



SOUTHERN LINKS 1 INDUSTRIAL DEVELOPMENT

CONSTRUCTION MANAGEMENT PLAN

PROJECT INFORMATION

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1. STATEMENT OF EXPERIENCE

Author

My name is Sean McDonald. I am a Senior Engineer and Team Leader at Maven Waikato Ltd (“Maven”), a firm of consulting engineers and surveyors based in Hamilton. I have been employed by Maven since 2025. I hold a Bachelor of Engineering Technology (Highways) which I graduated from in 2006, hold a New Zealand Certificate of Engineering “Civil” (NZCE) and I am a member of Engineering New Zealand.

I have over 29 years of experience in the field of civil engineering including as a civil engineering technician, New Zealand army engineer, council engineer and consulting engineer, with over 20 years’ of experience post degree. Since obtaining my degree I have worked on a variety of civil projects including State Highway works, 3 Waters Infrastructure works, Residential Land Development, Commercial and Industrial Land Development and major Infrastructure projects such as the upgrade of the Port Boteny (Sydney) Naphtha Storage Facilities, the Transpower upgrade and extension of the Whakamuru Substation, the Central Government Rotorua Youth Justice Facility and Contact Energy’s new Tauhara Geothermal power station.

I confirm that I have read and understood the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023, and agree to comply with its requirements.

I acknowledge that, as an expert, I have an overriding duty to assist the decision-maker impartially on matters within my area of expertise. In preparing this report, I have exercised my independent professional judgement, and the opinions expressed in this report are my own. I understand that my duty as an expert is not to advocate for the interests of the applicant or any other party.

I confirm that the matters addressed in this report are within my area of expertise, except where I expressly identify that I have relied upon information, assessments or opinions provided by others. I have made all reasonable enquiries and have not knowingly omitted any material facts known to me that might alter or detract from the opinions expressed in this report.

Reviewer

I am David Cloete, a Regional Director and Civil Engineer with Maven . I hold a New Zealand Diploma in civil engineering, a bachelor’s and engineering technology (Civil) and am a Chartered Professional Engineer (CPEng) registered with Engineering New Zealand. I have over fifteen (15) years of professional experience in civil engineering, with particular experience in land development, including earthworks, roading, and three waters infrastructure design.

I confirm that I have read and understood the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 and agree to comply with its requirements.

I acknowledge that, as an expert, I have an overriding duty to assist the decision-maker impartially on matters within my area of expertise. In preparing this report, I have exercised my independent professional judgement, and the opinions expressed in this report are my own. I understand that my duty as an expert is not to advocate for the interests of the applicant or any other party.

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2. Introduction

2.1. Background

Maven Waikato Ltd have been engaged to undertake Civil Design in support of the substantive application for the Southern Links 1 project (SL1 or the Project) under the Fast-track Approvals Act 2024 (FTAA). This report relates to the industrial portion of SL1, referred to as the Industrial Area and Industrial Development.

2.2. Purpose of this Report

The purpose of this report is to provide a construction management plan (CMP) for the Industrial Development at 160 Higgins Road, 20 Wickham Street and 24 Wickham Street, Frankton, Hamilton. The information provided herein outlines the methodology associated with the proposed earthworks and infrastructure onsite. This report is to be read in conjunction with the engineering drawings and is to accompany the Substantive Application under the FTAA.

2.3. Site Description

The Industrial Area is a contiguous industrial extension to the south of Hamilton, and forms part of the wider Southern Links Growth Cell (SL1 Growth Cell), a circa 440ha contiguous land area that stretches the south-western edge of Hamilton that includes the Hamilton Southern Links (RoNS) designation. The Industrial Development forms part of the listed SL1 Project, which includes both residential and industrial components and together comprises circa 106ha of the overall SL1 Growth Cell. The Industrial Development comprises 60ha and is currently used for a mix of rural and light industrial related activities. The landholding includes four parcels Lot 2 Deposited Plan 603134, Lot 1 Deposited Plan 603134 is circa 50ha, and Lot 1 Deposited Plan 584573 is 7.8ha and Lot 1 Deposited Plan 396081 and Lot 1 Deposited Plan 486522 is 2.1ha.

The Project seeks approval for a substantive application under the FTAA for a comprehensively master planned and staged industrial and residential development. This includes all necessary resource consents under the Resource Management Act 1991.

The Industrial Development provides for the establishment of 22 industrial lots, together with infrastructure devices including artificial wetlands and roading. The Industrial Development is underpinned by a series of design principles, with a focus on creating a well-connected, legible, and diverse industrial area on Hamilton's industrial fringe. This is supported via a coordinated and connected roading and pedestrian/cycle network, and stormwater outcomes, as well as varying industrial lot sizes which have been proposed to meet the growing and changing needs of Hamilton's industrial market to ensure there are options for future business adjacent to an existing industrial area

The Industrial Development includes substantial enabling works to establish developable land, including:

- preloading of road corridors and bulk earthworks across the site;
- new wastewater and water supply infrastructure including new wastewater pumpstations;
- an integrated stormwater management system consisting of conveyance systems such as grass lined swales and piped stormwater infrastructure, as well as integrated detention/attenuation and treatment devices that will be combined into artificial wetlands, designed with the intent to discharge to ground water as relevant.

Access and integration with the surrounding Hamilton area is provided through connected transport framework, including the establishment of intersections, roading, and walking and cycle networks, along with upgrades to existing transport infrastructure. The industrial development is proposed to be serviced via a coordinated strategy, including the extension of the proposed Hamilton Southern Links (HSL) network, public networks, upgrades, and installation of appropriate infrastructure.

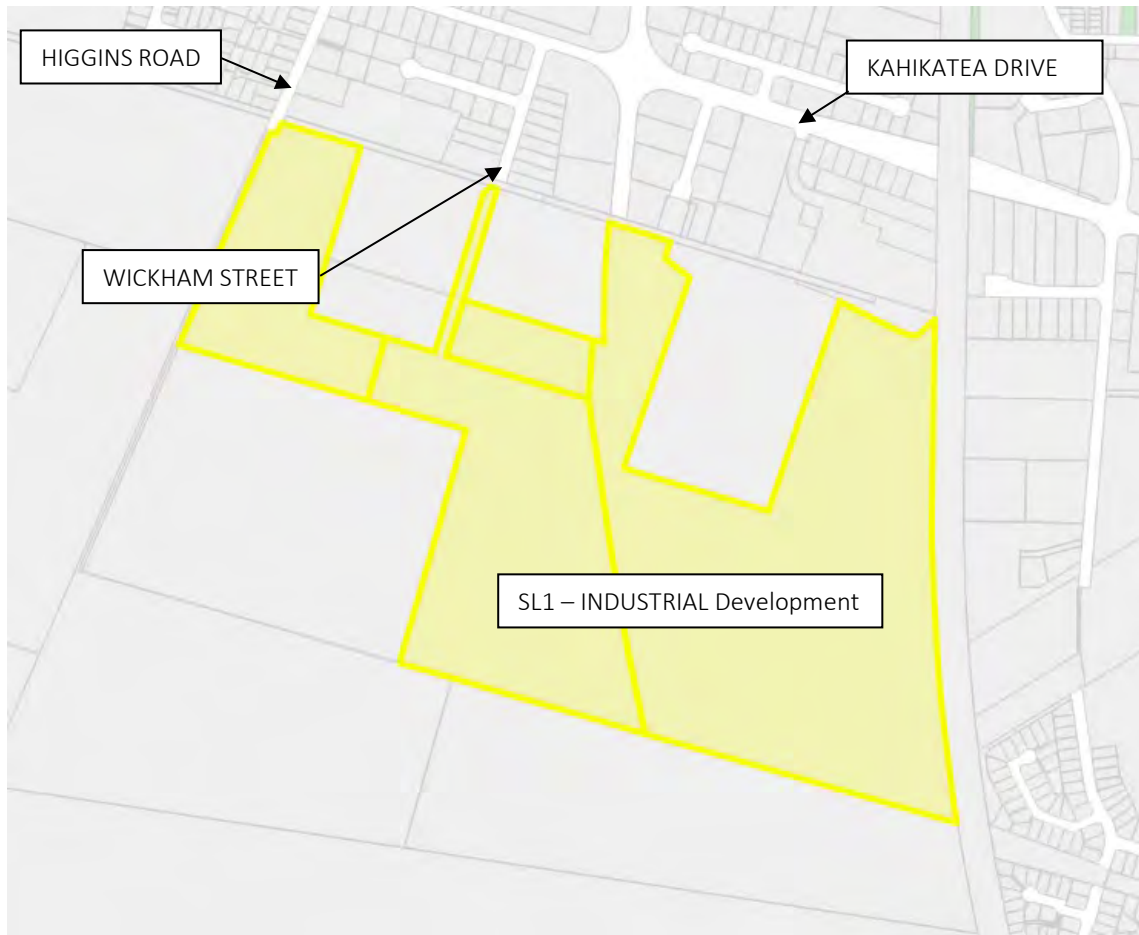


Figure 1: Site Locality

3. Proposed Earthworks

Earthworks will include preloading of road and infrastructure corridors, cut to fill operations for the construction of industrial lot areas, excavations for pavement construction, excavations for the artificial stormwater wetland construction, excavations for the wastewater pumpstations and associated drainage reticulation, formation of building platforms. The site will contain specific erosion and sediment control measures suitable to control the earthworks area.

3.1. Geotechnical Investigation

Various site-specific geotechnical investigations have been conducted, and a geotechnical investigation report has been prepared by CMW, to support the Substantive Application under the Fast-track Approvals Act 2024.

The report identifies the approximate distribution of prevailing landforms and geologies for the local area. The site geology's consists low-lying areas comprised of Holocene peat deposits. The peat is underlain by interbedded Silts and Sands of the Late Pleistocene alluvial deposits of the Hinuera formation, which is underlain by Early Pleistocene, fluvially reworked igneous silt/clay of the Walton

Subgroup Formation which also form the base of the nearby hills outside the site. The exception is the imported gravel fill in the yard areas, the fill in the existing green waste site and the construction waste site in the north-eastern corner of the site. Please refer to the Geotechnical Investigation Report for more information.

From the geotechnical desktop review by CMW, the geohazards and mitigation measures in are shown Table 1 below.

Geotechnical Hazard	Description	Area Affected	Assessment Outcome	Mitigation Measure
Construction Risks	Excavatability	Building Platforms	Given the site is being built up with engineered fill, excavation is expected to be readily achieved with normal earthworks plant.	Construction monitoring by geotechnical engineers to ensure good earthworks practices.
	Sediment Retention Ponds	Building Platforms	Depending on their size sediment retention ponds may require geotechnical input at design stage to ensure batter stability is achievable.	Consideration given to batter stability of proposed ponds at design and construction phase.
	Subgrade Preparation	Building Platforms and Road Alignment	Topsoil and existing vegetation within the building footprints and road alignments will be cleared as part of the proposed development of earthworks.	Undercut to remove topsoil and roots and other materials. For saturated subgrade, allow to dry or undercut and replace.
	Service Trenches	Building Platforms and Road Alignment	Trench collapse may occur in surficial soils if proposed service trenches extend below GW level.	Mitigation should be considered in the form of trench support, temporary dewatering, in the form of regular spaced pumps.
	Short Term Erosion of Swale Drains	Swale Drains	Erosion of swale drains may occur due to the battered slope gradient on unvegetated slopes.	Mitigation may comprise rapid revegetation and erosion control matting. This is to be confirmed in the design phase.
	Low Road/Pavement Subgrade Strengths	Roads and Paths	Low subgrade strengths and/or saturation of pavement subgrade.	Further site investigations and specific pavement design is required.

Table 1: Summary of Geohazards & Mitigation Measures

3.2. Bulk Earthworks

The total bulk earthworks for whole site is summarized in table 2 below:

Bulk Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	547,400 m ² (54.74ha)
Total volume of CUT	790,603 m ³
Total volume of FILL	927,154 m ³
Total Volume of FILL with Compaction Factor (1.2)	1,112,585 m ³
Maximum CUT and FILL depth	5.26m FILL / 19.47m CUT
Total Volume (shortfall of FILL)	321,982 m ³
Others	
Topsoil stripping (300 mm)	164,208 m ³

Table2: Summary of Total Earthworks

3.3. Site Constraints

3.3.1. Earthworks within Existing Flood Plain

The Industrial Site comprises multiple interconnected overland flow path and ponding areas dictated by the existing topography of the surface, surrounding rural land uses and primary drainage with hydrology conditions as assumed in the model.

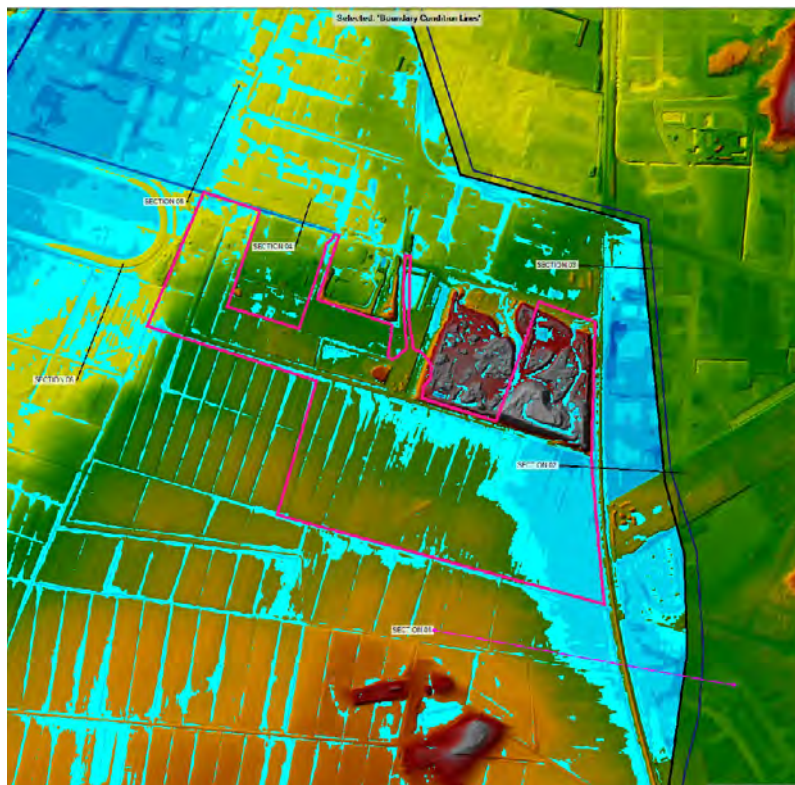


Figure 2: Existing Flood Extent in the 1% AEP Event

Construction within the development area is of particular importance due to the presence of existing flood prone areas and overland flow paths. The wetlands, stormwater storage areas, and diversion

channels have been designed to manage existing and post development runoff conveyance across the site.

These features will contribute the reduction in extent and duration of ponding currently experienced within the site by formalising flow paths and improving overall hydraulic efficiency during storm event, include events up to the 100 year design event.

Construction activities within the identified flood-prone areas will be carefully managed to avoid adverse effects on existing offsite drainage patterns and flood conveyance. Particular attention will be given to maintaining the capacity and connectivity of the existing farm drains and the artificial channel located along the northern boundary, which provide key drainage pathways for the wider catchment.

The elevated area adjacent to the railway corridor will also be managed to ensure runoff continues and no blockage of corridor occurs due to works within the Industrial Site< this will avoid upstream and receiving environments localised ponding or erosion issues.

Temporary erosion and sediment controls will be implemented throughout construction period, and any works which have the potential to effect existing drainage features will be undertaken in a staged manner to maintain stormwater conveyance and minimise flood risk during the construction period.

To mitigate flood related risks during construction the following measures will be implemented.

- Earthworks will only be undertaken during the approved earthwork season unless a Winter Works application is submitted and approved by HCC.
- In a high-risk location only open a small manageable earthwork area at a time.
- Create low flow diversion channels to divert any existing drains away from earthwork areas.
- Stabilise the earthworks site when a large rainfall event is forecasted.

3.3.2. Sensitive Receiving Environment

Stormwater runoff from the Industrial Development is ultimately discharged to the existing drainage network within the Waitawhiriwhiri catchment, which forms the primary receiving environment for the site.

The receiving environment is considered sensitive due to its ecological value, interaction with groundwater, susceptibility to changes in sediment load, and water quality. In addition, the Waitawhiriwhiri catchment has known downstream water flooding issues (refer to - Existing Flood Conditions, within the Integrated Catchment Management Plan (ICMP)) and includes existing gully habitats, which further increase the importance of maintaining water quality and flow attenuation during construction.

To safeguard this sensitive receiving environment, a comprehensive erosion and sediment control strategy has been developed to effectively manage and enhance the water quality of sediment-laden water. The erosion and sediment control include, but are not limited to, the following:

- All water runoff originating from within the earthworks site must be captured by either a Sediment Retention Pond (SRP) or a Decanting Earth Bund (DEB).
- The use of flocculant treatment is mandatory for all DEBs and SRPs.
- Prior to commencing bulk earthworks within their respective catchments, the treated water from all DEBs and SRPs must undergo testing to verify the effectiveness of these devices in terms of water treatment. Additionally, their water treatment efficiency should be assessed on a monthly basis or following significant rainfall events.

- Where pumping is necessary for treated water discharge, a manhole is required for the DEB or SRP. The pump unit will be situated within the manhole and will exclusively discharge treated water.
- The pumped treated water will be directed towards a grass swale, which will provide additional water quality treatment before discharging into the existing channel or stream.
- Groundwater resulting from dewatering operations should be discharged into a dedicated SRP or DEB to ensure water quality treatment before entering the existing stormwater channel or stream.
- In cases where DEBs and SRPs are not feasible, other sediment control methods, such as silt fences, may be employed at the discretion of the monitoring officer. However, it is important to note that the exposed earthwork area in these cases should be limited to less than 1,000 square metres and must be completed and stabilised within a single day. Additionally, no earthworks should commence if rain is forecasted.

3.3.3. Contamination

Swiftsure has prepared a Detailed Site Investigation (DSI) for the proposed earthworks extent. This section summarises the DSI findings across the wider site; the fill mound known as "Latham's Mountain" is addressed separately below.

General Site (Paddocks and Yard Areas)

Soils in the investigation area were observed to comprise of basecourse gravels, underlain by mixed fill and organic peat soils. Within the grazing paddocks and yard areas, no asbestos-containing materials (ACM) were identified in bulk samples, and no evidence of refuse or construction/demolition waste was encountered.

Hydrocarbon concentrations exceeding the Soil Contaminant Standards (SCSs) and Soil Guideline Values (SGVs) were identified in shallow soils in the storage yard and will require remediation or management as part of site redevelopment.

All other soil samples generally complied with the relevant Soil Contaminant Standards (SCSs) and Soil Guideline Values (SGVs) and are therefore considered unlikely to pose a risk to human health in the context of the current or proposed future site use. The only exception was an elevated zinc concentration identified in one location within the storage yard area.

Polycyclic aromatic hydrocarbons (PAHs) were detected at low but measurable concentrations in several samples across the investigation area, primarily within surface and stockpiled soils. However, all reported PAH concentrations were below the relevant human health criteria for commercial/industrial land use and are not considered to present a risk to human health.

Fill Mound — Latham's Mountain

A separate Remediation Action Plan (RAP) addresses the large construction and demolition waste fill mound known locally as "Latham's Mountain," located within the site. This mound is understood to have received construction, demolition, and industrial waste over approximately 30 years under a resource consent authorising up to 35,000 m³ per annum.

The DSI confirmed that fill within Latham's Mountain contains fragments of ACM, with two of nine bulk samples returning positive asbestos results. The fill mass is highly heterogeneous. Materials observed include car bodies, concrete, rubble, roofing materials, timber, power poles, and scrap metal and

cannot be fully characterised through discrete sampling alone. The presence of additional contamination, including ACM, cannot be ruled out.

The RAP for Latham's Mountain adopts a risk-based adaptive remediation strategy comprising:

- Excavation, screening, and contaminant testing of the fill mound in staged batches of approximately 1,000 m³;
- Reuse of compliant material onsite where demonstrated suitable, with material exceeding acceptance criteria either disposed of offsite to a licensed landfill or managed onsite beneath a suitably designed clean cover system;
- An Unexpected Discovery Protocol (UDP) applicable to all earthworks within the fill mound and any other areas of uncertified or potentially disturbed ground;
- Class B licensed asbestos removal works, including preparation of an Asbestos Removal Control Plan (ARCP), continuous air monitoring, dust suppression, and decontamination procedures; and
- Engagement of a Suitably Qualified and Experienced Practitioner (SQEP) to supervise works, undertake validation sampling, and prepare a Site Validation Report at completion.

Overall, the soils across the general site are unlikely to represent a significant contamination source. The fill mound presents a known but manageable contamination risk that will be addressed through the dedicated RAP. Please refer to the Contaminated Soils Management and Remediation Plans prepared by Swiftsure for further detail.

3.4. Consent Condition and Council Involvement

For an earthwork operation of this scale, consent conditions address the potential adverse effects generated during the earthwork and construction phase.

No earthworks will be undertaken prior to pre-construction conditions being satisfied and the sediment and erosion control has been established on site to meet Waikato Regional Council's (WRC) Guide for Soil Disturbing Activities TR2009/02.

3.5. Program of Works

Earthworks will be undertaken in stages It is envisaged that all earthworks will be completed within five (5) earthworks seasons. Applications for Winter Works will only be lodged if required.

It is proposed that the bulk earthworks operation will comprise of four separated work sections (Stage 1A, 1B, 2, and 3) as well as the NZTA HSL Corridor works that will be undertaken independent of each other as shown on the earthwork plans attached in Appendix A.

Works are intended to be carried out in the following steps for each work section:

- Install silt control measures, as shown on Engineering Drawings (Appendix A)
- Strip topsoil to stockpile, or screen and sell to the public
- Place Preload materials on the road corridors
- Cut/Fill bulk earthworks to areas outside of the preload placement corridors
- Carry out any associated deep drainage infrastructure works
- Stabilise site using topsoil, grassing, metal or other methods as required
- Retain silt control measures until the earthwork/preload areas are stabilised.

3.6. Earthworks Summary

As mentioned in the above section, the bulk earthworks on site will be divided into four separated work sections. These are Stage 1A, 1B, 2 & 3, including preloading of the proposed road corridors,

construction of artificial stormwater wetlands, and wastewater pumpstations. Please refer to the earthworks drawings for detail attached in Appendix A.

- Stage 1A
 - Preload Road Corridor
 - Bulk Earthworks
 - Artificial Stormwater Wetland 1 construction
 - Northern Wastewater Pumpstation (A) construction
- Stage 1B
 - Preload Road Corridor
 - Bulk Earthworks
 - Artificial Stormwater Wetland 2 construction
 - Central Wastewater Pumpstation (B) construction
- NZTA Corridor Earthworks
 - Preload Road Corridor
 - Bulk Earthworks
 - Noting NZTA Corridor must occur prior to development access eastern side of the HSL Corridor (Stage 2 and 3)
 - Noting NZTA Corridor may occur prior to the development of the western side of the HSL Corridor (Stage 1A and 1B) depending on the Kahikatea Drive/Greenwood Street roundabout option adopted – refer to ITA for more detail
- Stage 2
 - Preload Road Corridor
 - Bulk Earthworks
- Stage 3
 - Preload Road Corridor
 - Bulk Earthworks
 - Artificial Stormwater Wetland 3 construction

3.6.1. Stage 1A Earthworks

Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	82,600 m ² (8.26ha)
Total volume of CUT	108,841 m ³
Total volume of FILL	8,612 m ³
Total Volume of FILL with Compaction Factor (1.2)	10,334 m ³
Maximum CUT and FILL depth	4.29m FILL / 4.16m CUT
Total Volume (surplus of CUT)	98,507 m ³
Others	
Topsoil stripping (300 mm)	24,780 m ³

Table 3: Summary of Stage 1A Earthworks

3.6.2. Stage 1B Earthworks

Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	182,484 m ² (18.25ha)
Total volume of CUT	16,426 m ³
Total volume of FILL	317,021 m ³

Total Volume of FILL with Compaction Factor (1.2)	380,426 m ³
Maximum CUT and FILL depth	4.28m FILL / 3.08m CUT
Total Volume (shortfall of FILL)	364,000 m ³
Others	
Topsoil stripping (300 mm)	54,745 m ³

Table 4: Summary of Stage 1B Earthworks

3.6.3. NZTA Corridor Earthworks

Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	89,800 m ² (8.98ha)
Total volume of CUT	22,513 m ³
Total volume of FILL	55,558 m ³
Total Volume of FILL with Compaction Factor (1.2)	66,669 m ³
Maximum CUT and FILL depth	3.48m FILL / 20.04m CUT
Total Volume (shortfall of FILL)	44,156 m ³
Others	
Topsoil stripping (300 mm)	26,962 m ³

Table 5: Summary of NZTA Corridor Earthworks

3.6.4. Stage 2 Earthworks

Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	171,805 m ² (17.18ha)
Total volume of CUT	1,042 m ³
Total volume of FILL	556,006 m ³
Total Volume of FILL with Compaction Factor (1.2)	666,166 m ³
Maximum CUT and FILL depth	5.26m FILL / 4.44m CUT
Total Volume (shortfall of FILL)	666,166 m ³
Others	
Topsoil stripping (300 mm)	51,542 m ³

Table 6: Summary of Stage 2 Earthworks

3.6.5. Stage 3 Earthworks

Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	76,303 m ² (7.63ha)
Total volume of CUT	660,377 m ³
Total volume of FILL	1,495 m ³
Total Volume of FILL with Compaction Factor (1.2)	1,794 m ³
Maximum CUT and FILL depth	3.48m FILL / 20.04m CUT
Total Volume (surplus of CUT)	658,583 m ³
Others	
Topsoil stripping (300 mm)	22,891 m ³

Table 7: Summary of Stage 3 Earthworks

4. Earthworks Operation

4.1. Environmental Aspects

This section details the minimum requirements for environmental management processes and procedures to be implemented on site, to mitigate actual and potential risks associated with the construction of the SL1 Industrial Development project.

4.1.1. General Environmental Outcomes and Targets

Environmental objectives and targets relating to this CMP are described in the table below and will be confirmed with the contractor.

Outcome	Target	Proposed KPI
Environmental Compliance Ensure the Project operates in accordance with all Resource Consent Conditions and relevant environmental related legislation.	Zero enforcement action.	Number of warning or pre-enforcement letters. Percentage of compliance with conditions of Consent
Earthworks Compliance Ensure the Project operates in accordance with WRC's TR2009/02 guidelines for ESCPs and ESC in accordance with WRC Site Scoring System.	Good earthworks performance on site, reduced potential for enforcement actions, better environmental outcomes, enhance opportunity for flexibility in earthworks programme.	Number of 1 (fully compliant) scores Percentage of 2-4 scores
Training Train Project personnel in environmental management.	Implement training & awareness programs that promote compliance, improving environmental performance & skill base of staff and workers on the Project and minimise environmental risk.	100% of relevant Project staff receiving environmental training.
Flora, Fauna and Receiving Environments Manage effects of construction activities to minimise impacts on flora, fauna and receiving environments	No unauthorised impact to flora, fauna and receiving environments from construction.	Number of flora, fauna and receiving environments items impacted.
Community Manage community and stakeholder relationship to minimise impacts from construction activities	Engage directly with sensitive receivers, key stakeholders, and relevant community groups. Respond to complaints within a reasonable of receipt	Number of complaints and time taken to resolve issues Number of complaints managed effectively within nominated timeframe
Quality Ensure environmental & related audit actions are closed out within the agreed timeframes.	No overdue audit actions.	Number overdue audit actions. Percentage of audit actions completed on time

Table 8: Potential environmental objectives and targets

4.1.2. General Environmental Risks & Opportunities

The table below presents indicators of key environmental performance issues identified in initial desk top risk assessments undertaken for the purpose of developing this plan. Confirmation of xxx with the contractor will be undertaken prior to works commencing. The risks identified in initial reviews and site visits will be used to inform and update, where necessary, environmental aspects and impacts which are described in the table below:

Aspect/Risk	Potential Impact
Erosion and Sediment Control	Uncontrolled discharge of sediment to receiving environment Pollution or degradation Loss of reputation Additional costs to remediate Potential delays
Water Quality	Uncontrolled discharge of concrete wash out / slurry Pollutant discharge to receiving environment Uncontrolled discharge of sediment to receiving environment Environmental damage Loss of reputation Additional costs to remediate Potential delays
Noise	Excessive noise generated by the project activities Loss of reputation Additional costs to remediate Potential delays
Unidentified Archaeology	Items, structures, locations of cultural significance damaged or destroyed by project activities. Loss of reputation Additional costs to remediate Potential delays
Landscape	Landscaping elements do not achieve desired coverage, become weed infested, fail, do not achieve ecological or urban design outcomes. Extended maintenance/re-planting programme Revegetation Restoration objectives not achieved Additional costs to remediate Loss of reputation
Vibration	Excessive vibration caused by project activities Degradation of property outside site Loss of reputation Additional costs to remediate Potential delays
Air Quality (Dust)	Dust created by work activities

	Pollution or degradation that has impacts on the community and / or environment Loss of reputation Additional costs to remediate Potential delays
Contamination	Uncontrolled cross contamination of site due to ground contamination Health and safety implications Environmental damage Loss of reputation Additional costs to remediate Potential delays
Hazardous Substances / Dangerous Goods	Uncontrolled release of hazardous substances / dangerous goods Health and safety implications Environmental damage Loss of reputation Additional costs to remediate Potential delays
Waste	Waste management activities not in accordance with regulatory and project requirements Environmental damage Loss of reputation Additional costs to remediate Potential delays
Behaviours	Poor uptake of project values and behaviours by staff Negative perception of company / project in wider stakeholder community
Culverts and Stream Diversion	Environmental damage (e.g., sediment impacts on water quality) Fauna lost, through disruption of aquatic fauna plant strike Poor design and/or construction leading to inadequate aquatic habitat Flora dieback/lost Loss of reputation Negative perception of company / project in wider stakeholder community Potential delays

Table 9: Identified Key Risks and Potential Impacts

These aspects/risks identified in the table above and subsequent risk assessment with the contractor will be used to inform the preparation of site-specific method statements.

4.1.3. Environmental Monitoring

Monitoring of environmental performance and regulatory compliance with resource consents conditions are required during the construction phase of the project. The contractor will identify a

program which defines, at a minimum, general site monitoring (scheduled and unscheduled); environmental training; and site inductions along with incident response and reporting.

4.2. Health and Safety

A site-specific Health and Safety Plan will be provided by the Contractor prior to start of any works. This document will encapsulate routine monitoring measures, emergency response protocols, along with the requisite documentation. The Health and Safety Plan will be a dynamic document, updated regularly to address emerging health and safety concerns.

To ensure the safety of all, a protective barrier in the form of safety fencing will be erected around the work extent. Access points to the site will be monitored and controlled by a gate and perimeter fencing. Relevant signage will be affixed to this fencing for clear communication. All construction-related vehicular movement will be streamlined through distinct, predetermined, and well-marked access points.

To maintain a continuous dialogue about health and safety measures, weekly toolbox meetings will be convened on-site. These meetings will be centred around discussions of potential risks associated with the week's scheduled activities and the strategies to mitigate them.

All personal involved in this site construction work, including visitors, are required to complete site induction every year to ensure on-going familiarity with risks present on this construction site. Visitors to the construction site will be obliged to comply with the requirements of the site-specific Health and Safety Plan upon entry and shall be escorted by a nominated contractor representative throughout their visit.

4.3. Access/Haul Roads

The site will have one main accessway which will be utilised based on specific earthworks operation on site. This main entrance is located at the proposed SL1 intersection as part of the Hamilton Southern Links (HSL) extension of Greenwood Street (refer to the BBO ITA for more details). Secondary construction access for Stage 1A will be via Higgins Road and Wickham Street for Stage 1B. It is expected that all access for Stages 2 and 3 will be via the HSL Greenwood street extension. It is expected that these site accesses will be fenced off and monitored by the contractor. Only authorised personnel and nominated visitors can enter the construction site. This also includes ingress for emergency vehicles as dictated by signage at the site entrance.

The bulk earthworks operation will require multiple haul roads for transporting the cut and fill material. The access track and haul road have the following features.

- The track will be a metal road approximately 3m to 5m wide with drainage swales beside the road formations as required, which will act as a cut-off to divert runoff.
- Upon cessation of site work the track will be removed.
- A stabilised construction entrance with a wheel wash facility will be installed at these access points.
- Temporary culverts maybe required to be constructed to cross the existing council northern drain corridor as part of the Higgins Road and Wickham Street extension works

4.4. Working Hours

All construction activities will adhere strictly to the approved consent hours of work generally set at 7.30 a.m. to 6.00 p.m. Monday to Friday, and 8.30 a.m. to 4:30 p.m. Saturday. No work will occur Sundays or public holidays.

4.5. Complaints

Complaints will be addressed first-hand by the site construction manager and proactively followed up on. There will be a complaint register record for detailing the investigation and response. The key contact personnel will be available at site entrances for the public to contact in case of emergency or complaint lodgement.

4.6. Vibration Control

The effects of vibration during construction are expected to have less than minor effects on any surrounding receiver and will be reasonable in terms s16 of the Resource Management Act.

Some of the mitigation methods for vibration control are:

- Residents will be advised prior to construction activities being undertaken near their buildings.
- The lightest practicable model of vibration inducing plant shall be used within 30m of any dwellings.
- Compaction shall be performed using the lightest practical compaction equipment with the highest practicable vibration frequency to achieve specified compaction.
- Excavator operators shall avoid banging buckets on the ground and workers will be advised on minimising vibration.

Styles Group has undertaken Construction Noise Assessments regarding vibration effects, in the event of issues being raised, vibration monitoring will be undertaken.

4.7. Noise Control

Modern plants and equipment are all fitted with exhaust mufflers and soundproofing that are designed to reduce plant noise and have been manufactured to meet international standards. All items of plant are subject to periodic maintenance checks to ensure they can be operated safely and as intended. If complaints are received, they will be taken seriously, and every effort made to minimise disturbance e.g., continue work in that area at a time that might be more amenable to the complainant(s). Any noise complaints will be followed up with the complainant and will also be discussed at project site meetings. They will also become subject matter at the weekly site toolbox meetings.

If it noise levels are at allowable limits, then an alternative methodology may need to be deployed. The implementation of additional options will be undertaken in consultation with the regulatory authorities, Principal, and Engineer, including, if required and instructed, engaging a noise monitoring specialist to measure and report on-site construction activity to ensure compliance with NZS6803 (NZ Standard for Acoustics – Construction Noise).

Styles Group has undertaken Construction Noise Assessments regarding noise impacts in the event of issues being raised, noise monitoring will be undertaken.

4.8. Weed Management

The protocols outlined in the Waikato Regional Council factsheet will be used to minimise the adverse effects on biosecurity.

4.9. Sediment Control

Throughout the duration of the earthworks, these sediment control measures will be consistently maintained and closely monitored to ensure they function as required. Removal of silt control measures will only be considered once the site is deemed to be stable in terms of silt runoff, to be agreed by Hamilton City Council and the Site Engineer.

The following silt and sediment control protection measures are being proposed:

4.9.1. Stabilized Site Entrances

The contractor shall ensure that all entrances to the site are constructed upon establishment or prior to any intended use. Entrances shall be an area of stabilised and well compacted aggregate constructed and maintained for heavy vehicle use. These entrances shall be constructed in accordance with the agreed, proposed (as per C200 Earthworks drawings), and WRC's TR2009/02 guidelines, an example of which can be found within the appended standard details.

4.9.2. Dust Control

To avoid nuisance dust emissions, the following preventive measures shall be implemented:

- Dampening down of potential dust generation areas with a water truck;
- Mulching and grassing stockpiles and built levels where or when practicable;
- Chemical dust suppressants, used as per manufacturer recommendations as a method of sealing problematic or largely unfinished areas, if the previously mentioned methods fail to mitigate the dust appropriately.
- Ensuring that surfaces are constructed to their final design requirement and are stabilised as quickly as practicable; and
- Controlling reduced vehicle speeds.

Wind conditions will be monitored to assist in daily planning of works to minimise the potential for excessive dust generation.

4.9.3. Cut-off Drains/Bunds

Compacted earth bunds will be placed along the top of batter slopes to divert "clean" runoff away from the earthwork area. Compacted earth bunds placed at the bottom of the cut batter slopes to divert generated "dirty" runoff to the nearest local Decant Earth Bund (DEB) / Sediment Retention Pond (SRP). Cut-off drains shall be formed at the bottom of shallow batters where bunding alone will not likely contain expected flows. The purpose of the bund/drain is to prevent any surface water flowing over the newly formed batter faces, into stabilised areas of the site, and to divert flows around the site perimeter to the nearest low point where a DEB / SRP is to be located, if required.

4.9.4. Decanting Earth Bunds/Sediment Retention Ponds

Site run-off will be directed by cut-off drains and bunds to the natural low point within each bund's catchment area prior to discharge onto existing stabilised ground. The locations proposed shall be verified and agreed onsite during a pre-construction meeting and as-builts of decant bund's size/location shall be provided to the Compliance Officer, if required.

Decanting earth bunds (DEB) will serve as the primary treatment for the works. DEBs will be sized by volume to 2-3% of the catchment area as per appended calculations. The details of the DEBs recommended layout can be found online via Waikato Region Council Erosion & Sediment Control Guidelines for Soil Disturbing Activities (TR-0902), or other equivalent guidelines, such as Auckland Council GD05 guideline and appended standard details. Where possible, a DEB & SRP will be constructed with a length to width ratio between 3:1 – 5:1, however this may be constrained by site space limitations. Typically, the outlet structure of these DEBs & SRPs will comprise of a floating T-Bar dewatering device (decanting arm with anti-seep collar, as shown in standard details within engineering plans) which discharges to stabilised ground. Where possible, the discharge end of the pipe will be perforated to disperse flows past the working area to stabilised or undisturbed ground.

If chemical treatment is required, the decant bar shall be lifted above the expected storage volume to enable treatment to take place, before being lowered post storm event treatment whereby the storage volume is discharged.

4.9.5. Chemical Treatment

To improve water quality treatment within sediment control devices throughout the construction phase, the use of chemical flocculants is strongly recommended for all DEBs and SRPs.

The method of treatment is variable and dependant on ground conditions and catchment area, this will be confirmed onsite during establishment works and bench testing.

It is proposed that an approved flocculation method will be implemented; the available methods can be found outlined in Table 10:

Flocculation Method	Time Frame	Treatment Area
Floc Blocks for DEBs	Short and Long Term	Up to 5,000 m ²
Batch Dosing for DEB's & SRPs	Short Term	Up to 50,000 m ²
Continuous Dosing of DEBs & SRPs	Long Term	Up to 50,000 m ²

Table 10: Proposed Flocculation Method

Once the DEB & SRP have been flocculated the water quality will be assessed by either measuring the suspended sediment or checking clarity. If the water quality is acceptable the DEB or SRP is emptied by unblocking the outlet, and earthworks within its catchment can continue accordingly.

In cases where a pump is required to empty treated water from the DEB and SRP due to differences in ground level, the installation of a manhole is necessary. The pump is exclusively permitted to extract water from the manhole structure. The discharged water from the pump will then be directed towards a grass swale to further refine the water quality by removing any potential suspended solids captured during the pumping operation.

4.9.6. Silt Fences

Silt fences will be installed as a treatment measure where sheet flows are considered likely. Such as the toe of fill embankments, where it is not practical to divert flows to a DEB. Alternatively, they may be used in locations where newly generated sheet flows from stabilised areas may concentrate and result in scour of existing natural ground, in this situation a silt fence will impede and aid in mitigating excessive flow velocity.

4.9.7. Wellpoint Dewatering Devices

Prior to and during earthworks in areas with high groundwater levels, wellpoint dewatering devices will be employed. The purpose of these devices is to ensure the stability and safety of excavation faces by lowering the water table. This not only ensures safety but also expedites the construction process. However, it is important to note that the extracted water might contain suspended solids, which could be detrimental to the receiving environment. To mitigate this, the water will first be directed to DEB or SRP for treatment. Once treated, the water will be discharged into the existing stormwater channel.

4.9.8. Topsoil Management

Efficient topsoil management is a core component of this project's environmental strategy. The topsoil will be removed from each earthwork area and stockpiled for later use. Any surplus topsoil, forecasted to exceed project requirements, will undergo screening to make it available for sale to the wider public.

To address sediment and erosion control at the stockpile location, preventative measures will be employed. This includes the use of mulching and grass seeding to facilitate the establishment of grass cover on the topsoil stockpile. These practices help maintain the integrity of the topsoil stockpile, prevent soil erosion, and ensure minimal topsoil loss throughout the project.

Soil rehabilitation will be implemented in landscaping areas as required to reverse compaction effects and to improve near surface soakage prior to placement of topsoil and planting.

4.9.9. Sediment Control Performance Monitoring & Maintenance

All sediment control measures will be checked regularly, to ensure that they are performing as intended by design. The site Construction Manager in conjunction with the Project Engineer will be responsible for actively monitoring installed erosion and sediment control devices. Periodic audits will be undertaken and tabled at regular progress meetings.

A site walk over shall be undertaken weekly to identify any corrective maintenance required. A more thorough inspection will be undertaken at the end of each week, or before and after a forecast major storm event, to identify any preventative and/or corrective maintenance required.

A regular program of sediment, debris and trash removal will be undertaken to ensure sediment control measures do not become blocked and ensure they function as required. Any large floating matter including any organic matter, i.e., fallen tree litter, reaching the pond or discharge structures is to be removed immediately.

Specific monitoring and maintenance of each mitigation method is included below.

Stabilised Vehicle Entrance

- Maintain the Stabilised Vehicle Entrance in a condition to prevent sediment from leaving the construction site. After each rainfall inspect any structure used to trap sediment for the Stabilised Vehicle Entrance and clean out as necessary.

Diversion Drains/Clean Water Cut-Off Bunds

- Inspect after every rainfall event and during periods of prolonged rainfall for scour and areas where they may breach.
- Repair immediately if required to ensure that the design capacity is maintained.

Decant Earth Bunds/Sediment Retention Ponds

- Inspect after every rainfall event to confirm water clarity or organise sediment testing.
- Release stored flows if/when required to ensure that the DEB capacity is maintained prior to any future rain event.
- Muck out and remove collected sediment whenever 1/3 of the dead storage is reached, or bi-monthly, as required.

Chemical Treatment

- Inspect stored chemical volumes after every rainfall event and during periods of prolonged rainfall.
- Refill or repair any systems immediately if required to ensure that the design capacity is maintained.

Silt Fence

- Inspect Silt Fences at least once a week and after each rainfall. Make any necessary repairs when bulges occur, or sediment accumulation reaches 50% of the fabric height.
- Any areas of collapse, decomposition or ineffectiveness need to be immediately replaced.
- Remove sediment deposits as necessary to ensure adequate sediment storage and reduce pressure on the Silt Fence. Remove accumulated sediment from the area to an appropriate secure location.
- Do not remove Silt Fence materials and sediment deposition until the catchment area has been appropriately stabilised.

Sediment control and other environmental issues, health and safety matters, and construction-related Resource Consent condition compliance requirements will be integrated into fortnightly on-site client/engineer/contractor progress meetings as a proactive construction management tool. These meeting discussions are recorded with decisions and agreed courses of action to be followed up on.

4.10. Fill Compaction

Each layer of material shall be compacted by approved compacting machinery throughout the whole area and depth to achieve the specification listed below or as specified by a qualified Geotechnical Engineer.

Not less than the following percentages of maximum dry density obtainable for the material by standard compaction at optimum moisture content determined by NZS 4402, Pt 2P: Test 14:		Clays and Silty Clays	Sands and Gravel
A	Within 500mm of the finished carriageway sub grade levels and within 3m of batter edges	98%	100%
B	Elsewhere	95%	97%
Clays		Air Voids % (as defined NZS 4402: Part 1)	Undrained Shear (measured by in-situ vane)
A	Within 500mm of road subgrade levels and within 3 meters	Average value less than 8% (any 10 tests) Maximum single value 10%	Average value not less than 170 KPa minimum single value 140 KPa
B	General Fill	Average value less than 10% (any 10 tests) Maximum single value 12%	Average value not less than 150 KPa minimum single value 110 KPa
C	Reserve Areas deeper than 600mm below finished formation level	Maximum value 15%	Minimum value 75 KPa

Table 11: Fill Compaction Requirements by Soil Types

4.11. Traffic Management

A comprehensive Traffic Management Plan (TMP) has been prepared by BBO and will be confirmed with the contractor and the appropriate controlling roading authority (either NZTA or HCC) prior to the commencement of works. The TMP will address all construction-related vehicle movements, with particular attention to minimising disruption to surrounding residents and maintaining safe traffic operations.

Key measures include:

- Designated Access Points: Entry and exit to the construction site shall occur via HSL Greenwood Street extension and/or Higgins Road and Wickham Street for Stages 1A and 1B respectively. For stage 2 to 3, HSL Greenwood Street extension the main access point.
- Construction Traffic Routes: Heavy vehicle routes shall be pre-approved by Hamilton City Council and appropriately signed.
- Vehicle Control Measures: Construction accessways will be controlled with security gates with entry restricted to authorised vehicles.
- Dust and Debris Management: Receiving road network will need to be monitored for debris being carried into the local roading network. Vehicle wheel wash facilities may be required at exits to prevent debris onto public roads.
- Traffic Safety: All traffic management measures will comply with Waka Kotahi (NZTA) Code of Practice for Temporary Traffic Management (CoPTTM) requirements.
- Public Notification: Residents along haul routes will be notified in advance of any significant truck movements or temporary road works. A letter drop will be undertaken by the nominated contractor prior to construction works commencing.

Temporary traffic signage, traffic controllers, and restricted construction hours may be employed during peak traffic periods to further minimise disruption.

4.12. Community and Stakeholder Engagement

The following are to be implemented:

- Pre-Construction letter drop will inform residents and businesses of the construction schedule, accessways, and key project contacts.
- Complaints Register: A designated Site Liaison Officer will be appointed to manage complaints and queries. Contact information will be displayed at all site entrances.
- Response Protocol: Complaints will be acknowledged within 24 hours and notified to the local authority (HCC) with a follow-up and action plan provided within 72 hours.

Maintaining positive relationships with locals is a priority to ensure the project proceeds with minimal disruption and community support.

5. Construction Methodology and Sequence of Works

As highlighted in the previous section, the earthworks operations at the SL1 Industrial Development will be categorized into four (4) sections. These sections have been segregated based on the stages of development.

To provide comprehensive guidance for the earthwork activities within this domain, an overarching earthwork principle has been formulated. This principle serves as a unifying framework, guiding the execution of earthworks across these sections. Summarized below are the key principles of earthworks for this area:

- i. Establish Temporary Stormwater Diversion:
- ii. Sediment and Erosion Control Establishment:
- iii. Minimize the Earthworks Area:
- iv. Stabilize Earthworks:

Earthwork's methodology is dynamic and adapted to suit the local environment, ensuring that each earthwork area within these sections have specific construction methodology based on the principles mentioned above, which are essential to protect the sensitive receiving environment.

Continuous sheet pile walls will be installed around both wastewater pumpstations and the wetland perimeters and driven to the design embedment depth within the underlying Walton Subgroup to provide a groundwater cut-off barrier, control artesian groundwater pressures during excavation, and minimise the risk of seepage, uplift, piping, and base heave. Either steel or vinyl sheet piles may be feasible, subject to detailed design and constructability assessment. A detailed Wetland Design Technical Memorandum will be undertaken by CMW for each independent artificial stormwater wetland at the Engineering Approval stage.

The construction methodology for each respective work section is detailed below.

5.1. Artificial Stormwater Wetlands Construction Methodology & Sequence of Works

5.1.1. Artificial SW Wetland 1

The earthwork plan for SW Wetland 1 has been devised to occur in Stage 1A (Earthworks Stage). The construction methodology for this area is as follows:

Stage 1A (EW):

- Establish erosion and sediment control
- Carry out earthworks within stage 1A (earthworks stage)
- Construct SW Wetland 1

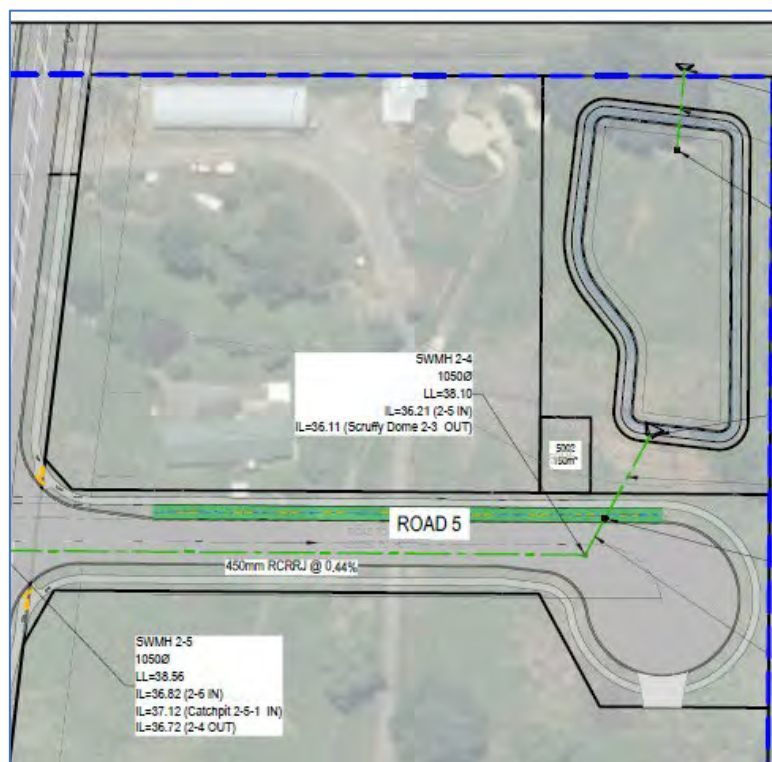


Figure 3: SW Wetland 1

5.1.2. Artificial SW Wetland 2

The earthwork plan for SW Wetland 2 has been devised to occur in Stage 1B (Earthworks Stage). The construction methodology for this area is as follows:

Stage 1B (EW):

- Establish erosion and sediment control
- Carry out earthworks within stage 1B (earthworks stage)
- Construct SW Wetland 2

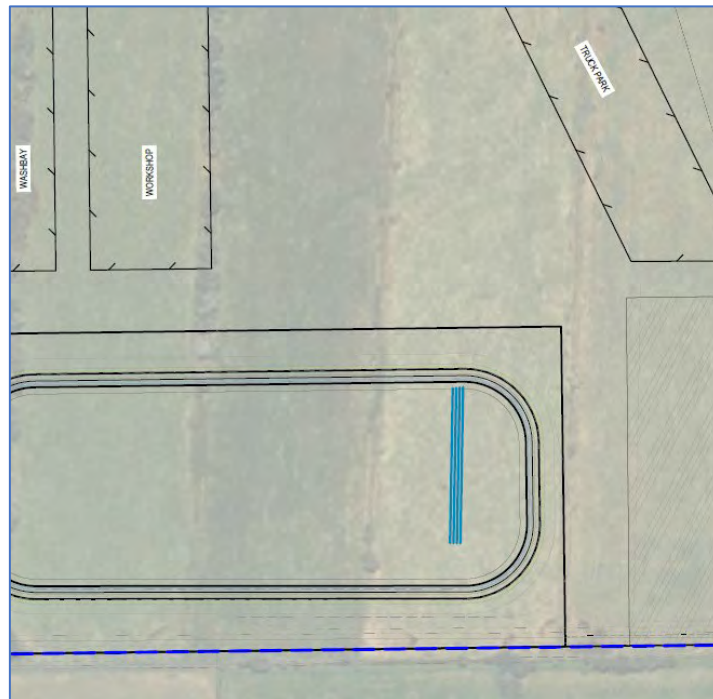


Figure 4: SW Wetland 2

5.1.3. Artificial SW Wetland 3

The earthwork plan for SW Wetland 3 has been devised to occur in Stage 3 (Earthworks Stage). The construction methodology for this area is as follows:

Stage 2 (EW):

- Establish erosion and sediment control
- Carry out earthworks within stage 2 (earthworks stage)
- Construct SW Wetland 3

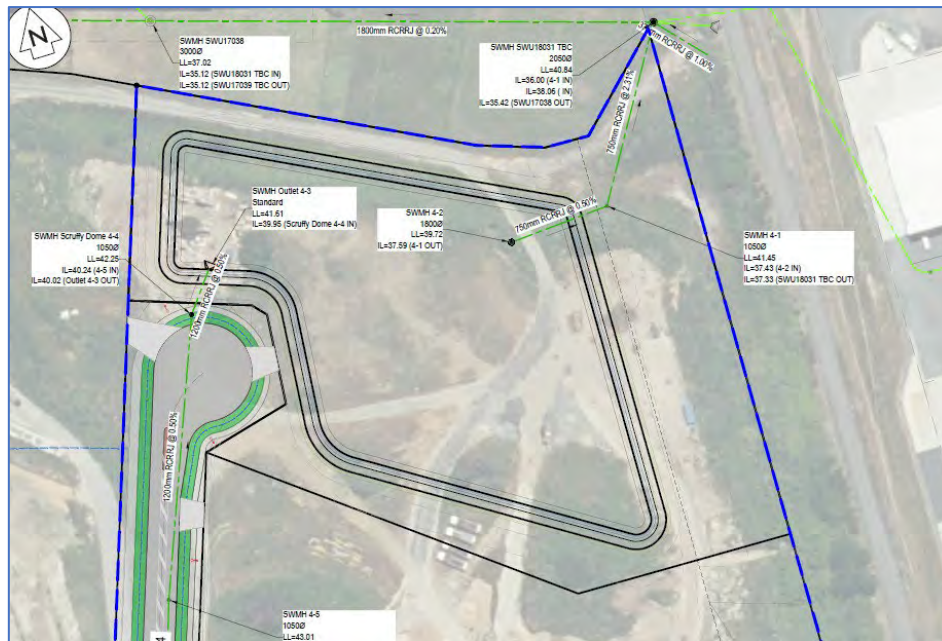


Figure 5: SW Wetland 3

5.2. Wastewater Pumpstation Construction Methodology & Sequence of Works

5.2.1. Wastewater Pumpstation A

The earthwork plan for WW pumpstation A has been devised to occur in Stage 1A (Earthworks Stage). The construction methodology for this area is as follows:

Stage 1A (EW):

- Establish erosion and sediment control
- Carry out earthworks within stage 1A (earthworks stage)
- Construct WW Pumpstation A

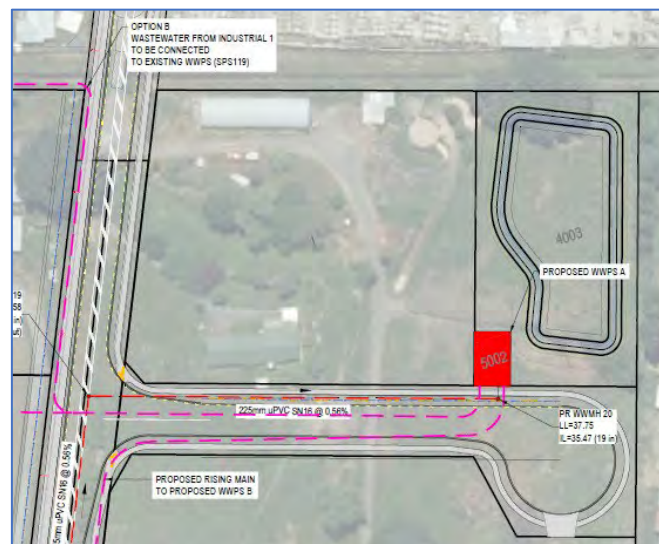


Figure 6: WW Pumpstation A

5.2.2. Wastewater Pumpstation B

The earthwork plan for WW pumpstation B has been devised to occur in Stage 1B (Earthworks Stage). The construction methodology for this area is as follows:

Stage 1B (EW):

- Establish erosion and sediment control
- Carry out earthworks within stage 1B (earthworks stage)
- Construct WW Pumpstation B

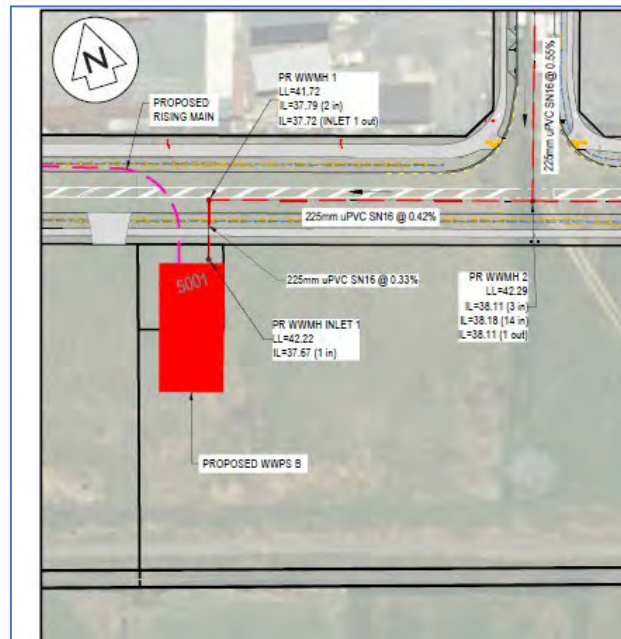


Figure 7: WW Pumpstation B

6. Conclusion

The proposed construction management plan has been designed to facilitate the required infrastructure for SL1 – Industrial Development.

Careful consideration is given to mitigate possible impacts of the proposed development to the receiving environment through implementation of accepted engineering practices.

6.1. Post Construction Monitoring and Maintenance

Following completion of bulk earthworks and infrastructure works, ongoing monitoring and maintenance will be undertaken to ensure compliance with consent conditions and environmental conditions. This period will coincide with the Defects Liability Period.

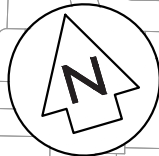
Activities include:

- Erosion and Sediment Control Decommissioning: Progressive removal of sediment control devices once full site stabilisation is achieved, subject to approval by WRC at indicated hold points ie waiting for stabilisation 80% grass strike coverage on grassed topsoil.
- Vegetation Establishment: Monitoring of grass and landscape planting success, with remedial planting undertaken as necessary.

- Defect Liability Period Inspections: Periodic site inspections will be undertaken during the defect liability period to address erosion, sedimentation, or settlement issues.
- Final Certification: A completion report, including 'as-built' plans and compliance certificates, will be submitted to HCC as part of the 224c process.

The above will ensure that long-term environmental and infrastructure outcomes are maintained beyond construction.

Appendix A –Earthworks Drawings



KAHIKATEA DRIVE

HIGGINS ROAD

WICKHAM STREET

LATHAM COURT

ARTIFICIAL
STORMWATER
WETLAND 1

STAGE 1A

NZTA
ROAD
CORRIDOR

ARTIFICIAL STORMWATER WETLAND 3

STAGE 3

RAILWAY

LOT 1 DPS 51437

STAGE 1B

NZTA
ROAD
CORRIDOR

STAGE 2

ARTIFICIAL STORMWATER WETLAND 2

LOT 2 DPS 51437

PART LOT 2 DPS 4764

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
 4. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY THEIR OPERATIONS.
 5. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
 6. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
 7. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

LEGEND

- EX BDY
PROP BDY
PR MAJOR CONTOUR
PR MINOR CONTOUR

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CONTOUR
OVERVIEW PLAN**

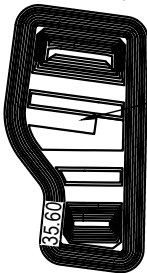
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Scale	1:5000 @ A3		
Cad file	298002-11-C200 EARTHWORKS.DWG		
Drawing no.	C200	Rev	A

RESOURCE CONSENT



HIGGINS ROAD

WICKHAM STREET



ARTIFICIAL
STORMWATER
WETLAND 1

37.00

35.60

40.80

40.20

40.00

40.00

38.00

LOT 1 DPS 51437

NOTES

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- PROP BDY
- PR MAJOR CONTOUR
- PR MINOR CONTOUR

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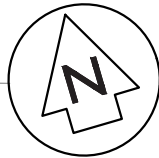
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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CONTOUR PLAN
STAGE 1A**

Project no.	298002		
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Cad file	298002-11-C200 EARTHWORKS.DWG		
Drawing no.	C200-1	Rev	A

RESOURCE CONSENT



LOT 1 DPS 51437

PART LOT 2 DPS 4764

LOT 2 DPS 51437

ARTIFICIAL STORMWATER WETLAND 2

RESOURCE CONSENT

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LEGEND

---	EX BDY
---	PROP BDY
---	PR MAJOR CONTOUR
---	PR MINOR CONTOUR

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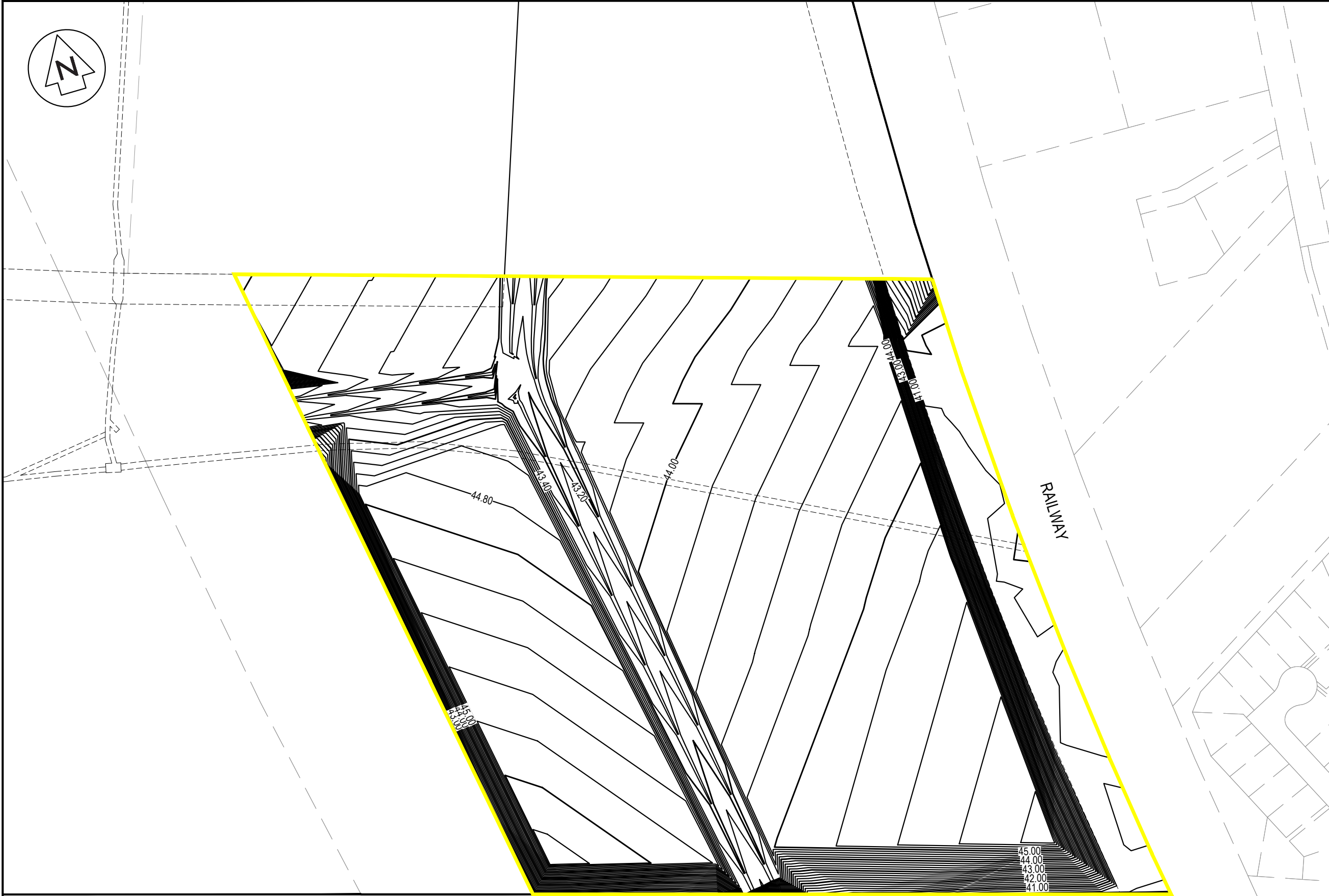
Project

**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title

**PROPOSED
CONTOUR PLAN
STAGE 1B**

Project no.	298002		
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Drawing no.	C200-2	Rev	A



LOT 2 DPS 51437

RESOURCE CONSENT

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 7. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

LEGEND	
	EX BDY
	PROP BDY
	PR MAJOR CONTOUR
	PR MINOR CONTOUR

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



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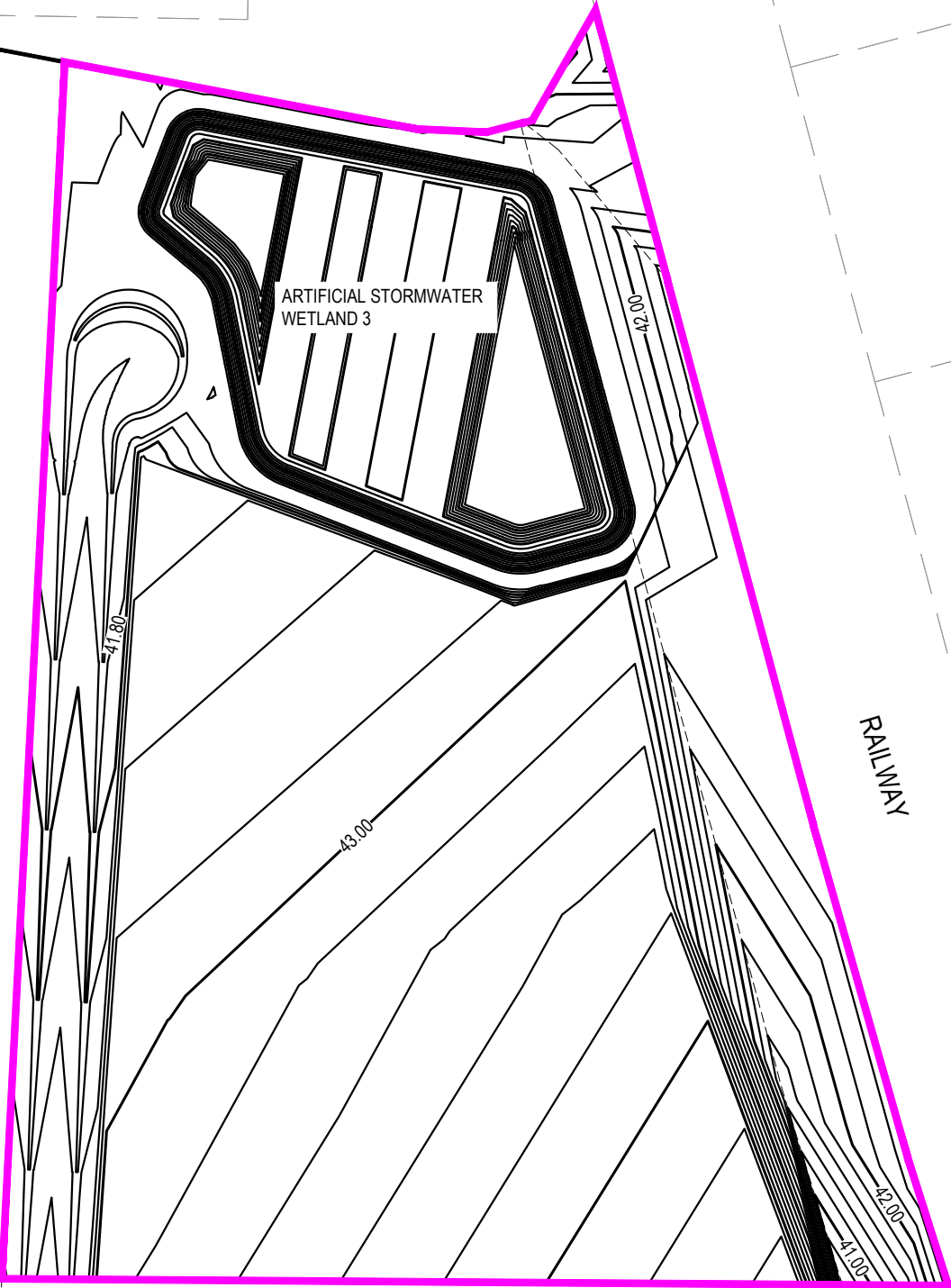
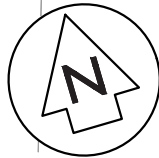
Project

**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title

**PROPOSED
CONTOUR PLAN
STAGE 2**

Project no.	298002		
Scale	1:2500 @ A3		
Cad file	298002-11-C200 EARTHWORKS.DWG		
Drawing no.	C200-3	Rev	A



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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LEGEND

---	EX BDY
---	PROP BDY
---	PR MAJOR CONTOUR
---	PR MINOR CONTOUR

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CONTOUR PLAN
STAGE 3**

Project no.	298002		
Scale	1:2000 @ A3		
Cad file	298002-11-C200 EARTHWORKS.DWG		
Drawing no.	C200-4	Rev	A

RESOURCE CONSENT



WICKHAM STREET

LATHAM COURT

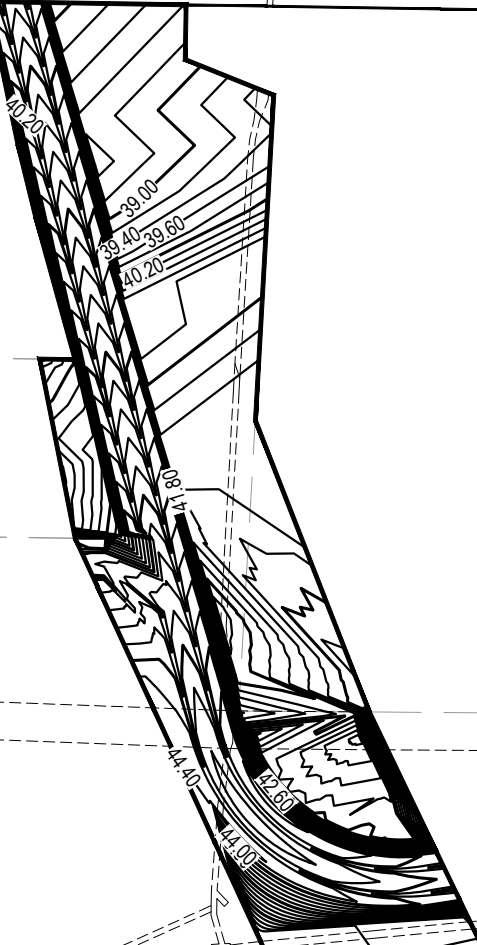
RAILWAY

LOT 1 DPS 51437

PART LOT 2 DPS 4764

LOT 2 DPS 51437

NZTA
ROAD
CORRIDOR



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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LEGEND

---	EX BDY
---	PROP BDY
---	PR MAJOR CONTOUR
---	PR MINOR CONTOUR

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CONTOUR PLAN
STAGE HSL**

Project no.	298002		
Scale	1:4000 @ A3		
Cad file	298002-11-C200 EARTHWORKS.DWG		
Drawing no.	C200-5	Rev	A

RESOURCE CONSENT



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---	PROP BDY
---	PR MAJOR CONTOUR
---	PR MINOR CONTOUR

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		07/2026
Drawn	MKS		07/2026
Checked	SM		09/2026

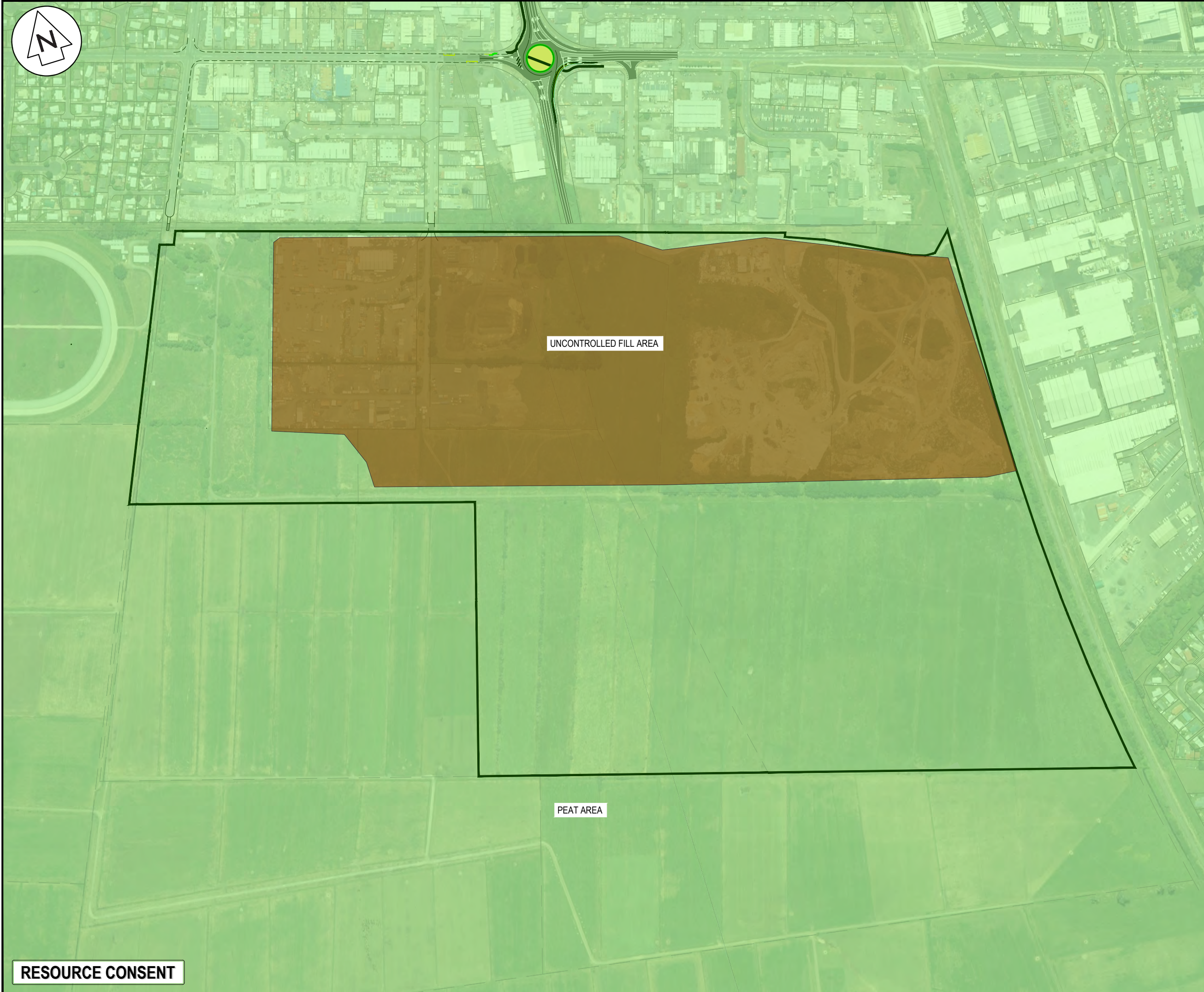
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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CONTOUR PLAN
STAGE HSL OPTION 2**

Project no.	298002		
Scale	1:4000 @ A3		
Cad file	298002-11-C200 EARTHWORKS.DWG		
Drawing no.	C200-6	Rev	A

RESOURCE CONSENT



- NOTES
- 1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
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LEGEND	
	EX BDY
	PROP BDY
	EX. UNCONTROLLED FILL AREA
	EX. PEAT AREA

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
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Project

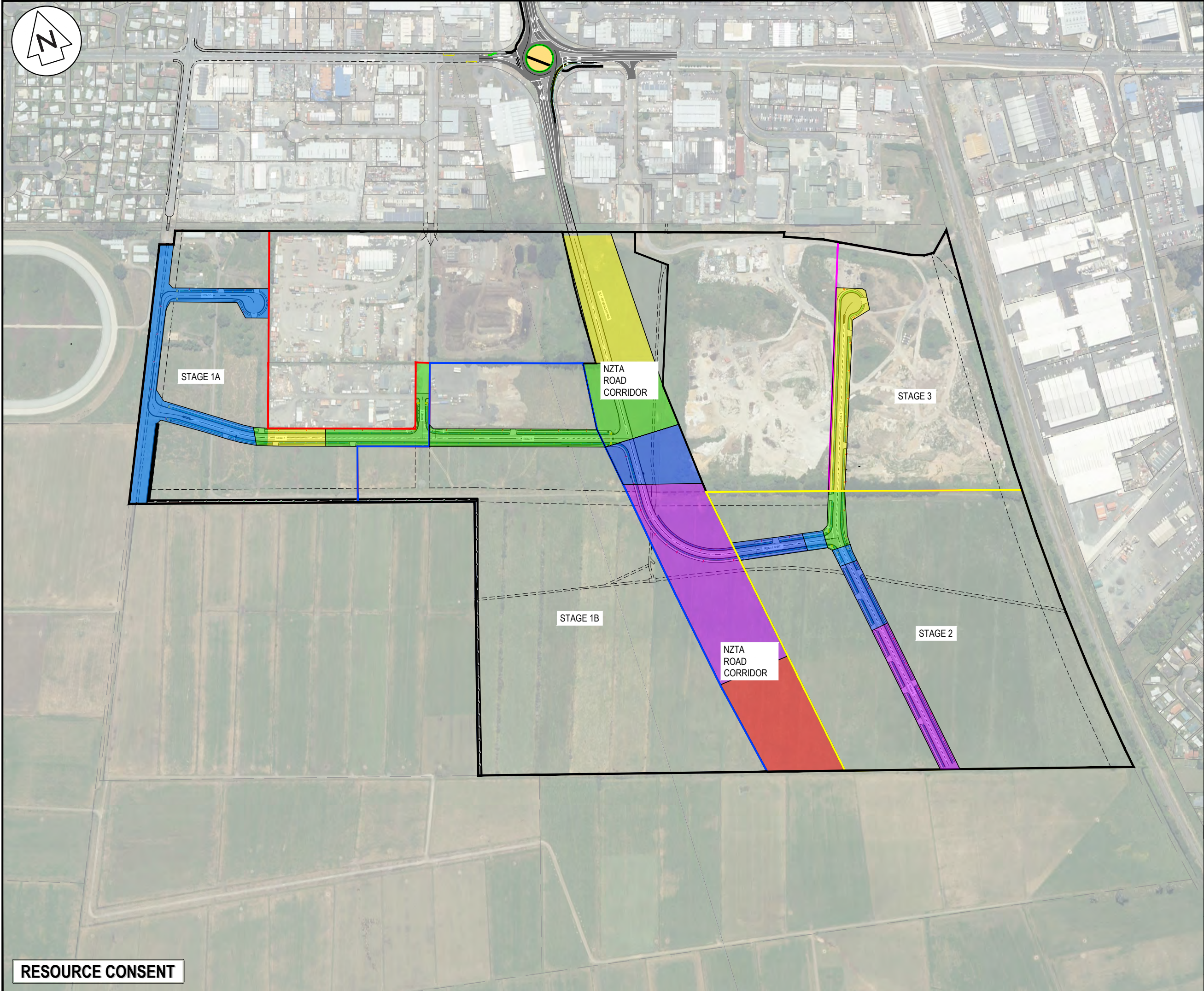
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title

**EXISTING
PEAT
OVERVIEW PLAN**

Project no.	298002		
Scale	1:5000 @ A3		
Cad file	298002-11-C215 PEAT PRELOAD.DWG		
Drawing no.	C214	Rev	A

RESOURCE CONSENT



- NOTES
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LEGEND

	EX BDY
	PROP BDY
	1M PRELOAD
	1.5M PRELOAD
	2M PRELOAD
	3M PRELOAD
	4M PRELOAD
	4.5M PRELOAD

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



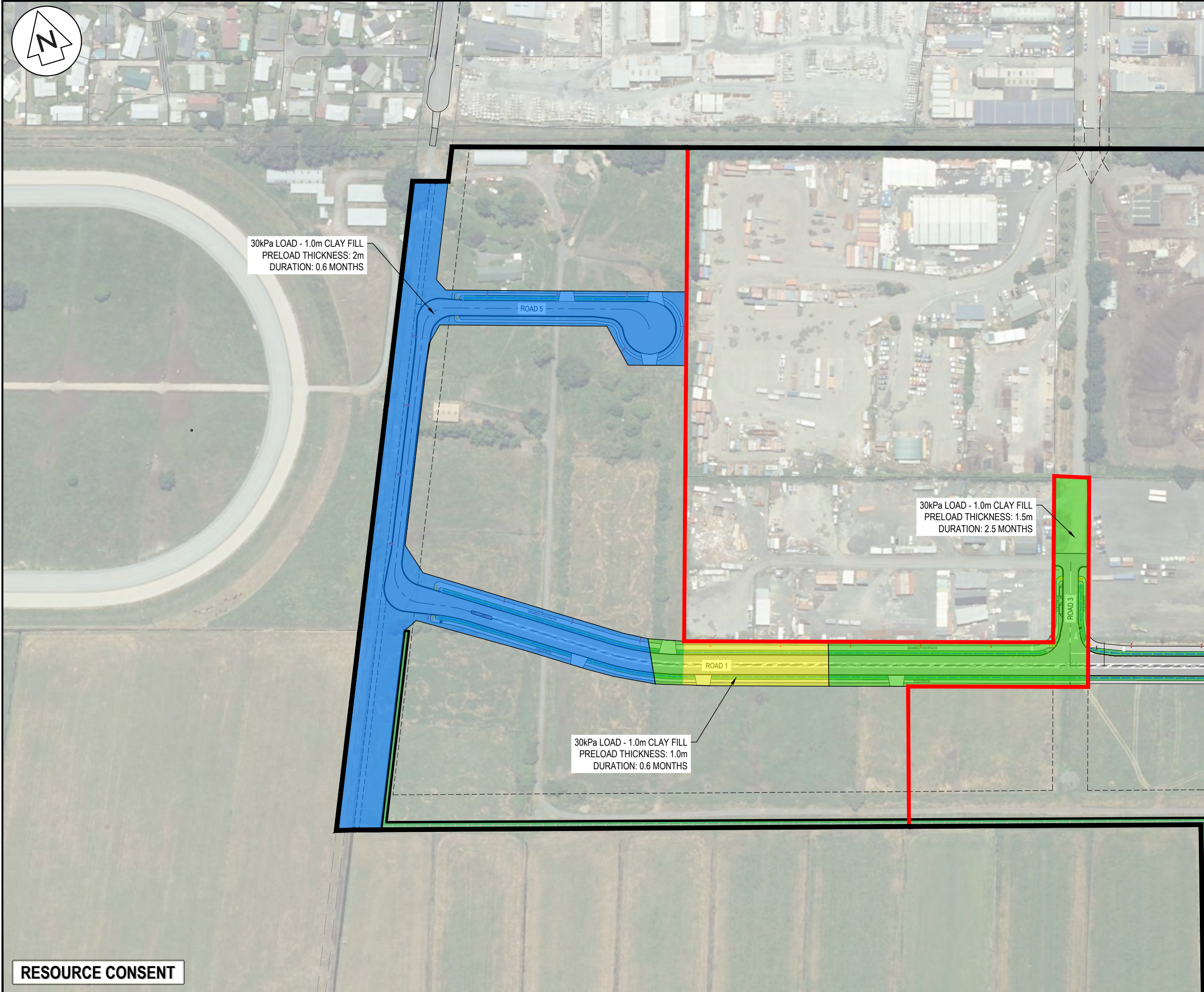
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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
PEAT PRELOAD
OVERVIEW PLAN**

Project no.	298002		
Scale	1:5000 @ A3		
Cad file	298002-11-C215 PEAT PRELOAD.DWG		
Drawing no.	C215	Rev	A

RESOURCE CONSENT



- NOTES
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LEGEND

—	EX BDY
—	PROP BDY
—	1M PRELOAD
—	1.5M PRELOAD
—	2M PRELOAD
—	3M PRELOAD
—	4M PRELOAD
—	4.5M PRELOAD

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026

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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
PEAT PRELOAD
PLAN STAGE 1A**

Project no.	298002		
Scale	1:2000 @ A3		
Cad file	298002-11-C215 PEAT PRELOAD.DWG		
Drawing no.	C215-1	Rev	A

RESOURCE CONSENT



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
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LEGEND

EX BDY	EX BDY
PROP BDY	PROP BDY
1M PRELOAD	1M PRELOAD
1.5M PRELOAD	1.5M PRELOAD
2M PRELOAD	2M PRELOAD
3M PRELOAD	3M PRELOAD
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A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
	Survey	MAVEN	05/2025
	Design	MKS	06/2026
	Drawn	MKS	06/2026
	Checked	SM	09/2026



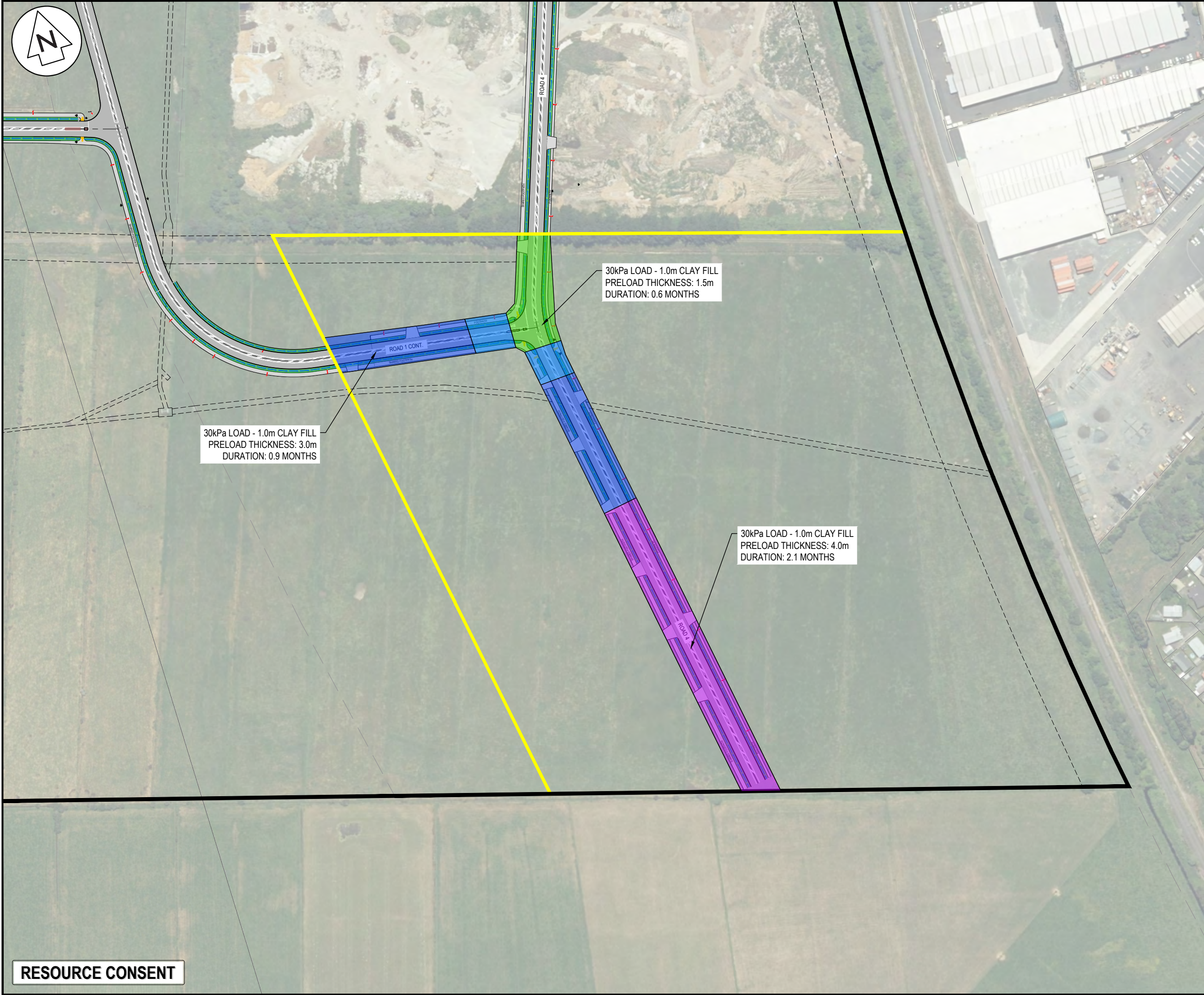
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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
PEAT PRELOAD
PLAN STAGE 1B**

Project no.	298002		
Scale	1:2500 @ A3		
Cad file	298002-11-C215 PEAT PRELOAD.DWG		
Drawing no.	C215-2	Rev	A

RESOURCE CONSENT



- NOTES
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LEGEND

	EX BDY
	PROP BDY
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	1.5M PRELOAD
	2M PRELOAD
	3M PRELOAD
	4M PRELOAD
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A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
PEAT PRELOAD
PLAN STAGE 2**

Project no.	298002		
Scale	1:2500 @ A3		
Cad file	298002-11-C215 PEAT PRELOAD.DWG		
Drawing no.	C215-3	Rev	A

RESOURCE CONSENT



- NOTES
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	EX BDY
	PROP BDY
	1M PRELOAD
	1.5M PRELOAD
	2M PRELOAD
	3M PRELOAD
	4M PRELOAD
	4.5M PRELOAD

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
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Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
PEAT PRELOAD
PLAN STAGE 3**

Project no.	298002		
Scale	1:2000 @ A3		
Cad file	298002-11-C215 PEAT PRELOAD.DWG		
Drawing no.	C215-4	Rev	A



- NOTES
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	PROP BDY
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	2M PRELOAD
	3M PRELOAD
	4M PRELOAD
	4.5M PRELOAD

A	FAST TRACK APP	MKS	09/2026
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		By	Date
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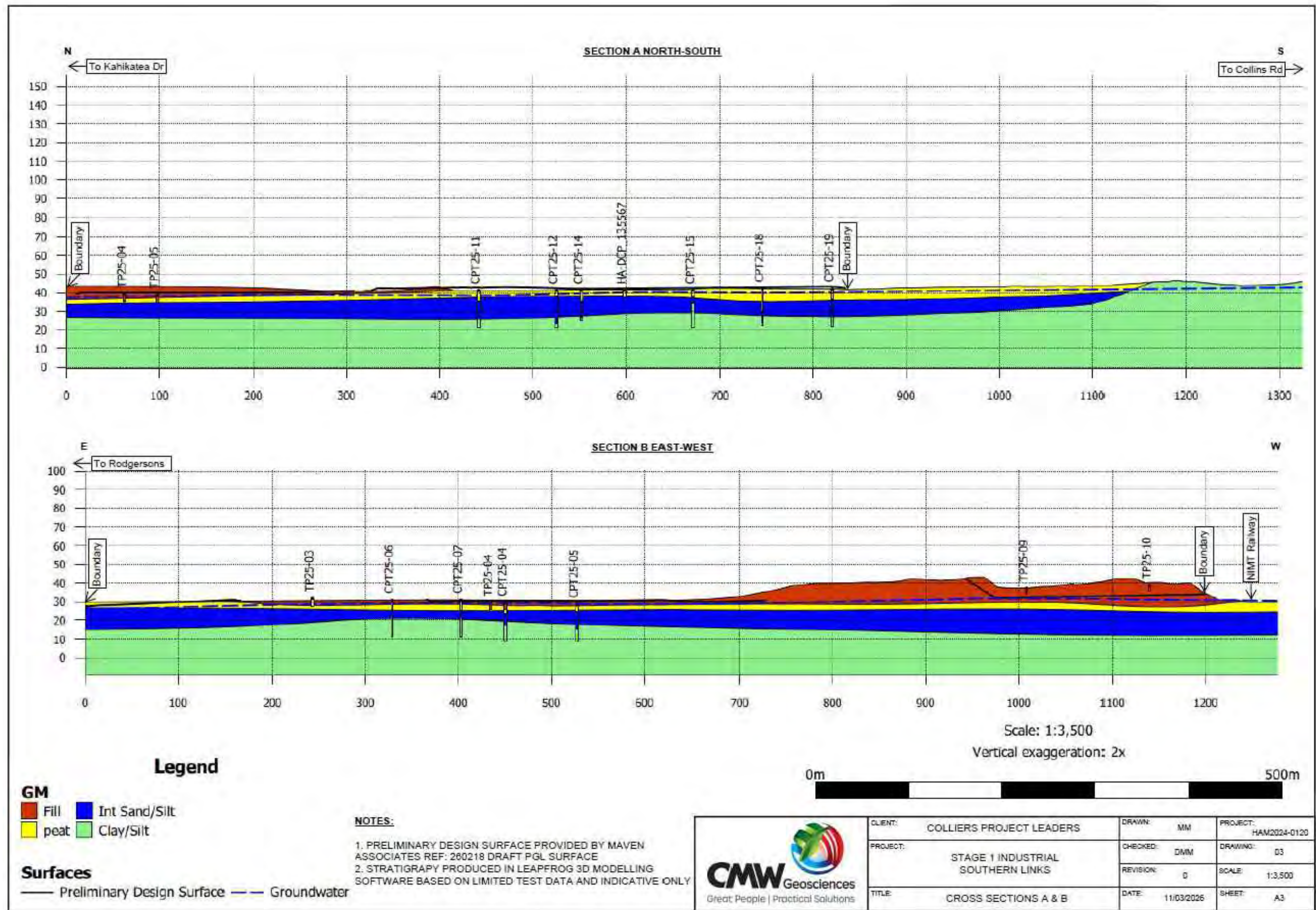
Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
PEAT PRELOAD
PLAN NZTA CORRIDOR**

Project no.	298002		
Scale	1:5000 @ A3		
Cad file	298002-11-C215 PEAT PRELOAD.DWG		
Drawing no.	C215-5	Rev	A

RESOURCE CONSENT

DATE: 9/26 FILE PATH: \\MAVEN\MAVEN\CONSULTING\CO_NZ\HARDCURRENT\MAVEN_HAMILTON\PROJECTS\298002 - SL1\110\298002-H-C215 PEAT PRELOAD.DWG



A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
	By	Date	
Survey	MAVEN	05/2025	
Design	MKS	06/2026	
Drawn	MKS	06/2026	
Checked	SM	09/2026	

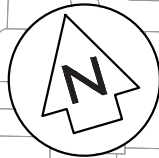


Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
PEAT PRELOAD
CROSS SECTIONS**

Project no.	298002
Scale	N.T.S.
Cad file	298002-11-C215 PEAT PRELOAD.DWG
Drawing no.	C215-6
Rev	A

RESOURCE CONSENT

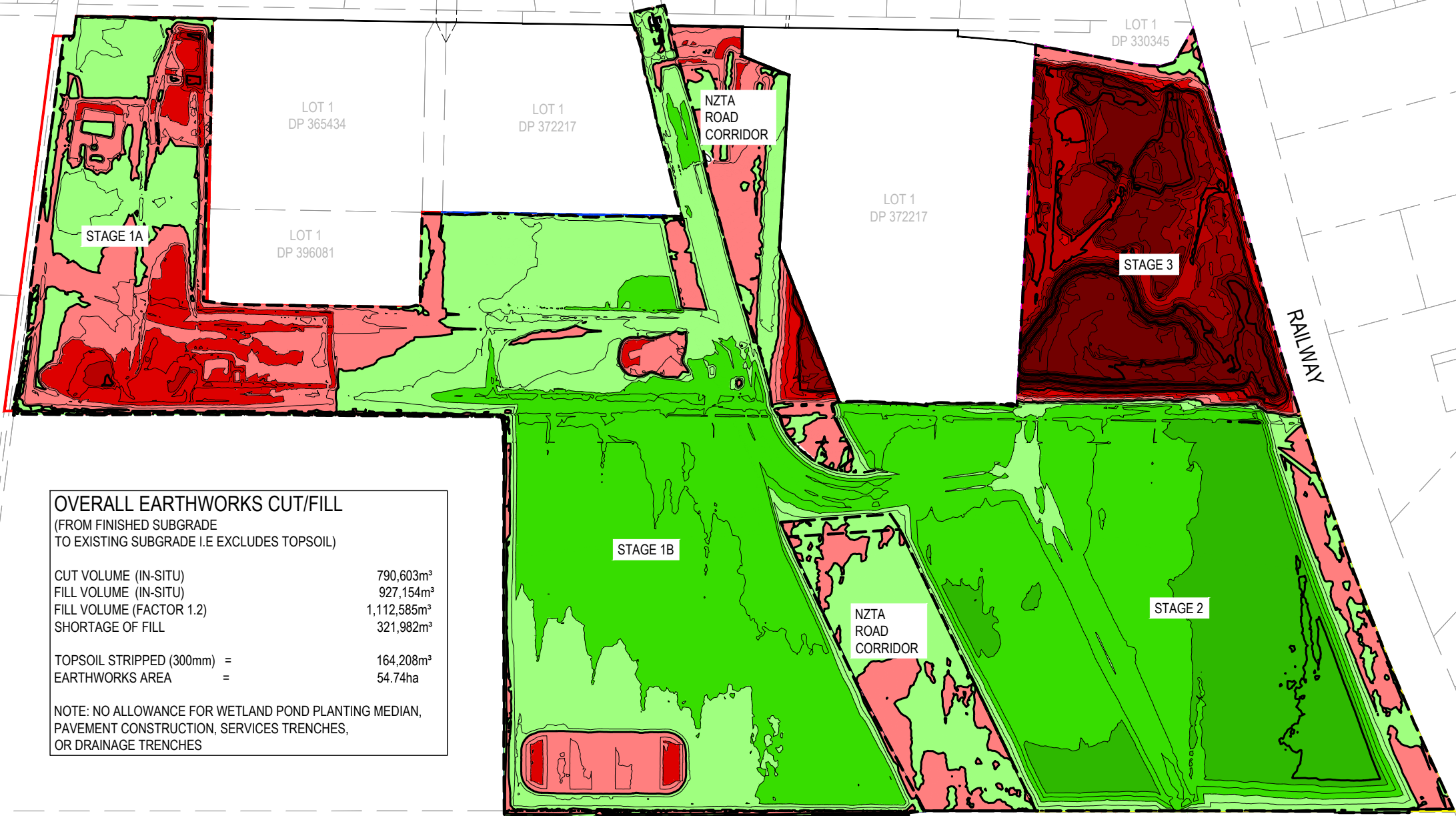


KAHIKATEA DRIVE

HIGGINS ROAD

WICKHAM STREET

LATHAM COURT



OVERALL EARTHWORKS CUT/FILL	
(FROM FINISHED SUBGRADE TO EXISTING SUBGRADE I.E EXCLUDES TOPSOIL)	
CUT VOLUME (IN-SITU)	790,603m³
FILL VOLUME (IN-SITU)	927,154m³
FILL VOLUME (FACTOR 1.2)	1,112,585m³
SHORTAGE OF FILL	321,982m³
TOPSOIL STRIPPED (300mm) =	164,208m³
EARTHWORKS AREA =	54.74ha
NOTE: NO ALLOWANCE FOR WETLAND POND PLANTING MEDIAN, PAVEMENT CONSTRUCTION, SERVICES TRENCHES, OR DRAINAGE TRENCHES	

- NOTES
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Cut/Fill Table			
Number #	Minimum Elevation	Maximum Elevation	Color
1	-22.000	-20.000	Dark Red
2	-20.000	-18.000	Red
3	-18.000	-16.000	Red
4	-16.000	-14.000	Red
5	-14.000	-12.000	Red
6	-12.000	-10.000	Red
7	-10.000	-8.000	Red
8	-8.000	-6.000	Red
9	-6.000	-4.000	Red
10	-4.000	-2.000	Red
11	-2.000	0.000	Red
12	0.000	2.000	Light Green
13	2.000	4.000	Green
14	4.000	6.000	Green

A	FAST TRACK APP	MKS	09/2026
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		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
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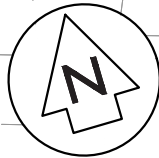
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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CUT/FILL
OVERVIEW PLAN**

Project no.	298002		
Scale	1:5000 @ A3		
Cad file	298002-11-C220 EW CUT&FILL.DWG		
Drawing no.	C220	Rev	A

RESOURCE CONSENT



HIGGINS ROAD

WICKHAM STREET

STAGE 1A - EARTHWORKS CUT/FILL
(FROM FINISHED SUBGRADE
TO EXISTING SUBGRADE I.E EXCLUDES TOPSOIL)

CUT VOLUME (IN-SITU)
FILL VOLUME (IN-SITU)
FILL VOLUME (FACTOR 1.2)
SURPLUS OF CUT

108,841m³
10,334m³
8,612m³
98,507m³

TOPSOIL STRIPPED (300mm) =
EARTHWORKS AREA =

24,786m³
8.26ha

NOTE: NO ALLOWANCE FOR WETLAND POND PLANTING MEDIAN,
PAVEMENT CONSTRUCTION, SERVICES TRENCHES,
OR DRAINAGE TRENCHES

- NOTES
- ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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3	-18.000	-16.000	
4	-16.000	-14.000	
5	-14.000	-12.000	
6	-12.000	-10.000	
7	-10.000	-8.000	
8	-8.000	-6.000	
9	-6.000	-4.000	
10	-4.000	-2.000	
11	-2.000	0.000	
12	0.000	2.000	
13	2.000	4.000	
14	4.000	6.000	

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026

M

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Project

SOUTHERN LINKS 1

INDUSTRIAL STAGE 1

HAMILTON, WAIKATO

FOR SL1

NORTHERN CONSORTIUM

Title			
PROPOSED			
CUT/FILL PLAN			
STAGE 1A			
Project no.	298002		
Scale	1:2000 @ A3		
Cad file	298002-11-C220 EW CUT&FILL.DWG		
Drawing no.	C220-1	Rev	A

RESOURCE CONSENT



LOT 1
DP 396081

LOT 1
DP 372217

LOT 1 DPS 51437

PART LOT 2 DPS 4764

LOT 2 DPS 51437

RESOURCE CONSENT

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
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Cut/Fill Table			
Number #	Minimum Elevation	Maximum Elevation	Color
1	-22.000	-20.000	
2	-20.000	-18.000	
3	-18.000	-16.000	
4	-16.000	-14.000	
5	-14.000	-12.000	
6	-12.000	-10.000	
7	-10.000	-8.000	
8	-8.000	-6.000	
9	-6.000	-4.000	
10	-4.000	-2.000	
11	-2.000	0.000	
12	0.000	2.000	
13	2.000	4.000	
14	4.000	6.000	

STAGE 1B - EARTHWORKS CUT/FILL
(FROM FINISHED SUBGRADE
TO EXISTING SUBGRADE I.E EXCLUDES TOPSOIL)

CUT VOLUME (IN-SITU) 16,426m³
FILL VOLUME (IN-SITU) 317,021m³
FILL VOLUME (FACTOR 1.2) 380,426m³
SHORTAGE OF FILL 364,000m³

TOPSOIL STRIPPED (300mm) = 54,745m³
EARTHWORKS AREA = 18.25ha

NOTE: NO ALLOWANCE FOR WETLAND POND PLANTING MEDIAN,
PAVEMENT CONSTRUCTION, SERVICES TRENCHES,
OR DRAINAGE TRENCHES

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CUT/FILL PLAN
STAGE 1B**

Project no.	298002
Scale	1:2500 @ A3
Cad file	298002-11-C220 EW CUT&FILL.DWG
Drawing no.	C220-2
Rev	A



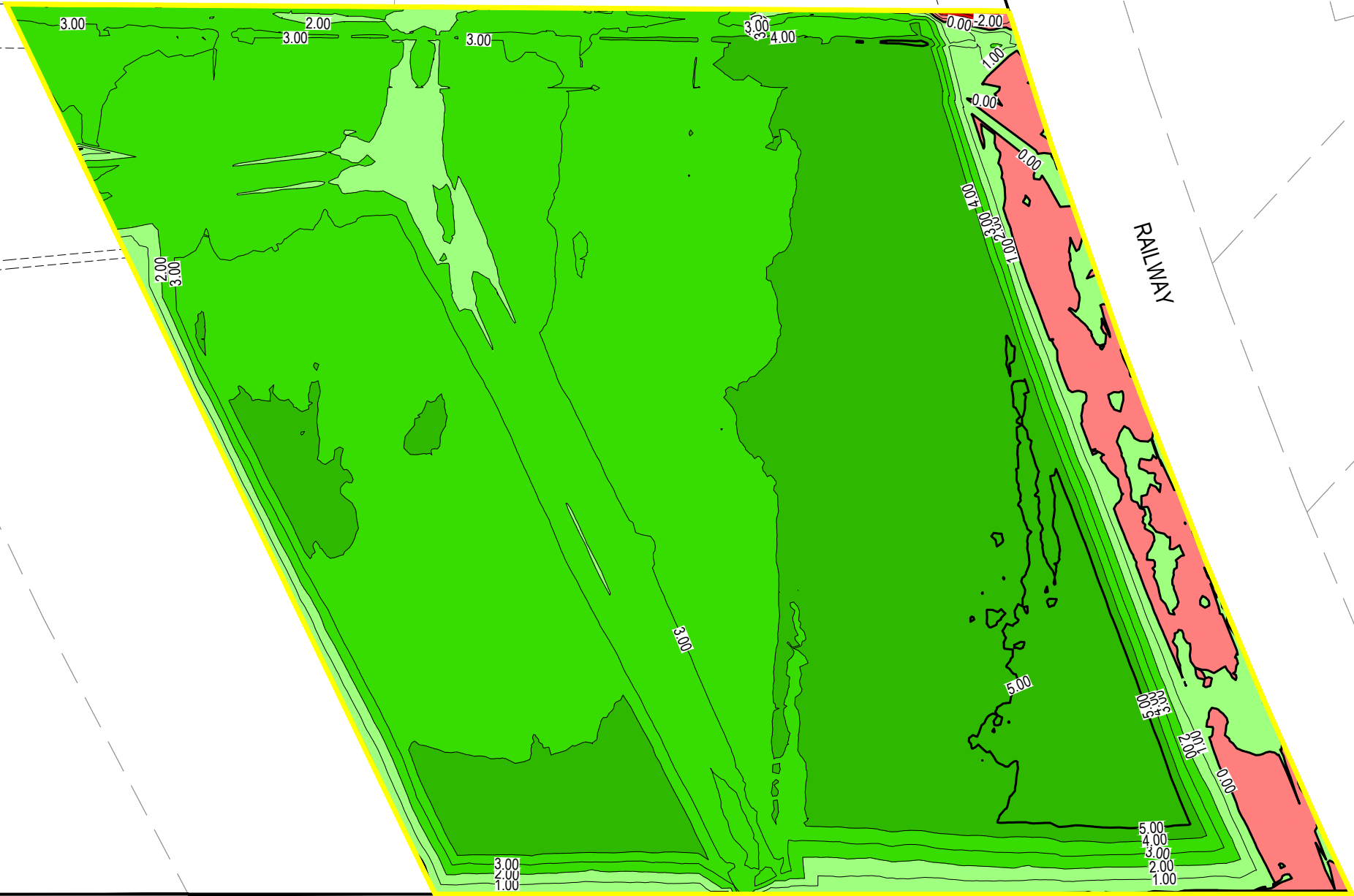
STAGE 2 - EARTHWORKS CUT/FILL

(FROM FINISHED SUBGRADE
TO EXISTING SUBGRADE I.E EXCLUDES TOPSOIL)

CUT VOLUME (IN-SITU) 1,042m³
FILL VOLUME (IN-SITU) 556,006m³
FILL VOLUME (FACTOR 1.2) 667,207m³
SHORTAGE OF FILL 666,166m³

TOPSOIL STRIPPED (300mm) = 51,542m³
EARTHWORKS AREA = 17.18ha

NOTE: NO ALLOWANCE FOR WETLAND POND PLANTING MEDIAN,
PAVEMENT CONSTRUCTION, SERVICES TRENCHES,
OR DRAINAGE TRENCHES



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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1	-22.000	-20.000	
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3	-18.000	-16.000	
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5	-14.000	-12.000	
6	-12.000	-10.000	
7	-10.000	-8.000	
8	-8.000	-6.000	
9	-6.000	-4.000	
10	-4.000	-2.000	
11	-2.000	0.000	
12	0.000	2.000	
13	2.000	4.000	
14	4.000	6.000	

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026



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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CUT/FILL PLAN
STAGE 2**

Project no.	298002		
Scale	1:2500 @ A3		
Cad file	298002-11-C220 EW CUT&FILL.DWG		
Drawing no.	C220-3	Rev	A

RESOURCE CONSENT

LOT 2 DPS 51437



LOT 1
DP 330345

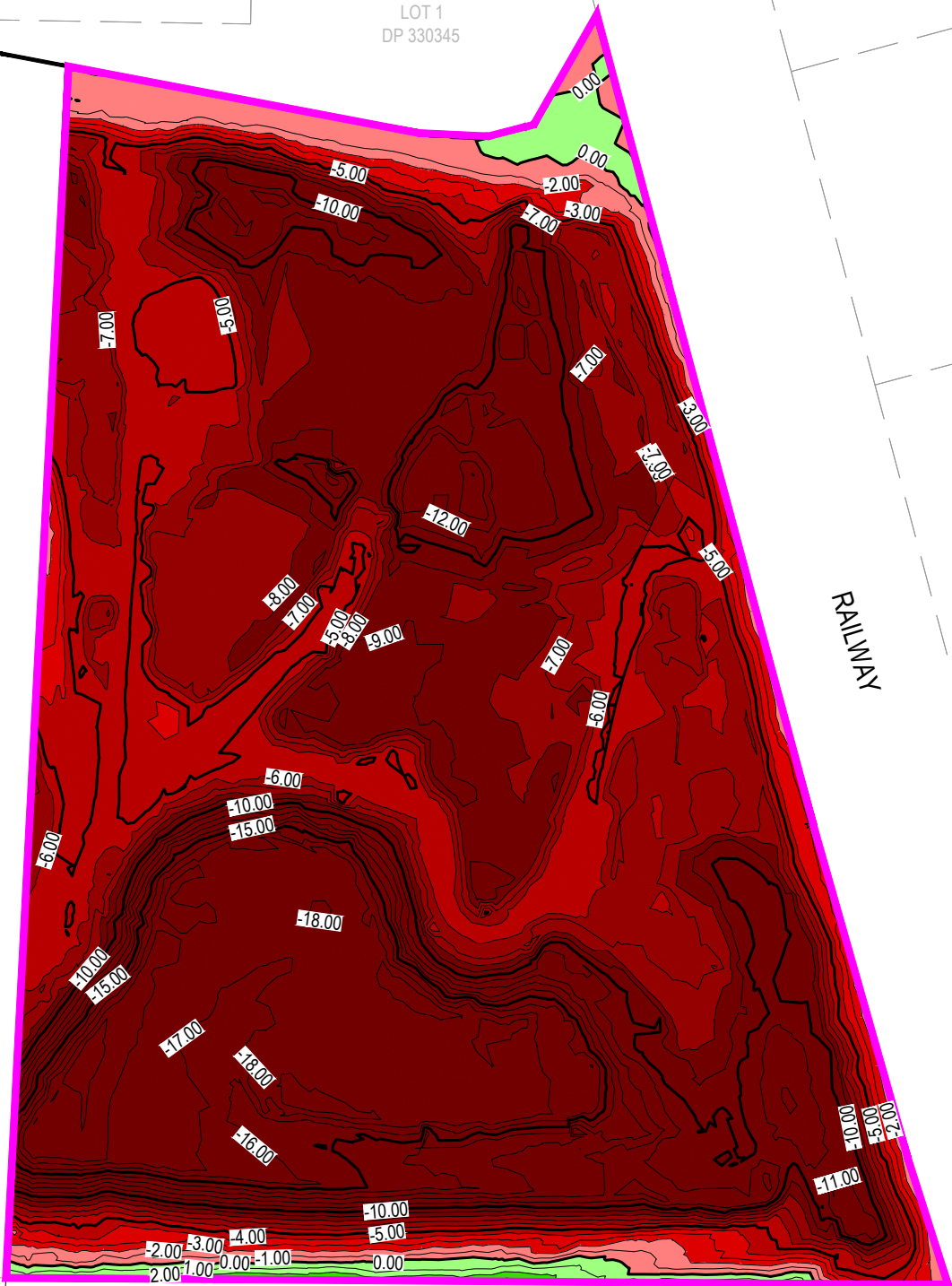
STAGE 3 - EARTHWORKS CUT/FILL

(FROM FINISHED SUBGRADE
TO EXISTING SUBGRADE I.E EXCLUDES TOPSOIL)

CUT VOLUME (IN-SITU)	660,377m³
FILL VOLUME (IN-SITU)	1,794m³
FILL VOLUME (FACTOR 1.2)	1,495m³
SURPLUS OF CUT	658,583m³

TOPSOIL STRIPPED (300mm) =	22,891m³
EARTHWORKS AREA =	7.63ha

NOTE: NO ALLOWANCE FOR WETLAND POND PLANTING MEDIAN,
PAVEMENT CONSTRUCTION, SERVICES TRENCHES,
OR DRAINAGE TRENCHES



RESOURCE CONSENT

NOTES

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5	-14.000	-12.000	
6	-12.000	-10.000	
7	-10.000	-8.000	
8	-8.000	-6.000	
9	-6.000	-4.000	
10	-4.000	-2.000	
11	-2.000	0.000	
12	0.000	2.000	
13	2.000	4.000	
14	4.000	6.000	

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026

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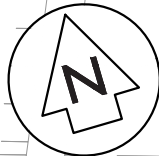
Hamilton 3200

New Zealand

Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CUT/FILL PLAN
STAGE 3**

Project no.	298002		
Scale	1:2000 @ A3		
Cad file	298002-11-C220 EW CUT&FILL.DWG		
Drawing no.	C220-4	Rev	A



KAHIKATEA DRIVE

WICKHAM STREET

RAILWAY

NZTA
ROAD
CORRIDOR

NZTA
ROAD
CORRIDOR

OVERALL EARTHWORKS CUT/FILL

(FROM FINISHED SUBGRADE
TO EXISTING SUBGRADE I.E EXCLUDES TOPSOIL)

CUT VOLUME (IN-SITU) 22,513m³
FILL VOLUME (IN-SITU) 55,558m³
FILL VOLUME (FACTOR 1.2) 66,669m³
SHORTAGE OF FILL 44,156m³

TOPSOIL STRIPPED (300mm) = 26,933m³
EARTHWORKS AREA = 8.98ha

NOTE: NO ALLOWANCE FOR WETLAND POND PLANTING MEDIAN,
PAVEMENT CONSTRUCTION, SERVICES TRENCHES,
OR DRAINAGE TRENCHES

NOTES

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5	-14.000	-12.000	
6	-12.000	-10.000	
7	-10.000	-8.000	
8	-8.000	-6.000	
9	-6.000	-4.000	
10	-4.000	-2.000	
11	-2.000	0.000	
12	0.000	2.000	
13	2.000	4.000	
14	4.000	6.000	

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026

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Project
SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM

Title	
PROPOSED CUT/FILL PLAN NZTA CORRIDOR	
Project no.	298002
Scale	1:4000 @ A3
Cad file	298002-11-C220 EW CUT&FILL.DWG
Drawing no.	C220-5
Rev	A

RESOURCE CONSENT

PART LOT 2 DPS 4764

LOT 2 DPS 51437



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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1	-22.000	-20.000	
2	-20.000	-18.000	
3	-18.000	-16.000	
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6	-12.000	-10.000	
7	-10.000	-8.000	
8	-8.000	-6.000	
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10	-4.000	-2.000	
11	-2.000	0.000	
12	0.000	2.000	
13	2.000	4.000	
14	4.000	6.000	

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	MKS		07/2026
Drawn	MKS		07/2026
Checked	SM		09/2026



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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
CUT/FILL PLAN
NZTA CORRIDOR OPT.2**

Project no.	298002		
Scale	1:4000 @ A3		
Cad file	298002-11-C220 EW CUT&FILL.DWG		
Drawing no.	C220-6	Rev	A

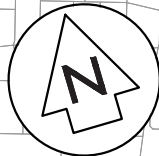
OVERALL EARTHWORKS CUT/FILL
(FROM FINISHED SUBGRADE
TO EXISTING SUBGRADE I.E EXCLUDES TOPSOIL)

CUT VOLUME (IN-SITU)	21,208m³
FILL VOLUME (IN-SITU)	52,024m³
FILL VOLUME (FACTOR 1.2)	62,429m³
SHORTAGE OF FILL	41,220m³

TOPSOIL STRIPPED (300mm)	=	17,396m³
EARTHWORKS AREA	=	5.80ha

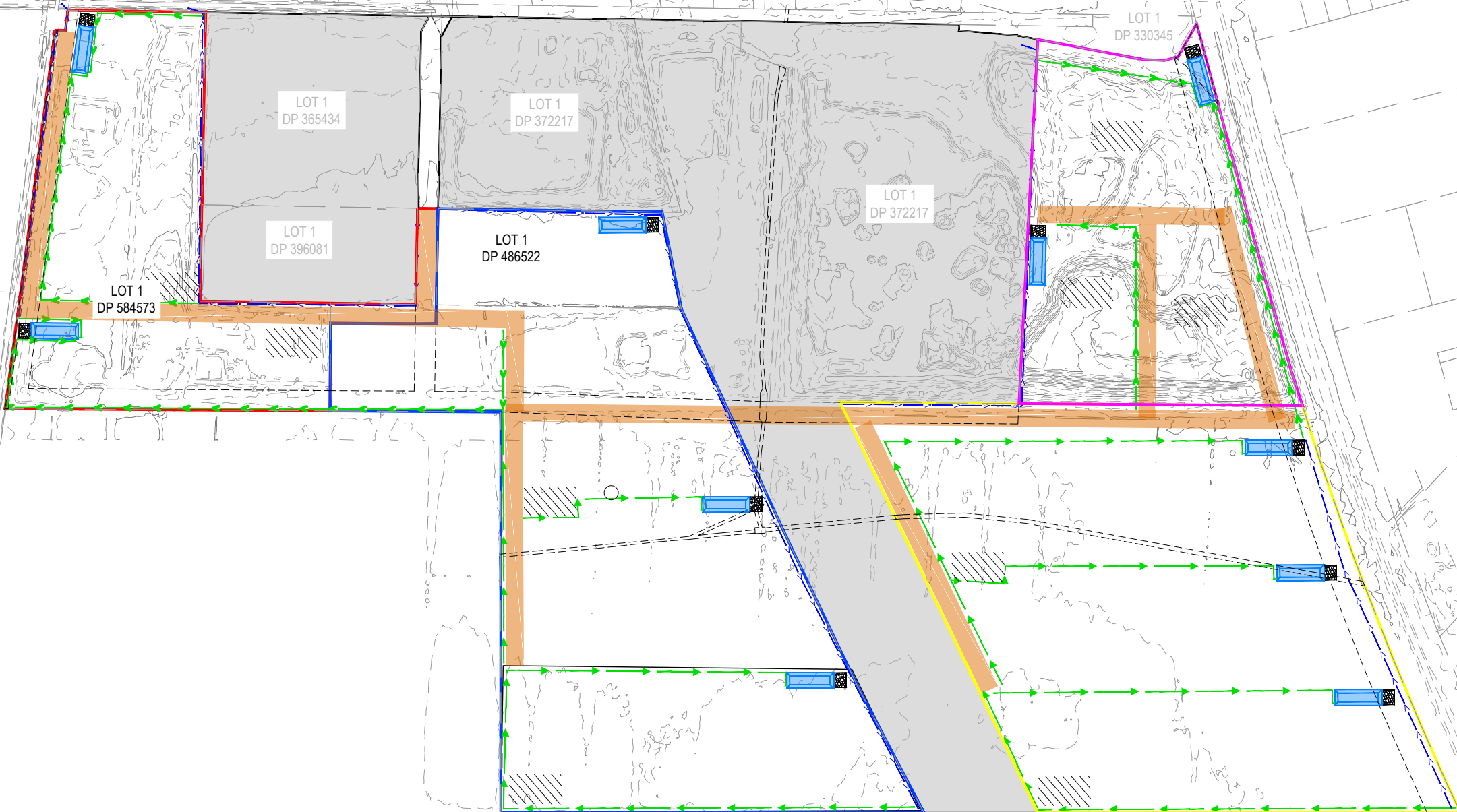
NOTE: NO ALLOWANCE FOR WETLAND POND PLANTING MEDIAN,
PAVEMENT CONSTRUCTION, SERVICES TRENCHES,
OR DRAINAGE TRENCHES

RESOURCE CONSENT



HIGGINS ROAD

WICKHAM STREET



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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 7. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

- Legend
- EX BDY
 - PR MAJOR CONTOUR
 - PR MINOR CONTOUR
 - PR CLEAN WATER
 - PR DIRTY WATER
 - ESC HAUL ROAD
 - PR BDY STAGE 1A
 - PR BDY STAGE 1B
 - PR BDY STAGE 2
 - PR BDY STAGE 3

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
Survey	MAVEN		05/2025
Design	NDL		06/2026
Drawn	NDL		06/2026
Checked	SM		09/2026



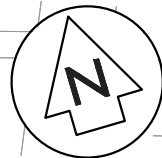
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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED OVERALL
EROSION & SEDIMENT
CONTROL PLAN**

Project no.	298002		
Scale	1:5000 @ A3		
Cad file	298002-11-C230 ESC.DWG		
Drawing no.	C230	Rev	A

RESOURCE CONSENT



PROPOSED
STABILISED
CONSTRUCTION
ENTRANCE AS PER
HCC & WRC
STANDARDS

HIGGINS ROAD

PROPOSED DIRTY WATER DIVERSION BUND AS
PER WRC STANDARDS

WICKHAM STREET

SRP 1A
CATCHMENT AREA 5.0Ha
VOLUME: 1500m³ (3% CATCHMENT AREA)
DEAD STORAGE 450m³ (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 35.8
TOP LEVEL: 37.30
EMERGENCY SPILLWAY: 16.05 X 0.3

PROPOSED DIRTY WATER DIVERSION BUND
AS PER WRC STANDARDS
CREST ALL BUNDS TO BE 0.3 HIGHER THEN
TOP OF RESPECTIVE TOP OF POND

PROPOSED CLEAN WATER
DIVERSION BUND AS PER HCC
& WRC STANDARDS

HAUL ROAD TO BE
CONSTRUCTED IN STAGE 1
FROM ENTRANCE TO STOCK
PILE AREA.
DROP OUT PITS EVERY 50m

PROPOSED STABILISED
CONSTRUCTION ENTRANCE AS PER
HCC & WRC STANDARDS

PROPOSED CLEAN WATER
DIVERSION BUND AS PER HCC &
WRC STANDARDS

PROPOSED STOCK
PILE 1 LOCATION TO
BE CONFIRMED ON
SITE AT
CONSTRUCTION

SRP 1C
CATCHMENT AREA 5.0Ha
VOLUME: 1500m³ (3% CATCHMENT AREA)
DEAD STORAGE 450m³ (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 39.4
TOP LEVEL: 40.90
EMERGENCY SPILLWAY: 16.05 X 0.3

POND TO BE CONSTRUCTED IN
STAGE 2 AREA TO BE USED IN
STAGE 1 AND 2

SRP 1B
CATCHMENT AREA 4.0Ha
VOLUME: 1500m³ (3% CATCHMENT AREA)
DEAD STORAGE 450m³ (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 37.1
TOP LEVEL: 38.60
EMERGENCY SPILLWAY: 16.05 X 0.3

PROPOSED STOCK
PILE 2 LOCATION TO
BE CONFIRMED ON
SITE AT
CONSTRUCTION

LOT 1 DPS 51437

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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7. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

Legend

- EX BDY
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- PR CLEAN WATER
- PR DIRTY WATER
- ESC HAUL ROAD
- PR BDY STAGE 1A
- PR BDY STAGE 1B
- PR BDY STAGE 2
- PR BDY STAGE 3

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
Survey	MAVEN	05/2025	
Design	NDL	06/2026	
Drawn	NDL	06/2026	
Checked	SM	09/2026	



Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED STAGE 1A
EROSION & SEDIMENT
CONTROL PLAN**

Project no.	298002
Scale	1:2000 @ A3
Cad file	298002-11-C230 ESC.DWG
Drawing no.	C230-1
Rev	A

RESOURCE CONSENT



LOT 1
DP 396081

LOT 1
DP 486522

IT 1
72217

SRP 1C
CATCHMENT AREA 5.0Ha
VOLUME: 1500m² (3% CATCHMENT AREA)
DEAD STORAGE 450m² (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 39.4
TOP LEVEL: 40.90
EMERGENCY SPILLWAY: 16.05 X 0.3

PROPOSED CLEAN WATER
DIVERSION BUND AS PER HCC &
WRC STANDARDS

SRP 2A
CATCHMENT AREA 5.0Ha
VOLUME: 1500m² (3% CATCHMENT AREA)
DEAD STORAGE 450m² (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 39.4
TOP LEVEL: 40.90
EMERGENCY SPILLWAY: 16.05 X 0.3

SRP 2B
CATCHMENT AREA 5.0Ha
VOLUME: 1500m² (3% CATCHMENT AREA)
DEAD STORAGE 450m² (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 39.4
TOP LEVEL: 40.90
EMERGENCY SPILLWAY: 16.05 X 0.3

PROPOSED STOCK
PILE 3 LOCATION TO
BE CONFIRMED ON
SITE AT
CONSTRUCTION

PROPOSED DIRTY WATER DIVERSION BUNDS
AS PER WRC STANDARDS
CREST ALL BUNDS TO BE 0.3 HIGHER THEN
TOP OF RESPECTIVE TOP OF POND

LOT 1 DPS 51437

HAUL ROAD TO BE
CONSTRUCTED IN STAGE 2
FROM ENTRANCE TO STOCK
PILE AREA
ALL HAUL ROADS TO HAVE
DROP OUT PITS EVERY 50m

PROPOSED STOCK
PILE 4 LOCATION TO
BE CONFIRMED ON
SITE AT
CONSTRUCTION

PART LOT 2 DPS 4764

LOT 2 DPS 51437

NOTES

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Legend

- EX BDY
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- PR CLEAN WATER
- PR DIRTY WATER
- ESC HAUL ROAD
- PR BDY STAGE 1A
- PR BDY STAGE 1B
- PR BDY STAGE 2
- PR BDY STAGE 3

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
Survey	MAVEN		05/2025
Design	NDL		06/2026
Drawn	NDL		06/2026
Checked	SM		09/2026



Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED STAGE 1B
EROSION & SEDIMENT
CONTROL PLAN**

Project no.	298002
Scale	1:2500 @ A3
Cad file	298002-11-C230 ESC.DWG
Drawing no.	C200-2
Rev	A

RESOURCE CONSENT



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
 4. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY THEIR OPERATIONS.
 5. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
 6. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
 7. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

- Legend
- EX BDY
 - PR MAJOR CONTOUR
 - PR MINOR CONTOUR
 - PR CLEAN WATER
 - PR DIRTY WATER
 - ESC HAUL ROAD
 - PR BDY STAGE 1A
 - PR BDY STAGE 1B
 - PR BDY STAGE 2
 - PR BDY STAGE 3

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	NDL		06/2026
Drawn	NDL		06/2026
Checked	SM		09/2026



Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED STAGE 2
EROSION & SEDIMENT
CONTROL PLAN**

Project no.	298002
Scale	1:2500 @ A3
Cad file	298002-11-C230 ESC.DWG
Drawing no.	C200-3
Rev	A

SRP 3A
CATCHMENT AREA 5.0Ha
VOLUME: 1500m³ (3% CATCHMENT AREA)
DEAD STORAGE 450m³ (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 40.00
TOP LEVEL: 41.50
EMERGENCY SPILLWAY: 16.05 X 0.3

SRP 3B
CATCHMENT AREA 5.0Ha
VOLUME: 1500m³ (3% CATCHMENT AREA)
DEAD STORAGE 450m³ (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 40.20
TOP LEVEL: 41.70
EMERGENCY SPILLWAY: 16.05 X 0.3

PROPOSED CLEAN WATER
DIVERSION BUND AS PER HCC &
WRC STANDARDS

SRP 3C
CATCHMENT AREA 5.0Ha
VOLUME: 1500m³ (3% CATCHMENT AREA)
DEAD STORAGE 450m³ (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 40.00
TOP LEVEL: 41.50
EMERGENCY SPILLWAY: 16.05 X 0.3

PROPOSED STOCK
PILE 5 LOCATION TO
BE CONFIRMED ON
SITE AT
CONSTRUCTION

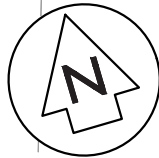
PROPOSED DIRTY WATER DIVERSION
BUNDS AS PER WRC STANDARDS
CREST ALL BUNDS TO BE 0.3 HIGHER THEN
TOP OF RESPECTIVE TOP OF POND

HAUL ROAD TO BE
CONSTRUCTED IN STAGE 3
FROM ENTRANCE TO STOCK
PILE AREA
ALL HAUL ROADS TO HAVE
DROP OUT PITS EVERY 50m

PROPOSED STOCK
PILE 6 LOCATION TO
BE CONFIRMED ON
SITE AT
CONSTRUCTION

LOT 2 DPS 51437

RESOURCE CONSENT



PROPOSED DIRTY WATER DIVERSION
BUNDS AS PER WRC STANDARDS
CREST ALL BUNDS TO BE 0.3 HIGHER
THEN TOP OF RESPECTIVE TOP OF POND

PROPOSED STOCK PILE 7 LOCATION TO BE
CONFIRMED ON SITE AT CONSTRUCTION
STOCK PILE 7 AREA TO BE OPENED ONCE
SRP 1D IS INSTALLED AND APPROVED

LOT 1
DP 372217

SRP 4A
CATCHMENT AREA 5.0Ha
VOLUME: 1500m³ (3% CATCHMENT AREA)
DEAD STORAGE 450m³ (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 46.25
TOP LEVEL: 47.75
EMERGENCY SPILLWAY: 16.05 X 0.3

PROPOSED STOCK PILE 8
LOCATION TO BE CONFIRMED ON
SITE AT CONSTRUCTION
STOCK PILE 8 AREA TO BE
OPENED ONCE SRP 4A IS
INSTALLED AND APPROVED

LOT 1
DP 330345

SRP 1D
CATCHMENT AREA 5.0Ha
VOLUME: 1500m³ (3% CATCHMENT AREA)
DEAD STORAGE 450m³ (30% VOLUME)
DIMENSION: 16.05m X 48.15
BOTTOM LEVEL: 43.20
TOP LEVEL: 44.70
EMERGENCY SPILLWAY: 16.05 X 0.3

HAUL ROADS TO BE
CONSTRUCTED IN STAGE 1
FROM ENTRANCE TO STOCK
PILE AREA
ALL HAUL ROADS TO HAVE
DROP OUT PITS EVERY 50m

PROPOSED STOCK PILE 9 LOCATION TO
BE CONFIRMED ON SITE AT
CONSTRUCTION
STOCK PILE 9 AREA TO BE OPENED ONCE
SRP 1D IS INSTALLED AND APPROVED

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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Legend			
	EX BDY		
	PR MAJOR CONTOUR		
	PR MINOR CONTOUR		
	PR CLEAN WATER		
	PR DIRTY WATER		
	ESC HAUL ROAD		
	PR BDY STAGE 1A		
	PR BDY STAGE 1B		
	PR BDY STAGE 2		
	PR BDY STAGE 3		

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		05/2025
Design	NDL		06/2026
Drawn	NDL		06/2026
Checked	SM		09/2026

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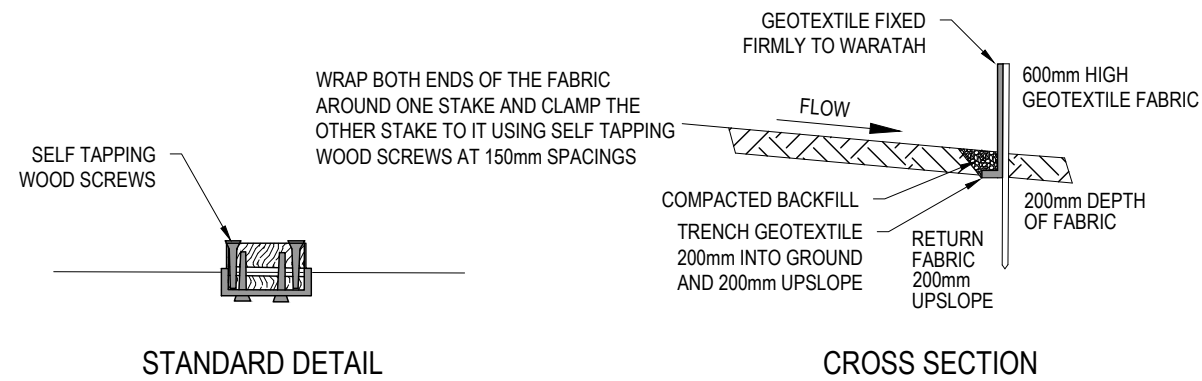
Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED STAGE 3
EROSION & SEDIMENT
CONTROL PLAN**

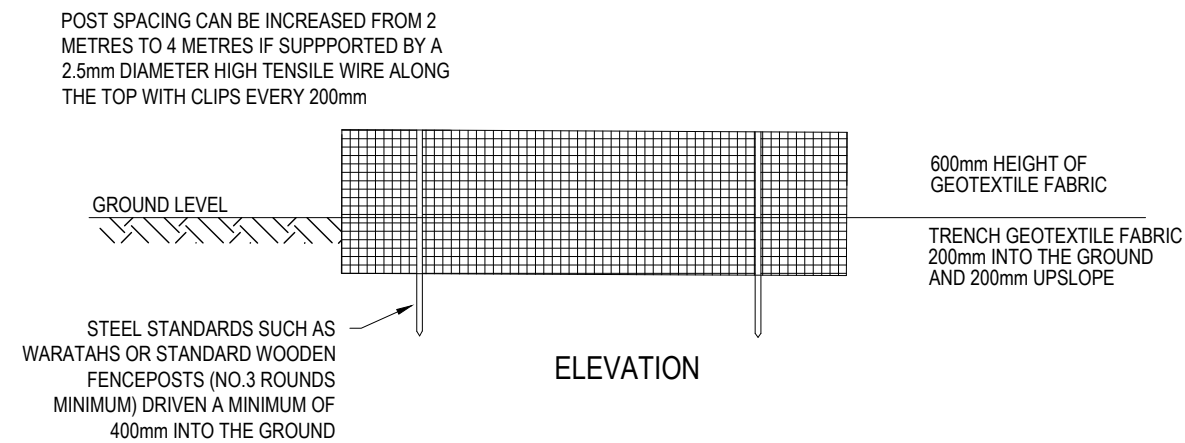
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Scale	1:2000 @ A3
Cad file	298002-11-C230 ESC.DWG
Drawing no.	C200-4
Rev	A

RESOURCE CONSENT

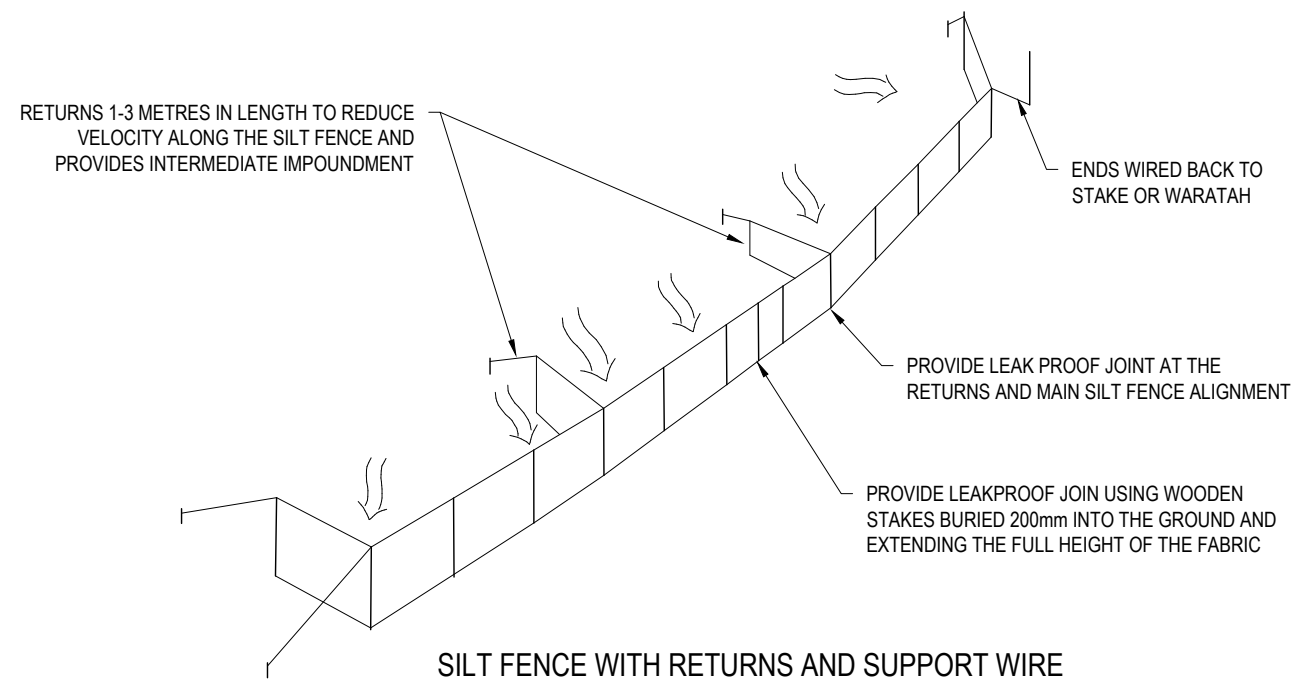
DATE: 8/31/26 FILEPATH: F:\MVEN\HAMILTON\6. PROJECTS\298002 - SILT FENCE\11\09\298002-H-C240 ESC DETAILS.DWG



FABRIC JOIN



ELEVATION



SILT FENCE WITH RETURNS AND SUPPORT WIRE

RESOURCE CONSENT

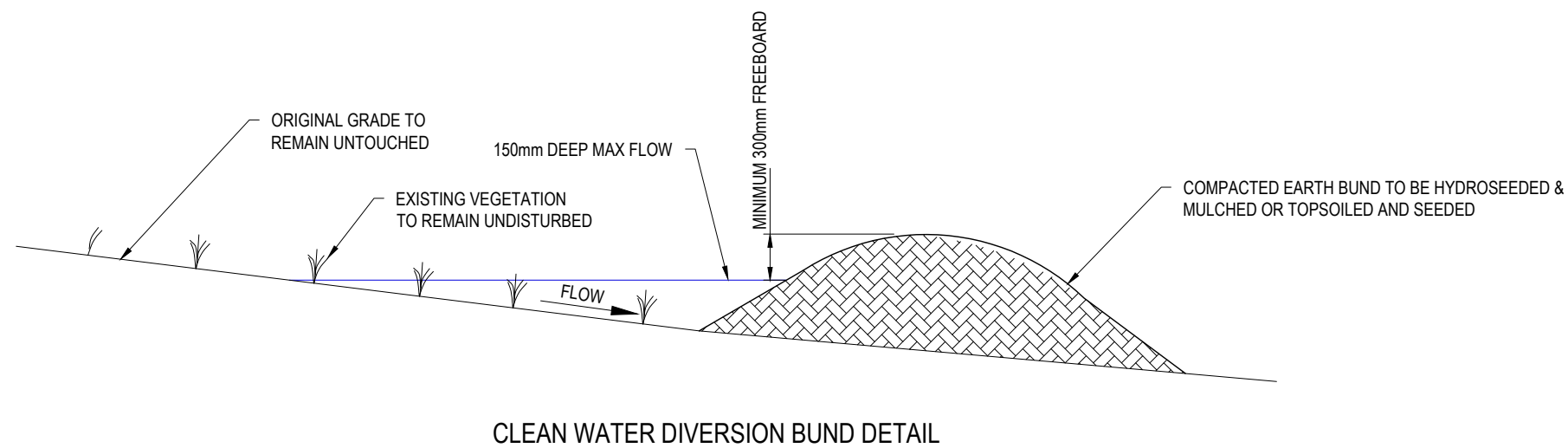
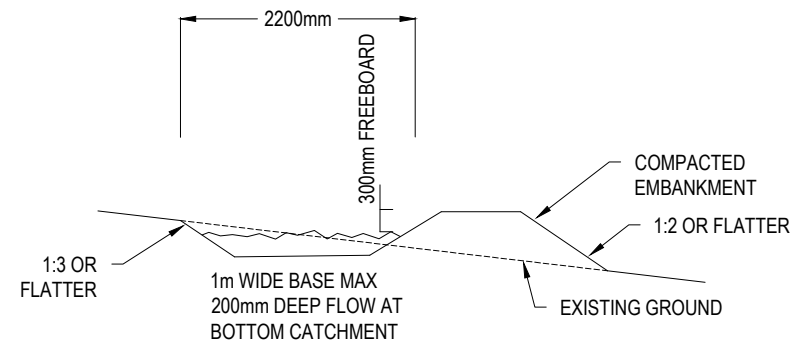
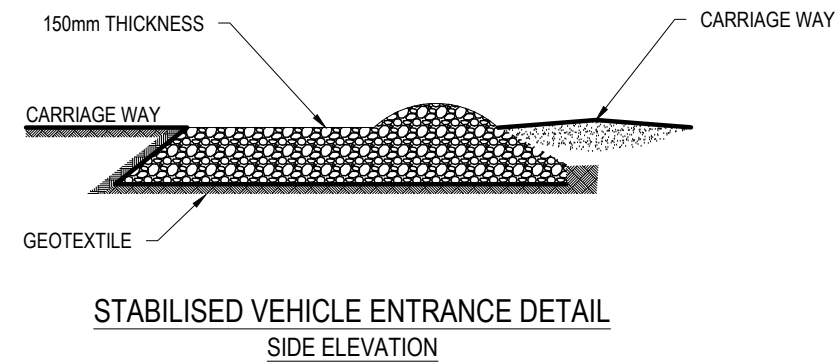
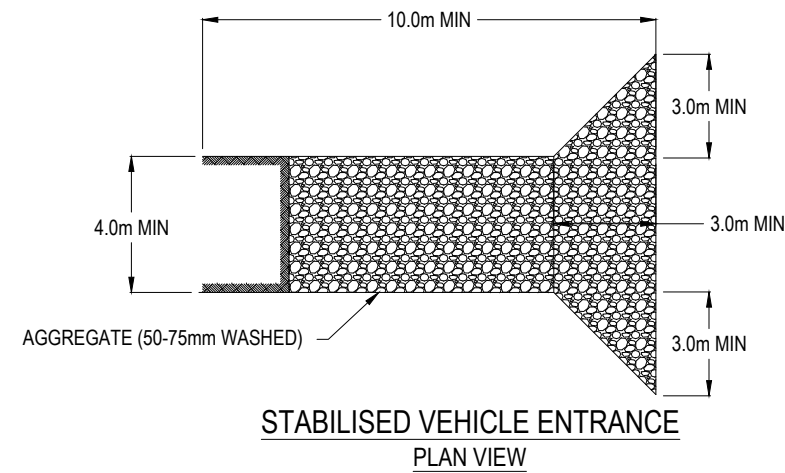
A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
	By	Date	
Survey	-	-	
Design	MKS	06/2026	
Drawn	MKS	06/2026	
Checked	SM	09/2026	

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Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
EROSION & SEDIMENT
CONTROL DETAILS**

Project no.	298002
Scale	-
Cad file	298002-11-C240 ESC DETAILS.DWG
Drawing no.	C240-1
Rev	A



A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
Survey	-		-
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026

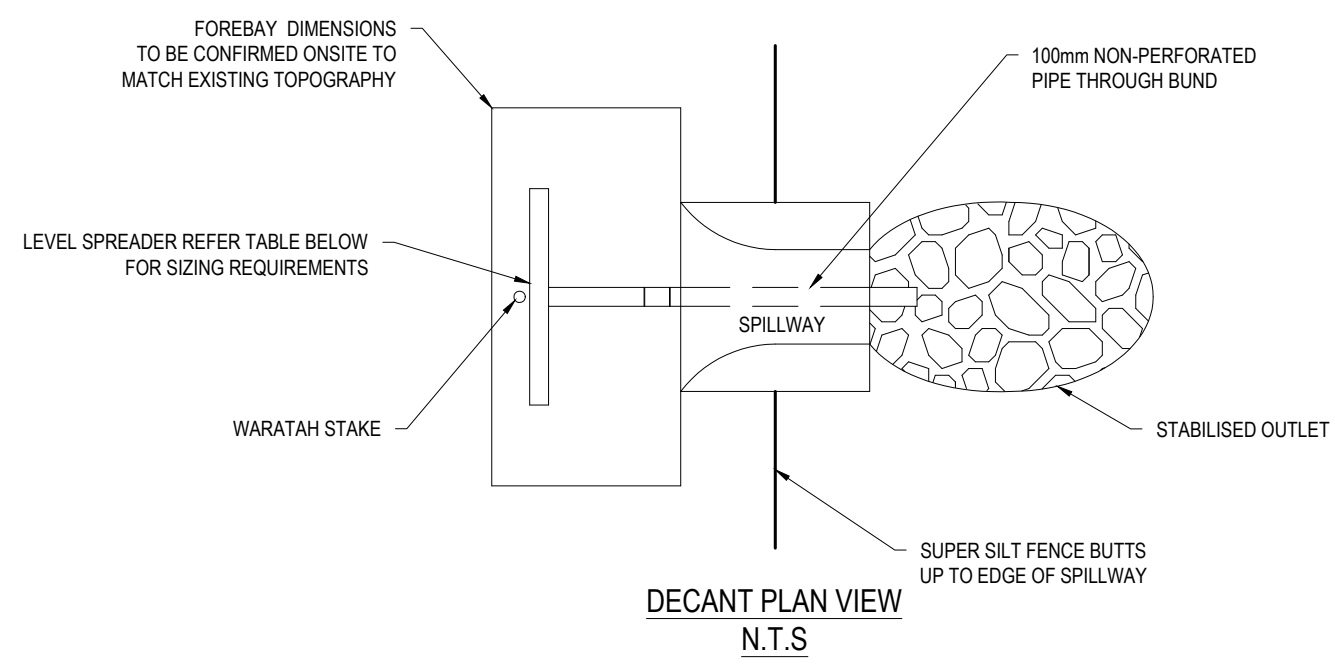
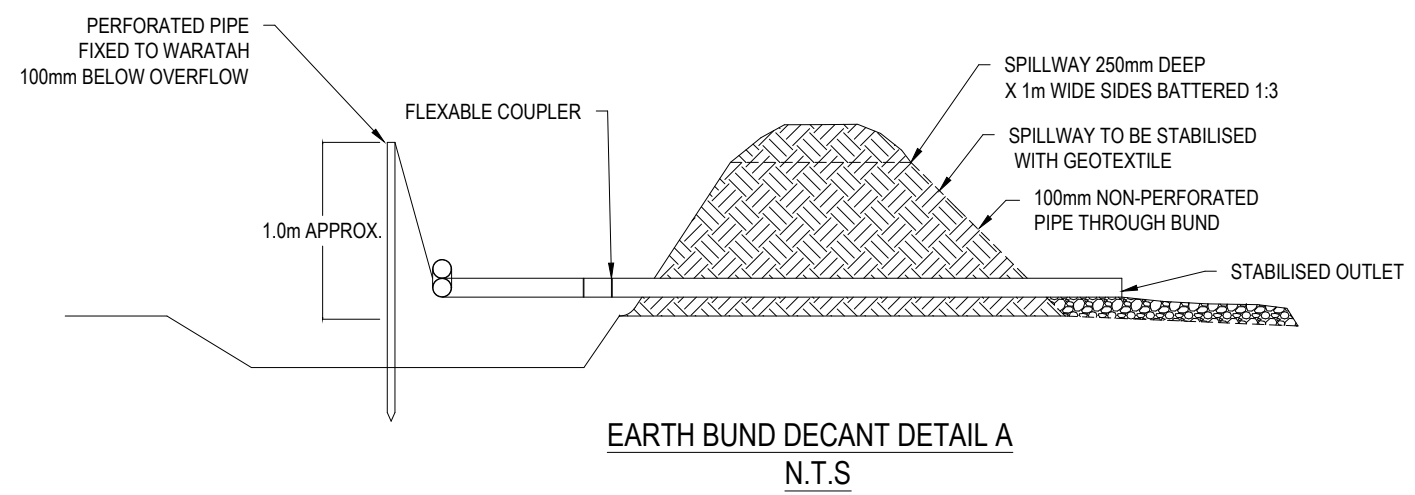


Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
EROSION & SEDIMENT
CONTROL DETAILS**

Project no.	298002
Scale	-
Cad file	298002-11-C240 ESC DETAILS.DWG
Drawing no.	C240-2
Rev	A

RESOURCE CONSENT



LEVEL SPREADER DESIGN CRITERIA (20 YEAR STORM EVENT)				
DESIGN FLOW (m ³ /sec)	INLET WIDTH (m)	DEPTH (m)	END WIDTH (m)	LENGTH (mm)
0-0.3	3	150	1	3
0.3-0.6	5	180	1	7
0.6-0.9	7	220	1	10

A	FAST TRACK APP	MKS	09/2026
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Survey	-		-
Design	MKS		06/2026
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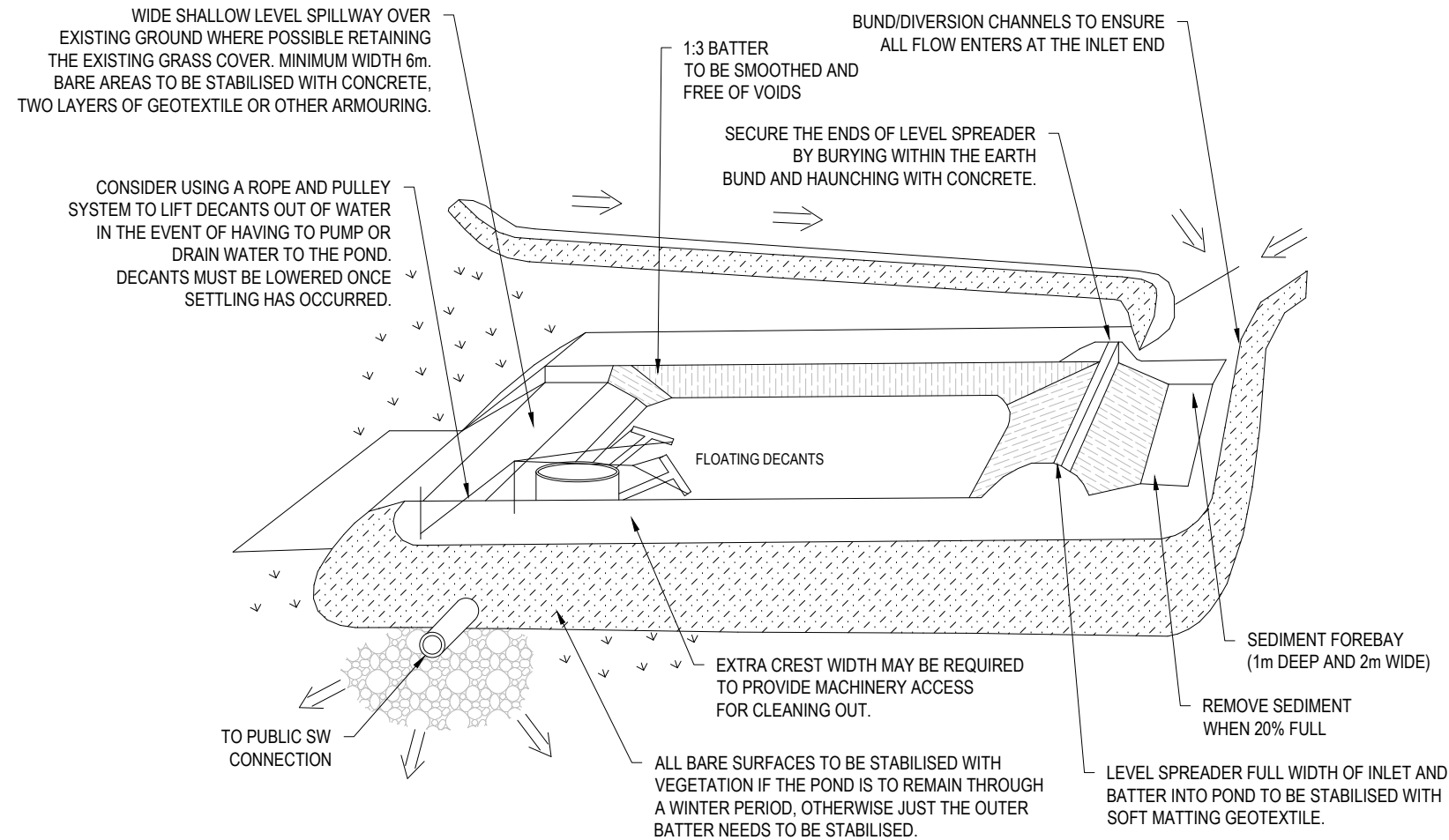
Project
**SOUTHERN LINKS 1
INDUSTRIAL STAGE 1
HAMILTON, WAIKATO
FOR SL1
NORTHERN CONSORTIUM**

Title
**PROPOSED
EROSION & SEDIMENT
CONTROL DETAILS**

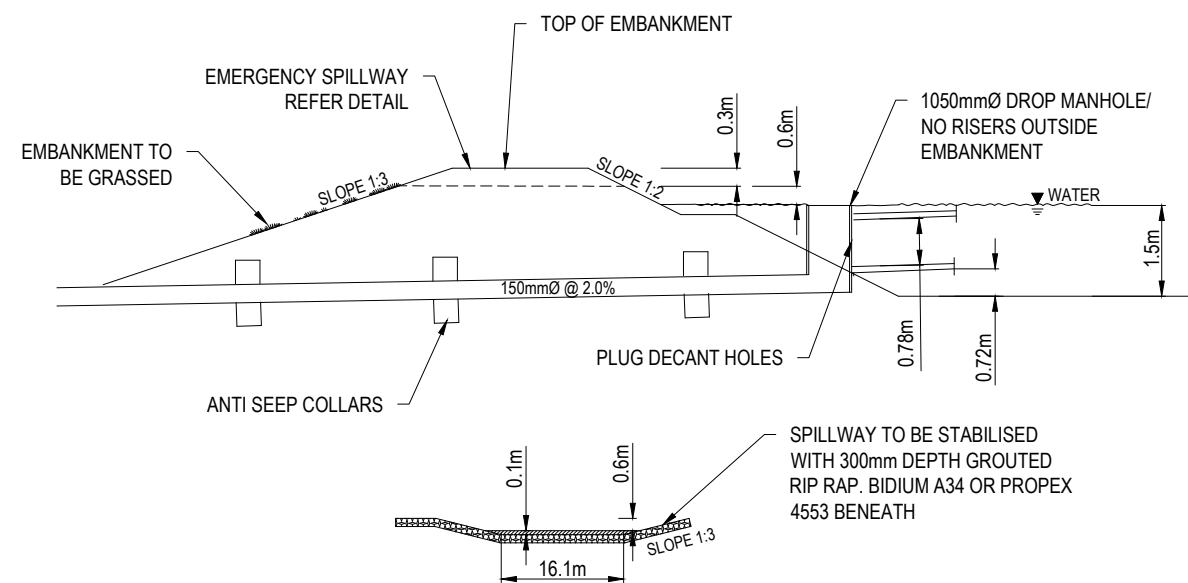
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Cad file	298002-11-C240 ESC DETAILS.DWG
Drawing no.	C240-3
Rev	A

RESOURCE CONSENT

DATE: 8/21/26 FILEPATH: F:\MVEN\HAMILTON\6 PROJECTS\298002 - SOUTHERN LINKS 1\11-C240 ESC DETAILS.DWG



CROSS SECTION A-A OF SEDIMENT TREATMENT POND



EMERGENCY SPILLWAY

A	FAST TRACK APP	MKS	09/2026
Rev	Description	By	Date
Survey	-		-
Design	MKS		06/2026
Drawn	MKS		06/2026
Checked	SM		09/2026

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Project
**SOUTHERN LINKS 1
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 HAMILTON, WAIKATO
 FOR SL1
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Title
**PROPOSED
 EROSION & SEDIMENT
 CONTROL DETAILS**

Project no.	298002
Scale	-
Cad file	298002-11-C240 ESC DETAILS.DWG
Drawing no.	C240-4
Rev	A

RESOURCE CONSENT