

**ARCHAEOLOGICAL SURVEY
AND ASSESSMENT OF EFFECTS**

PROPOSED

**TARAWERA
SEWERAGE SCHEME**

Prepared by

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INTRODUCTION

Project Background

This archaeological survey and report were commissioned by Rotorua Lakes District Council in order to determine if archaeological sites are affected by the proposed Tarawera Sewerage Scheme (TSS). The project will involve the installation of c. 15km pipe between the existing Okareka Rising Main at the junction of Okareka Loop Road and Tarawera Road to residential areas on the western shores of Lake Tarawera. The pipeline will be installed by directional drilling consequently ground disturbance associated with the project will be primarily limited to the excavation of drill pits. More extensive excavations may be required for installation of Break Chambers Boosters etc. This report assesses potential effects on archaeological resource by the installation of the main pipe (Figure 2) and does not assess archaeological values potentially affected by the connection for the TSS to individual residential properties.

There are no recorded archaeological sites within land directly affected by the TSS, however, there is a possibility that unrecorded subsurface archaeological sites will be encountered during ground disturbance associated with the project.

This report has been prepared as part of the required assessment of effects accompanying a resource consent application under the Resource Management Act 1991 (RMA) and to identify any requirements under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA). Recommendations are made in accordance with statutory requirements.

RELEVANT LEGISLATION

Heritage New Zealand Pouhere Taonga Act (2014)

An archaeological site, as defined by the Heritage New Zealand Pouhere Taonga Act 2014 6(a), is 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.

Archaeological sites cannot be modified or destroyed unless an authority is granted under section 48, 56(1)(b), or 62 in respect of an archaeological site, no person may modify or destroy, or cause to be modified or destroyed, the whole or any part of that site if that person knows, or ought reasonably to have suspected, that the site is an archaeological site.

Resource Management Act (1991)

The RMA 1991 recognizes as matters of national importance: ‘the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi

tapu, and other taonga’ (S6(e); and ‘the protection of historic heritage from inappropriate subdivision, use, and development’ (S6(f).

Territorial authorities are required under Section 6 of the RMA to recognise and provide for these matters of national importance when ‘managing the use, development and protection of natural and physical resources’.

Historic heritage is defined as ‘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; (vi) technological’. Historic heritage includes: ‘(i) historic sites, structures, places, and areas; (ii) archaeological sites; (iii) sites of significance to Maori, including wahi tapu; (iv) surroundings associated with the natural and physical resources’.

Constraints and Limitations

This is an assessment of archaeological values and does not include an assessment of Maori values. Consultation with tangata whenua is being carried out independently of this report. An assessment of the cultural significance of an area can only be competently made by the affected tangata whenua. It should be noted that an assessment of cultural significance might not necessarily correlate with an assessment of archaeological significance.



Figure 1. Part topographic map U16 showing the general location of the TSS project area outlined red.

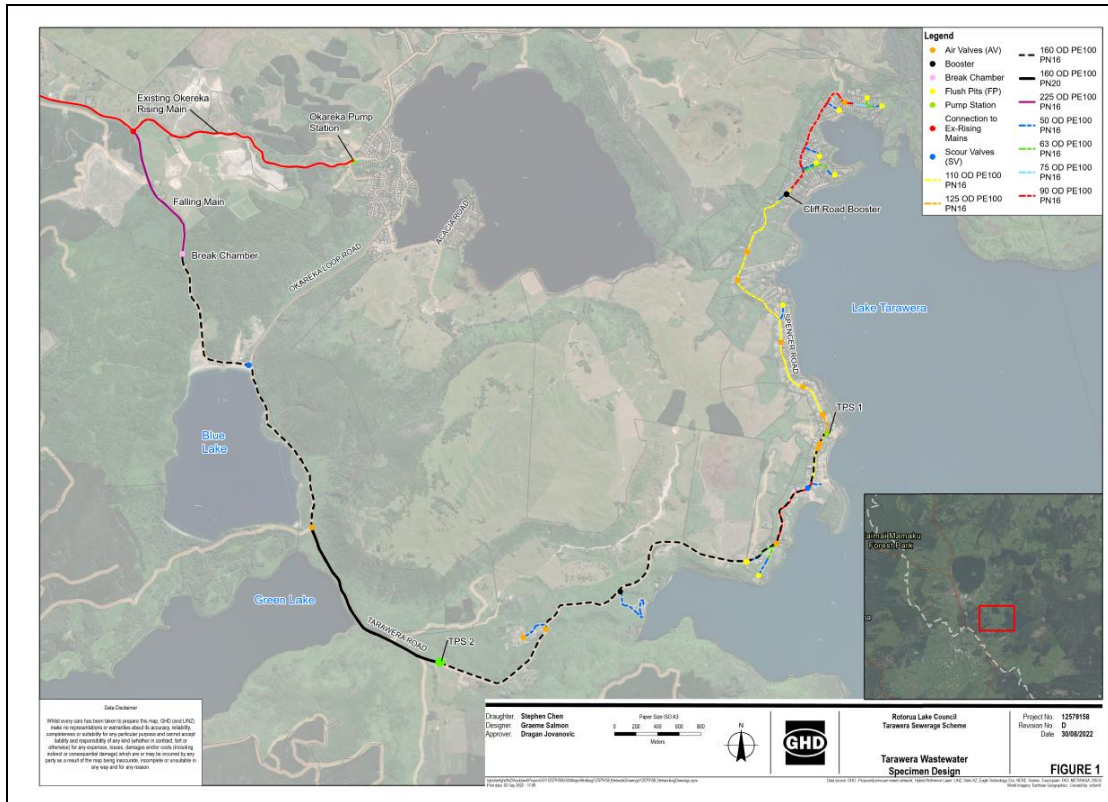


Figure 2. Aerial photo showing the route of the proposed Tarawera Sewerage Scheme.

Methodology

Prior to the archaeological survey the records of the New Zealand Archaeological Association (NZAA) were consulted in order to determine whether any archaeological sites had previously been recorded on or in the immediate vicinity of land affected by the project. Early survey plans, aerial photos and archaeological reports relating to the area were also reviewed.

A visual inspection of the alignment was carried out by Ken Phillips in February 2023. The ground surface was examined for evidence of former occupation (in the form of shell midden, depressions, terracing or other unusual formations within the landscape, or indications of 19th century European settlement remains). Disturbed soils and soil profiles exposed in road cuttings were examined where encountered for evidence of earlier settlement, and an understanding of the local soil stratigraphy.

PHYSICAL LANDSCAPE

The Tarawera Sewerage Scheme extends through the volcanic landscape on the western side of Lake Tarawera and within the wider area generally referred to as the Okataina Volcanic Centre. The geological landscape has been described in many publications however the most important geological event affecting the archaeological resource relating to pre European and early contact period Māori settlements and cultivation of the area is the 1886 Tarawera eruption which mantled the project areas in a thick layer of ash and Rotomahana mud often preserving the archaeological record in a manner unique to the area.

The main sewerage pipe alignment will be installed primarily within the existing road reserves of Tarawera Road and Spencer Road. The initial construction and subsequent upgrading of these roads has involved significant cut and fill earthwork. This is especially noticeable around the margins of Lake Tikitapu and Rotokakahi on Tarawera Road with less modified topography at the northern end of Lake Tikitapu and within the Wairoa Valley.

The construction of the southern section of Spencer Road involved significant cuttings into the western escarpment supported by high wooden retaining walls on the uphill scarp. Less modified areas are encountered from Rangiuru Bay to Tarapatiki Point where the road follows the natural topography with minor cuttings into the Rotomahana Mud layer. Relatively unmodified topography is again encountered north of Alexander Road to the end of Spencer Road.

In summary the topography within the road reserves affected by the pipeline installation have been modified in all areas to some degree with significant cuts where it traverses steeper terrain. These modifications have significantly reduced the likelihood of intact archaeological features surviving within the road reserves even where known archaeological sites are located immediately adjacent to the road.

ARCHAEOLOGICAL LANDSCAPE

Traditional histories are the primary source of information regarding the cultural landscape within the project area some of which have been recorded in Land court records and illustrated on early survey plans. These sources indicate pre-European Māori settlement was focused on headlands, lake edge waka landings beaches and level to rolling topography around the lake margins with cultivations on favourable soils and topography less prone to frosts during growing season.

A review of the known and predicted archaeological resource of the wider area has been briefly presented in several archaeological reports but it is generally poorly understood due to the deep tephra layer obscuring archaeological sites within the project area.¹ Few archaeological sites associated with the pre-European Māori settlement of the area have been identified. Recorded archaeological sites are primarily based on traditional history and archival sources with few based on visible archaeological features. Consequently, the New Zealand Archaeological Association (NZAA) site inventory for the area does not reflect the true extent of the surviving archaeological resource which is likely to be extensive and well preserved beneath the

¹ Phillips 1999, 2001, Simmons 1991

1886 tephra mantle. There are also a number of inaccuracies in the NZAA site location data (see U16/61) and a number of known archaeological sites have not been entered into the NZAA database. For example, only two features have been recorded within Te Wairoa Village including sites that have been excavated by archaeologists in recent years.²

A number of archaeological investigations have been carried out within the project area, most of which have revealed previously unrecorded archaeological features indicating the extensive nature of the unrecorded archaeological landscape. Consequently, the project area should be treated as a significant and unique archaeological landscape albeit with components damaged or destroyed by 20th century road construction and residential development. Pertinent to this project is the modification to the natural topography and soil strata within the Tarawera and Spencer Road reserves which has been considerable in many areas and has reduced the likelihood of archaeological features surviving within these areas despite the presence of known archaeological landscapes flanking these reserves.

RECORDED ARCHAEOLOGICAL SITES

Prior to the archaeological survey the records of the New Zealand Archaeological Association (NZAA) were consulted in order to determine if archaeological sites have been recorded within or in the immediate vicinity of land affected by the TSS. Site types provided by the NZAA data base are descriptive and not interpretative and the full extent of the archaeological site is often not conveyed in the description.

There are twelve recorded sites within 500m of land affected by the Tarawera Sewerage Scheme (Table 1). Of these twelve sites seven have been assessed as definitely not affected by the Sewerage Scheme. The remaining five sites are reviewed below to determine if they are affected. An assessment for the potential of unrecorded subsurface archaeological sites to be encountered during the pipe installation is also provided.

Table 1. Recorded archaeological sites within 500 metres of the TSS.

Site No.	Site Type	Assessment of Effects
U16/8	Pa	No Effects
U16/11	Rock Paintings	No Effects
U16/15	Te Rua a Umukaria Pa / Settlement	Possible Effects
U16/22	Flour Mill	No Effects
U16/23	Stone Store House	No Effects
U16/32	Kawau Kainga	Possible Effects
U16/60	Pa – Waitangi Settlement	Possible Effects
U16/61	Pa - Waitangi Settlement	Possible Effects
U16/88	Cultivation	No Effects
U16/89	Cultivation	No Effects
U16/90	Settlement / Kainga	Possible effects
U16/187	Grind stone findspot	No Effects

² Simmons 1991, Phillips 2001a



Figure 3. New Zealand Archaeological Association plan showing the location of recorded archaeological sites in relation to the proposed sewerage scheme (broken red line). Recorded sites potentially affected by the TSS Have NZAA designations shown.

U16/90 Tikitapu Kainga Cultivations

This site is located on the northern shores of Lake Tikitapu. It was recorded by Bob Regnault in 1984 and updated by the author in 1999. Regnault recorded the site based on information provided by Mr Whitcliffe, an elder of Ngāti Hinemihi who stated that whare belonging to Ngati Tu were located on the west of Tarawera Road while Ngati Hinemihi whare were located between Tarawera and Okareka Loop Road. These locations are now occupied by the mown foreshore reserve and the Blue Lake Holiday Park respectively. The location has all the required attributes to support a pre European Māori settlement that may have utilised the elevated ridges rising to the north from the lake edge between Tarawera Road and Okareka Loop Road and especially the gentle topography rising gently north from the lake edge on either side of the central ridge.

No archaeological features relating to the settlement have been identified however there are several archival sources relating to the settlement including the identification of an 'old kainga' on the western side of Tarawera Road on survey plan ML 5342D produced before the 1886 eruption (Figure 12). There are also several photos of the area immediately after the 1886 eruption showing fenced enclosures and wooden huts mantled in deep ash.

The location also potentially contains archaeological evidence of the military camp established on the northern shore of Lake Tikitapu by Gilbert Mair and the Arawa

Flying Squad in December 1873. Following the abandonment of the Kaitereria camp on Lake Rotokakahi Mair set up camp at Tikitapu and commenced road building along the eastern shores of Lakes Tikitapu and Rotokakahi before moving to Ohinemutu in September 1874.

Photos taken of the northern shore of Tikitapu immediately after the 1886 eruption show six or more wooden huts and fenced enclosures covered in a deep mantle of ash indicating settlement and farming.

The Tarawera Road reserve extending south to Lake Tikitapu and east around the northern shore line has involved cut and fill earthwork during its construction and more recent upgrading reducing the likelihood of encountering intact subsurface archaeology relating to the Waitangi settlement. That section of the road reserve descending south towards the lake edge has a c. 1m high cutting on the western side while the section extending east west across the top of the lake has been cut into the base of the north south ridge. However there remains some sections of the road reserve extending through the probably location of the kainga that appear relatively unmodified and there is a possibility albeit low that unrecorded subsurface archaeological features may be encountered during the installation of the sewerage pipe.

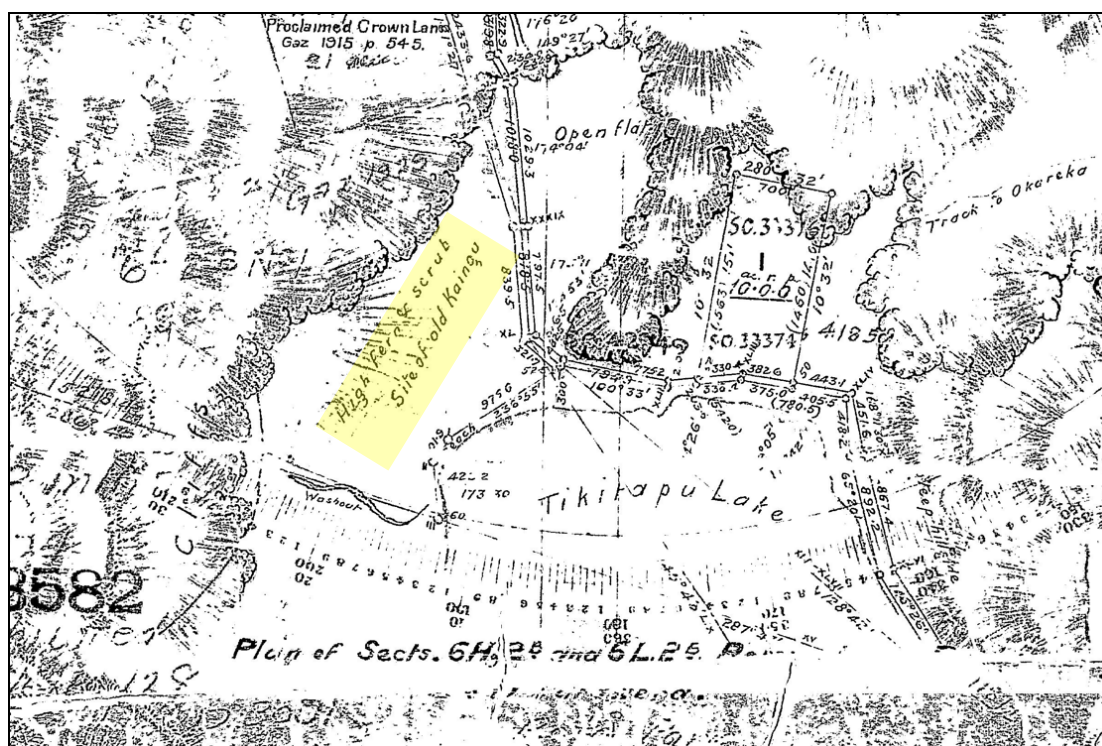


Figure 4. Part survey plan ML 5342D showing 'site of old Kainga' on the western side of Tarawera Road on the northern shore of Lake Tikitapu. Note track to Okareka top right.



Figure 5. Photo taken by Burton Brothers on 10 June 1886 showing the ash mantles settlement at Tikitapu (U16/90). Tarawera Road can be seen cut into the base of the slopes flanking the eastern side of the lake.

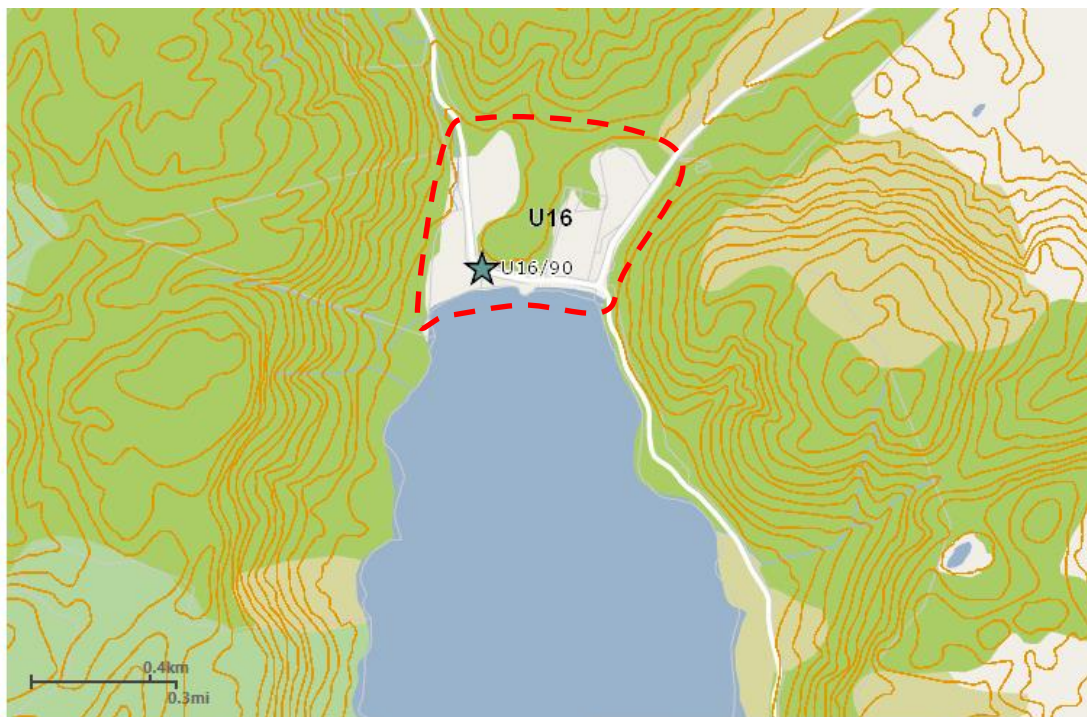


Figure 6. NZAA plan showing the possible extent of the pre 1900 Māori settlement at the northern end of Lake Tikitapu.

U16/22 & 23 Te Wairoa Village

The Wairoa Valley was settlement by pre European Māori who used the favourable soils for cultivations. No archaeological sites relating to this period have been recorded.

European history of the valley begins with Reverend Seymour Spencer who moved his Mission Station from Kariri to the Te Mu block at Te Wairoa in 1852.³ The Wairoa Stream valley was extensively cultivated by local Māori at this time however archaeological sites relating to this period remain unrecorded. Nor has the extensive archaeological remains of Te Wairoa village despite the numerous archaeological features presented in the Buried Village tourist attraction. The two recorded features include U16/22 (Flour Mill) and U16/23 (stone store house) while the Hotel and numerous whare sites remain unrecorded.

When tourism to the pink and white terraces flourished in the 1870s the village of Te Wairoa expanded to accommodate visitors. Buildings and whare were built on both sides of the road constructed from Rotorua to Tarawera. The archaeology of Te Wairoa is well understood by virtue of extensive archives and several professional archaeological excavations. The history of the village is presented in many publications and will not be repeated here.



Figure7. Photo of Te Wairoa Village prior to the 1886 eruption.

The Tarawera Road alignment through the village does not appear to have changed significantly from pre-eruption depictions (Figure 7). Consequently, significant archaeological features relating to village structures are less likely to be encountered within the road reserve but there remains a possibility that features and or artifacts may be encountered during ground disturbance associated with the pipeline

³ Phillips 2000a

installation in this area. It should be noted that the two recorded sites within the village (U16/22 & 23) are not affected by the proposed sewerage pipe installation.

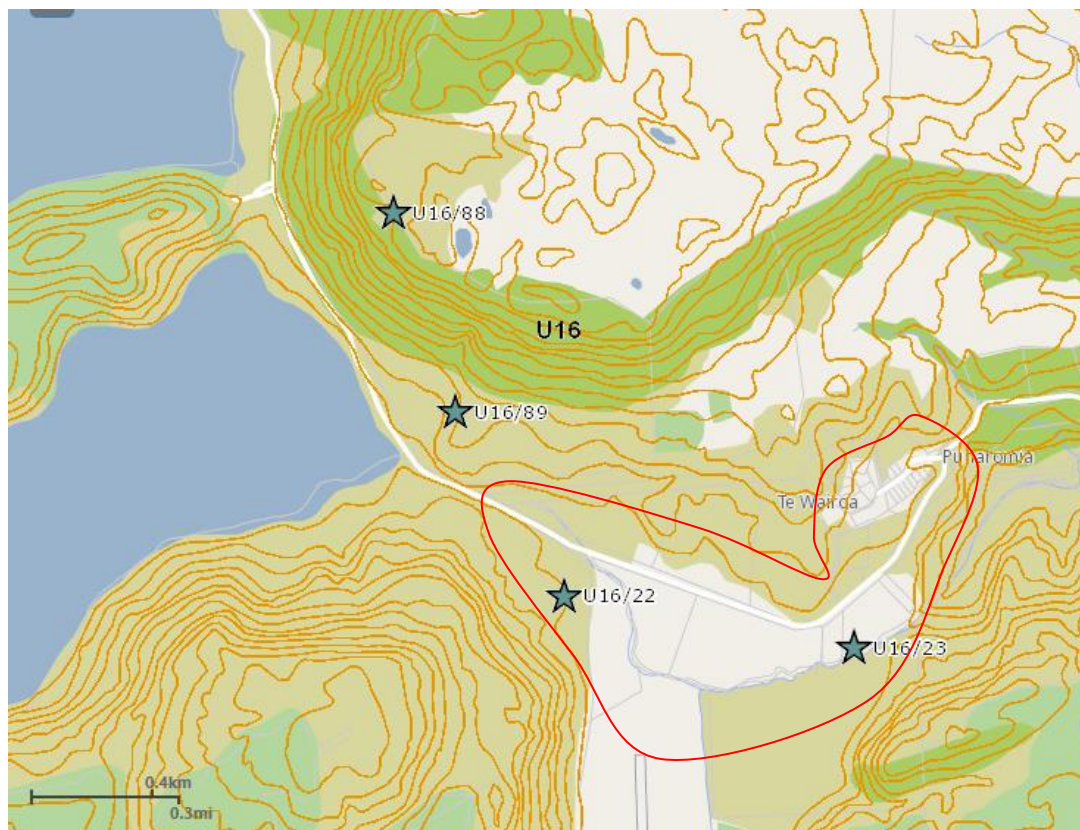


Figure 8. NZAA plan showing recorded archaeological sites within and surrounding Te Wairoa Village and Te Mu mission outlined red.

U16/32 Te Kawau Kainga.

This site was recorded by Cecil Watt in 1971 based on archival research; primarily survey plan ML 5342 produced prior to the 1886 eruption (Figure 9). Watt suggests the settlement was contemporaneous with Te Rua o Umukaria Pa (U16/15)

Archaeological evidence of the site has yet to be found and the exact location of the settlement is unclear. Topography would dictate a location above the lake escarpment and north of Spencer Road (Lot 1 DPS 19146) where several prominent Knoll's and ridges would have provided suitable defensible points while surrounding level to gently rolling land may have been suitable for cultivations. The settlement may also have extended to or been located at Toroa Point where topography is more suitable for settlement and is the location of the place name Kawau on survey plan ML 5342-2 (Figure 10.).

Surviving physical evidence of settlement would have high archaeological and cultural values. The Spencer Road reserve in this area shows evidence of cut and fill earthworks during its construction and more recent upgrading reducing the likelihood of encountering intact subsurface archaeology relating to the settlement.

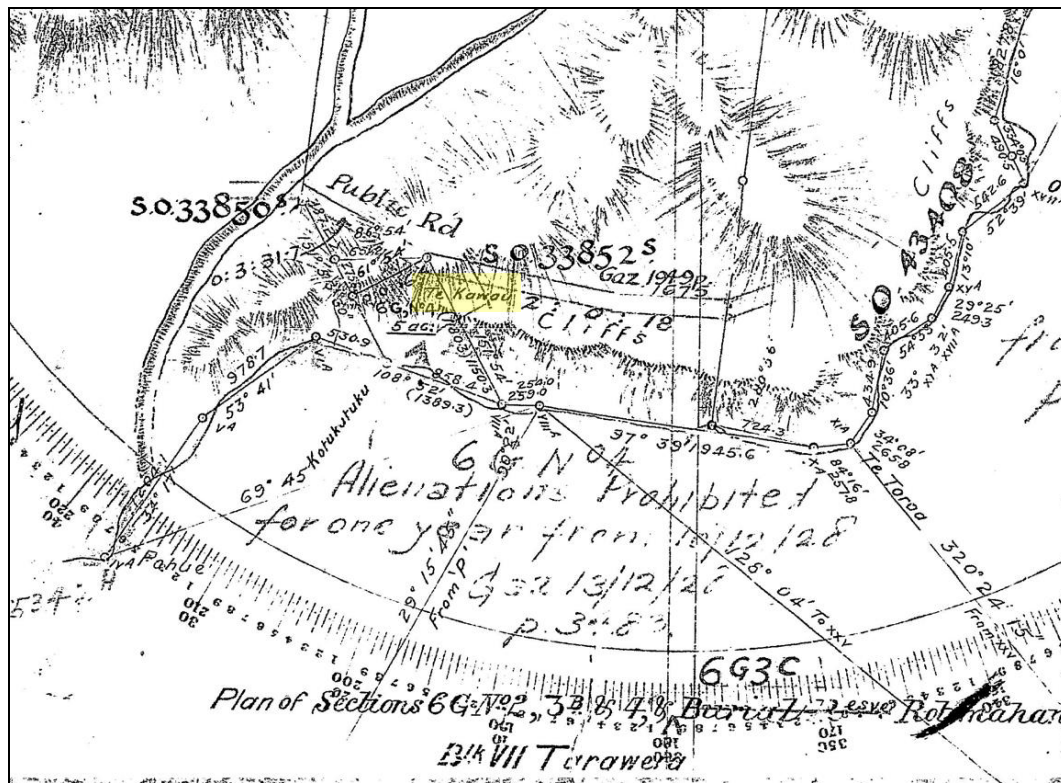


Figure 9. Part survey plan ML 5342M showing Te Kawau at Kotukutuku Bay.

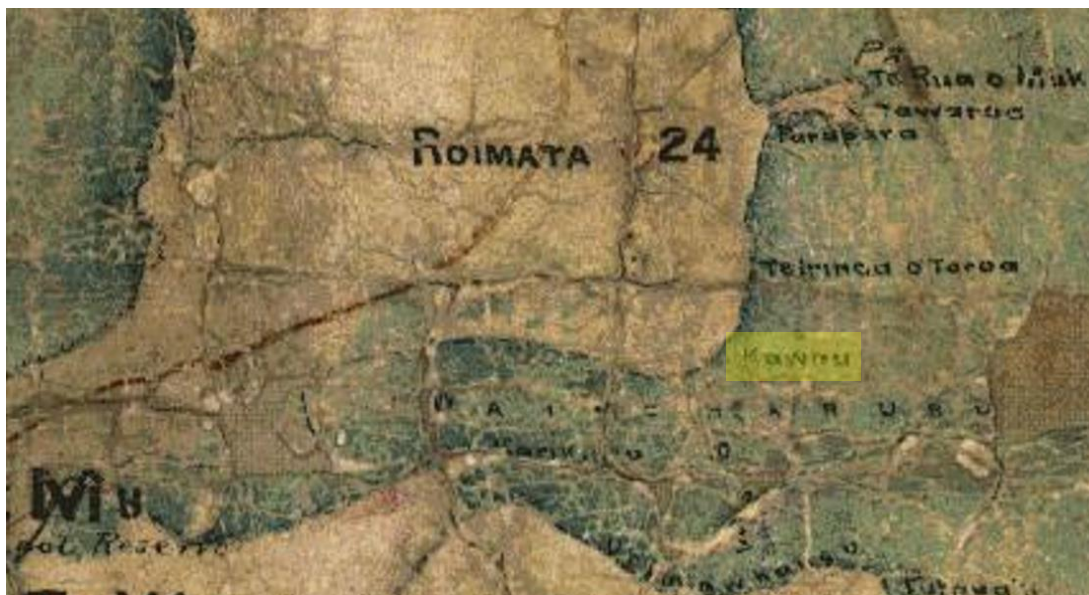


Figure 10. Part survey plan ML 5342-2 showing Te Kawau at Te Toroa Point.



Figure 11. NZAA plan showing the coordinates for U16/32 provided by Watt and the location of the Mausoleum and pa on Kariri Point recorded as U16/15.

U16/15 Te Rua a Umukaria Pa / Mission Station

This site is located on the Kariri peninsula and encompasses an ancient Tuhourangi Pa built by Umukaria and associated cultivations and waka land sites extending to the west. It was also the location of one of the first Mission Stations in the Bay of Plenty established in 1845 by Reverend Seymour Spencer. A Kainga at Tokiniho was located above the escarpment to the west Kariri.

An archaeological assessment of the settlement at Kariri was completed by the author in 2000.⁴ The assessment identified physical features present at the time of the Mission Station based on archival information. A mantle of up to one metre of Rotomahana mud covers the peninsula and surrounding areas preventing accurate archaeological survey of the Pa and settlement. Based on available archival information the assessment identified four c.1850 activity areas. The proposed sewerage pipe line falls within Area A (Figure £) where early sketches indicate the presence of cultivations and several groupings of whare and related structures.

The kariri peninsula and surrounding area potentially encompasses a nationally significant archaeological landscape preserved beneath the Rotomahana Mud. There have been several archaeological investigations in the area however they have been limited in scope and confined within small land parcels on the northern side of the

⁴ Phillips 2000

peninsula overlooking Rangiuru Bay⁵. These investigations have revealed cultivated soils beneath the deep Rotomahana Mud layer.

Modifications to the natural topography during the construction and subsequent upgrading of the Spencer Road reserve has significantly reduced the likelihood of encountering intact subsurface archaeology relating to recorded site U16/15.

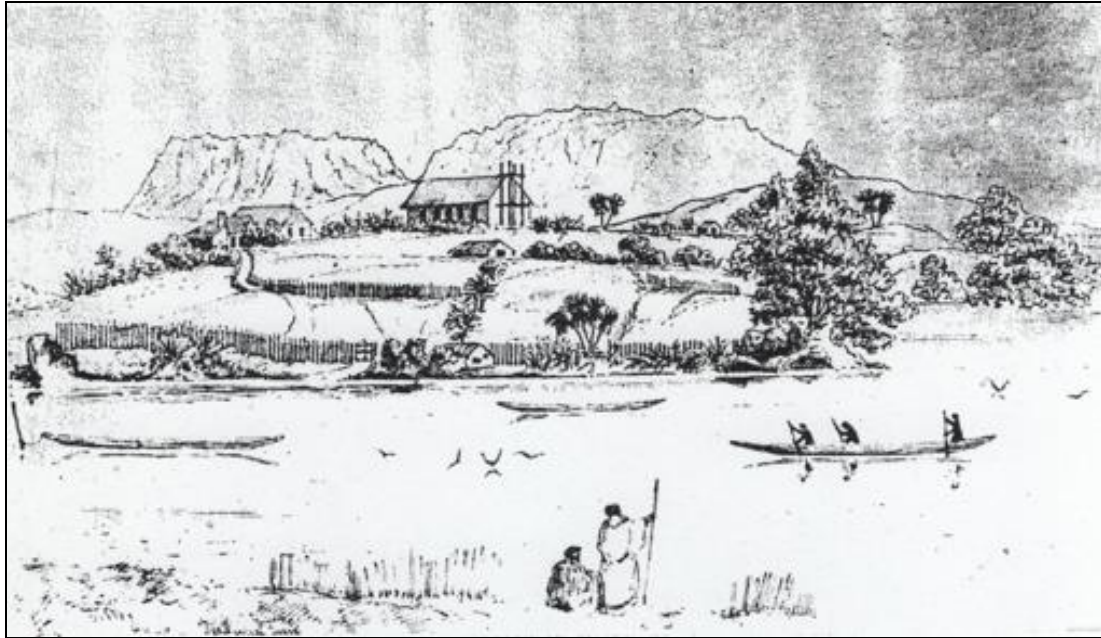


Figure 7. Sketch produced in 1847 showing the southern side of the settlement at Kariri. (Phillips 2001, Fig 4.)

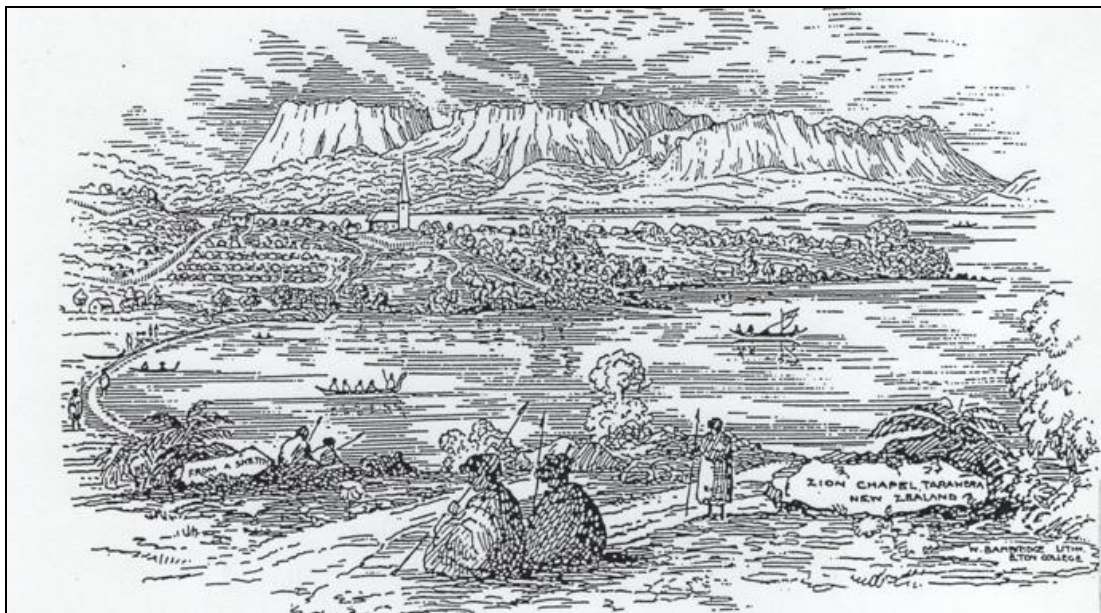


Figure 8. Sketch produced in 1850 showing the southern side of the settlement at Kariri. The road crossing the proximal end of the peninsula roughly corresponds with the alignment of Spencer Road. (Phillips 2001, Fig 5.)

⁵ Hooker 2010, Phillips 2011, 2014, 2015a

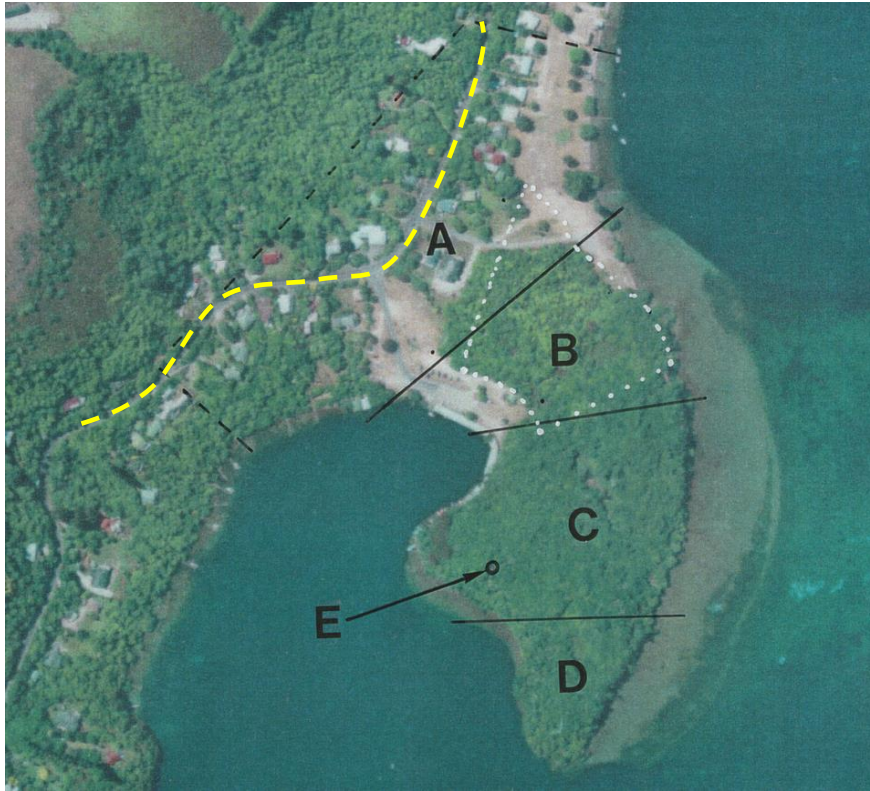


Figure 13. Plan from Phillips 2000 showing the four activity areas identified in relation to the proposed sewerage pipe installation added (yellow). Area A was considered the location of whares and cultivations. The location marked E indicates the site if the Mausoleum. (Phillips 2000, Figure 6)



Figure 14. Photo showing 1m deep Rotomahana mud covering the pre 1886 topsoil within 7 Rangiuru Bay Road. Phillips 2015a.

U16/60 & 61 Te Miro Pa

These two pa are located on Te Miro Point. First recorded as archaeological sites by Ken Moore in 1977. U16/60 is located on the southern side of the point while U16/61 overlooks Te Karamea Bay to the north. Both retain visible archaeological features and have been the subject of several archaeological assessments and investigations.⁶

The two pa provided defended positions for the surrounding Waitangi settlement that extended to the west across the level to Rolling land of Te Miro Point and the portage between Lake Tarawera and Lake Okareka. Soils and aspect of the point would have supported cultivations while Te Karamea and Waitangi Bays provided excellent waka landings for the settlement.

Several archaeological investigations have identified archaeological sites to the west of the pa including a whare within 345 Spencer Road and an urupa within 343 Spencer Road. Most recently grinding stone artifacts have been found in the bed of the Waitangi Stream on the western side of Spencer Road. These sites represent components of the broader Waitangi Settlement that appears to have extended over a wide area much of which is currently covered in regenerating bush.

The Spencer Road reserve extending north south across the Te Miro headland shows evidence of minor cut and fill earthworks during its construction and more recent upgrading reducing the likelihood of encountering intact subsurface archaeology relating to the Waitangi settlement during the TSS installation.

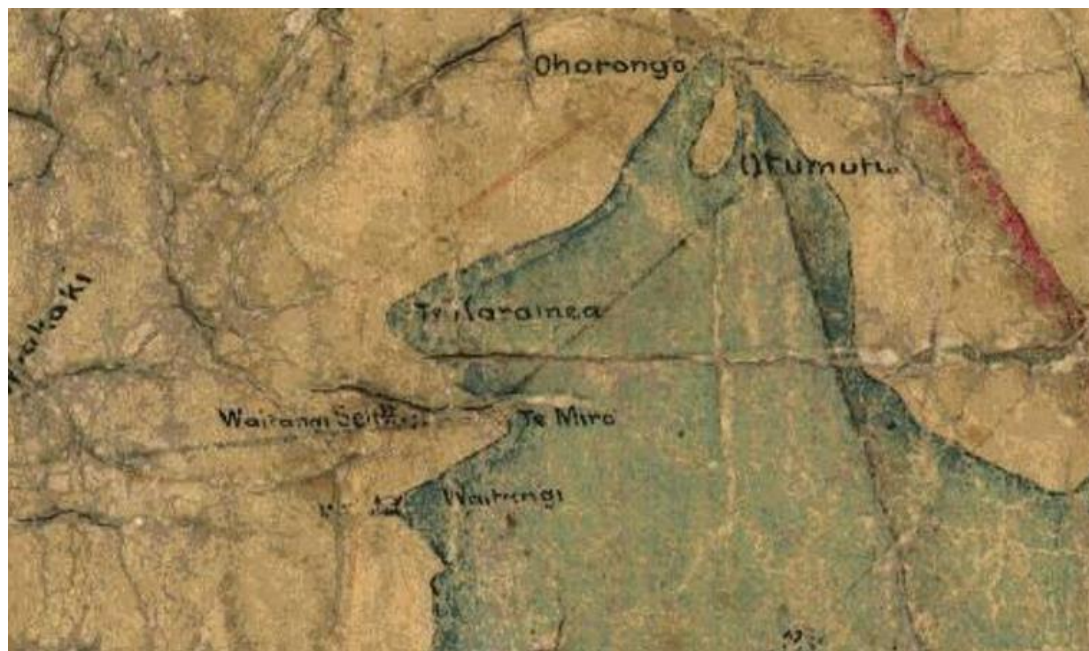


Figure 15. Part survey plan ML 5342 2 showing Te Miro Point and land to the west labelled Waitangi Settlement.

⁶ Hooker 2010, Phillips 2010, 2011, 2015



Figure 16. Floor of whare excavated within 345 Spencer Road. Phillips 2011.



Figure 17. Plan showing known archaeological sites associated with settlement on the Te Miro headland. Note incorrect coordinates for U16/61 are corrected on this plan.

Unrecorded archaeological sites

The proposed Tarawera Sewerage Scheme main alignment passes through a significant archaeological landscape that is currently not reflected in the recorded NZAA archaeological inventory for the project area. This is due to the lack of surface visibility of archaeological features typical of the Bay of Plenty archaeological resource. The difficulty in identifying archaeological sites is further compounded by the tephra mantle from the 1886 Tarawera eruption which can be a metre or more deep around the western shore of Lake Tarawera (Figure 14). Any ground disturbance that extends below the 1886 tephra mantle in areas that would have been favourable for pre-eruption settlement may encounter unrecorded subsurface archaeological sites.

ASSESSMENT OF EFFECTS

No previously unrecorded archaeological sites were identified during the inspection of the TSS alignment carried out as part of this assessment. There are no recorded archaeological sites directly affected by the proposed TSS installation along Tarawera and Spencer Roads, however archaeology relating to several known settlement sites located on the northern shore of Lake Tikitapu (U16/90) Te Wairoa Village and the settlement at Waitangi (U16/60, 61) may potentially be encountered during ground disturbance associated with the project.

While the unrecorded archaeological resource is anticipated to be extensive and well preserved the proposed installation of the main sewerage pipe is confined to existing road reserves within which the natural topography has been significantly modified by cut and fill earthwork during initial construction and subsequent upgrading. This earthwork has significantly reduced the likelihood that intact subsurface archaeological features will be encountered during the pipeline installation. Furthermore, ground disturbance associated with the directional drilling installation methodology of the TSS will be limited to drill pits and small excavations for associated structures along the route further reducing the likelihood of encountering subsurface archaeological sites.

In summary, the likelihood of affected archaeological sites during the TSS installation within existing road reserves is considered low, however it is not possible to provide absolute assurance that unrecorded archaeological features will not be encountered during earthwork associated with the project. It is therefore recommended that an authority is sought and obtained from Heritage New Zealand to enable appropriate and expedient mitigation procedures to be carried out in the event that archaeological features are encountered during the installation process. Having an HNZ authority in place will prevent significant delays to sections of the alignment affected by archaeological discoveries.

It should be recognised that the installation of individual connections within privately owned land parcels will have a much higher potential to encounter unrecorded archaeological sites and this component of the project should be the subject of a separate archaeological assessments.

RECOMMENDATIONS

The following recommendations for avoidance or mitigation are provided as points of discussion between the applicant, statutory agencies and tangata whenua.

1. That a Heritage New Zealand (HNZ) authority to modify damage or destroy possible unrecorded archaeological features encountered during earthwork associated with the Tarawera Sewerage Scheme main pipeline installation is obtained prior to the commencement of ground disturbance.
2. That archaeological monitoring of ground disturbance associated with the TSS installation within road reserves is carried out at the discretion of the project archaeologist.
3. That in the event that intact archaeological sites are encountered during ground disturbance associated with the project all work must stop in the immediate area until the project archaeologist has carried out appropriate investigation, sampling and recording in accordance with conditions of an HNZ authority.
4. That if koiwi tangata (human remains) are encountered, no further modification of the site concerned shall occur until tangata whenua and the HNZ have been advised and their responses received.
5. Archaeological survey cannot always detect sites of traditional value to Maori, such as wahi tapu. Tangata whenua should be consulted regarding the possible existence of such sites and informed of the recommendations of this report.

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