape Survey

This survey method established an arbitrary geo-referenced 0.5 m grid over the site area and was loaded as a shape file into the Magellan ProMark 500 handheld unit of the DGPS. Using the geo-referenced 0.5m grid as a guide, the 3D location of each intersection point was recorded using the DGPS. The data were downloaded on a daily basis from the DGPS as a shape file and imported into a GIS package.

From the landscape survey, 61225 individual 3D observations were recorded across the site, enabling the generation of a centimetre-accurate landscape model in various forms: a contour map, an Inverse Distance Weighted (IDW) raster, a Local Relief Model (LRM) (Figure 3.6, Figure 3.7, Figure 3.8), each of which are fully explained below.

3.4.2.1 Contour Map

The contour map, a representation of elevations by producing lines at set intervals (Chapman 2009: 81), was produced through interpolation at 0.02 m intervals (Figure 3.6). This close setting of the contour lines enabled the representation of shallow features which may have otherwise been missed at a larger scale. There were two levels of contour maps created; at the larger scale of the site as a whole (Figure 3.6) and at the smaller scale of individual features (Figure 3.9).

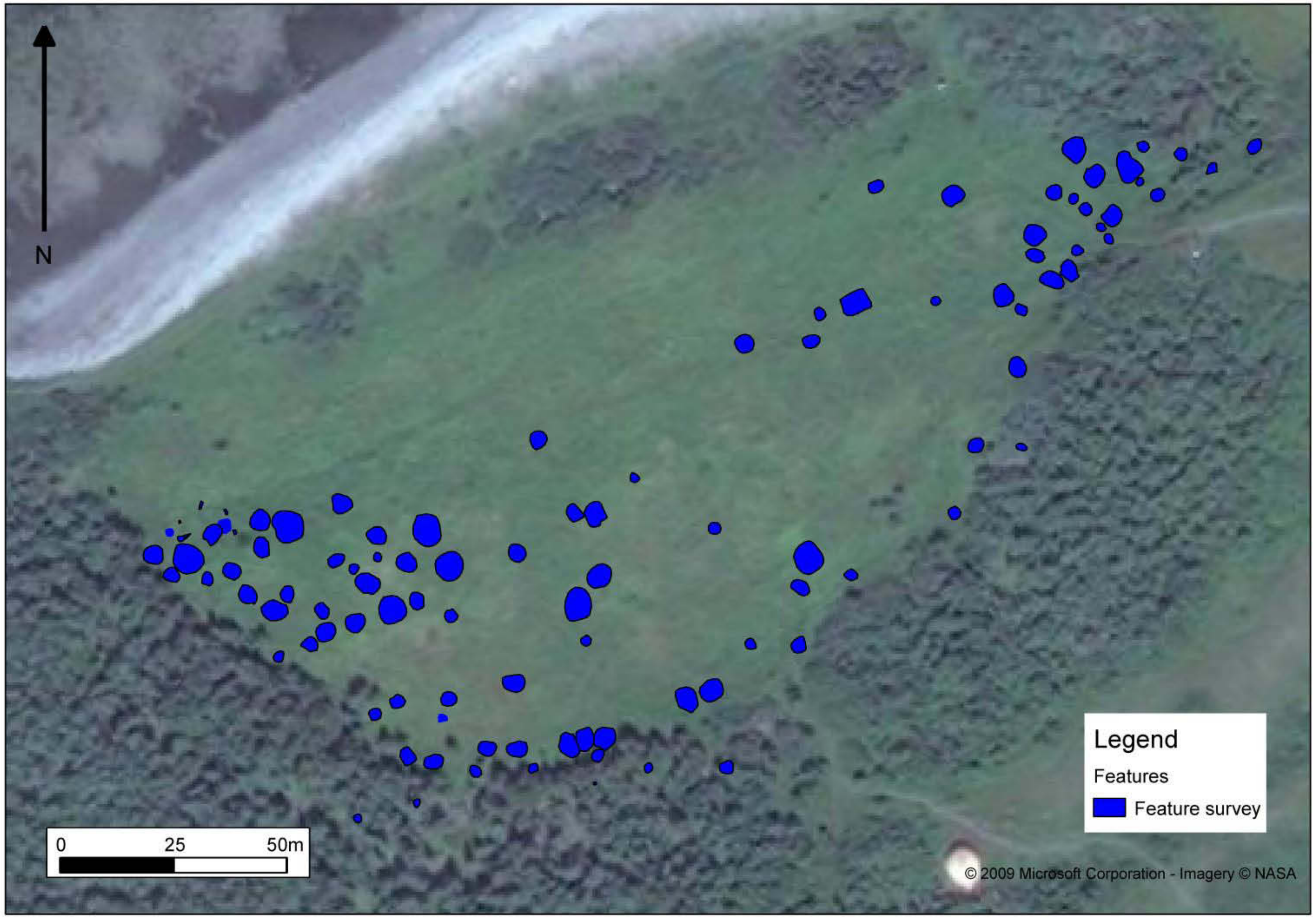

Figure 3.5: The initial map produced of the features identified during the feature survey at Phillip's Garden, 2012. The white circle (bottom right) is the Park's Canada yurt.

3.4.2.2 Inverse Distance Weighting (IDW)

An IDW raster is created by an interpolation method that produces a Digital Elevation Model (DEM) (Chapman 2009: 76). This creates a value for a cell (depicted on screen as an individual pixel) by calculating the averages of the data around each input-data point within a set radius of the cell. The closer the point to the cell the more influence it has in averaging the cell's value (Kennedy 2009:171). For this IDW the cell size was 0.25 m, which took the averaged data (elevation) from the 12 nearest recorded points. The IDW was viewed through the black to white colour ramp during this process. The elevation values assigned to the colour ramp were 5-11.5 m, the darker areas represent the lower values while the higher values represent the lighter areas (Figure 3.7).

3.4.2.3 Local Relief Model (LRM)

The LRM is created from a DEM using a process that removes large scale topographic detail, such as beach terraces, to reveal the more subtle archaeological topographic elements (Hesse 2010:67; Davis 2012:15). This process was achieved through five steps developed by Hesse (2010) and performed in Geographical Resources Analysis Support System (GRASS) software with a script formulated by Bennett (2011:Appendix 1 page i). Using the IDW raster, created above, the first step was to apply a low pass filter to smooth the DEM, removing the effect of micro-topographic changes to create a DEM of macro-topography (Bennett 2011:106). The size of the filter, known as a kernel, was chosen to reflect the size of the micro-topography present at Phillip's Garden that was to be removed by this process. A series of filter sizes were tested from 5 -15 m, of which the 15 m filter produced the clearest resolution for the best results. The second step was to subtract the original DEM from the smoothed model created from the low pass filter. This produced a difference map that highlighted variations in the surface that were not related to macro-topography (*ibid* 2011:106). The model at this stage was still influenced by small scale variations, leading to distortion of topographic features (Hesse 2010:68). This resulted in the calculation of a zero meter contour line, which delineates the positive and negative changes in local elevation, from the difference map. Elevations along this contour were extracted and interpolated into a new DEM which was completely purged of small-scale changes in topography (Bennett 2011:106). The purged DEM was then subtracted from the original DEM to leave the LRM of micro-topographic features which retain their original metric scale and proportions (See Figure 3.8) (*ibid* 2011:106). To display the LRM the grey scale was used during this process. The elevation values assigned to the colour ramp were -0.663746 – 0.541576 m, the darker areas represent the lower values while the lighter areas represent the higher values (Figure 3.8).

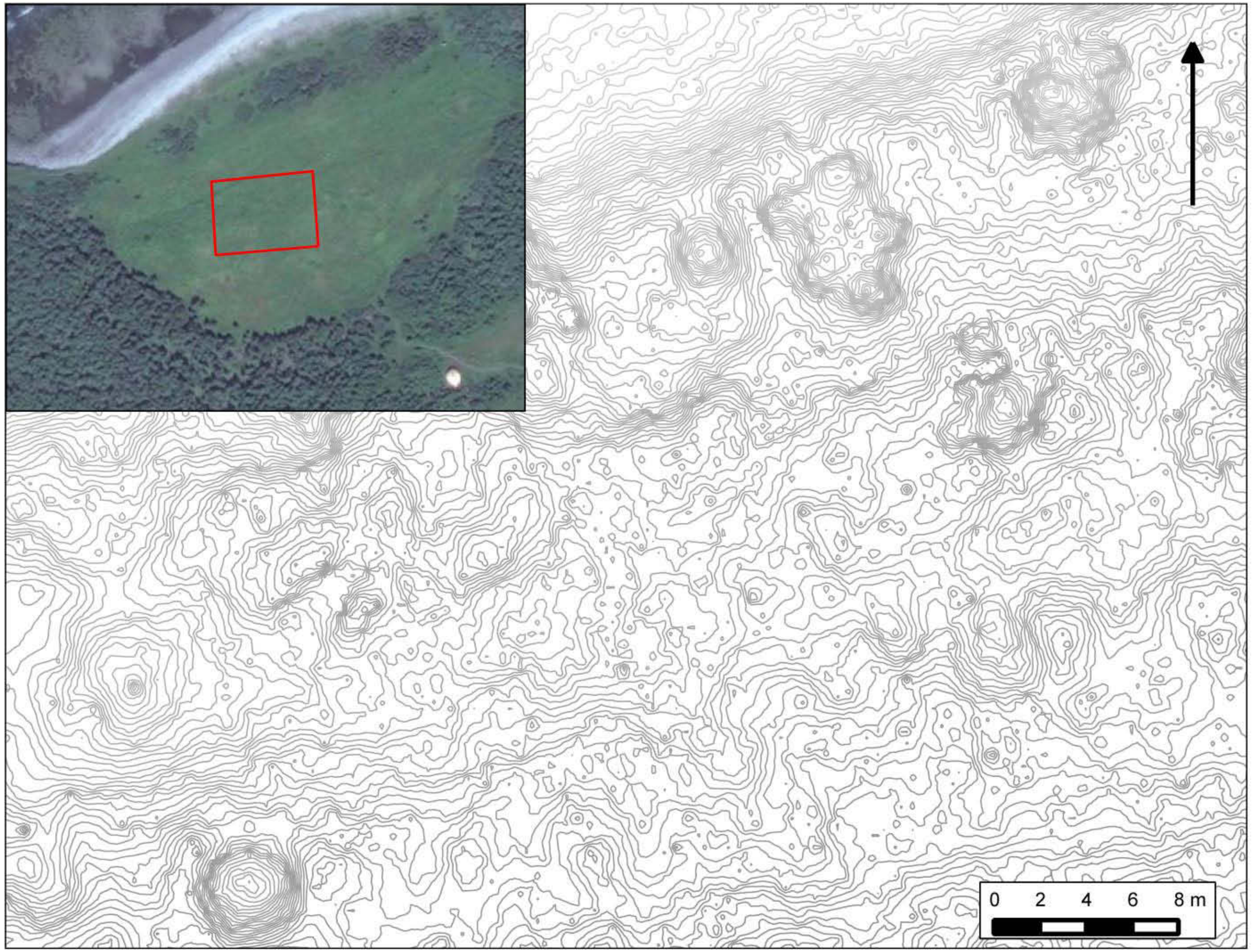

Figure 3.6: A section of the 0.02 m contour map (bottom), with the location of area highlighted (top left).

Figure 3.7: The IDW raster produced for the survey at Phillip's Garden. The darker areas are the lower elevations, with lighter areas representing the higher ground. Note the darker circles which are the depressions. The white circle (bottom right) is the Park's Canada yurt.

Figure 3.8: The LRM raster produced for the survey area at Phillip's Garden. The darker areas are the lower areas, with the lighter areas representing the flattened topographic elements. The white circle (bottom right) is the Park's Canada yurt.

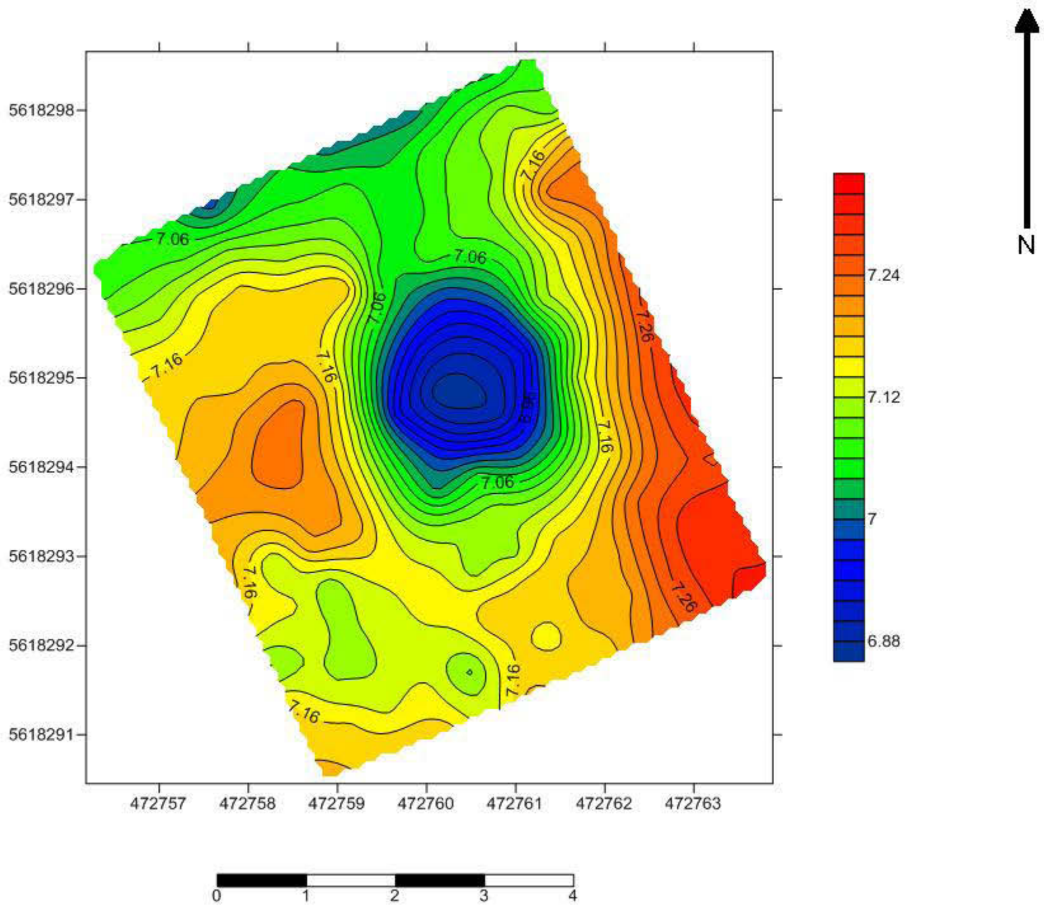

Figure 3.9: An example of an individual contour map of depression D53. Location of D53 can be found in Appendix 1: Complete map of Phillip's Garden.

3.4.3 Magnetometer Survey

This survey was undertaken by Ed Eastaugh from Western University, London, Ontario. The methodology will be a brief synopsis of Eastaugh and Hodgetts' 2012 field season report (Eastaugh and Hodgetts 2012). This survey was undertaken with a Bartington Grad601-2 dual sensor fluxgate gradiometer. Preceding the survey, the site was prepared by cutting back the vegetation. Metal objects were detected with the aid of a metal detector and were removed so as not to influence or alter the integrity of the geophysical survey (*ibid*. 2012:4) (Figure 3.10, Figure 3.11). Within 20 x 20 m grids an area of 11,755 m² was covered by the survey, encompassing 24 complete grids and ten partial grids (Figure 3.12) (*ibid.* 2012:4). Along parallel traverses spaced 0.25 m apart readings were logged at 0.125 m intervals (*ibid* 2012:4).

The data from this survey were downloaded and processed using Geoplot 3.0v (Eastaugh and Hodgetts 2012:5). There were three processes used on these data: clipping, zero mean traverse and interpolate X and Y (*ibid* 2012:5). Clipping allows for a cap or limit to be set on the data so that higher readings, such as modern metal objects found around the site, do not dominate the results (Walker 2004:6-1). This allows for the weaker signatures to be seen which are often of interest at prehistoric sites (Kvamme 2006). The zero mean traverse is used to remove the stripping that occurs when using a twin sensor gradiometer (Walker 2004:6-3; Eastaugh and Hodgetts 2012:5). This is done by setting the background magnetic response of each traverse within a grid to zero (Walker 2004:6-3). The interpolate X and Y function was used to create a finer resolution image (Eastaugh and Hodgetts 2012:5), achieved by increasing the number of data points within the survey (Walker 2004:6-2).

Each of the anomalies identified by Eastaugh were digitised by a polygon within a GIS programme and attribute data was attached to each polygon regarding feature number, area, identification method etc. (Appendix 3: GIS Data).

Figure 3.10: Vegetation clearance at Phillip's Garden. Photo: PAC Archaeology Project.

Figure 3.11: The metal detector in use at Phillip's Garden, with the metal objects removed from the ground (bottom right). Photo: PAC Archaeology Project.

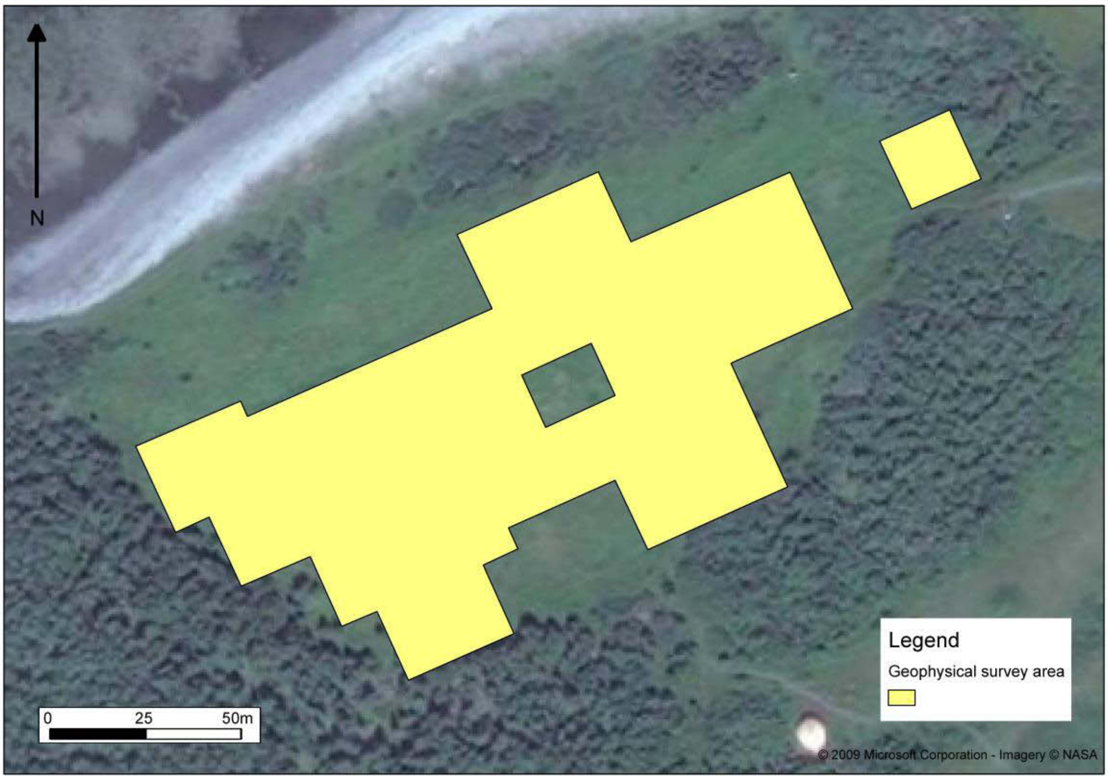

Figure 3.12: Area covered by the geophysical survey at Phillip's Garden. The white circle (bottom right) is the Park's Canada yurt.

3.5 Summary

This chapter presented the basic principles, technologies and methods employed during the 2012 field season at Phillip's Garden. The multi-level survey approach was designed to maximise the opportunity of identifying potential dwelling depressions at Phillip's Garden. In the following chapter the results of these survey techniques will demonstrate the success of the application of these methods at Phillip's Garden and address the principle objective by creating the most complete map to date of the sites.

4 Feature Identification Methods and Survey Results

4.1 Introduction

This chapter is divided into three main sections discussing feature identification and survey results. The feature identification section discusses how the archaeological features were identified within each of the survey results. The survey results section presents the total number of features identified from all of the surveys undertaken during the 2012 field season at Phillip's Garden. The results for each of the survey techniques are broken down into the types of features present at the site.

4.2 Feature Identification Methods

The identification of potential archaeological features differs with each survey method. The identification methods for the feature, landscape and magnetometer surveys are presented below. The feature survey identified features in the field, while the landscape and magnetometer survey identified features after the data collected in the field was processed.

4.2.1 Feature Survey

The identification of features recorded during the feature survey occurred wholly in the field. Where central depressions were visible, the associated sleeping platforms, entrances and rear pits were often detected underfoot. In some cases no associated features were identified. Through vegetation clearance stone features were also identified, these will be discussed in greater detail below in section 4.3.1.

4.2.2 Landscape Survey

The landscape survey employed three different feature identification methods, one for each of the three landscape models produced from the collected 3D data: contour model, IDW and LRM. The feature identification processes for each landscape model were performed within a GIS programme. To address and minimise any bias within the analysis, feature analysis of a given landscape model was always undertaken independently of those features identified through either the feature or magnetometer surveys as well as those identified through analysis of the other two landscape models.

4.2.2.1 Contour Map

The criteria used to identify possible features from the contour map were that only those identified anomalies greater than 2 m long at the widest axis, with a difference in elevation of more than 0.1 m were considered within the analysis because these smaller anomalies were thought to be likely of natural origin, disturbance or else an artefact of the landscape model, i.e. a temporary spike in the GPS-recorded 3D resolution due to a drop in satellite signal. Additionally, those anomalies smaller than this were deemed not to be a potential central depressions as previously identified central depressions ranged from 3-4 m in diameter. The features identified through the contour model could be discerned by concentric rings of contour lines, for both mounds and depressions, when located away from beach terraces (Figure 4.1). Suspected archaeological features which abutted or truncated beach terraces were represented by a sharp change in both direction and magnitude of contour lines and corresponding sub-rectangular or semi-circular indentations/concavities into the otherwise relatively regular slopes of the terraces (Figure 4.2).

4.2.2.2 Inverse Distance Weighting (IDW) and Local Relief Model (LRM)

For the IDW and LRM, features were determined by the presence of strong, regular and focused contrast in pixel shade and/or colouration (Figure 4.3). The potential features in the IDW and LRM were both recognised by a diffuse light halo surrounding a better defined, often circular, area of darker pixels. In the case of positive archaeological features, e.g. mounds, the opposite was true in that the features were evident as distinct patches of lighter pixels surrounded by darker cells. The flexibility inherent with the IDW model allowed for further analysis to even better ascertain the number of visible features. Where a single colour band (e.g. greyscale) or multi-colour spectrum was used to define the full elevation range of a landscape model, within the IDW (as with other rasters) the colour band may be set to illustrate predefined elevation ranges and thus focus and accentuate any visible anomalies within that range. (Figure 4.4). By changing the minimum and maximum elevation values within the IDW by varying degrees within the full 5-11.5 m range, as discussed in Chapter 3, a greater number of more discreet features were identified. For each feature identified from the IDW the elevation range at which it was recorded was recognised.

All features identified through the landscape survey were given a confidence rating as to their potential of being an archaeological feature. There were four confidence ratings: 'definite', 'most likely', 'probable' and 'unlikely' (Table 4.1). 'Definite' was assigned to areas disturbed by previous excavations that positively identified archaeological features and are thus exempt from the results of the landscape survey. The confidence rating of 'most likely' was assigned to features that were clearly defined and symmetrical within the landscape models and thus considered most likely to be anthropogenic. 'Probable' features were identified as less clearly defined, but uniform in shape. The final confidence rating of 'unlikely' were highly amorphous in shape and deemed to be natural, or else artefacts of either the 3D dataset, i.e. fluctuations of resolution within the 3D capture, or the GIS processes used to create the landscape models. For the purposes of this analysis only those features assigned a confidence level of ‘most likely’ were assessed.

Table 4.1: Summary of confidenc rating of features identified through the three landscape models of Inverse Distinace Weigthed (IDW) and Local Reilf Model (LRM).

Confidence rating	Summary
Definite	Previously excavated features
Most likely	Clearly defined and symmetrical
Probable	Uniform in shape, but not clearly defined
Unlikely	Highly amorphous in shape

4.2.3 Magnetometer Survey

The magnetometer survey identified features through a visual inspection of an image produced from the processed raw data collected in the field. Potential features, interpreted by Eastaugh, were represented as black (positive results) and black and white (dipolar) anomalies (Figure 4.5) (Eastaugh and Hodgetts 2012:6).

During the analysis and identification process for each of the survey methods, each potential feature was digitised as a polygon within a GIS programme. Unique attribute data were then attached to each polygon describing feature number, area (m^2), level of confidence, identification method, etc. (Appendix 3: GIS Data).

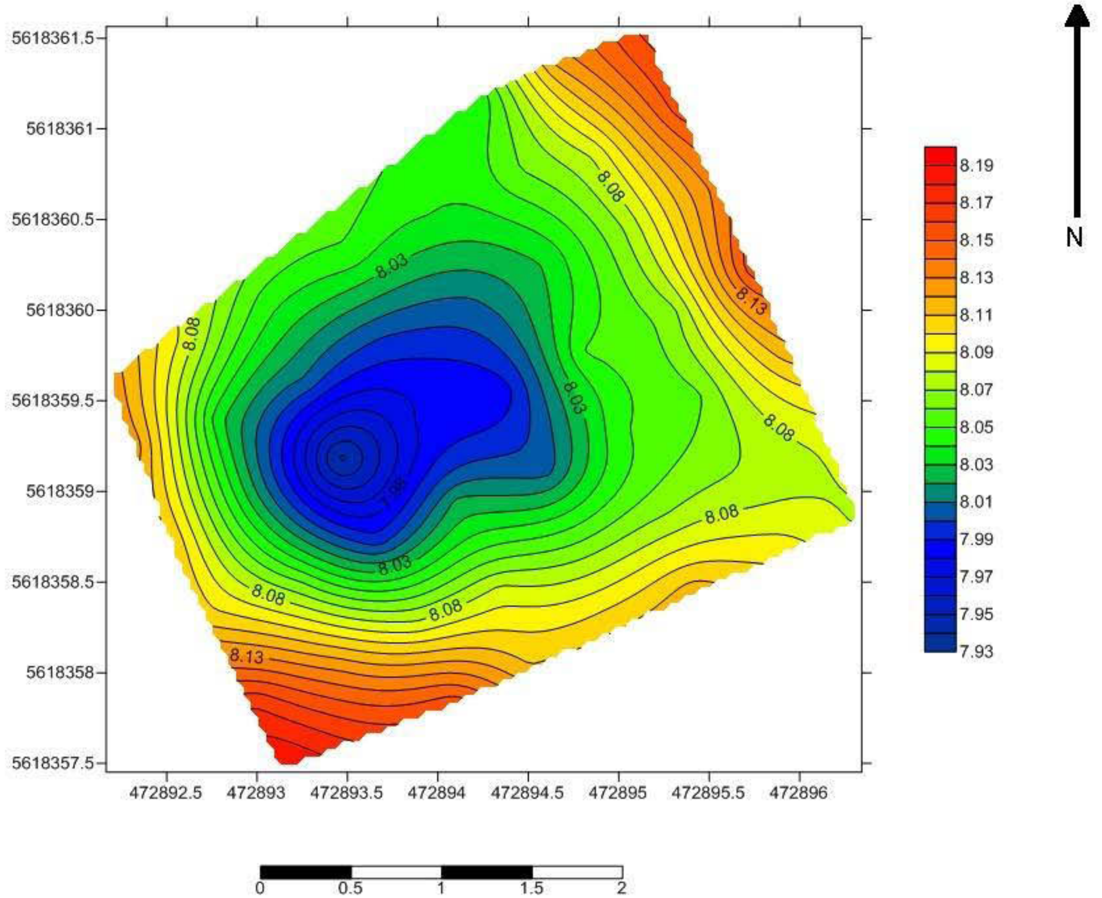

Figure 4.1: Depression D86 exhibiting the concentric rings of contour lines. Location of D86 can be found in Appendix 1: Complete map of Phillip's Garden.

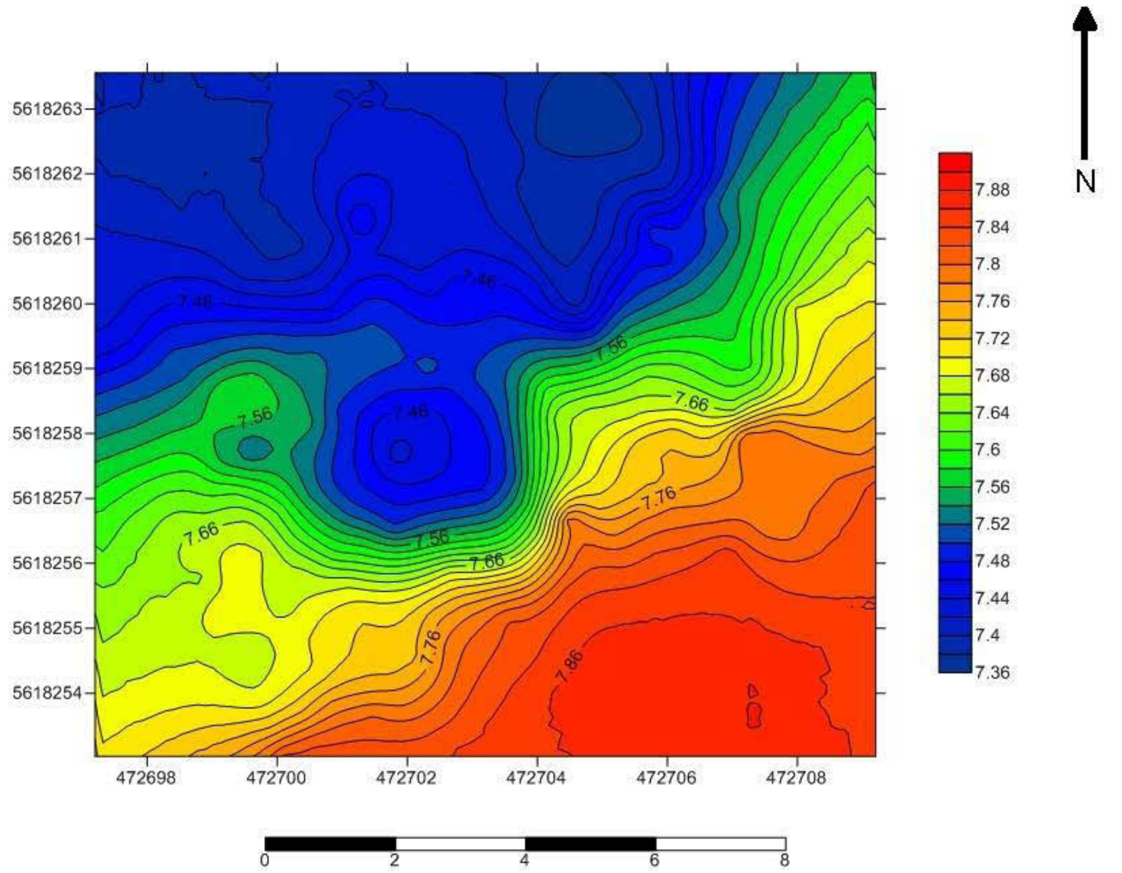

Figure 4.2: Depression D9 exhibiting a quintessential indentation into a beach terrace. Location of D9 can be found in Appendix 1: Complete map of Phillip's Garden.

Figure 4.3: An example of how features were identified within the IDW. The red circle indicates feature F368 and the red square demarcates where a previous excavation was performed. (Inset) Location of where the close up view came from.

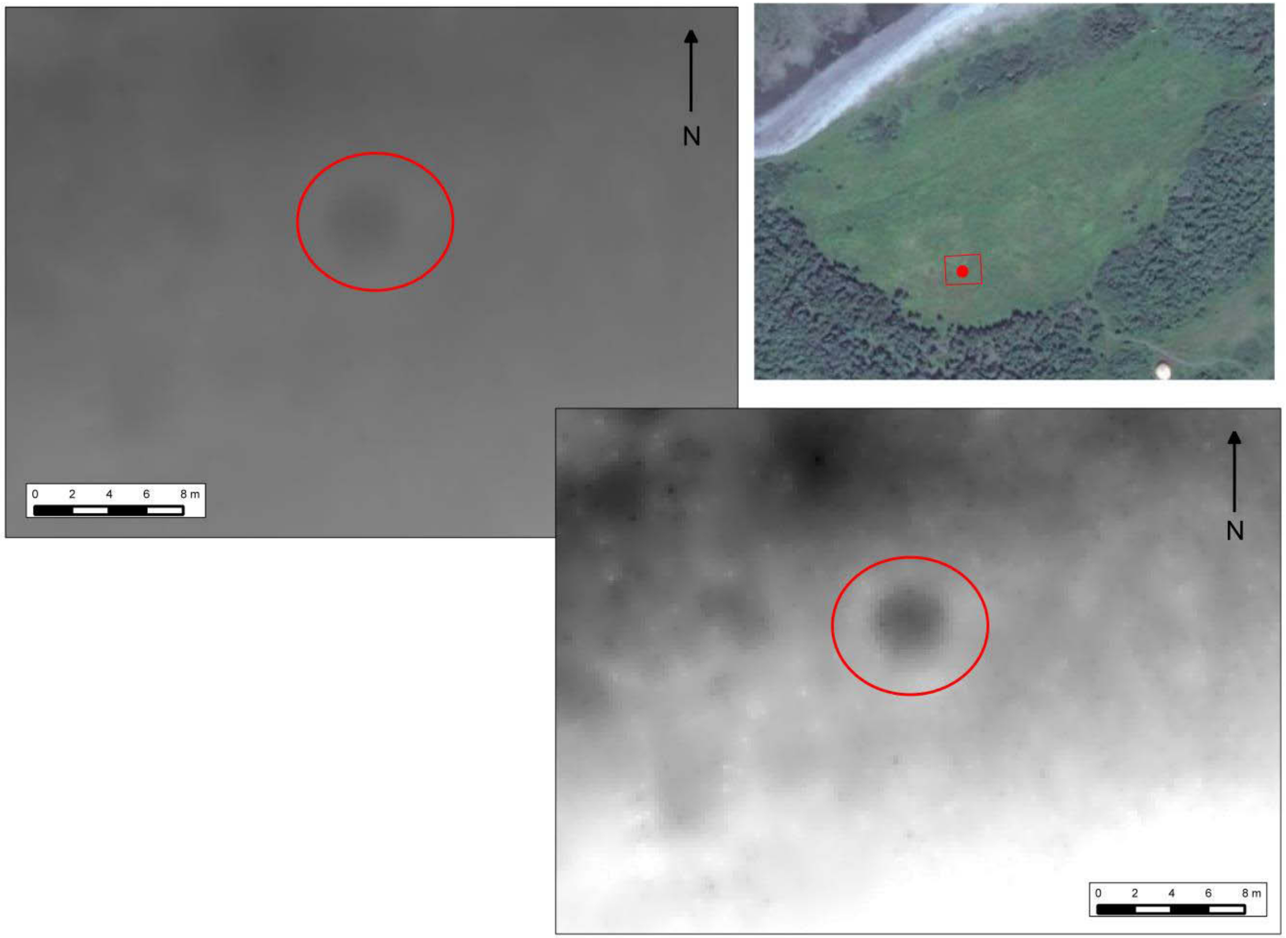

Figure 4.4: The location (Inset) of feature F368 (red circle), the IDW has been modified (top left and bottom right) by changing the elevation range within the IDW. This has given better definition to F368 and also assisted with the identification and definition of other features.

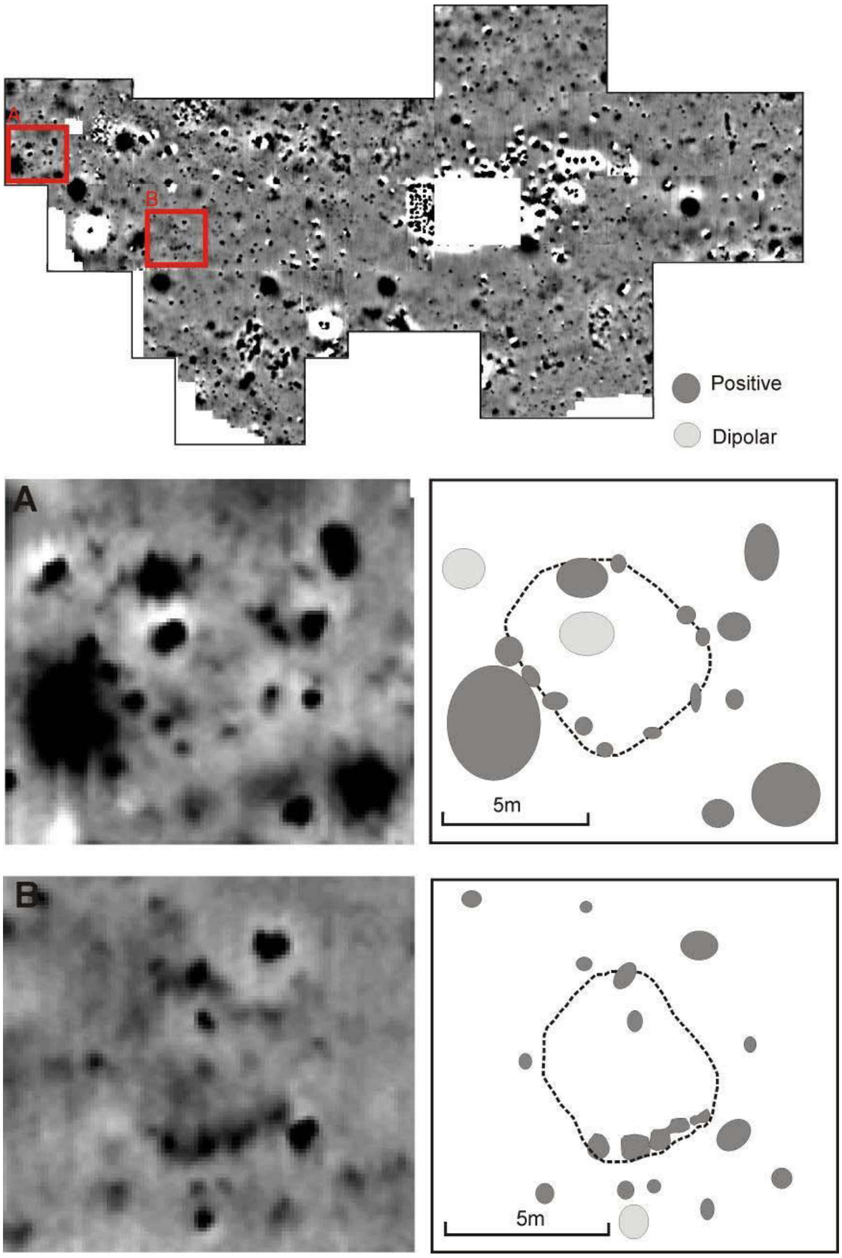

Figure 4.5: Image showing positive and dipolar anomalies. Image: Eastaugh and Hodgetts (2012:12)

4.3 Survey Results

The final count of archaeological features is comprised of the previous excavations and results from all three survey techniques employed at Phillip's Garden during the 2012 field season. These three survey methods not only identify new potential features at Phillip's Garden, but also corroborated identification of possible features amongst the three methods. This has led to the potential for a minimum (208) and maximum (213) number of features (Table 4.2 and Figure 4.6). The minimum and maximum number is derived from the overlap of potential features identified by the landscape survey and magnetometer survey. There is potential for these features that coincide with one another to be either two separate features, a buried feature wholly truncated by another, or a single entity. This potential has thus resulted in a small, but significant, minimum and maximum range of probable archaeological features. To further understand the breakdown of the feature numbers from each survey technique the results of each survey are presented below.

Table 4.2: Minimum and maximum count of features identified from the feature, landscape and magnetometer surveys.

Survey type	Min #	Max #
Previous excavation	25	25
Feature survey	101	101
Landscape survey	53	58
Magnetometer survey	29	29
Total	208	213

4.3.1 Excavation and feature survey

The 25 dwellings identified from previous excavations were recognised largely by all three survey methods (Figure 4.8 and Table 4.3). Feature F2u (Chapter 2: Table 2.5) was the notable exception, as this was a buried dwelling not recognised by any of the survey methods employed during 2012 fieldwork.

The feature survey identified a total of 100 possible archaeological features (Figure 4.7 and Table 4.3). These were mostly identified as depressions (n=90) with a further four feature types quantified: stone features, mounds, iris concentrations and fire-cracked rock. Five stone features (S91, S92, S93, S94, and S95) were observed. These were visible only after vegetation was cleared. All were located at the northeastern extent of the known limits of the site. These features consisted of upright stones arranged in a linear formation with the uppermost surfaces exposed (Figure 4.8). Feature S93 was the only stone feature associated with a depression (D2). Four features were identified by iris concentrations (M45, M47, I55, I56), two of which were mounds; through previous investigations it has been verified that iris concentrations often demarcate the central depression of dwelling features (Renouf 1985:39). A single instance of the final feature type of fire-cracked rock (FCR102) was located in the forested area south from the meadow and verified through a small test pit.

Table 4.3: A summary of the feature types and numbers recorded from previous excavation and the feature survey.

	Features	#
	Previous excavation	25
Feature Survey	Depressions (comprising 12 associated middens from the magnetometer survey [D])	91
	Mounds (M)	2
	Iris concentrations (I)	2
	Stone features (S)	5
	Fire-cracked rock (FCR)	1
Total number		126

The table above, Table 4.3, differs from the visible depressions and surface features results in the report by Renouf et al. (2013). Firstly, this is due to the addition of the buried feature 2u to the previously excavated features in Table 4.3 Secondly, there was a missing depression (F381, Figure 4.7) from the map produced for the Renouf et al. 2013 report. Lastly, there was duplication of depressions that were identified both through previous excavation and the feature survey. These were House 3 and depression 27, House 8 and depression 67 and House 9 and depression 96 (Figure 4.7 and Appendix 3: GIS Data).

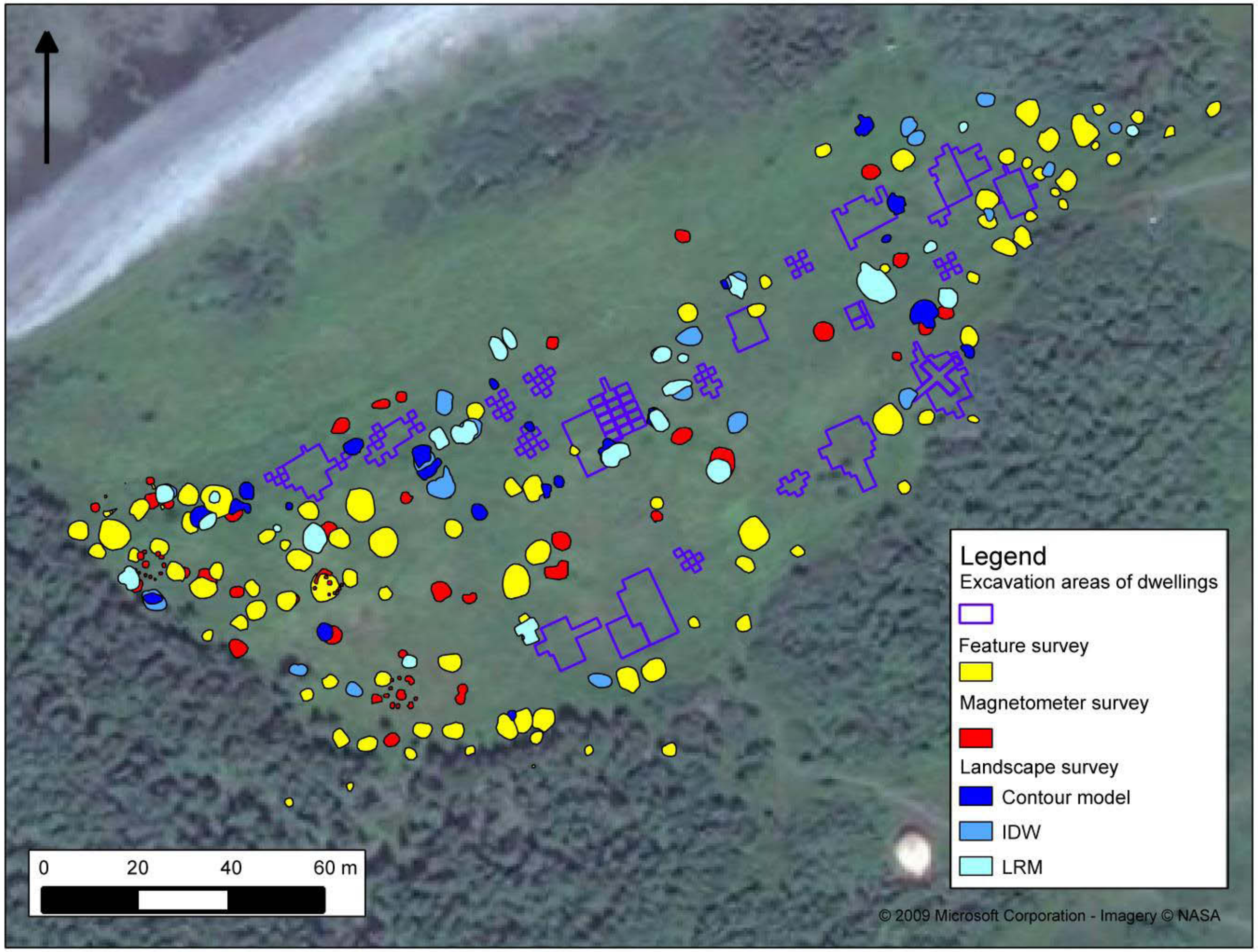

Figure 4.6: Results from previous excavations, the feature survey, landscape survey and magnetometer survey. The landscape survey has been divided into the three landscape models.

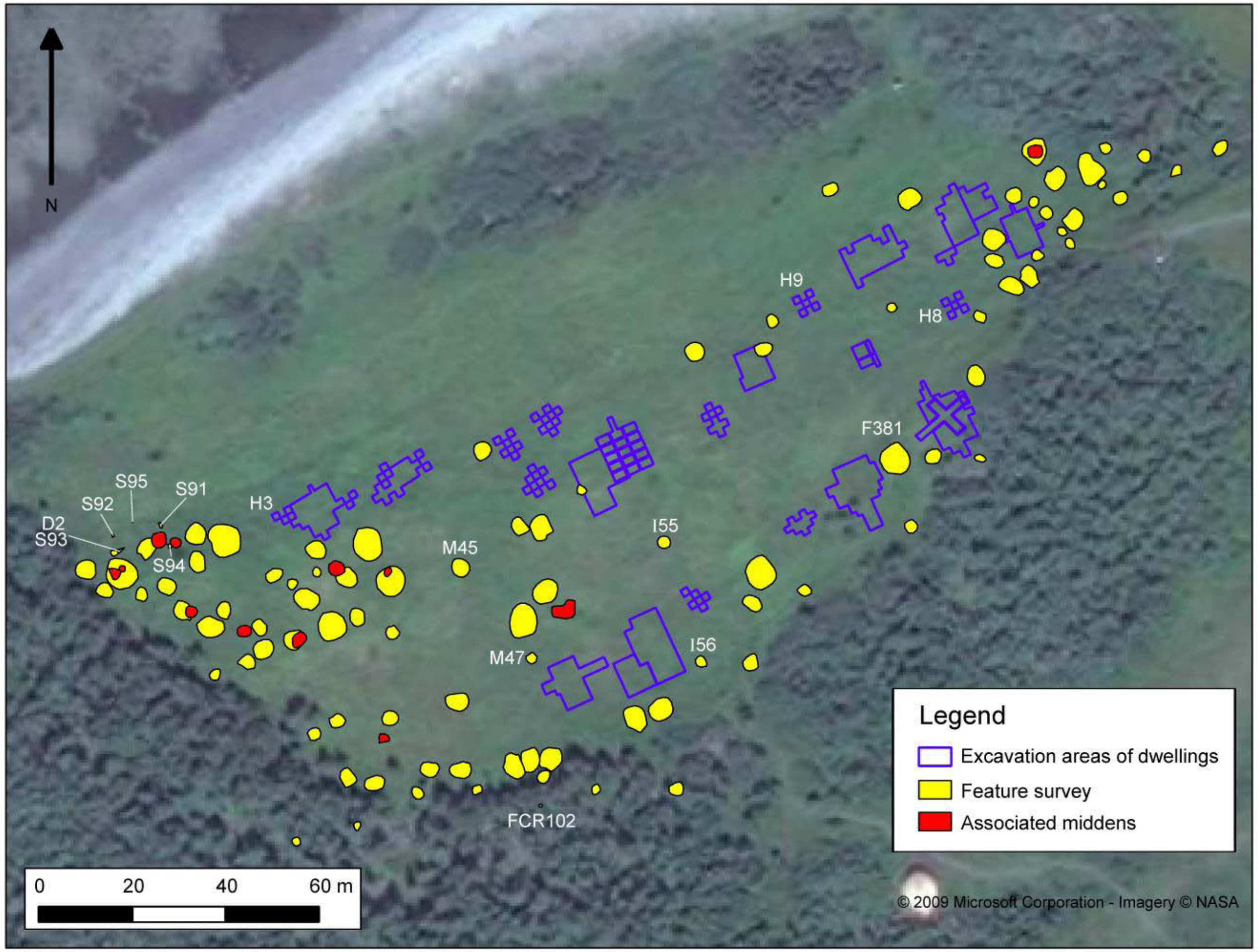

Figure 4.7: Locations of features from excavated dwellings, feature survey and associated middens from the magnetometer survey, 2012 field season Phillip's Garden, with feature numbers mentioned in the text.

Many of the depressions identified by the feature survey were corroborated by the landscape survey (n=57). Similarly, the magnetometer survey characterised 12 potential midden features clearly associated with visible depressions identified during the feature survey (Figure 4.7).

Figure 4.8: Stone feature S91 exposed after vegetation clearance. Photo: PAC Archaeology Project.

4.3.2 Landscape survey

The landscape survey identified a total of 58 potential archaeological features not identified in either the 2012 feature or magnetometer surveys, based on the criteria set out in section 4.2 (Figure 4.9). From the three landscape models (contour, IDW [Inverse Distance Weighting] and LRM [Local Relief Model]) four features were confirmed through analysis of all three models and nine others were identified within at least two of the three landscape models (Figure 4.10). The remaining 45 features were identified within a single landscape model (Figure 4.10). Of these 58 probable archaeological features identified during analysis of the landscape models, 47 were identified as depressions and 11 as mounds (Table 4.4). As with the feature survey a number of potential middens identified by the magnetometer survey (n=3) were associated with depressions identified through the landscape survey (Table 4.4 and Figure 4.11).

As previously mentioned, archaeological features identified through the analysis of the landscape survey duplicated, and thus corroborated, many of the features identified through the feature survey. There was additional corroboration between the features identified through the landscape survey and the features identified from the magnetometer survey. Analysis of the landscape survey identified five features that coincide with the magnetometer survey. As previously stated in section 4.3, there is potential for these features that coincide with one another to be either two separate features, a buried feature wholly truncated by another, or a single entity. This potential has thus resulted in a small, but significant, minimum (n=208) and maximum (n=213) range of probable archaeological features.

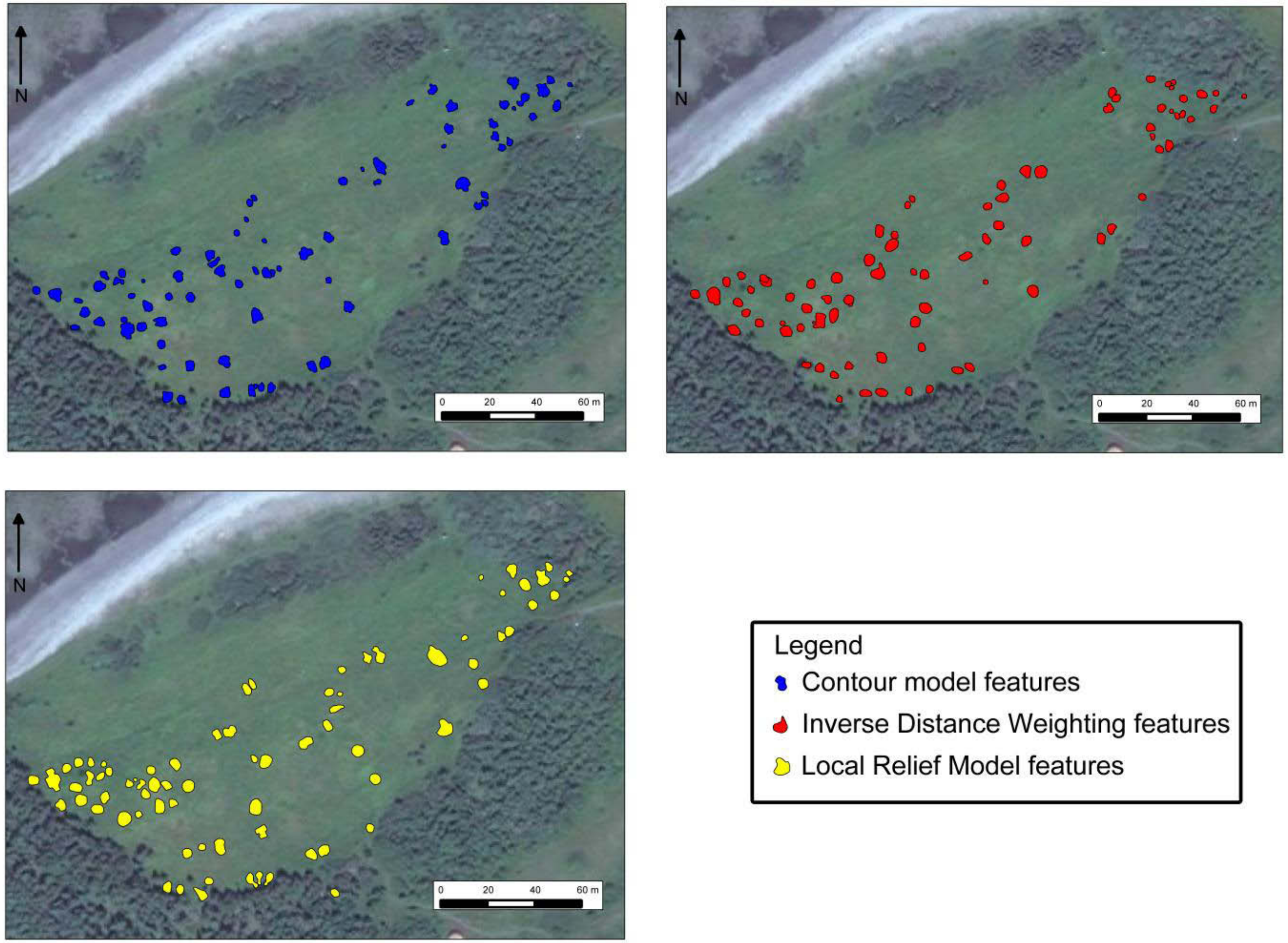

Figure 4.9: Features identified from each of the landscape models produced from the landscape survey data, which have significant overlap with each other, the feature and magnetometer survey results.

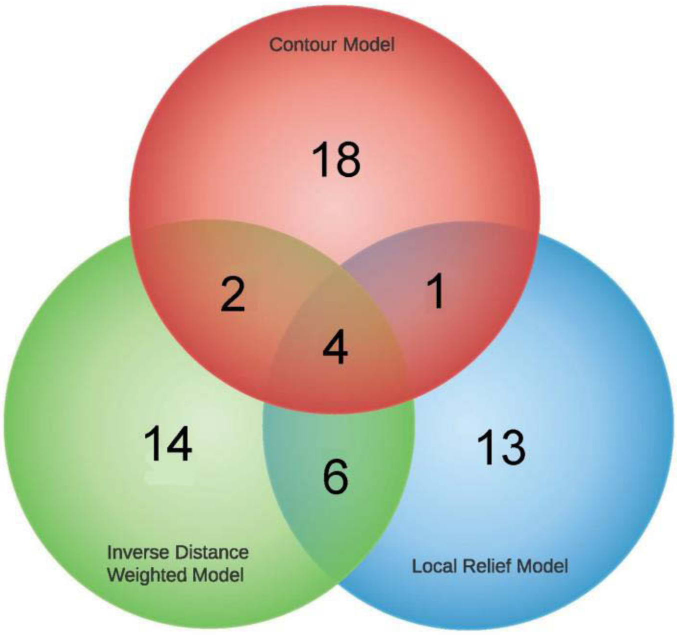

Figure 4.10: The cross-corroboration of identified features through each of the three landscape models.

Table 4.4: Total number of features and types identified solely through the three models generated from the landscape survey. These features were identified after the Renouf et al. 2013 report.

Feature type	#
Depressions (comprising 3 associated middens from magnetometer survey)	47
Mounds	11
Total	58

In addition to identifying archaeological features, the landscape survey also served to greatly enhance the known topographic detail of Phillip's Garden. Originally Phillip's Garden was thought to feature three prominent beach terraces (one outside the 2012 study area), but through a visual analysis of each of the three produced landscape models a further four distinct natural terraces were identified. These were best seen within the LRM (Figure 4.12).

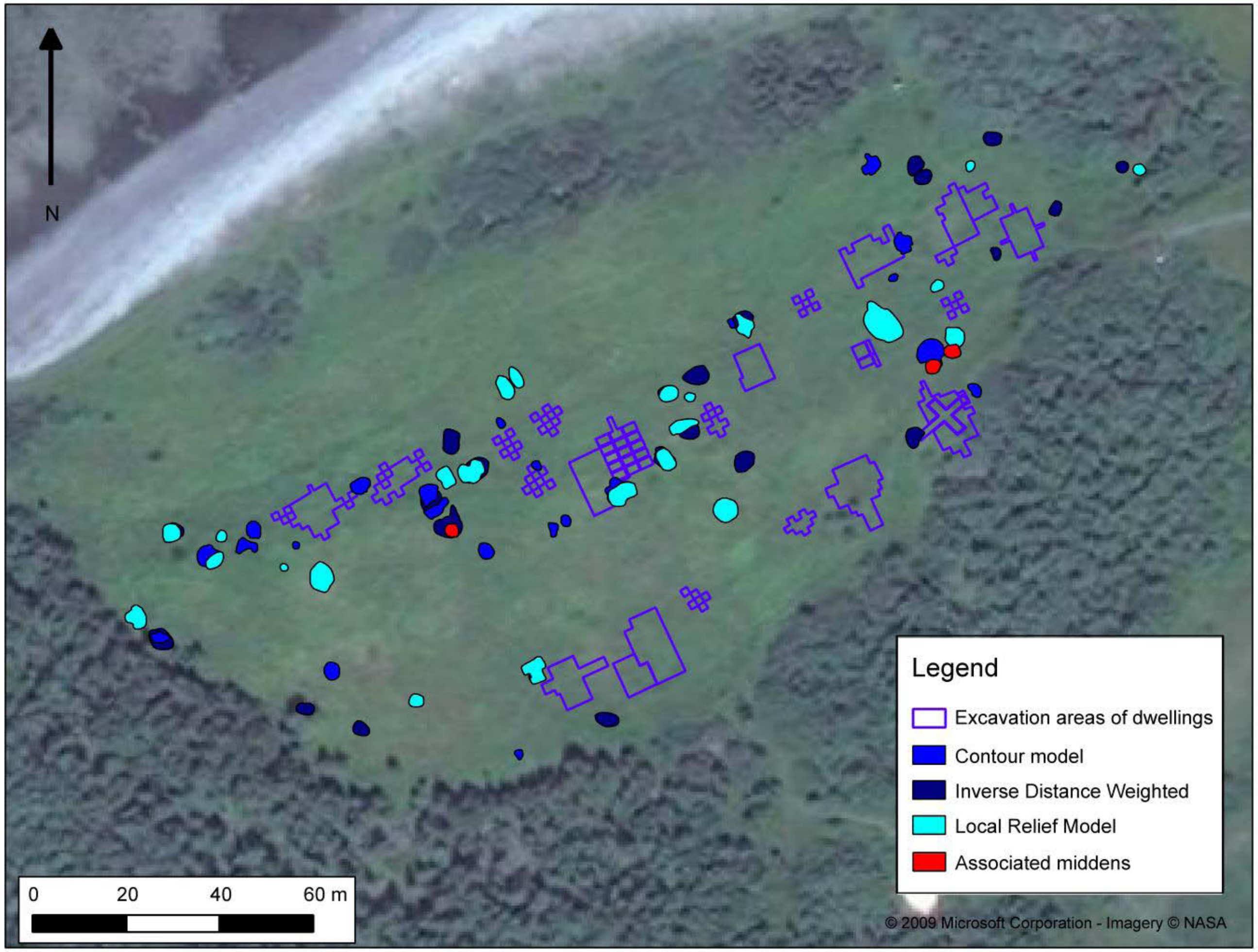

Figure 4.11: All features identified through the three landscape survey models (Contour model, IDW and LRM) with associated middens.

4.3.3 Magnetometer survey

Eastaugh identified a large number of magnetic anomalies (MA) from the results of the magnetometer survey. Not all were of archaeological interest; many were identified as buried beach erratics and others were known to be buried iron objects (Figure 4.13 [Eastaugh and Hodgetts 2012:8]). Several of the anomalies were also identified as Harp's backdirt piles from previous excavations (Figure 4.13). There were 29 anomalies characterised as of archaeological interest. These were divided into four main feature types: buried depressions (potential dwellings), activity areas, middens and dwellings with postholes (Figure 4.14 and Table 4.5) (*ibid* 2012).

Table 4.5: Number of feature types identified by Eastaugh from the 2012 Magnetometer survey.

Feature Type	#
Buried depressions	14
Activity areas	2
Middens associated with visible depressions (15, already counted in Table 4.3 and 4.4)	n/a
Middens not associated with visible depressions	10
Potential dwellings with postholes	3
Total	29

The above table, Table 4.5, differs in two respects to the buried depressions and features results presented by Renouf et al. (2013). Firstly, two activity areas not represented in the Renouf et al. 2013 report are considered in this analysis. Secondly, because the results from the landscape survey were collated after the 2013 report was submitted to Parks Canada there is a slight variation in the number of potential middens not associated with visible depressions; 13 in the Renouf et al. 2013 report to 10 in this thesis.

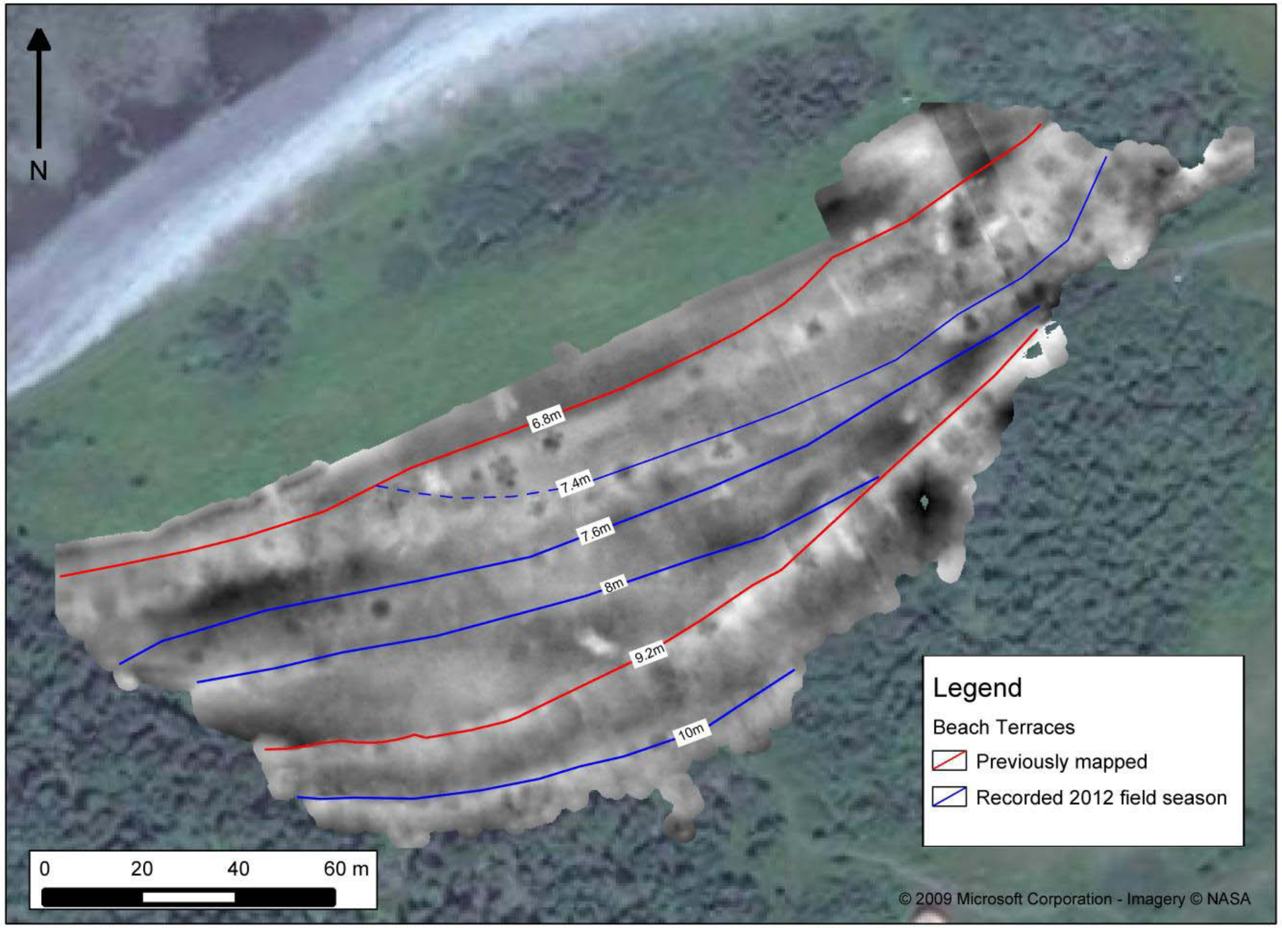

Figure 4.12: Local Relief Model (LRM) with beach terraces highlighted.

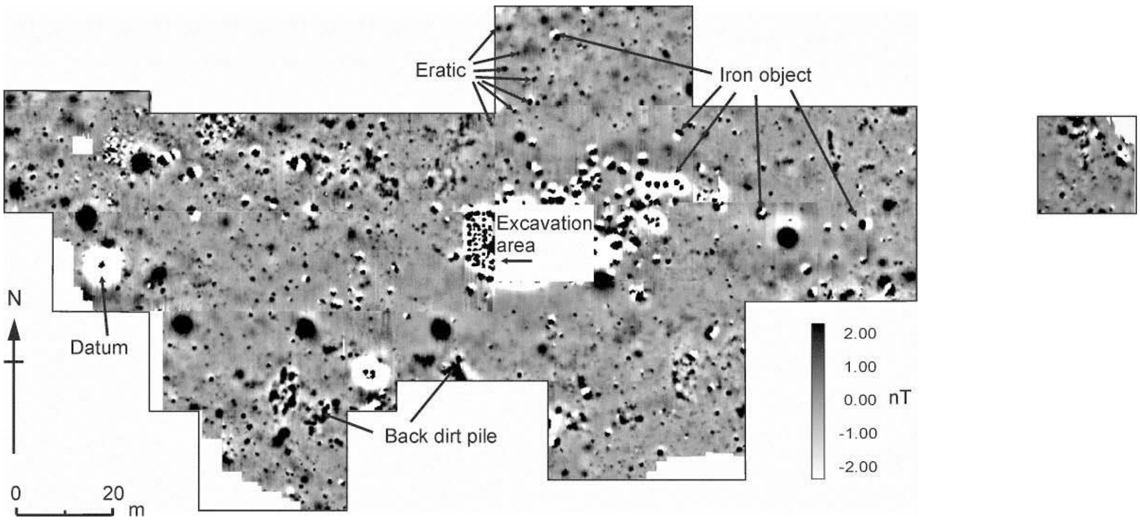

Figure 4.13: Magnetometer results indicating natural and recent features. Note: only a sample of erratics, iron objects and back dirt piles are indicated on the map. Image: Eastaugh and Hodgetts (2012:8).

The most striking of these feature types were the 14 probable buried dwellings which appear as large round anomalies, approximately four meters in diameter, regularly spaced in an east-west arc across the central area of the site (Figure 4.14) (*ibid* 2012:6). There were 10 midden features with no discernible distribution pattern and irregular in shape and size and three probable dwellings with postholes (MA20, MA21, MA22), all located at the western end of the site. Feature MA21 is situated within depression D32, but these classed as separate features. The probable dwellings with postholes feature type is comprised of a centrally-located feature, usually larger than the surrounding anomalies, which appear in a circular or semi-circular formation (Figure 4.15). Finally, two possible activity areas (MA13 and MA33) were observed that were not in close association with other identified features (Figure 4.14) (*ibid* 2012:10).

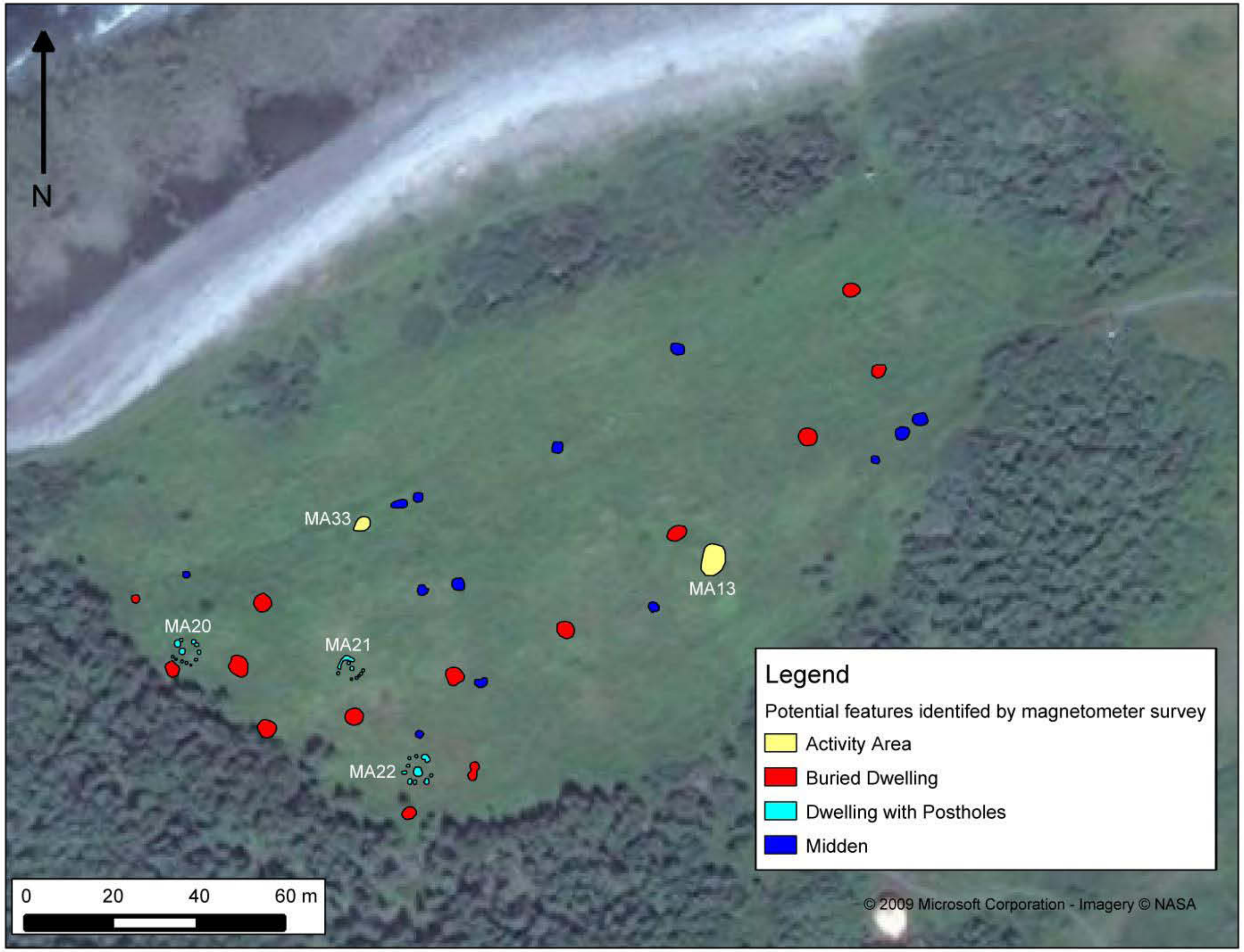

Figure 4.14: Location of features identified through the magnetometer survey, Phillip's Garden 2012, with feature numbers mentioned in the text.

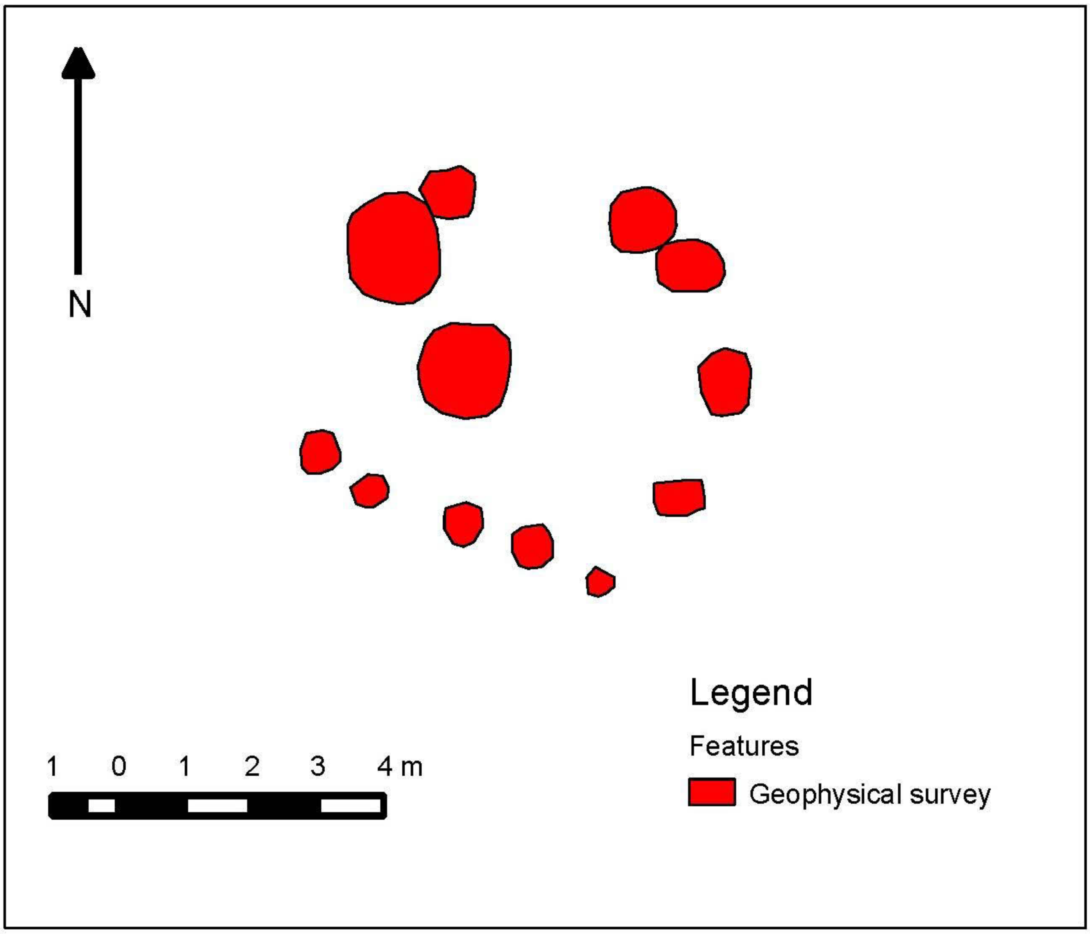

Figure 4.15: Multi-component feature MA20 at Phillip's Garden, interpreted as a possible buried dwelling surrounded by postholes.

4.4 Summary

This chapter presents the feature identification methods and the collated results of the three survey techniques employed during the 2012 field season at Phillip's Garden, Port au Choix. From the previous excavations, feature, landscape and magnetometer surveys, the final feature count produced was a minimum of 208 features and a maximum of 213. These results do not directly answer the research questions of: 1) how many potential dwellings are at Phillip's Garden? 2) are there any distribution patterns/trends within the observable characteristics of potential dwellings? and 3) can a tentative phased chronology or typology be developed for central depressions at

Phillip's Garden? Nevertheless, these results from this section will be central to the discussion in the next chapter that may provide a more comprehensive answer to the research questions set out above.

5 Analysis Methods and Results Discussion

5.1 *Introduction*

This chapter is divided into two main sections of analysis and results. The analysis section addresses the methods that were utilised to answer the three questions set out in Chapter 1 and recapped below. The results of the analysis are set out in the second section and are also divided into the three questions set out in Chapter 1 and recapped below. The three research questions are: 1) how many potential dwellings are there at Phillip's Garden? 2) are there any distribution patterns/trends within the observable characteristics of potential dwellings? and 3) can a tentative chronology or typology be developed for central depressions at Phillip’s Garden? The answering of these questions will inform the bigger picture of Phillip’s Garden and lead to a better understanding of the spatial, social and chronological organisation of the site.

5.2 *Analysis Methods*

5.2.1 *How many potential dwellings are there at Phillip’s Garden?*

The final number of potential dwellings at Phillip's Garden was based on a single count of each feature from all of the survey results. Where a feature was identified through two or more survey methods it was only counted once. A similar approach was used to tally features from the three landscape models: contour, IDW and LRM, produced from the landscape survey. The individual count from the survey results was then placed within a classification system to determine how likely these feature types were to be potential dwellings. This is described in the results section 5.3.1.

5.2.2 *Distribution patterns or trends in potential dwellings*

This analysis was undertaken on the features from the maximum number of potential dwellings. Based upon a visual inspection of feature density at Phillip's Garden, the study area was divided into four arbitrary adjoining zones: eastern, central, western, and southern (Figure 5.1), each exhibiting a distinct distribution pattern. These are described in the results section 5.3.2, below.

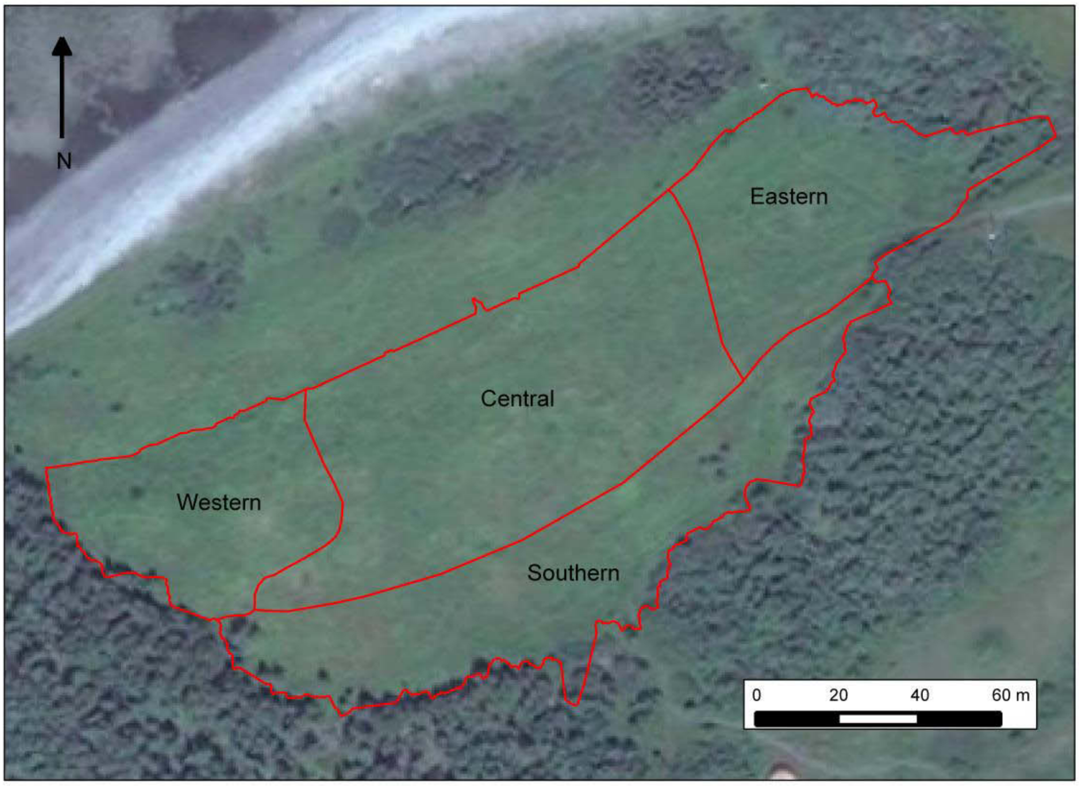

Figure 5.1: Zoned areas for distribution analysis at Phillip's Garden.

5.2.3 *Central depressions of potential dwellings*

This analysis concentrated on the central depression, a component of the Dorset Palaeoeskimo semi-subterranean dwelling, of both excavated and non-excavated dwellings. There were two stages to the analysis. Firstly, the assessment of excavated central depressions to ascertain if a relationship, leading towards a tentative chronology, exists between the sizes (m^2) of potential dwelling structures and their central depressions. Secondly, to assess if there was a correlation between size and shape of both excavated and non-excavated central depressions.

The first stage of analysis identified excavated dwellings that had chronological phasing, the full dimensions for the entire dwelling and central depression. The external dimensions of the dwelling structures and the area of their internal central depressions were correlated, and presented as a percentile, to determine if any relationship exists, which might aid development of a phased plan.

The second stage of analysis assessed the results of the three landscape models, from the landscape survey, magnetometer survey, and excavated dwellings where the full dimensions of the central depression could be obtained. The results of the feature survey were discounted from this analysis due to the recording of the highest point of the sleeping platforms, which therefore mapped a larger area than just the central depression. Features from the landscape and magnetometer survey were only included in the central depression analyses where there was a high level of certainty that the features were central depressions. In the case of the landscape survey this meant that only features with confidence rating of 'most likely' could be assessed (see Chapter 4: 4.2). Similarly, from the magnetometer survey only features identified with some confidence as buried dwellings were used in the analysis.

Between the three landscape models and the magnetometer survey, there were some observable differences in the morphology and alignment of identified central depressions. To better identify and track these differences in size and shape, data for each identifiable central depression was recorded within each model. The size (m^2) of each polygon representing a central depression was calculated by a GIS programme and added to the attribute data. The central depression was categorized either as sub-circular, ovoid, sub-rectangular, or irregular, as determined through a visual inspection. Using this information, a threefold comparison of data from the contour map, IDW and LRM was then performed for each analysis process. This is described in the results section 5.3.3, below.

5.3 Results

5.3.1 How many potential dwellings are there at Phillip's Garden?

This section discusses how both a minimum and maximum number of potential dwellings at Phillip's Garden may be estimated from the data presented in the previous chapter. To this end, a typology and probability-based classification system for the identified features, from all of the survey techniques, is introduced and applied to the data. Each classification unit is presented below listing each feature type subsumed within each class and their arguments for inclusion within that class. Lastly, the minimum and maximum numbers of potential dwellings at Phillip's Garden are presented.

The number of potential dwellings identified at Phillip's Garden differs from the number of established anthropogenic features as some identified features are not dwellings. Additionally, there are some features for which the potential to be dwellings is more ambiguous. Therefore, for the purposes of this thesis, a four-tier classification system is used to identify the potential of a particular feature: 'definite', 'most likely', 'probable' and 'unlikely' (Table 5.1). The 'definite' and 'most likely' classifications will define the minimum number of potential dwellings at Phillip's Garden, while the addition of the 'probable' classification will determine the maximum number. The 'unlikely' classification will be dismissed altogether as potential dwellings.

Table 5.1: Classification system of feature types and their numbers at Phillip's Garden.

Identification method	Feature type	Classification	#
Excavation	Excavated dwellings	Definite	25
Feature survey	Depressions	Most likely	91
	Stone features	Most likely	5
	Fire-cracked rock features	Probable	1
	Iris concentrations	Most likely	2
	Mounds	Unlikely	2
Landscape survey	Depressions (5 – 30 m²)	Most likely	37
	Depressions (<5 m² and 30> m²)	Probable	10
	Mounds	Unlikely	11
Magnetometer survey	Buried depressions (5 – 30 m²)	Most likely	13
	Buried depressions (<5 m² and 30> m²)	Probable	1
	Middens	Probable	10
	Posthole dwelling	Most likely	3
	Activity areas	Unlikely	2

Features classified as 'definite' were proven to be dwellings through excavation. The 'most likely' classification represents features that have been demonstrated to be associated with dwellings through comparative excavated examples. The 'probable' classification covers features that could represent or else be associated with dwellings, but could equally be interpreted as either stand alone features independent of dwelling structures or features with little archaeological potential. The final class of 'unlikely' describes features that have no proven association with dwelling structures from pre-contact groups within Newfoundland.

5.3.1.1 Definite

The feature class 'definite' only contained excavated features. All 25 features recognised by Harp and/or Renouf through excavation (Harp 1964, 1976; Renouf 1986, 1987, 1991, 1992, 1993, 1999a, 2002) were dwelling structures (Figure 5.2).

5.3.1.2 Most likely

The feature class 'most likely' contained depressions (both visible and buried), stone features, iris concentrations and posthole dwellings (Figure 5.3). All depressions identified by the feature survey were placed within this class. The depressions from both the landscape survey and magnetometer survey were further sub-divided, into the ‘most likely’ size categories of potential dwellings. The four size ranges: 5-10 m^2, 10-15 m^2, 15-20 m^2 and 20–30 m^2, were selected for this classification due to previous recognition of unexcavated depression sizes (Renouf 2011a:131) and the most frequent size of excavated central depressions (7 at 20-30 m^2, see Chapter 5 Table 5.7).

Figure 5.2: Location of excavation limits, representing the number of definite dwellings at Phillip's Garden.

Iris concentrations were previously identified by Renouf (1985:39) as often demarcating dwellings. This is due to the iris favouring wet growing conditions as the depressions had been noted to be abnormally wet (*ibid* 1985:39). This would place the identified iris concentrations from the 2012 feature survey in a higher level of certainty as to being a potential dwelling.

Three posthole dwellings were identified through the magnetometer survey. Feature MA21 overlaps a visible depression, D32 (Figure 5.3) and has the potential to be a dwelling structure in its own right, or else a feature internal to the visible depression. An example of an internal structure was observed at House 18, Phillip's Garden, where evidence for a tent-like structure was found within the central depression (Cogswell et al. 2006:23). For the purposes of this thesis MA21 and D32 will be counted as individual features.

The two remaining potential posthole dwellings (MA20 and MA22) have less probability than MA21 of being dwelling structures as there was no visible corroboration of these features on the surface. However, the circular arrangement of magnetic anomalies of these potential features could be cobbles arranged to weight down the skin walls of tent-like structures (Eastaugh and Hodgetts 2012:11), possibly indicative of warm-weather dwellings. Examples of similar observations came from Kuuvik 1 where a known tent ring was surveyed with the same equipment and methodologies (Hodgetts et al. 2011). Few examples of tent ring structures have been identified in Newfoundland though many have been identified through excavation in Labrador (See Jordan 1980:611-12; Tuck 1975:64-65; 207; Renouf 2003:408).

5.3.1.3 Probable

The 'probable' class of features contained depressions <5 m² and >30 m² (both visible and buried), fire-cracked rocks and middens (Figure 5.4). The depressions in this classification have less probability of being a central depression than those placed in the 'most likely' class primarily due to their size. Depressions within the <5 m² size range could potentially be central depressions that were backfilled, deliberately or through natural processes, to a greater extent than other visible depressions. Alternatively, they could be smaller features, e.g. storage pits, which are often related to dwelling structures at Phillip's Garden (Renouf 2003:392). This smaller depression size range may also represent disturbance from the activities of antiquarians or looters (Renouf 1985:39, 1986:18).

The larger depressions (>30 m²) could possibly be central dwelling depressions as a single example of a central depression in this size range was exposed through excavation at Phillip's Garden. The largest central depression, at 33.61 m², was recognised in House 18 (Chapter 5: Table 5.4). However, due to the larger size not being a commonly recognised trait of central depressions, even after excavation, there is little potential for these larger sized depressions to be actual central depressions. Instead these larger depressions may represent areas of cultural use such as activity areas identified through the magnetometer survey (Chapter 4:4.3.3). Alternatively, these large depressions may simple be anomalies within the natural topography of the site.

There is potential for the fire-cracked rock feature (FCR102) to be either associated with a dwelling structure or another feature not representative of a dwelling. Fire-cracked rocks have been associated, through excavation, with both Groswater Palaeoeskimo and Recent Indian (2050-780 cal BP [Renouf 2011b: 3]) dwelling structures at Port au Choix (Renouf 1994:70-71, 2002:9, 48; Renouf et al. 2011:263) and throughout the Eastern Arctic (Loring and Cox 1986:68-69; Erwin 2003:440).

However, fire-cracked rocks are rarely associated with Dorset dwellings as the primary mode of heating is assumed to have been by oil lamps (Maxwell 1985:149; McGhee1997:116). Hearths have been excavated in context with all pre-contact groups of the region, though not all hearths exhibited fire-cracked rock. Of those with fire-cracked rock, not all have been associated with dwelling structures; some are in isolation and others are associated with activity areas (Renouf 2002; Odgard 2003; Renouf et al. 2011; Eastaugh and Taylor 2005).

Middens, the final feature type within this class, have long been associated with human occupation (Smith and Mütti 2009:172) and those at Phillip’s Garden could represent either standalone cultural features or features associated with potential dwellings. At Phillip's Garden middens are most often seen external to the dwelling structure (Eastaugh and Taylor 2011:185), though there are known instances of midden material used to fill in depressions (Renouf 1986:21, 1991:44). The 2012 magnetometer survey recorded 25 middens, 15 of which can be associated with visible depressions (Chapter 4: Figure 4.6). The remaining 10 middens not associated with any visible depressions could be associated with more ephemeral structures, warm-weather dwellings for example (Chapter 2: 2.3.2; Eastaugh and Taylor 2011:185). Equally, these middens may represent standalone features not related to dwelling structures, such as activity areas.

5.3.1.4 Unlikely

The 'unlikely' class of features contained those features interpreted as mounds or activity areas (Figure 5.5). Many of the mounds at Phillip's Garden were not considered within this survey as they were identified as Harp's back dirt piles (Renouf 1985:39a). Thirteen mounds, however, could not be authenticated through excavation records as back dirt piles, nine of which were in close proximity to areas of previous excavations (Figure 5.6) and are therefore likely to be previously unrecognised back dirt piles. The remaining four mounds were in the vicinity of depressions and there could be multiple explanations as to their existence. No mounds have been previously recorded or excavated at Phillip's Garden and these remaining four mounds may relate to the up-cast of the initial construction of the central depression or refuse material not detected by the magnetometer survey. Equally, they may be evidence of disturbance from antiquarians or looters (Renouf 1985:39, 1986:18), as previously mentioned above. The few mounds that are mentioned in association with Dorset Palaeoeskimo occupation elsewhere have referred to burials (Lynnerup et al. 2003) although in Newfoundland mounds have not yet been associated with burials; the majority of the Dorset burials discovered in Newfoundland are located in caves or rock shelters (Jerkic 1993:221; Brown 2011). With little or no evidence of mounds having been related to dwelling structures of Dorset or other pre-contact populations on Newfoundland it is assumed for this thesis that these features do not represent potential dwellings.

The two activity areas identified through the magnetometer survey (MA13 and MA33 [Figure 4.14]) were not counted as potential dwellings as a similar area was identified, through a magnetometer survey at Point Riche (Eastaugh and Hodgetts 2012:11). This area at Point Riche was excavated and was revealed to be an activity area dating to the earlier Groswater Palaeoeskimo (Eastaugh and Taylor 2005:168).

The minimum and maximum number of potential dwellings at Phillip's Garden (Figure 5.6) produced from this count is neither a complete nor final account as it will never be possible to positively identify dwelling numbers based on these non-intrusive survey techniques alone. There are two main reasons for this. Firstly, the ephemeral nature of warm-weather dwellings (See Chapter 2: 2.3.2) may make them difficult to identify and, secondly, there is evidence that not all buried dwellings were detected by the magnetometer survey. An example of this is dwelling Feature 2u (Renouf 1987:27), located between House 15 and House 9, which was discovered in an area where no structural remains were evident on the surface nor detected as a geophysical anomaly (Appendix 1: Complete map of Phillip’s Garden).

Table 5.2: Maximum number of all features with the minimum and maximum number of potential dwellings at Phillip's Garden from the 2012 field season results.

Survey type	Max # of total features	Min # of potential dwellings	Max # of potential dwellings
Previous excavation	25	25	25
Feature survey	101	98	99
Landscape survey	58	37	47
Magnetometer survey	29	16	27
Total	217	176	198

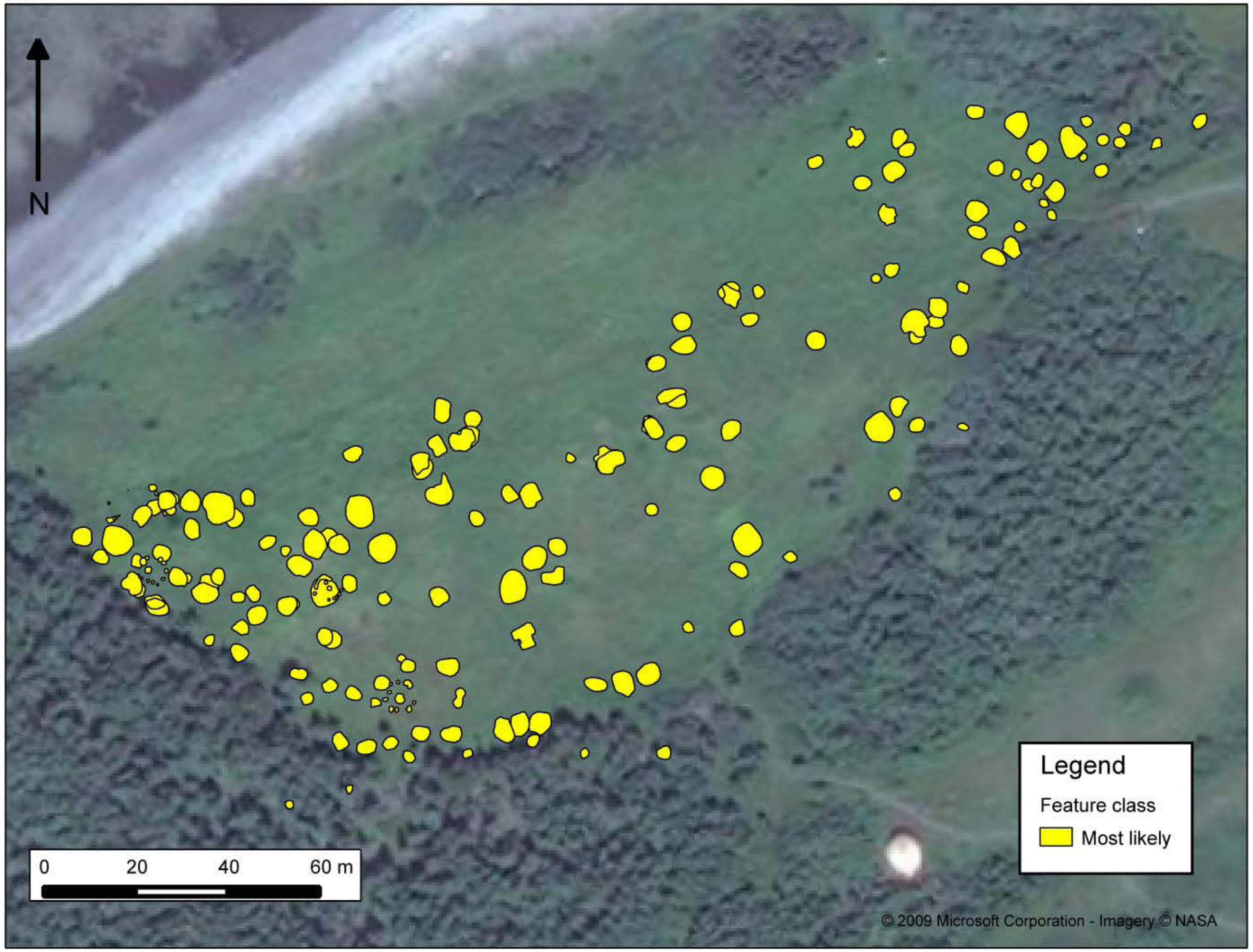

Figure 5.3: Features within the 'most likely' classification.

Figure 5.4: Features within the 'probable' classification.

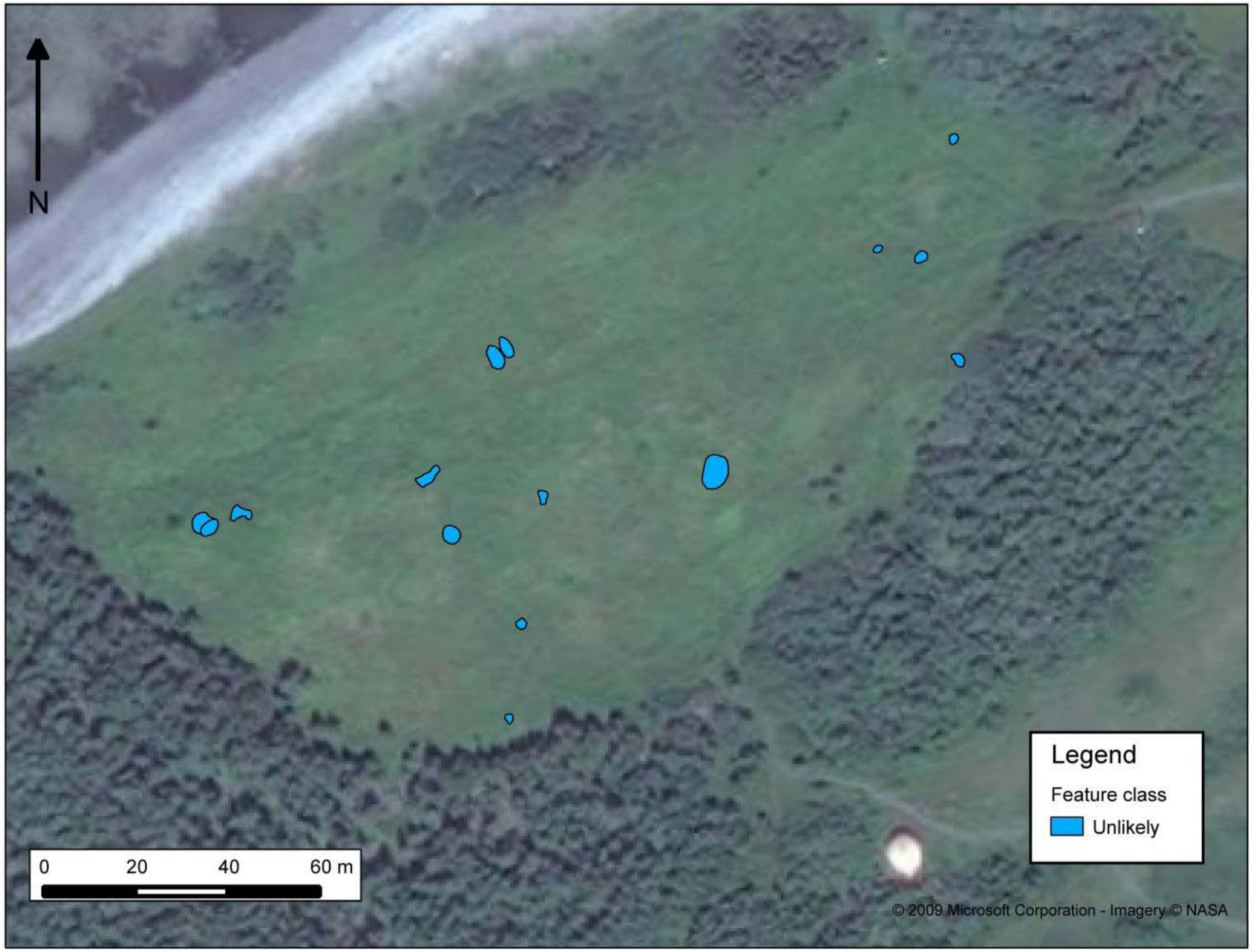

Figure 5.5: Features within the 'unlikely' classification.

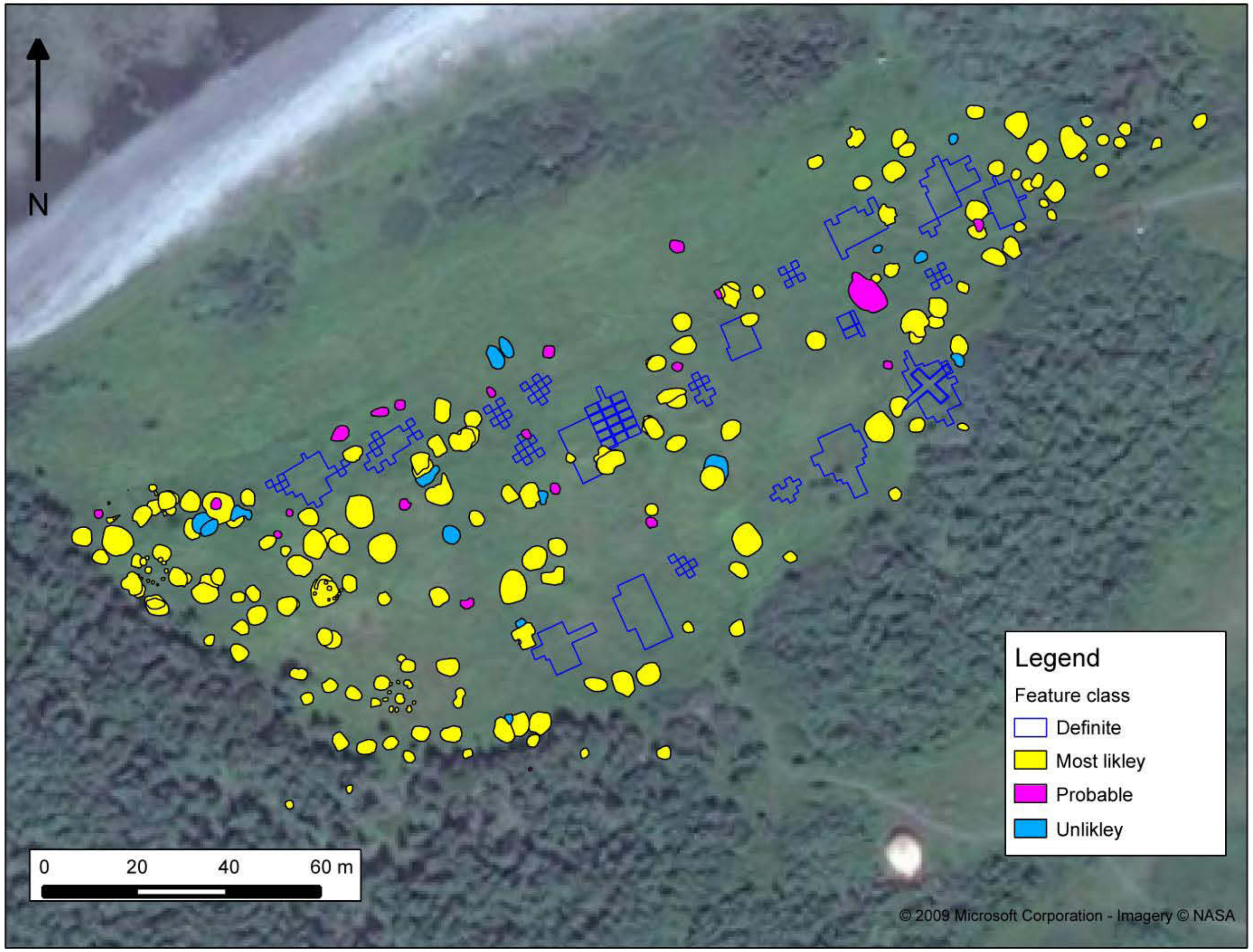

Figure 5.6: All feature classifications.

5.3.2 Distribution patterns or trends in potential dwellings

There are four clear distribution patterns that can be observed through the features identified from previous excavations and the three survey techniques employed during the 2012 field season at Phillip's Garden. This section addresses these four patterns: 1) the significant concentrations of features in both the eastern and western zones and the distinct lack of features in the central zone, 2) overlapping of potential dwellings, 3) positioning of dwellings into the beach terraces, 4) distinctive arch of buried dwellings.

5.3.2.1 East, west and central zones

The zones that were created for the purpose of discussing spatial distribution patterns were based upon a visual analysis of the potential dwelling density (Figure 5.7 and Table 5.3). The eastern zone covers an area of 3157 m² and contains 48 features, while the western zone contains 37 features in an area of 2452 m². This leads to a recognisable trend that the central zone, with 48 features, is half as densely packed as either eastern or western zones while covering a much larger area (5845 m²).

Table 5.3: Comparison of the eastern, western and central zones in size of areas and numbers of features.

Zone	Area covered by zone (m²)	# Features
Eastern	3157	48
Western	2452	37
Central	5845	48

5.3.2.2 Overlapping dwellings

There were four criteria set to assess the number of overlapping dwellings at Phillip's Garden. Firstly, only potential dwellings within the 'definite' and 'most likely' classification were considered for overlapping dwellings (Figure 5.3). Secondly, only feature types of depressions, buried dwellings and posthole dwellings were evaluated. For example, midden features identified through the magnetometer survey already associated with visible depressions were disregarded (Chapter 4: 4.3). Thirdly, a demonstrable overlap between the features must be evident and, fourthly, features cannot be entirely subsumed by others. With these criteria set, only three instances of overlap were identified at Phillip's Garden (Figure 5.8).

This number of overlapping dwellings has the potential to increase further when the proximity of the central depressions is taken into consideration. With the highest point of the sleeping platform being the maximum extent recorded in the field, there is a high probability that the size of the potential dwellings is greater than recorded; platforms have been previously recorded between 2- 4 m deep (Renouf 2011b:143). Creating a buffer of 2 m and 4 m around those potential dwellings classified as 'most likely' (Section 5.3.1.2) highlights where there is greater probability for overlap between the dwellings (Figure 5.9 and Figure 5.10). With the 2 m buffer there are 220 instances of potential dwellings that overlap, while with the 4 m buffer this is increased to 569.

5.3.2.3 Beach terraces

Of the 198 potential dwellings identified approximately 90, each representing a potential dwelling structure, were abutting or truncating the natural terraces within the study area (Figure 5.11). With a further examination of the contour map it was observed that 41 of the dwellings located on the terraces appeared to have their entrance-way excavated through the front of the beach terrace, a prime example of this is feature D9 (Figure 5.11).

5.3.2.4 Buried dwellings

This pattern of buried dwellings was identified by Eastaugh during the 2012 field season as a very distinct arc of magnetic anomalies (Figure 5.12 [Eastaugh and

Hodgetts 2012:6]). The potential of these being buried dwellings was based upon the size of the anomalies, four meters in diameter. This size is comparable to previously identified unexcavated dwelling depressions by Renouf (2011a:131).

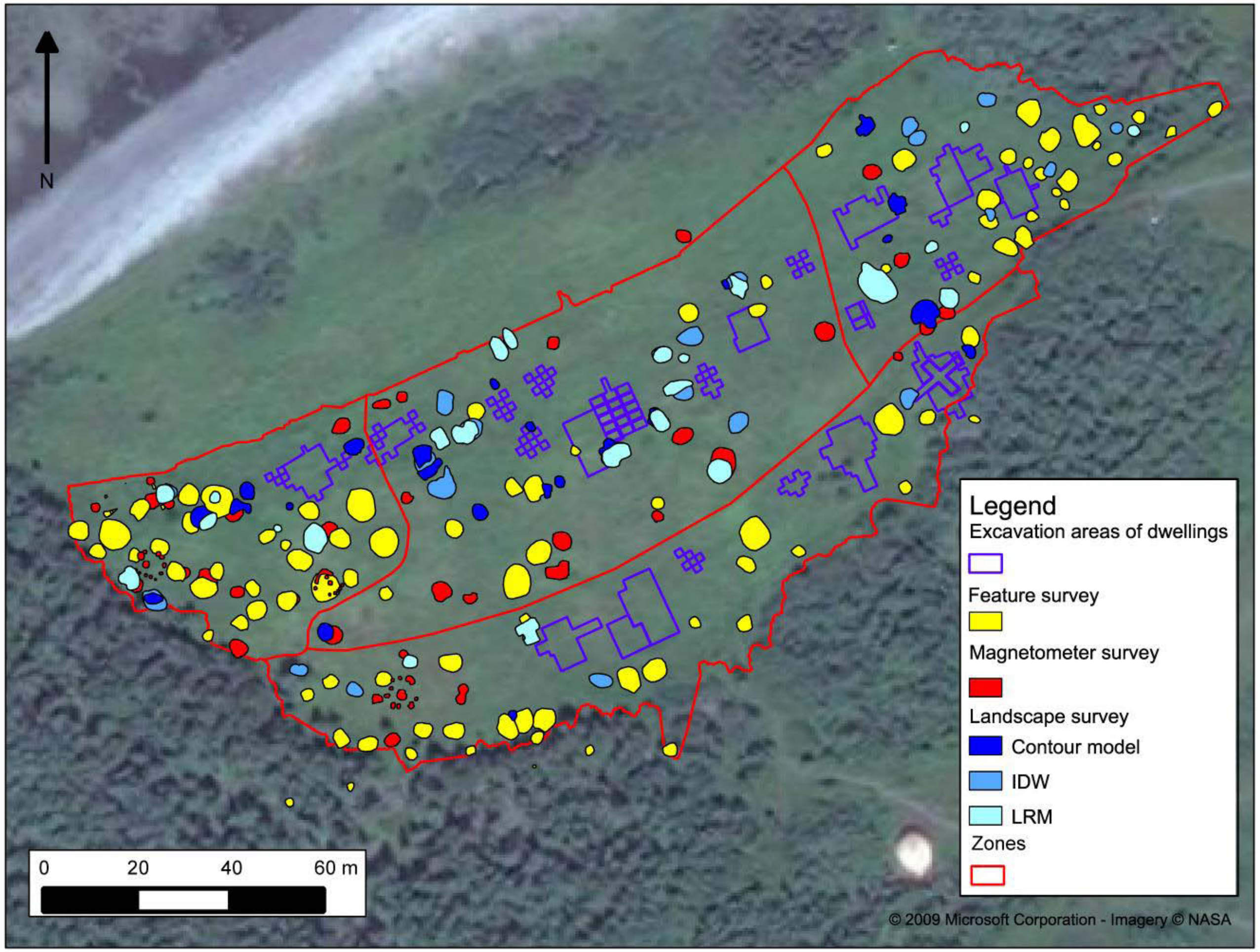

Figure 5.7: Zoned areas with all features from previous excavations and all three survey techniques employed at Phillip's Garden, 2012.

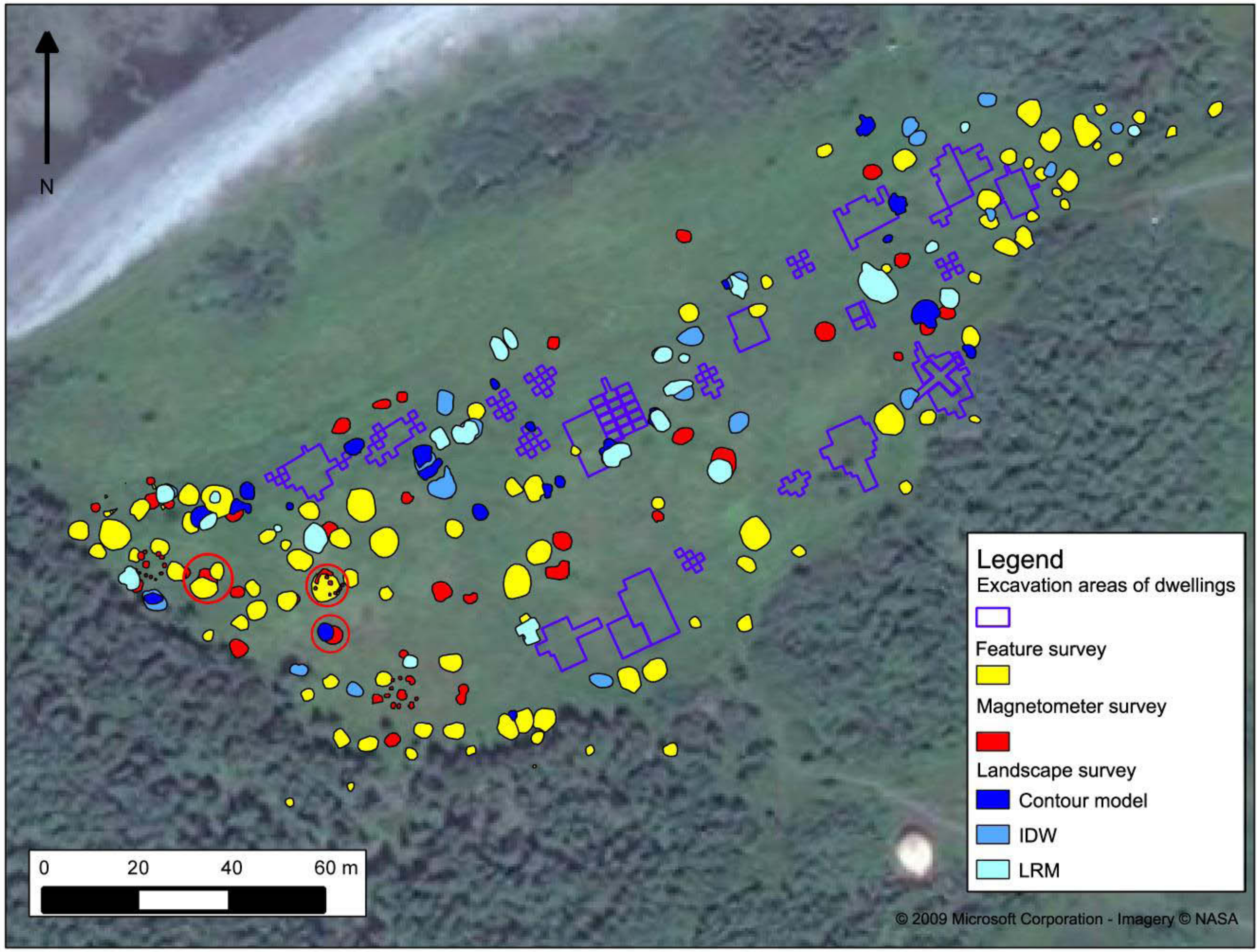

Figure 5.8: Three instances of overlap of potential dwellings demarcated by red circles at the western end of Phillip's Garden.

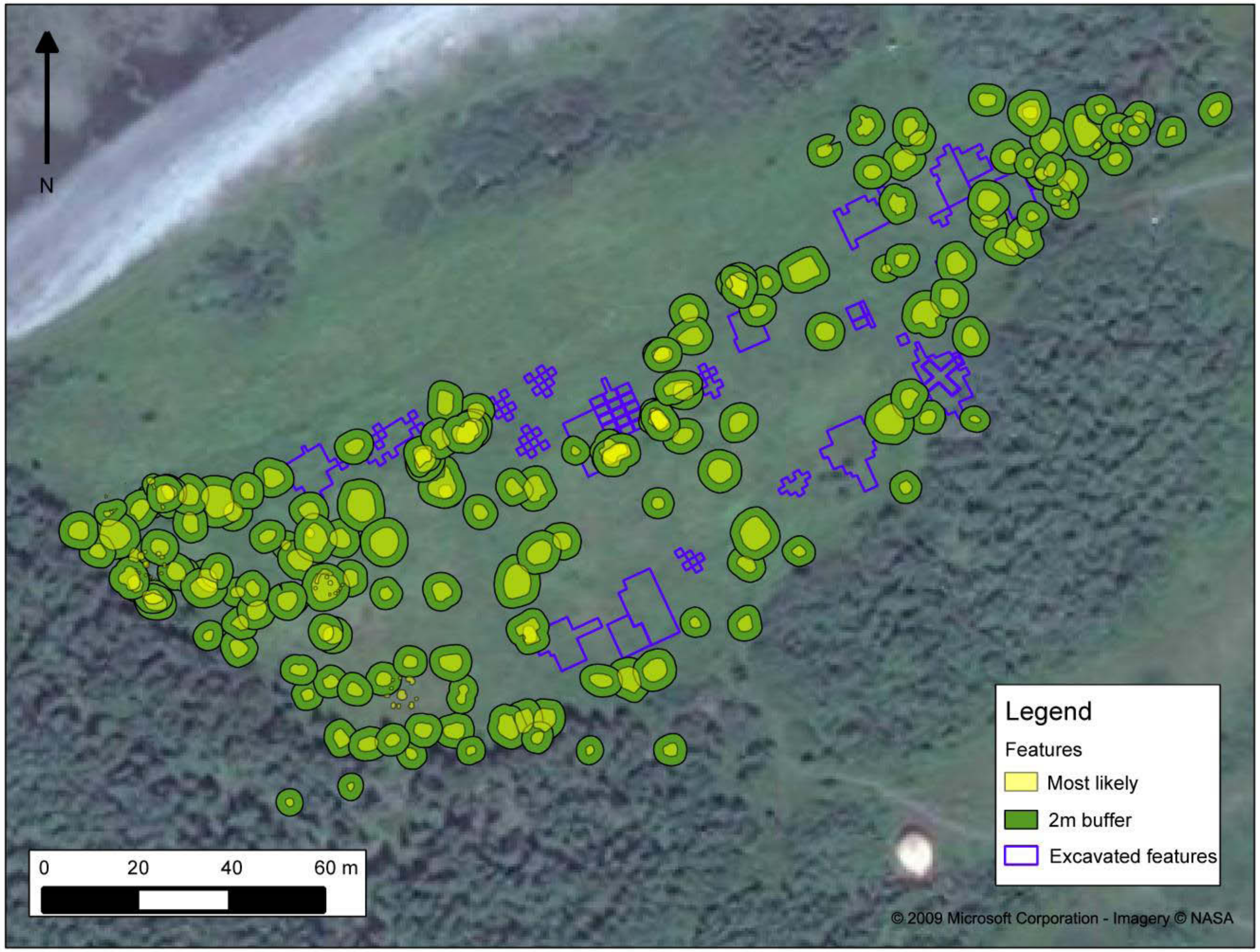

Figure 5.9: 2 m buffer around 'most likely' dwellings that are comprised of a semi-subterranean component.

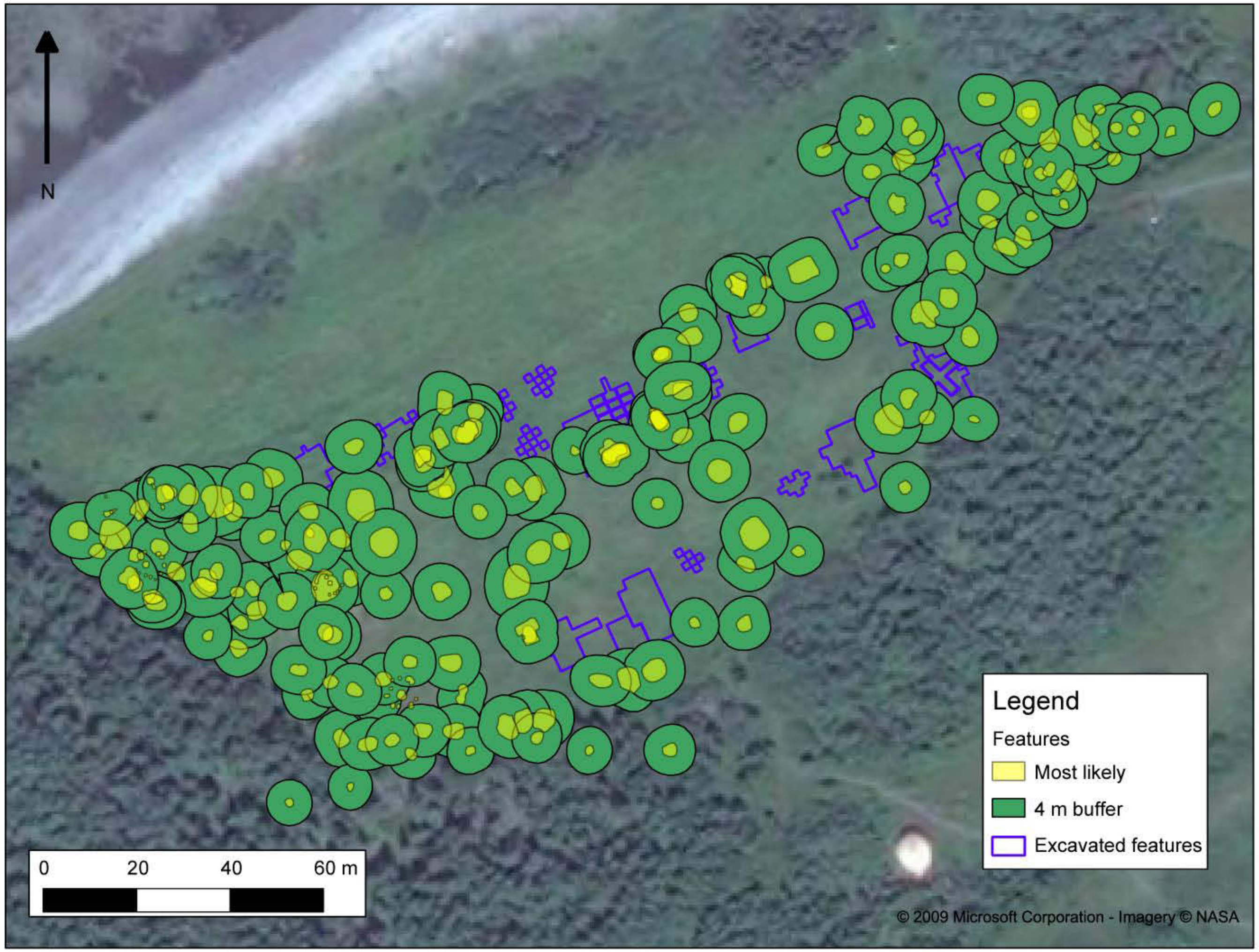

Figure 5.10: 4 m buffer around 'most likely' dwellings that are comprised of a semi-subterranean component.

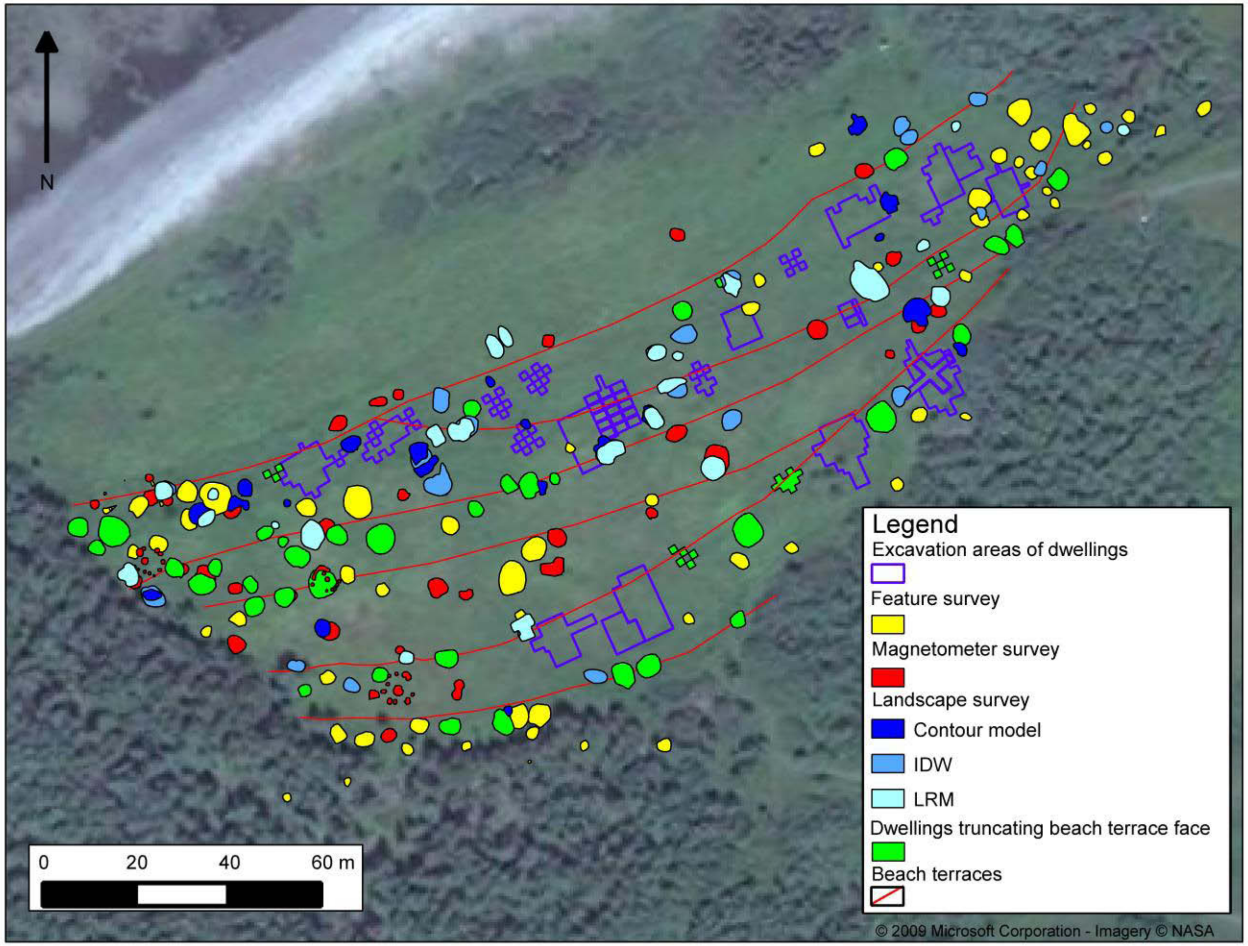

Figure 5.11: Beach terraces demarcated by red lines with dwellings that demonstrate truncation through the front of the beach terrace from previous excavations, feature, and landscape and magnetometer survey.

Figure 5.12: East-west arc of buried dwellings identified by the 2012 magnetometer survey.

5.3.3 Central depressions of potential dwellings

Though the full extents of dwelling structures themselves frequently remained unclear, through the three survey techniques employed at Phillip's Garden during the 2012 field season, the central depressions were the most plainly observed features. With most features being central depressions, it is the aim of this analysis to identify whether the central depression can be used to give tentative phasing to the potential dwellings at Phillip's Garden.

As all dwellings were not fully excavated, of the 25 excavated dwellings at Phillip's Garden only 17 had an identifiable central depression. Descriptions of these 17 central depressions were reviewed for data regarding their size and shape. Ten of the excavated dwellings that had central depressions were previously described by Anstey (2011:93-95) as ranging in size from 9.9 - 26.8 m^2, with shapes either sub-rectangular or oval (Table 5.4). This review of the 17 excavated dwellings with identifiable central depressions recalculated the size range to 6.99 - 33.61 m^2 while the shape range was extended to include ovoid and sub-circular (Table 5.6).

Table 5.4: The reviewed 17 excavated dwellings with shape, size and phase. Blue = original shape determined by Anstey (2011:93-95). Phase: E=Early |(1990-1550 cap BP), M=Middle (1550-1350 cap BP), L=Late (1350-1180 cal BP). The phases are determined from radiocarbon dates with ± ranges which accounts for some of the overlap of phases. Some of the overlap is due to multiple dates of dwellings promoting the idea of reoccupation at Phillip's Garden.

Feature ID	Shape	Anstey's Area (m²) (2011:93-95)	Robinson's Area (m²)	Phase
House 2	Sub-rectangular	25.9	26.96	E/M/L
House 4	Sub-rectangular	24.7	23.4	M
House 6	Sub-rectangular	18.1	16.36	E/M
House 9	Sub-rectangular	-	6.99	-
House 10	Sub-rectangular	26.5	22.88	E/M
House 11	Sub-rectangular	26.8	22.22	M/L
House 12	Sub-rectangular	-	25.62	M
House 13	Ovoid	-	14.35	-
House 14	Sub-circular	-	8.92	-
House 15	Sub-rectangular	-	13.39	-
House 16	Ovoid	-	7.04	-
House 17	Sub-rectangular	25.5	22.37	M/L
House 18	Sub-rectangular	-	33.61	E/M
House 20	Sub-rectangular	13.5	11.52	L
Feature 1	Sub-rectangular	17.6	17.69	E
Feature 14	Sub-rectangular	22.5	26.02	E
Feature 55	Oval	9.9	10.38	L

Of the 17 reviewed dwellings only 11 had the full gamut of data required to develop phasing of central depressions: full dwelling size, central depression size, and chronological phasing (Table 5.5). From the small number of dwellings represented in Table 5.5 it is suggested that there may exist a correlation between dwelling size and central depression size, and therefore phasing. The larger dwellings, previously dated to the middle phase (Renouf 2011d), tend to have the larger central depressions, while the smaller dwellings, dated to either the early or late phase, tend to have smaller depressions. There are, however, irregularities in each of these phase divides. House 6 has a relatively small central depression compared to the size of the dwelling, while House Feature 14 has a relatively large central depression compared to the other three dwellings in the early and late phase.

Table 5.5: Identifying a correlation between central depression size and phasing of dwellings. Phase: E=Early (1990-1550 cal BP), M=Middle (1550-1350 cal BP), L=Late (1350-1180 cal BP). The phases are determined from radiocarbon dates with ± ranges which accounts for some of the overlap of phases.

Feature Number	Dwelling size (m^2)	Central depression size (m^2)	Phase	Percentage of dwelling as central depression
House 2	94.5	26.96	E/M/L	28.5
House 4	84.3	23.4	M	27.8
House 6	84.6	16.36	E/M	19.3
House 10	105	22.88	E/M	21.7
House 11	87.4	22.22	M/L	25.4
House 17	88	22.37	M/L	25.4
House 18	103	33.61	E/M	32.6
House 20	29.2	11.52	L	39.4
House Feature 1	51.5	17.69	E	34.3
House Feature 14	74.7	26.02	E	34.8
House Feature 55	28.3	10.38	L	36.7

Table 5.6: A breakdown of size and shape ranges of central depressions from previous excavation, the three landscape models and the magnetometer survey. IDW= Inverse Distance Weighted, LRM= Local Relief Model, O = Ovoid, SC = Sub-circular, SR = Sub-rectangular, I = Irregular

	Previous Excavation	Contour	IDW	LRM	Magnetometer
Size range (m^2)	6.99 – 33.61	1.81 – 30.53	1.84 – 35.51	2.11 – 48.18	2.85 – 17.17
Shape range	O,SC,SR	O,SC,SR,I	O,SC,I	O,SC,SR,I	O,SC,SR,I

Both excavated and non-excavated central depressions exhibited a level of variation in size and shape, which ranged from 1.81 – 48.18 m^2 and in shape ranged from ovoid, sub-circular, sub-rectangular to irregular (Table 5.6). The maximum and minimum variable sizes in Table 5.6 are far outside the ranges seen in Table 5.5 for central depressions. This therefore prevents a straightforward comparison with the small data set in Table 5.5. When the central depression is viewed as a percentage of the dwelling another recognisable trend can be identified (Table 5.5). The early and late phase dwellings have a larger percentage (mean average 36.3%) of the dwelling taken up by the central depression and the reverse for middle phase dwellings (mean average 25.81%). As with the size of central depressions there are anomalies with the percentages. For example, House 18 has a markedly larger percentage of the dwelling dedicated to the central depression area than the other middle phase dwellings. Unfortunately, without being able to identify the full extent of the unexcavated dwellings in the results of the non-intrusive survey techniques, a dwelling to central depression ratio model cannot be developed. It is considered that only the application of another high-resolution imaging survey technique such as GPR at Phillip's Garden, or else a complete systematic excavation of a dwelling structure, may accurately yield these pair of area measurements which would allow the development of this dwelling to central depression ratio, and test this hypothesis.

In addition to phasing, the size and shape of central depressions were compared. There were, however, no noticeable trends or patterns within each of the five sets of observation: previous excavation, the three landscape models and the magnetometer survey (Figure 5.13, Figure 5.14, Figure 5.15, Figure 5.16, Figure 5.17). However, when feature numbers were categorised according to size, it is evident that there were more unexcavated features identified in the 5-10 m^2 and the 10-15 m^2 ranges, while excavated central depression had a larger concentration at the 20-30 m^2 range (Table 5.7). Furthermore, this size range of unexcavated features coincides with the previous observations of unexcavated central depressions at 3 - 4 m in diameter (7.07 - 12.56 m^2) (Renouf 2011a:131).

Table 5.7: Number of central depressions identified at different size ranges through excavation, three landscape models and magnetometer survey. IDW= Inverse Distance Weighted, LRM= Local Relief Model.

	<5 m^2	5-10 m^2	10-15 m^2	15-20 m^2	20-30 m^2	30+ m^2
Excavation	0	3	4	2	7	1
Contour model	7	22	21	12	6	1
IDW	9	25	27	13	4	1
LRM	3	13	24	16	13	3
Magnetometer	1	5	7	1	0	0

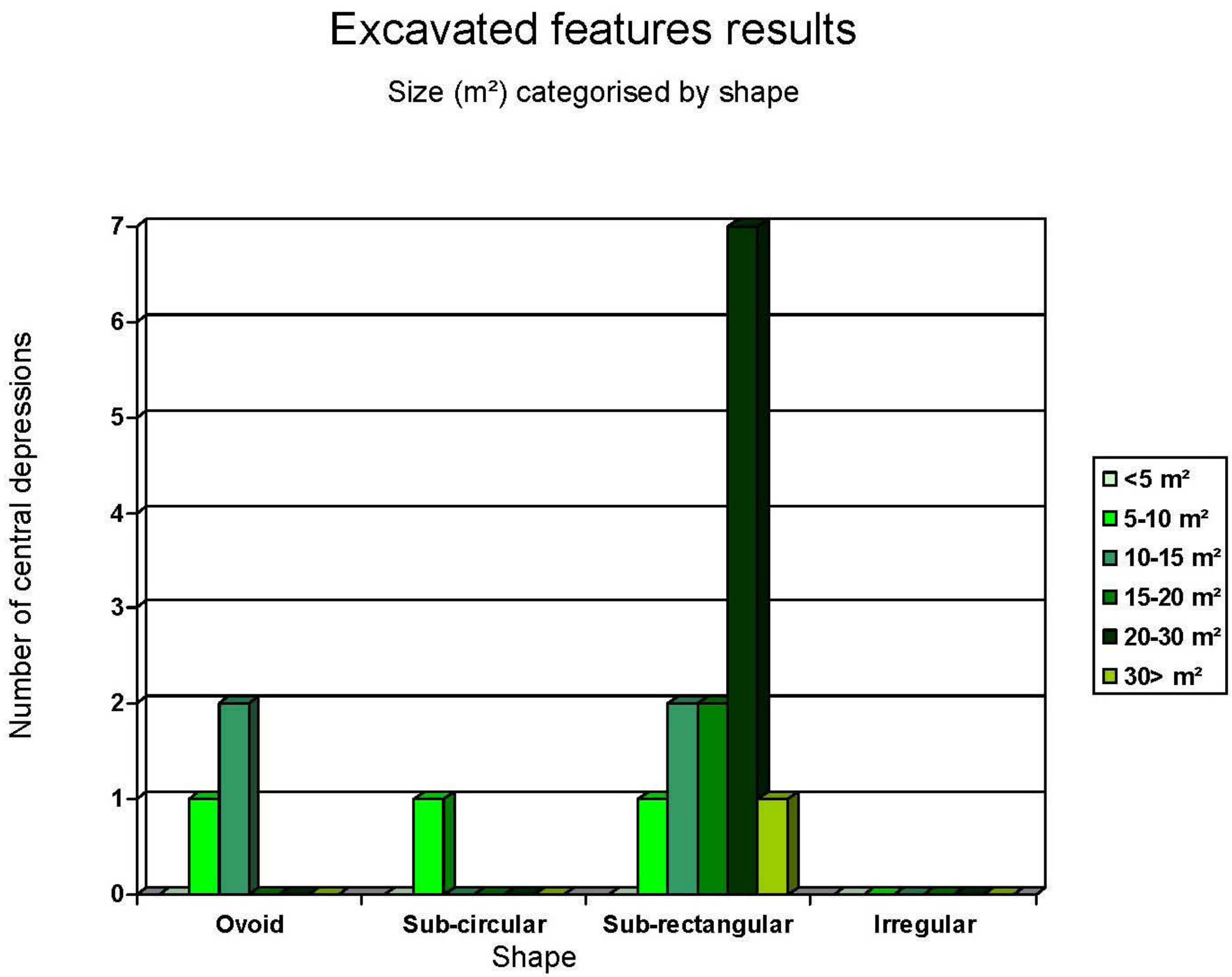

Figure 5.13: Number of central depressions from previous excavations ordered by shape and size.

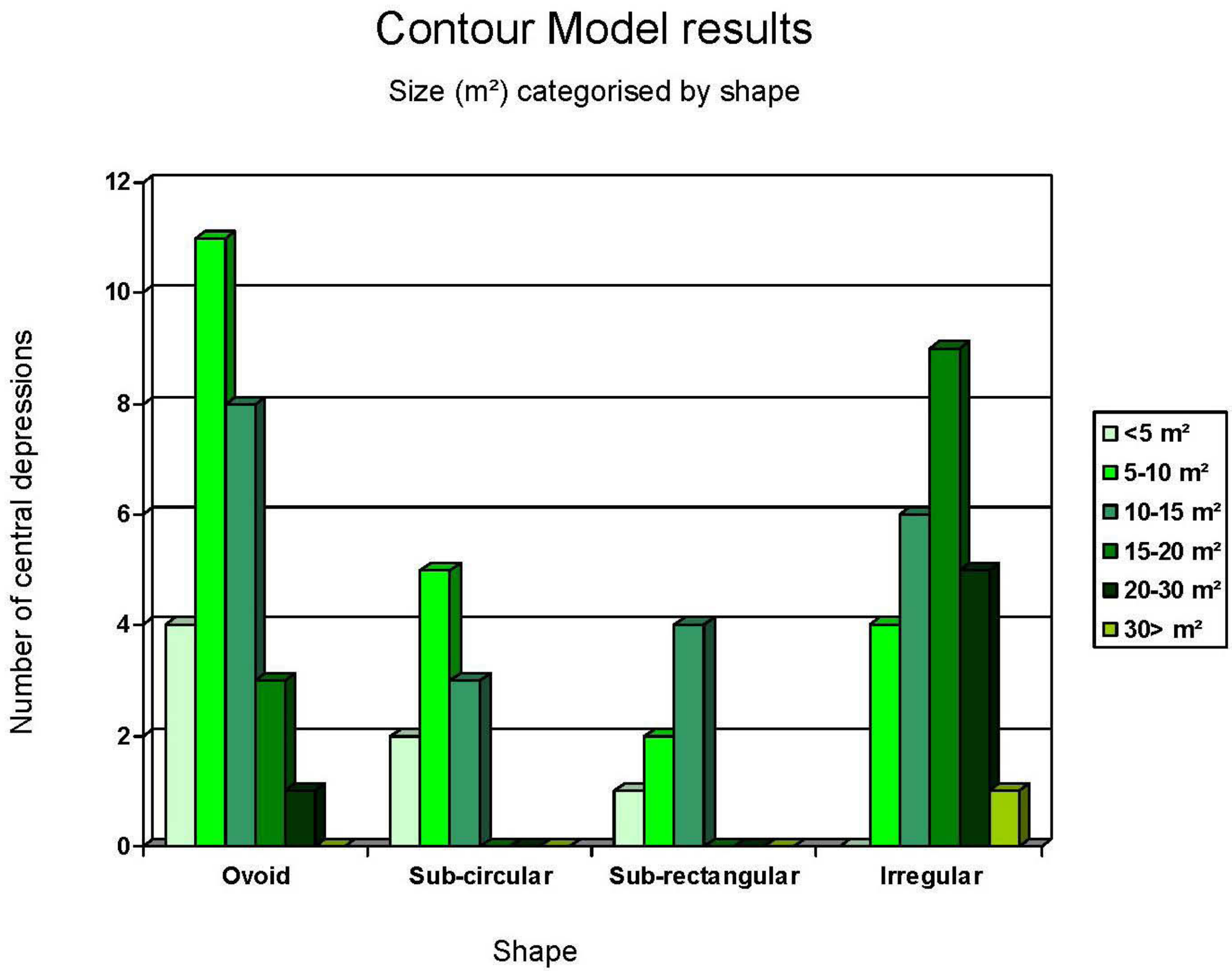

Figure 5.14: Number of central depressions from the contour model ordered by shape and size.

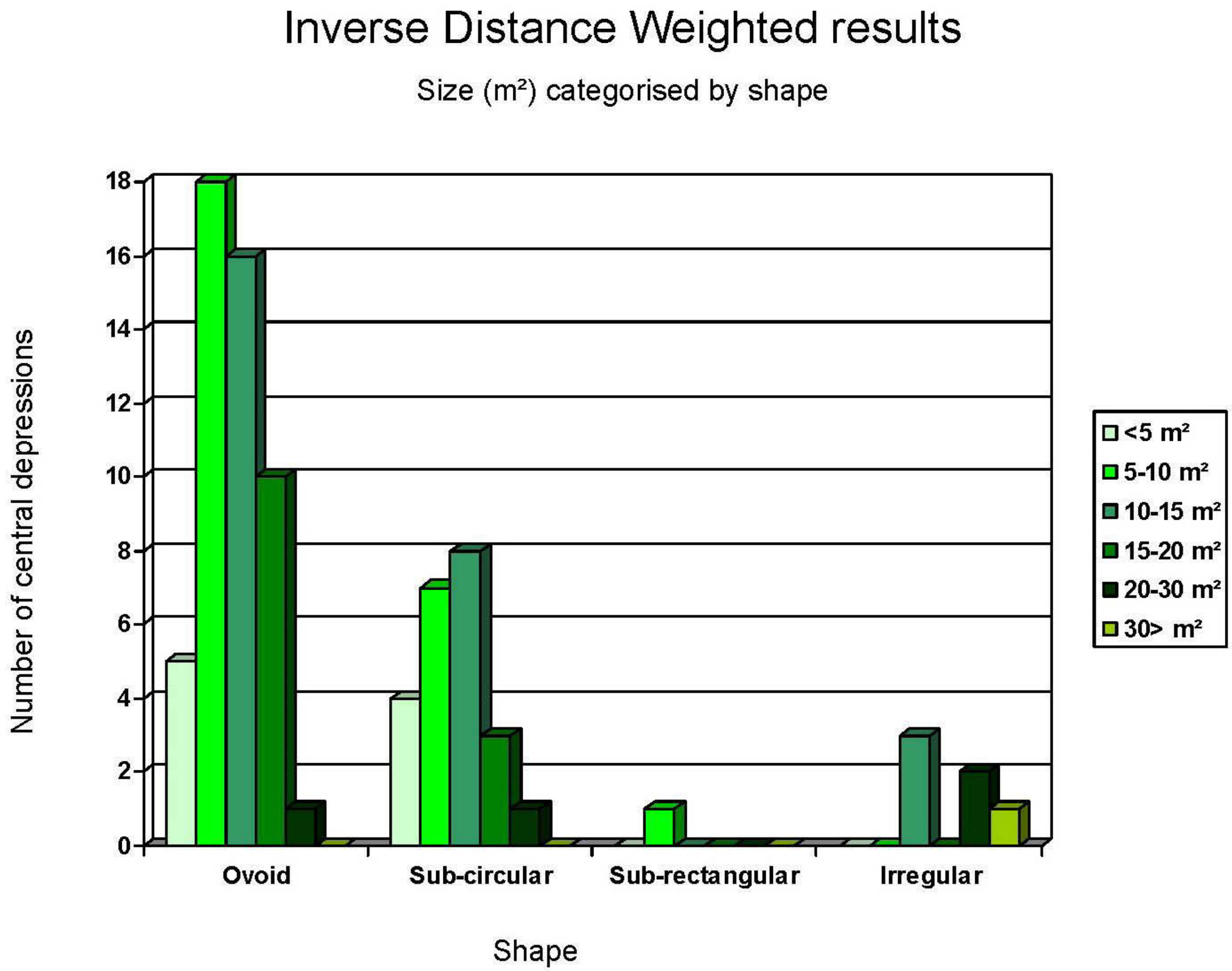

Figure 5.15: Number of central depressions from the IDW ordered by shape and size.

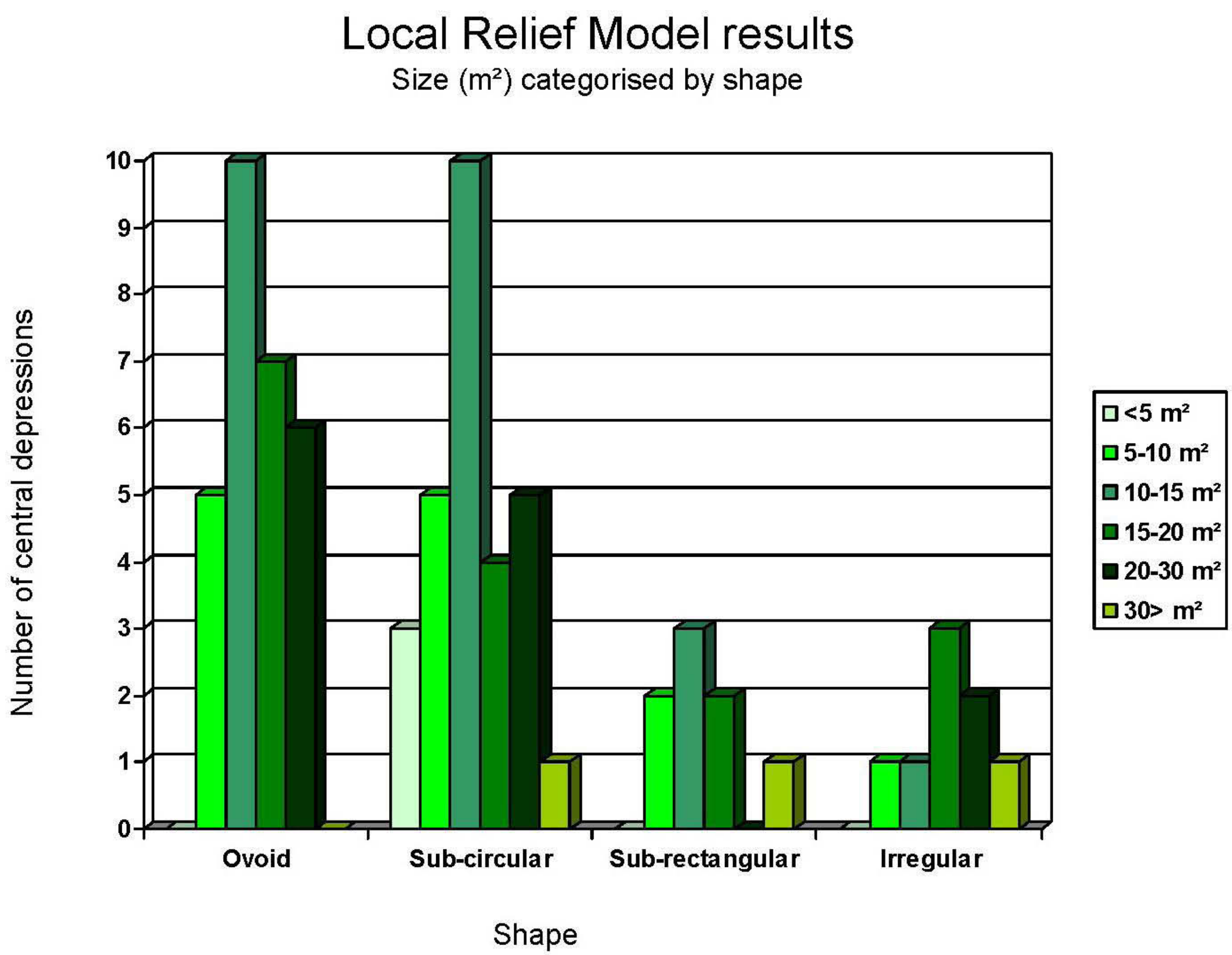

Figure 5.16: Number of central depressions from the LRM ordered by shape and size.

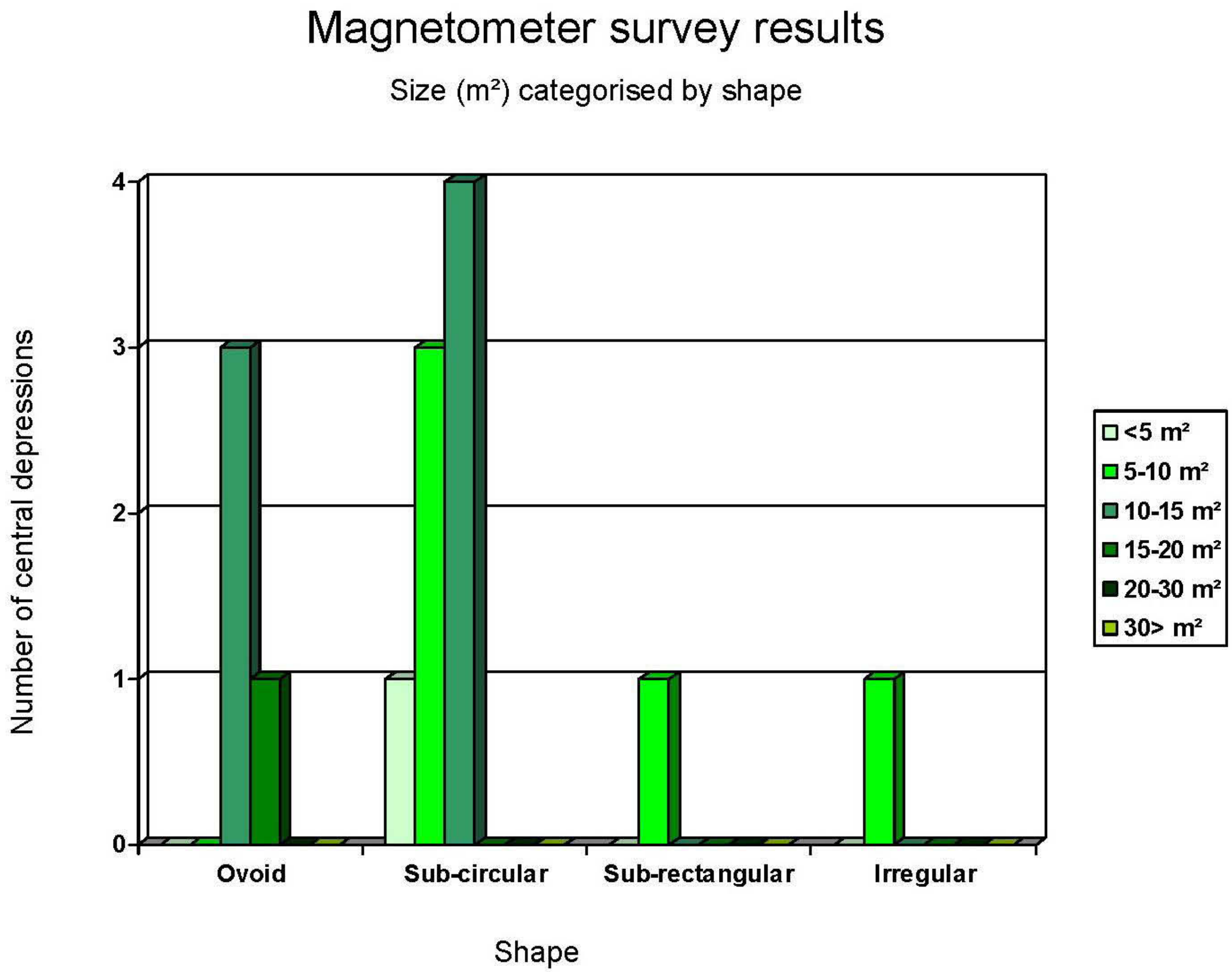

Figure 5.17: Number of central depressions from the magnetometer survey ordered by shape and size.

5.4 Summary

This chapter introduced and described the analytic methodologies as applied to the survey results presented in Chapter 4. Through the results of these analyses, discussed in context with the three research questions, the number of potential dwellings at Phillip's Garden has significantly increased from the previously recorded 68 dwellings (Renouf 2011a:132) to a minimum of 176 and a maximum of 198. Within the newly identified numbers of potential dwellings four distribution patterns were recognised. These were: distinct areas of potential dwelling densities, overlapping dwellings (especially with the addition of sleeping platform ranges), the use of beach terraces as an architectural element, and the distinct arc of potential buried dwellings across the central area of Phillip's Garden. The analysis of the central depressions identified a potential ratio, albeit in a small data set, between the dwelling and central depression sizes that may indicate dwelling phase. The early and late phase dwellings have around 36% of the dwelling dedicated to the central depression, while the middle phase dwellings have only 26% of the dwelling dedicated to the central depression. The lack of full dwelling dimensions on unexcavated dwellings, however, does not allow for this ratio to be further tested. Also, no identifiable typology of size, shape or phase of central depressions was recognised. The results from this chapter are the bases for the discussion in Chapter 6.

6 Implications

6.1 Introduction

This chapter is again divided into three sections based on the three research questions, which are as follows: 1) how many potential dwellings are there at Phillip's Garden? 2) are there any distribution patterns/trends within the observable characteristics of potential dwellings? and 3) can a tentative phased chronology or typology be developed for central depressions at Phillip’s Garden? Within each section the results of Chapter 5 will be discussed and their implications for how Phillip’s Garden is viewed.

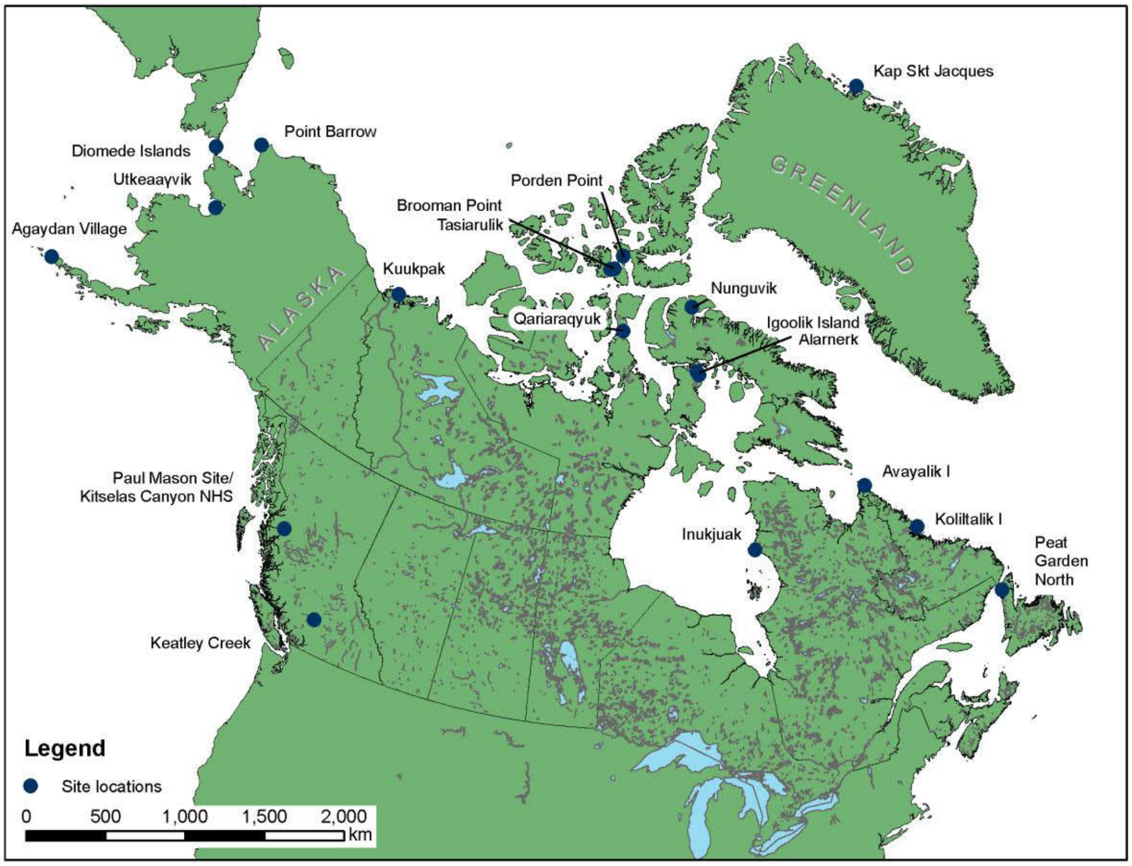

Figure 6.1: Location map of place names mentioned throughout Chapter 6.

6.2 How many potential dwellings are there at Phillip's Garden?

The maximum number of potential dwellings at Phillip's Garden is increased to 198 from the previously recorded 68 (Renouf 2011a:132). This bears testament to Renouf's (2011a:132) assertion that there were many more potential dwellings recognised, yet unrecorded from preceding years of investigations at Phillip's Garden.

As already established by Renouf (2011a), Phillip's Garden was a large and intensely occupied aggregation site, primarily used for the intensive seal hunt in December and late March - early April, which may have lasted from as little as a few days to a few weeks. Due to the reliability, abundance and short time frame in which the seals passed Phillip's Garden along their migration route, the site became an established settlement locus that was occupied seasonally by large multi-family groups (*ibid* 2011a:155). In addition to the presence of the Dorset during the seal harvest, it has been argued they were also occupying Phillip's Garden in the warmer weather months to process the seal hides (*ibid* 2011a:152). It may also be conjectured, through comparative ethnographic analyses, that Phillip's Garden would have played host to social and ritual events. A case for these forms of interactions can be found in Spencer's ethnographic account of the North Alaskan Eskimo (1976) where trade, contests and games were observed at such social gatherings.

The large increase in numbers of potential dwellings (maximum of 198) at Phillip's Garden reinforces the idea of a large and intensely occupied aggregation site. There are two possible outcomes of how the increase of potential dwellings affects our understanding of Phillip's Garden. Either the duration of site might be increased or the density of occupation increased.

The first of these possible outcomes can be dismissed as, despite an increase in numbers of potential dwellings, there is unlikely to be an increase in duration of occupation. This is due to the dates of occupation at Phillip's Garden, which are well established from 41 dates, ranging from 1990-1180 cal BP (Renouf 2011c). This date range coincides with the accepted date range for the occupation of Newfoundland by the Dorset population (2000-1200 BP [Fitzhugh 2001:136]).

The second of these possible outcomes suggests that with the dramatic increase of potential dwellings established in this study the density of dwellings, and thus the estimated

Dorset population, at all stages of occupation at Phillip's Garden is likely to increase. Both Harp (1976) and Erwin (1995, 2011) undertook studies to estimate the population size of Phillip's Garden during the peak occupation period, the middle phase (1550-1350 cal BP [Renouf and Bell 2009]). Erwin calculated that between 6-10 households were populated (Erwin 2011:167), whereas Harp estimated 12 simultaneous households were occupied at the peak occupation (Harp 1976:124).

There are no Dorset sites within Newfoundland (Chapter 2) or Labrador that compare to Phillip's Garden in number of dwellings. There are, however, a number of comparable sites located in the Arctic region which are also known for their abundant food resources, including: Kap Skt. Jacques, northeast Greenland; Alarnerk, Nunavut; Nunguvik, northwestern Baffin Island and Igloolik Island, Nunavut (Figure 6.1 and Table 6.1).

Among these, the largest site is Kap Skt. Jacques (Figure 6.2), on Ile de France. This was identified as Independence II/Early Dorset (Grønnow and Jensen 2003:295). Covering over 600m of coastline, 303 Dorset dwelling structures have been identified, with many more potential dwellings suspected but not recorded at the time of initial investigation (*ibid* 2003:280). Currently, from the limited excavation the most frequent food source was ringed seal (*ibid* 2003:296).

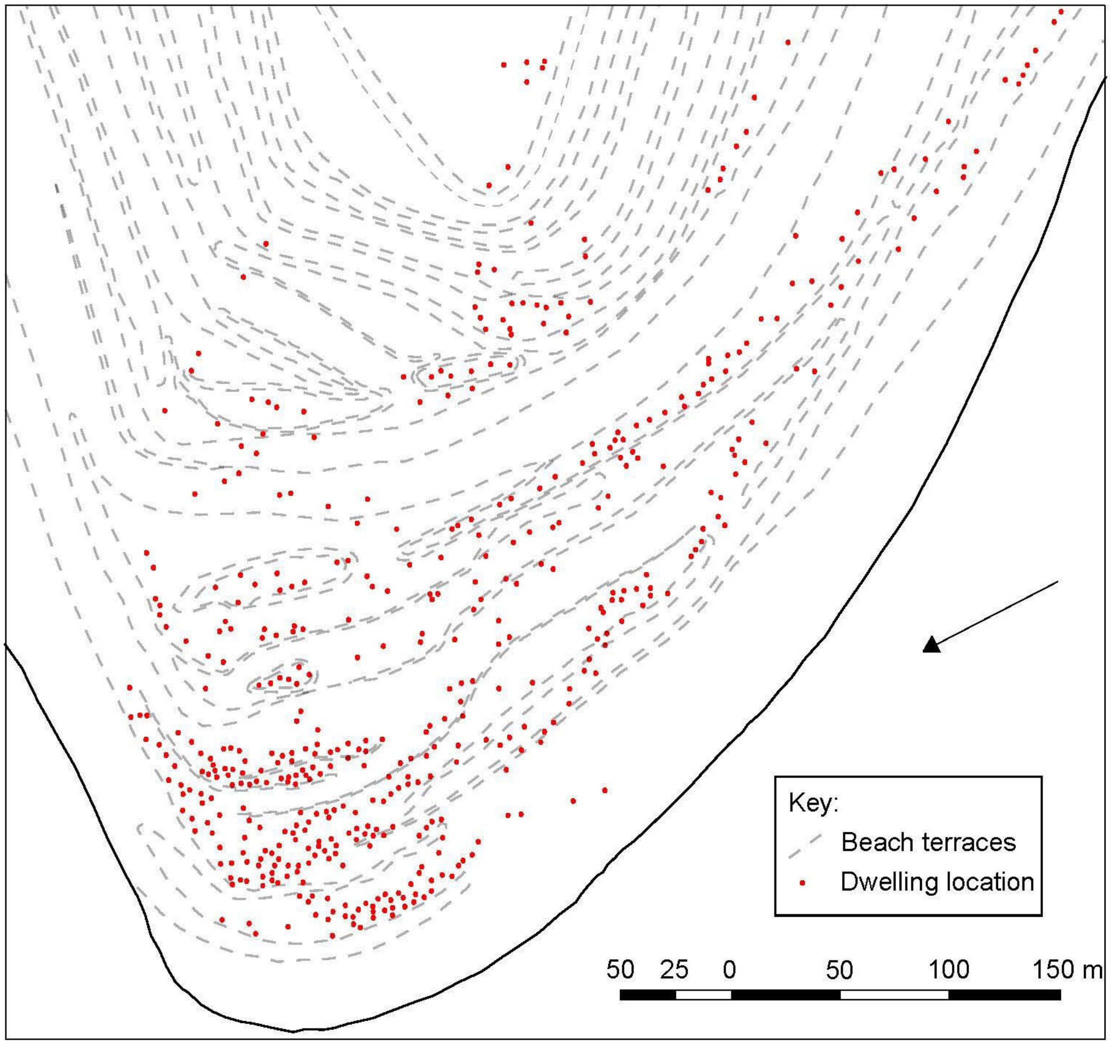

Figure 6.2: Site plan of Kap Skt. Jacques. Image: Adapted from Grønnow and Jensen 2003.

Alarnerk, located on the Melville Peninsula (Figure 6.3), is the second largest site considered here, with 208 dwellings which occur, according to Maxwell (1985;183), in clusters of five (Meldgaard 1960:588). The site covers 2.5 km of coastline (Lynnerup et al. 2003:349) and is located within a prime walrus hunting area with seasonal access to large herds of migrating caribou (Damas 1969a; Maxwell 1985:183; Murray 1999:470). From radiocarbon dates, relative beach terrace chronology and harpoon head typology, Alarnerk spans the Dorset period from Early to Terminal for a period of 1600-1900 years (Lynnerup et al. 2003:350).

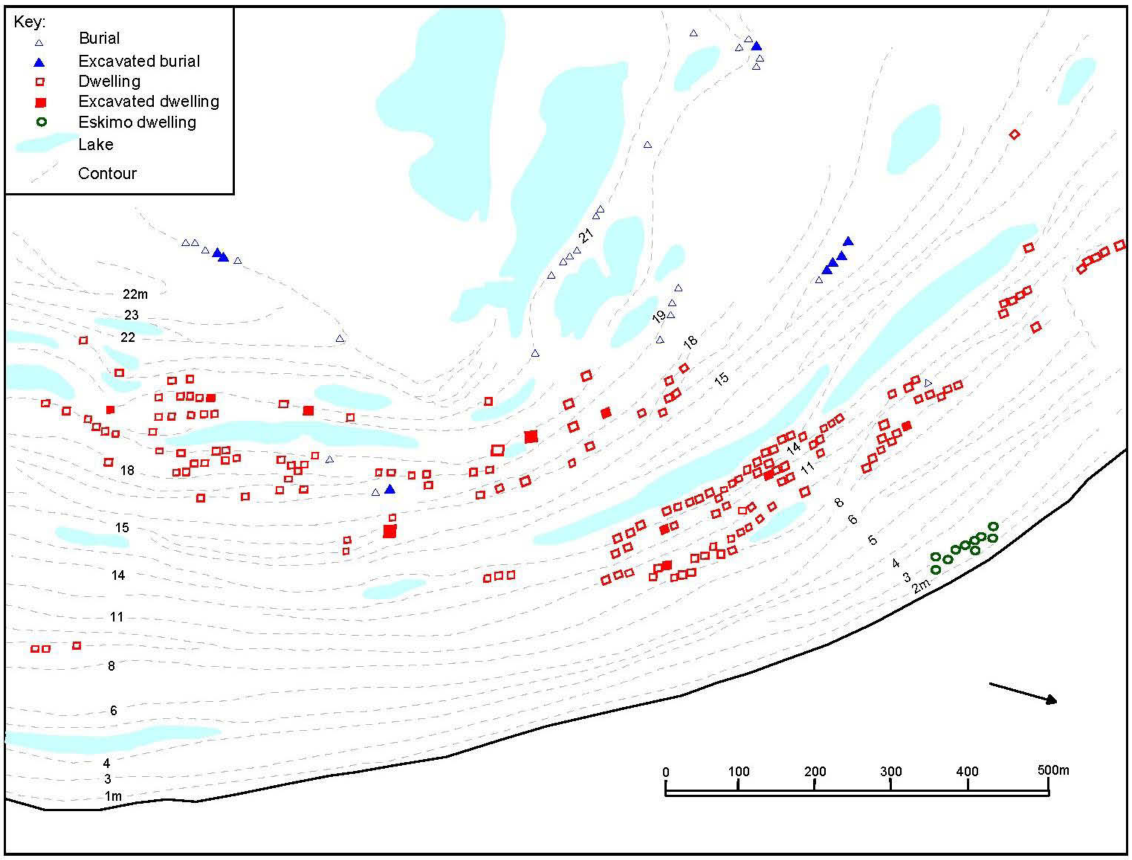

Figure 6.3: Partial section of the Alarnerk map drawn by Guy Mary-Rousseliere and Jorgen Meldgaard. Image: Adapted from Lynnerup et al. 2003:351.

The site of Nunguvik (Figure 6.4) is a beach terrace site with 30 dwellings spread over 7 ha (Mary-Rousselière 2002:18). The site spans from the early Dorset to the late Thule periods, with the Dorset component at Nunguvik spanning the entire Dorset period (Mary-Rousselière 1979:23). The abundant food resource present at the time of Dorset occupation seems to have been caribou, with 50% of the faunal material consisting of caribou remains (Maxwell 1985: 185; Mary-Rousselière 2002:10).

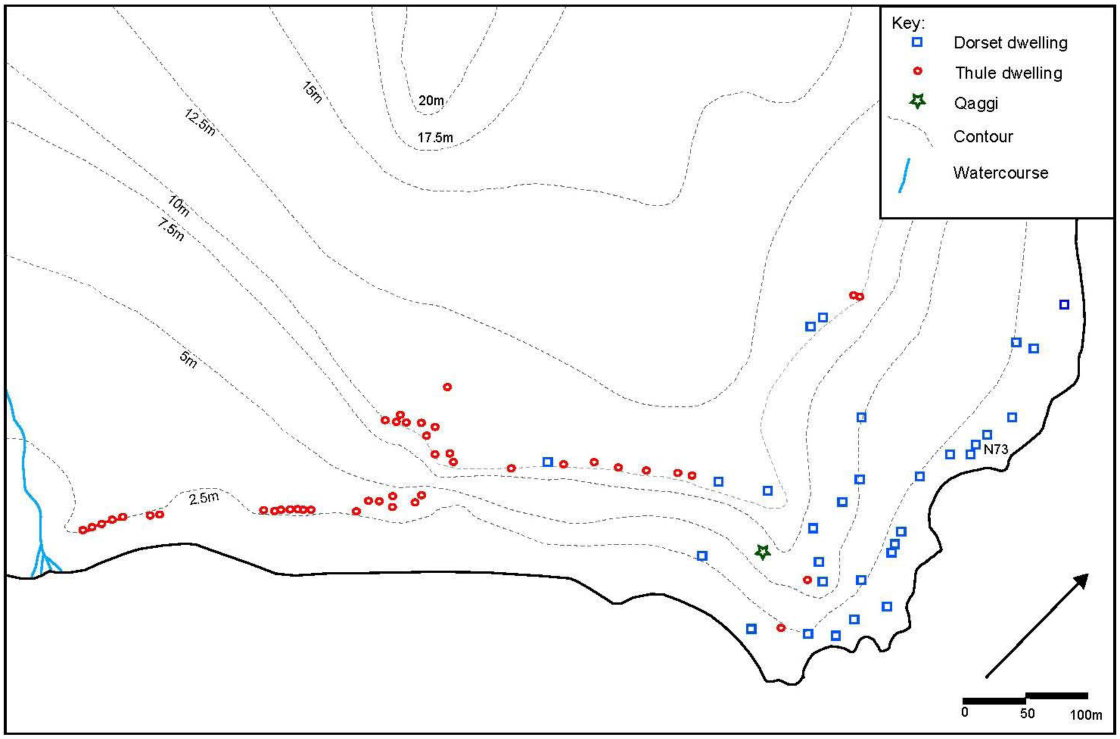

Figure 6.4: Location of Dorset and Thule dwellings at Nunguvik. Image: adapted from Mary-Rousseliere 2002:18.

Igloolik Island (Figure 6.5) is perhaps a less apposite comparison to Phillip's Garden. The site spans the late Pre-Dorset to the Thule periods. The Dorset component, which covers the early and late Dorset periods, manifests as a series of settlements around the island. However, the numbers of dwelling structures identified (>146 [Murray 1997:38]) indicate that this island was occupied and reoccupied by the same group of peoples over a period of 1500 years (*ibid* 1997:36). There were a number of food resources available at Igloolik Island, but primarily walrus was hunted which were available year round in this area (Murray 1997:81, 1999).

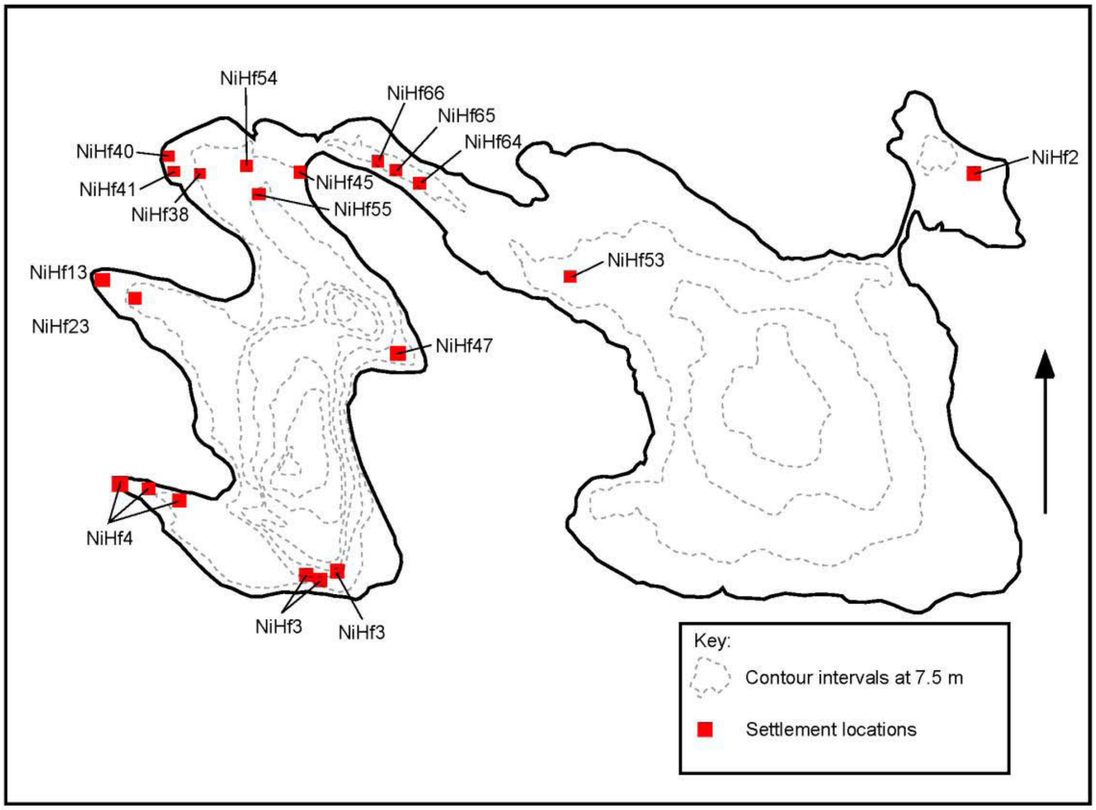

Figure 6.5: Igloolik Island with Dorset settlement locations. Image: Adapted from Murray 1997:35.

For the most part the existence of these large Dorset sites demonstrates the importance of a regular and reliable food source to support them. It also gives insight into how the presence of an abundant and regular food source would unite what were largely small family groups to more effectively exploit these resources (Conkey 1980:610; McGhee 1997:204; Grønnow and Jensen 2003:296). This aggregation of people would provide the opportunity for social and religious activities, such as trade and marriages, to occur (Conkey 1980:610; McGhee 1997:207; Renouf 2011a: 156). Conkey (1980) discusses aggregation sites within prehistoric hunter-gatherer societies and argues that they were not solely formed for economic reasons, but for social events too. An example within the Dorset culture where the economic value is less evident at aggregation sites is that of longhouses. These are communal structures that vary in size from 8-45 m in length and from 5-7 m in width, with no internal fires. The function of longhouses is still contested, but the social aspect of these sites are highly emphasised within the literature (See Maxwell 1985; Schledermann 1996; McGhee1997; Appelt 1999; Damkjar 2000). Conversely, Murray (1999:476-477) does highlight the fact that the longhouses are often located in areas where seasonal food resources are found.

Table 6.1: Large Dorset aggregation sites with number of Dorset dwellings, not necessarily contemporary.

Site	# of dwellings	Source
Kap Skt. Jacques	303	Grønnow and Jensen 2003:280
Alarnerk	208	Meldgaard 1960:588; Lynnerup et al. 2003:350
Phillip's Garden	198	Renouf and Bell 2009:265
Igloolik Island	>146	Murray 1997:141-143
Nunguvik	30	Mary-Rousselière 2002:18

To further emphasise the importance of an abundant and reliable food resource, outside of the Dorset culture there are numerous examples of large settlements that are located close to such abundant and reliable food resources (Table 6.2).

There are two sites that relied heavily on whale as their primary food resource. First, is the largest known Thule site of Qariaraqyuk, located on Somerset Island (Figure 6.1) which was close to important late summer bowhead whaling beaches. The site covered several hectares and contained both winter and warm season dwellings totalling 129 (Whitridge 1999:149). Another large whaling settlement occupied by the Mackenzie Inuit was Kuukpak, located on the Mackenzie River (Figure 6.1). The whale of preference for the Mackenzie Inuit was the beluga which was hunted in the summer months (Friesen and

Arnold 1995; Betts and Friesen 2004). The site covered about 800m of coastline with 21 dwellings identified (Arnold 1994).

Table 6.2: Non-Dorset settlement/aggregation sites with total number of identified dwellings for the cultural groups at each site, not necessarily contemporary.

Site	Cultural group	Resource	# of dwellings	Source
Qariaraqyuk, Somerset Island	Thule	Bowhead whales	129	Whitridge 1999
Kuukpak, Mackenzie River	Mackenzie Inuit	Beluga whales	21	Arnold 1994
Paul Mason Site, Skeena River BC	Gitselasu	Salmon	10	Coupland 1996
Keatley Creek, Middle Fraser Canyon BC	Lillooet	Salmon	>100	Morin 2010; Prentiss and Kuijt 2012
Agayadan Village, southwestern Alaska	Aleut	Salmon	20	Hoffman 1999

There are three examples of site occupations that were heavily dependent on salmon with the procurement of salmon enduring over a number of months at each site, all located in the Northwest Pacific coastal region. The largest of these three sites is the Keatley Creek site in Middle Fraser Canyon (Figure 6.1) that was occupied by the Lillooet. The site covered an area of 27.5 ha with over 100 dwellings identified (Morin 2010:603). On the Aleutian Islands, Agayadan Village (Figure 6.1) spread over 2.5 ha and accommodated 20 large dwelling structures (Hoffman 1999:151). The Paul Mason Site (Figure 6.1), the smallest of these three examples, with 10 dwellings spread over an area of 2000 m^2 (Coupland 1996).

It is evident with Phillip's Garden and these examples above, of sites both within and out of the Dorset culture, aggregation sites occur at locations with reliable and abundant food resources. The importance of Phillip's Garden location, with the arrival of the mass numbers of harp seal at predictable times, is re-emphasised with the increase of potential dwellings from the previously recorded 68 (Renouf 2011a:132) to a maximum of 198. The assumed social aspects of Phillip's Garden have yet to be considered. In the section below, elements of these social aspects are explored within the context of increased dwelling numbers and the distribution trends of these potential dwellings.

6.3 Distribution patterns or trends in potential dwellings

This section addresses the potential explanations for the observed distribution patterns, provides comparative examples and discusses the implications of these patterns. It is divided according to the four patterns identified and reported in Chapter 5: east, west and central zones, overlapping features, beach terraces and buried dwellings. For some of the patterns observed there is more than one possibility for their occurrence.

6.3.1 East, west and central zones

There are several potential explanations for the dense clustering of potential dwellings in the east and west zones. First to be discussed is the potential for the occupation of Phillip's Garden by earlier Groswater populations. Both the east and west zones are closely situated to Phillip's Garden East and West respectively (Figure 6.6), which are Groswater Palaeoeskimo sites (Renouf 1985; Fitzhugh 1983). There is already evidence of Groswater occupation at Phillip's Garden, in the western zone, in the form of stone tools (Lavers and Renouf 2012), although no evidence of Groswater dwellings has yet been identified at Phillip's Garden. To further account for the lack of discovery of Groswater dwellings at Phillip's Garden previous excavations have largely concentrated on larger dwellings meaning, as Groswater dwellings tend to be less substantial in comparison to Dorset dwellings in Newfoundland (Renouf 2003:407), any potential Groswater dwellings have thus for gone unidentified. Furthermore, there is a possibility that the larger Dorset dwellings may have truncated or built over any Groswater dwelling structures. For example, spatial analysis of recovered Groswater artefacts performed by Lavers and Renouf (2012) on Houses 3 and 4 at Phillip's Garden demonstrated the Dorset dwelling truncated a Groswater component.

Another possibility for the dense clustering of dwellings at either end of Phillip's Garden may be due to the central zone representing a more community-orientated area. The central zone is a substantially larger area than the eastern or western zone but has half the density of dwellings compared to either of the neighbouring zones (See Chapter 5:5.3.2.1). Within these arbitrary zones two activity areas were identified by the magnetometer survey, one of which lay clearly within the area of the central zone, MA13, while the second lay just beyond the northwest boundary into the east zone, MA33 (Figure 6.7). Distinct areas used for communal activities can be seen in other archaeological and ethnographic accounts within the Arctic such as the Thule Inuit site Qariaraqyuk on Somerset Island (Whitridge 1999:145) and the Tareumiut site at Utkeaaγvik, Alaska (Figure 6.1[Spencer 1976:49-50]).

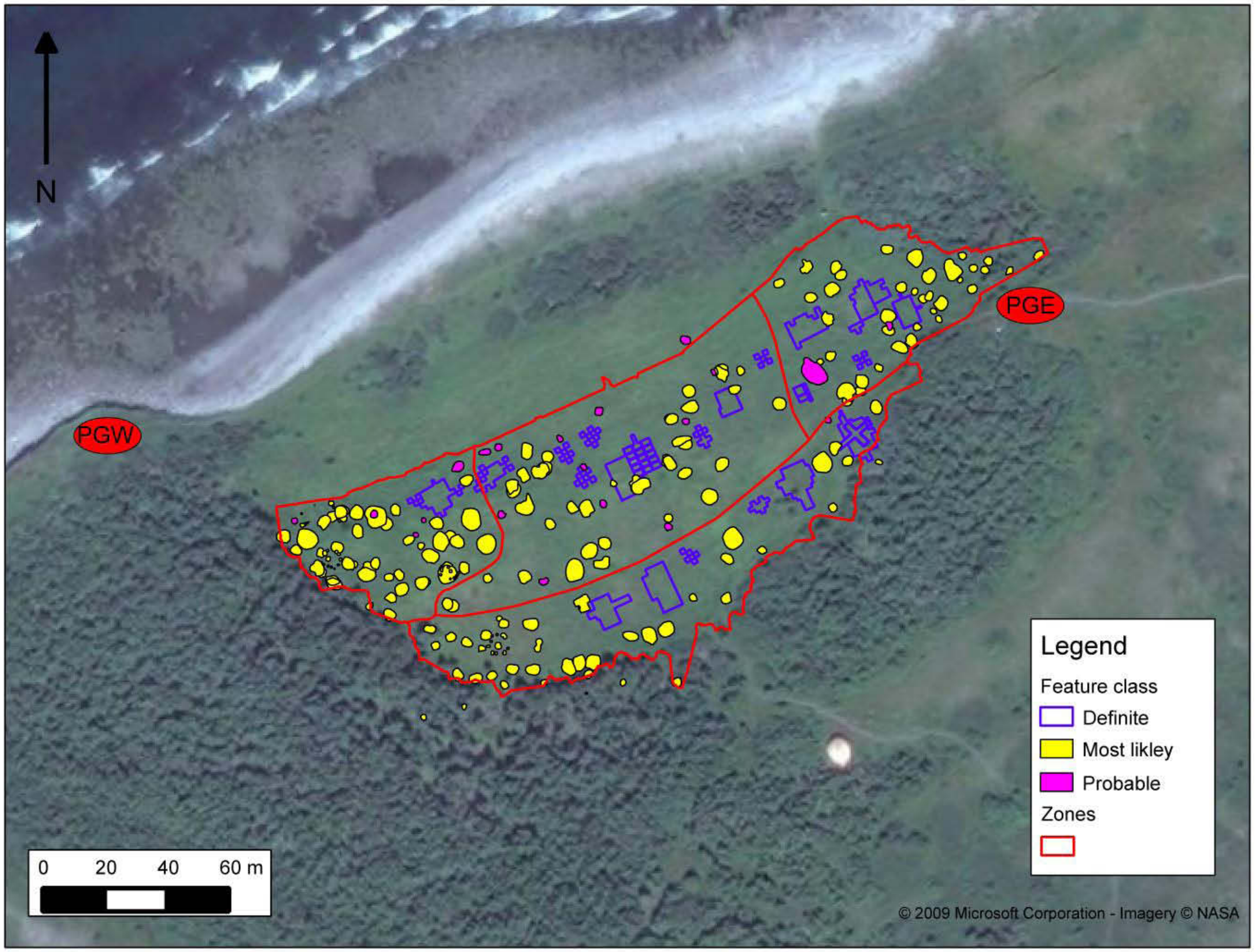

Figure 6.6: Locations of Phillip's Garden East and West in relation to Phillip's Garden with the east and west zones and all potential dwellings.

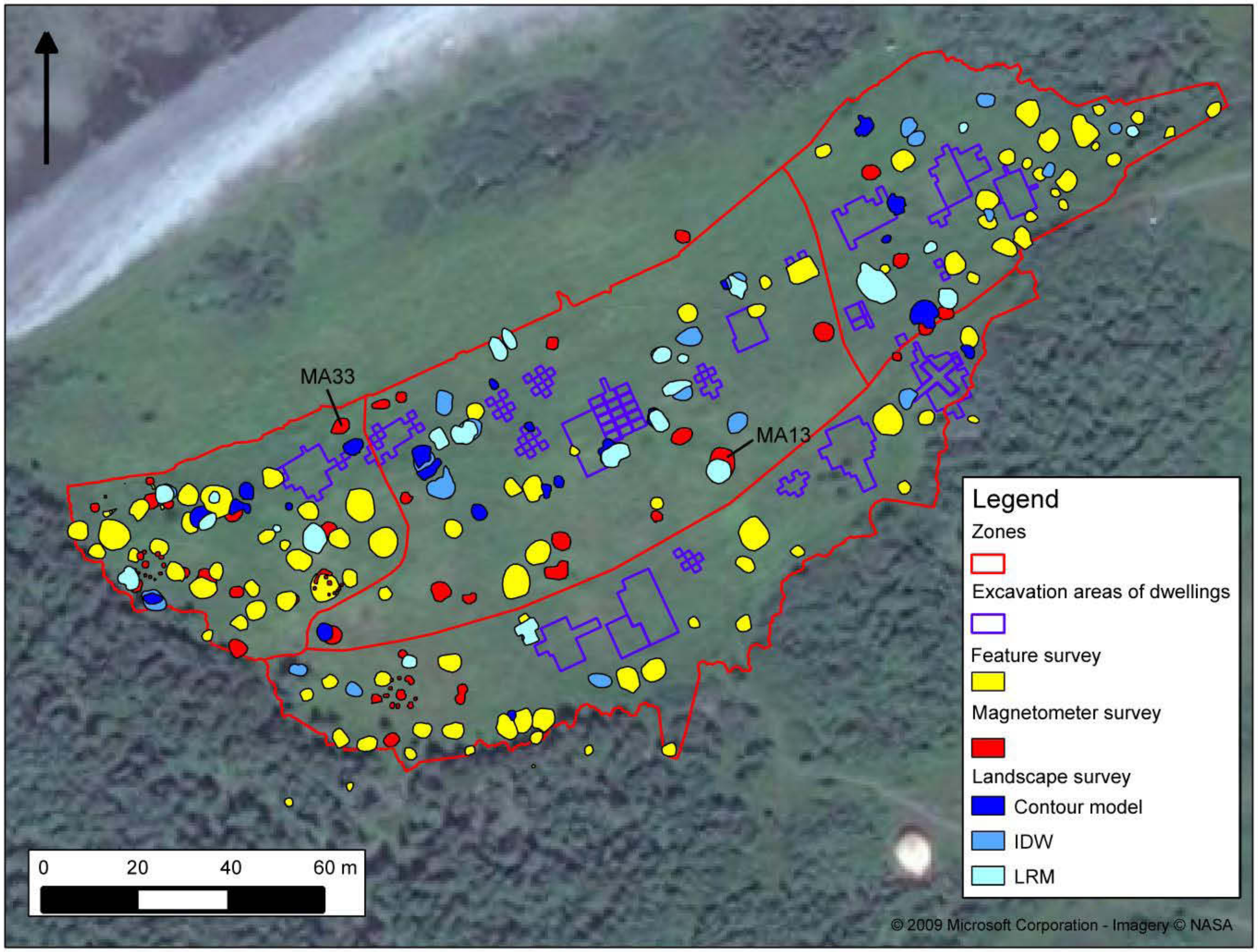

Figure 6.7: Activity areas identified by the magnetometer survey within the central and western zone.

The winter site of Qariaraqyuk (Figure 6.9) was located on a gentle slope between a beach and a bluff that overlooked the site (Whitridge 1999:145). According to Whitridge (1999:201), within the community there was a high level of organisation with winter dwellings arranged in rows (C) facing an open space (D) and with cemeteries (G) and sheet middens (F) located behind the dwellings (Figure 6.9). In addition to the winter dwellings, warm weather activity areas and dwelling structures (A) were largely located in front of the winter dwellings, closer to the beach, and largely respected the open space (D) (Whitridge 1999:204). The open space, which has been suggested by Whitridge (1999:202) to have been used for ceremonies and games, was located between the winter dwellings, warm weather activity areas and dwellings and the beach (Whitridge 1999:204).

Utkeaaγvik was a coastal settlement located along a bluff with a ravine through the centre of the community, with the least number of houses to the north of the ravine (Figure 6.8 [Spencer 1976:49-50]). A series of designated pathways ran throughout the settlement which separated groups of houses and their whaling crew meeting houses (karigi). Spencer (1976:50) notes that associated with the karigi were communal areas that were used for whaling celebrations as well as warm weather activities.

Areas such as these large communal areas seen at Qariaraqyuk or Utkeaaγvik have not yet been recorded within Dorset settlements. However, within the Dorset culture communal areas are seen at isolated locations with large communal structures known as longhouses (McGhee 1997:210). Viewing the plans of the densely populated sites of Kap Skt. Jacques and Alarnerk there is little potential to see such areas among the dwellings as the dwellings are usually arranged in a linear fashion along the beach terraces (Figure 6.2 and Figure 6.3). However, there are a few larger groups of dwellings at Kap Skt. Jacques and Alarnerk where potential gaps can be seen that may be communal areas used by occupants of the surrounding dwellings (Figure 6.10 and Figure 6.11). The lack of potential communal areas within Kap Skt. Jacques and Alarnerk may be due to the landscapes in which the sites are set. For example, Phillip's Garden is much more topographically defined than the extensive nature of any of the four large Dorset examples (Table 6.3). The more compact nature of Phillip's Garden may have necessitated the need for communal areas to be located within the settlement, whereas at Alarnerk and Kap Skt. Jacques there was adequate space for the these types of areas to be located elsewhere along the beach.

Table 6.3: Large Dorset sites with size or extent of coastline covered by the site.

Site	Size	Source
Phillip's Garden	2.17 ha (200m of coastline)	Renouf 2011a: 131
Kap Skt. Jacques	600m of coastline	Grønnow and Jensen 2003:279
Alarnerk	300 ha (2.5 km of coastline)	Meldgaard 1960:588
Nunguvik	7 ha (700 m of coastline)	Renouf 2011a:154; Mary-Rousselière 2002:18
Igloolik Island	10 300 ha	Dale and Leontowich 2006:64

As discussed above both, Qariaraqyuk and Utkeaaγvik exhibit communal areas (Figure 6.8 and Figure 6.9). At Qariaraqyuk there was identified a single large communal area and multiple activity areas (Whitridge 1999:204), while at Utkeaaγvik there were several communal areas for different whaling groups within the community (Spencer 1976:50). With minimal reporting of investigations into potential communal/activity areas within known Dorset settlements the number of communal areas present at such sites remains uncertain. However, at Phillip's Garden there is opportunity to postulate that there may be more than one area as two potential activity areas (MA13 and MA33, Figure 6.7) were identified through the magnetometer survey.

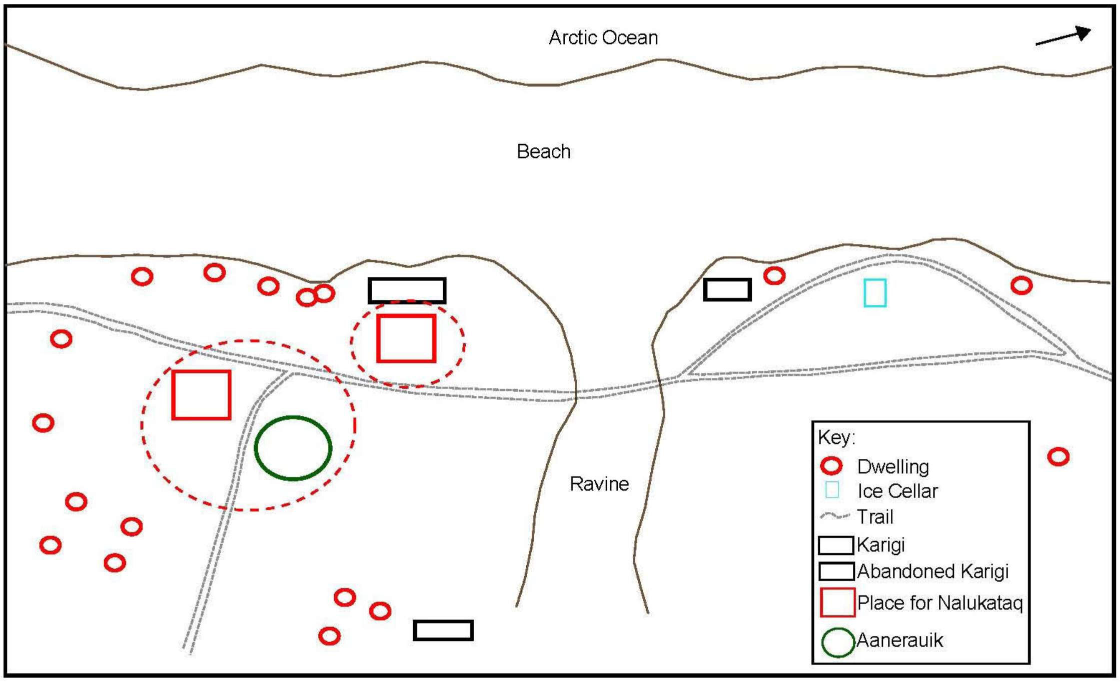

Figure 6.8: The Tareumiut settlement of Utkeaaγvik in 1895. Image: Adapted from Spencer 1976:50. The red dashed circles demarcate the location of the communal areas within the community, largely centred amongst the dwelling structures.

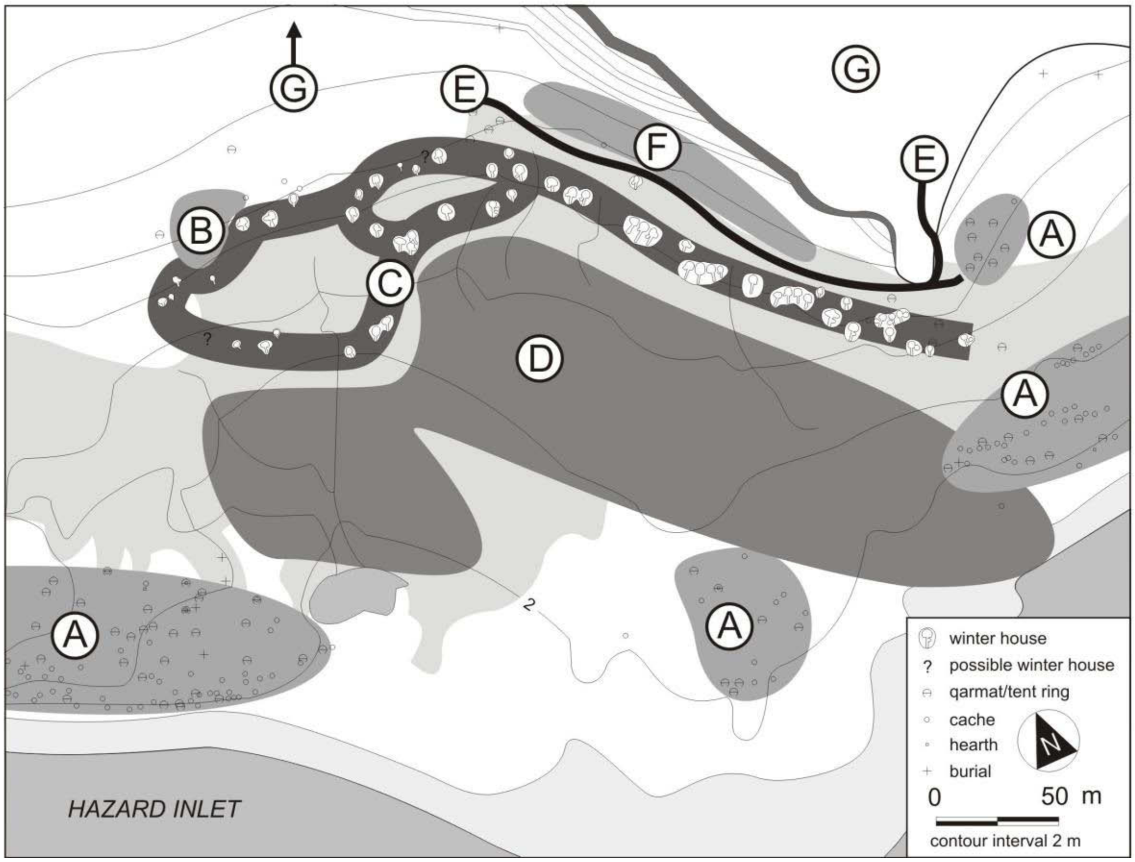

Figure 6.9: The Thule site at Qariaraqyuk with major elements labelled. A: warm weather activity areas; B: whale bone processing; C: winter house row; D common space; E: paths; F: sheet midden; G: cemeteries. Image: P. Whitridge 1999:204

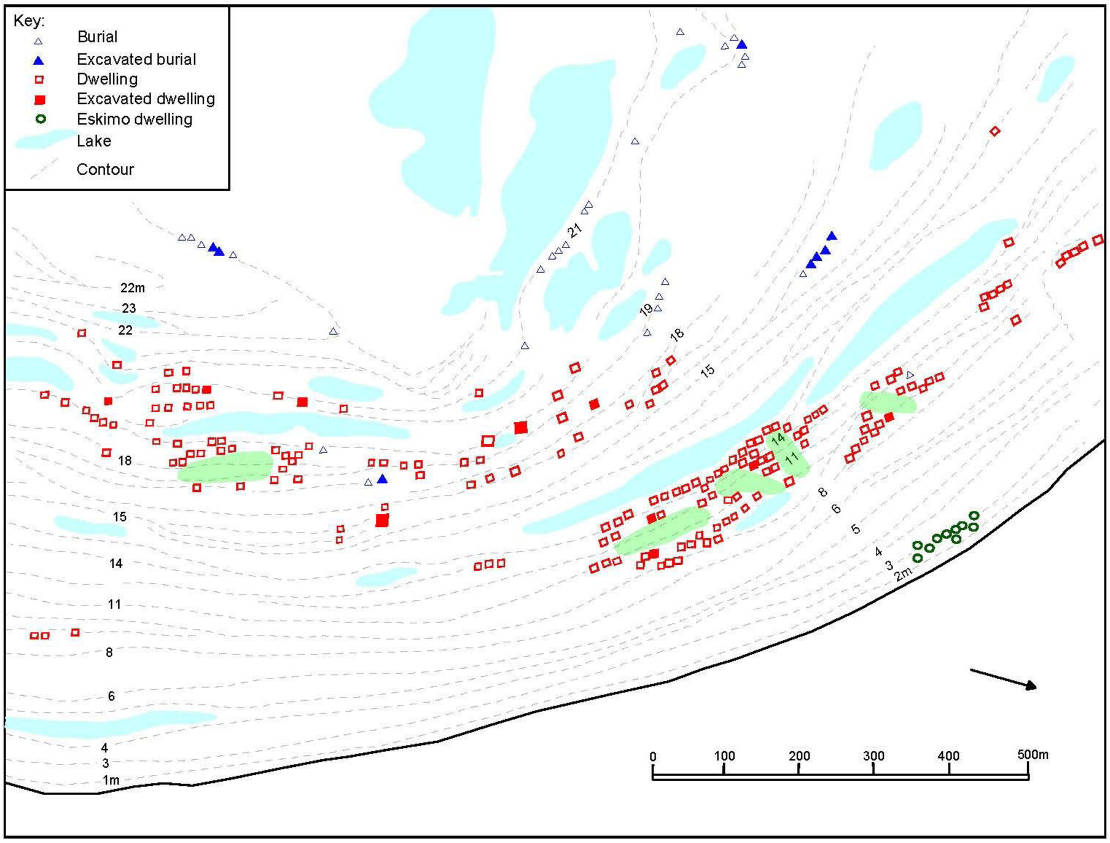

Figure 6.10: Partial section of the Alarnerk map drawn by Guy Mary-Rousseliere and Jorgen Meldgaard Image: Adapted from Lynnerup et al. 2003:351. The pale green areas may represent communal areas within the settlement.

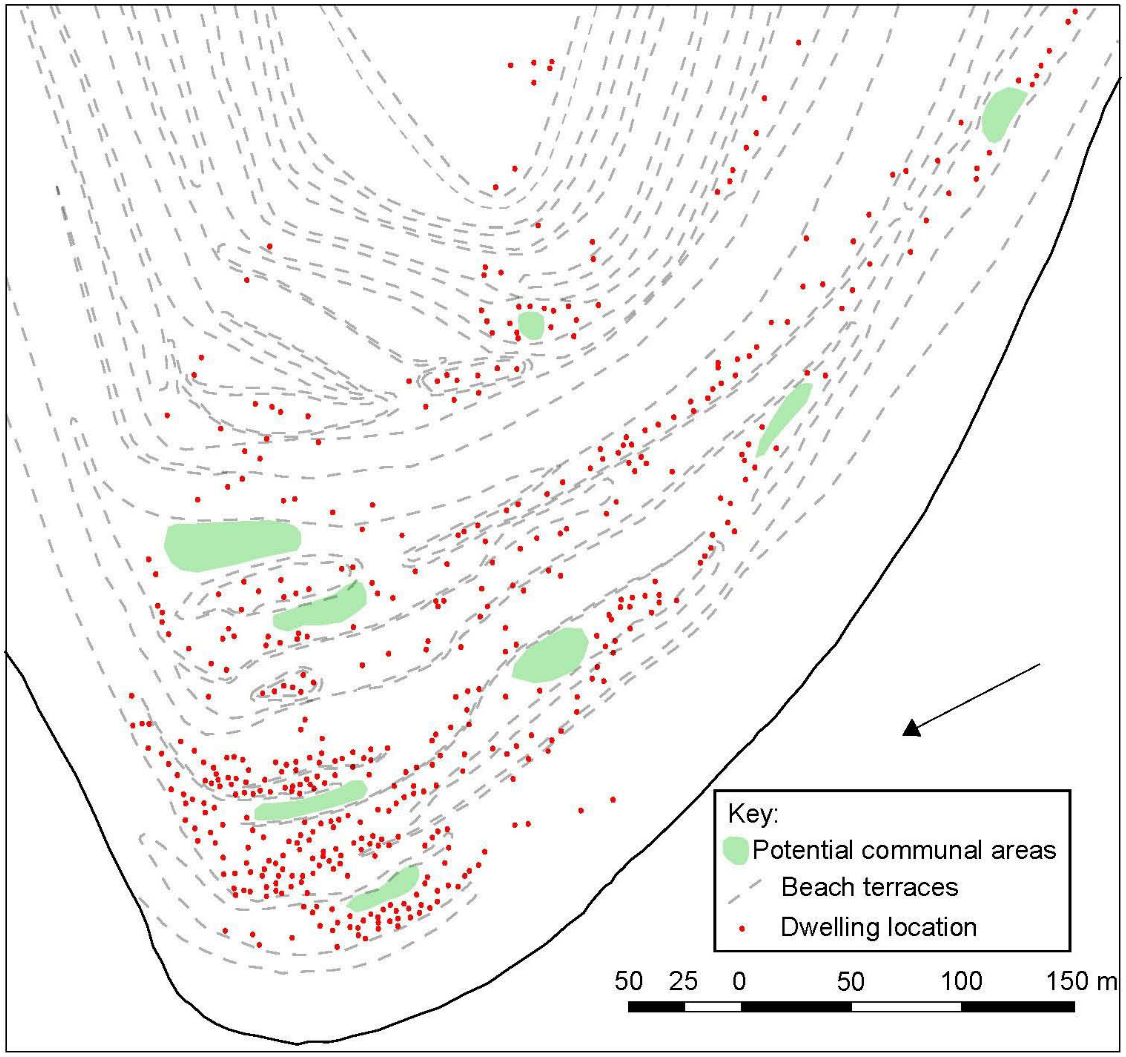

Figure 6.11: Site plan of Kap Skt. Jacques. Image: Adapted from Grønnow and Jensen 2003.The pale green areas may represent communal areas within the settlement.

The different zones could also represent seasonality, with the central zone occupied with more warm-weather structures. From the current evidence at Phillip's Garden of both cold and warm weather dwellings it is known that there was seasonal occupation (Renouf 2011a:152), yet there have been only two warm weather dwellings identified (Harp 1976; Renouf 1991). The lack of warm weather structures may be due to the less substantial nature than that of the winter semi-subterranean dwellings (Chapter 2: 2.3.2), as excavations were primarily focused on large substantial dwellings during previous investigations.

In addition to the presence of two warm weather structures at Phillip's Garden there is evidence of warm weather activities, such as seal skin processing. Renouf (2011a) suggests that the processing of seal skins occurred on a large scale with many tabular slate tools discovered that would have been used to scrap the seal skins (Renouf and Bell 2008). At Bass Pond, 500m east of Phillip's Garden, there was evidence of increased bacterial levels which indicates the use of Bass Pond as a location where seal skins could have been soaked in warm waters, which would have helped loosen the hair from the skin (Bock 1991; Bell et al. 2005; Renouf and Bell 2008; Renouf 2011a:140).

Other Dorset sites have evidence to support multi-seasonal use, such as NiHf 47 on Igloolik Island (Figure 6.5) where 21 dwellings were recognised to have been occupied through multiple seasons (Murray 1997:64-67). From three ethnographic examples in Alaska, there are references to summer dwellings located among winter dwellings at Point Barrow, Diomede Island and Utkeaaγvik (Murdoch 1988:84; Nelson 1971:256; Spencer 1976:60). It was also reported that there were people who resided in the winter town of Utkeaaγvik year round. These were largely the old people, who would move out of the winter semi-subterranean dwellings into tent structures located next to the winter dwelling or on the beach in the warmer weather (Spencer 1976:60).

These lines of evidence from archaeological and ethnographic comparisons, and evidence of warm weather activities, such as seal skin processing, and warm weather structures at Phillip's Garden, suggest that there was a presence at Phillip's Garden for the best part of the year. With evidence of warm weather occupation and the presumed ephemeral nature of warm weather dwellings, there could be a possibility that more of these structure types are present within the central area, which would result in there being fewer observable depressions.

The central zone is a substantially larger area than either the eastern or western zone but with half the density of dwellings (See Chapter 5:5.3.2.1). The relative scarcity of potential dwellings within the central zone may be due to a combination of the reasons, presented above, of communal/activity areas and the presence of warm weather dwellings. In the archaeological and ethnographical examples, of Qariaraqyuk and Utkeaaγvik, these sites both had communal/activity areas as well as warm weather dwelling structures. This could alter how Phillip's Garden is perceived, from a largely seasonal aggregation site with occasional year round occupation to a more permanent settlement occupied year round.

6.3.2 Overlapping features

At Phillip's Garden, from excavation results, there is no current evidence to suggest that the Dorset dwellings were constructed over one another (Renouf 1986, 1987, 1991, 1992, 1993, 1999, 2002). This study suggests there is a possibility for overlapping (truncation) of potential dwellings at Phillip's Garden. When the potential dwellings were initially recorded only three instances of overlapping were identified, all between visible depressions and buried anomalies from the magnetometer survey (Figure 5.8). When a buffer of 2-4 m was created, within the GIS, around the recorded central depression to represent the minimum and maximum depth of platforms the instances of overlap increased to 220 for the 2 m buffer and 569 for the 4 m buffer. This would suggest that it is highly likely that there would be an increase in instances of overlapping dwellings and evidence of truncation may be present at Phillip's Garden. As previously mentioned, in the argument for more communal areas at Phillip's Garden, it was shown that even though Phillip's Garden was a large site, 2.17 hectares, it was far more compact than other large Dorset sites (Table 6.3). This may also have implications for the number of occurrences of overlapping features at Phillip's Garden.

Within Newfoundland, at the settlements sites identified in Chapter 2 there is currently no evidence of Dorset dwellings truncating or being constructed over earlier Dorset dwellings. Outside of Newfoundland, from the four examples of large Dorset settlements (Section 6.2), at only one of the sites, Kap Skt. Jacques in Greenland, were there signs of truncation and construction over previous recorded dwellings (Grønnow and Jensen 2003:296). At smaller settlement sites there have been instances of Dorset dwellings truncating earlier Dorset dwellings, such as Avayalik 1, where a late Middle Dorset semi-subterranean dwelling is truncated by a Late Dorset semi-subterranean dwelling (Maxwell 1985:215).

The lack of truncation/overlapping of dwellings so far at Phillip's Garden could be explained by the level of reoccupation seen at the site. For example, it is known from radiocarbon dates that at Phillip's Garden House 18 was reoccupied for approximately 113 years while House 2 was occupied for 226 years (Renouf 2011c). Of the four large Dorset sites within the Arctic region (Kap Skt. Jacques, Alarnerk, Nunguvik and Igloolik Island) only at Nunguvik has evidence of reoccupation been recorded; at Igloolik Island reoccupation has only been suggested (Mary-Rousselière 1979:23; Sutherland 2002:117; Murray 1997:72). At Nunguvik reoccupation was seen in dwelling N73 with repeated occupations over several centuries (Figure 6.4 [Mary-Rousselière 1979:23; Sutherland 2002:117]). At smaller sites within the Dorset tradition reoccupation can also be seen at such sites as Koliktalik 1 (Figure 6.1) where 15 episodes of reoccupation were evident through the renewal of flooring material that was preserved with house debris between each layer (Fitzhugh 1976:130). Outside of the Dorset tradition reoccupation is seen at Keatley Creek where houses were occupied for periods of several centuries, and dwellings in Qariaraqyuk were reoccupied over a period of 200-250 years (Whitridge 1999:186; Prentiss and Kuijt 2012:102).

As presented above reoccupation of dwellings is a common theme throughout the Dorset tradition and many others. However, the levels of reoccupation at Phillip's Garden may be obscured by excavations concentrating on larger dwellings; the full extent of reoccupation and range of dwelling types may have been missed. Erwin (1995:79, 2011:172) identified four dwelling types: winter semi-subterranean structure, warm weather or short term structure, short term cold weather structure and large permanently occupied structures. The highest levels of reoccupation are seen in Houses 2, 10 and 18 (Cogswell 2006:68-70), which can all be placed within the last of Erwin's classifications. With the increase of potential overlap between dwellings at Phillip's Garden there could be an increase of more short term dwellings, both cold and warm weather, which could potentially change the demographic of the groups frequenting Phillip's Garden.

A potential model for how Phillip's Garden may be viewed in the context of population dynamics is the Thule winter component at Brooman Point (Figure 6.1). McGhee (1984:93) interprets this site as one where there was a small core group of related families with more temporary members of the group, either distantly related or not at all, fluxing in and out of the community. Potentially, at Phillip's Garden a core group could be occupying the largest of the structures while the temporary members resided in the less substantial dwellings for short term occupation. With the temporary members of the group returning periodically and erecting their dwellings in similar locations to their last occupation at Phillip's Garden, (Figure 6.12) the result was overlapping dwellings.

6.3.3 Beach terraces

Many Dorset sites are located on or near beach terraces (Maxwell 1985:11). Dorset dwellings on sites that occupy beach terraces are often reported to reflect a relative chronology, such that on emerging coastlines the earlier the dwelling the higher up the beach terraces it would be located (Savelle and Dyke 2009:272; Murray 1997:32). Erwin's (1995, 2011) work showed that there was no chronological uniformity to the terraces at Phillip's Garden. Rather, at Phillip's Garden, the dwellings which were spatially related were more likely to be temporally related (Erwin 1995, 2011:169).

At Phillip's Garden a different pattern has been identified regarding the use of the beach terraces as an architectural element. From the maximum of 198 potential dwellings at

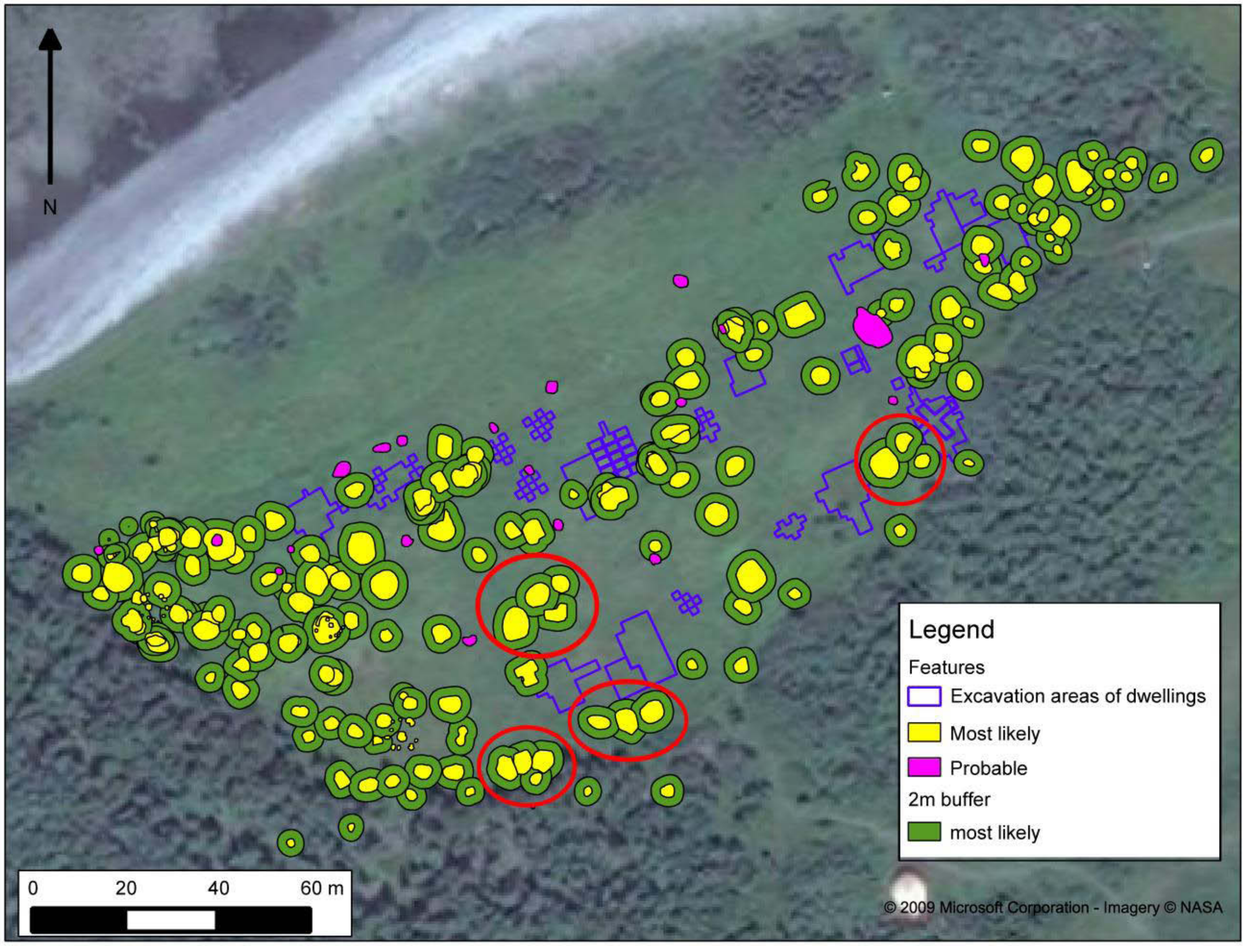

Figure 6.12: Four obvious potential groupings, circled in red, of most likely overlapping dwellings that may represent the temporary element of the Phillip's Garden settlement model, based on the Brooman Point model.

Phillip's Garden 90 of those dwellings were located on or abutting the beach terraces. Of those 90 dwellings, 41 of them had the entrance of the semi-subterranean component excavated through the face of the terrace. This is plainly demonstrated through the example of feature D9 (Figure 4.2).

Within the documentation from other Newfoundland dwellings, identified in Chapter 2, it is apparent that beach terraces were not present at many of these sites. Where beach terraces were present and a semi-subterranean component was identified, such as at both Point Riche and Peat Garden North, this practice of excavating through the face of the beach terrace is not apparent (Renouf 1985, 1986, 1987, 1992; Eastaugh 2002; Anstey 2011; Hartery and Rast 2003). Of the four large Dorset sites outside Newfoundland, Kap Skt. Jacques, Nunguvik, Alarnerk and Igloolik Island, only Igloolik Island and Kap Skt. Jacques give any indication of the location of dwellings relative to the beach terraces. On Igloolik Island site NiHf 45 has Feature 1 described as excavated into the top of the terrace (Murray 1997:68), whereas at the Kap Skt. Jacques site, in northeast Greenland, Features 288 and 342 are documented to have their entrance-ways truncating the face of the beach terrace (Grønnow and Jensen 2003:288). At other Dorset settlement sites where beach terraces were occupied by dwelling structures, such as Avayalik Island sites 1, 2 and 7, IcGm-2 and 3 at Inukjuak, Nunavik, and Tasiarulik on Little Cornwallis Island (Figure 6.1), there is little information about the location of the dwelling structures relative to the terraces (Jordon 1980; Avataq Cultural Institute 1993; LeMoine 2003).

The excavation through the face of the beach terrace as a Dorset construction practice has not been regularly recorded at many sites. With little documented evidence it is difficult to ascertain whether this was a common Dorset architectural practice or a practice unique to Phillip’s Garden and Kap Skt. Jacques. With the current evidence compiled through this thesis it cannot be determined as to why this architectural practice occurs. There may be a number of reasons for this practice: chronological, seasonal, functional or simply personal preference. Until further investigation is undertaken with a focus on this architectural element the origin and purpose of these beach terrace-excavated entrance-ways can only be hypothesised.

6.3.4 Buried dwellings

There are three possible explanations for the pattern of the potential buried dwellings identified through the magnetometer survey (Figure 5.12). Firstly, these possible dwellings may have been in-filled by natural processes which happened over many years. Secondly, the dwellings may have been deliberately backfilled as an attempt at re-landscaping Phillip's Garden by subsequent Dorset occupiers, though deliberate backfilling has yet to be identified through excavation. Thirdly, these dwellings, when abandoned, may have been dismantled to such an extent that little was visible on the surface after destruction. There are many references to Dorset sites that have been dismantled by later occupatants, such as the Brooman Point site on the east coast of Bathurst Island where Thule occupation destroyed an unknown number of Dorset dwellings (McGhee 1984:86-87; Park 2003:240). The Dorset are thought to dismantle their dwellings to a certain degree, taking the components that are not readily available, such as whale bone, to new locations (Renouf 2009: 97). The complete dismantling of dwellings has not yet been recorded, but within the Thule culture the dismantling of dwellings for the reuse of materials is seen at winter sites like Porden Point, on Devon Island (Figure 6.1), where common building materials, such as whale bone and platform slabs, had been removed for construction of other dwellings (Park 1997:279).

Without any ground truthing it is hard to determine which of these explanations accounts for the buried dwellings, but with the lack of evidence of deliberate backfilling or dismantling of dwellings it can be tentatively argued that these represent natural infilling, to the extent that the features are no longer visible on the surface.

6.4 Central depressions of potential dwellings

There was limited success in the study of the central depressions of potential dwellings with a hypothetical central depression to dwelling ratio to predict relative feature age. This is due to the fact that the ratio is based on such a small data set, but with future investigations at Phillip's Garden this ratio may be tested and refined with new radiocarbon dates of excavated dwellings to assess if there is any relationship between this ratio and phasing.

The attempt to develop a typology of the central depressions of potential dwellings was less successful, although it was recognised that there are size and shape variations between excavated and unexcavated features. The excavated depressions, obviously, give a true representation of the central depressions while the unexcavated depressions differ due to the fact that their true dimensions are obscured by centuries of accumulated overburden. The shape of the excavated central depressions was recorded as largely sub-rectangular while the unexcavated depressions were recorded as primarily ovoid or sub-circular in shape (Figure 5.13, Figure 5.14, Figure 5.15, Figure 5.16, Figure 5.17). The likely explanation for this particular difference is accumulation of overburden within the depressions. The more ovoid and sub-circular shapes of the unexcavated depressions are most likely due to the depressions having been naturally backfilled, weathered and possibly disturbed. The size of excavated and unexcavated depressions are clearly affected by the accumulation of overburden. With the vast majority of the excavated examples (n=7) in the 20-30 m^2 range it is therefore unsurprising that the majority of unexcavated examples were in lower size ranges (5-20 m^2).

6.5 Summary and conclusion

6.5.1 Summary

The aim of this chapter was to assess the implications of the results from Chapter 5 for the interpretation of Phillip's Garden. This was done through the three research questions of: 1) how many potential dwellings are there at Phillip's Garden? 2) are there any distribution patterns/trends within the observable characteristics of potential dwellings? and 3) can a tentative phased chronology or typology be developed for central depressions at Phillip's Garden?

Phillip's Garden had already been identified as an intensely occupied aggregation site, primarily used as a base for the intensive seal hunt in December and late March- early April (Renouf 2011a). The increase in the number of potential dwellings, from the results of this thesis, re-emphasises the importance that Phillip's Garden played in the Newfoundland Dorset seasonal round. Additional research in this chapter also established that there was a link between a reliable and abundant food resource and large settlements. This was seen through comparisons of large Dorset sites outside of Newfoundland and Labrador and large sites outside of the Dorset culture.

During the analysis, which yielded the increased number of potential dwellings, four distribution patterns were identified, from which a number of significant interpretations may be drawn. Firstly, these distribution patterns saw the potential for earlier Groswater inhabitants from areas peripheral to Phillip's Garden (Phillip's Garden East and West) to have occupied the site. This is suggested by the increased density of potential dwellings in both the east and west zones and evidence of Groswater lithic remains present at Phillip's Garden (Lavers and Renouf 2012). Secondly, evidence of the first Dorset settlers at Phillip's Garden may be interpreted from the pattern of buried potential dwellings identified from the magnetometer survey. Thirdly, the greater density of potential dwellings seen in the east and west zones highlights a distinct lack of dwellings within the central zone. With archaeological and ethnographic comparisons it was suggested that the central zone was used for more communal activity and contained more ephemeral warm weather dwellings. Fourthly, the increase in potential dwelling numbers also identified, for the first time at Phillip's Garden, the possibility of overlapping dwellings. The overlapping of potential dwellings in conjunction with reoccupation of certain dwellings (Cogswell 2006: 68-70) and the four structure types identified by Erwin (1995:79, 2011:172) could lead to a model of occupation similar to that of Thule groups at Brooman Point, with a core family group and more transient groups coming and going (McGhee 1984:93). The final observation from these findings is the architectural practice of the entrance of semi-subterranean dwellings being excavated through the face of beach terraces. With more than a quarter of dwellings exhibiting this suggested style it should not be considered an anomaly, but rather an architectural tradition or preference.

The attempt at determining a tentative chronology and typology was not as successful. The tentative chronology, based on the central depression to dwelling ratio, has potential but needs additional data to verify these findings. The attempt at a typology of central depressions highlighted only the dimensional differences between the excavated and unexcavated dwellings. The overburden from centuries of occupation and natural soil accumulation at Phillip's Garden obscures the true dimensions of the unexcavated dwellings.

6.5.2 Conclusion

While the identification of more potential dwellings has not altered the interpretation of Phillip's Garden as a large Dorset Palaeoeskimo aggregation site, there are, however, implications for the spatial, social and chronological organisation of the site inferred from the four distribution patterns identified above. Unfortunately, the tentative chronology and typology was not achieved and therefore does not add anything to the story of Phillip's Garden at this stage.

The spatial organisation of Phillip's Garden is seen through the high and low densities of potential dwellings in the east, west and central zones, the distribution of the buried potential dwellings, and the first instances of the overlapping of potential dwellings. Spatial organisation often reflects social organisation of human settlement (Fisher and Strickland 1989; Kent 1990; Gamble and Boismeir 1991; Shahack Gross et al. 2004). The combination of overlapping dwellings, reoccupation of dwellings and different dwelling structure types suggest a model of occupation by a core family group with more transient groups coming and going from Phillip's Garden. The east, west and central zones may further imply a level of social organisation with clusters of potential dwellings to the east and west and the communal activity areas in the centre, as suggested by archaeological and ethnographic comparisons. The densities of potential dwellings in the east, west and central zones also allow for speculations about chronological organisation, seasonality of the Dorset occupation, and the potential for cultural continuity in site occupation from earlier Groswater times. The buried potential dwellings may also contribute to the chronological organisation of the site with the potential first Dorset settlers of Phillip's Garden evident.

7 Conclusion

Despite extensive excavation and survey carried out by Harp and Renouf (Harp 1964, 1976; Renouf 1986, 1987, 1991, 1992, 1993, 1999, 2002) at Phillip's Garden and the fact that much is known about the population of Dorset Palaeoeskimos who occupied the site, the number of dwellings at the site has remained uncertain. The aim of this research was, therefore, both to quantify the number of potential dwellings at Phillip's Garden and to assess whether the increase in numbers of potential dwellings alters the current interpretations of Phillip's Garden.

By the application of three non-intrusive survey techniques (feature, landscape, and magnetometer surveys) and the addition of previously excavated dwelling plans, the creation of a much more detailed map of Phillip's Garden was accomplished. Thus, the primary objective of this thesis was realised. A criterion to allow for the quantification of potential dwellings at Phillip's Garden was developed and the data from previous excavations and these three non-intrusive surveys was interrogated. This analysis succeeded in increasing the number of potential dwellings significantly, from the previously recorded 68 to a potential 198 (Renouf 2011a:132). With a more accurate number of potential dwellings a more comprehensive characterisation of Phillip's Garden was possible. Through a visual inspection, this allowed four distribution patterns to be identified: 1) the significant concentrations of dwellings in both the eastern and western zones and the distinct lack of dwellings in the central zone, 2) the overlapping of potential dwellings, 3) the positioning of dwellings into the beach terraces, and 4) a distinct alignment of buried dwellings. In an endeavour to extrapolate a further distribution pattern based on existing phasing of dwellings at Phillip's Garden, a tentative chronology and typology for central depressions was attempted. Unfortunately, due to the small dataset of phased dwellings, a chronology could not be achieved, and neither was a typology based on size and shape of central depressions identified.

The increase in potential dwelling numbers reaffirms the interpretation that Phillip's Garden was a large Dorset Palaeoeskimo aggregation site (*ibid* 2011a). The identification of four new distribution patterns/trends suggests new levels of spatial, social and chronological organisation of Phillip's Garden. The interpreted spatial organisation of Phillip's Garden has been transformed with a more informed account of potential dwellings. This redefined spatial organisation can be observed with high and low density areas of potential dwellings, the arrangement of buried potential dwellings and the first identified instances of overlapping dwellings. From the spatial arrangements of the potential dwellings, some level of social organisation has been inferred, such as the combination of overlapping dwellings, reoccupied dwellings and different dwelling structures. This suggests a model of occupation based on core family groups, with more transient groups coming and going at Phillip's Garden. Additional levels of social organisation may be recognised in the clustering of potential dwellings at the east and west ends of Phillip's Garden and the plausible presence of communal activity areas in the less densely occupied central zone. These high and low density areas of potential dwellings add to our knowledge of the chronological organisation of Phillip's Garden, either by emphasising areas for seasonal occupation, with more ephemeral warm weather structures that are not visible on the surface, or by the potential for earlier occupation by the

Groswater population, with identified sites in close proximity to the clustering of dwellings at the east and west ends of the site. The buried potential dwellings provide a final layer of chronology with the possible earliest Dorset dwellings at Phillip's Garden.

The immediate implication of data collection and analysis within this thesis is that the number of identified potential dwellings has dramatically increased to 198, nearly treble the previously recorded account, which in turn has redefined the spatial organisation of the Dorset Palaeoeskimo settlement site at Phillip's Garden. Through analyses of the spatial organisation, the social and chronological organisation of Phillip's Garden may be inferred through both archaeological and ethnographic comparisons. Ultimately, this work will provided a model for future research at Phillip's Garden which will test hypotheses formulated in this study.

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9 Appendix 1: Complete map of Phillip's Garden

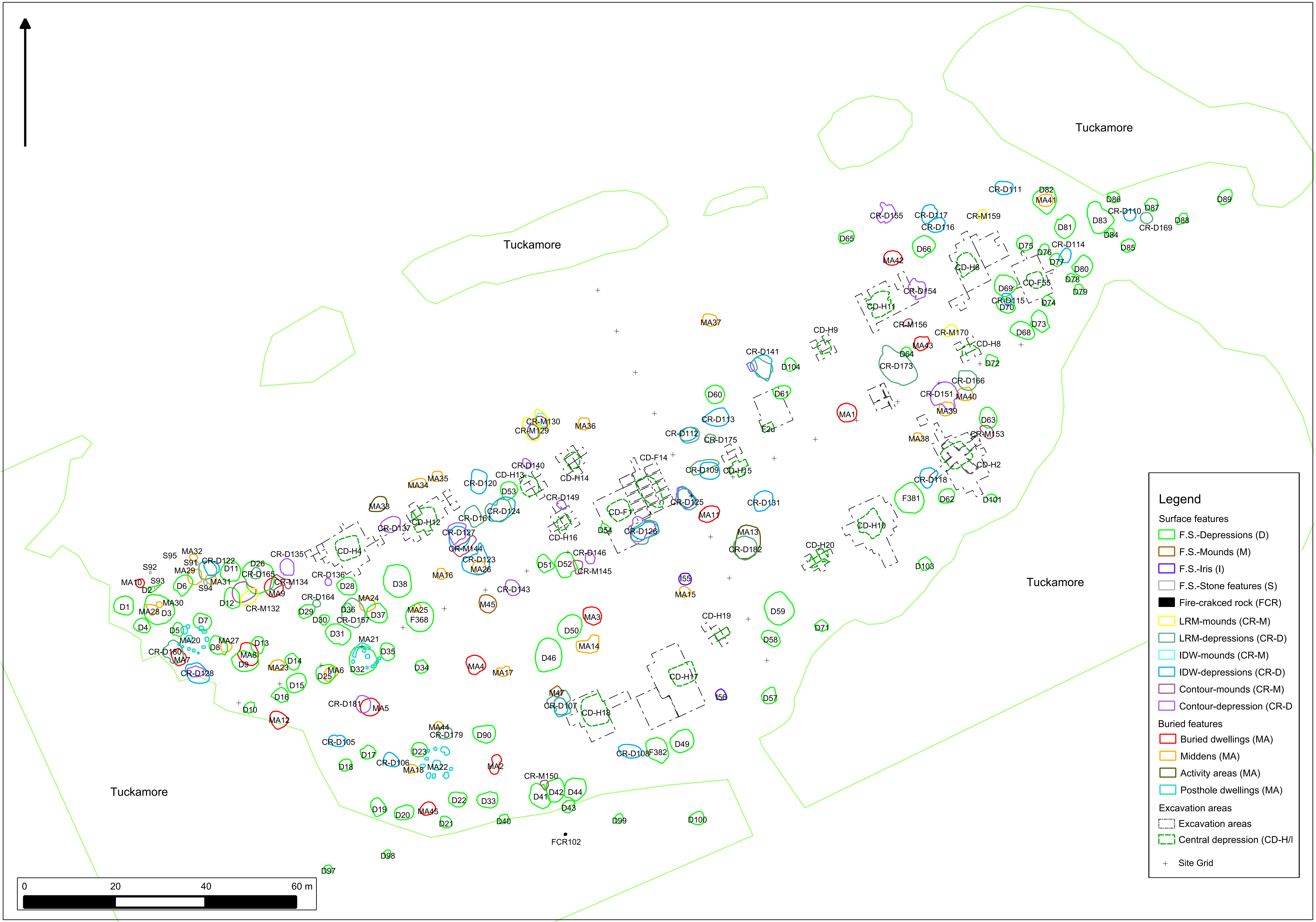

Figure 8.1: Results from previous excavations, feature survey, landscape survey and magnetometer survey with feature ID numbers

10 Appendix 2: Field Data

Table 10.1: Data that were collected for the features during the 2012 field season. Feature Type: D=Depression, PAF=Possible Axial Feature, I=Iris Concentration, M=Mounds.

ID#	Feature Type	Dimensions (m)	Depth	Outline Definition	Disturbance	Front Entrance orientation	Rear Entrance	Rear Pit detected	Comments
1	D	3	Medium deep	Well	No	NW			Enclosed with berm
2	D	1	Shallow	Little	No				
3	D	4	Shallow	Well	No			Yes	Less berm on north and south
4	D	1	Shallow	Well					
5	D	1.5	Shallow	Well					No berm at southeast
6	D	2.5	Deep	Well	No	NW			
7	D	1.5	Shallow	Little	No				Almost oval in shape, berm to north, rear not well-defined
8	D	2	Medium deep	Well		NW			Rocks define the berm
9	D	3.5	Deep	Well	No			Yes	Square shape
10	D	1.5	Shallow	Well	Yes	WNW			Possible 1984 test pit location, best platform definition to the west
11	D	3		Well	No	NW			East and south most developed platforms
12	D	2	Shallow	Well	No	WNW			East and south most developed platforms
13	D	2.5	Shallow	Well	No			Yes	South and west most developed platforms
14	D	2.5	Deep	Well	No			Yes	Berm surrounding depression
15	D	2.5	Shallow	Well	No				
16	D	2.5	Shallow	Well	No	WNW			West most developed platforms

ID#	Feature Type	Dimensions (m)	Depth	Outline Definition	Disturbance	Front Entrance orientation	Rear Entrance	Rear Pit detected	Comments
17	D	2		Well	No				South and east most developed platform
18	D	1-1.5	Medium deep	Well	No				West and south most developed platform
19	D	2	Shallow	Well	No			Yes	
20	D	2.5		Well	No				
21	PD	1.5	Medium deep	Well	Yes				The depression could be an old test pit.
22	D	2	Medium deep	Well	No	NW		Yes	Only the north is open, the rest has a well-defined berm
23	D	2	Shallow	Well	No				Stones border the southwest
24	D	2-2.5	Shallow	Well		N			
25	D	2.5	Deep	Well	No	N			Beauty! Very large and well defined
26	D	1.5		Well	No	NNW	Yes		
27	D	3	Medium deep	Well	Yes				Checker board test pits
28	D	3	Deep	Well	No	N			
29	D	2	Shallow	Well	No				South and west most developed platforms
30	D	1.5	Shallow	Well	No				Well-developed berms all around
31	D	2.5 N-S x 1.1.5 W-E	Shallow	Well	No				Possibly a bilobate or over lapping houses.
32	D	3.5 N-S x 2 E-W	Shallow	Well	No				Possibly a bilobate, oval or over lapping houses.

ID#	Feature Type	Dimensions (m)	Depth	Outline Definition	Disturbance	Front Entrance orientation	Rear Entrance	Rear Pit detected	Comments
33	D	2.5	Medium deep	Well	No	NNW			West, east and south best developed platforms
34	D	1.5	Shallow	Little	No				Not clearly defined
35	D	2	Shallow	Well	No				South and west most developed platforms
36	D	1.5	Shallow	Well	No				Northwest most developed platforms
37	D	2	Deep	Well	No			Yes	Beauty. Other pits may be apparent
38	D	4	Shallow	Well	No	N			Broad and shallow
39	D	3	Deep	Well	No			Yes	Feature 368, a beauty, maybe two rear pits
40	D	1.5		Well	No				Small
41	D	2		Well	Yes	N			West and east most developed platforms
42	D	2.5	Deep	Well	No				Round well defined all around
43	D	2	Shallow	Well	No				
44	D	2	Shallow	Well	No				
45	M	4.5	Raised	Well	No				This is a circular mound defined by iris in a level, soft area (midden?)
46	D	4	Shallow	Little					Broad, may be a house filled with midden. There are rocks on the surface
47	M	2			Yes				Circular mound of irises and has a test pit in the northeast
48	D	2.5		Well	No			Yes	Feature 382, east and west most developed platforms

ID#	Feature Type	Dimensions (m)	Depth	Outline Definition	Disturbance	Front Entrance orientation	Rear Entrance	Rear Pit detected	Comments
49	D	3-3.5	Medium deep	Well	Yes				East and west best developed platforms
50	D	2.5	Shallow	Well	No				West and north most developed platforms, feels soft may be filled with midden
51	D	3	Deep	Well	No	N			
52	D	2	Deep	Well	No	N			
53	D	1.5-2	Deep	Well	No				Well-developed platforms all around
54	D	2	Shallow	Well	Yes				May not be disturbed, may be filled with midden
55	I	1							Irises on edge of back dirt pile. Likely not cultural
56	I			Well					Irises arranged in circle.
57	D	1.5	Medium deep	Well	No	N			Possible test unit
58	D	2	Shallow	Well	No			Yes	
59	D	4.5-5	Shallow	Well	No				Broader east to west, may be two small overlapping houses
60	D	2.5-3	Deep	Well	Yes				Possibly disturbed by test pit
61	D	2.5	Shallow	Little	Yes				May be filled with midden, only a possible disturbance
62	D	2.5 E-W x 3 N-S	Shallow	Little	No				Slightly oval
63	D	3	Deep	Well	Yes	WNW	Yes		In the middle one test pit possibly
64	D	1.5	Little	Well	Yes				Possible disturbance in the middle with irises surrounding.

ID#	Feature Type	Dimensions (m)	Depth	Outline Definition	Disturbance	Front Entrance orientation	Rear Entrance	Rear Pit detected	Comments
65	D	2 N-S x 2.5 E-W		Little	No				Behind raised beach
66	D	2.5	Deep	Well	No				
67	D	3	Deep	Well	Yes				Test pits
69	D	2 E-W x 4 N-S	Shallow	Well	Yes				Multiple test pits
70	D	2	Deep	Well	Yes				
71	D	2	Shallow	Well	No				Near path
72	D	2	Medium deep	Well	No				Small, more developed south, west, east
73	D	2	Deep	Well	No	NNW			Good example
74	D	1	Medium deep	Well	Yes	N			Possible test pit in the centre
75	D	2	Deep	Well	Yes				Disturbed in centre
76	D	1	Medium deep	Well	No	N			
77	D	1		Well	Yes				Test pit at rear
78	D	1	Shallow	Well	No				Centre in the path
79	D	1.5		Well	No				
80	D	2	Deep	Well	No				
81	D	2	Shallow	Well	No				Not sure this is a dwelling
82	D	3	Shallow	Well	Yes				Possibly not disturbed, but lumpy
83	D	3	Shallow	Well	Yes				Possibly not disturbed, but lumpy
84	D	1		Well	No				
85	D	3	Shallow	Little	Yes				Test pit in western side

ID#	Feature Type	Dimensions (m)	Depth	Outline Definition	Disturbance	Front Entrance orientation	Rear Entrance	Rear Pit detected	Comments
86	D	2		Well	No				
87	D	2		Well	No			Yes	
88	D	1.5	Medium deep	Well	No				
89	D	6 E-W x 2.5 N-SS	Shallow	Well	No				
90	D		Medium deep	Well	No				
91	PAF	1.25 N-S x 75 E-W		Well	No				Nine stones protruding from the ground, could rep axial feature, very well defined, oval
92	PAF	1.0 N-S x 50 E-W		Well	No				3 stones, 2 of them rounded, oval-Shaped depression.
93	PAF	60 N-S		Little	No				2 stones in circular depression
94	PAF	35		Well	No				Circular cluster of slightly upright slab stones (at least 3) in a depression.
95	PAF	80 N-S x 50 E-W		Well	No				2 stones (1=slab, 1=round granite) in slight depression
96	D	2.0 N-S x 2.5 E-W	Deep	Well	Yes				Originally seen only as test pits, but clear platform present.
68A	D	2	Shallow	Well	No				South and west most developed platforms, could be bilobate with 68B or overlapping

ID#	Feature Type	Dimensions (m)	Depth	Outline Definition	Disturbance	Front Entrance orientation	Rear Entrance	Rear Pit detected	Comments
68B	D	1	Shallow	Well	No				East and north most developed platforms, bilobate or overlap

11 Appendix 3: GIS Data

Table 11.1a: Data attached to each feature polygon within the GIS. Landscape 1 = Contour model, Landscape 2 = IDW model, Landscape 3 = LRM model.

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
CR-D105	Depression		Landscape 2	Non	No	No	N/A	N/A	7.98
CR-D106	Depression		Landscape 2	Non	Magnetometer	No	N/A	N/A	8.34
CR-D107	Depression		Landscape 2	Landscape 3	Magnetometer	No	N/A	N/A	9.17
CR-D107	Depression		Landscape 3	Landscape 2	Magnetometer	No	N/A	N/A	19.37
CR-D108	Depression		Landscape 2	Non	No	No	N/A	N/A	11.82
CR-D109	Depression		Landscape 2	Landscape 3	Magnetometer	No	N/A	N/A	13.81
CR-D109	Depression		Landscape 3	Landscape 2	Magnetometer	No	N/A	N/A	13.28
CR-D110	Depression		Landscape 2	Non	No	No	N/A	N/A	5.16
CR-D111	Depression		Landscape 2	Non	No	No	N/A	N/A	9.54
CR-D112	Depression		Landscape 2	Landscape 3	Magnetometer	No	N/A	N/A	8.82
CR-D112	Depression		Landscape 3	Landscape 2	Magnetometer	No	N/A	N/A	11.29
CR-D113	Depression		Landscape 2	Non	Magnetometer	No	N/A	N/A	16.52
CR-D114	Depression		Landscape 2	Non	Magnetometer	No	N/A	N/A	6.33
CR-D115	Depression		Landscape 2	Non	No	No	N/A	N/A	4.42
CR-D116	Depression		Landscape 2	Non	No	No	N/A	N/A	9.42
CR-D117	Depression		Landscape 2	Non	No	No	N/A	N/A	10.84
CR-D118	Depression		Landscape 2	Non	No	No	N/A	N/A	12.19
CR-D120	Depression		Landscape 2	Non	Magnetometer	No	N/A	N/A	15.95
CR-D121	Depression		Landscape 2	Landscape 3	Magnetometer	No	N/A	N/A	18.06
CR-D121	Depression		Landscape 3	Landscape 2	Magnetometer	No	N/A	N/A	12.93
CR-D122	Depression		Landscape 2	Landscape 3	Magnetometer	No	N/A	N/A	8.50
CR-D122	Depression		Landscape 3	Landscape 2	Magnetometer	No	N/A	N/A	12.80
CR-D123	Depression		Landscape 2	Geophysics	Magnetometer	No	N/A	N/A	24.93
CR-D124	Depression		Landscape 2	Landscape 3	Magnetometer	No	N/A	N/A	22.33
CR-D124	Depression		Landscape 3	Landscape 2	Magnetometer	No	N/A	N/A	20.95
CR-D125	Depression		Landscape 2	Landscape 1, 3	Magnetometer	No	N/A	N/A	11.47
CR-D125	Depression		Landscape 1	Landscape 2, 3	Magnetometer	No	N/A	N/A	13.94
CR-D125	Depression		Landscape 3	Landscape 1, 2	Magnetometer	No	N/A	N/A	14.30
CR-D126	Depression		Landscape 2	Landscape 1, 3	Magnetometer	No	N/A	N/A	14.73

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
CR-D126	Depression		Landscape 1	Landscape 2, 3	Magnetometer	No	N/A	N/A	21.42
CR-D126	Depression		Landscape 3	Landscape 1, 2	Magnetometer	No	N/A	N/A	22.24
CR-D127	Depression		Landscape 2	Landscape 1	Magnetometer	No	N/A	N/A	18.21
CR-D127	Depression		Landscape 1	Landscape 2	Magnetometer	No	N/A	N/A	13.84
CR-D128	Depression		Landscape 2	Landscape 1	Magnetometer	No	N/A	N/A	17.94
CR-D128	Depression		Landscape 1	Landscape 2	Magnetometer	No	N/A	N/A	7.00
CR-D131	Depression		Landscape 2	Non	Magnetometer	No	N/A	N/A	14.90
CR-D135	Depression		Landscape 1	Non	Magnetometer		N/A	N/A	9.29
CR-D136	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	1.81
CR-D137	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	11.19
CR-D140	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	3.11
CR-D141	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	2.16
CR-D143	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	8.95
CR-D146	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	4.18
CR-D149	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	3.17
CR-D151	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	26.77
CR-D154	Depression		Landscape 1	Non	Magnetometer	No	N/A	N/A	12.57
CR-D155	Depression		Landscape 1	Non	No	No	N/A	N/A	11.87
CR-D157	Depression		Landscape 3	Non	Magnetometer	No	N/A	N/A	24.92
CR-D161	Depression		Landscape 3	Non	Magnetometer	No	N/A	N/A	12.94
CR-D164	Depression		Landscape 3	Non	Magnetometer	No	N/A	N/A	2.11
CR-D165	Depression		Landscape 3	Non	Magnetometer	No	N/A	N/A	4.50
CR-D166	Depression		Landscape 3	Non	Magnetometer	No	N/A	N/A	14.87
CR-D169	Depression		Landscape 3	Non		No	N/A	N/A	5.14
CR-D173	Depression		Landscape 3	Non	Magnetometer	No	N/A	N/A	48.17
CR-D175	Depression		Landscape 3	Non	Magnetometer	No	N/A	N/A	3.54
CR-D179	Depression		Landscape 3	Non	Magnetometer	No	N/A	N/A	7.27
CR-D180	Depression		Landscape 3	Geophysics	Magnetometer	No	N/A	N/A	16.18
CR-D181	Depression		Landscape 1	Geophysics	Magnetometer	No	N/A	N/A	10.18
CR-D182	Depression		Landscape 3	Geophysics	Magnetometer	No	N/A	N/A	21.48

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
CR-M129	Mound		Landscape 2	Landscape 1, 3	Magnetometer	No	N/A	N/A	6.06
CR-M129	Mound		Landscape 1	Landscape 2, 3	Magnetometer	No	N/A	N/A	6.62
CR-M129	Mound		Landscape 3	Landscape 1, 2	Magnetometer	No	N/A	N/A	13.96
CR-M130	Mound		Landscape 2	Landscape 1, 3	Magnetometer	No	N/A	N/A	5.55
CR-M130	Mound		Landscape 1	Landscape 2, 3	Magnetometer	No	N/A	N/A	5.11
CR-M130	Mound		Landscape 3	Landscape 1, 2	Magnetometer	No	N/A	N/A	9.52
CR-M132	Mound		Landscape 1	Landscape 3	Magnetometer	No	N/A	N/A	17.25
CR-M132	Mound		Landscape 3	Landscape 1	Magnetometer	No	N/A	N/A	9.70
CR-M134	Mound		Landscape 1	Geophysics	Magnetometer	No	N/A	N/A	9.57
CR-M144	Mound		Landscape 1	Non	Magnetometer	No	N/A	N/A	10.84
CR-M145	Mound		Landscape 1	Non	Magnetometer	No	N/A	N/A	4.66
CR-M150	Mound		Landscape 1	Non	Magnetometer	No	N/A	N/A	2.76
CR-M153	Mound		Landscape 1	Non	No	No	N/A	N/A	5.83
CR-M156	Mound		Landscape 1	Non	Magnetometer	No	N/A	N/A	2.44
CR-M159	Mound		Landscape 3	Non		No	N/A	N/A	3.50
CR-M170	Mound		Landscape 3	Non	Magnetometer	No	N/A	N/A	5.47
D1	Depression		Topo survey	Landscape 1, 2, 3	No	No	N/A	N/A	14.70
D10	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	4.29
D100	Depression		Topo survey	Landscape 3	No	No	N/A	N/A	7.10
D101	Depression		Topo survey	Non	No	No	N/A	N/A	2.85
D103	Depression		Topo survey	Non	No	No	N/A	N/A	5.97
D104	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	5.52
D11	Depression		Topo survey	Landscape 3	Magnetometer	No	N/A	N/A	16.10
D12	Depression		Topo survey	Landscape 2, 3	Magnetometer	No	N/A	N/A	12.57
D13	Depression		Topo survey	Landscape 3	Magnetometer	No	N/A	N/A	8.65
D14	Depression		Topo survey	Landscape 1, 2	Magnetometer	No	N/A	N/A	8.44
D15	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	14.63
D16	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	8.41
D17	Depression		Topo survey	Landscape 1, 2	Magnetometer	No	N/A	N/A	7.62
D18	Depression		Topo survey	Non	No	No	N/A	N/A	5.75

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
D19	Depression		Topo survey	Landscape 1, 3	No	No	N/A	N/A	10.11
D2	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	2.30
D20	Depression		Topo survey	Landscape 1, 2, 3	No	No	N/A	N/A	11.22
D21	Depression		Topo survey	Landscape 3	Magnetometer	No	N/A	N/A	5.13
D22	Depression		Topo survey	Landscape 2, 3	Magnetometer	No	N/A	N/A	10.56
D23	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	8.88
D25	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	14.37
D26	Depression		Topo survey	Landscape 1, 2	Magnetometer	No	N/A	N/A	39.17
D27	Depression		Topo survey	Non	Magnetometer	Yes	1963	EH	15.15
D28	Depression		Topo survey	Landscape 2, 3	Magnetometer	No	N/A	N/A	13.23
D29	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	8.29
D3	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	34.85
D30	Depression		Topo survey	Landscape 3	Magnetometer	No	N/A	N/A	3.77
D31	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	19.28
D32	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	30.05
D33	Depression		Topo survey	Landscape 1, 3	Magnetometer	No	N/A	N/A	12.94
D34	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	6.33
D35	Depression		Topo survey	Landscape 2, 3	Magnetometer	No	N/A	N/A	10.02
D36	Depression		Topo survey	Landscape 1	Magnetometer	No	N/A	N/A	2.81
D37	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	14.94
D38	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	35.71
D4	Depression		Topo survey	Non	No	No	N/A	N/A	8.89
D40	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	3.44
D41	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	18.32
D42	Depression		Topo survey	Landscape 1, 3	Magnetometer	No	N/A	N/A	16.78
D43	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	5.85
D44	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	18.97
D46	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	34.79
D49	Depression		Topo survey	Landscape 1, 3	No	No	N/A	N/A	20.09
D5	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	5.82

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
D50	Depression		Topo survey	Landscape 2	Magnetometer	No	N/A	N/A	22.08
D51	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	10.23
D52	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	19.34
D53	Depression		Topo survey	Landscape 1, 2	Magnetometer	No	N/A	N/A	11.51
D54	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	3.16
D57	Depression		Topo survey	Landscape 3	No	No	N/A	N/A	9.05
D58	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	10.33
D59	Depression		Topo survey	Landscape 2, 3	Magnetometer	No	N/A	N/A	34.61
D6	Depression		Topo survey	Landscape 2, 3	Magnetometer	No	N/A	N/A	13.27
D60	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	13.33
D61	Depression		Topo survey	Landscape 1	Magnetometer	No	N/A	N/A	8.75
D62	Depression		Topo survey	Non	No	No	N/A	N/A	8.83
D63	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	13.63
D64	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	3.23
D65	Depression		Topo survey	Landscape 1	No	No	N/A	N/A	7.63
D66	Depression		Topo survey	Landscape 1, 2	No	No	N/A	N/A	17.17
D67	Depression		Topo survey	Non	No	Yes	1962	EH	17.35
D68	Depression		Topo survey	Landscape 1, 2, 3	No	No	N/A	N/A	14.98
D69	Depression		Topo survey	Landscape 1, 2	No	No	N/A	N/A	17.76
D7	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	11.51
D70	Depression		Topo survey	Landscape 1	No	No	N/A	N/A	9.45
D71	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	5.26
D72	Depression		Topo survey	Non	No	No	N/A	N/A	5.15
D73	Depression		Topo survey	Landscape 1, 2, 3	No	No	N/A	N/A	13.45
D74	Depression		Topo survey	Non	No	No	N/A	N/A	4.55
D75	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	9.35
D76	Depression		Topo survey	Landscape 1, 2	Magnetometer	No	N/A	N/A	3.85
D77	Depression		Topo survey	Landscape 2	Magnetometer	No	N/A	N/A	5.91
D78	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	2.89
D79	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	3.62

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
D8	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	13.02
D80	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	14.92
D81	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	17.14
D82	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	22.12
D83	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	27.63
D84	Depression		Topo survey	Non	Magnetometer	No	N/A	N/A	2.32
D85	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	7.03
D86	Depression		Topo survey	Landscape 1, 3	No	No	N/A	N/A	4.71
D87	Depression		Topo survey	Landscape 1, 3	No	No	N/A	N/A	6.21
D88	Depression		Topo survey	Landscape 2	No	No	N/A	N/A	4.16
D89	Depression		Topo survey	Non	No	No	N/A	N/A	7.70
D9	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	20.12
D90	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer	No	N/A	N/A	15.54
D96	Depression		Topo survey	Non	Magnetometer	Yes	1962	EH	27.29
D97	Depression		Topo survey	Non	No	No	N/A	N/A	2.578
D98	Depression		Topo survey	Non	No	No	N/A	N/A	2.06
D99	Depression		Topo survey	Non	No	No	N/A	N/A	3.02
F1	House	Early	Excavation	Non	Magnetometer	Yes	1985	MAPR	89.23
F14	House	Early	Excavation	Non	Magnetometer	Yes	1986	MAPR	63.62
F2u	Central Depression	Early	Excavation	Non	Magnetometer	Yes	1985	MAPR	N/A
F368	Depression		Topo survey	Landscape 1, 2, 3	Magnetometer and GPR	No	N/A	N/A	31.13
F381	Depression		Topo survey	Landscape 1,2,3	No	No	N/A	N/A	32.32
F382	Depression		Topo survey	Landscape 2, 3	No	No	N/A	N/A	20.69
F42	House		Excavation	Non	Magnetometer	Yes	1990	MAPR	13.01
F55	House	Late	Excavation	Non	Magnetometer	Yes	1992	MAPR	31.38
FCR102	Fire cracked rocks		Topo survey	Non	No	No	N/A	N/A	0.32
H1	House		Excavation	Non	No	Yes	1963	EH	4.27

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
H10	House	Early/Middle	Excavation	Non	GPR and Magnetometer	Yes	1963/2011	EH/MARP	73.25
H11	House	Middle/Late	Excavation	Non	Magnetometer	Yes	1963	EH	66.83
H17	House	Middle/Late	Excavation	Non	No	Yes	1963/2006	EH/MAPR	64.55
H18	House	Early/Middle	Excavation	Non	Magnetometer	Yes	1963/2005	EH/MAPR	71.81
H2	House	Early/Middle/Late	Excavation	Non	Magnetometer	Yes	1963/2004	EH/MAPR	108.26
H20	House	Late	Excavation	Non	Magnetometer	Yes	1963	EH	12.35
H3	House		Excavation	Non	Magnetometer	Yes	1963	EH	5.81
H4	House	Middle	Excavation	Non	Magnetometer	Yes	1963	EH	69.01
H5	House		Excavation	Non	No	Yes	1963	EH	10.57
H6	House	Early/Middle	Excavation	Non	No	Yes	1963	EH	60.12
H7	House		Excavation	Non	No	Yes	1963	EH	9.01
I55	Iris concentration		Topo survey	Landscape 1, 2	Magnetometer	No	N/A	N/A	5.78
I56	Iris concentration		Topo survey	Non	No	No	N/A	N/A	4.43
M45	Mound		Topo survey	Non	Magnetometer	No	N/A	N/A	12.06
M47	Mound		Topo survey	Non	Magnetometer	No	N/A	N/A	3.99
MA1	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	14.13
MA10	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	2.85
MA11	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	12.18
MA12	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	11.34
MA13	Anomaly: Activity Area		Geophysics	Landscape 3	Magnetometer	No	N/A	N/A	33.63
MA14	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	14.61
MA15	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	4.41

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
MA16	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	4.60
MA17	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	5.00
MA18	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	3.31
MA2	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	7.44
MA20	Anomaly: Dwelling with Postholes		Geophysics	Non	Magnetometer	No	N/A	N/A	37.02
MA21	Anomaly: Dwelling with Postholes		Geophysics	Non	Magnetometer	No	N/A	N/A	26.96
MA22	Anomaly: Dwelling with Postholes		Geophysics	Non	Magnetometer	No	N/A	N/A	45.82
MA23	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	5.93
MA24	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	8.57
MA25	Anomaly: Midden		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	2.21
MA26	Anomaly: Midden		Geophysics	Landscape 1	Magnetometer	No	N/A	N/A	7.03
MA27	Anomaly: Midden		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	4.80
MA28	Anomaly: Midden		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	4.14
MA29	Anomaly: Midden		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	8.53
MA3	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	12.73

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
MA30	Anomaly: Midden		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	1.32
MA31	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	3.87
MA32	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	2.06
MA33	Anomaly: Activity Area		Geophysics	Non	Magnetometer	No	N/A	N/A	9.83
MA34	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	5.90
MA35	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	4.19
MA36	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	5.69
MA37	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	7.08
MA38	Anomaly: Midden		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	2.85
MA39	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	8.05
MA4	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	13.51
MA40	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	8.37
MA41	Anomaly: Midden		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	7.29
MA42	Anomaly: Buried Dwelling		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	9.92
MA43	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	8.10
MA44	Anomaly: Midden		Geophysics	Non	Magnetometer	No	N/A	N/A	2.51
MA45	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	7.37

Feature ID	Feature type	Phase	Identification method	Identification method 2	Geophysics	Excavated	Date excavated	Who excavated	Area m²
MA5	Anomaly: Buried Dwelling		Geophysics	Landscape 1	Magnetometer	No	N/A	N/A	13.01
MA6	Anomaly: Midden		Geophysics	Topo survey	Magnetometer	No	N/A	N/A	7.26
MA7	Anomaly: Buried Dwelling		Geophysics	Landscape 3	Magnetometer	No	N/A	N/A	8.76
MA8	Anomaly: Buried Dwelling		Geophysics	Non	Magnetometer	No	N/A	N/A	17.17
MA9	Anomaly: Buried Dwelling		Geophysics	Landscape 3	Magnetometer	No	N/A	N/A	13.35
S91	Poss. Axial feature		Topo survey	Non	Magnetometer	No	N/A	N/A	0.57
S92	Poss. Axial feature		Topo survey	Non	Magnetometer	No	N/A	N/A	0.20
S93	Poss. Axial feature		Topo survey	Non	Magnetometer	No	N/A	N/A	0.33
S94	Poss. Axial feature		Topo survey	Non	Magnetometer	No	N/A	N/A	0.60
S95	Poss. Axial feature		Topo survey	Non	No	No	N/A	N/A	-

Table 11.1b:Continuation of Table 11.1a.

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-D105	Most likely			NNW		Possible	No		Flattened area in the centre with possible axial feature, rear pit and entrance	Ovoid
CR-D106	Most likely						No		Shallow depression with no obvious western side	Ovoid
CR-D107	Most likely						No		Coincides with small dip in beach terrace, back edge excavated into beach terrace	Ovoid
CR-D107	Most likely						No		Coincides with small dip in beach terrace, back edge excavated into beach terrace	Sub-rectangular
CR-D108	Most likely						No		Possible southern edge seen excavated into top of beach terrace, small pit towards centre	Sub-circular
CR-D109	Most likely						No		Contour is an elongated oval with a raised central area	Sub-circular

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-D109	Most likely						No		Contour is an elongated oval with a raised central area	Ovoid
CR-D110	Most likely			NNW		Possible	No		Irregular contours, but possible rear pit and entrance way	Sub-circular
CR-D111	Most likely						No		Consecutive rings	Ovoid
CR-D112	Most likely			NW			No		Well defined on contour map with possible entrance	Ovoid
CR-D112	Most likely						No		Well defined on contour map with possible entrance	Ovoid
CR-D113	Most likely						No		Irregular oval on contour map	Ovoid
CR-D114	Most likely			N			No		Irregular and merges with D77 on west side, possible entrance on northern edge	Ovoid
CR-D115	Probable			N			No		Concentric rings, possible truncates D70 with entrance cut through D69	Ovoid
CR-D116	Most likely						No		No discernable earthworks on contour map	Ovoid
CR-D117	Most likely						No		No discernable earthworks on contour map	Ovoid

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-D118	Most likely						No		No discernable earthworks on contour map	Ovoid
CR-D120	Most likely						No		On contour a slight representation of western and southern edges	Ovoid
CR-D121	Most likely						No		Probable small depression at rear, No discernable earthworks on contour map	Ovoid
CR-D121	Most likely						No		Trilobate-shaped depression, no discernable earthworks on contour map	Irregular
CR-D122	Most likely						No		No discernable earthworks on contour map	Ovoid
CR-D122	Most likely						No		No discernable earthworks on contour map	Sub-circular
CR-D123	Most likely						No		Poss. 2 or more smaller depressions, very irregular and shallow on contour map	Irregular

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-D124	Most likely						No		Flat and irregular on contour map with the IDW and LRM shapes merged as one	Ovoid
CR-D125	Most likely						No		Distinct depression at centre, well defined irregular oval on contour map	Ovoid
CR-D125	Most likely						No		Well defined irregular oval on contour map	Ovoid
CR-D125	Most likely						No		Well defined irregular oval on contour map	Ovoid
CR-D126	Most likely						No		Possible partially excavated on north and west side, poss. 2 distinct depressions	Ovoid
CR-D126	Most likely						No		Possible partially excavated on north and west side, irregular oval	Irregular
CR-D126	Most likely						No		Possible partially excavated on north and west side	Ovoid

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-D127	Most likely						No		Distinct depression at south, possibly associated with M144 and raised are to the west (possible platforms)	Ovoid
CR-D127	Most likely						No		Shallow depression, possibly associated with M144 and raised are to the west (possible platforms)	Sub-rectangular
CR-D128	Most likely						No		Partially outside of study area	Ovoid
CR-D128	Most likely						No		Slight depression, concentric rings	Ovoid
CR-D131	Most likely			NNW		Possible	No		Irregular oval with poss. entrance and rear pit from shallow poorly defined contour map	Ovoid
CR-D135	Most likely						Yes		Coincides with subtle curve into beach terrace top	Irregular
CR-D136	Probable			N			No		Very subtle and shallow depression with three sides and possible entrance	Circular

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-D137	Most likely						Yes		Well defined south side cut into beach terrace	Ovoid
CR-D140	Probable						Yes		Small depression excavated into terrace	Ovoid
CR-D143	Most likely			NNW			Yes		Possible entrance cut through beach terrace with possible pit	Sub-circular
CR-D146	Probable			N			Yes		Excavated into terrace, possible entrance	Sub-circular
CR-D149	Probable			NNE			No		Irregular oval in shape with possible entrance and platforms on east, west and south sides (or possible back dirt from Harp excavations to SW)	Ovoid
CR-D151	Most likely						No		Depression indicated by distinct recess in terrace	Irregular
CR-D154	Most likely						No		Partially excavated possibly trilobate depression	Irregular

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-D155	Most likely						No		Trilobate-shaped depression indicated by distinctly square recess	Irregular
CR-D157	Most likely						No		A depression with 5 distinct pits demarking the circumference, encompasses D36	Ovoid
CR-D161	Most likely			NW	NE		No		From contour map there are two possible entrances	Sub-rectangular
CR-D164	Probable						No		Small and shallow depression into beach terrace base	Sub-circular
CR-D165	Probable						No		Small depression/pit, encompassed by D26	Sub-circular
CR-D166	Most likely						No		No discernable earthworks on contour map	Ovoid
CR-D169	Most likely			E			No		Shallow sub-circular depression with possible entrance located at base of slope from Phillip's Garden East from contour map	Sub-circular
CR-D173	Probable						No		No discernable earthworks on the contour map	Irregular

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-D175	Probable						No		Well-defined depression	Circular
CR-D179	Most likely						No		No discernable earthworks on the contour map	Sub-circular
CR-D180	Most likely						No		Coincides with very slight depression into terrace on contour map	Irregular
CR-D181	Most likely						No		Coincides with very slight depression into terrace on contour map	Sub-circular
CR-D182	Most likely						No		No discernable earthworks on contour map	Sub-circular
CR-M129	Unlikely						No		From contour map M129 and M130 merge into one, extend beyond study area and are down slope from Harps excavations	Sub-circular
CR-M129	Unlikely						No		From contour map M129 and M130 merge into one, extend beyond study area and are down slope from Harps excavations	Ovoid

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-M129	Unlikely						No		From contour map M129 and M130 merge into one, extend beyond study area and are down slope from Harps excavations	Ovoid
CR-M130	Unlikely						No		From contour map M129 and M130 merge into one, extend beyond study area and are down slope from Harps excavations	Ovoid
CR-M130	Unlikely						No		From contour map M129 and M130 merge into one, extend beyond study area and are down slope from Harps excavations	Ovoid
CR-M130	Unlikely						No		From contour map M129 and M130 merge into one, extend beyond study area and are down slope from Harps excavations	Ovoid
CR-M132	Unlikely						No		Small mound admits depressions D12 and D26	Ovoid

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-M132	Unlikely						No		Small mound admits depressions D12 and D26	Ovoid
CR-M134	Unlikely						No		Poss. 2 distinct features, to the southeast of D26	Irregular
CR-M144	Unlikely						No		Located to the south of CR-D127, possible platform	Sub-rectangular
CR-M145	Unlikely						No		Poss. associated with depression at west D52, possible platform	Ovoid
CR-M150	Unlikely						No		Probable associated with either adjacent depression D41/D42	Ovoid
CR-M153	Unlikely						No		Between two depressions H1 and D63	Ovoid
CR-M156	Unlikely						No		Not closely associated with any other features, but 3m from H11 excavations	Ovoid
CR-M159	Unlikely						No		Down slope from Harp's excavations of H6 and H5	Ovoid

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
CR-M170	Unlikely						No		Small mound, between Harp's excavation of H7 and H8	Ovoid
D1	Most likely	Medium deep	No	NW			Yes	Enclosed with berm	Coincides with small dip in beach ridge	
D10	Most likely	shallow	Yes	WNW			No	Possible 1984 test pit location, best platform definition to the west	No data	
D100	Most likely						No		Very well defined, only partial due to tuckamore coverage	
D101	Most likely						No		No data	
D103	Most likely			NW			No		Very well defined with possible entrance	
D104	Most likely						No		Sub-rectangular in shape with possible central pits/posthole	
D11	Most likely		No	NW			No	East and south most developed platforms	No discernable earth works on contour map	
D12	Most likely	Shallow	No	WNW			No	East and south most developed platforms	Mound to the E , a very poorly defined depression	
D13	Most likely	Shallow	No			Yes	Yes	South and west most developed platforms	Coincides with small dip in beach ridge	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D14	Most likely	Deep	No			Yes	Yes	Berm surrounding depression	Coincides with two small dips in beach terrace, poorly defined.	
D15	Most likely	Shallow	No	NNW			Yes		Coincides with square niche into beach terrace, possible entrance	
D16	Most likely	Shallow	No	WNW			No	West most developed platforms	Shallow, small depression, poorly defined.	
D17	Most likely		No				No	South and east most developed platform	No discernable earth works on contour map	
D18	Most likely	Medium deep	No				Yes	West and south most developed platform	Coincides with small dip in base of beach terrace	
D19	Most likely	Shallow	No			Yes	No		No discernable earth works on contour map	
D2	Most likely	Shallow	No				No		No earthworks	
D20	Most likely		No	NNW			No		Clearly defined depression with possible entrance	
D21	Most likely	Medium deep	Yes				No	The depression could be an old test pit.	Possibly coincides with small dip in base of possible beach terrace	
D22	Most likely	Medium deep	No	NW		Yes	No	Only the north is open, the rest has a well-defined berm	No discernable earth works on contour map	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D23	Most likely	Shallow	No				Yes	Stones border the southwest	Well defined rear edge in beach ridge	
D25	Most likely	Deep	No	N			Yes	Beauty! Very large and well defined	Well defined depression, poss. entrance	
D26	Most likely		No	NNW	yes		No		Well defined on S edge, mounds SW and SE of depression	
D27	Most likely	Medium deep	Yes	NNW			Yes	Checker board test pits	Likely to be House 3, possible entrance	
D28	Most likely	Deep	No	N			No		Irregular depression with possible entrance on western side, in the field noted as on the north side	
D29	Most likely	Shallow	No				Yes	South and west most developed platforms	Coincides with small dip in beach terrace and very shallow	
D3	Most likely	Shallow	No			Yes	Yes	Less berm on north and south	Coincides with small dip in beach terrace and very shallow	
D30	Most likely	Shallow	No				Yes	Well-developed berms all around	Coincides with small dip in beach terrace and very shallow	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D31	Most likely	Shallow	No	NNW			Yes	Possibly a bilobate or over lapping houses.	Clearly defined on three sides, wide gap on NNW side, possible entrance way	
D32	Most likely	Shallow	No				Yes	Possibly a bilobate, oval or over lapping houses.	Well defined on west and southern edge in beach terrace	
D33	Most likely	Medium deep	No	NNW			Yes	West, east and south best developed platforms	Well defined rear edge in beach terrace	
D34	Most likely	Shallow	No				No	Not clearly defined	No discernable earth works on contour map	
D35	Most likely	Shallow	No				No	South and west most developed platforms	Well defined on southern and western edge, no northern or eastern side	
D36	Most likely	Shallow	No				No	Northwest most developed platforms	Small irregular depression on contour, coincides with CR-D157	
D37	Most likely	Deep	No	NNW		Yes	Yes	Beauty. Other pits may be apparent	Associated with mound and possible entrance NNW	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D38	Most likely	Shallow	No	N			No	Broad and shallow	Irregular depression with possible entrance	
D4	Most likely	Shallow		NW			Yes		Coincides with small dip in beach terrace, three raised areas, possible entrance	
D40	Most likely		No				No	Small	Not enough data	
D41	Most likely		Yes	N			Yes	West and east most developed platforms	Well defined with possible entrance	
D42	Most likely	Deep	No				No	Round well defined all around	Well defined, merges with D44	
D43	Most likely	Shallow	No				No		Coincides with small dip in possible beach terrace, not enough data	
D44	Most likely	Shallow	No	NNE			No		Well defined, merges with D42. Possible entrance	
D46	Most likely	Shallow					No	Broad, may be a house filled with midden. There are rocks on the surface	Irregular depression with only the southern edge defined and partial eastern and western sides.	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D49	Most likely	Medium deep	Yes	N			Yes	East and west best developed platforms	Clearly defined rear and side edges, possible entrance	
D5	Most likely	Shallow					No	No berm at southeast	No discernable earthworks on contour map	
D50	Most likely	Shallow	No				No	West and north most developed platforms, feels soft may be filled with midden	No discernable earthworks on contour map	
D51	Most likely	Deep	No	N			Yes		Coincides with small dip in beach terrace, possible entrance	
D52	Most likely	Deep	No	NNE			Yes		Irregular depression, but well defined with possible entrance through beach terrace	
D53	Most likely	Deep	No	NNW			Yes	Well-developed platforms all around	Well defined with possible entrance through top of lowest terrace	
D54	Most likely	Shallow	Yes	NNE			No	May not be disturbed, may be filled with midden	Irregular depression with east, west and southern sides, possible entrance	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D57	Most likely	Medium deep	No	N			Yes	Possible test unit	Coincides with small dip in beach terrace	
D58	Most likely	Shallow	No			Yes	No		No discernable earthworks on contour map	
D59	Most likely	Shallow	No	NNW			Yes	Broader east to west, may be two small overlapping houses	Flatter area at top of beach terrace, with possible entrance	
D6	Most likely	Deep	No	NW			No		Slight definition on rear edge, mid terrace	
D60	Most likely	Deep	Yes	NNW			Yes	Possibly disturbed by test pit	Well defined depression with possible entrance	
D61	Most likely	Shallow	Yes				No	May be filled with midden, only a possible disturbance	Possibly bilobate structure	
D62	Most likely	Shallow	No				No	Slightly oval	Contour is an elongated oval	
D63	Most likely	Deep	Yes	WNW	yes		Yes	In the middle one test pit possibly	Well defined with possible entrance truncated through top of beach terrace	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D64	Most likely	Shallow	Yes				No	Possible disturbance in the middle with irises surrounding.	Well defined depression, with possible platforms on N, E and S sides	
D65	Most likely		No				No	Behind raised beach	Well defined, elongated oval from contour map	
D66	Most likely	Deep	No	N			Yes		Well defined, possible entrance	
D67	Most likely	Deep	Yes	NNW			Yes	Test pits	Likely to be H8, well defined with possible entrance cut through terrace top	
D68	Most likely	Shallow	No	N			Yes	South and west most developed platforms, could be bilobate with 90 or overlapping	Possible truncation with D73, possible entrance through beach terrace	
D69	Most likely	Shallow	Yes				No	Multiple test pits	Well defined on three sides with flattish area in the centre	
D7	Most likely	Shallow	No				No	Almost oval in shape, berm to north, rear not well-defined	Contour is an elongated oval, extends beyond limits of topo survey	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D70	Most likely	Deep	Yes				No		Irregular depression, with possible truncation by CR-D115	
D71	Most likely	Shallow	No				Yes	Near path	No discernable earthworks on contour map	
D72	Most likely	Medium deep	No				No	Small, more developed south, west, east	Coincides with small dip in base of terrace	
D73	Most likely	Deep	No	NNW			Yes	Good example	Possible truncation with D68, possible entrance truncating top of beach terrace	
D74	Most likely	Medium deep	Yes	N			No	Possible test pit in the centre	Possible disturbance from excavations at F55	
D75	Most likely	Deep	Yes				No	Disturbed in centre	Well defined, circular in shape	
D76	Most likely	Medium deep	No	N			No		Small, well defined depression, with higher area to the east	
D77	Most likely		Yes				No	Test pit at rear	Well defined depression with possible rear pit defined, thought to be test pit. Blends with CR-D114 on eastern side	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D78	Most likely	Shallow	No				No	Centre in the path	Small shallow depression, mid terrace	
D79	Most likely		No				No		No discernable earthworks on contour map	
D8	Most likely	Medium deep		NW			Yes	Rocks define the berm	Coincides with small dip in beach terrace	
D80	Most likely	Deep	No				Yes		Well defined depression with possible entrance. Located at top of terrace/bottom of terrace	
D81	Most likely	Shallow	No				No	Not sure this is a dwelling	Irregular depression, but well defined and possibly bilobate feature	
D82	Most likely	Shallow	Yes	W			No	Possibly not disturbed, but lumpy	Clearly defined depression with possible entrance	
D83	Most likely	Shallow	Yes				No	Possibly not disturbed, but lumpy	Irregular contour but does appear to be flatter in the centre	
D84	Most likely		No				No		Located at the rear of D83, very small, possible rear pit rather than depression	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
D85	Most likely	Shallow	Yes				No	Test pit in western side	Irregular depression with no eastern side	
D86	Most likely		No				No		Well defined circular depression	
D87	Most likely		No			Yes	No		Well defined circular depression	
D88	Most likely	Medium deep	No				No		Well defined small circular depression at base of slope from PGE	
D89	Most likely	Shallow	No				No		Located at base of slope from PGE. No discernable earthworks on contour map	
D9	Most likely	Deep	No	NE		Yes	Yes	Square shape	Really well defined, poss. entrance	
D90	Most likely	Medium deep	No				Yes		Coincides with small dip in beach terrace	
D96	Most likely	Deep	Yes				No	Originally seen only as test pits, but clear platform present.	Likely to be H9, well defined	
D97	Most likely						No		No data	
D98	Most likely						No		No data	
D99	Most likely						No		No data	
F1	Definite		No				No			
F14	Definite						No			

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
F2u	Definite						No		Completely buried structure	
F368	Most likely	Deep	No	N		Yes	Yes	Feature 368, a beauty, maybe two rear pits	Very well defined, with possible platforms E,W,S. Possible entrance and truncates top of beach terrace	
F381	Most likely			NW			Yes		Poorly defined, but truncates top of terrace which may possibly be the entrance	
F382	Most likely		No			Yes	Yes	Feature 382, east and west most developed platforms	Coincides with a dip in the beach terrace	
F42	Definite						No			
F55	Definite		Yes				No			
FCR102	Probable						No			
H1	Definite						No			
H10	Definite						No			
H11	Definite		Yes				No			
H17	Definite						No			
H18	Definite		Yes				No			
H2	Definite		Yes				No			
H20	Definite						Yes			
H3	Definite						No			
H4	Definite		Yes				No			
H5	Definite						No			
H6	Definite						No			
H7	Definite						No			

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
I55	Most likely						No	Irises on edge of back dirt pile. Likely not cultural	Prominent mound	
I56	Most likely						No	Irises arranged in circle.	Depression	
M45	Unlikely	Raised	No				No	This is a circular mound defined by iris in a level, soft area (midden?)		
M47	Unlikely		Yes				No	Circular mound of irises and has a test pit in the northeast	Not clearly defined on contour map, but located out the front of CR-D107	
MA1	Most likely						No		Irregular depression	Sub-circular
MA10	Probable						No		No earthworks	Sub-circular
MA11	Most likely						No		Small depression	Ovoid
MA12	Most likely						No		Very clear mound	
MA13	Unlikely						No		Irregular earthworks	
MA14	Most likely						No		Possible depression on edge of beach ridge	
MA15	Probable						No		Small irregular depression	
MA16	Probable						No		No visible earthworks due to back dirt pile	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
MA17	Probable						No		Possible test pit represented, no discernable earthworks	
MA18	Most likely						No		No discernable earthworks	
MA2	Most likely						No		No discernable earthworks	Irregular
MA20	Most likely						No		No discernable earthworks	
MA21	Most likely						No		Possible associated with D32	
MA22	Most likely						No		No discernable earthworks	
MA22	Most likely						No		No discernable earthworks	
MA23	Most likely						No		No discernable earthworks	
MA24	Most likely						No		Mound associated with D37	
MA25	Most likely						No		Associated with F368	
MA26	Most likely						No		Irregular earthworks	
MA27	Most likely						No		Possible associated with D8	
MA28	Most likely						No		Possible associated with D3	
MA29	Most likely						No		Possible associated with D6	
MA3	Most likely						No		Possible mound	Sub-circular

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
MA30	Most likely						No		Possible associated with D3	
MA31	Most likely						No		Possible associated with D94	
MA32	Most likely						No		Possible associated with S91	
MA33	Probable						No		No discernable earthworks	
MA34	Probable						No		No discernable earthworks	
MA35	Probable						No		No discernable earthworks	
MA36	Probable						No		Possible associated with D112, very irregular earthworks	
MA37	Probable						No		No data	
MA38	Probable						No		Under a back dirt pile	
MA39	Most likely						No		Coincides with small dip in beach ridge	
MA4	Most likely						No		Irregular definition on S edge, possible depression	Ovoid
MA40	Most likely						No		No visible earthworks	
MA41	Most likely						No		Possibly associated with D82	
MA42	Most likely						No		No visible earthworks due to back dirt pile	Sub-circular

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
MA43	Most likely						No		No discernable earthworks	Sub-circular
MA44	Most likely						No		Coincides with small dip in beach ridge	
MA45	Most likely						No		No discernable earthworks	Sub-circular
MA5	Most likely						No		Very irregular earthworks	Sub-circular
MA6	Most likely						No		Possibly associated with D25	
MA7	Most likely						No		No discernable earthworks, in close proximity to D111	Sub-rectangular
MA8	Most likely						No		No discernable earthworks	Ovoid
MA9	Most likely						No		Possibly associated with D26	Sub-circular
S91	Most likely		No				No	9 stones protruding from ground, could rep axial feature, very well defined, ova	No earthworks	
S92	Most likely		No				No	3 stones, 2 of them rounded, oval-shaped depression.	No earthworks	
S93	Most likely		No				No	2 stones in circular depression	No earthworks	

Feature ID	Dwelling potential	Observed depth	Disturbance	Front entrance	Rear entrance	Rear pit	Truncate beach terrace	Comments	CER Comments	Shape
S94	Most likely		No				No	Circular cluster of slightly upright slab stones (at least 3) in a depression.	No earthworks	
S95	Most likely		No				No	2 stones (1=slab, 1=round granite) in slight depression	No earthworks	