Draft Bulk Earthworks Contaminated Land Management Plan (BECLMP)

Peka Peka to North Ōtaki Expressway Project

7 FEBRUARY 2013

Prepared for

New Zealand Transport Agency

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Introduction

This draft Bulk Earthworks Contaminated Land Management Plan (BECLMP or plan) has been prepared by URS New Zealand Limited (URS) for use by the New Zealand Transport Agency (NZTA).

This draft BECLMP provides a framework and general procedures for management of contaminated soil and other contaminated materials/structures in ground that may be encountered during construction of the Peka Peka to North Ōtaki Expressway section of the Wellington Northern Corridor Road of National Significance (RoNS) Project.

This draft BECLMP would be finalised by NZTA or its agents (e.g., the contractor) with site and area specific information once the following has been completed:

- detailed design;
- intrusive contaminated land investigations (if required);
- a contractor has been selected;
- and construction methodologies have been confirmed.

Based on the current and inferred historic land use within this corridor it is considered that this draft BECLMP provides appropriate management and control procedures for contaminated land issues that could be reasonably encountered during construction. Until such time as the specific information described above is available, this BECLMP is sufficiently broad to cover reasonably foreseen conditions. It is anticipated that this draft BECLMP would be updated, as required, during the works by NZTA or its agents.

This draft BECLMP also provides guidance for obtaining consent, as and if required, for soil disturbance and other activities related to management of contaminated land, from the local authority (Kāpiti Coast District Council), under the National Environmental Standards[1] (NES). Such consent would be required under the NES for certain Hazardous Activities and Industries List (HAIL)[2] sites or likely HAIL sites where certain criteria are triggered (e.g., soil disturbance over certain area/volume triggers).

NZTA and its agents would be responsible for implementation of this BECLMP.

1.1 Background

The New Zealand Transport Agency (the NZTA) is lodging a Notice of Requirement (NoR) and applications for resource consents for the construction of the Peka Peka to North Ōtaki Expressway section of the Wellington Northern Corridor RoNS Project. The NoR for the re-alignment of approxiamtly
1.2 km of the North Island Main Trunk (NIMT) through Ōtaki is also being sought, and is being undertaken on behalf of KiwiRail. In this application, “the Project” refers to:

- Construction of the main road alignment;
- Realignment of part of the NIMT; and
- Associated local road connections.

The Project is a proposal of national significance and the matters have been lodged with the Environmental Protection Authority (EPA).

[1] Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.
[2] Current edition, Ministry for the Environment

1 Introduction

This draft BECLMP provides procedures for management of contaminated soil and other materials potentially present in ground that may be disturbed or require removal to complete the Project.

1.2 The Project

1.2.1 Main alignment

The Project is one of eight sections of the Wellington Northern Corridor RoNS that runs from Wellington Airport to Levin. The completion of the Wellington Northern Corridor RoNS will assist regional and national economic growth. . The location of the Project in the overall scheme of this corridor is illustrated in **Figure 1-1** below.

The NZTA proposes to designate land and obtain the resource consents to construct, operate and maintain the Peka Peka to North Ōtaki section of the Wellington Northern Corridor RoNS. This Project extends from Te Kowhai Road in the south to Taylors Road just north of Ōtaki, an approximate distance of 13 km.

The Peka Peka to North Ōtaki Expressway section of the Wellington Northern Corridor RoNS will provide an expressway with two lanes of traffic in each direction. Connections to local roads, new local roads and access points over the expressway to maintain safe connectivity between the western and eastern sides of the expressway are also proposed as part of the Project. There is an additional crossing of the Ōtaki River proposed as part of the Project, along with crossings of other watercourses throughout the Project length.

On completion, it is proposed that the expressway becomes State Highway 1 (SH1) and that the existing SH1 between Peka Peka and North Ōtaki become a local road, allowing for the separation of local traffic. It is noted that the power to declare roads to be State Highways or revoke status resides with the Chief Executive of the Ministry of Transport, not with the NZTA.

1.2.2 NIMT

KiwiRail proposes to designate land in the Kāpiti Coast District Plan for the construction, operation and maintenance of a re-aligned section of the North Island Main Trunk (NIMT) through Ōtaki.

1 Introduction

Figure 1-1 Location of Peka Peka to North Ōtaki expressway within the Wellington Northern Corridor.

1.3 Objectives

The objective of this draft BECLMP is to provide indicative methods and procedures for the management of contaminated soil and other contaminated materials/structures potentially present in ground that may be disturbed or require removal to complete the Project.

This draft BECLMP does not cover contaminated, dangerous or hazardous materials (i.e., asbestos, lead paint, polychlorinated biphenyls containing ballasts and transformers) potentially present in buildings or other above-ground structures within the designated Project corridor. These materials would be covered in management plans developed in support of the demolition (building) consent process, as and if required.

1.4 Scope of Draft BECLMP

The scope of this draft BECLMMP includes the following:

- Summary of earlier Phase 1 environmental assessments undertaken within the designated Project corridor
- Indicative management procedures for handling and stockpiling of contaminated soils
- General procedures for site worker health and safety related to contaminated soil
- Indicative procedures should unexpected contaminated soil be encountered during the construction works
- A basis for assessing whether contaminated soils may remain or should be removed from the site.

1.5 Draft BECLMP Format

The draft BECLMP has been divided into sections as follows:

Section 1 - Introduction

Section 2 – Summary of Potentially Contaminated Sites

Section 3 – Management of Contaminated Soil and Other Materials

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Summary of Potentially Contaminated Sites

2.1 Previous Investigations

Potentially contaminated sites within the Project corridor to be designated were previously identified by URS during Phase 1 contaminated land assessments (CLAs) completed as an overview of the Project corridor and for specific sites. These assessments are documented in the *Peka Peka to North Ōtaki – Phase 1 Contaminated Land Assessment*[Error! Bookmark not defined.] (Phase 1 CLA).

Based on the corridor overview assessment, sites considered to have the highest potential for ground contamination are summarised in **Table 2-1.** Refer to **Figure 2-1** through **Figure 2-6** for the locations of these sites and the designated Project corridor.

Table 2-1 Potentially Contaminated Sites Identified within the Designated Project Corridor

Property Details	Reason Identified
Ōtaki Station Off Arthur Street, Ōtaki	Historic Railway Station, car parks, landscaped greens and railway sidings. Adjacent to rail lines.
Ōtaki Sidings Off Arthur Street, Ōtaki	Building/structure foundations observed. Piles of rubble/debris observed. Adjacent to rail lines.
Winstone Aggregates 0 SH1 South, Ōtaki	Heavy equipment and the processing of aggregates
Bridge Lodge 3 Ōtaki Gorge Rd, Ōtaki	Storage containers, warehouse building and an above ground storage tank (AST) present on site. Buses and haulage vehicles were parked on the site.
Mary Crest 701 SH1, Te Horo	Storage of fuel.
38 Otaki Gorge Road G W & J E Elliott	Market garden/orchard
36 Otaki Gorge Road Marbella Lodge Ltd	Market garden/orchard
34 Otaki Gorge Road Kilbirnie Animal Health Properties Ltd	Market garden/orchard
9 Old Hautere Road F R & P V Bertelsen Ltd	Market garden/orchard
36 Sutton Road M E J Coolen	Market garden/orchard
37 Sutton Road, Te Horo Avatar Estate Ltd	Market garden/orchard
KiwiRail Corridor Various areas along the northern part of the designated Project corridor	Historic and current use as railroad transport corridor

A site specific Phase 1 CLA was undertaken at each of the five sites identified below with a focus on the portion of these sites within the designated Project corridor[3]. A summary of the findings of the site-specific Phase 1 CLA s is provided in **Table 2-2**. General and site-specific contaminated land management measures for these sites are provided in **Section 3**.

[3] *Phase 1 Environmental Assessment – 3 Otaki Gorge Road, Otaki*, 29 March 2012, Pattle Delamore Partners, Ltd. and URS December 2012.

2 Summary of Potentially Contaminated Sites

Table 2-2 Summary of Findings of the Site-Specific Phase 1 CLAs

Site	Findings of Phase 1 CLAs
Otaki Station & Sidings	There is potential for ground contamination associated with the railway current and historic maintenance and operational activities on the Ōtaki Station and Sidings properties. Staining of rail ballast around the railway tracks was observed during the site walkover, but no other evidence of surface soil contamination. Contaminants including petroleum hydrocarbons and metals are expected to be present. Records indicate the presence of a gas house; however the location of the gas house is unknown. The exact nature and use of the gas house has not been determined. Former and current buildings/structures within the boundaries of the properties included a goods shed, amenities block, Otaki Station building, men's toilets, septic tank and other undefined structures. Other potential sources of historic contamination were identified along the rail corridor to the south west outside the confines of the Otaki Station and Sidings properties. These included potential stock holding yards, a train turn-table area, potential wood storage area and associated buildings. Based on the potential HAIL activities identified at the site the following potential contaminants of concern maybe present within the proposed Project corridor: hydrocarbons, PAHs, heavy metals, solvents, creosote, metal and asbestos particulates associated with braking, fuel (diesel), lubricating oils, grease associated with spills/leaking, arsenic, organochlorines (e.g. aldrin, dieldrin, DDT4, lindane), organophosphates, carbamates, synthetic pyrethroids, biological hazards (bacteria, viruses) and PCP.
Winstone Aggregates	No potential sources of ground contamination were identified within the designated Project corridor. However, sources of potential ground contamination were identified on the Winstone Aggregates site, immediately west of the designated Project corridor, and include: • storage of grease, oil and paint; • asbestos on the inner wall cladding of the old store; • three waste oil aboveground storage tanks; one aboveground diesel storage tank; location of former underground diesel storage tank; • septic tanks; and, • an electrical transformer.
Mary Crest	Potential sources of ground contamination within the designated Project corridor include: • Former farm operations on the southwest portion of the property, including foundations of former farm structures and an uncharacterised ground depression. • Potential for a septic tank located within the vicinity of the dwelling at the entrance to the Mary Crest site. There is also potential for ground contamination outside the designated Project area but within the confines of the Mary Crest site, including underground storage tanks (locations unconfirmed) and former farm operations. Based on the potential HAIL activities identified at the site the following potential contaminants of concern maybe present within the proposed Project corridor: heavy metals, wide range of organic agrichemicals including organochlorine pesticides,

[4] dichlorodiphenyltrichloroethane

2 Summary of Potentially Contaminated Sites

	organophosphate pesticides, herbicides, fungicides, carbamates, and synthetic pyrethroids; compounds maybe mixed with diesel before spraying; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines (e.g., endosulfan on golf and bowling greens); hydrocarbons including BTEX, PAHs, and solvents; lead and other metals, particularly if waste oil handled; biological hazards (bacteria, viruses), and semi- volatile organic compounds.
Bridge Lodge[3]	Five potential sources of ground contamination were noted within the designated Project corridor: • one underground storage tank potentially containing kerosene; • one above ground tank containing diesel; and • three septic tanks. Based on the potential HAIL activities identified at the site the following potential contaminants of concern maybe present within the proposed Project corridor: hydrocarbons including BTEX, PAHs, and solvents; lead and other metals, particularly if waste oil handled; biological hazards (bacteria, viruses), metals, PAHs, semi- volatile organic compounds, and solvents.

Works within the KiwiRail corridor and within market garden/orchard sites are discussed in **Section 2.2** and **2.3**, respectively.

2.2 Works within the Existing KiwiRail Corridor

Works are proposed within the existing KiwiRail corridor (refer **Figure 2-1** and **2-2** for approximate extent). Based on the nature of activities that typically occur within rail corridors it is inferred that potential for land contamination exists. Constituents of potential concern associated with this activity includes metal and asbestos particulates associated with braking, fuel (diesel) spills/leaking, solvents, creosote, phenols, polycyclic aromatic hydrocarbons (PAHs), and lubricating oils and grease spillage/leaks. Indicative general and site-specific contaminated land management measures for works within the existing KiwiRail corridor are provided in **Section 3**.

2.3 Works within Market Garden/Orchard Sites

Works are proposed within market garden/orchard sites (refer **Figure 2-1, Figure 2-2** and **Figure 2-5** for and **Table 2-3** for locations). Based on the nature of activities that typically occur within market garden and orchard sites it is inferred that potential for land contamination exists. Constituents of potential concern associated with these activities include the following: arsenic, lead, copper, mercury; and a wide range of organic compounds, including acidic herbicides, organophosphates, and organochlorines[5]. Indicative general and site-specific contaminated land management measures for works within the market garden/orchard sites are provided in **Section 3**.

[5] *Users' Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*, April 2012, Ministry for the Environment.

Table 2-3 Location of Market Garden/Orchard Sites within Designated Project Corridor

Map Reference	Property Details
99	38 Otaki Gorge Road G W & J E Elliott
100	36 Otaki Gorge Road Marbella Lodge Ltd
101	34 Otaki Gorge Road Kilbirnie Animal Health Properties Ltd
105	9 Old Hautere Road F R & P V Bertelsen Ltd
165	36 Sutton Road M E J Coolen
170	37 Sutton Road, Te Horo Avatar Estate Ltd

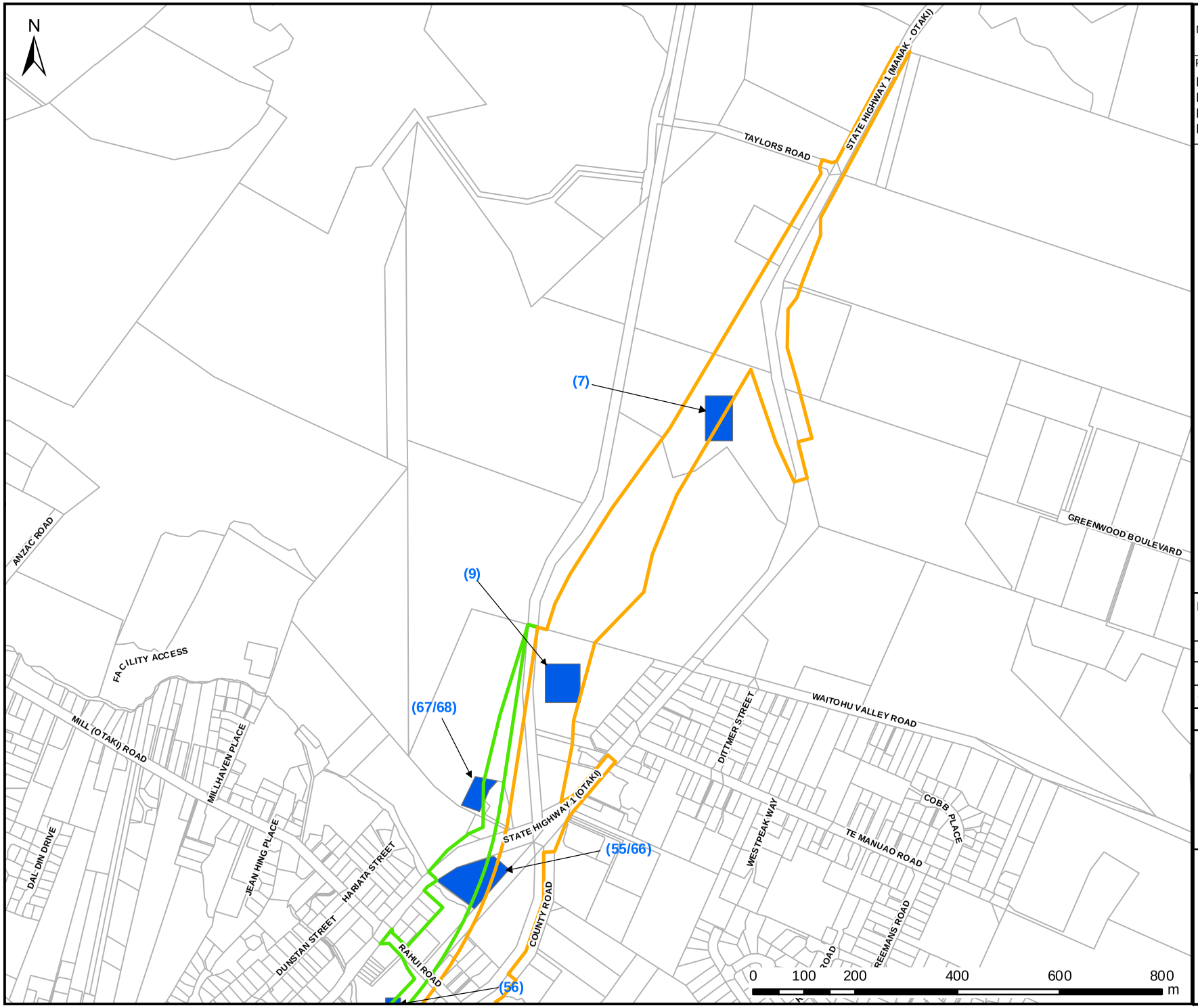
2.4 Sites of Potential Concern for Contaminated Land

In addition to the sites/areas identified above additional sites were identified within the designated Project corridor in the Phase 1 CLA as sites of potential concern for contaminated land. A summary of these sites is provided in **Table 2-4** with a cross reference to the property ownership reference numbers shown on **Figure 2-1** through **Figure 2-6**. These sites are inferred to have lower risk for land contamination than those identified above. Specific procedures for management of contaminated land have not been developed for these sites; however, they would be reviewed and/or assessed prior to initiating physical works within these sites/areas and general/site-specific management measures implemented should contaminated land or materials be discovered (refer **Section 3**).

2 Summary of Potentially Contaminated Sites

Table 2-4 Summary of Sites of Potential Concern within the Designated Project Corridor

Map Reference	Property Details	Rationale for Inclusion as Site of Potential Concern
7	SH1 South, Otaki D H McLaren	Area of unusual topography (possible sheep dip) identified on aerial photograph
9	291 State Highway 1, Otaki O D & C I Mihaila	Possible industrial buildings and area of disturbed land/stressed vegetation identified on aerial photograph
55/66	0 Main Highway, Otaki Kapiti Coast District Council	Property Record (non-residential/individual ownership), Area of disturbed land/stressed vegetation identified on aerial photograph
56	230 SH1/29 Rahui Rd D H McLaren	Possible industrial buildings and area of disturbed land/stressed vegetation identified on aerial photograph
67/68	263 SH1 A E Coulson & CA Wahrlich	Vehicle storage, possible industrial buildings, and area of disturbed land/stressed vegetation identified on aerial photograph
125	10 Te Horo Beach Rd, Te Horo Duncan Partition Installations Ltd	Possible industrial buildings identified on aerial photograph
122/132	3-5 School Rd, Te Horo Maori Trustee	Property Record (non-residential/individual ownership),, Area of disturbed land/stressed vegetation and unusual topography (possible sheep dip) identified on aerial photograph
186	635 SH 1, Te Horo Kotuku Consulting and Health Management Company Ltd	Property Record (non-residential/individual ownership), Disturbed land/stressed vegetation identified on aerial photograph
195	18-20 Te Kowhai Rd M P & R R Trotter	Area of disturbed land/stressed vegetation and unusual topography (possible sheep dip) identified on aerial photograph



MapTitle: Sites of Interest

Project:
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Legend

- Designated Project Corridor
- Approximate Extent of Proposed Works Within Existing Kiwirail Alignment
- Sites Listed on GWRC's Selected Land Use Register
- Sites of Interest Based on Aerial Photographs, Historic Records or Property Ownership
- (231) Property Ownership Reference Number

Drawing Number	Status	Rev.
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Original Size: A4	Checked:	SL
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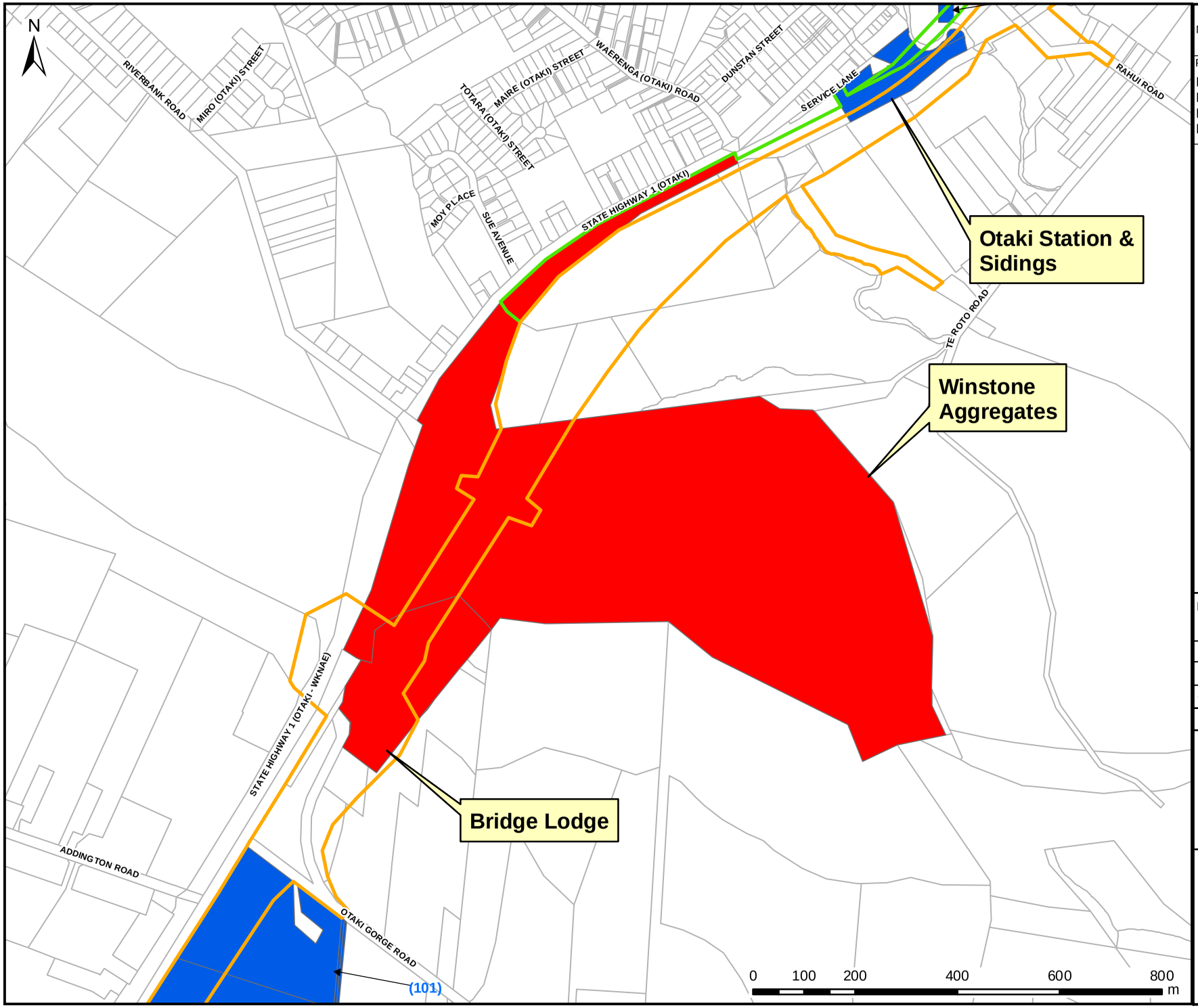

MapTitle: Sites of Interest

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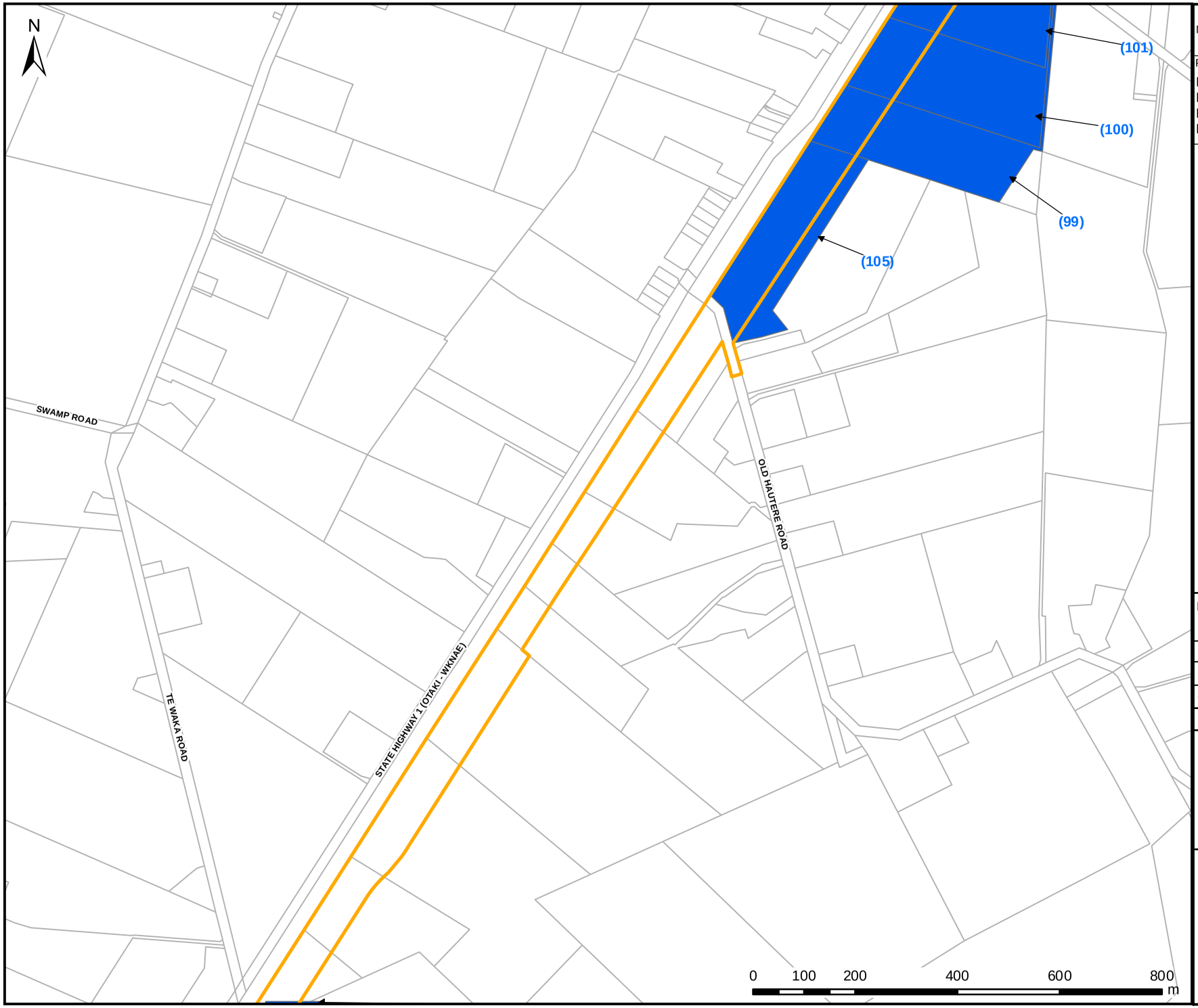

MapTitle: Sites of Interest

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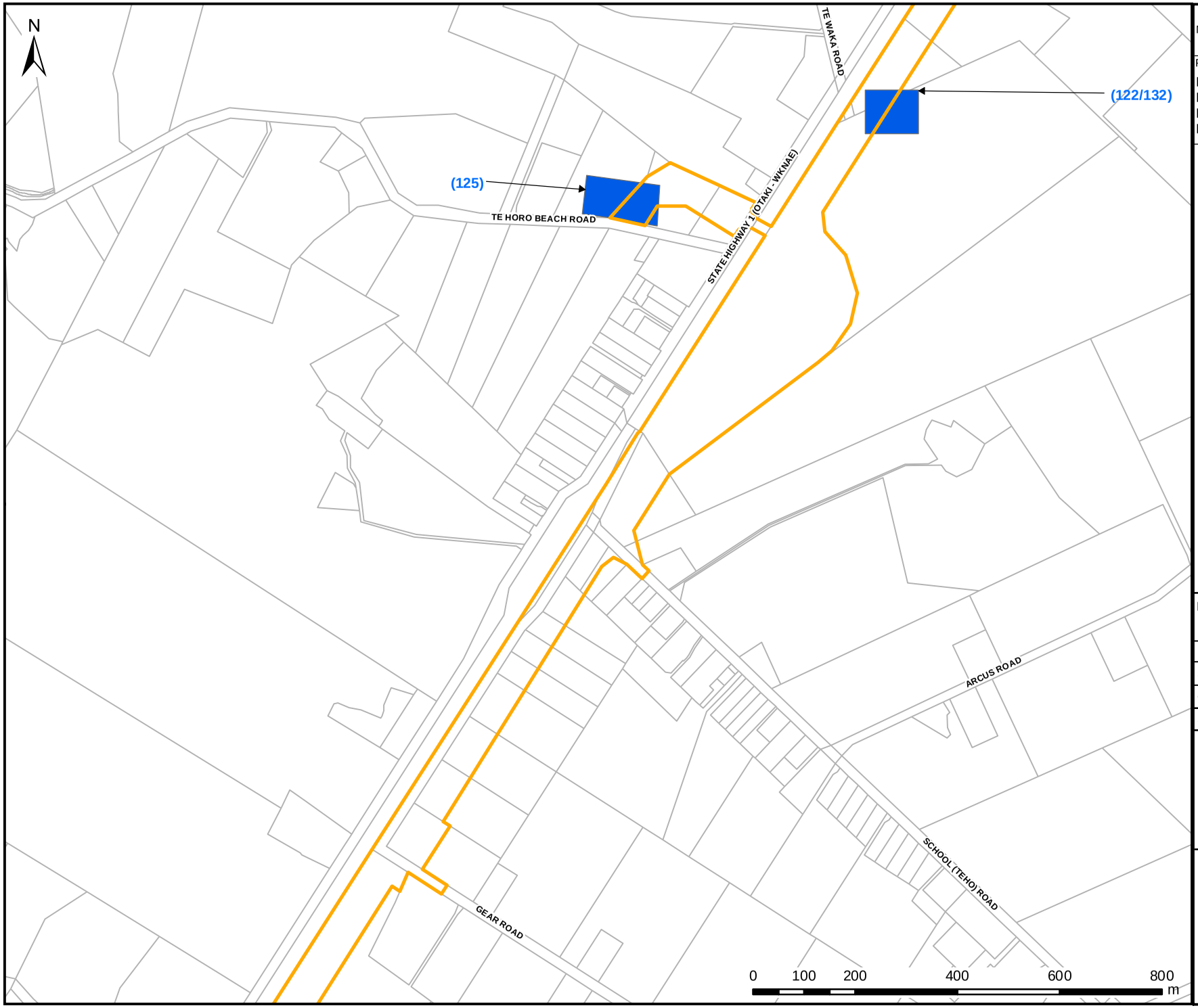

MapTitle: Sites of Interest

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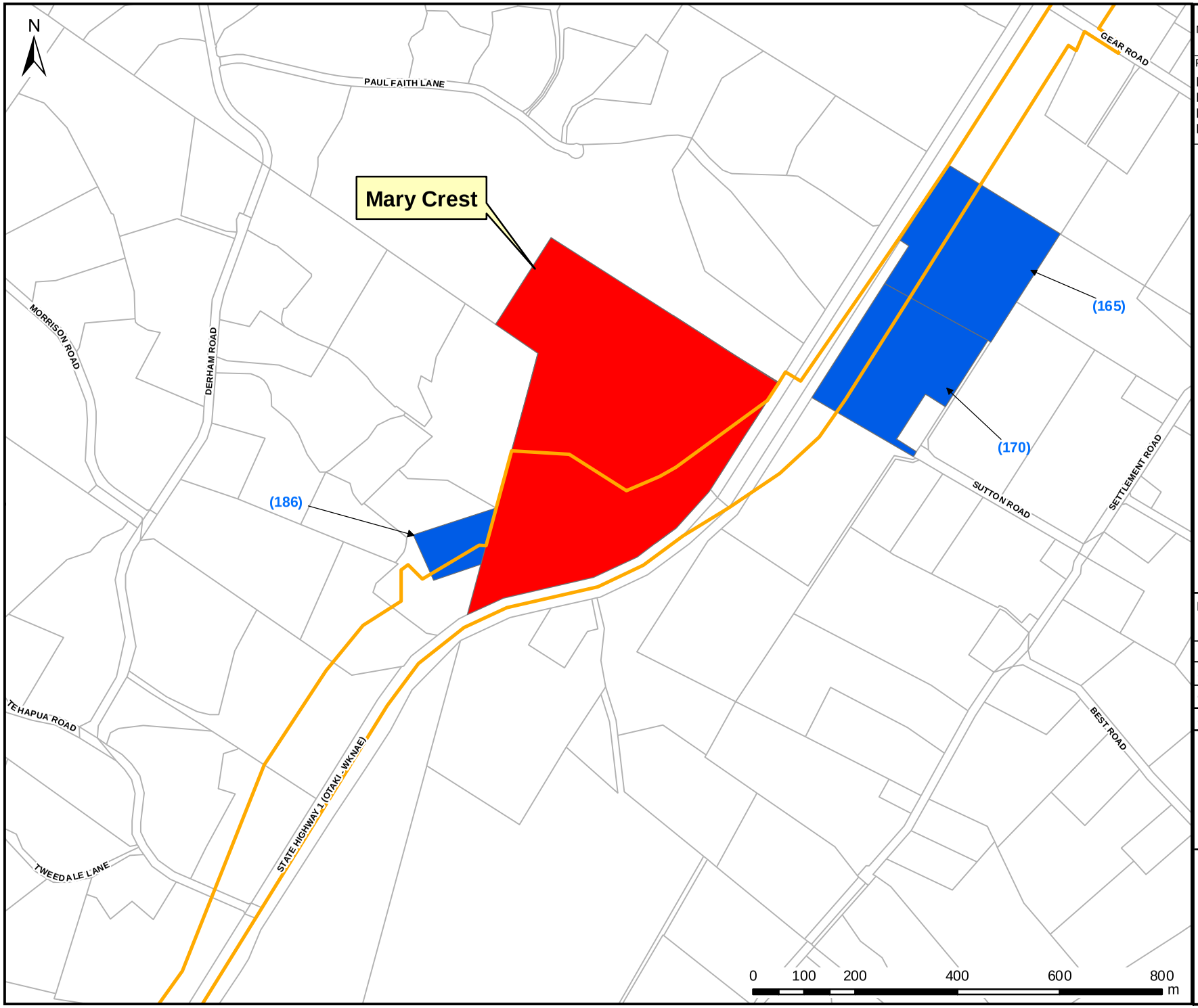

MapTitle: Sites of Interest

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Drawing Number	Status	Rev.
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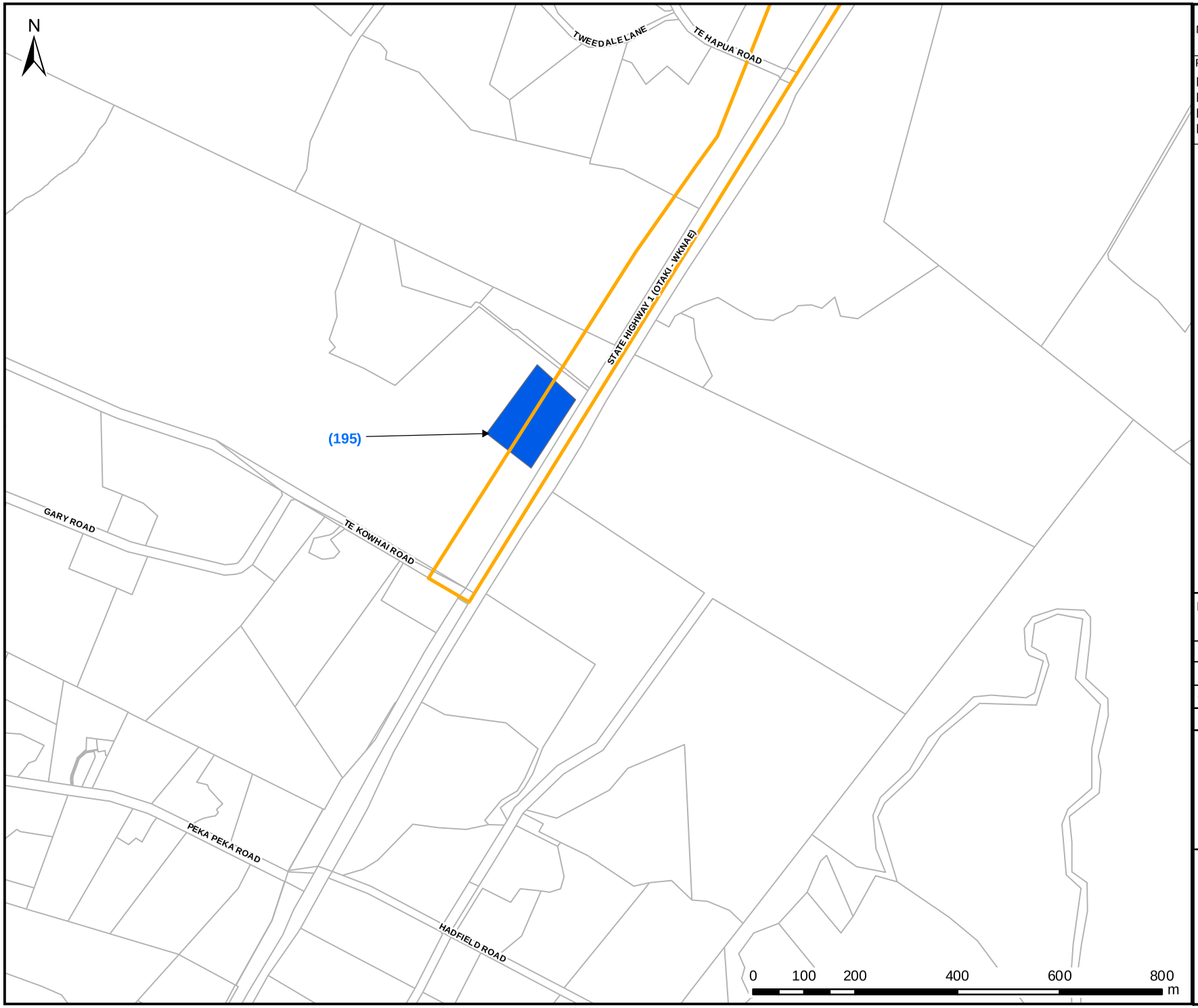

MapTitle: Sites of Interest

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Drawing Number	Status	Rev.
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3

Management of Contaminated Soil and Other Materials

Provided below are indicative procedures for management of contaminated soil and other materials. It is anticipated that these procedures would be updated with site and area specific information once detailed design has been completed, a Contractor engaged, construction methodologies determined, and site-specific data is obtained.

3.1 Previously Identified Potentially Contaminated Sites

Table 3-1 summarises indicative procedures to be undertaken prior to construction for previously identified potentially contaminated sites. Section 3-3 provides indicative general procedures to be employed for management of contaminated material and supplements the procedures outlined in **Table 3-1**.

Table 3-1 Indicative Contaminated Material Management Procedures for Previously Identified Potentially Contaminated Sites

Site	Proposed Contaminated Material Management Procedures
Otaki Station & Sidings	• Assess soil and structures (former foundations), which may be impacted by the proposed works. • If septic tank present remove contents and abandon in place or remove as required if it conflicts with proposed works. • Obtain Territorial Authority consents as required. • Material (including contaminated material) assessed as suitable may be left in place. • Remove and dispose of contaminated material offsite as determined by the assessment or as required by the proposed works.
Winstone Aggregates	• No sources of ground contamination were identified within the designated corridor.
Mary Crest	• Confirm presence of septic tank within the designated corridor. • If septic tank present remove contents and abandon in place or remove as required if it conflicts with proposed works. • Assess depression area identified in the Phase 1 CLA to determine the presence of contaminated material if conflicts with proposed works are identified.
Bridge Lodge	• Obtain Territorial Authority consents for the following works, as required. • Remove above ground storage tank. • Remove contents of underground storage tank. • Remove underground storage tank and assess surrounding bedding material and soil as required. • Dispose offsite underground storage tank and contaminated material assessed as not suitable to remain onsite (as determined by the assessment or as required by the proposed works). • Remove contents of three septic tanks. • Abandon three septic tanks in place or remove as required if they conflict with proposed works. • Material assessed as suitable may be left in place.
KiwiRail alignment	• Assess rail ballast, bedding and subgrade material that may be impacted by the proposed works. • Obtain Territorial Authority consents as required. • Material (including contaminated material) assessed as suitable may be left in place. • Remove and dispose of contaminated material offsite as determined by the assessment or as required by the proposed works.

Site	Proposed Contaminated Material Management Procedures
Market Garden Sites	• Assess soil that may be impacted by the proposed works. • Obtain Territorial Authority consents as required. • Material (including contaminated material) assessed as suitable may be left in place. • Remove and dispose of contaminated material offsite as determined by the assessment or as required by the proposed works.

3.2 Contaminated Sites Identified During Works

Previously unidentified contaminated soils or other materials may be discovered during the works. Given the nature of the Project corridor it is anticipated that such discoveries would most likely be associated with the following:

- Farm tips and offal pits
- Storage, handling and use of herbicides and pesticides
- Septic tanks
- Heating oil and/or fuel storage in underground tanks
- Sheep dips
- Market gardens and orchards

The *Users' Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*[6] provides a list of constituents of potential concern associated with specific activities and industries. An excerpt from this list is provided in **Table 3-2**.

Table 3-2 Summary of Constituents of Potential Concern for Some Potential Activities within the Project Corridor

Activity/Industry	Constituents of Potential Concern
Agrichemicals including commercial premises used byspray contractors for filling, storing or washing out tanks for agrichemical application	Arsenic, lead, copper; wide range of organic agrichemicals including organochlorine pesticides, organophosphate pesticides, herbicides, fungicides, carbamates, and synthetic pyrethroids; compounds maybe mixed with diesel before spraying
Livestock dip or spray race operations	Arsenic, organochlorines (e.g., aldrin, dieldrin, DDT[7], lindane) and organophosphates, carbamates, and synthetic pyrethroids
Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines (e.g., endosulfan on golf and bowling greens)
Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above	Hydrocarbons including BTEX[8], PAHs[9], and solvents; lead and other metals, particularly if waste oil handled

[6] Ministry for the Environment, April 2012
[7] dichlorodiphenyltrichloroethane
[8] Benzene, toluene, ethylbenzene and xylenes.
[9] Polycyclic aromatic hydrocarbons

3 Management of Contaminated Soil and Other Materials

Activity/Industry	Constituents of Potential Concern
or below ground	
Railway yards including goods-handling yards, workshops, refuelling facilities or maintenance areas	Hydrocarbons including PAHs, solvents, creosote/phenols, and metals.
Waste disposal to land (excluding where biosolids have been used as soil conditioners)	Depends on type of waste – biological hazards (bacteria, viruses), metals, PAHs, semi- volatile organic compounds, and solvents.

The Phase 1 CLA identifies a number of sites within the designated Project corridor that have the potential for ground contamination based on desktop information (refer to **Figure 2-1** through **Figure 2-6** and **Table 2-4**). These sites/areas shall be reviewed in the field and assessed as required prior to initiating physical works in those areas.

3.2.1 Identification

Potentially contaminated soil or other materials may be encountered during the works. Such materials may include, and/or be identified by the following characteristics:

- Odorous, stained or discoloured soils.
- Presence of anthropogenic fill materials, such as household rubbish, offal wastes, or farm tip wastes.
- Drums, sumps, or storage tanks.
- Presence of fill or access ports, vents, leach fields or other infrastructure associated with underground storage or septic tanks.
- Stressed vegetation.
- Sheen or oily liquids in soil or on water.
- Sheep dips (presence of trenches, pits, concrete pads with shower-like pipework, baths, fencing races leading to pit or bath-like structures).[10]
- Unnaturally mounded soil or unnatural depressions indicative of waste disposal activities (offal pits/farm tips).
- Construction or demolition debris.

3.2.2 Communication and notifications

Communication and notification of the identification of potentially contaminated soil shall be undertaken as soon as practical and in accordance with project/contract communication plan. It is anticipated that internal notifications would include the NZTA Project manager or their designee, the Contractor's works supervisor, and the Engineer.

If the discovery is assessed as presenting an imminent hazard or danger, Project emergency contacts shall be notified and local emergency services shall be notified by dialling 111.

[10] For photographs and examples, refer to Appendix 10 of *Identifying, Investigating and Managing Risks Associated with Former Sheep-dip Sites: A guide for local authorities*, Ministry for the Environment,

3.2.3 Initial Actions

Upon discovery of potential contaminated soil or other material, the following preliminary measures shall be undertaken:

- Assess potential immediate hazards, if unsafe move away, and upwind from area
- Notification of potential discovery as described above

  (If assessed to be safe, the following shall be undertaken)
- Make area and works in progress safe
- Stop works in and adjacent to the inferred area of contaminated soil or materials
- Secure/isolate area
- Implement temporary measures to minimise transport of potential contaminants offsite

3.3 General Procedures for Management of Contaminated Soil and other Materials

Indicative general procedures for management of contaminated soil and other materials are provided below. It is anticipated that these procedures would be reviewed and updated as appropriate, when site/area and contaminant specific details and the proposed construction methodologies are known.

3.3.1 Assessment

An assessment of the potentially contaminated soil or other material shall be undertaken by a *suitably qualified and experienced practitioner*[11]. Such assessment shall be based on the following, as appropriate:

- The hierarchy set out in the Ministry for the Environment "*Contaminated Land Management Guidelines No. 2*", 2011
- Ministry for the Environment "*Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand*", Revised 2011
- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES)
- *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils,* Ministry for the Environment (2011)
- *Identifying, Investigating and Managing Risks Associated with Former Sheep-dip Sites: A guide for local authorities*, Ministry for the Environment

Soils or other materials assessed as not suitable to remain in situ, based on the proposed landuse and the proposed works, shall be removed offsite for treatment and/or disposal.

It is anticipated that appropriate assessment may conclude that contaminated soils and other materials may be left in place. It is anticipated that covering/capping of ground contamination, as would occur with the road construction associated with the Project, may be the most practical and suitable solution for mitigating effects of ground contamination.

It is also anticipated that some soil and/or other materials assessed as suitable to remain onsite may be removed for offsite treatment and disposal due to conflicts with the proposed Projector because they are geotechnically unsuitable.

[11]As defined in the *User's Guide, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*, Ministry for the Environment, April 2012.

3.3.2 Consenting

Consents shall be obtained from the Territorial Authority for fuel system removal, soil sampling, ground disturbance and/or soil removal/remediation activities as required under the NES. A summary of potentially relevant regulations is provided in **Table 3-3**.

Table 3-3 Summary of Potentially Relevant NES1 Regulations

Does the NES apply to this site?	
Is the land covered by the NES?	Regulation 5(7) through 5(9) and Regulation 6
Is the activity covered by the NES?	Regulation 5(2) through 5(6)
Can the Activity comply with the permitted activity conditions?	
Removing or replacing fuel storage system	Regulation 8(1)
Sampling soil	Regulation 8(2)
Disturbing soil	Regulation 8(3)

Notification, assessment, validation sampling and reporting shall be conducted in accordance with the NES.

3.3.3 Site and General Requirements

The following measures shall be employed when works may result in direct or indirect exposure to ground contamination:

- Develop and implement a site/area-specific specific health and safety plan in accordance with NZTA and Department of Labour/Occupational Safety and Health requirements, and the Health and Safety in Employment Act 1992 as amended. The health and safety plan shall identify contaminants of potential concern and their potential health and safety hazards and appropriate training, mitigation and monitoring measures.
- Update or amend the construction environmental management plan to include site/area-specific measures to minimise discharge of contaminants to the environment.
- Implement measures to protect health and safety and minimise discharge of contaminants to the environment, including erosion and sediment management controls, decontamination of equipment prior to leaving the area of concern (including wheel/track cleaning), and security measures to control/limit access to the site/area.

3.3.4 Excavation

Contaminated soils may be suitable to be left on site, but when contaminated soil or material is assessed to be not suitable to remain on site, it shall be excavated and removed offsite for disposal. To the extent practicable the following measures shall be implemented during excavation or stripping of contaminated or potentially contaminated soil:

- Establish exclusion zones around excavation areas, clearly delineating, isolating and securing these areas, as required.
- Segregate contaminated soil based on visual and/or odour characteristics.

- Allow wet soil to drain back to the excavation prior to stockpiling or loading for offsite disposal.
- Minimise the duration of open excavations.
- Minimise stormwater runon by diversion around excavation areas.
- Grading or bunding of the area immediately adjacent to the excavation area to promote local drainage back to the excavation.
- Provision of erosion and sediment management controls, such as bunds and silt fencing around excavation areas.
- Removal of groundwater or water accumulated in the excavation for appropriate offsite disposal as required to complete and backfill the excavation.

3.3.5 Stockpiling

During the works temporary stockpiling of contaminated or potentially contaminated soil may be required for assessment purposes and/or for staging prior to offsite disposal.

To the extent practicable the following measures shall be implemented during stockpiling of contaminated or potentially contaminated soils:

- Segregation of contaminated/potentially contaminated soils from overburden or other soils inferred to be not contaminated.
- Location of stockpiles in areas generally no subject to stormwater runon and remote or isolated from sensitive receptors, such as watercourses, drains, wetlands, soakage areas, livestock, and the general public.
- Minimising the duration of stockpiling.
- Minimising the height of stockpiles to approximately 4 metres and providing a stable stockpile slope.
- Covering and/or wetting of stockpiles to reduce the potential for dust and odour effects.
- Location of stockpile down prevailing wind from public receptors.
- Minimise stormwater runon by diversion around excavation areas
- Provision of erosion and sediment management controls, such as silt fencing around stockpiles.

3.3.6 Sumps, Underground Storage Tanks, and Septic Tanks

Sumps or septic tanks conflicting with proposed works shall be abandoned in place or excavated and removed for offsite disposal by an appropriately qualified contractor.

Underground storage tanks used for the storage of petroleum and other substances shall be removed in accordance with the following codes of practice, as appropriate:

- *Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems*, Occupational Safety and Health Service, Department of Labour, May 1992.
- *Code of Practice for Disused Below Ground Stationary Tanks on Farms* (approved under the Hazardous Substances and New Organisms [HSNO] Act 1996), May 2007

Prior to removal or abandonment, liquid/sludge contents shall be removed for offsite disposal. Bedding material and adjacent soil shall be removed for offsite disposal if assessed as not suitable to remain on site. Hotworks, if required, shall be completed in accordance with the above by a suitably qualified contractor.

3 Management of Contaminated Soil and Other Materials

3.3.7 Offsite Transportation of Contaminated Materials

Transportation of contaminated soil, material and liquids for offsite disposal shall be in accordance with the rules, regulations, guidelines, and standards and licensing requirements outlined in the following:

- Land Transport Rule 45001/1 (Land Transport Rule: Dangerous Goods 2005) and NZS 5433
- Hazardous Substances and New Organisms Act 1996 (HSNO)
- *Code of Practice for the Transport and Disposal of Petroleum Storage Tanks and Related Waste*, Occupational Safety and Health Service, Department of Labour, May 1995.

These measures outline minimum requirements for the following, which shall be implemented:

- Placarding/labelling
- Emergency and spill response planning
- Licensing/training
- Manifesting/tracking
- Covering and containment loads

Classification of contaminated material for offsite transportation shall be completed by a *suitably qualified and experienced practitioner*.

3.3.8 Disposal of Contaminated Materials and Liquids

Contaminated soil and other contaminated solid material shall be disposed of a facility licensed (consented) to accept such materials. Characterisation of these materials shall be conducted by a *suitably qualified and experienced practitioner* in accordance with the requirements of the receiving facility and in general accordance with the methods outlined in the *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils,* Ministry for the Environment (2011).

Liquid wastes, such as impacted water generated during remedial excavations (Section 3.3.4), shall be treated and disposed of by one the following methodologies:

- discharge, under permit, to a tradewaste system consented to receive such wastes; or
- removal for offsite disposal and treatment at a facility consented to receive such wastes.

Removed petroleum storage tanks shall be disposed of in accordance with the following:

- Code of Practice for the Transport and Disposal of Petroleum Storage Tanks and Related Waste, Occupational Safety and Health Service, Department of Labour, May 1995.

Disposal criteria and characterisation for all wastes shall be those established by the receiving facility.

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Limitations

URS New Zealand Limited (URS) has prepared this draft contaminated soil management plan (Plan)in accordance with the usual care and thoroughness of the consulting profession for the use of New Zealand Transport Agency and only those third parties who have been authorised in writing by URS to rely on this Plan.

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this Plan.

It is prepared in accordance with the scope of work and for the purpose outlined in the Section 1 of this Plan.

Where this Plan indicates that information has been provided to URS by third parties, URS has made no independent verification of this information except as expressly stated in the Plan. URS assumes no liability for any inaccuracies in or omissions to that information.

This Plan was prepared between 14 June 2012 and 29 January 2013 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This Plan should be read in full. No responsibility is accepted for use of any part of this Plan in any other context or for any other purpose or by third parties. This Plan does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Except as required by law, no third party may use or rely on this Plan unless otherwise agreed by URS in writing. Where such agreement is provided, URS will provide a letter of reliance to the agreed third party in the form required by URS.

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Except as specifically stated in this section, URS does not authorise the use of this Plan by any third party.

It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

Any estimates of potential costs which have been provided are presented as estimates only as at the date of the Plan. Any cost estimates that have been provided may therefore vary from actual costs at the time of expenditure.

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