

Waitati Curve Archaeological Assessment



Prepared for MWH

by

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1. INTRODUCTION

The New Zealand Transport Agency wishes to realign State Highway One at the prominent bend at the turnoff to Waitati (the “Waitati Curve”). Waitati was a small centre of residential and industrial activity in the nineteenth century and therefore any earth disturbance work here has the potential to damage archaeological deposits. Part of the highway passes along or close to the shore of the Blueskin Bay estuary. *Southern Pacific Archaeological Research* (SPAR) was commissioned by Mike Brazil of MWH to prepare an archaeological assessment for this proposed work in relation to the statutory requirements of the *Historic Places Act 1993*.

The only archaeological sites found during the survey work carried out for this assessment were situated on the eastern edge of the alignment adjacent to the railway line. In addition the proposed new alignment passes through an area where structures are identified on an 1875 survey plan. It is recommended that an archaeological authority be obtained to provide for mitigation of damage to the recorded sites and to any damage that occurs to archaeological remains of the structures identified from documentary research. It is also recommended that an accidental discovery protocol be developed to provide for any unrecorded sites that might be encountered during earthmoving work.

2. LEGISLATIVE ENVIRONMENT

There are two main pieces of legislation in New Zealand that regulate work affecting archaeological sites. These are the *Historic Places Act 1993* (HPA) and the *Resource Management Act 1991* (RMA). Their relevance to the proposal is summarised as follows:

HPA

The New Zealand Historic Places Trust (NZHPT) administers the HPA. The HPA contains a consent (authority) process for any work affecting *archaeological sites*, where an archaeological site is defined as:

Any place in New Zealand that

(a) *Either –*

(i) was associated with human activity that occurred before 1900; or

(ii) is the site of the wreck of any vessel where that wreck occurred before 1900; and

(b) *Is or may be able through investigation by archaeological methods to provide evidence relating to the history of New Zealand* (HPA section 2)

Any person who intends to carry out work that will damage, modify or destroy an archaeological site, or to investigate a site using invasive archaeological techniques, must first obtain an authority from the Historic Places Trust. The process applies to sites on land of all tenure including public, private and designated land. The HPA contains penalties for unauthorised site damage or destruction.

The archaeological authority process applies to all sites that fit the HPA definition, regardless of whether:

- The site is recorded in the New Zealand Archaeological Association Site Recording Scheme or registered by the Trust,
- The site only becomes known about as a result of ground disturbance, and/ or
- The activity is permitted under a district or regional plan, or a resource or building consent has been granted.

RMA

The Resource Management Act 1991 (s.6) identifies the protection of historic heritage from inappropriate subdivision, use and development as a matter of national importance. In carrying out their functions under the RMA local authorities must, in relation to managing the use, development, and protection of natural and physical resources, recognise and provide for matters of 'national importance'.

Historic heritage is defined by the RMA (s.2) as follows:

Historic heritage:

(a) means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, deriving from any of the following qualities:

- (i) archaeological;*
- (ii) architectural;*
- (iii) cultural;*
- (iv) historic;*
- (v) scientific;*
- (vii) technological; and*

(b) includes -

- (i) historic sites, structures, places, and areas; and*
- (ii) archaeological sites; and*
- (iii) sites of significance to Maori, including wahi tapu; and*
- (iv) surroundings associated with the natural and physical resources (RMA s.2)*

Local authorities have a responsibility to protect historic heritage within their district or region. Protecting historic heritage involves identifying historic heritage places, managing adverse effects and promoting the protection of heritage values in accordance with conservation principles (NZHPT 2004).

3. SCOPE OF WORKS

The scope of this project was to survey the proposed c.1 km realignment of State Highway One centred approximately on the Waitati turnoff (Figure 1, 2). The proposal also requires the establishment of a temporary location for the Waitati Store during construction of the realignment (Figure 2).

4. SETTING

The proposed realignment is at the Waitati Curve, Waitati, north of Dunedin (Fig. 1-3).



Figure 1. Location of the proposed realignment (red line indicates location of new highway and side road. SPAR sketch based on MWH design drawing (Fig. 2)).

5. METHOD

The New Zealand Archaeological Association's Site Recording Scheme (SRS) was searched to see if any sites were recorded in the vicinity of the proposed works. In addition, historical survey plans and documentary accounts were examined for any indication of the history of use of the land in question. The survey plans were georeferenced to an aerial photograph so that any historical structures could be related to the proposed realignment. In addition a site visit was carried out and each of the affected properties was examined visually. Any archaeological sites found were recorded photographically and in field books and their locations were fixed using a non-differential hand-held GPS.

A plan that shows cadastral boundaries as relevant to the proposal is shown in Figure 3.

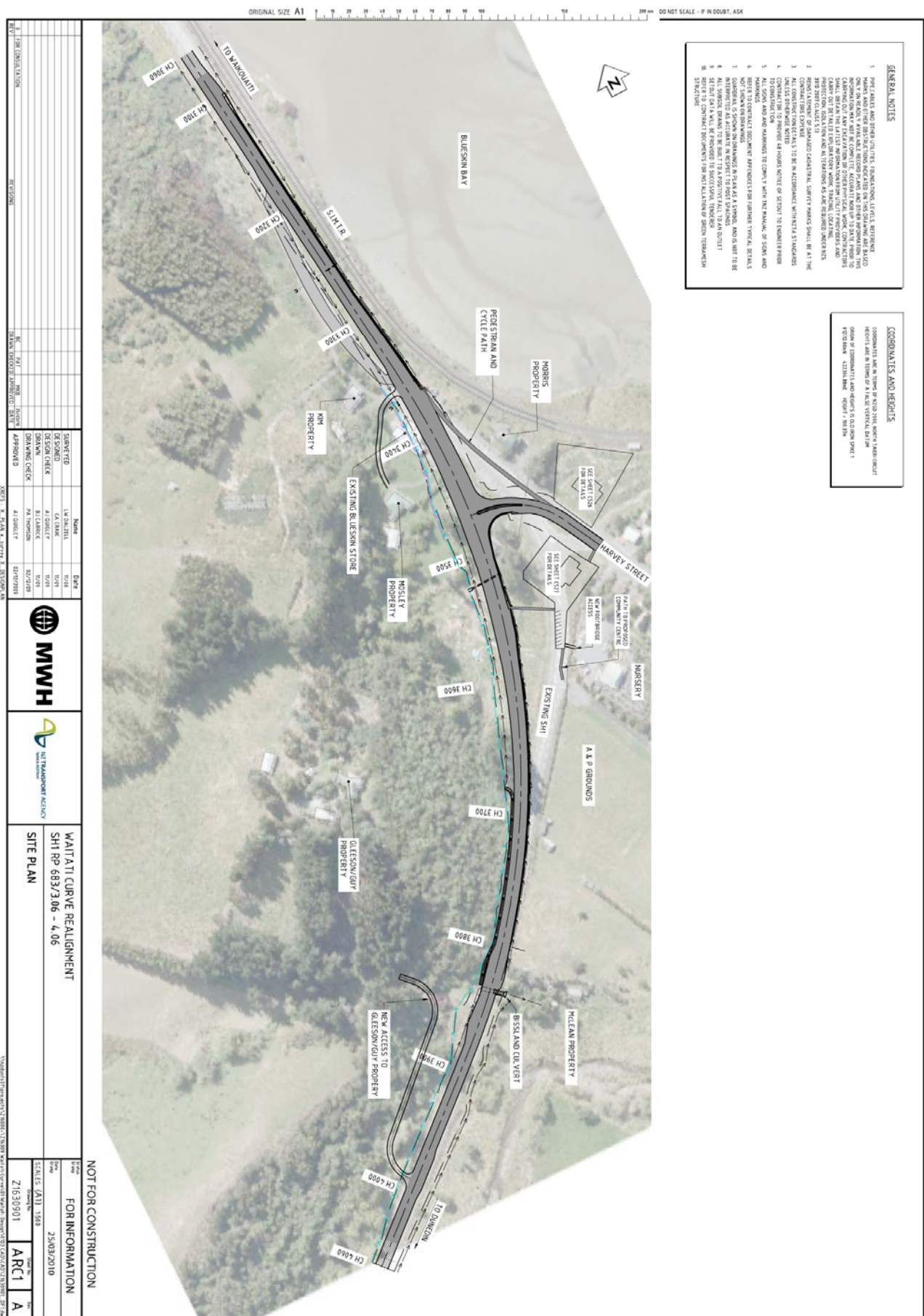


Figure 2. March 2010 design drawing for proposed Waitati Curve realignment (MWH 26/03/2010).

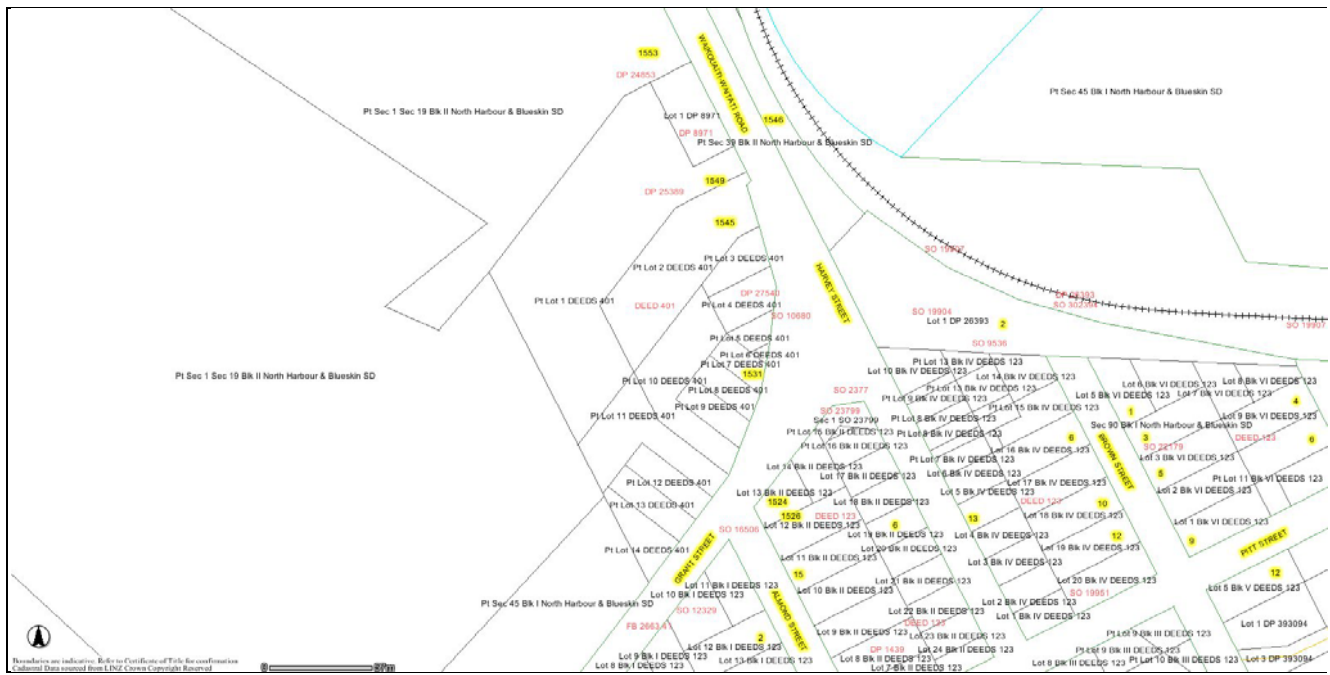


Figure 3. Cadastral plan showing details of properties in the vicinity of the Waitati Curve.

6. HISTORICAL RESEARCH

The first occupants of Blueskin Bay were Maori, and there are a number of archaeological sites of Maori derivation situated in the Bay. They include at least one site that dates from the earliest century or so of Polynesian settlement in New Zealand, namely the well-known moa-hunting sites at Warrington (I44/177 in the SRS), although other sites in the vicinity may well be of a similar age. For example, a midden at Doctor’s Point (I44/182) had a piece of moa bone lying on the surface when it was recorded in the 1970s (NZAA SRS). It is likely that the Bay was used by Maori for much of the 500 years or so of Otago’s pre-European history, although none of the sites have been dated. Stone from sources in the vicinity of Doctor’s Point was quarried by Maori for use in the manufacture of adzes; and fragments of this material (phonolite) have been found in a range of Otago sites from all phases of the pre-European period (Hamel 2001). An important nephrite-working site near Warrington was first reported more than 100 years ago (Chapman 1891). All of this attests to the importance of the Bay in pre-European times.

The SRS does not identify any Maori archaeological sites in the immediate vicinity of the proposed Waitati Curve realignment work, although a small, heavily ploughed midden (I44/171) which yielded adzes and other material was recorded in the market gardens area immediately east of the southern part of the curve (see Figure 4). Slightly further afield three oven sites (I44/184, 185, 186) indicate use of the edge of the foreshore for cooking – mostly of shellfish if the middens close by (I44/187, 189) are associated.

The only evidence found during the archaeological assessment that suggests that any archaeological sites will be affected by the highway realignment indicates that these effects will be restricted to historical period sites of European derivation, and the remainder of this report therefore concentrates on the European history and archaeological sites found or implied by historical research.

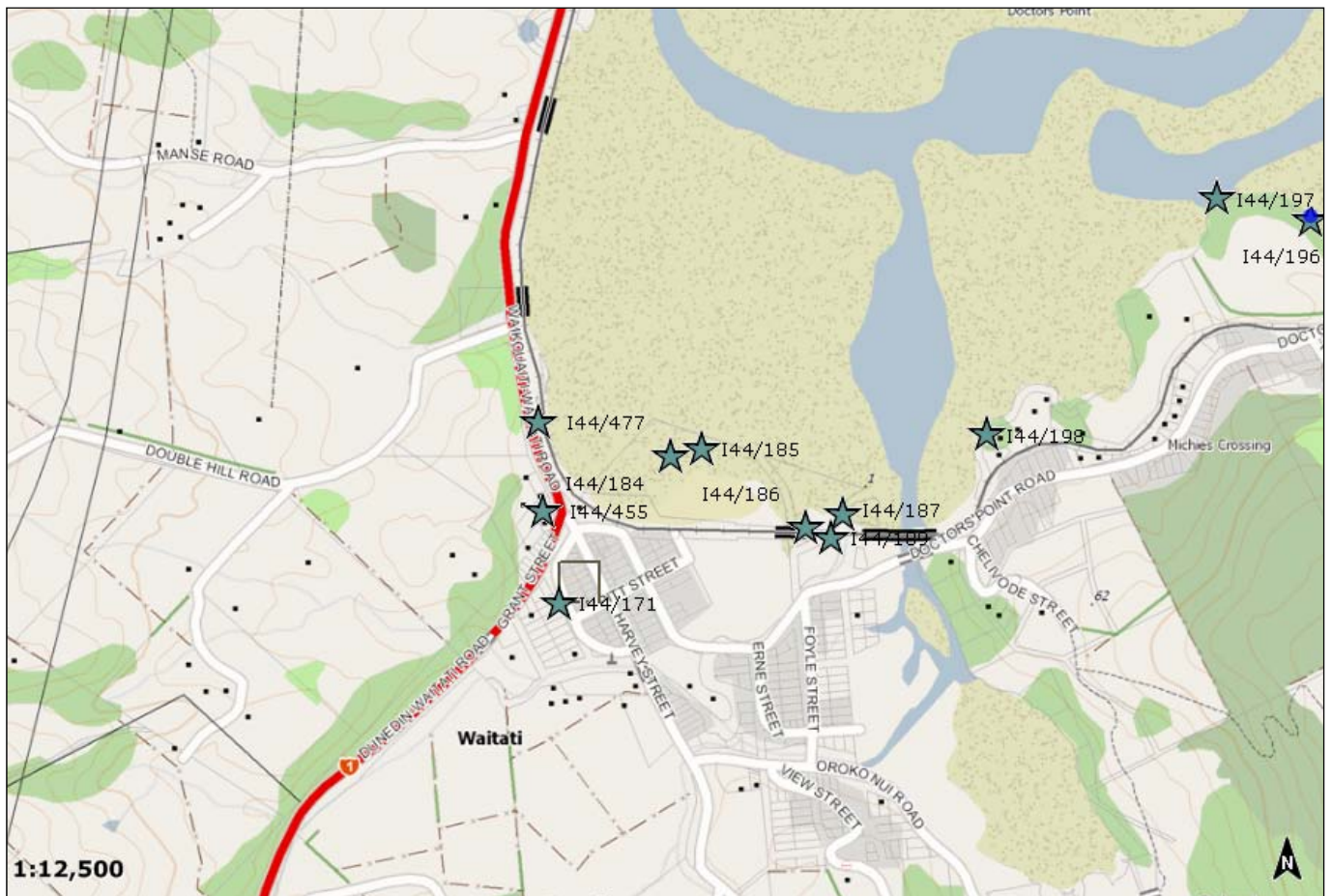


Figure 4. Archaeological sites recorded in the vicinity of the proposed Waitati Curve realignment (courtesy New Zealand Archaeological Association).

A recent history of Blueskin Bay (Church *et al.* 2007) provides the majority of the historical information for this assessment. In addition, historical survey plans were examined, one of which yielded further information not in Church *et al.* The results of this research indicate that there was only one structure present in the near vicinity of the proposed realignment before 1900 – the residence of a Mr Alexander Innes Grant. Grant was the owner of a flaxmill situated near the foot of Shortcut Road and he occupied the site at the Waitati Curve in about 1870. He also owned a ropeworks in the centre of Waitati which he started around 1870. He returned to England in 1878 to study medicine and died in France in 1884. A photograph of the house is reproduced in Church *et al.* (see Figure 5). The historical research also showed that the railway line was constructed between 1876 and 1877 and that a post-and-rail fence was constructed alongside the railway embankment some time after 1876 (Church *et al.* 2007: 76).



Figure 5. Residence of Alexander Grant (Church *et al.* 2007: 54 – Hocken Collections, AG779).

The location of the building is shown on a plan of Waitati (then known as Merchiston) which is also reproduced in the book (Figure 6).

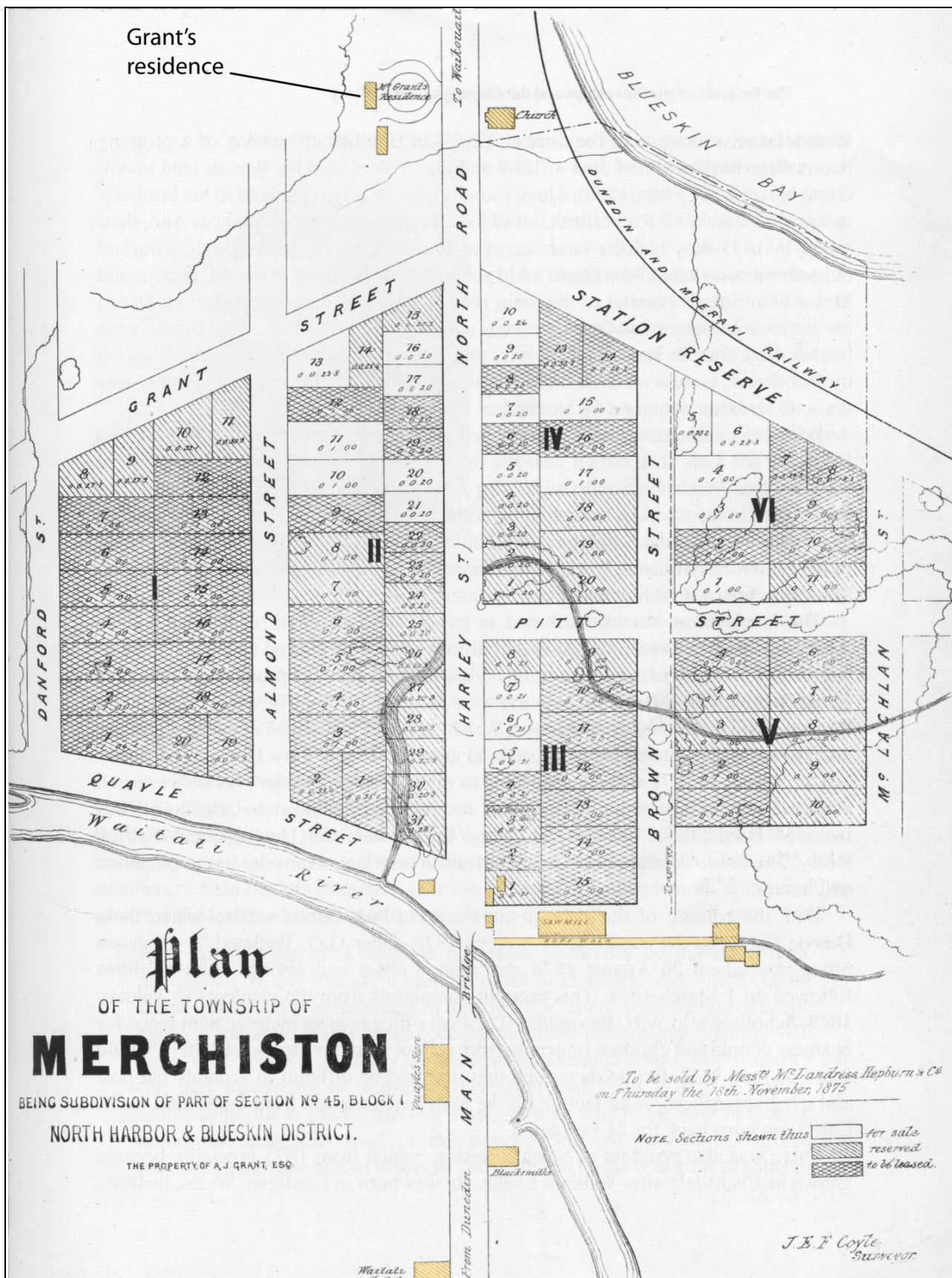


Figure 6. Plan of Waitati (then known as Merchiston) showing locations of buildings present in 1875 (Church, Strachan and Strachan 2007: 69 - Hocken Collections). The building marked "Grant's residence" and the nearby building are both within the path of the proposed realignment, but see discussion in text.

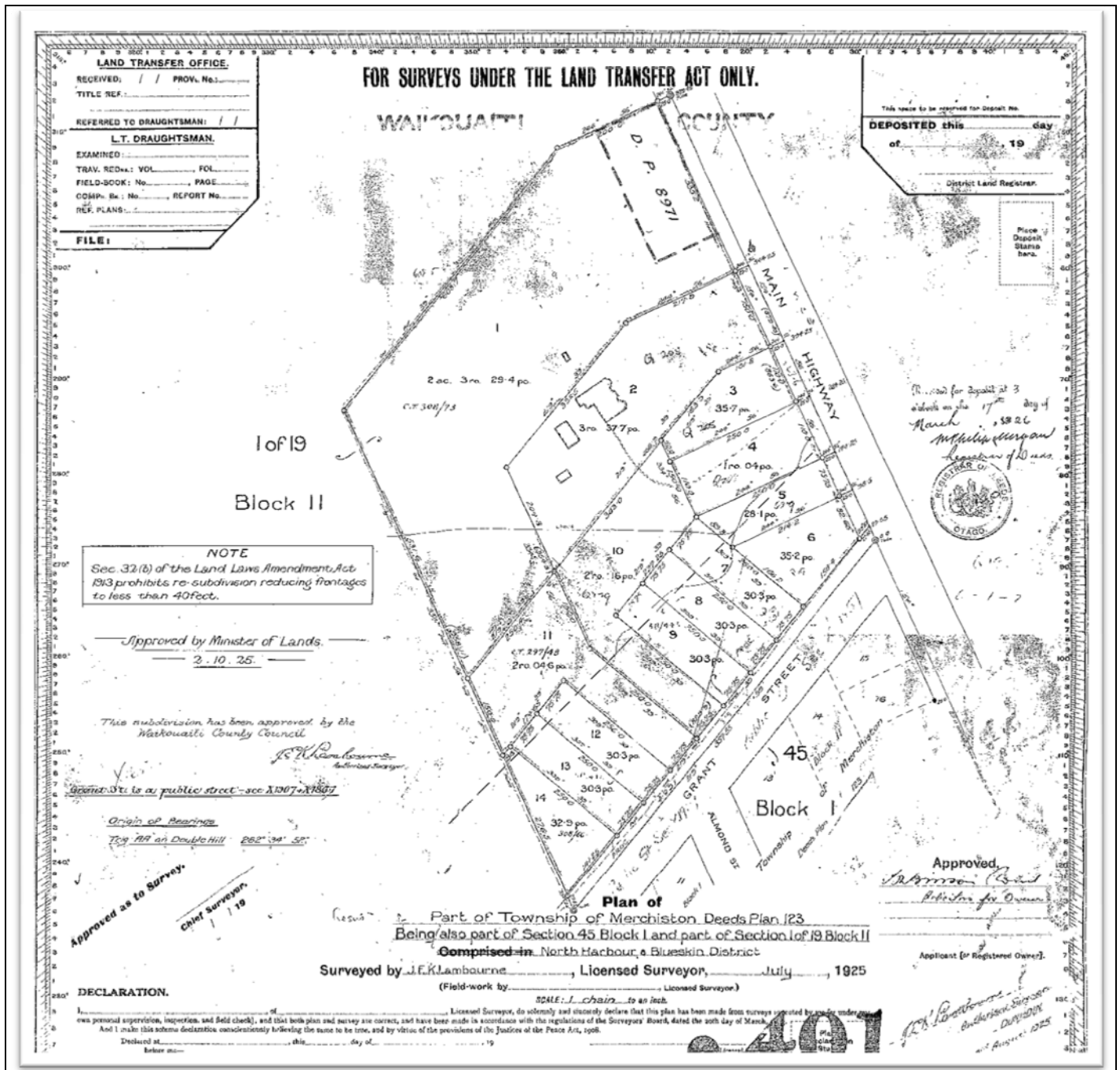


Figure 7. Survey plan showing the location of Grant’s residence in 1925 (Dn Deed 401 I 1).

A second plan (Dn Deed 401 I 1) dated 1925 shows Grant’s residence in more detail, but has it situated in a different position than the plan in Figure 5 (Figure 7).

There is some discrepancy in the location of Grant’s residence as indicated on the two survey plans. The 1875 plan has it positioned directly in the path of the proposed highway realignment while the 1925 plan locates it well clear of the alignment, to the west (see Figure 8, 9). There are several possible explanations for this. The first is that the 1875 survey was principally focussed on the subdivision of the township of Merchiston and the locations of Grant’s residence and of the church opposite, being incidental, were not actually surveyed in. Grant’s property itself does not appear to have been accurately surveyed until 1876 (Dn Deed 123 I 1). Second, the current church is the third built on the church property and there is no reason to think that each successive church was built on

the same site. Finally, there is a slight possibility that Grant built a simple, temporary house to live in while his grand, double bay villa was constructed.



Figure 8. Proposed realignment of SH1 at Waitati showing maximum extent of earthworks in relation to inferred locations of possible archaeological sites.

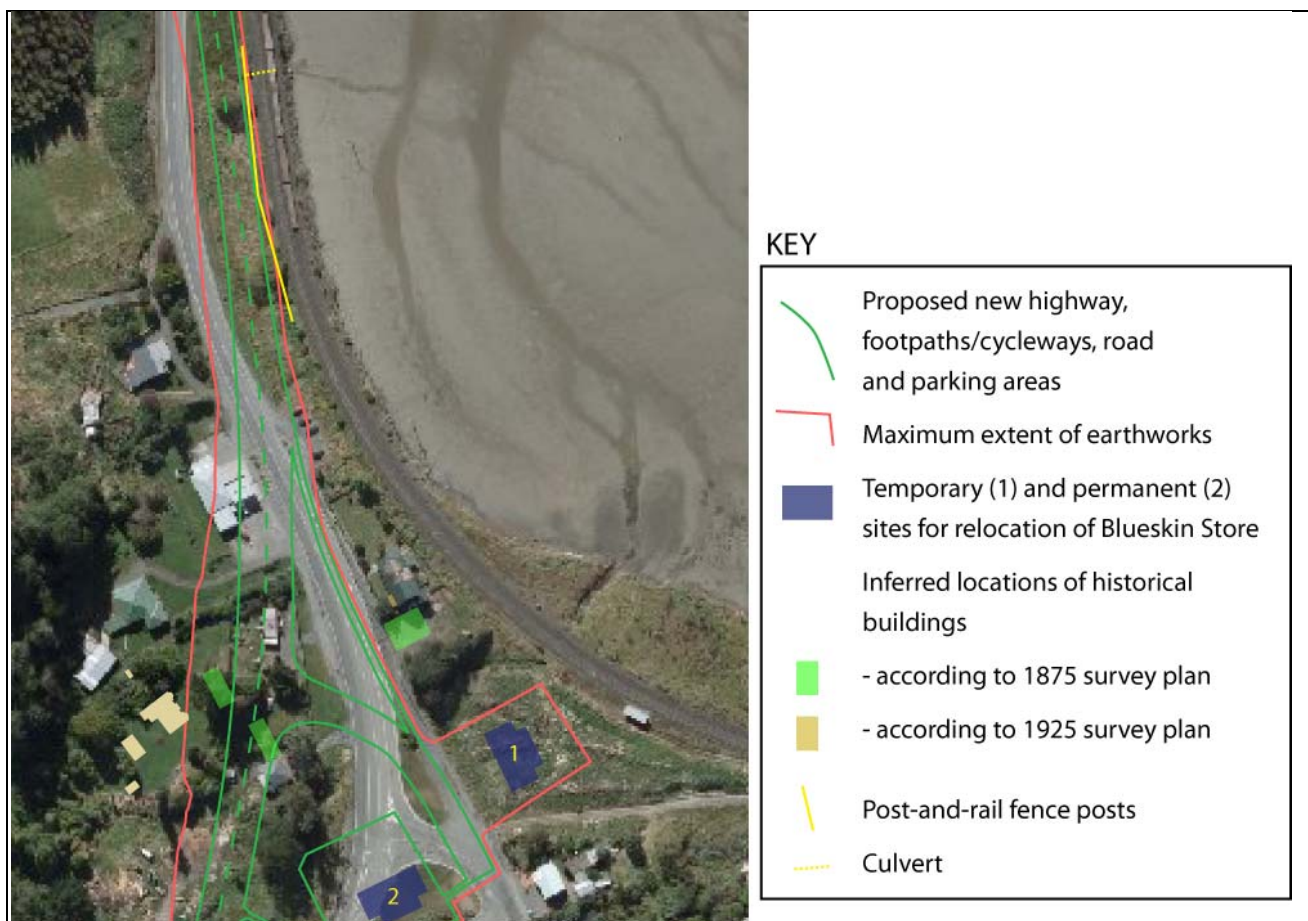


Figure 9. Close-up of previous figure showing extent of earthworks in relation to inferred locations of possible archaeological sites.

7. SITE VISIT

A site visit was carried by the authors on 28 May 2009, with a later visit on 3 November 2009. Site visibility was generally average because of vegetation cover which was predominantly long grass or weeds and low scrub. The area covered included all of the land required for the realignment plus a small area southeast of the old church which is going to be used as a temporary site for the shop that currently lies in the path of the realigned highway.

8. RESULTS

No clear evidence of any of the possible buildings identified through the documentary research described above was seen during the field inspection. However, a short (c.100 m) stretch of mortised posts that are the remains of the nineteenth century post and rail fence was recorded adjacent to the rail embankment (Figure 9).



Figure 10. Remains of post-and-rail fence adjacent to railway embankment.

The railway through Waitati was constructed in 1876 and 1877 and was opened on 11 December 1877. It was fenced on both sides with a post-and-rail fence. The Pullar brothers won the contract to construct the fence, which ran from the cliffs south of Waitati to Puketeraki, near Karitane. This required 11,000 posts of either broadleaf or kowhai and 44,000 manuka rails (Church et al. 2007: 76). A mortared, stone-lined culvert crossing beneath the railway embankment was also recorded. Its outer end is buried under the ballast of the second rail line but its inner end is clearly visible – although partly silted up (Figure 11, 12).



Figure 11. Stone culvert under railway embankment.



Figure 12. Historical view south towards Waitati from vicinity of Double Hill Rd showing rail line with stone culvert and post-and-rail fences along either side of embankment (Burton Brothers photograph, Hocken Collections E1173/6). Note mudflat on both sides of rail line and culvert in foreground.

Approximately half-way along the fence line a 300 x 300 mm post or pole was visible where it had been cut off close to the ground surface (Figure 13). Its function was not clear but it was close to a bend in the fence line and it is possible that it was a strainer post that was added once the rails had either rotted or had been removed and the fence converted to a post-and-wire fence. It may alternatively have been a power pole, although it was not in the usual position for this purpose and is more likely to have been directly associated with the fence. Whatever its function, it is clearly post-European in origin and almost certainly associated with the railway in some way.



Figure 13. Cut-off base of large post or pole (300 x 300 mm).

A second 300 x 300 mm post was found 9 m north of the northernmost fence post, but this one was on an angle of about 30 degrees off vertical (Figure 14). Its function has not been determined but it is, again, of post-European origin and almost certainly associated with the railway.



Figure 14. Angled post (300 x 300 mm) found 9 m north of northernmost fence post.

The sites identified from the field survey along with the potential sites identified through documentary research are shown on an aerial photograph (Figure 9). The grid references for each of the sites identified in the field are presented in the following table (Table 1).

Table 1. Summary details of archaeological features identified during field survey.

Item	Description	Easting (NZMG)	Northing (NZMG)
Fence line	Line of posts from a post-and-rail fence aligned parallel to the main trunk rail line. Posts approximately 1 m high but standing in silted-up mudflat remnant and probably closer to 1.2 m high originally. Posts spaced at 2.7 m centres.	2320652 (N end) 2320666 (S end)	5493149 (N end) 5493070 (S end)
Squared post 1	Squared post butt (300 x 300 mm) situated approximately half-way along fence line, cut off with chainsaw 100 mm above ground.	2320658	5493108
Squared post 2	Squared post butt (300 x 300 mm) situated 9 m north of northernmost fence post. Cut off about 300 mm above ground.	2320652	5493158
Rail culvert	Stone-lined culvert that passes under the rail embankment.	2320656	5493143

The location of the proposed temporary store location was also inspected and the adjacent foreshore was walked in order to identify any potential Maori sites. No archaeological evidence was visible either on the surface or in the exposed bank of the foreshore. The highway passes close to the shore of the estuary north of this point but it

is unlikely that any Maori sites will be present there as it is clear from the historical photograph (Figure 12) that the railway embankment was constructed over the mudflats in the area where earthworks will result in the deposition of new fill.

9. DISCUSSION

There are no previously recorded archaeological sites that lie within or close to the proposed realignment works. The nearest site is I44/171, a Maori midden site, which was exposed during market garden cultivation c.50-150 m to the east of the southern part of the curve (Figure 4). However, its extent was recorded at the time as being 1/8 to 1/4 of an acre (less than 1000 m²) and is therefore well clear of the proposed earthworks.

The archaeological features identified during the field survey are almost certainly all pre-1900 in age. The only possible exceptions are the two squared post butts, but there is no reason to believe they are not more-or-less contemporaneous with the fence line. The culvert is not likely to be damaged by the proposed works. The majority of the fence posts, and both of the squared post butts, are situated in ground that will be buried by the earthworks required for the proposed realignment. An assessment of the significance of these and recommendations to mitigate the effects of the work are provided below.

There is no firm evidence that any of the buildings identified from the documentary research were situated within the footprint of the proposed realignment. However, it is possible that at least one structure associated with Grant in 1875 was situated within the alignment. The location of Grant's residence is ambiguous; it seems most likely that its location on the 1925 plan is the most accurate, but the possibility that there was an earlier building or buildings cannot be discounted. If the 1875 plan is accurate, therefore, then there were two buildings constructed within the path of the proposed realignment. This assessment takes a conservative (risk-averse) approach and assumes that the 1875 plan is accurate. This means that there is a potential for there to be archaeological remains of the two 1875 structures, one of which is identified as Grant's residence, preserved beneath the ground surface within the proposed realignment. The following assessment and recommendations are based on the assumption that such remains are present.

The nature of the archaeological remains themselves cannot be predicted with any certainty but may include foundations of stone or concrete, and/or alignments of piles or pile holes. Associated evidence could include drains, latrine holes and rubbish pits. There could also be evidence of gardens and landscaping, as well as remains of the original circular driveway indicated on the 1875 plan (see Appendix 1, New Zealand Archaeological Association Site Record Forms).

In addition to the identified sites and the buildings shown as coloured outlines on Fig. 7 and 8, there are four other structures that need to be discussed. The first of these, the store, is not shown on the 1925 plan, although the section on which it is situated had been surveyed off at that point. The building itself shows no signs of having been built earlier than about the mid-20th century. Just south of this is a small bach or crib that probably dates to the mid-late 20th century. The next property to the south had a house on it until relatively recently (the grey roof visible immediately south of and partly covered by the proposed new intersection in Fig. 8). There is no indication of a structure in this location on any early plans and it is therefore likely that it was built some time after 1925. The site has been cleared of any structural remains and no trace of the house is visible. Finally, a chimney remains standing in a rough section opposite the Blueskin Nursery. Again, there is no evidence of any structures in this location on any of the survey plans and it is likely that the building that had the chimney was

constructed some time after 1925. In any case, the building itself would have been outside the path of the proposed highway realignment.

10. ASSESSMENT OF ARCHAEOLOGICAL VALUES

The recorded archaeological sites are of visual and historical interest but are of limited archaeological value. They are useful for documenting the form of an 1870s post-and-rail fence, and the recording that we have done has achieved the necessary documentation. They also have interpretative or educational value.

The possible archaeological remains – if any exist – are likely to be of moderate archaeological value. They may be able to reveal information about the history and layout of structures on the site and an analysis of the material culture may provide insight into the daily lives of people who lived there. There have been few archaeological investigations of homestead sites in New Zealand and any information that is uncovered during work for the realignment will be of value in understanding this aspect of Otago's past.

11. ASSESSMENT OF EFFECTS ON ARCHAEOLOGICAL VALUES

The proposed realignment will involve earthmoving work that will inevitably damage or bury any archaeological remains that lie with the path of the new Waitati Curve including most if not all of the post-and-rail railway fence line. This includes both of the buildings marked on the 1875 plan and part of the homestead site shown on the 1925 plan. It should be possible to avoid any damage to the rail culvert. It should be possible to mitigate the destruction of the post-and-rail fence to some extent by relocating the complete posts off site and providing public interpretation. Effects on the remainder of the homestead site and the small outbuildings to the west, as well as the church site to the east, can be avoided by appropriate management of vehicle movement and stockpiling locations.

12. CONCLUSIONS

In addition to the recorded fence and associated features it has been possible to demonstrate that there may have been two 1870s structures built within the path of the proposed realignment. The presence of the identified sites plus the relatively high potential for further intact archaeological deposits means that it will be necessary to obtain an archaeological authority from the New Zealand Historic Places Trust prior to the proposed work commencing. The proposed work will have some effect on any subsurface archaeological remains. This will require archaeological monitoring of any earthworks that have the potential to disturb pre-1900 archaeological deposits. If a significant deposit is found then some archaeological investigation may be required in some areas.

Although no Maori archaeological sites were found in the path of the proposed realignment, it is possible that some could be encountered during earthmoving works. This possibility can be accommodated by the incorporation of an accidental discovery protocol in any contract documentation and by the training of any contractors involved in earthmoving.

13. RECOMMENDATIONS

We make the following recommendations:

1. That an application be made to the Historic Places Trust for an authority under section 12 of the Historic Places Act 1993 prior to the commencement of earthworks for the project.
2. That all of the largely complete fence posts that are going to be buried by the realignment earthworks are removed and used for interpretative purposes off site if practical.
3. That site clearance and excavation of the top 300-500 mm, within 20 m of the identified pre-1900 structures, be monitored by an archaeologist in order that any archaeological remains encountered during earthmoving works can be recorded, investigated and recovered as appropriate.
4. That the location of the Grant residence and its outbuildings, as indicated on the 1925 plan, be marked on the ground with a fence or similar to ensure the preservation of the majority of the site.
5. That an accidental discovery protocol be developed to provide for any archaeological sites that are unexpectedly encountered, including both Maori and European sites.

This should include a requirement to contact appropriate representatives of Kāti Huirapa Rūnaka ki Puketeraki and the *New Zealand Historic Places Trust* in the event that an archaeological site of Maori origin is encountered.

6. That contractors involved in any earthmoving works are trained in the recognition of archaeological deposits and in the appropriate response if such deposits are encountered.
7. That all of the potential sites be marked with hazard tape.
8. That storage, stockpiling and vehicle parking sites be located so as to avoid damage to any of the identified sites.

14. REFERENCES

Chapman, F.R., 1891. On the working of greenstone or nephrite by the Maoris. *Transactions of the New Zealand Institute* 24: 479-539.

Church, I., Strachan S. and J. Strachan 2007. *Blueskin Days: A history of Waitati, Evansdale, Warrington and surrounding districts*. Dunedin: Blueskin History Steering Committee.

Gumbley, W., 1995. Guidelines for the provision of archaeological information and assessment for authority applications under section 11 or 12 of the Historic Places Act 1993. *Archaeology in New Zealand* 38(2): 100-105.

Hamel, J., 2001. *The Archaeology of Otago*. Wellington: Department of Conservation.

New Zealand Archaeological Association *Site Recording Scheme*.

NZHPT, 2004. *Heritage Management Guidelines for Resource Management Practitioners*. New Zealand Historic Places Trust.

15. APPENDIX ONE – SITE RECORD FORM



Site Record Form

NZAA SITE NUMBER: I44/477

SITE TYPE: Transport/ communication

SITE NAME(s):

DATE RECORDED: 01/04/2010

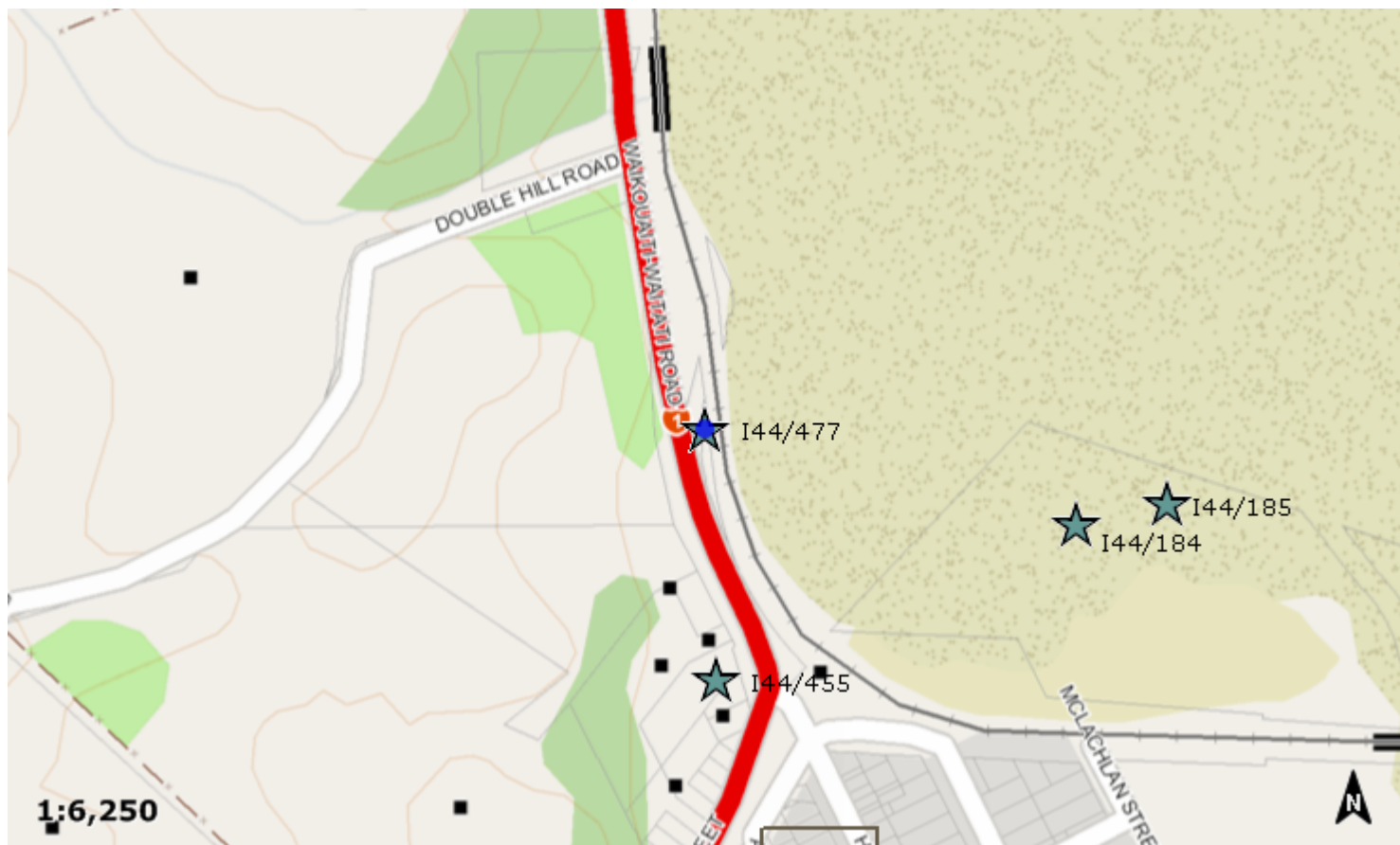
SITE COORDINATES (NZTM) Easting: 1410839

Northing: 4931506

Source: Handheld GPS

IMPERIAL SITE NUMBER:

METRIC SITE NUMBER:



Finding aids to the location of the site

Site is situated between SH1 and the main trunk rail line; immediately north of the intersection of SH1 and the turnoff to Waitati.

Brief description

A row of upright fence posts.

Recorded features

Fence post, Fence/ fence line

Other sites associated with this site

SITE RECORD HISTORY**NZAA SITE NUMBER:** 144/477**Site description**

Updated: 01/04/2010, Visited: 08/12/2009 - Site comprises a row of upright fence posts mortised for a post-and-rail fence. The rails (manuka) have all rotted away but the posts (kowhai) have lasted reasonably well. The posts extend about 90 cm above the ground surface and have three oblong holes mortised in.

Item: Fence line

Description: Line of posts from a post-and-rail fence aligned parallel to the main trunk rail line. Posts approximately 1 m high but standing in silted-up mudflat remnant and probably closer to 1.2 m high originally. Posts spaced at 2.7 m centres.

Easting (NZMG): 2320652 (N end). 2320666 (S end).

Northing (NZMG): 5493149 (N end). 5493070 (S end).

The railway through Waitati was constructed in 1876 and 1877 and was opened on 11 December 1877. It was fenced on both sides with a post-and-rail fence. The Pullar brothers won the contract to construct the fence, which ran from the cliffs south of Waitati to Puketeraki, near Karitane. This required 11,000 posts of either broadleaf or kowhai and 44,000 manuka rails (Church et al. 2007: 76).

The fence is associated with the 19th century railway formation and other visible features include the railway and a stone culvert that was constructed to drain the mudflat through which the fence and rail line were constructed.

Refer to: Brooks, E and C Jacomb 2010. Waitati Curve Archaeological Assessment. Unpublished report prepared for MWH.

Church, I., Strachan S. and J. Strachan 2007. Blueskin Days: A history of Waitati, Evansdale, Warrington and surrounding districts. Dunedin: Blueskin History Steering Committee.

Condition of the site

Updated: 01/04/2010, Visited: 08/12/2009 - Posts have survived well considering their age (about 130 years at the time of writing). However, they are in poor condition overall. The majority of the posts are the subject of an authority application and will be relocated and interpreted off site.

Statement of condition

Updated: 01/04/2010, Visited: 08/12/2009 - Poor - Visible features are incomplete, unclear and/or the majority have been damaged in some way

Current land use:**Threats:**

SITE RECORD INVENTORY

NZAA SITE NUMBER: 144/477

Observations about this site made in

Author

Year

Title

Publication Details

Supporting documentation held in ArchSite



Historical view south towards Waitati from vicinity of Double Hill Rd showing rail line with stone culvert and post-and-rail fences along either side of embankment (Burton Brothers photograph, Hocken Collections E1173/6). Note mudflat on both sides of rail line.



Remains of post-and-rail fence adjacent to railway embankment (view to northwest, scale 2 m).



NZMS260 map showing location of site.