
Bulk Earthworks Contaminated Land Management Plan

FCCL-EV-MPN-0005

FINAL C – June 2017

Contents

Authorisation and Revision Record
 Certification Record.....
 Conditions – Reference Guide.....

1 Introduction 1

1.1 The Project..... 1

1.2 Purpose of this Plan..... 2

1.3 Roles and Responsibilities 2

2 Summary of Potentially Contaminated Sites 4

2.1 Potentially Contaminated Sites..... 4

2.2 Sites of Potential Concern for Contaminated Land..... 12

3 Proposed Process for Site Assessments..... 14

3.1 Proposed Process for Assessment 14

3.2 Site Assessment 14

3.3 Consenting..... 15

4 General Procedures for Management of Contaminated Soil and Other Materials 17

4.1 Site and General Requirements 17

4.2 Excavation 17

4.3 Stockpiling 18

4.4 Sumps, Underground Storage Tanks, and Septic Tanks 19

4.5 Offsite Transportation of Contaminated Materials 19

4.6 Disposal of Contaminated Materials 19

4.7 Disposal of Groundwater and Impacted Water..... 20

4.8 Soil Validation Testing 20

5 Contaminated Sites Identified During Works 21

5.1 Identification 21

5.2 Initial Actions 21

5.3 Communication and Notifications..... 22


**Appendix A – Locations of Potentially Contaminated Sites and Sites of Potential Concern
within Designation Boundary..... 23**



AUTHORISATION AND REVISION RECORD

Revision	Status	Author	Date	Description
A	Draft	Genevieve Smith	27/1/17	Internal review
B	Draft	Genevieve Smith	24/2/17	PA review
B.1	Draft	Genevieve Smith	16/03/2017	PA review
B.2	Draft	Genevieve Smith	15/05/2017	Council review
C	Final	Genevieve Smith	07/06/2017	Council Certification

CERTIFICATION RECORD

Revision	Action	Name	Position	Date	Signature
	Approved by:	A. Cross	Manager	19/6/17	
	On behalf of GWRC				



CONDITIONS – REFERENCE GUIDE

The following table is provided to assist with assessing compliance with Consent Conditions. It is our intention this guide be removed before this Management Plan is lodged for certification with council.

Condition Number	Condition Requirement	Reference
E 10	Advice Note: If necessary, depending on the results of detailed site investigations (once access to sites is readily available), the consent holder shall apply for additional regional consents and/or for district consents under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.	-
	a) The consent holder shall submit the BECLMP to the Manager for certification at least 20 Working Days prior to the Commencement of Construction. The BECLMP shall be in general accordance with the draft BECLMP submitted with the application. The BECLMP shall be submitted as an appendix to the CEMP.	1.2
	b) The purpose of the BECLMP is to provide a framework and general 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.	1.2
	c) The BECLMP shall include:	-
	i) A summary of previous contaminated land assessments undertaken within the Project footprint;	2.1
	ii) Indicative management procedures for handling and stockpiling of contaminated soils;	4.3
	iii) General procedures for site worker health and safety related to contaminated soil;	4.1
	iv) Indicative procedures should unexpected contaminated soil be encountered during construction; and	5



Condition Number	Condition Requirement	Reference
	v) A basis for assessing whether contaminated soils may remain or should be removed from the site.	3.2
	d) Construction shall not commence until the consent holder has received the Manager’s written certification of the BECLMP.	1.3



1 INTRODUCTION

This Bulk Earthworks Contaminated Land Management Plan (BECLMP or Plan) has been developed for the State Highway 1 Peka Peka to Ōtaki Expressway (PP2O or the Project). It provides a framework and general 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. No ground investigations have been conducted as yet. Once the potentially contaminated sites have been investigated and any potential risks to human health or the environment have been determined, site specific Contaminated Soil Management Plans (CSMPs) will be developed, if and as required, on a site-specific basis

1.1 The Project

Works will occur over a 200 week period from 25 November 2016. The works will entail a 12.3km, 4-lane Expressway, consisting of:

- 1.4 Mm³ Earthworks
- 9 km local road
- 10 No. Bridges, including 330 m Ōtaki River Crossing
- Ōtaki Intersection - split
- East-West connections – Ōtaki, Te Horo
- Grade separation – Taylors Road
- 1.6 km railway realignment

The works will follow a general programme of enabling works and site establishment, followed by rail realignment and bridge construction and then road construction. The key project parameters are given in **Table 1-1**.

Item	Details
Project Name	Peka Peka to Ōtaki Expressway (PP2O)
Nature of project	12.3 kms of new expressway and 10 new bridges
State Highway Classification	SH 1
Commencement	25 November 2016
Project End Date	07 January 2021
Project Manager	Rowan Oliver (NZTA)
Principals advisor	Ron McFadyen (Opus)
Contractor	Fletcher Construction

Contract Manager	John Palm (Fletcher)
Councils with Jurisdiction	Greater Wellington Regional Council Kapiti Coast District Council

1.2 Purpose of this Plan

This Plan has been developed to satisfy the requirements of Condition E.10 of the resource consent and the Principal's Requirements (PRs). The purpose of this Plan is to provide a framework and general procedures for the management of contaminated soils and other materials/structures potentially present in-ground that may be disturbed or require removal to complete the Project.

Condition E.10 requires the submission of the BECLMP at least 20 working days prior to the commencement of construction works, with construction works not to commence until having received the Manager's written certification.

This BECLMP meets the requirements of documents referred to as a Contaminated Soils Management Plan and Contaminated Soil Investigation and Management Plan in the Principal's Requirements. This Plan will be updated to accommodate any changes or updates to the following regulatory frameworks:

- Greater Wellington Regional Council (GWRC) Operative Regional Plan for Discharges to Land
- GWRC Proposed Natural Resources Plan
- Kapiti Coast District Council (KCDC) District Plan
- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

Site specific CSMPs will include controls and procedures relevant to compliance with consent conditions specific to the site. These plans will be updated if there any changes relating to specific consent requirements.

1.3 Roles and Responsibilities

The following table presents a list of those who the BECLMP will be distributed to, their roles and responsibilities. The implementation of information presented in the BECLMP is mandatory, and the Environmental Manager is responsible for its implementation. All personnel entering or working on the site will be briefed to ensure they are familiar with any required or relevant information presented in the BECLMP relating to the particular site or works.

Role	Person	Responsibility
Contaminated Land Specialist	Genevieve Smith	Preparation of and any updates to the BECLMP and expert advice

		Leading contaminated land assessment and reporting for the Project
Stakeholder, Communications and Compliance Manager	Ed Breese	Ensure compliance with consent conditions and reporting
Environmental Manager	Alice Naylor	Ensure compliance with consent conditions
Construction Manager	Steve Findlay	Management of physical works
Civil Works Manager	Richard Rakovics	Site Supervision

The term 'PP2O Project team' used within this document refers to all those project participants involved in varying capacities in the Design and Construct project.

2 SUMMARY OF POTENTIALLY CONTAMINATED SITES

2.1 Potentially Contaminated Sites

A number of potentially contaminated sites located within the Project corridor were identified during the desk based Phase 1 Contaminated Land Assessment (CLA) undertaken by URS New Zealand Ltd (URS). This assessment reviewed the Project corridor as well as specific sites, with the findings documented in the *Peka Peka to North Ōtaki – Phase 1 Contaminated Land Assessment*¹ document.

The Phase 1 CLA undertaken by URS comprised a high-level assessment of the potential for contaminated land to be present within the Project corridor. This assessment generally involved the following:

- a) Consultation with local Councils (GWRC and KCDC)
- b) Review of current and historical aerial photographs
- c) Review of District Plan maps
- d) Review of historical landfill sites
- e) Review of property ownership records
- f) Drive-over of designated Project corridor.

Based on the Phase 1 CLA, sites considered by URS to have the highest potential for ground contamination were identified. Site specific Phase 1 CLAs were undertaken by URS for four of the identified sites, being the Ōtaki Station and Sidings, Winstone Aggregates, Mary Crest and Bridge Lodge. Site specific Phase 1 CLAs were not completed for the KiwiRail Corridor or market garden/orchard sites, as URS considered that the specified land use was sufficient to infer the potential for contamination to be present, and to be able to determine general contaminated land management measures.

A summary of the sites considered by URS to have the highest potential for ground contamination, and sites identified as having the potential to be contaminated during an initial aerial photograph review by the PP20 Project team are presented in Table 2-1. Other information including their GWRC Selected Land Use Register (SLUR) status, the findings of the site specific Phase 1 CLAs or inferences made based on the nature of activities present on the site by URS, and the potential HAIL classifications based on the current information held about the site are also presented. Refer to **Appendix A** for the locations of these sites within the designated Project corridor.

¹ *Peka Peka to Otaki – Phase 1 Contaminated Land Assessment*, URS New Zealand Ltd, 7 February 2013

Further assessment will be required for these sites to determine the potential risk present, and until this has been completed, general contaminated land management procedures will apply to these sites as detailed in **Section 4**.

Table 2-1: Summary of Potentially Contaminated Sites and Phase 1 Contaminated Land Assessment Findings undertaken by URS, GWRC SLUR Status and Potential HAIL Classifications

Property	Reason identified for investigation	Identification on GWRC SLUR*	Contaminants of potential concern as identified in Phase 1 CLA	Potential HAIL classification(s)
Otaki Station Otaki Sidings Off Arthur Street, Otaki	Historic Railway Station, car parks, landscaped greens and railway sidings Adjacent to rail lines Building/structure foundations were observed Piles of rubble/debris were observed Adjacent to rail lines	No	There is potential for ground contamination associated with the railway current and historical maintenance and operational activities on the Otaki Station and Sidings properties. Potential sources of historical contamination were identified by URS along the rail corridor to the south-west outside the confines of the Otaki Station and Sidings properties. These include 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 may be 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, organochlorines, organophosphates, carbamates, synthetic pyrethroids, and PCP.	F6 - Railway yards including goods-handling yards, workshops, refuelling facilities or maintenance areas A18 - Wood treatment or preservation including the commercial use of antisapstain chemicals during milling, or bulk storage of treated timber outside
Winstone Aggregates	Heavy equipment and	Yes - SN/01/032/02 D4 -Metalliferous ore processing including the	No potential sources of ground contamination were identified by URS within the designated Project corridor.	HAIL activities located outside of designated Project corridor

Property	Reason identified for investigation	Identification on GWRC SLUR*	Contaminants of potential concern as identified in Phase 1 CLA	Potential HAIL classification(s)
0 SH1 South, Otaki	processing of aggregates	chemical or physical extraction of metals, including smelting, refining, fusing or refining metals; A17 - Storage tanks or drums for fuel, chemicals or liquid waste E4 - Commercial concrete manufacture or commercial cement storage		
Bridge Lodge 3 Otaki Gorge Road, Otaki	Storage containers, warehouse building and an above ground storage tank (AST) present on site. Buses and haulage vehicles were parked on site	Yes - SN/02/110/02 A17 - Storage tanks or drums for fuel, chemicals or liquid waste	Five potential sources of ground contamination were noted within the designated Project corridor by URS including: <ul style="list-style-type: none"> • 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 may be present within the proposed Project corridor – hydrocarbons including BTEX, PAHs, metals, biological hazards (bacteria, viruses), and semi-volatile organic compounds.	A17 - Storage tanks or drums for fuel, chemicals or liquid waste

Property	Reason identified for investigation	Identification on GWRC SLUR*	Contaminants of potential concern as identified in Phase 1 CLA	Potential HAIL classification(s)
Mary Crest 701 SH1, Te Horo	Storage of fuel	Yes - SN/01/126/02 A17 - Storage tanks or drums for fuel, chemicals or liquid waste	<p>Potential sources of ground contamination within the designated Project corridor identified by URS include:</p> <ul style="list-style-type: none"> • Former farm operations on the south-west portion of the property, including foundations of a potential sheep dip, • Potential for a septic tank located within the vicinity of the dwelling at the entrance to the Mary Crest site. <p>Based on the potential HAIL activities identified at the site, the following potential contaminants of concern may be present within the proposed Project corridor – heavy metals, a wide range of organic agrichemicals including organochloride pesticides, organophosphate pesticides, herbicides, fungicides, carbamates, and synthetic pyrethroids, compounds maybe mixed with diesel before spraying, hydrocarbons including BTEX, PAHs and solvents, biological hazards (bacteria, viruses) and semi volatile organic compounds.</p>	<p>A8 - Livestock dip or spray race operations</p> <p>A17 - Storage tanks or drums for fuel, chemicals or liquid waste</p>
34/36/38 Otaki Gorge Road and 9 Old Hautere Road	Market garden/orchard	No	<p>Based on the nature of activities that typically occur within market garden and orchard sites, it is inferred by URS 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.</p>	<p>A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds</p>

Property	Reason identified for investigation	Identification on GWRC SLUR*	Contaminants of potential concern as identified in Phase 1 CLA	Potential HAIL classification(s)
36/37 Sutton Road	Market garden/orchard	No	Based on the nature of activities that typically occur within market garden and orchard sites, it is inferred by URS 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.	A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds
KiwiRail Corridor Various areas along the northern part of the designated Project corridor	Historical and current uses as railroad transport corridor	No	Based on the nature of activities that typically occur within rail corridors, it is inferred by URS that the potential for land contamination exists. Constituents of potential concern associated with this activity include -metal and asbestos particulates associated with braking, fuel (diesel) spills/leaking, solvents, creosote, phenols, PAHs, and lubricating oils and grease spillage/leaks, and PCP.	Not likely to meet requirements of F6, could potentially be I. To be determined on further investigation
Otaki Station Otaki Sidings Off Arthur Street, Otaki	Historic Railway Station, car parks, landscaped greens and railway sidings Adjacent to rail lines	No	There is potential for ground contamination associated with the railway current and historical maintenance and operational activities on the Otaki Station and Sidings properties. Potential sources of historical contamination were identified by URS along the rail corridor to the south-west outside the confines of the Otaki Station and Sidings properties. These include potential stock holding yards, a train turn-table area,	F6 - Railway yards including goods-handling yards, workshops, refuelling facilities or maintenance areas A18 - Wood treatment or preservation including the commercial use of

Property	Reason identified for investigation	Identification on GWRC SLUR*	Contaminants of potential concern as identified in Phase 1 CLA	Potential HAIL classification(s)
	<p>Building/structure foundations were observed Piles of rubble/debris were observed Adjacent to rail lines</p>		<p>potential wood storage area and associated buildings.</p> <p>Based on the potential HAIL activities identified at the site, the following potential contaminants of concern may be 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, organochlorines, organophosphates, carbamates, synthetic pyrethroids, and PCP.</p>	<p>antisapstain chemicals during milling, or bulk storage of treated timber outside</p>
<p>139 State Highway 1, Otaki</p>	<p>Market garden/orchard</p>	<p>No</p>	<p>Preliminary site investigation not completed.</p>	<p>A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds</p>
<p>115 Main Highway, Otaki</p>	<p>Market garden/orchard</p>	<p>No</p>	<p>Preliminary site investigation not completed.</p>	<p>A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds</p>

Property	Reason identified for investigation	Identification on GWRC SLUR*	Contaminants of potential concern as identified in Phase 1 CLA	Potential HAIL classification(s)
1038-1068 State Highway 1, Otaki	Market garden/orchard	No	Preliminary site investigation not completed.	A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds
961 State Highway 1, Te Horo	Market garden/orchard	No	Preliminary site investigation not completed.	A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds

2.2 Sites of Potential Concern for Contaminated Land

In addition to the potentially contaminated sites identified in **Table 2-1**, a number of other sites were identified by URS during the Phase 1 CLA as being of potential concern for contaminated land within the designated Project corridor. It was inferred by URS that these sites have lower risk for land contamination than those identified in **Table 2-1** above.

Table 2-2 provides a summary of these sites of potential concern, with reference to the map identification letters.

Table 2-2: Summary of Sites of Potential Concern Identified by URS within Designated Project Corridor

Map reference	Property Details	Rationale for Inclusion as Site of Potential Concern
a	SH1 South, Otaki DH McLaren	Area of unusual topography (possible sheep dip) identified on aerial photograph
b	291 SH1, Otaki OD & CI Mihaila	Possible industrial buildings and area of disturbed land/stressed vegetation identified on aerial photograph
c	263 SH1 AE Coulson & CA Wahrlich	Vehicle storage, possible industrial buildings, and area of disturbed land/stressed vegetation identified on aerial photograph
d	259 Main Highway, Otaki Kapiti Coast District Council	Property Record (non-residential/individual ownership) Area of disturbed land/stressed vegetation identified on aerial photograph
e	230 SH1/29 Ranui Road DH McLaren	Possible industrial buildings and area of disturbed land/stressed vegetation identified on aerial photograph
f	3-5 School Road, 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
g	10 Te Horo Beach Road, Te Horo Duncan Partition Installations Ltd	Possible industrial buildings identified on aerial photograph
h	635 SH1, Te Horo Kotuku Consulting and Health Management Company Ltd	Property Record (non-residential/individual ownership)

		Disturbed land/stressed vegetation identified on aerial photograph
i	18-20 Te Kowhai Road MP & RR Trotter	Area of disturbed land/stressed vegetation and unusual topography (possible sheep dip) identified on aerial photograph

3 PROPOSED PROCESS FOR SITE ASSESSMENTS

3.1 Proposed Process for Assessment

All sites in **Table 2-1** are currently being reviewed by the PP2O Project team as access to the sites becomes available, to understand site investigation and additional information requirements. The current construction footprint will be used as a key input to investigation parameters. Once investigations are complete and potential risks understood, any necessary consents will be applied for, prior to any works commencing. Site specific CSMPs will be produced where necessary to support the consenting process. The BECLMP will be used as a reference document for general controls and procedures. The site specific CSMPs will contain detailed information regarding controls, procedures, excavation and disposal requirements not already documented in the BECLMP. The site specific management plans will complement and be read as a part of a suite of documents that relate to that site prepared by other parts of the PP2O Project team (for example detailed erosion and sediment controls, earthworks staging, health and safety plans).

The sites in **Table 2-2** are currently being assessed by the PP2O Project team to determine whether a contaminated land risk is present within the proposed construction footprint, and to determine what additional information is required. Should the potential risk of contamination being present be further confirmed, then the above process of ground investigation, potential consenting and site-specific management would also be applied to these sites.

3.2 Site Assessment

Assessment of potentially contaminated soils or other material at a site shall be undertaken by a *suitably qualified and experienced practitioner*² (SQEP). Any such assessment shall meet the requirements of the following documents, as appropriate:

- a) *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations (2011)* (NESCS)
- b) *Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand* (Ministry for the Environment, revised 2011)
- c) *Contaminated Land Management Guidelines No. 2: Hierarchy and application in New Zealand of environmental guideline values* (Ministry for the Environment, 2011)
- d) *Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils* (Ministry for the Environment, 2011)

² As defined in *User's Guide, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (Ministry for the Environment, 2012)

- e) *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health* (Ministry for the Environment, 2011)
- f) *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand* (Ministry for the Environment, revised 2011)
- g) *Identifying and Managing Risks Associated with Former Sheep-dip Sites: A guide for local authorities* (Ministry for the Environment, 2012)
- h) Health and Safety at Work Act (2015)
- i) Health and Safety at Work (Asbestos) Regulations (2016)
- j) *Management and Removal of Asbestos* (WorkSafe New Zealand, 2016)

Based on the proposed land use and works in an area, where any soils or other materials have been assessed as not suitable to remain *in situ*, they shall be removed offsite for disposal. If assessment concludes that contaminated soils or other materials are able to remain *in situ*, the most appropriate management procedure will be determined on a case by case basis, and identified and described in the site specific CSMP.

Materials deemed suitable to remain on site from a contamination perspective, may require removal off-site for construction purposes or because they are geotechnically unsuitable. Wherever possible, reuse of these materials within the property parcel or Project corridor will be prioritised, aligning with the Project's sustainability principles.

3.3 Consenting

The contaminated land assessment process is being treated by the PP20 Project team as a priority, however as access to all sites is not currently available the preliminary, and as necessary, detailed site investigations cannot currently proceed.

Following preliminary and detailed site investigations to determine consenting requirements, consents shall be sought from KCDC and GWRC as required. Consents that may be required include:

- National Environmental Standard (NES) consents from KCDC for disturbing contaminated soils
- Discharge consents from GWRC for discharges from contaminated material or the reuse of contaminated material elsewhere within the Project or other sites.

In parallel with undertaking the required detailed site investigations, discussion with GWRC will be required to determine the regional consenting requirements and whether regional plan provisions for notification may be triggered insofar as consultation and engagement requirements. Experience on the MacKays to Peka Peka project for reuse of material on site and dealing with discharges, in specific site circumstances, gave rise to additional time requirements to work with key stakeholders, particularly local iwi. Time for this potential needs to be factored into the programme.

The consent application non-notified process has a 20 working day statutory timeframe (excluding any Council requests for further information) from the date of application lodgement with the respective Council.

Any required contaminated land consents are to be applied for before construction starts.

Any requirements for dewatering at contaminated sites will be assessed on a case by case basis as full construction details at that site become known during the next assessment phase. Any consenting requirements will be determined at that time.

4 GENERAL PROCEDURES FOR MANAGEMENT OF CONTAMINATED SOIL AND OTHER MATERIALS

4.1 Site and General Requirements

Works that may result in direct or indirect exposure to contamination which presents a significant risk to either human health or the environment will be managed through the development of a site/area specific CSMP, and the implementation of measures stated within to protect health and safety and to minimise the discharge of contaminants to the environment.

The CSMP will include details of the contaminants of potential concern, health and safety measures to be implemented (where required) and specific measures to minimise the discharge of contaminants to the environment (where required).

Generally, health and safety measures for working on a contaminated site would include the requirements listed below. There may be additional measures specified in a site specific CSMP in relation to the contaminants identified.

- Wearing appropriate protective equipment such as overalls, safety glasses, safety boots, and gloves.
- Availability of first aid equipment including eye wash kits at the site
- Minimising contact with soil
- Establishing appropriate washing facilities and break areas outside the areas of excavation
- Use of barriers and signage to prevent unauthorised access
- All staff physically involved in works likely to result in hand contact with contaminated materials shall wear gloves
- Wearing a P2 dust mask if conditions generate dust
- Minimising hand to mouth contact
- Washing hands and face prior to eating, drinking or smoking
- No eating or drinking within the excavation area
- Washing any skin abrasions immediately and treat to prevent infections
- Following any additional requirements in the Contractor (Site Specific) Health and Safety Plan.

Implementation of measures to minimise the discharge of contaminants to the environment will be undertaken, including the requirements in the remaining sections of this Plan.

4.2 Excavation

Where contaminated soil or material has been identified, the following measures shall be followed to the extent practicable during the excavation of soils:

- a) Exclusion zones that delineate, isolate and secure the area shall be established around excavation areas
- b) Contaminated soil shall be segregated based on visual and/or odour characteristics, or as otherwise directed by the Contaminated Land Specialist in accordance with the site specific CSMP. The stockpiling procedures outlined in **Section 4.3** shall be followed if stockpiling of this material cannot be avoided.
- c) Wet soil shall be left to drain back to the excavation prior to any stockpiling or loading for offsite disposal
- d) Stormwater run-on to the area shall be avoided where possible using diversion controls around excavation areas
- e) Dust effects will be reduced by light wetting only to the extent that no runoff or ponding occurs
- f) Controls including grading and bunding shall be used in the area immediately adjacent to the excavation area to promote local drainage back to the excavation
- g) Erosion and sediment management controls, such as bunds and silt fencing, will be installed around excavation areas
- h) Groundwater or water accumulated in the excavation will be appropriately disposed of offsite, as required to complete and backfill excavation.

4.3 Stockpiling

The temporary stockpiling of contaminated or potentially contaminated soil may be necessary during the works for assessment purposes or staging prior to offsite disposal. The stockpiling of contaminated soil will be avoided where possible. The stockpiles of contaminated materials shall be managed by the Contractor, to the extent practicable, as follows:

- a) Segregate the contaminated or potentially contaminated soils from overburden or other soils to avoid cross contamination
- b) Locate stockpiles in areas isolated from sensitive receptors such as watercourses, drains, wetlands, soakage areas, livestock and the general public, and in areas that are generally not subject to stormwater run-on
- c) Stockpiles can either be located on containment measures, such as impermeable liners, or on bare ground that has been pre-validated as instructed by the Contaminated Land Specialist, as required to avoid cross contamination
- d) Minimise the duration of any stockpiling
- e) Minimise the height of stockpiles to approximately 4 metres, and ensure the provision of a stable stockpile slope
- f) Minimise dust or odour effects where possible by either covering and/or wetting stockpiles
- g) Locate stockpiles down prevailing wind direction from public receptors
- h) Avoid stormwater run-on where possible by using diversion controls around stockpile areas
- i) Employ erosion and sediment management controls, such as silt fencing around stockpiles.

4.4 Sumps, Underground Storage Tanks, and Septic Tanks

The presence of any sumps or septic tanks that conflict with the proposed works shall either be abandoned in place, or excavated and removed for offsite disposal by an appropriately qualified contractor. Any underground storage tanks that have been used for the storage of petroleum or other substances shall be removed for offsite disposal by an appropriately qualified contractor, in accordance with the requirements of the NESCS.

All liquid or sludge contents shall be removed from any sumps, septic tanks or underground storage tanks prior to their removal. Associated bedding material and adjacent soil shall be assessed for its suitability to remain onsite, and removed from site if determined to be unsuitable. Any hotworks, if required, shall be completed in accordance with the above by a suitably qualified contractor.

4.5 Offsite Transportation of Contaminated Materials

The transportation and handling of contaminated soil and materials shall be managed as follows:

- a) Materials shall be loaded directly into trucks where possible (limiting stockpiling)
- b) All trucks are covered prior to leaving the site, and soils brushed off wheels to avoid tracking onto public roads. Should the site become wet and material adheres to wheels, a wheel wash facility shall be installed and truck wheels washed prior to exiting the site
- c) A register of soil movements and records is maintained, including information such as the location of excavation, disposal facility, quantity of material and off-site weighbridge documents. This register shall be maintained by the Site Supervisor.

Classification of contaminated material for offsite transportation shall be completed by a SQEP.

4.6 Disposal of Contaminated Materials

Any contaminated soil or other contaminated material requiring removal from the site shall be disposed of to a facility or location consented to accept the material. Landfill acceptance of excavated materials shall be obtained prior to works commencing.

The material shall be assessed and characterised by a SQEP in accordance with the requirements of the receiving facility, and in general accordance with the requirements as outlined in **Section 3.2**.

Petroleum storage tanks requiring removal shall be disposed of in accordance with the following document:

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

Copies of all disposal receipts/documentation must be retained and provided to the PP2O Project team by the transport contractor.

4.7 Disposal of Groundwater and Impacted Water

If groundwater is encountered during the excavation of contaminated soil, then it shall be contained within the excavation and not allowed to discharge across the site surface.

Where impacted water generated during remedial excavations is required to be removed from site, then this shall be treated and disposed of by one of the following methodologies:

- a) Discharge, under permit, to a tradewaste system consented to receive such wastes
- b) Removal for offsite disposal and treatment at a facility consented to receive such wastes

Determination of contaminant concentrations in any impacted water shall be undertaken by a SQEP.

Any dewatering required at contaminated sites will be assessed on a case by case basis as full construction details become known during the next assessment phase. Appropriate controls and procedures will be developed in a site specific CSMP.

4.8 Soil Validation Testing

Soil validation testing will be undertaken as required, based on findings of the detailed site investigations and the proposed site management procedures. The purpose of this testing is to verify soils remaining in-situ once removal of contaminated materials has been undertaken .

Broadly, soil validation testing will involve the collection and analysis of soil samples collected from the base and sides of a representative extent of the excavation. Any required soil validation testing will be identified and the details described in the site specific CSMP.

5 CONTAMINATED SITES IDENTIFIED DURING WORKS

It is possible that contaminated soils or materials other than at the sites identified within this plan may be discovered during excavation works. Given the nature of the Project corridor and the surrounding area, any such discoveries would likely be associated with the following activities:

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

5.1 Identification

Indicators of contaminated soil or other materials may include, but are not limited, to the following:

- a) Unusual odours, stained or discoloured soils
- b) The presence of anthropogenic fill material (such as household rubbish, offal wastes or farm tip wastes)
- c) Drums, sumps or storage tanks
- d) The presence of fill or access ports, vents, leach fields or other infrastructure associated with underground storage or septic tanks
- e) Stressed or disturbed vegetation
- f) Any sheen or oily liquids in soil or on water
- g) Sheep dips (presence of trenches, pits, concrete pads with shower-like pipework, baths, fencing races leading to pit or bath-like structures)
- h) Unnaturally mounded soil or unnatural depressions indicative of waste disposal activities (such as offal pits or farm tips)
- i) Construction or demolition debris
- j) Suspected Asbestos Containing Material (ACM)

5.2 Initial Actions

Upon the discovery of potentially contaminated soils or hazardous materials during excavation works, the following actions shall be followed:

- a) Assess potential immediate hazards – if unsafe move away and upwind from the area
- b) Stop all earthworks within a 15 m radius of the area where the suspected contaminated material has been recorded
- c) Immediately notify the site supervisor of the potential discovery
- d) Cordon off the area as practicable with a suitable barrier
- e) Implement temporary measures to minimise transport of potential contaminants offsite

- f) Work shall not resume or commence within this 15 m radius unless authorised by the Contaminated Land Specialist.

Should asbestos be observed or suspected during the earthworks, the following actions shall be taken:

- a) P2 dust masks, disposable coveralls and booties will be available to all staff entering the isolated area.
- b) The area will be kept damp or covered.

All work shall cease and any asbestos present will be removed in accordance with the Health and Safety at Work (Asbestos) Regulations (2016). Works can recommence once all asbestos has been removed safely. Any such asbestos works (including assessment, delineation, removal and verification) shall be completed by a person suitably qualified in asbestos assessment and remediation.

Where asbestos is suspected or identified on a site, specific details will be put in place in the site specific CSMP.

5.3 Communication and Notifications

The Civil Works Manager shall contact the Contaminated Land Specialist to advise on the appropriate course of action. The Contaminated Land Specialist shall undertake the following actions:

- a) Notify the regulatory authorities (GWRC and KCDC), if required, that contamination has been discovered and the contingency action is being implemented
- b) Characterise the contamination by collecting samples for chemical laboratory analysis
- c) If appropriate, advise the site supervisor to excavate the suspected contaminated material and stockpile (as detailed in **Section 4.3**) or place in a covered container to allow works to continue with minimum delay.
- d) If stockpiling/containerising is inappropriate, advise construction work to proceed to an area clear of contaminating indicators until material testing, as necessary, defines the material characteristics
- e) Determine the suitability of the materials to remain on site or what remedial measures are required to manage this material on-site, or the options available to dispose of this material at an off-site location (as per **Section 4.6**).

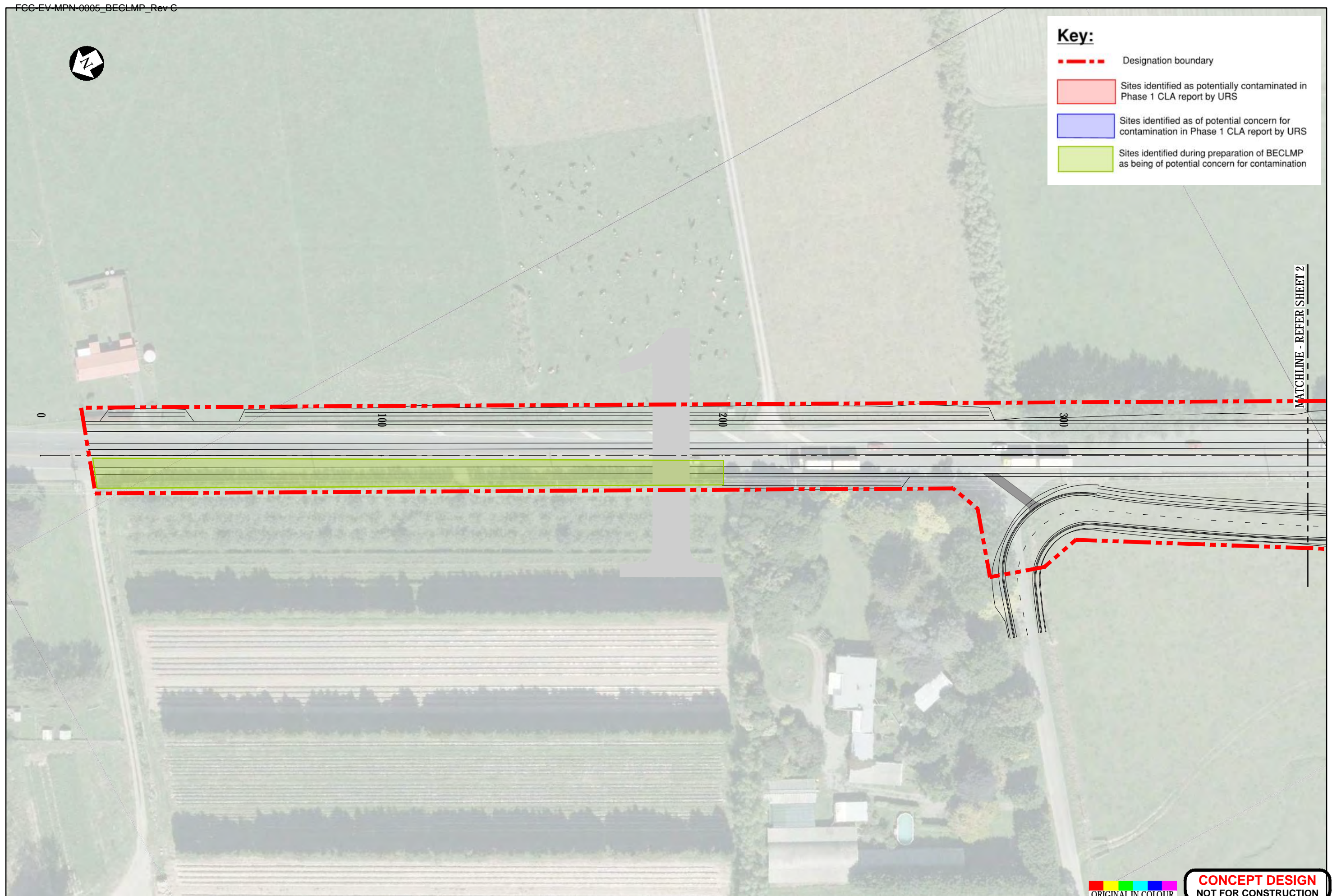
Liaise with regulatory authorities and site staff as appropriate with the recommended course of action. If the discovery is assessed as presenting an imminent hazard or danger, the Project emergency contacts and local emergency services shall be notified (111).

APPENDIX A – LOCATIONS OF POTENTIALLY CONTAMINATED SITES AND SITES OF POTENTIAL CONCERN WITHIN DESIGNATION BOUNDARY



Key:

- Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
- Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
- Sites identified during preparation of BECLMP as being of potential concern for contamination



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Subject:	GENERAL ARRANGEMENT	Discipline:	CIVIL
Title:	LAYOUT PLAN SHEET 1 OF 33	Drawing No.:	PP20-GEN-CE-0101

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Key:

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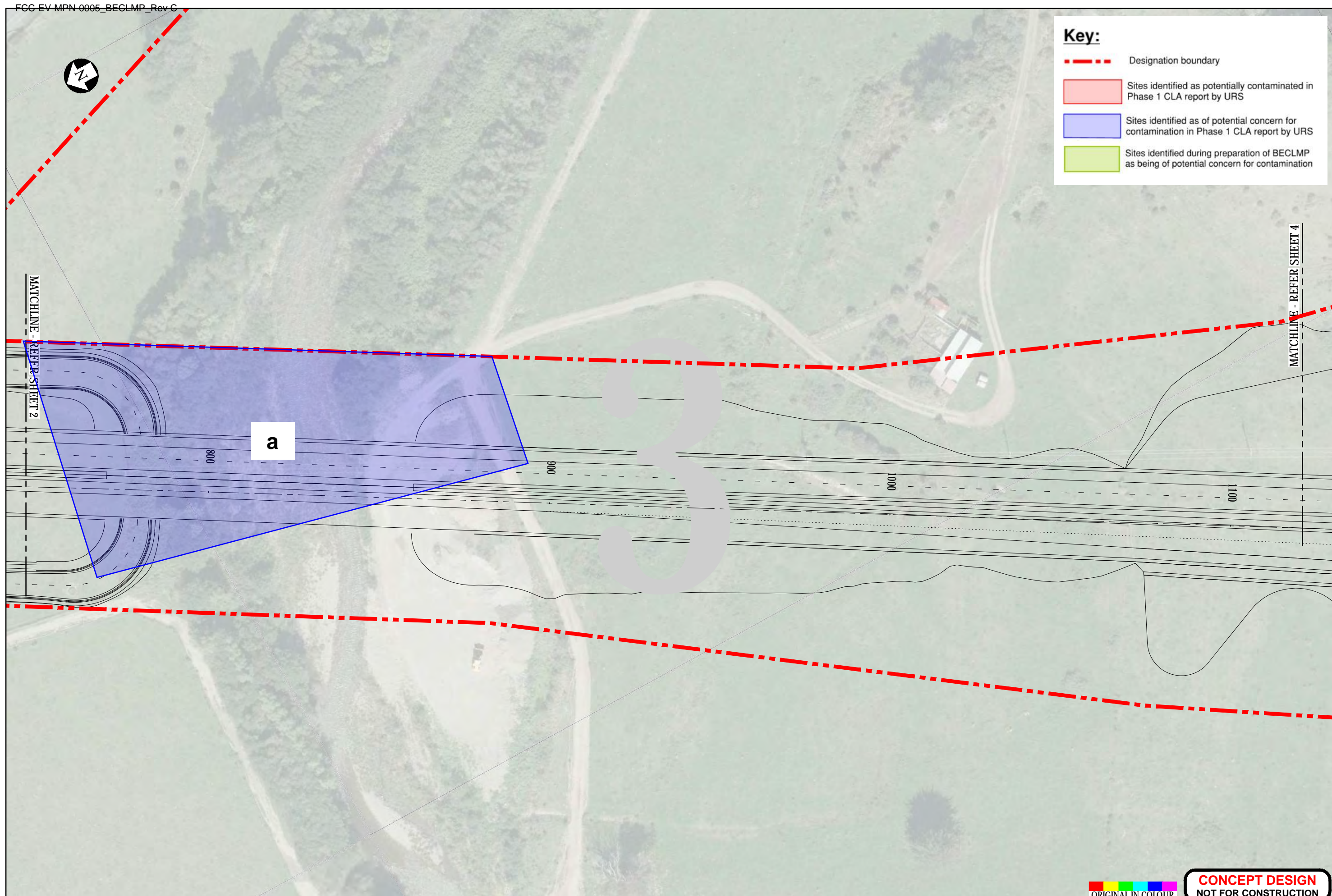



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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 2 OF 33	Drawing No.	PP20-GEN-CE-0102
		Rev.	

Key:

- - - Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
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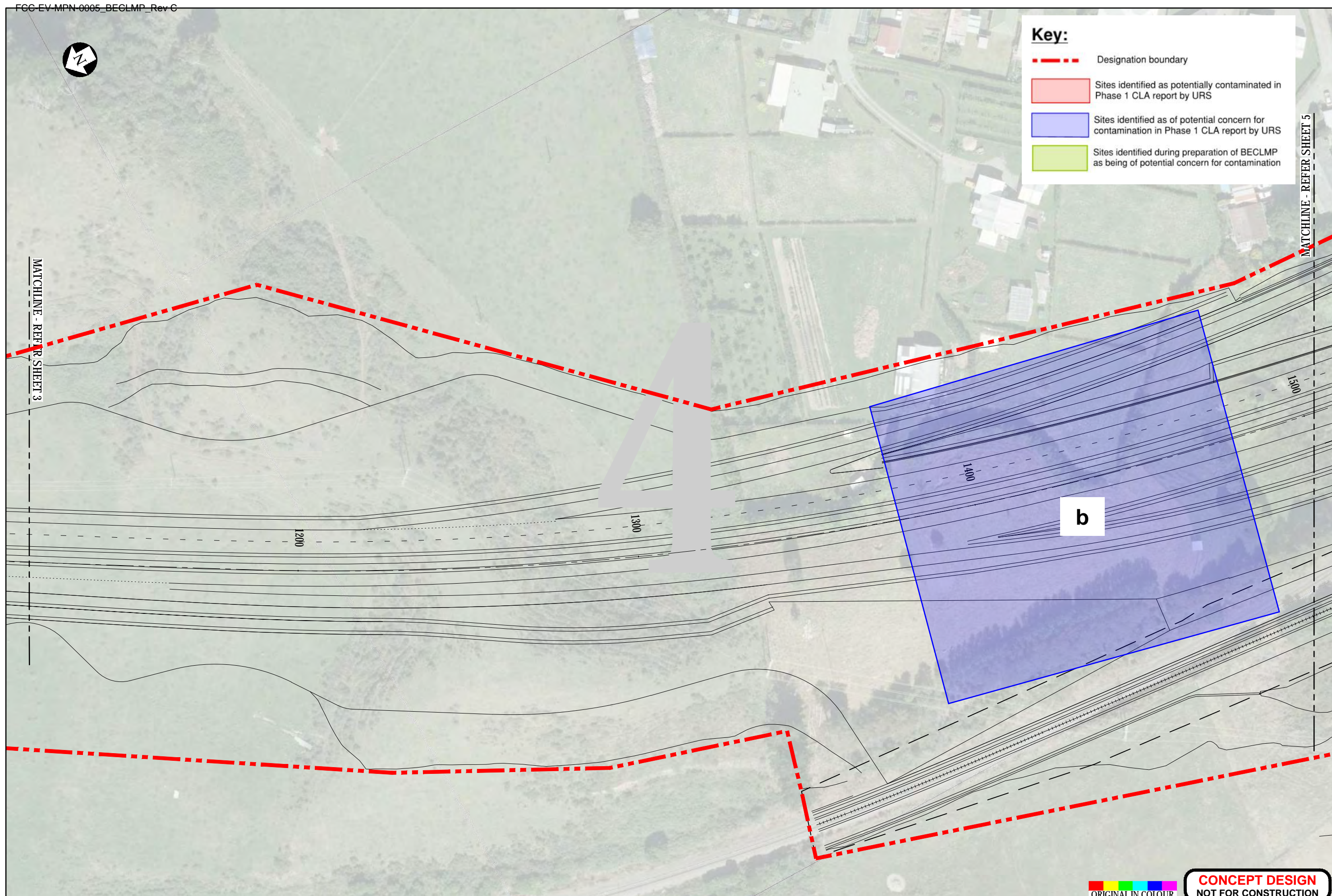
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Document No. R-300D - DESIGN DEVELOPMENT GENERAL/12 TENDER STAGE INFORMATION/08 DESIGN/09 CAD/REF/PPF/CE-000_SHT_LAYOUT_1 TO 500_A1.DWG



Key:

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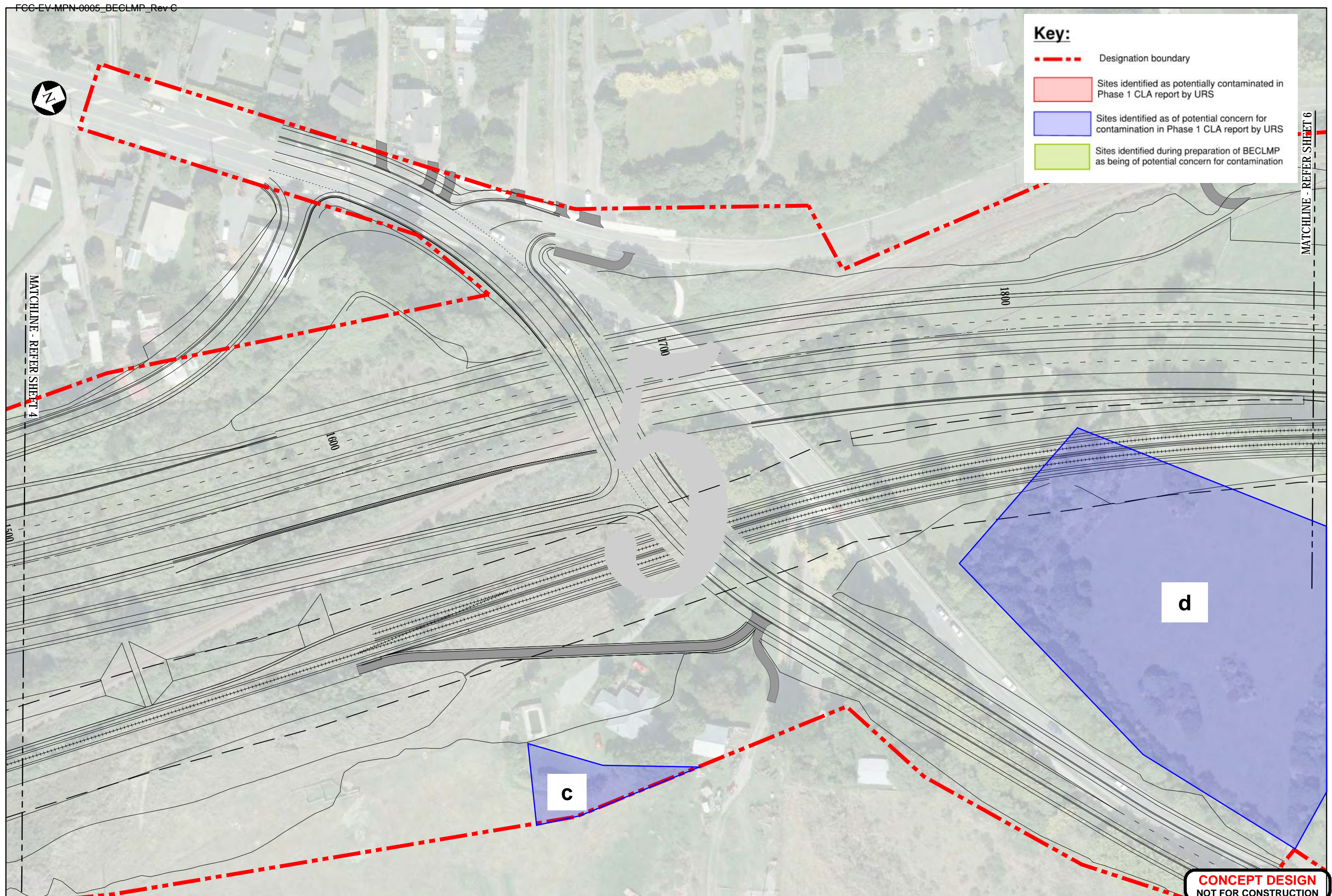
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Title:	LAYOUT PLAN SHEET 4 OF 33	Drawing No.:	PP20-GEN-CE-0104
		Rev.:	

Discipline:	CIVIL
Drawing No.:	PP20-GEN-CE-0104
Rev.:	

Key:

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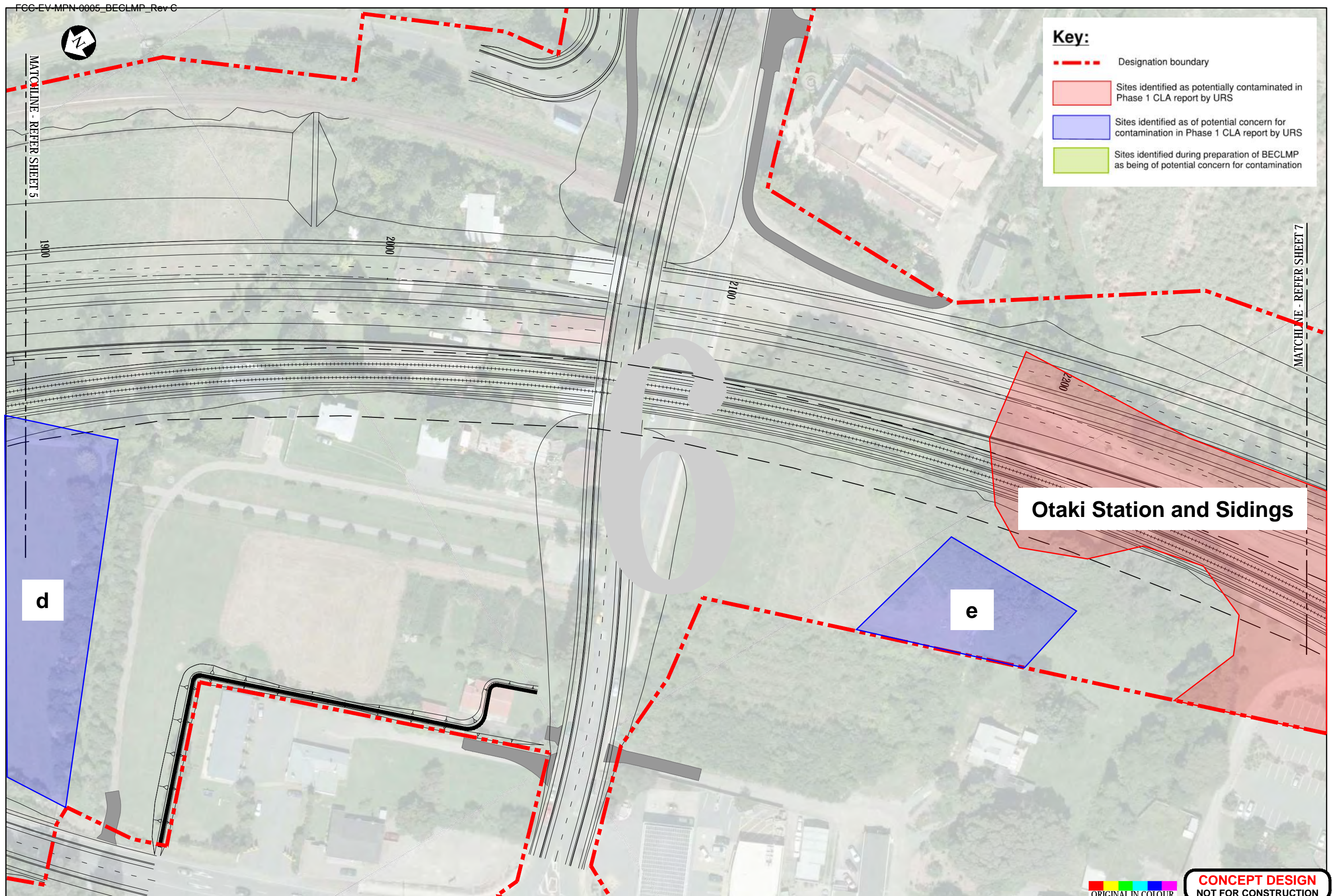


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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 5 OF 33	Drawing No.	PP20-GEN-CE-0105

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Key:

- Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
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Otaki Station and Sidings

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6

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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 6 OF 33	Drawing No.	PP20-GEN-CE-0106

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Key:

- Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
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- Sites identified during preparation of BECLMP as being of potential concern for contamination

MATCHLINE - REFER SHEET 6

MATCHLINE - REFER SHEET 8



Otaki Station and Sidings

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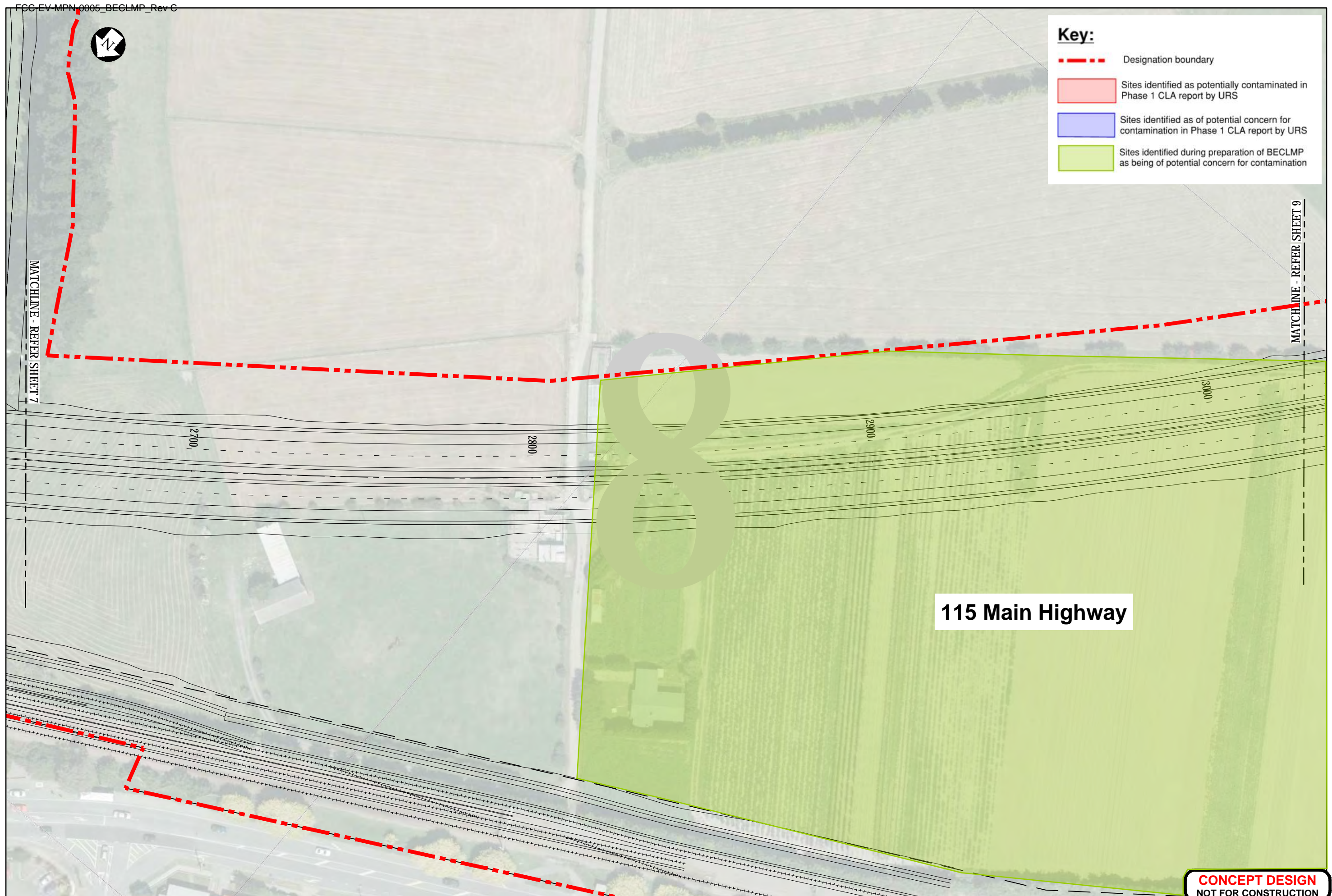
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Key:

- - - - Designation boundary
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115 Main Highway

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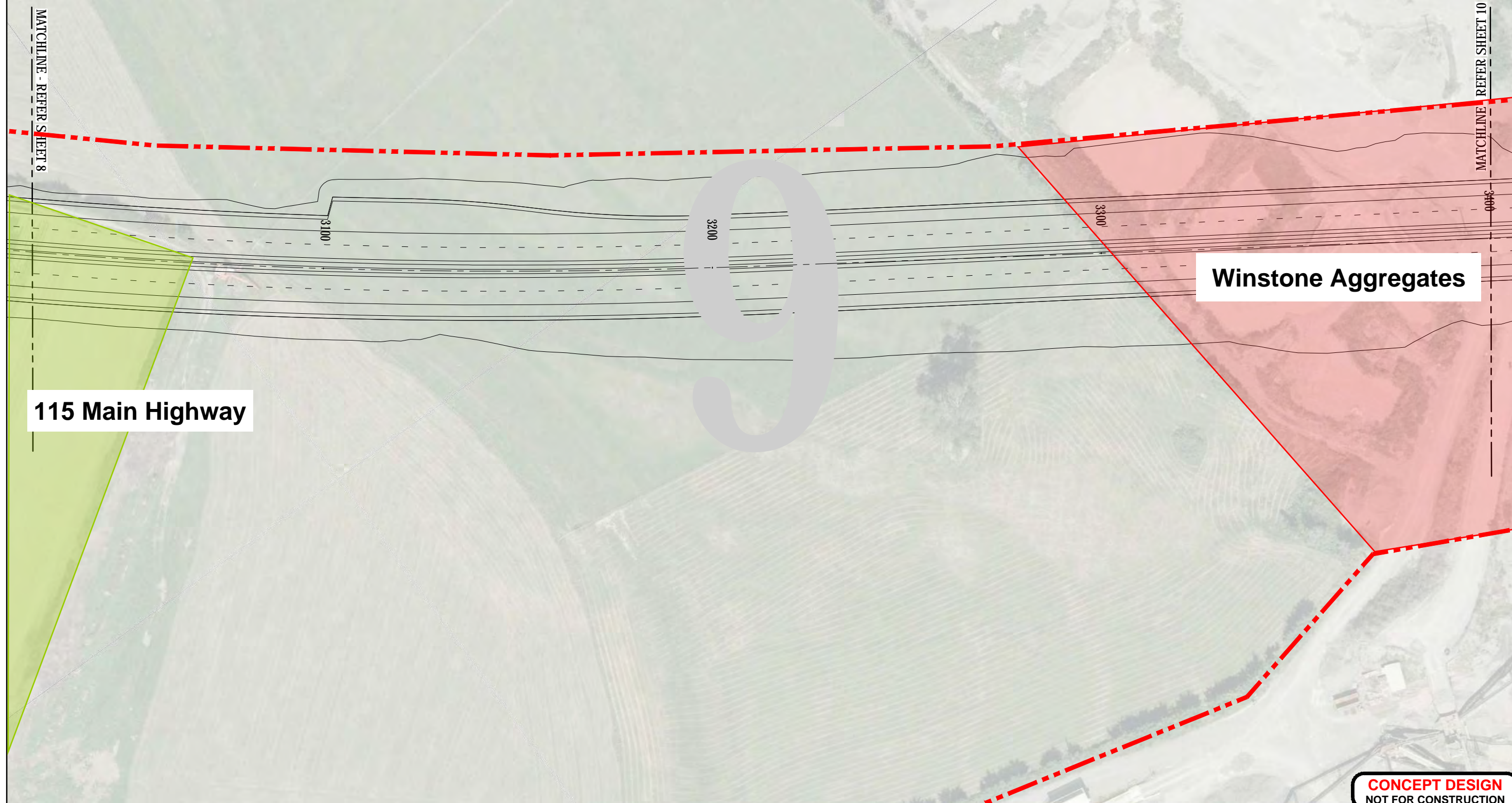
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Title	LAYOUT PLAN SHEET 8 OF 33	Drawing No.	PP20-GEN-CE-0108
		Rev.	

Discipline	CIVIL
Drawing No.	PP20-GEN-CE-0108
Rev.	



Key:

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115 Main Highway

Winstone Aggregates

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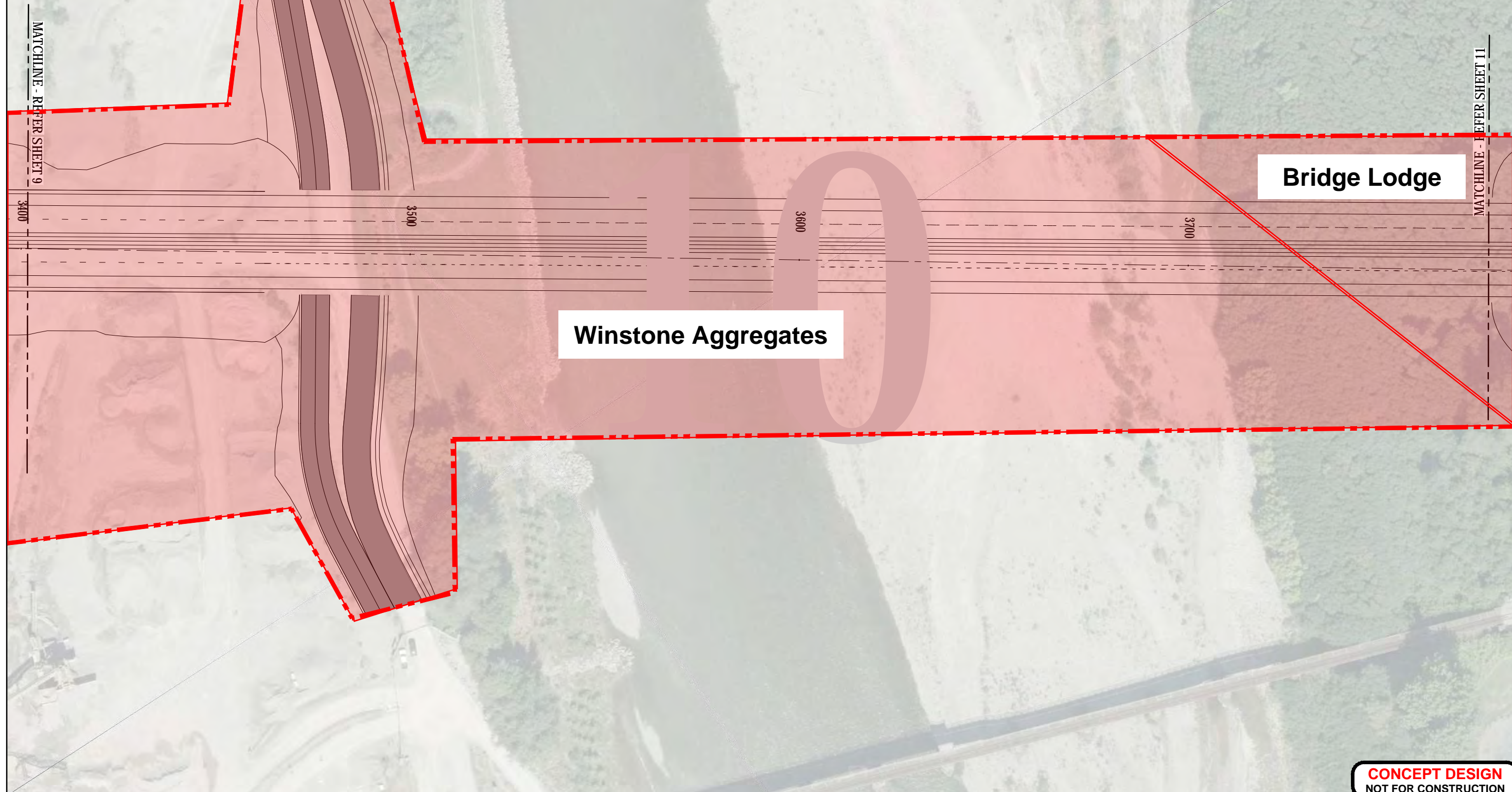
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Key:

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Winstone Aggregates

Bridge Lodge

**CONCEPT DESIGN
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No.	Revision	By	Chk	Appd	Date

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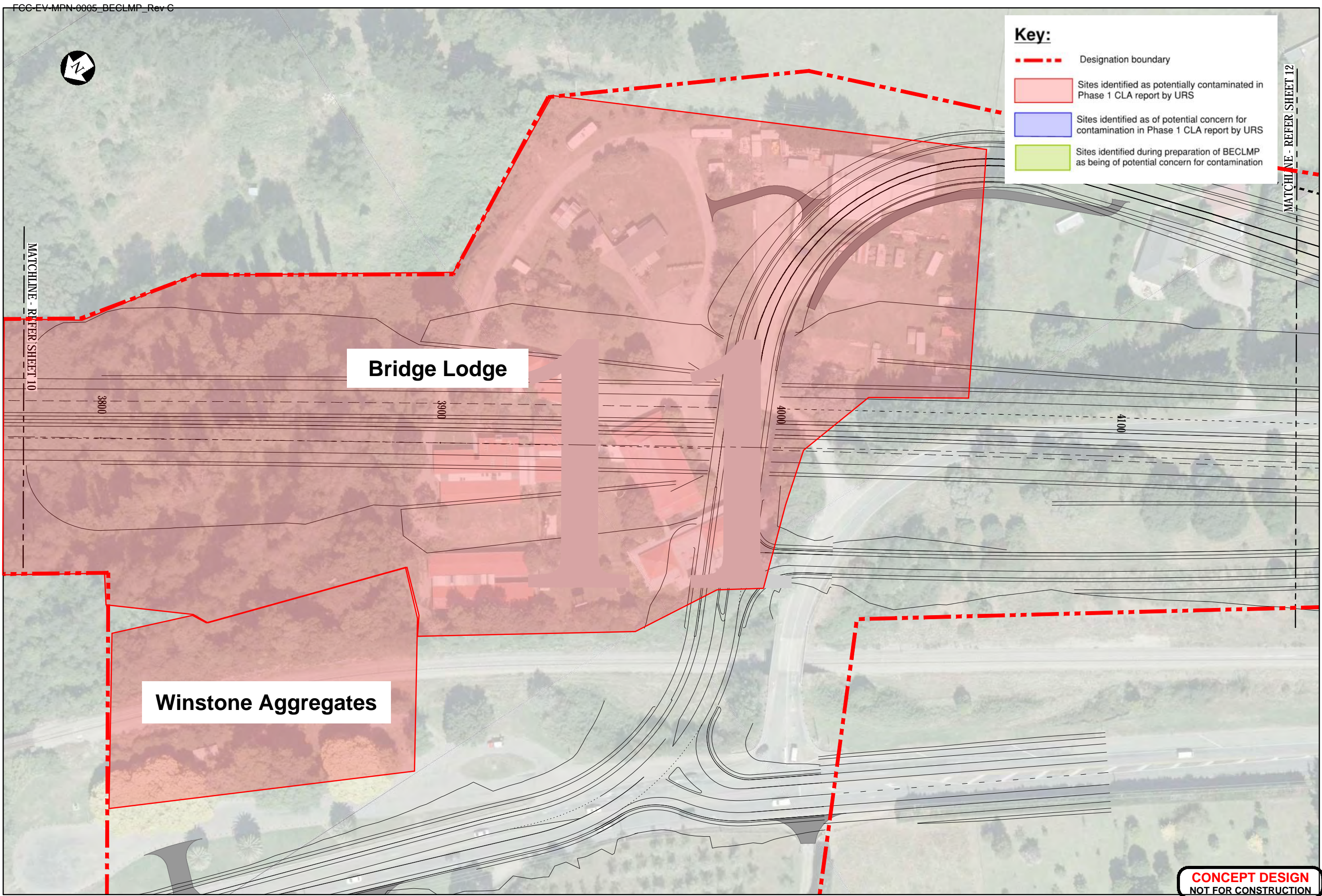


Key:

- - - - Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
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MATCHLINE - REFER SHEET 12

MATCHLINE - REFER SHEET 10



Bridge Lodge

Winstone Aggregates

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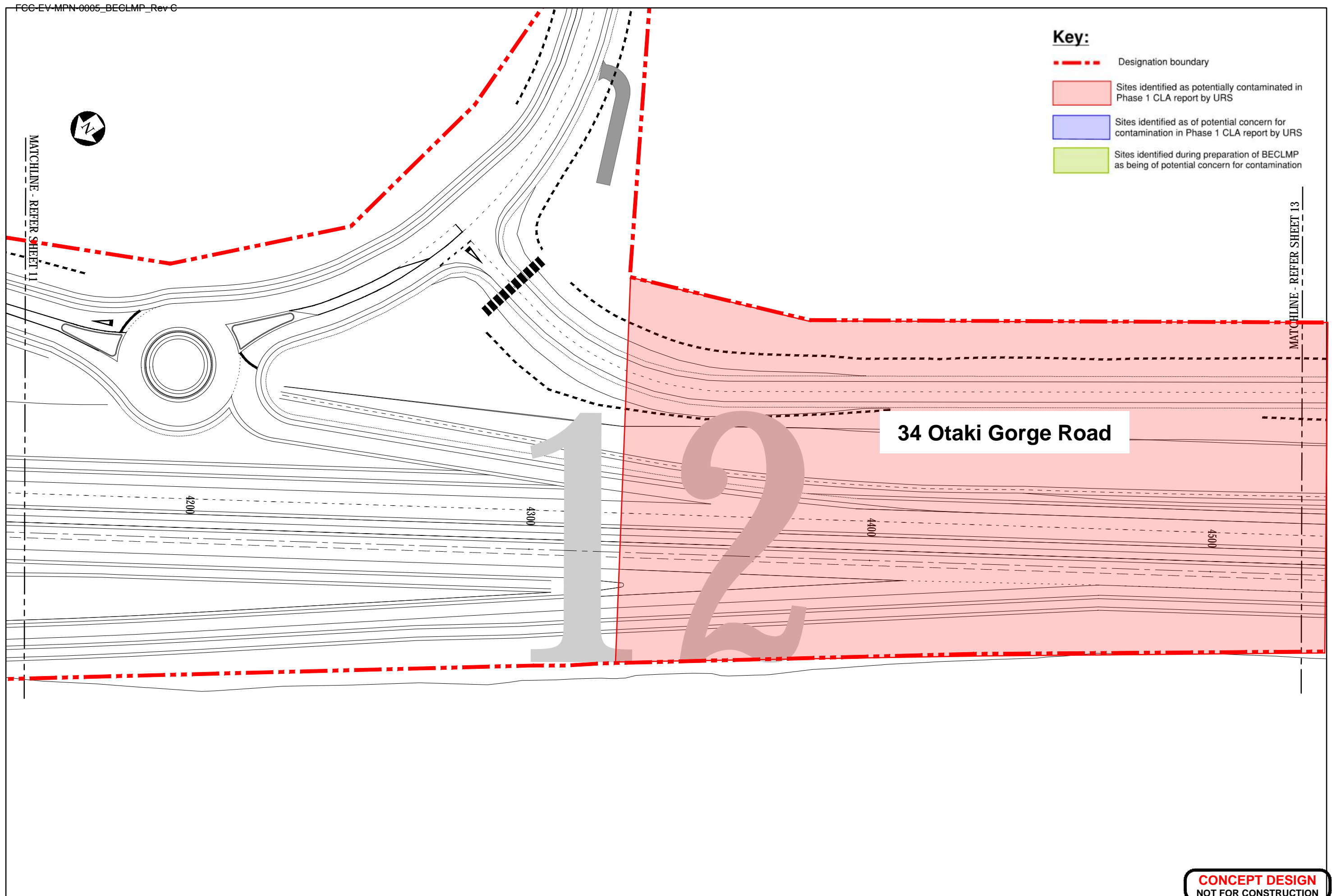

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Subject:	GENERAL ARRANGEMENT	Discipline:	CIVIL
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Key:

-  Designation boundary
-  Sites identified as potentially contaminated in Phase 1 CLA report by URS
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34 Otaki Gorge Road

12

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Title	LAYOUT PLAN SHEET 12 OF 33	Drawing No.	PP20-GEN-CE-0112

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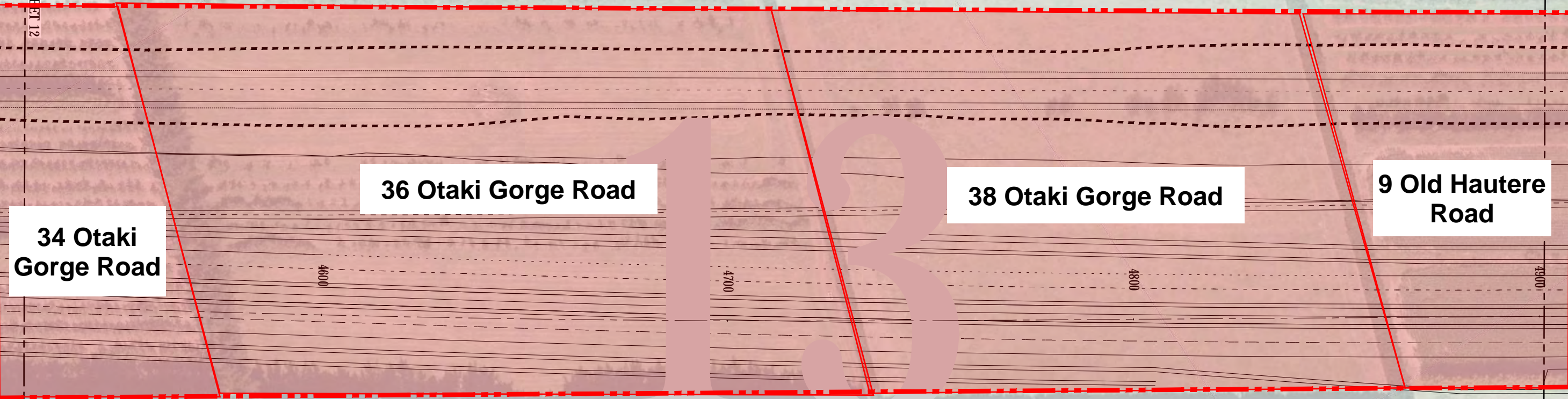


Key:

- Designation boundary
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- Sites identified during preparation of BECLMP as being of potential concern for contamination

MATCHLINE - REFER SHEET 12

MATCHLINE - REFER SHEET 14



34 Otaki Gorge Road

36 Otaki Gorge Road

38 Otaki Gorge Road

9 Old Hautere Road

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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 13 OF 33	Drawing No.	PP20-GEN-CE-0113





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MATCHLINE - REFER SHEET 13

MATCHLINE - REFER SHEET 15

Key:

-  Designation boundary
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9 Old Hautere Road

1038-1068 State Highway 1

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Subject:	GENERAL ARRANGEMENT	Discipline:	CIVIL
Title:	LAYOUT PLAN SHEET 14 OF 33	Drawing No.:	PP20-GEN-CE-0114

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MATCHLINE - REFER SHEET 15

MATCHLINE - REFER SHEET 16

Key:

- - - - - Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
- Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
- Sites identified during preparation of BECLMP as being of potential concern for contamination

1038-1068 State Highway 1

5300

5400

5500

5600

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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 15 OF 33	Drawing No.	PP20-GEN-CE-0115

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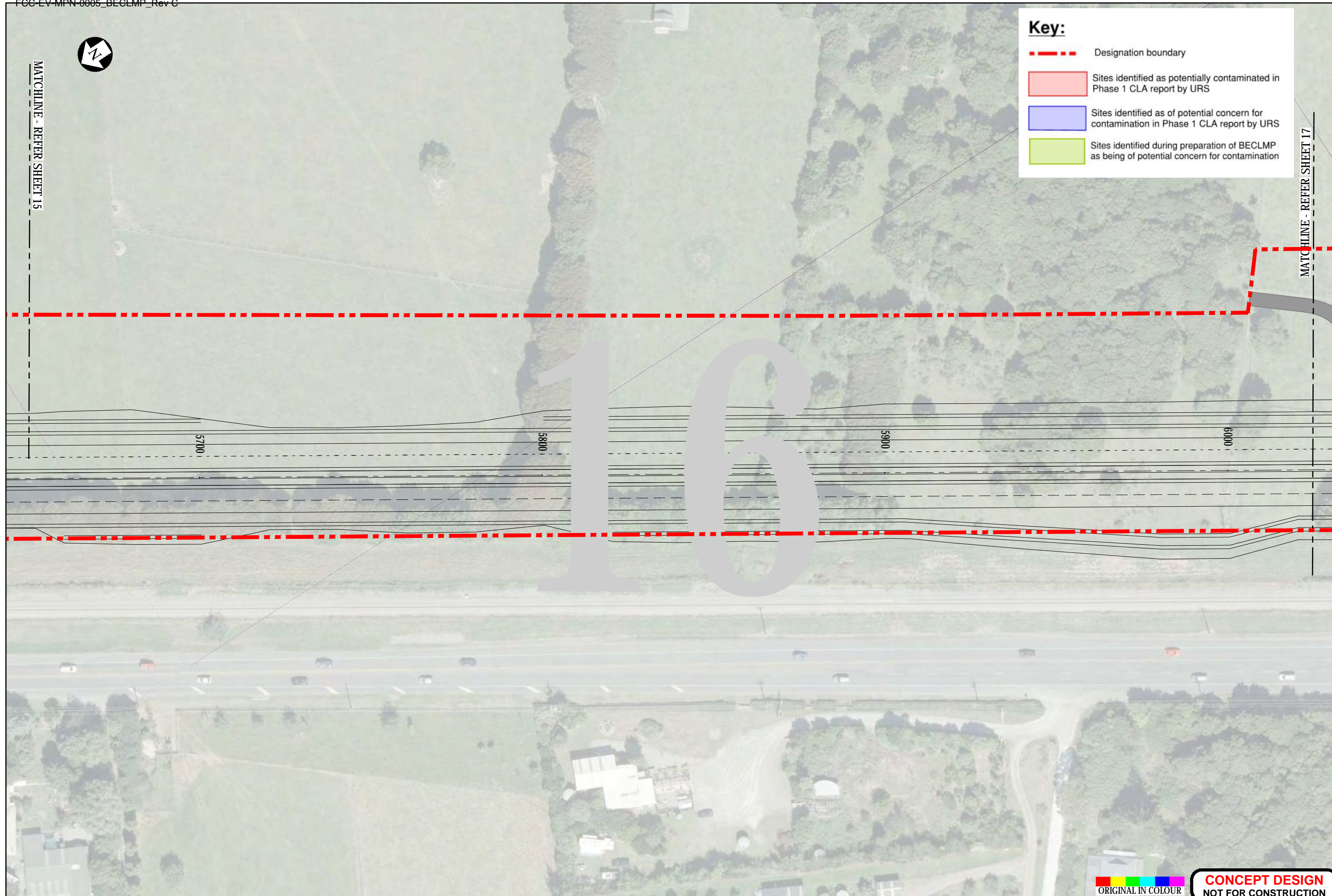


MATCHLINE - REFER SHEET 15

MATCHLINE - REFER SHEET 17

Key:

- Designation boundary
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PEKA PEKA TO TAKI EXPRESSWAY



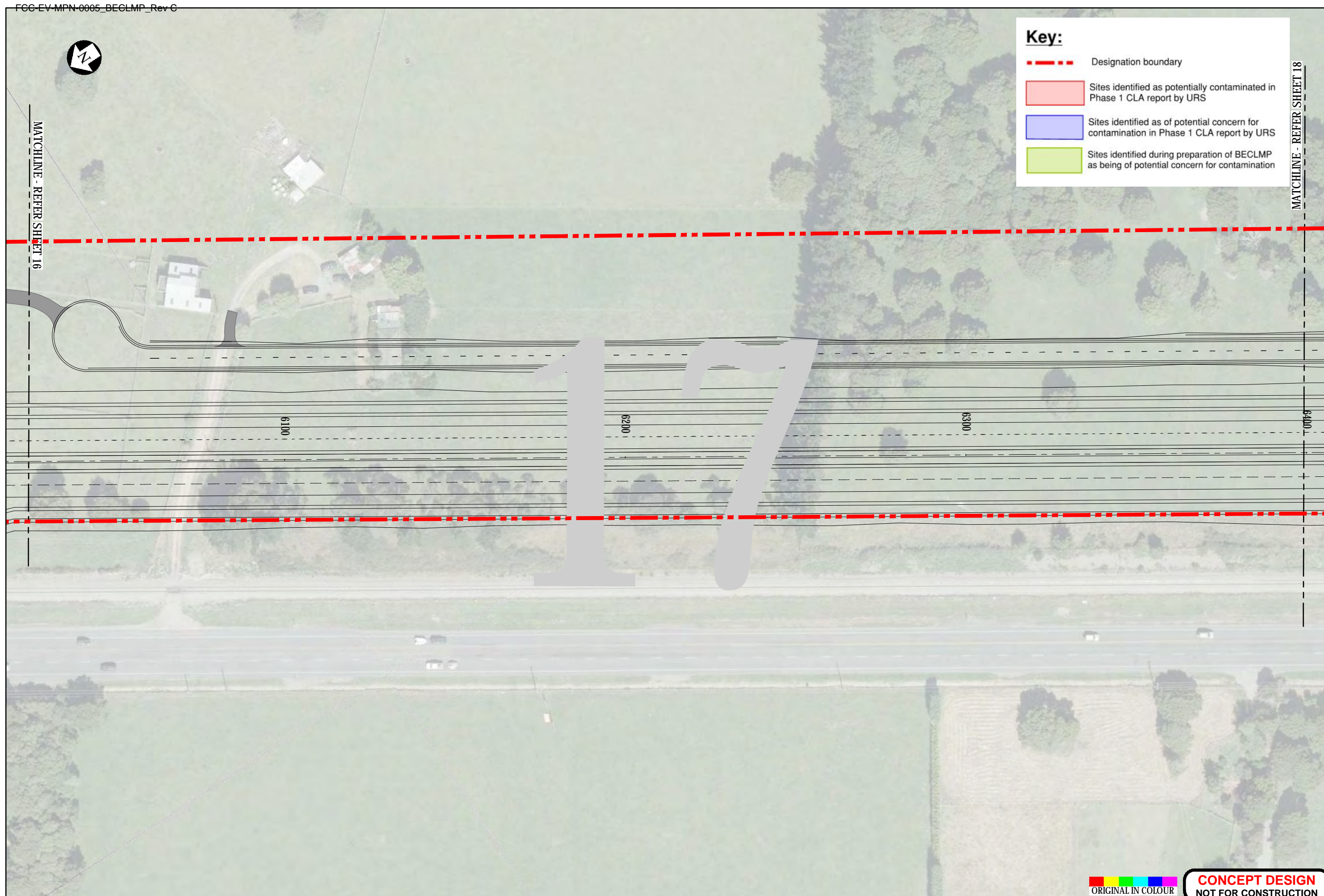
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Key:

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Subject:	GENERAL ARRANGEMENT	Discipline:	CIVIL
Title:	LAYOUT PLAN SHEET 17 OF 33	Drawing No.:	PP20-GEN-CE-0117





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MATCHLINE - REFER SHEET 17

MATCHLINE - REFER SHEET 19

Key:

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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 18 OF 33	Drawing No.	PP20-GEN-CE-0118

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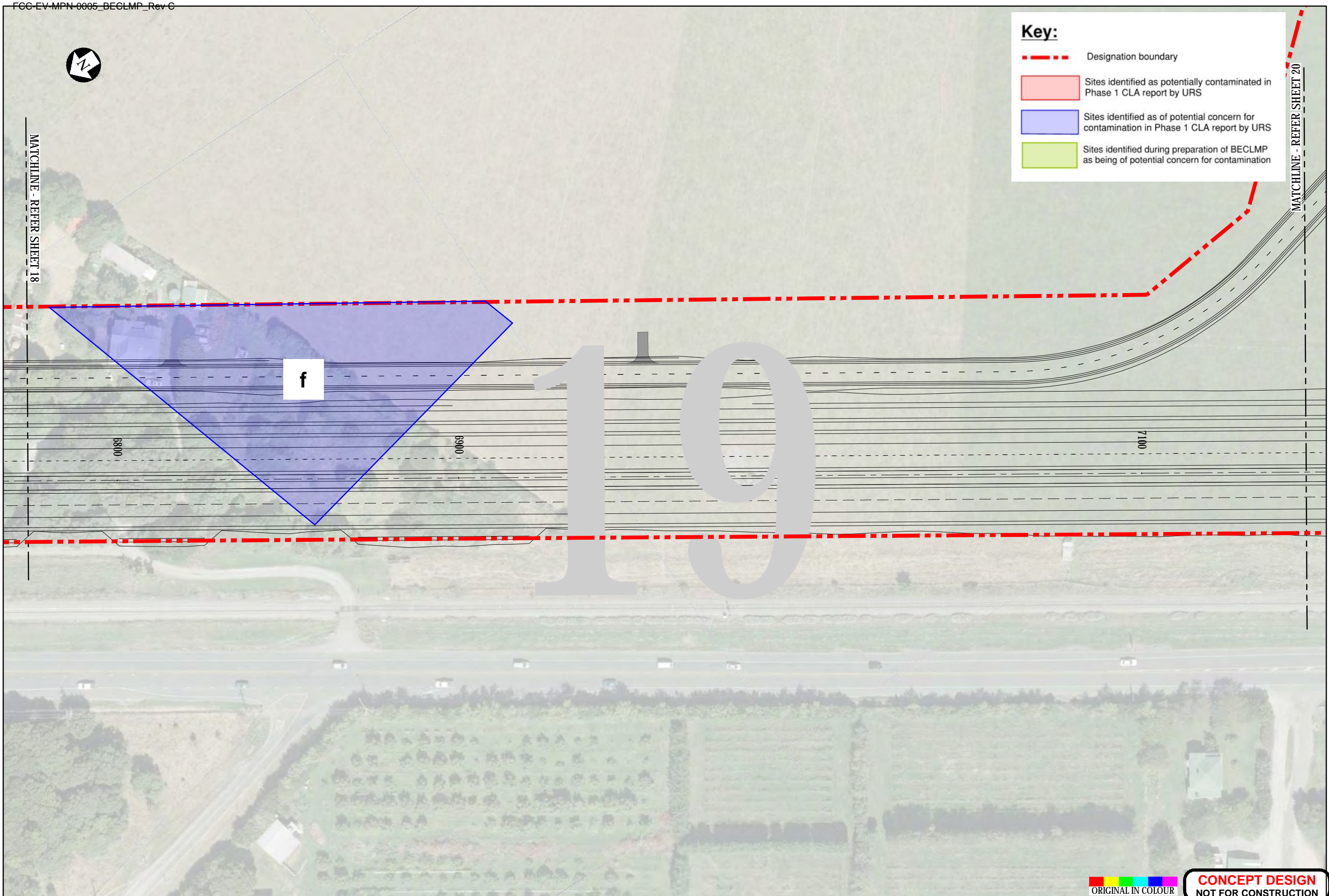


Key:

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MATCHLINE - REFER SHEET 18

MATCHLINE - REFER SHEET 20



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Title:	LAYOUT PLAN SHEET 19 OF 33	Drawing No.:	PP20-GEN-CE-0119

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MATCHLINE - REFER SHEET 19

MATCHLINE - REFER SHEET 21

Key:

- Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
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20



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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 20 OF 33	Drawing No.	PP20-GEN-CE-0120

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Key:

-  Designation boundary
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MATCHLINE - REFER SHEET 20

MATCHLINE - REFER SHEET 22

21

7600

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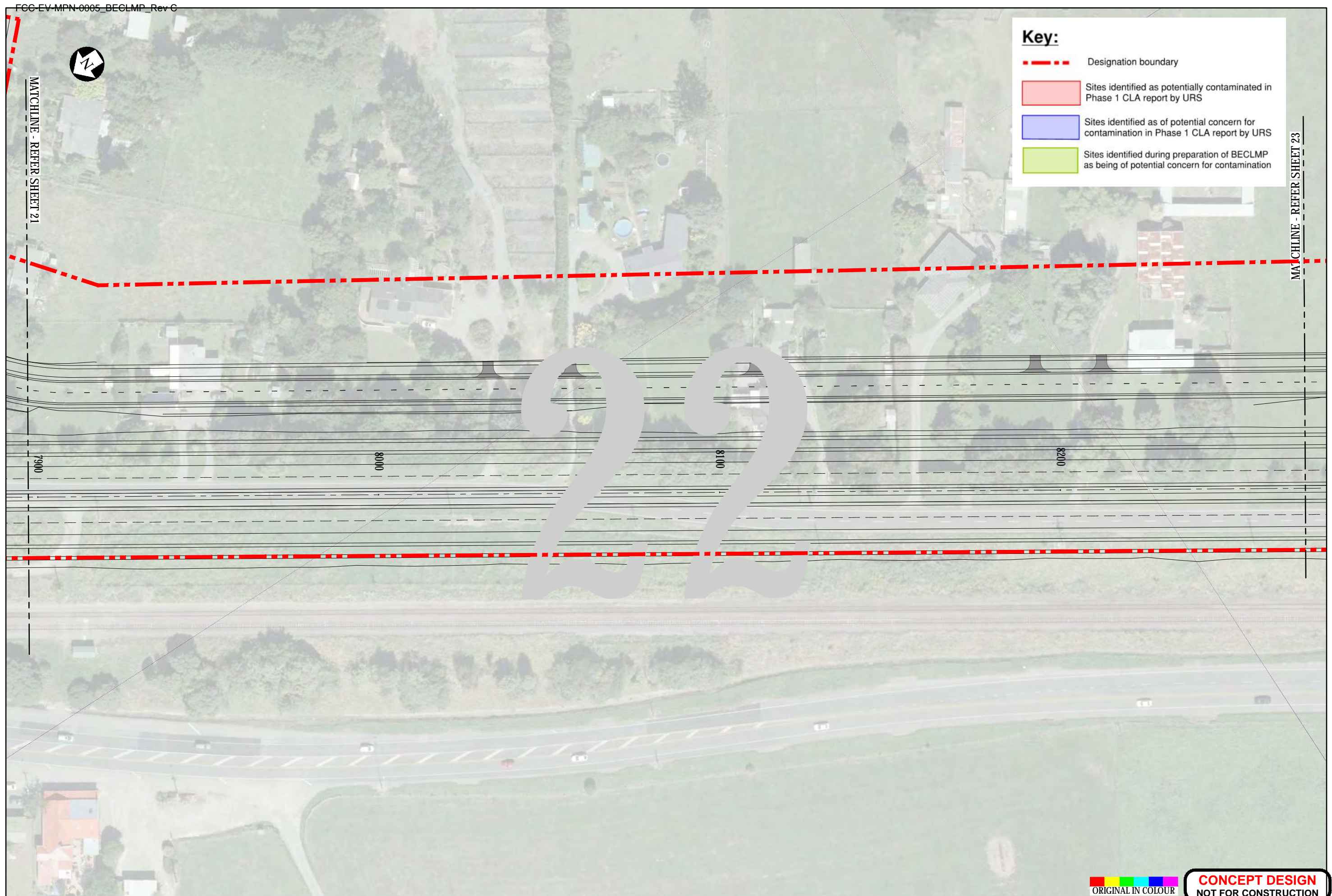


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Key:

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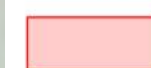


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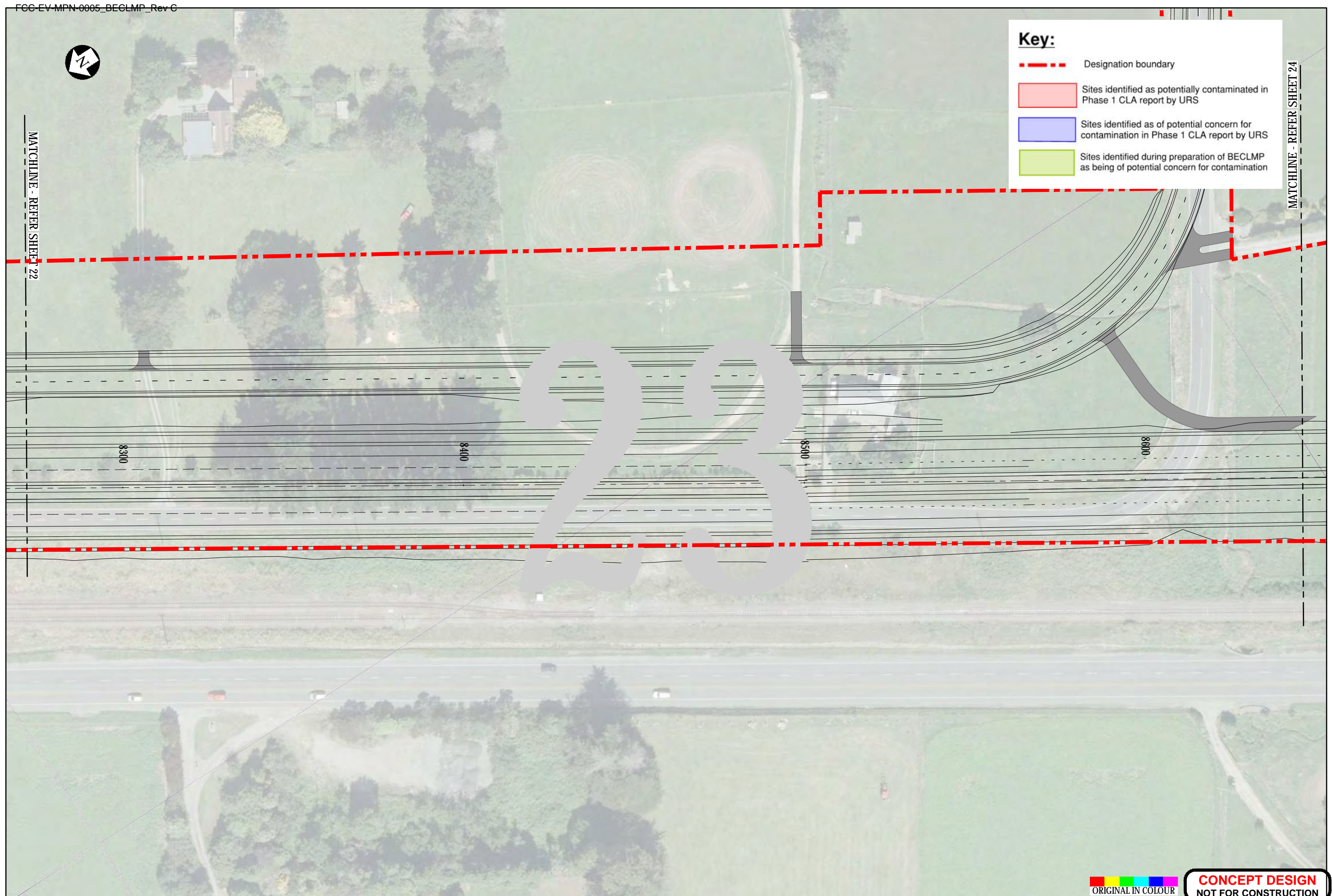


MATCHLINE - REFER SHEET 22

MATCHLINE - REFER SHEET 24

Key:

-  Designation boundary
-  Sites identified as potentially contaminated in Phase 1 CLA report by URS
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Fletcher HIGGINS



Subject:	GENERAL ARRANGEMENT	Discipline:	CIVIL
Title:	LAYOUT PLAN SHEET 23 OF 33	Drawing No.:	PP20-GEN-CE-0123

Rev.	
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MATCHLINE - REFER SHEET 23

MATCHLINE - REFER SHEET 25

Key:

- Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
- Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
- Sites identified during preparation of BECLMP as being of potential concern for contamination

36 Sutton Road

24

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No.	Revision	By	Chk	Appd	Date

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	Dwg Check	
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PEKA PEKA TO TAKI EXPRESSWAY



Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 24 OF 33	Drawing No.	PP20-GEN-CE-0124

Rev.	
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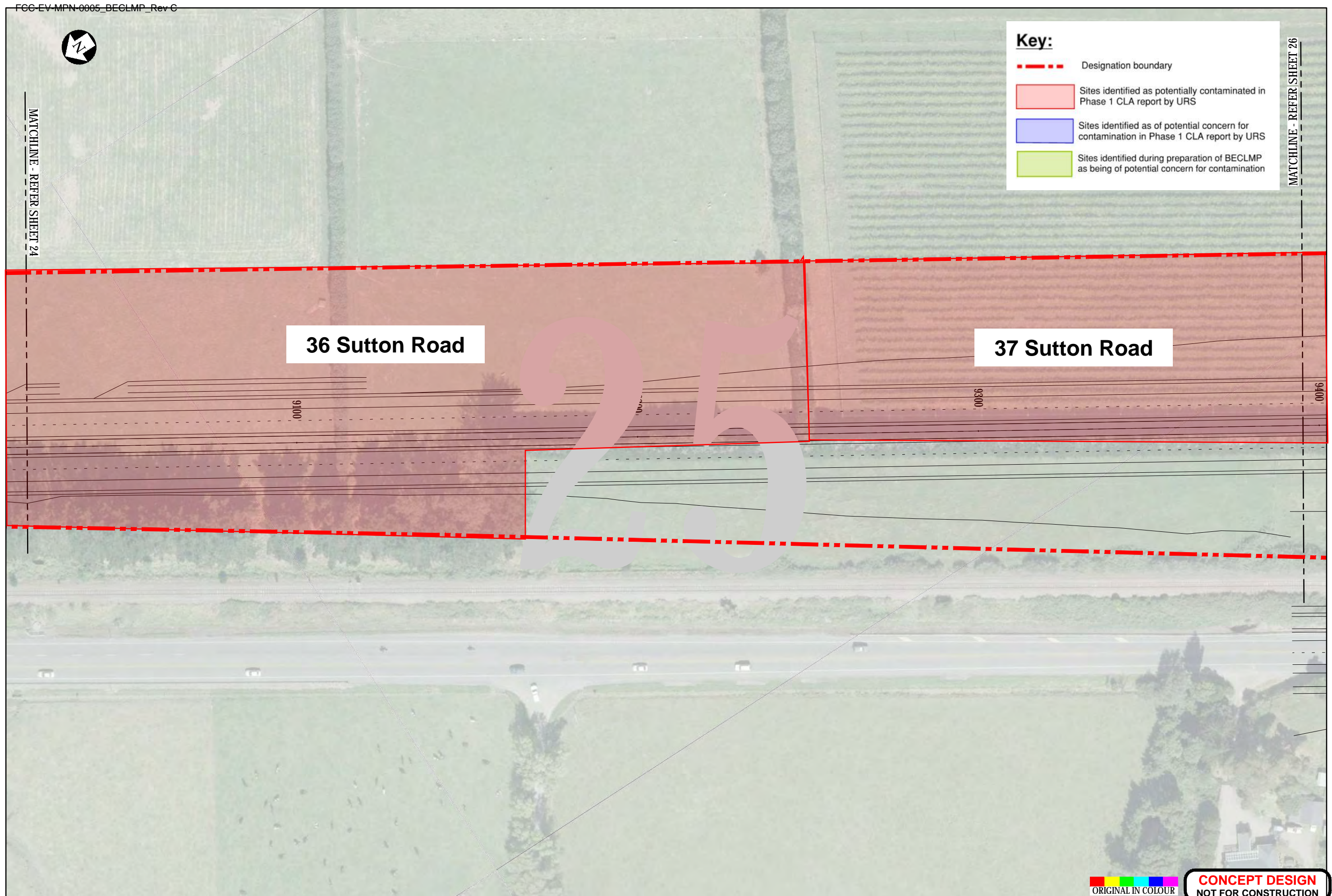


MATCHLINE - REFER SHEET 24

MATCHLINE - REFER SHEET 26

Key:

- Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
- Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
- Sites identified during preparation of BECLMP as being of potential concern for contamination



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No.	Revision	By	Chk	Appd	Date

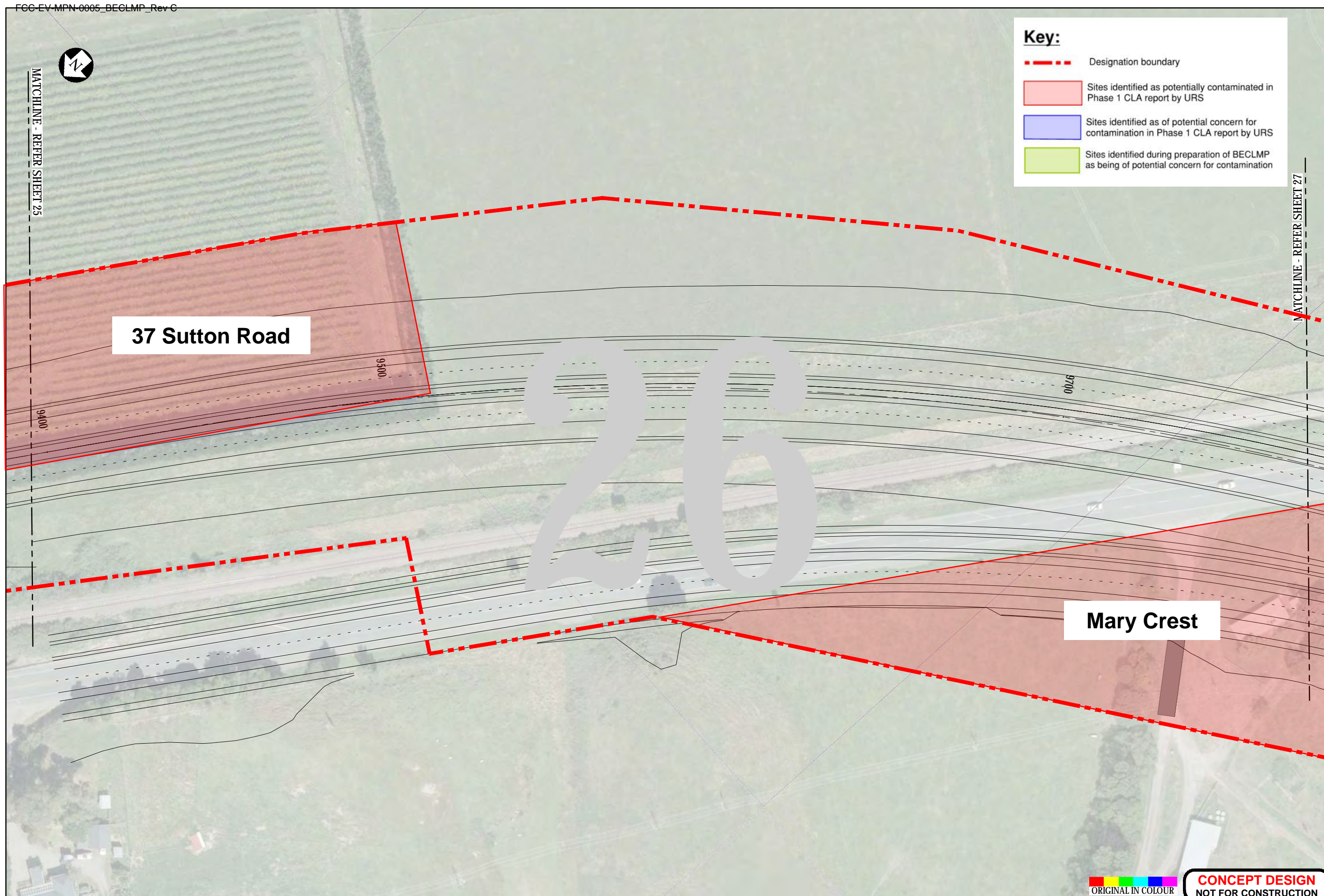
Scale (A3) 1:1000	Design Drawn		Approved For Tender
	Dwg Verifier		Date
	Dwg Check		
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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 25 OF 33	Drawing No.	PP20-GEN-CE-0125

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Key:

- Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
- Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
- Sites identified during preparation of BECLMP as being of potential concern for contamination



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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 26 OF 33	Drawing No.	PP20-GEN-CE-0126

Rev.	
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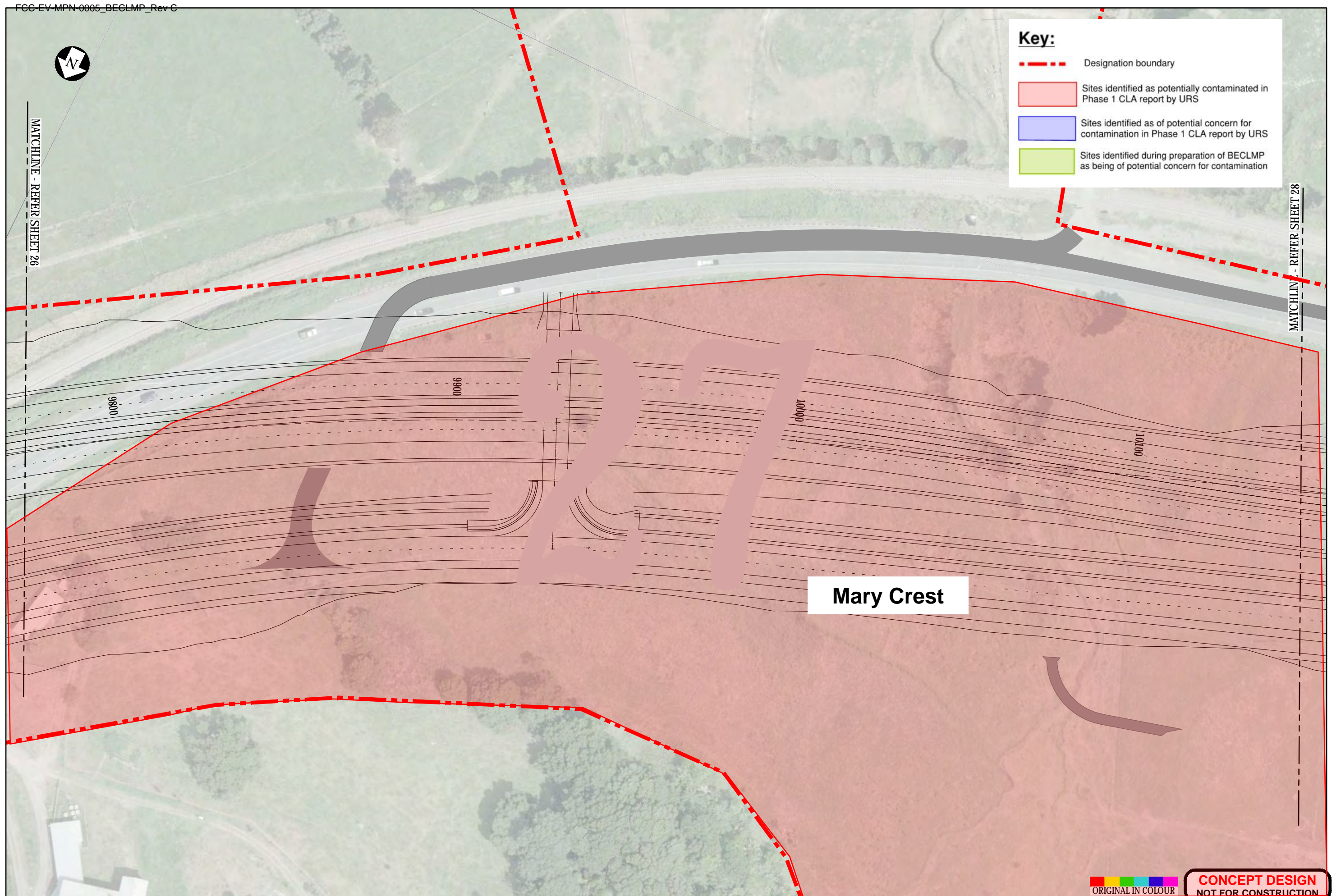


MATCHLINE - REFER SHEET 26

MATCHLINE - REFER SHEET 28

Key:

- Designation boundary
- Sites identified as potentially contaminated in Phase 1 CLA report by URS
- Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
- Sites identified during preparation of BECLMP as being of potential concern for contamination



Mary Crest

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Scale (A3) 1:1000	Design Drawn	Approved For Tender
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	Dwg Check	
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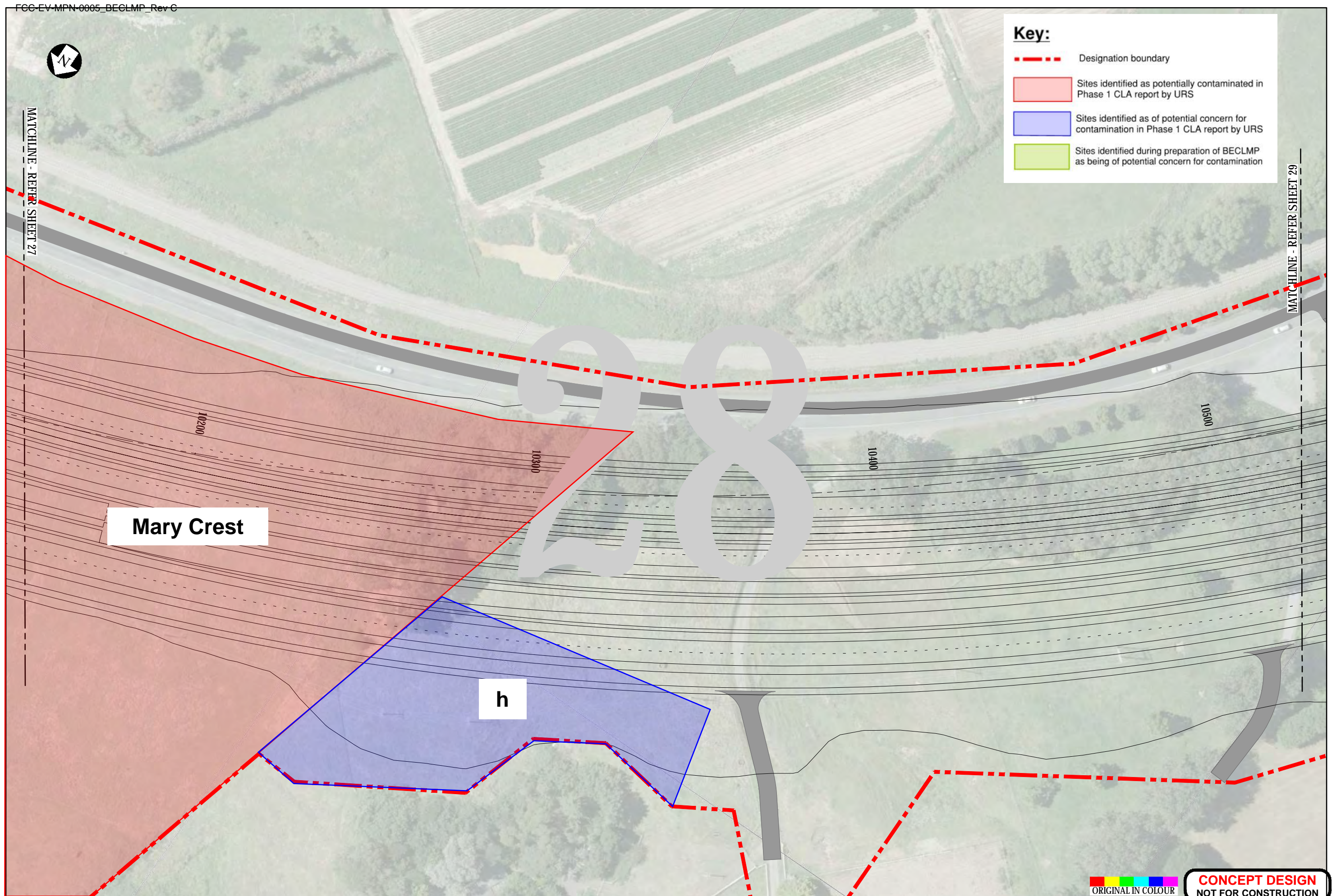


Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 27 OF 33	Drawing No.	PP20-GEN-CE-0127

Rev.	
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Key:

-  Designation boundary
-  Sites identified as potentially contaminated in Phase 1 CLA report by URS
-  Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
-  Sites identified during preparation of BECLMP as being of potential concern for contamination



Mary Crest

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No.	Revision	By	Chk	Appd	Date

Scale (A3) 1:1000	Design Drawn	Approved For Tender
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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 28 OF 33	Drawing No.	PP20-GEN-CE-0128

Rev.	
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Key:

-  Designation boundary
-  Sites identified as potentially contaminated in Phase 1 CLA report by URS
-  Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
-  Sites identified during preparation of BECLMP as being of potential concern for contamination



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No.	Revision	By	Chk	Appd	Date

Scale (A3) 1:1000	Design Drawn	Approved For Tender
	Dwg Verifier	Date
	Dwg Check	
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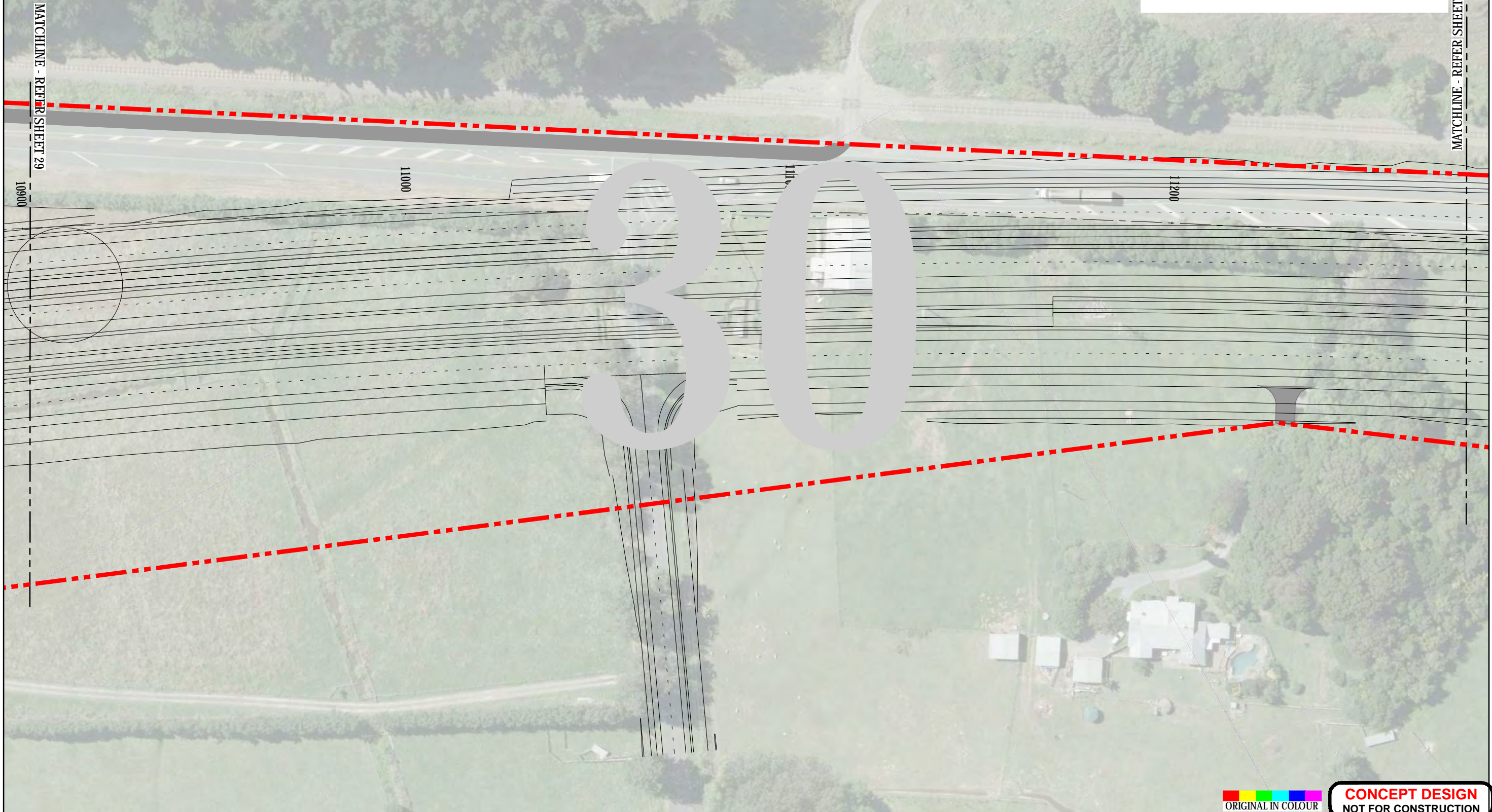
Subject:	GENERAL ARRANGEMENT	Discipline:	CIVIL
Title:	LAYOUT PLAN SHEET 29 OF 33	Drawing No.:	PP20-GEN-CE-0129

Rev.	
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Key:

-  Designation boundary
-  Sites identified as potentially contaminated in Phase 1 CLA report by URS
-  Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
-  Sites identified during preparation of BECLMP as being of potential concern for contamination



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Subject:	GENERAL ARRANGEMENT	Discipline:	CIVIL
Title:	LAYOUT PLAN SHEET 30 OF 33	Drawing No.:	PP20-GEN-CE-0130

Rev.	
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Key:

-  Designation boundary
-  Sites identified as potentially contaminated in Phase 1 CLA report by URS
-  Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
-  Sites identified during preparation of BECLMP as being of potential concern for contamination

MATCHLINE - REFER SHEET 30

MATCHLINE - REFER SHEET 32



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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 31 OF 33	Drawing No.	PP20-GEN-CE-0131

Rev.	
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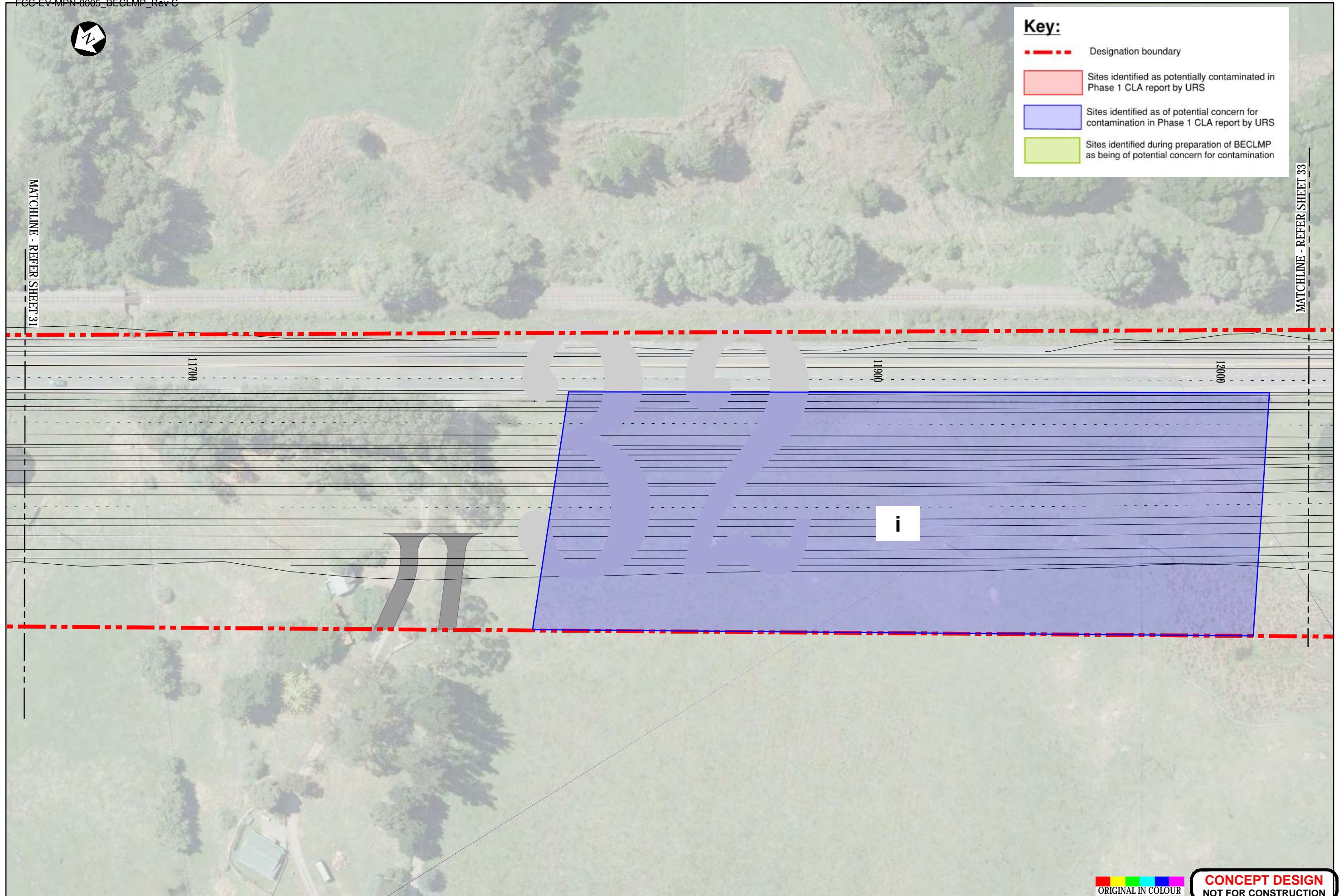


Key:

-  Designation boundary
-  Sites identified as potentially contaminated in Phase 1 CLA report by URS
-  Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
-  Sites identified during preparation of BECLMP as being of potential concern for contamination

MATCHLINE - REFER SHEET 31

MATCHLINE - REFER SHEET 33



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Subject:	GENERAL ARRANGEMENT	Discipline:	CIVIL
Title:	LAYOUT PLAN SHEET 32 OF 33	Drawing No.:	PP20-GEN-CE-0132

Rev.	
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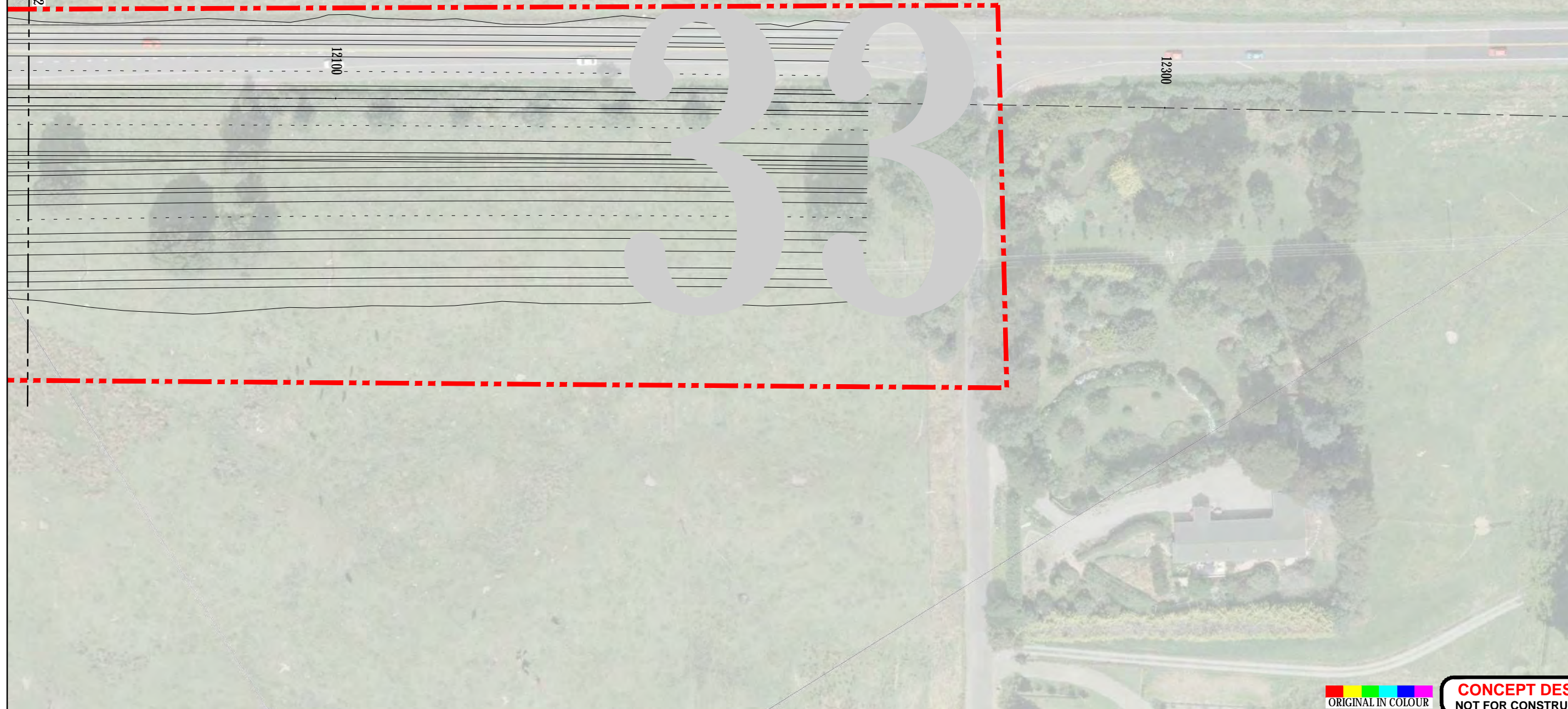


Key:

-  Designation boundary
-  Sites identified as potentially contaminated in Phase 1 CLA report by URS
-  Sites identified as of potential concern for contamination in Phase 1 CLA report by URS
-  Sites identified during preparation of BECLMP as being of potential concern for contamination

MATCHLINE - REFER SHEET 32

MATCHLINE - REFER SHEET 34



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Subject	GENERAL ARRANGEMENT	Discipline	CIVIL
Title	LAYOUT PLAN SHEET 33 OF 33	Drawing No.	PP20-GEN-CE-0133

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