

# SANDFLAT ROAD, CROMWELL

Archaeological Assessment  
February 2018



# Archaeological Assessment for Sandflat Road, Cromwell

Archaeological Sites: F41/808, F41/809

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Commissioned by River Terrace Developments Ltd

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Prepared by Benjamin Teele  
Origin Consultants Ltd

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February 2018

*Early 20<sup>th</sup> century annotated  
survey map of Cromwell Flat  
showing Section 24 and Section  
28, Block 1 (QuickMaps).*

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## Introduction

This archaeological assessment has been prepared for River Terrace Developments Ltd to inform a proposal to develop two sections of pastoral land on part of what was historically known as Cromwell Flat. An archaeological assessment was deemed a requirement after determination that the remains of two early water races are present on the site, and the possibility of historic activity in the area. The proposal is initially for a land use change under the Central Otago District Council District Plan, with indicative works including the development of approximately 800-900 residential sections and a small commercial centre. The legal description of the site has been identified as:

- Pt Sec 24 Block I, Cromwell SD
- Sec 28, Block I, Cromwell SD

The current application is for a request for a change to the Operative Central Otago District Plan. As the applicants plans are currently only indicative, there are no detailed plans of the site, and as such no assessment of effects has been provided in this assessment. If the proposed works gain consent, then this report will need to be updated, outlining any new plans and an assessment of their effects on the archaeological values of the site.

The assessment site comprises two parcels of land zoned (part) rural resource and (part) rural residential under the Central Otago District Plan. Both parcels border Sandflat Road on the eastern boundary, with the northern parcel boundary defined by the Kawarau Gorge Road (State Highway 6). The combined assessment area is 49 hectares. Two water races are shown on the council survey maps, one running parallel to the southern boundary, the other running at approximately 45 degrees across both parcels towards Sandflat Road. The northern parcel has had two small sections subdivided off along Sandflat Road.

The purpose of this assessment is to identify any archaeology that may be affected should the applicant's proposal proceed following a land use change to develop the site with new residential housing, a commercial area, services, and roads. This will determine whether an archaeological authority application is required under the Heritage New Zealand Pouhere Taonga Act 2014, and if so provide appropriate recommendations for the mitigation and management of any archaeological material encountered. The author of this report is Benjamin Teele, Senior Archaeologist of Origin Consultants Ltd and a member of the New Zealand Archaeological Association.



Figure 1. Location of the site within Central Otago (Google Earth).



Figure 2. Location of the site to the south west of Cromwell (Google Earth).



Figure 3. Parcel boundary outline for assessment site along Sandflat Road, Cromwell (CODC).

## Statutory Requirements

There are two main pieces of legislation in New Zealand that control work affecting archaeological sites. These are the Heritage New Zealand Pouhere Taonga Act 2014 ('HNZPT Act 2014') and the Resource Management Act 1991 (RMA).

Heritage New Zealand Pouhere Taonga ('HNZPT') administers the HNZPT Act 2014. The Act contains a consent (authority) process for any work affecting archaeological sites, where an archaeological site is defined as:

- (a) any place in New Zealand, including any building or structure (or part of a building or structure), that --:
  - (i) Was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
  - (ii) Provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
  - (iii) Includes a site for which a declaration is made under section 43(1)

Any persons who intend carrying out work that may damage, modify or destroy an archaeological site, or to investigate a site using invasive archaeological techniques, must first obtain an authority from HNZPT. The process applies to sites on land of all tenure including public, private and designated land. The HNZPT Act 2014 contains penalties for unauthorised site damage or destruction.

The archaeological authority process applies to all sites that fit the HNZPT Act 2014 definition, regardless of whether:

- The site is recorded in the NZ Archaeological Association Site Recording Scheme or registered by HNZPT,
- 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.

Once an authority has been granted, modification of an archaeological site is only allowed following the expiration of the appeals period or after the Environment Court determines any appeals. Any directly affected party has the right to appeal the decision within 15 working days of receiving notice of the determination. Heritage New Zealand may impose conditions on the authority that must be adhered to by the authority holder (Section 52). Provision exists for a review of the conditions (see Section 53). The authority remains current for a period of up to 35 years, as specified in the authority. If no period is specified in the authority, it remains current for a period of five years from the commencement date.

The authority is tied to the land for which it applies, regardless of changes in the ownership of the land. Prior to any changes of ownership, the land owner must give notice to Heritage New Zealand and advise the succeeding land owner of the authority, its conditions, and terms of consent.

HNZPT also maintains the List of Historic Places, Historic Areas, Wahi Tapu and Wahi Tapu Areas. The List can include archaeological sites. The purpose of the List is to inform members of the public about such places and to assist with their protection under the Resource Management Act (1991).

The RMA requires City, District and Regional Councils to manage the use, development, and protection of natural and physical resources in a way that provides for the wellbeing of today's communities while safeguarding the options of future generations. The protection of historic heritage from inappropriate subdivision, use, and development is identified as a matter of national importance (section 6f).

Historic heritage is defined as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, derived from archaeological, architectural, cultural, historic, scientific, or technological qualities.

Historic heritage includes:

- historic sites, structures, places, and areas
- archaeological sites;
- sites of significance to Māori, including wahi tapu;
- surroundings associated with the natural and physical resources (RMA section 2).

These categories are not mutually exclusive and some archaeological sites may include above ground structures or may also be places that are of significance to Māori.

Where resource consent is required for any activity the assessment of effects is required to address cultural and historic heritage matters (RMA 4th Schedule and the District Plan assessment criteria).



## Methodology

An archaeological assessment is required to accompany an application for an archaeological authority, as stipulated in the Heritage New Zealand Pouhere Taonga Act (2014). The archaeological assessment for this site was carried out using desk-top research methods and included a site visit to assess any current standing structures and site features.

The desk-top assessment methodology consulted a wide range of archival sources to try to establish and clarify the historical development and chronology of the site which was part of Cromwell Flat. The assessment used the following types of sources to trace the history of the area;

- 19<sup>th</sup> century surveyors maps and section subdivision maps;
- Land titles and land transfer surveys (LINZ);
- Photographic and documentary archives (Hocken Library, Dunedin City Library Heritage Collections, family photograph albums, on-line archive repositories - Archives NZ, DigitalNZ, National Library of NZ, Museum of New Zealand/Te Papa Tongarewa; PapersPast, Appendix to the Journal of the House of Representatives, Central Stories);
- Local histories and similar publications;
- NZAA ArchSite;

The site visit was undertaken to make a visual assessment which included an appraisal of:

- The approximate age and architectural style of any extant structures along the site.
- The environs within the site including spatial usage such as recent earthworks, topography, vegetation, and any ground-level features.

The visual assessment was supported by digital photographs and GPS survey that recorded the features of the site. The site visit was undertaken on the 22<sup>nd</sup> of September, 2017 by Benjamin Teele.

## Physical Environment or Setting

The site is located on the flat terrace that is bordered on two sides by the Kawarau River before it meets the Clutha. This terrace is formed of gravel substrates with a layer of soil deposited by the Clutha River, especially during flood events. Additional accumulation to the topsoil on site has been by windblown sand following the substantial loss of vegetation cover in the basin after historic clearance events. The site itself is split into two levels, with the northern portion bounded by the Kawarau Gorge Road situated on a higher terrace. This raised piece of land slopes down to a lower terrace which covers the remainder of the site. The site is fenced around the boundary is covered in a thin pasture grass with small bare patches and clumps of native cushion plant. There are the remains of several small concrete farming structures on the southern portion of the site.

# Historical Background to the Assessment Area

## Māori Settlement

The earliest human occupation of the South Island and Otago region is considered to be by Polynesian settlers dating from around 1280AD who quickly spread across the region, developing different types of settlement sites dependent on the available local resources and environmental conditions (Wilmshurst, Anderson, Higham, & Worthy, 2008). These included settled village sites along the coast adjacent to rich and sustained food resources such as seals and moa; seasonal inland sites for collecting stone resources and hunting; and comparable seasonal coastal sites for 'fishing and moa processing' (Hamel, 2001). Such settlement and exploitation of the abundant resources was not without its impacts however, with much of the forest along the coastal region reduced in extent, changes in patterns of hunting and fishing, and the use of smaller, more mobile occupation sites by the 16<sup>th</sup> and 17<sup>th</sup> centuries. This was followed by further changes in subsistence, based on organised food gathering and processing that created settled village communities along the Otago coastline from the mid-18<sup>th</sup> century onwards (Hamel, 2001).

Based on archaeological evidence and oral histories, Māori developed a number of access routes through Central Otago to acquire both food and lithic resources. A map of the area produced by Athol Anderson shows a traditional route from the east coast to Central Otago on the north bank of the Mata-au (Clutha River). Another route appears to have started in Murihiku (southern part of the South Island) and travelled up the Mataura River, into the Nevis Valley and on to the Central Otago lakes. The Nevis Valley was the most accessible route between the Southland Plains, Te Anau and Manapouri, and the Central Otago basins (Hamel, 1978).

Archaeological material reflecting this occupation and use of the area is scattered and uncommon. As early resources such as moa were depleted or wiped out, mahinga kai (places of traditional foods and resources rights) were established over widely geographically distributed resources, with each hapū having particular rights. Anderson's compilation of late 16<sup>th</sup>-19<sup>th</sup> century archaeological sites in Central Otago found a pattern in which sites were seasonally occupied, being used as a base for harvesting the immediate area's food resources (Anderson, 1982). At the beginning of the 18<sup>th</sup> century, tradition suggests that Waitaha occupied areas around Wanaka among others, and Ngāti Mamoe were in the Wakatipu district. Following internal and external conflicts, including the incursion of Ngāi Tahu, these groups withdrew from the region by the mid-18<sup>th</sup> century. Ngāti Mamoe and Waitaha had abandoned the interior as far south as the Wakatipu by about 1780 (Anderson, 1982). Seasonal hunting and fishing expeditions may have continued intermittently, but by the time the European exploration phase began in the early 19<sup>th</sup> century there was a complete absence of Māori in the area.

## European Settlement

The first Europeans in the area to penetrate into the South Island's interior discovered a flat terrace at the junction of the Kawarau and Clutha rivers. A few years later, in the early 1860s, The Junction, as the settlement was then briefly known, was established on the main road between Queenstown and Pembroke (Wanaka) from the settlements of Central Otago and Dunedin (Hall-Jones, 2005).

In 1862 miners Hartley and Reilly prospected the Clutha River below the Junction during the winter, when river levels were low. Their discovery of £2000 worth of gold and a subsequent recovery of 500kg in the gorge below The Junction led to the proclamation of the Dunstan Goldfield in September 1862 (Cunningham, 2005).

The subsequent rush to the area resulted in a rapid development of the town above the gorge, and in 1863 the area was surveyed by Connell, who called the town Cromwell. The

arrival of large numbers of miners into the area resulted in a rapid transformation of the town and within a couple of years, it had two banks, a police force, and a store (Cunningham, 2005).

Within five years of the initial rush, the first sections of the town were auctioned off and the first mayor of Cromwell was elected (Cunningham, 2005). Mining activity above the township on the Upper Clutha or Molyneux was concentrated on the river flats, before activity shifted on the terraces of Lowburn and Quartz Reef. Quartz Reef Point was first mentioned as early as 1863 when it was found that the area was particularly suited to tunnelling operations (Otago Daily Times, 1863).

By the end of the 1870s, Cromwell possessed the population and amenities of a small town. Up until the end of the 19th century, Cromwell was to rely on the income generated by the mining industry from Bendigo in the north to the Kawarau Gorge in the west (Cunningham, 2005).

With the general decline of mining activity in Central Otago at the end of the 19th century, miners and settlers developed their focus towards using the landscape for agricultural purposes in addition to (and sometimes in conflict with) the large pastoral runs. As early as 1901, miners-turned-farmers like William Annan had discovered that the climate and accessibility of water were suitable to the growing of stonefruit. This agricultural industry was to last up to and beyond the inundation of the basin by the construction of the Clyde Dam in the 1980s (Cunningham, 2005).

The creation of Lake Dunstan in 1992 led to a substantial remodelling of the landscape both at Cromwell and upstream. The traffic bridge over the Clutha was submerged under the rising water level and the whole focus of the town centre moved to the north and west. The effects of inundation spread up the Clutha Valley, submerging many of the buildings at Lowburn Ferry and eradicating nearly all the goldmining features present on the old river flats. It also submerged many of the mining features that were situated on the lower slopes of the Dunstan Mountain range.

## Previous Archaeological Work

Reference to the NZAA site records indicates that there are no recorded archaeological sites within the assessment area (Figure 4). The closest recorded sites are a mine shaft (F41/330) and the 'new' Cromwell cemetery (F41/793) which is located on Cemetery Road. The site record for the mine shaft identifies the feature as an infilled shaft which was sunk 140 feet. It appears to have been dug in 1933. The 'new' cemetery site from Cromwell was surveyed in 1879 to replace the first cemetery, and is still in active use. To the west of the assessment site are a large number of alluvial mining sites, including dams, huts, and tailings. These are concentrated along the banks of the Kawarau due to the nature of alluvial mining.

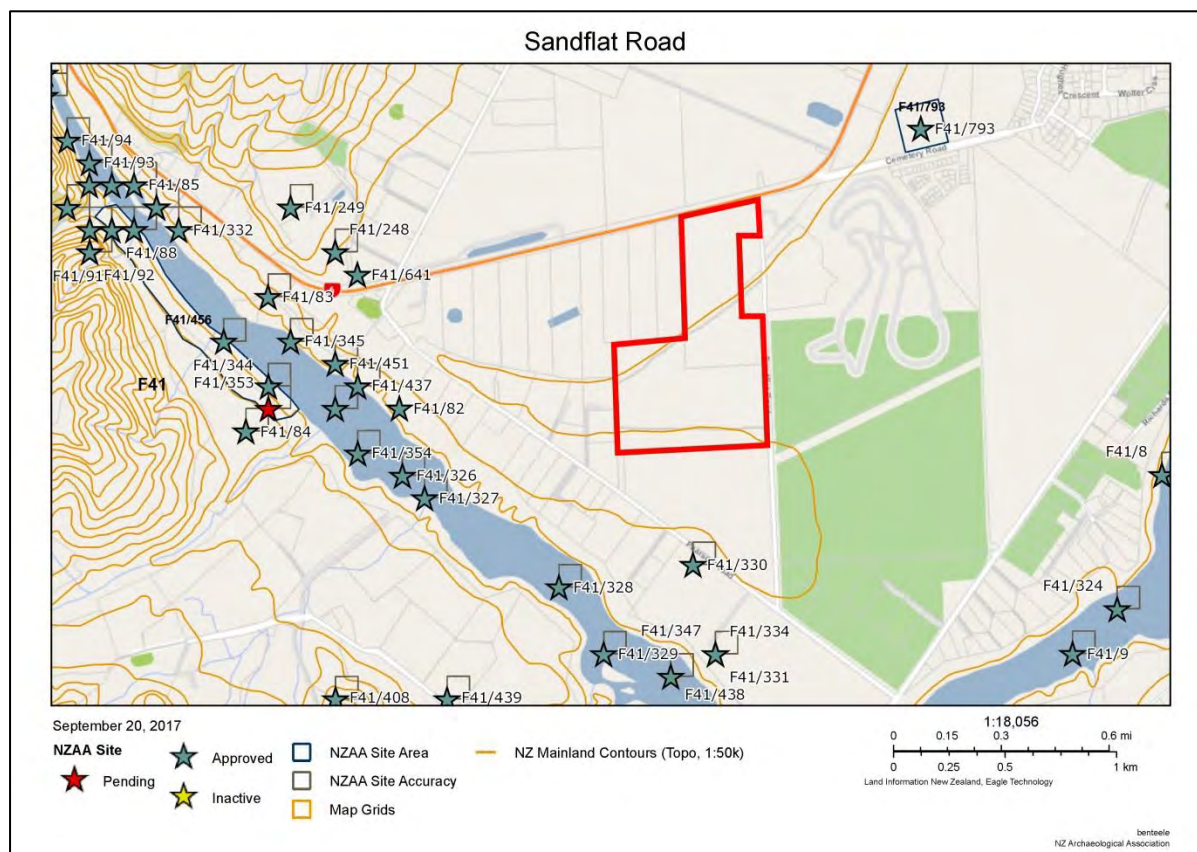


Figure 4. Map showing location of recorded archaeological sites in the area around the western portion of Cromwell Flat, with concentrations along the bank of the Kawarau River (ArchSite).

## Constraints and Limitations

The key constraints and limitations on the archaeological assessment for the Sandflat Road project are considered to be as follows:

- This assessment is based upon desk-based research and a visual inspection of the site – no intrusive or investigatory work into the site or its environs has been undertaken to confirm the results of the assessment.
- There is a lack of historic coverage of the area, particularly in visual forms such as photographs, but also a lack of specificity in written documentation. The area was part of Cromwell Flat, which covered an extensive part of the basin around Cromwell. As such, it is difficult to determine the location of historic activity in the area due to the generalised description in its location.

# Outcomes - Research Results

## On-site Observations

A site visit was conducted by Benjamin Teele on the 22<sup>nd</sup> of September, 2017. This was undertaken to investigate if there were any potential archaeological features visible and to place the site within the context of the surrounding area.

The site is defined by a low covering of pasture grass stretching over most of the site, which is ringed by a fence (Figure 6). There are two natural terraces, the higher one forming the northern part of the site, and it slopes down to the lower terrace which comprises the rest. A site walkover was undertaken from south to north, and any visible features were noted and their location recorded with a GPS (Figure 5). The features appear to be a mix of different ages and forms, mostly dating from the late 19<sup>th</sup> to the early 20<sup>th</sup> century.

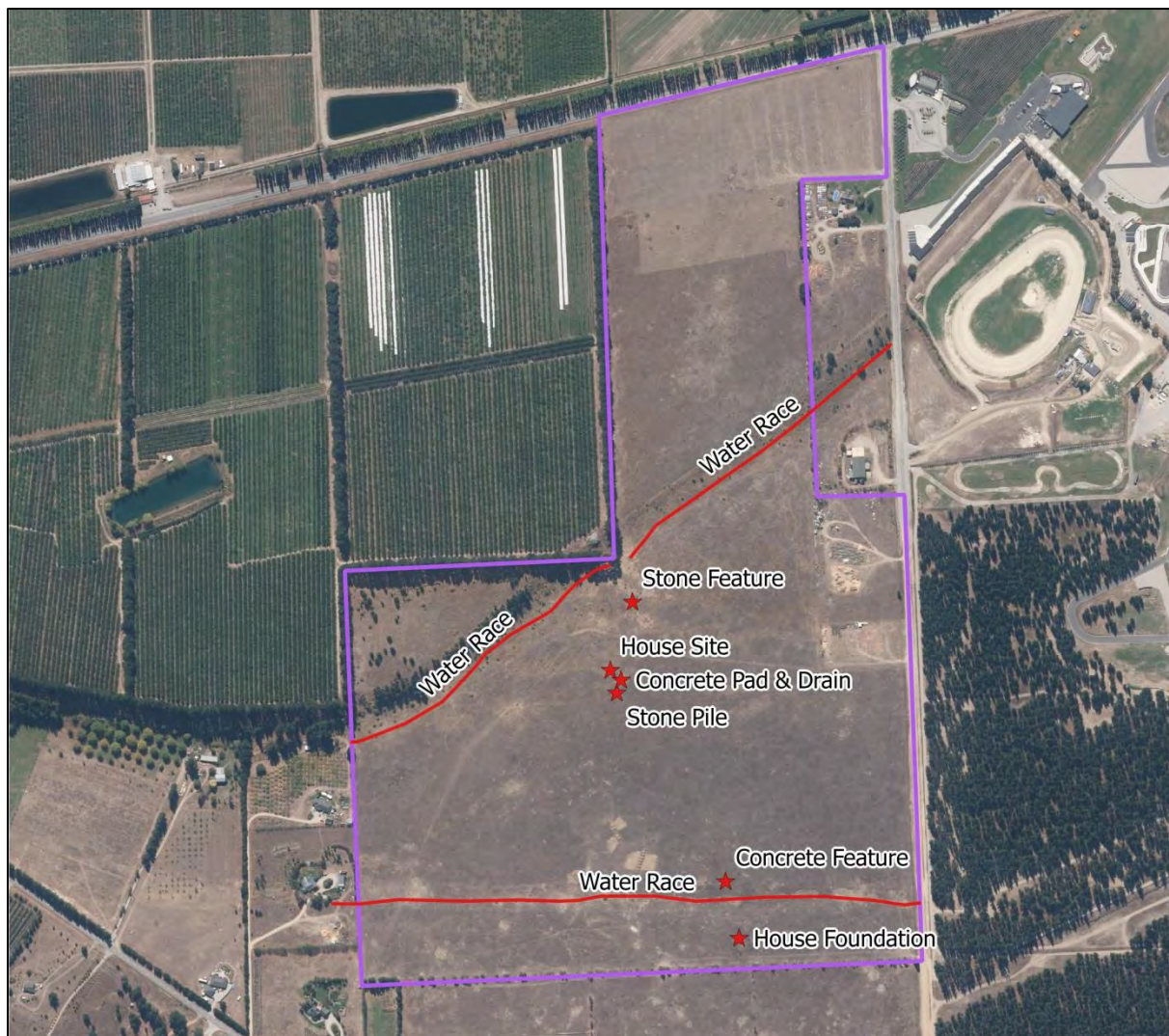


Figure 5. Aerial map with location of observed features following site survey.



*Figure 6. View looking north over the site from the southern boundary.*

Near the southern boundary of the site are the remains of a concrete foundation for a small building (Figure 7). This appears to have originally been a house clad with corrugate iron, and likely timber framed (Figure 8). Everything except the foundation and remains of the subfloor and chimney appear to have been removed off site. The internal wall divisions of the building are indicated by the placement of brick, which presumably supported a timber floor (Figure 9). This theory is reinforced by the presence of holes in the cement foundation which would have originally contained ventilation grills. The age of this building is uncertain, as there is no clear artefactual evidence indicating its use. However, the concrete foundation and presence of well-fired brick suggests this building was constructed sometime in the first half of the 20<sup>th</sup> century.



*Figure 7. Concrete house foundation located near the southern boundary (see Figure 5).*



*Figure 8. Detailing of concrete house foundation showing steel bolts and remains of cast plaster on exterior edge, indications the original cladding was corrugate iron.*



*Figure 9. Remains of house sub-floor showing the use of brick to presumably support a suspended timber floor.*

Immediately to the north of the concrete foundation is a visible water race running approximately east-west across the site (Figure 10). This race runs along the base of a small slope, and is clearly visible. It has been partly infilled over time by natural soil accumulation.





*Figure 10. Remains of southern water race.*

In the approximate centre of the site are a collection of features. The first one is a pile of stones with no clear delineation (Figure 11). They may have been stacked originally to prevent them being hit during ploughing. However, they are in close proximity to two other features, adding the possibility they originally had some defined purpose. To the north of this pile is a concrete pad and drain (Figure 12). The current owner of the property believes this was originally used to milk cows, with the drain allowing the concrete pad to be cleaned. Its date of construction is uncertain. Immediately to the north of this concrete are the remains of what appears to be another house site (Figure 13-Figure 14). This feature includes a pile of stacked stone, which may have been a chimney, and pieces of corrugated iron used as cladding. Examination of the area revealed glass and iron artefacts. The glass was identified as part of a ring seal bottle, which is commonly found on sites in Central Otago with occupation dating from the 1880s through into the early 20<sup>th</sup> century. It is possible that this area originally contained a small residence site built in the late 19<sup>th</sup> or early 20<sup>th</sup> century.



*Figure 11. Stone pile located towards the centre of the site.*



*Figure 12. Concrete pad with associated drain.*



Figure 13. Remains of what appears to be a house site. Stacked stone on left is indicative of the remains of a chimney.



Figure 14. Concrete and corrugated iron remains in association with the stacked stone feature.

Further to the north, another collection of stones were identified on site, with these ones placed in a linear alignment (Figure 15-Figure 16). The purpose of this feature is unknown, but the line of stones suggests some form of building or raised platform may have been constructed in this part of the site. Its age of construction is uncertain.



*Figure 15. Raised Stone Feature, located towards northern edge of terrace.*



*Figure 16. Detail of linear stone, part of the Stone Feature.*

Running southwest-northeast across the centre of the site is the remains of the northern water race (Figure 17- Figure 18). This race is clearly visible on the ground, and follows the contour of the lower terrace slope. It is mostly intact across the site, with some minor disturbance near the property corner halfway along the feature. As with the southern race, it has been partly filled in by natural accumulation of soil.



Figure 17. Remains of northern water race following contoured edge of terrace.



Figure 18. View looking southeast from edge of top terrace down towards lower terrace. The northern water race is shown with an arrow.

Above the water race, the northern corner of the site is defined as a part of a natural terrace, which is elevated above the rest of the site (Figure 19-Figure 20). This part of the site is very flat, and contains no visible surface features. Its eastern boundary borders a small area of modern development and the sites northern edge abuts the Kawarau Gorge Road.



*Figure 19. View along top terrace looking north towards the Kawarau Gorge Road.*



*Figure 20. View looking south along top terrace.*

### **Historical Documentation**

The history of European activity in the area known as Cromwell Flat appears to have begun soon after the first gold rushes to the area. It was developed for agriculture from at least the 1870s, and was an area thought to contain significant amounts of gold. However, the provision of water to the area provided to be the determining factor in what activities could be undertaken on the flat, with farming taking predominance over mining. Based on early survey maps, the site was original surveyed as two separate sections: Section 24 and Section 28, part of Block I, Cromwell.

The earliest documentary record for Section 24 is from an 1880 survey map (SO 3821) which shows William Bennett's name on the land in question (Figure 21). It appears this map was produced when he applied for an agricultural lease. The northern water race is shown cutting through the centre of the block in this map, presumably being fed from the Kawarau. It appears that agricultural leases were being applied for in the 1870s and 1880s by those wishing to farm the flat (Cromwell Argus, 1878b, 1883b). The existence of a water race already on the section was probably a significant factor in the sections appeal to Bennett. In 1878 the land adjacent to the site was described in a newspaper report in 1878 as "quite worthless, as the land will grow nothing, being the most sterile lot that could have been selected (Cromwell Argus, 1878a).



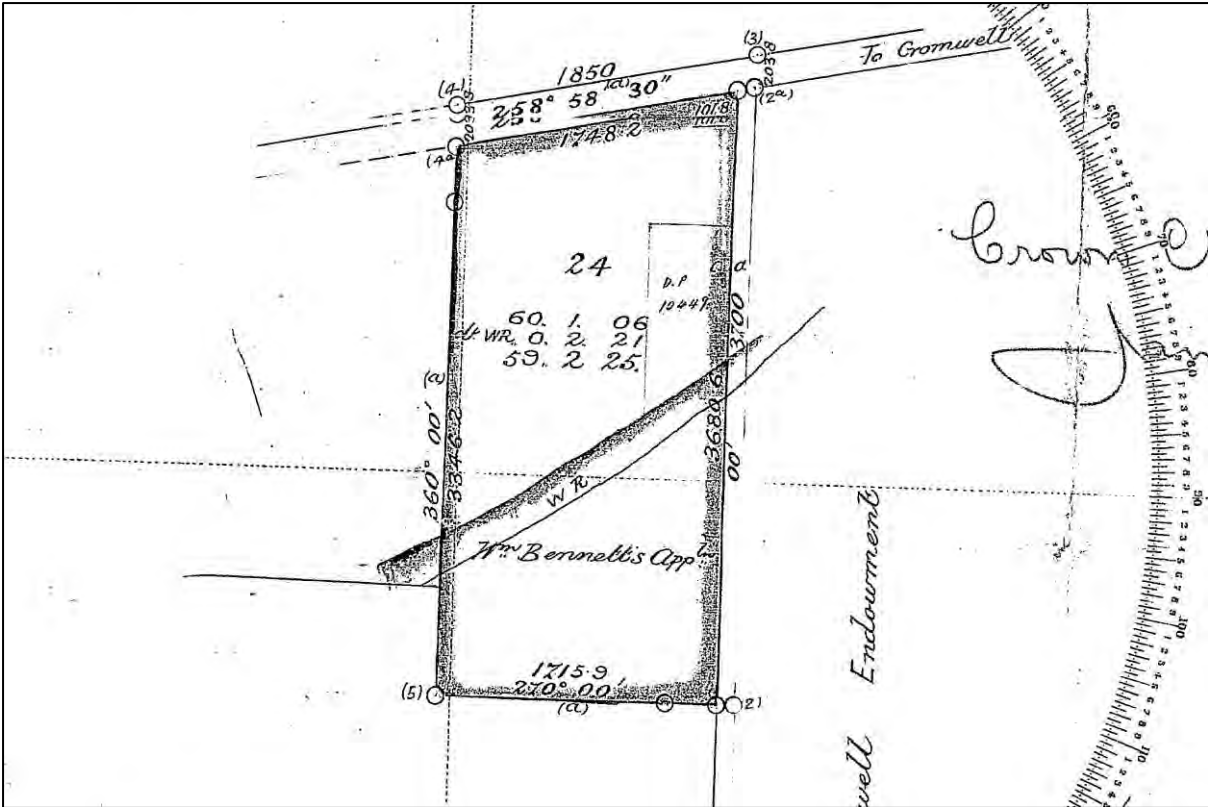


Figure 21. SO 3821 showing Bennett's application for lease of Section 24, Block I (QuickMaps).

Bennett at the time was living in Quartzville, a small town near Bannockburn, and ran a store. In 1882 it was described in the papers as Bennett's Bakery, Butchery, and General Store (Cromwell Argus, 1882). He also had a piggery near the town from the 1870s (Cromwell Argus, 1875). The application to lease the section was probably undertaken so he could grow his own feed.

Two years later William Bennett appears to have applied for the lease for Section 28, the block of land immediately below his other one on Cromwell Flat. This was referenced in the newspaper (Cromwell Argus, 1883b) and a survey map was drawn up (SO 3828). This map shows the section having two water races crossing it. The northern race was a section of the one shown in the earlier survey map, and the southern race ran across the property east to west. Examination of survey maps to the west of the site appear to indicate that a dam was built near the banks of the Kawarau, which likely provided these races with water. Whether Bennett had rights to the water is uncertain, and who built the race is unclear. Several applications were made to the Warden in the 1870s for water races on the Cromwell Flat (Archway, Archives New Zealand). Two of those who applied, Badasic and Perriam, appear to have also been leasing land in the area. It is likely that one of these two men built the race originally.

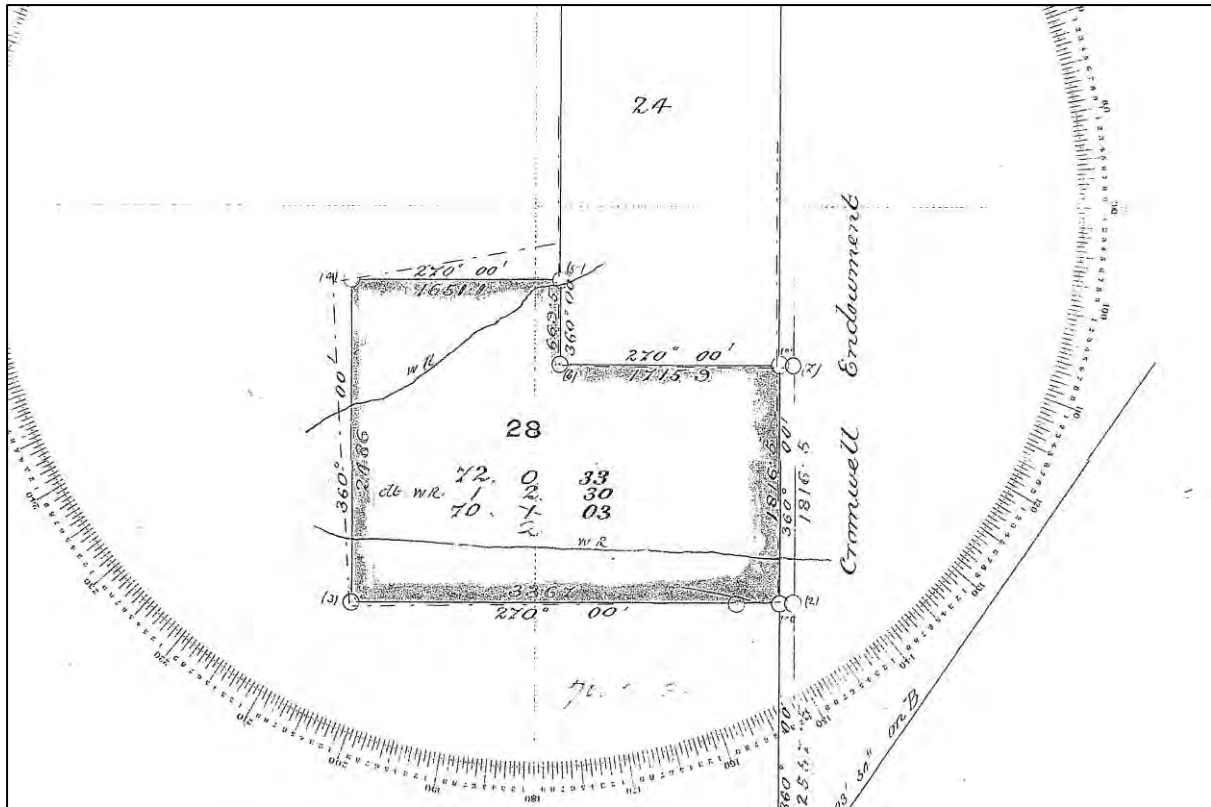


Figure 22. SO 3828 produced as part of an application for lease of Section 28, Block I by Bennett (QuickMaps).

In 1883 Bennett sold his store and the rest of his holdings to James Horn (Cromwell Argus, 1883a). Horn was born in Inverkeithney, Banffshire, Scotland in 1855. He arrived in New Zealand in 1875, initially residing in Port Chalmers, and then moved on to Stirling. He shifted to the area in 1883 following the purchase from Bennett, and ran the business in partnership with Mr J. C. Anderson, before the partnership dissolved and he took full ownership. He was a well-known resident of Central Otago, and became the representative for the Wakatipu District in 1919. He was credited with the establishment of new irrigation schemes (Cromwell Argus, 1932). In the 1890s, there was a notable increase in water being provided to Cromwell Flat for irrigation purposes, presumably as alluvial mining became a less viable industry (Mataura Ensign, 1890)(Figure 23).

Another, larger, survey map (SO369) shows both sections as being held by James Horn in freehold. The date of this map is uncertain, but likely annotated in the early 20th century. The two water races are shown in pencil crossing the lower block. Horn purchased Section 24 in 1897 (OT125/196), and subsequently purchased Section 28 in 1907 (OT160/271). Both titles clearly show the water races running across the sections. In 1916, the newspaper refers to Horn relocating a residence from Bannockburn to Cromwell Flat (Otago Witness, 1916). This was likely undertaken because Horn now owned the land rather than leasing it.

The Horn family retained the land until 1963 when it was transferred to Otto Muller. A new title was issued for Section 24 in 1963 (OTB2/230) when part of the eastern boundary was subdivided. Another title was issued in 1994 when another small part of the section was subdivided (OT16A/611).



Figure 23. Historic photograph of irrigation on Cromwell Flat (Hocken Snapshot).



Figure 24. SO 369 showing the two sections owned by James Horn in the early 20<sup>th</sup> century (QuickMaps).

# Archaeological and Other Values

## Archaeological Values

Six main criteria have been used for assessing the archaeological values of the Sandflat Road assessment site. These are:

- Condition – the physical condition of the site and any associated features.
- Rarity/Uniqueness – the degree of rarity of the site within its immediate and/or wider contexts.
- Contextual Value – the contribution of the site to its broader contextual situation (e.g. cultural, local and archaeological contexts).
- Information potential – the potential for additional information to be recovered by archaeological means and its nature.
- Amenity value – the potential contribution of the site as a local amenity.
- Cultural associations – the cultural associations of the site.

Site	Value	Assessment
<b>Sandflat Road, Cromwell</b>  <b>Legal description:</b>  <b>P Pt Sec 24 Block I, Cromwell SD</b>  <b>Sec 28, Block I, Cromwell SD</b>	<i>Condition</i>	<p>The condition of known archaeological features on the site is fair. Only the two extant water races running across the site have been clearly identified as being built in the 19<sup>th</sup> century. These races have been truncated to the west of the site where development has filled in the races. The sections of race on the site appear to have not been maintained for some time, leading to gradual infilling from natural soil accumulation. However, significant portions of both races are still clearly visible and can be accurately mapped. The condition of any subsurface archaeology is unknown.</p> <p><b>Assessment – races – fair; subsurface - unknown</b></p>
	<i>Rarity/ Uniqueness</i>	<p>Water races are a relatively common feature within the Central Otago landscape, but most were built for mining purposes. The two races on the site appear to have original been built for irrigation. In addition to mining, farming became an important part of the early Central Otago economy, especially in the establishment of orchards. Where the races were originally fed has been lost, but was likely from a dam built on the eastern edge of the Kawarau River bank. Any subsurface archaeological material would reflect the sites early farming use.</p> <p><b>Assessment – moderate</b></p>

Site	Value	Assessment
	<i>Contextual Value</i>	<p>The remaining portions of the two water races provide contextual evidence as to how irrigation was brought onto the Cromwell Flat. Races are by the nature landscape features, and most of their contextual values lie in their preservation at a landscape scale. The loss of where the races originated has reduced the contextual value of the two features. The presence of the possible remains of a house, if it were to be determined as an archaeological site, would provide contextual information on how Bennett or Horn ran their farm. There is a clear line of occupation or ownership of Section 28, providing a clear contextual relationship to any material uncovered.</p> <p><b>Assessment – moderate</b></p>
	<i>Information Potential</i>	<p>There is limited information potential to be recorded from the remains of the water races. Sections through the features would provide some idea about how it was constructed and its original dimensions, but little further can be obtained from excavation.</p> <p>In the event artefactual material was uncovered relating to the occupation of the site by Bennett or Horn, this could provide additional information on what little is known about the use of Cromwell Flat. Recorded archaeological sites in the area are overwhelming related to alluvial mining operations along the banks of the Kawarau River. In the event that either the linear stone feature or possible house site are determined to be archaeological, there is moderate information potential to be recorded from these features. Surface artefactual evidence suggests there may be subsurface material deposited in the area of the possible house site.</p> <p><b>Assessment – low to moderate</b></p>
	<i>Amenity Value</i>	<p>The loss of a significant portion of both water races has diminished the amenity values of the features. They are also situated in a large, relatively empty paddock which is not under irrigation. The adjacent properties where the races extended into have subsequently been developed, and provide a visual block. Those remnant stone features in the centre of the site have little amenity values, being the remains of foundations.</p> <p><b>Assessment – low</b></p>

Site	Value	Assessment
	<i>Cultural Associations</i>	<p>The cultural association of the site can be clearly identified to its early association with William Bennett, and then James Horn. The property stayed in the Horn family through the first half of the 20<sup>th</sup> century, before being acquired by Otto Meyer. Both Bennett and Horn appear to have emigrated from Scotland. There is no evidence of other groups being active on the site.</p> <p><b>Assessment – European</b></p>
	<i>Other Values</i>	<p>Māori cultural values are not considered to be of immediate relevance to the site unless features or deposits relating to Māori cultural practices are identified during any future works. The likelihood for encountering such deposits below the site has been assessed as very low, but the possible value of the site and its location in broader, Māori cultural value terms is acknowledged.</p> <p><b>Assessment – likelihood low</b></p>

# Conclusion and Recommendations

## Assessment summary

This report provides an assessment of the archaeological values of a site proposed to be zoned to create a new residential and commercial development, but will require to be updated with an assessment of effects pending any consents for proposed works.

The assessment has identified that there are two clear archaeological features, the water races, on site. Both races are clearly shown on 1880s survey maps, and were likely constructed in the 1870s to provide irrigation to land on Cromwell Flat. These races have subsequently been truncated by 20<sup>th</sup> century development on either side of the site, with the remaining portions falling into disuse and being partly filled in by natural accumulation processes. The remains of these water races have a moderate archaeological significance, as they were part of expensive endeavours to provide water to parts of the Cromwell Flat to allow land to be farmed. However, little additional information can be determined from their archaeological excavation.

Several other features were recorded during a walkover survey. The site was originally leased by William Bennett from the 1880s, and it is unlikely that the sections were used for anything but growing crops. The presence of a possible house site and a linear stone feature suggest that there may have been a small residence built on site sometime in the late 19<sup>th</sup> or early 20<sup>th</sup> century. The purpose of the linear stones is unclear, and may be related to the farming of the site. An additional house foundation was recorded near the southern boundary of the site. The extensive use of concrete and brick suggests the house was originally built in the early 20<sup>th</sup> century. The historic reference to Horn relocating a house onto Cromwell Flat in 1916 may correlate with the remains of this building. The house was subsequently demolished or relocated off-site, leaving only the remains of the foundation. Other concrete features identified in the area were likely used for farming purposes during the 20<sup>th</sup> century use of the site.

No other surface features were observed over the rest of the site. The sites' extensive use for farming indicates that any additional subsurface features are unlikely to exist outside the areas recorded on Figure 5.

## Recommendations:

Based on the proposed plans outlined by River Terrace Developments Ltd, Origin Consultants makes the following recommendations should development of the assessment site proceed:

- Consideration should be given to preserving the water races during the development of the site. Races in other parts of the region have been retained as landscape features, and are a naturally suitable place to put plants as they catch additional moisture.
- Any works that will modify or destroy part of either water race will require an archaeological authority under Section 44 of the Heritage New Zealand Pouhere Taonga Act (2014). Water races provide only minimal information through excavation. In the event that the races will be damaged or destroyed, sections should be excavated by the archaeologist in select places to provide a topographical record of the races. This information should be added to the site record form held on ArchSite.
- Due to the uncertain nature of the possible house site and linear stone feature, test pitting should be undertaken by an archaeologist in an attempt to determine if these features have archaeological values. A small amount of test pitting may provide sufficient information to determine if they are archaeological sites. In the event that they are found to be archaeological features and will be damaged or destroyed by proposed works, this will require an archaeological authority. A condition of any such

authority should be that they are investigated and recorded by the approved archaeologist.

- The concrete features are likely 20<sup>th</sup> century in origin, and as such do not require an archaeological authority to authorise their removal.
- As a first principle, every practical effort should be made to avoid damage to any archaeological site if discovered during works. Contractors should be informed and briefed of the possibility that archaeological material may be uncovered during works, and a suitable policy on how to deal with this should be implemented by the site manager.
- If at any stage during site works pre-European (Māori) material is discovered, Heritage New Zealand should be consulted in the first instance. If pre-European material is encountered in the area that is undergoing work, then all work is to cease immediately with a 20m exclusion zone established around the find with damage to any material minimised or avoided. Once the Regional Archaeologist has been contacted, they will advise on the best way to proceed. Any pre-European artefacts will be, prima facie, property of the Crown and will be submitted to the appropriate institutions.



## References

- Anderson, A. J. (1982). Maori Settlement in Southern New Zealand from the Early 18th to Late 19th Centuries A.D. *Journal of the Polynesian Society*, 91, 53–80.
- Cromwell Argus. (1875). Resident Magistrate's Court. VOLUME VI, ISSUE 273, 2 FEBRUARY 1875.
- Cromwell Argus. (1878a). Cromwell Borough Endowments. VOLUME IX, ISSUE 457, 13 AUGUST 1878.
- Cromwell Argus. (1878b). Warden's Court. VOLUME IX, ISSUE 434, 5 MARCH 1878.
- Cromwell Argus. (1882). Page 3 Advertisements Column 3. VOLUME XIII, ISSUE 680, 21 NOVEMBER 1882.
- Cromwell Argus. (1883a). Page 2 Advertisements Column 2. VOLUME XIV, ISSUE 705, 15 MAY 1883.
- Cromwell Argus. (1883b). Warden's Court. VOLUME XIV, ISSUE 692, 13 FEBRUARY 1883.
- Cromwell Argus. (1932). Obituary. VOLUME LXII, ISSUE 3243, 19 DECEMBER 1932.
- Cunningham, G. (2005). *Illustrated History of Central Otago and the Queenstown Lakes District*. Reed Publishing.
- Hall-Jones, J. (2005). *Goldfields of Otago - an Illustrated History*. Invercargill: Craig Printing.
- Hamel, J. (1978). Hawksburn Revisited: An Ecological Assessment. *New Zealand Archaeological Association Newsletter*, 21(4), 116–128.
- Hamel, J. (2001). *The Archaeology of Otago*. Department of Conservation.
- Mataura Ensign. (1890). Mataura Ensign. VOLUME 13, ISSUE 974, 25 APRIL 1890.
- Otago Daily Times. (1863). Untitled. Issue 636, 31 December 1863, Page 4.
- Otago Witness. (1916). Page 17 Advertisements Column 1. ISSUE 3229, 2 FEBRUARY 1916.
- Wilmshurst, J. M., Anderson, A. J., Higham, T. F. G., & Worthy, T. H. (2008). Dating the late prehistoric dispersal of Polynesians to New Zealand using the commensal Pacific rat. *Proceedings of the National Academy of Sciences*, 105(22), 7676–7680. <http://doi.org/10.1073/pnas.0801507105>



## Site Record Form

**NZAA SITE NUMBER:** F41/809

**SITE TYPE:** Mining

**SITE NAME(s):**

**DATE RECORDED:**

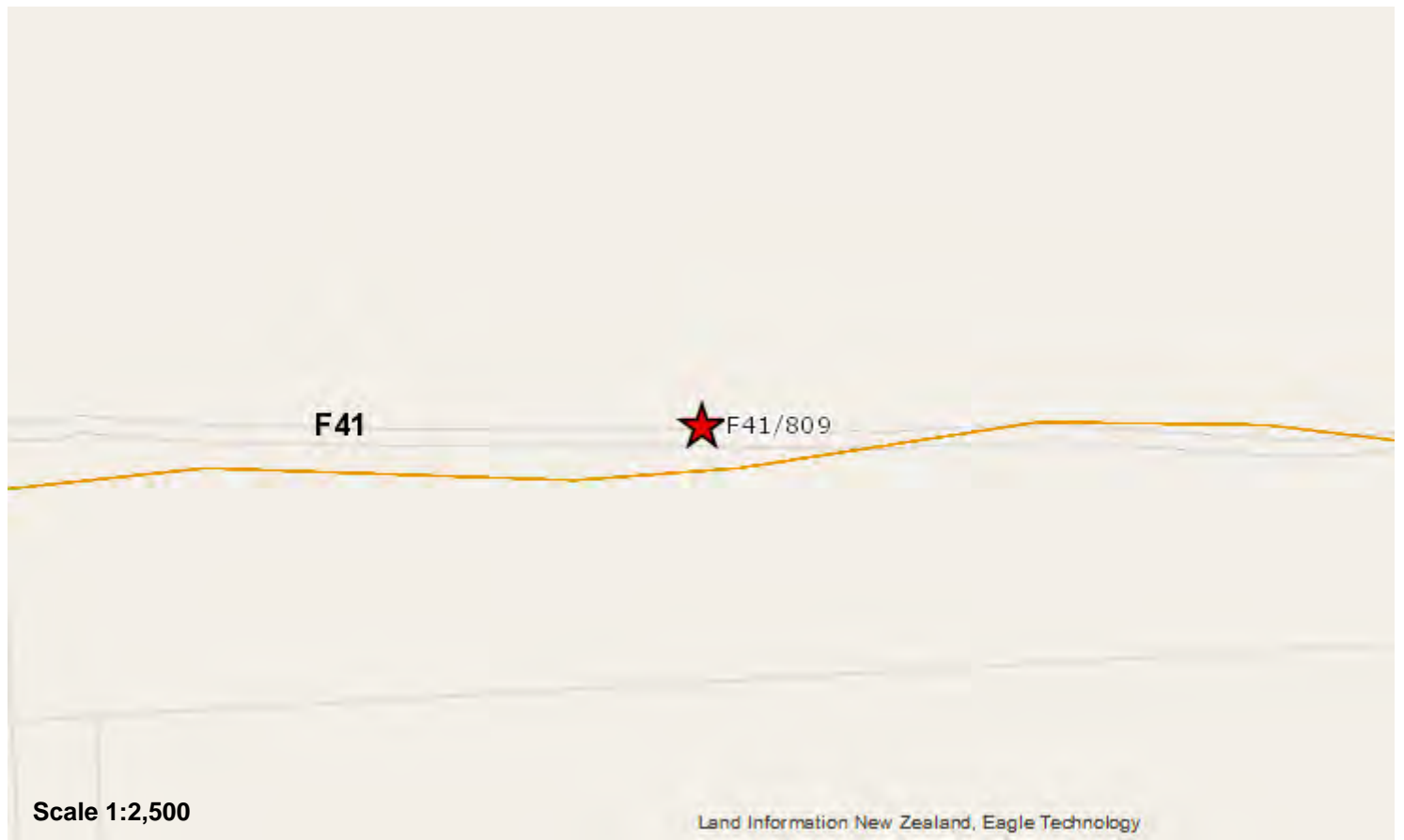
**SITE COORDINATES (NZTM) Easting:** 1297559

**Northing:** 5002665

**Source:** On Screen

**IMPERIAL SITE NUMBER:**

**METRIC SITE NUMBER:** F41/809



### Finding aids to the location of the site

The race is shown on modern survey maps and runs east-west across Section 28 Blk I Cromwell SD, accessible from Sandflat Road.

### Brief description

### Recorded features

Water race

### Other sites associated with this site

**SITE RECORD HISTORY****NZAA SITE NUMBER:** F41/809**Site description**

Updated 16/02/2018 (Field visit), submitted by bentelee , visited 22/09/2017 by Teele, Benjamin  
Grid reference (E1297559 / N5002665)

The water race was constructed sometime in the 1860s/1870s and was supplied with water from a dam located next to the Kawarau River. It is shown on a survey map of the area with another race immediately to the north in 1884, when the land was leased for farming by William Bennett. Whether Bennett had rights to the water is uncertain, and who built the race is unclear. Several applications were made to the Warden in the 1870s for water races on the Cromwell Flat (Archway, Archives New Zealand). Two of those who applied, Badasic and Perriam, appear to have also been leasing land in the area. It is likely that one of these two men built the race originally.

**Condition of the site**

Updated 16/02/2018 (Field visit), submitted by bentelee , visited 22/09/2017 by Teele, Benjamin

Race is truncated where it leaves the section boundaries. It has been partly infilled over time by natural soil accumulation.

**Statement of condition****Current land use:****Threats:**

Supporting documentation held in ArchSite

View of race looking west. Teele, B. 22/09/2017







## Site Record Form

**NZAA SITE NUMBER:** F41/808

**SITE TYPE:** Mining

**SITE NAME(s):**

**DATE RECORDED:**

**SITE COORDINATES (NZTM) Easting:** 1297628

**Northing:** 5003076

**Source:** On Screen

**IMPERIAL SITE NUMBER:**

**METRIC SITE NUMBER:** F41/808



### Finding aids to the location of the site

Site is located to the west of Sandflat Road, running along the bottom of a natural terrace running in a northeast/southwest direction and to the south of SH6.

### Brief description

### Recorded features

Water race

### Other sites associated with this site

**SITE RECORD HISTORY****NZAA SITE NUMBER:** F41/808**Site description**

Updated 16/02/2018 (Field visit), submitted by bentelee , visited 22/09/2017 by Teele, Benjamin  
Grid reference (E1297628 / N5003076)

The water race was constructed sometime in the 1860s/1870s and was supplied with water from a dam located next to the Kawarau River. It is shown on a survey map of the area in 1884, when the land was leased for farming by William Bennett. Whether Bennett had rights to the water is uncertain, and who built the race is unclear. Several applications were made to the Warden in the 1870s for water races on the Cromwell Flat (Archway, Archives New Zealand). Two of those who applied, Badasic and Perriam, appear to have also been leasing land in the area. It is likely that one of these two men built the race originally.

**Condition of the site**

Updated 16/02/2018 (Field visit), submitted by bentelee , visited 22/09/2017 by Teele, Benjamin

Race is truncated in areas, and slumping of some sections has reduced its visible profile.

**Statement of condition****Current land use:****Threats:**

Supporting documentation held in ArchSite

View of race at base of terrace slope looking west. Teele, B. 22/09/2017





