

SOUTHERN LINKS 1 RESIDENTIAL

EARTHWORKS MANAGEMENT PLAN

PROJECT INFORMATION

PROJECT 298001

DOCUMENT CONTROL

DATE OF ISSUE 02/09/2026

REVISION A

AUTHOR



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APPROVED BY



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Regional Director

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1. Statement of Experience

Author

I am Min Shon, a Senior Civil Engineer with Maven Waikato Ltd. I hold a Master of Civil Engineering from the University of Auckland and am a Chartered Professional Engineer (CPEng) registered with Engineering New Zealand. I have over six (6) 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.

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

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.

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2. Introduction

The Earthworks Management Plan (EWMP) relates to SL1 - Residential Development at 37A Saxbys Road, Deanwell, Hamilton. The EWMP outlines the methodology associated with the proposed earthworks onsite.

2.1. Site Description

The 46 ha SL1 Residential Development forms part of the residential component of the wider Southern Links 1 (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 Residential Development forms part of a listed project which includes both residential and industrial components and together comprises circa 106ha of the overall SL1 Growth Cell. This EWMP relates to the Residential Development.

The residential component provides for the establishment of circa 938 units, together with a neighbourhood commercial node, open spaces, waterbodies, and infrastructure devices including wetlands and roading.

The proposal includes substantial enabling works to establish developable land, including bulk earthworks across the site. An integrated stormwater management system including wetlands, detention/attenuation devices and treatment ponds are designed with the intent to discharge to ground water as relevant. Ecological restoration is integrated via riparian and corridor planting with appropriate design measures being adopted to enhance and protect key features including the upper tributaries of the Mangakōtukutuku Stream and associated drains.

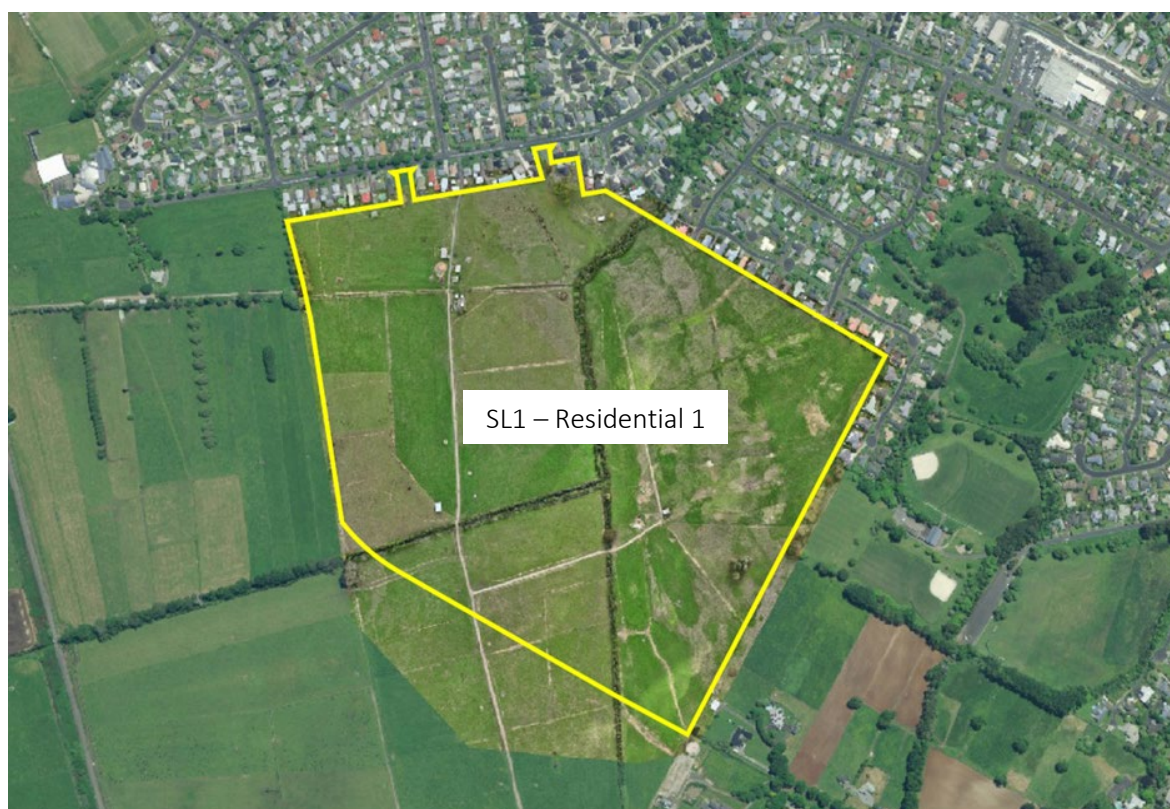


Figure 1: Site Locality

2.2. Legal Descriptions

The development site is currently split into three major parcels of land, and the legal descriptions for the parcels of land are listed in Table 1 below:

Lot Description	Area (m ²)
Lot 1 DPS 51518	75,769
Part Lot 2 DP 25668	336,403
Lot 2 DP 589463	222,086

Table 1: Legal Descriptions with Area

3. 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 is partially underlain by Holocene Swamp deposits and partially by Hinuera Formation interbedded silt and sand soils. Walton Subgroup forms the base of the hills to the east and is expected to underlie the Hinuera Formation.

However, based on CMW's observations and 3D Leapfrog modelling of subsurface soil conditions, the site is completely underlain by Hinuera Formation soils and the Peat (swamp deposits) soils are located further to the south-west, outside the Residential Development area. Please refer to the Geotechnical Investigation Report by CMW for more information.

From the ground investigations undertaken by CMW, they have summarized the site geology results in Table 2 below.

Geological Unit	Depth to top of soil unit (m)		Thickness (m)
	Min	Max	
Topsoil	0		0.1 to 0.5
Interbedded loose to dense Sands and firm to very stiff Silts (Hinuera Formation)	0.1	0.5	1.9 to 18.0
Stiff to very stiff Clayey Silt (Hamilton Ash/Walton Subgroup)	1.9	18.0	*
*NOTE: base of unit not encountered			

Table 2: Summary of Strata Encountered

Upon completion of the proposed earthworks an Earthworks Completion Report will be prepared by the Geotechnical Engineer. This report will certify the adequacy of the earthworks and make recommendations on bearing strengths for foundation design purposes.

4. Earthworks and Sediment Control

Earthworks will be undertaken as required throughout the proposed development area in different development phases and will include re-contouring, excavations for drainage reticulation, formation of building platforms and roading networks and, where applicable, construction of retaining walls. Within each development stage, the site will be further divided into different sub-catchment areas where specific erosion and sediment control measures are to be adopted.

4.1. Design Standards

Proposed measures for erosion and sediment control have been designed in accordance with Waikato Regional Council's Guide for Soil Disturbing Activities 2009, best practice solutions.

4.2. Earthworks Onsite Progress and Future Programme

Earthworks will be undertaken in stages and it is envisaged that all earthworks will be completed within three (3) earthworks seasons. Applications for Winter Works will only be lodged if required.

It is proposed that the bulk earthworks operation will comprise of three separated work sections (Stage 1, 2, and 3) 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:

- Install silt control measures, as shown on Engineering Drawings
- Install sediment controls ponds, clean and dirty water diversion bunds.
- Carry out Bulk Earthworks.
- Install drainage systems, outlets, and riprap.
- Form channel and building platform areas concurrently as site is stabilised.
- Stabilise Road corridors by placing the subgrade improvement layer of brown rock ready for civil construction to place.
- Retain and maintain silt control measures until completion.

4.3. Earthworks Summary

As mentioned in the above section, the bulk earthworks on site will be divided into three separated work sections. These are from Stage 1 to 3, including stormwater artificial wetlands, and wastewater pumpstations. Please refer to the earthworks drawings for detail attached in Appendix A.

- Stormwater Wetland A and F will be constructed at Stage 1 Earthworks.
- Central Wastewater Pumpstation will be constructed at Stage 1 Earthworks.
- Stormwater Wetland B and C will be constructed at Stage 2 Earthworks.
- Northern Wastewater Pumpstation will be constructed at Stage 2 Earthworks.
- Stormwater Wetland D and E will be constructed at Stage 3 Earthworks.

4.4. Total Earthworks

Bulk Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	433,460 m ² (43.34ha)
Total volume of CUT	290,010 m ³
Total volume of FILL	227,375 m ³
Total Volume of FILL with Compaction Factor (1.2)	272,850 m ³
Maximum CUT and FILL depth	2.36m FILL / 5.34m CUT
Total Volume (surplus of CUT)	- 17,160 m ³
Others	
Topsoil stripping (200 mm)	86,690 m ³

Table 3: Summary of Total Earthworks

4.4.1. Stage 1 Earthworks

Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	182,427 m ² (18.24ha)
Total volume of CUT	134,249 m ³
Total volume of FILL	111,874 m ³
Total Volume of FILL with Compaction Factor (1.2)	134,249 m ³
Maximum CUT and FILL depth	1.37m FILL / 5.34m CUT
Total Volume (BALANCED)	0 m ³
Others	
Topsoil stripping (200 mm)	36,485 m ³

Table 4: Summary of Stage 1 Earthworks

4.4.2. Stage 2 Earthworks

Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	135,012 m ² (13.50ha)
Total volume of CUT	90,051 m ³
Total volume of FILL	64,624 m ³
Total Volume of FILL with Compaction Factor (1.2)	77,549 m ³
Maximum CUT and FILL depth	2.15m FILL / 1.15m CUT
Total Volume (surplus of CUT)	- 12,502 m ³
Others	
Topsoil stripping (200 mm)	27,002 m ³

Table 5: Summary of Stage 2 Earthworks

4.4.3. Stage 3 Earthworks

Subgrade Earthworks (topsoil stripping exclusive)	
Total area of ground disturbance	116,020 m ² (11.60ha)
Total volume of CUT	65,710 m ³
Total volume of FILL	50,877 m ³
Total Volume of FILL with Compaction Factor (1.2)	61,052 m ³
Maximum CUT and FILL depth	1.50m FILL / 3.82m CUT
Total Volume (surplus of CUT)	- 4,658 m ³
Others	
Topsoil stripping (200 mm)	23,204 m ³

Table 6: Summary of Stage 3 Earthworks

4.5. Stockpiles between Stages

Bulk earthworks are expected to generate a surplus of CUT material in Stage 2. The following approach will be adopted:

Stage	Net Cut/Fill	Action
Stage 2	Surplus CUT (12,502 m ³)	To be transferred to EW Stage 3 area
Stage 3	Surplus CUT (4,658 m ³)	Fulfilled using surplus CUT from Stage 2 and CUT from Stage 3

Table 7: Summary of Stockpiles between Stages

4.5.1. Stockpiling Details

Stockpiles will be limited to a height specified by the Geotechnical Engineer, with 2:1 side slopes, and protected with silt fences and toe bunds.

Stabilisation of stockpiles using hydroseeding or mulch will occur within 7 days of stockpiling.

Stockpiles will be placed within the final EW Stage 3 footprint, ensuring minimal double handling, and avoiding contamination of clean catchments. Refinement to the filling strategy would see fill material being placed and engineered to avoid further handling or segregation.

Note: All stockpiling and reuse operations will be tracked with GPS or site logs to ensure material origin, volume, and placement areas are accurately recorded for the final Earthworks Completion Report.

4.6. Stockpile Locations

During the earthworks operations, all excavated materials generated in Stages 2, approximately 12,502m³ of CUT, will be temporarily stockpiled in designated areas within the project site. These stockpile locations have been strategically selected to ensure minimal disruption to ongoing works and to facilitate efficient rehandling during subsequent stages. The stored material will be reused as FILL in future stages (EW Stage 3), in accordance with the C200 – EARTHWORKS drawing from Maven Waikato Ltd. Proper erosion and sediment control measures will be implemented around stockpiles to prevent environmental impacts and maintain site safety and accessibility.

Please refer to Appendix A – Earthworks Drawings for further details.

5. Existing and Proposed Erosion Control

As the site is currently a low-lying flat farmland, multiple sediment controls and devices need to be constructed onsite. Below we have outlined the general principles and philosophies that will be adopted for any current controls and/or future proposed controls.

Silt and erosion control measures shall remain in place and operational until the contributing catchment has been permanently stabilised and there is no longer a reasonable risk of sediment discharge from the relevant earthworks area. Removal of temporary controls shall be undertaken progressively and only following inspection by the Engineer or appropriately delegated person confirming that the area is adequately stabilised and that the controls are no longer required.

The site will be progressively stabilised with topsoil and grass seed as earthwork levels are achieved. Silt control measures will only be removed once the site is determined by the Engineer to be stable in terms of silt run-off.

5.1. Proposed Controls

The following system of silt and sediment control protection measures are proposed: below sections covers the methodology for various stages of the development. For clarity, Refer to staging plans (C220-1 EW CUT&FILL) as part of this application, in conjunction with the below staging works methodology.

5.2. Potential Environmental Impacts

During the earthworks there is a risk of dust nuisance during dry and windy weather. To manage potential dust effects, the following management measures are proposed:

1. That a maximum earthworks area of 20ha shall be opened at any one time.
2. Earthworks shall be effectively stabilised using the following methods:
 - a. Topsoiling and grassing
 - b. Hydroseeding
 - c. Using hay or straw mulching
3. An adequate supply of water for dust control and effective means of application is always available on-site during earthworks, until such time as the site is fully stabilised.
4. Sufficient water will be available for dust mitigation with water storage tanks retained on site until it is fully stabilised. The water tanks will be re-charged via truck and trailer water cart.
5. In the event dust control management is ineffective, the contractor shall employ the use of soil stabilisers (such as polymers or similar) or weatherproof cover where possible.

6. Additional Information

6.1. Fill Compaction

Each layer of material shall be compacted by approved compacting machinery throughout its whole area and depth to achieve:

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 8: Fill Compaction Requirements by Soil Types

6.2. Monitoring

All sediment control measures will be checked to ensure that they are performing as intended.

A site walk over shall be undertaken daily before leaving the site 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.

Sediment, debris and trash shall be inspected and removed from sediment control devices as part of the routine site inspection programme. Sediment shall be removed when accumulation reaches approximately 50% of the available storage capacity, or sooner where accumulation may affect the hydraulic performance of the device. Debris and trash shall be removed whenever it is identified as restricting flow or otherwise affecting the operation of the control measure. All maintenance activities shall be recorded as part of the site erosion and sediment control inspection records. 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:

6.2.1. Decant Bund

- Inspect every day and before every forecasted rainfall event. Inspect for correct operation after every runoff event. Immediately repair any damage caused by erosion or construction equipment.

- Inspect Level Spreaders after every rainfall until vegetation is established and promptly undertake any necessary repairs. Ensure vegetation is kept in a healthy and vigorous condition.
- Clean out before the volume of accumulated sediment reaches 20% of the total volume. To assist in gauging sediment loads, clearly mark 20% volume height on the riser.
- Clean out with high-capacity sludge pumps, or with excavators (long reach excavators if needed) loading onto sealed tip trucks or to a secure area.
- Deposit the sediment in such a location so that it does not lead to a direct discharge to receiving environments. Stabilise all disposal sites as required.

6.2.2. Retention Pond

- Chemical treatment will be provided to the pond if 100mm of water clarity is not achieved before discharge, this will be achieved by dosing/flocculation.

6.2.3. 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.
- Remove any accumulated sediment deposited in the Runoff Diversion Channel / Bund due to low gradients and velocities.
- Carefully check outlets to ensure that these remain free from scour and erosion.

6.2.4. 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 continue to allow for adequate sediment storage and reduce pressure on the Silt Fence. Ensure that the sediment is removed to a secure area.
- Do not remove Silt Fence materials and sediment deposition until the catchment area has been appropriately stabilised. Stabilise the area of the removed Silt Fence.

6.2.5. Silt Socks

- Inspect Filter Socks at least once a week and after each rainfall. Make any necessary repairs when necessary.

6.2.6. Stabilised Vehicle Entrance

- Maintain the Stabilised Construction 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 Construction Entrance and clean out, as necessary.

6.3. Stabilisation

Stabilisation of earthworked areas shall be undertaken progressively as final ground levels are reached or where works are temporarily paused for more than 14 days. The following stabilisation measures and timing are proposed in line with WRC guidelines:

Condition	Stabilisation Method	Timeframe
Final earthwork levels achieved	Topsoil and grass seeding	Within 5 working days
Temporary pause in work >14 days	Hydroseeding or straw mulching	Within 7 calendar days
Final surface not expected	Polymer stabilisation or erosion	Within 10 working days

within 60 days	control matting	
Post-winter shutdown	Stabilisation of all exposed area	Before 30 April annually

Table 9: Stabilisation Measures and Timing in WRC Guidelines

Maintenance: All stabilised areas will be monitored weekly and after heavy rainfall (>20mm/hr) to ensure full vegetation cover (minimum 80%) is achieved. Any bare patches or erosion will be repaired promptly with mulching or swift remedial action.

Appendix A – Earthworks Drawings



SAXBYS ROAD

RHONDA AVENUE

DEANWELL AVENUE

LESLIE PLACE

SAXBYS ROAD

FORTH CRESCENT

CAESAR ROOSE DRIVE

MACMURDO AVENUE

REYNOLDS DRIVE

CROFT LANE

LOT 1 DPS 7305

LOT 2 DPS 9219

LOT 2 DP 442695

LOT 1 DP 442695

LOT 5 DPS 31888

PART LOT 2 DP 29868

LOT 2 DP 589463

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STAGE 2

STAGE 1

STAGE 3

STAGE 4

STAGE 5

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. ORIGIN OF LEVELS = SM XXXX SO XXXX(XXXX) PUBLISHED RL=XX.XX, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY THEIR OPERATIONS.
6. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
8. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

LEGEND

- EX BDY
- PROP BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- PROP EXTENT WORK
- PROP CLEANWATER
- PROP DIRTYWATER
- PROP SILT FENCE
- PROP STOCKPILE
- PROP DECANT
- PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	RJM		11/2025
Drawn	RJM		11/2025
Checked	DJM		11/2025



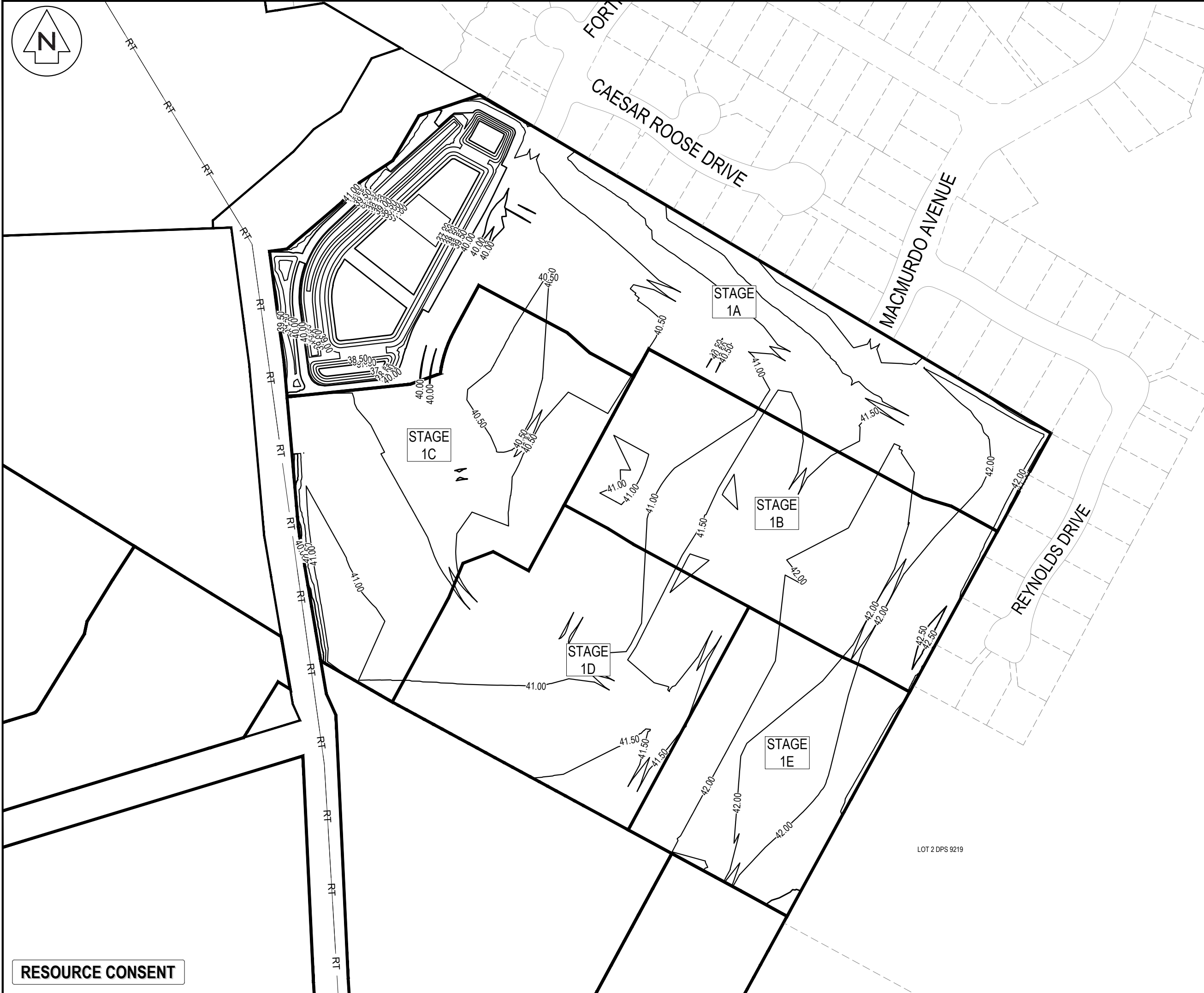
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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
CONTOUR
OVERVIEW PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C200 EARTHWORKS.DWG		
Drawing no.	R1-C200	Rev	A

RESOURCE CONSENT



- NOTES
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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
STAGE 1
CONTOUR PLAN**

Project no.	298001-R1 SL1		
Scale	1:2000 @ A3		
Cad file	298001-R1-C200 EARTHWORKS.DWG		
Drawing no.	R1-C200-1	Rev	A



RHON

DEANWEL

LESLI

SAXBYS ROAD



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Title
**PROPOSED
STAGE 2
CONTOUR PLAN**

Project no.	298001-R1 SL1		
Scale	1:2000 @ A3		
Cad file	298001-R1-C200 EARTHWORKS.DWG		
Drawing no.	R1-C200-2	Rev	A

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- LEGEND
- EX BDY
 - PROP BDY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - PR MAJOR CONTOUR
 - PR MINOR CONTOUR
 - PROP EXTENT WORK
 - PROP CLEANWATER
 - PROP DIRTYWATER
 - PROP SILT FENCE
 - PROP STOCKPILE
 - PROP DECANT
 - PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	RJM		11/2025
Drawn	RJM		11/2025
Checked	DJM		11/2025

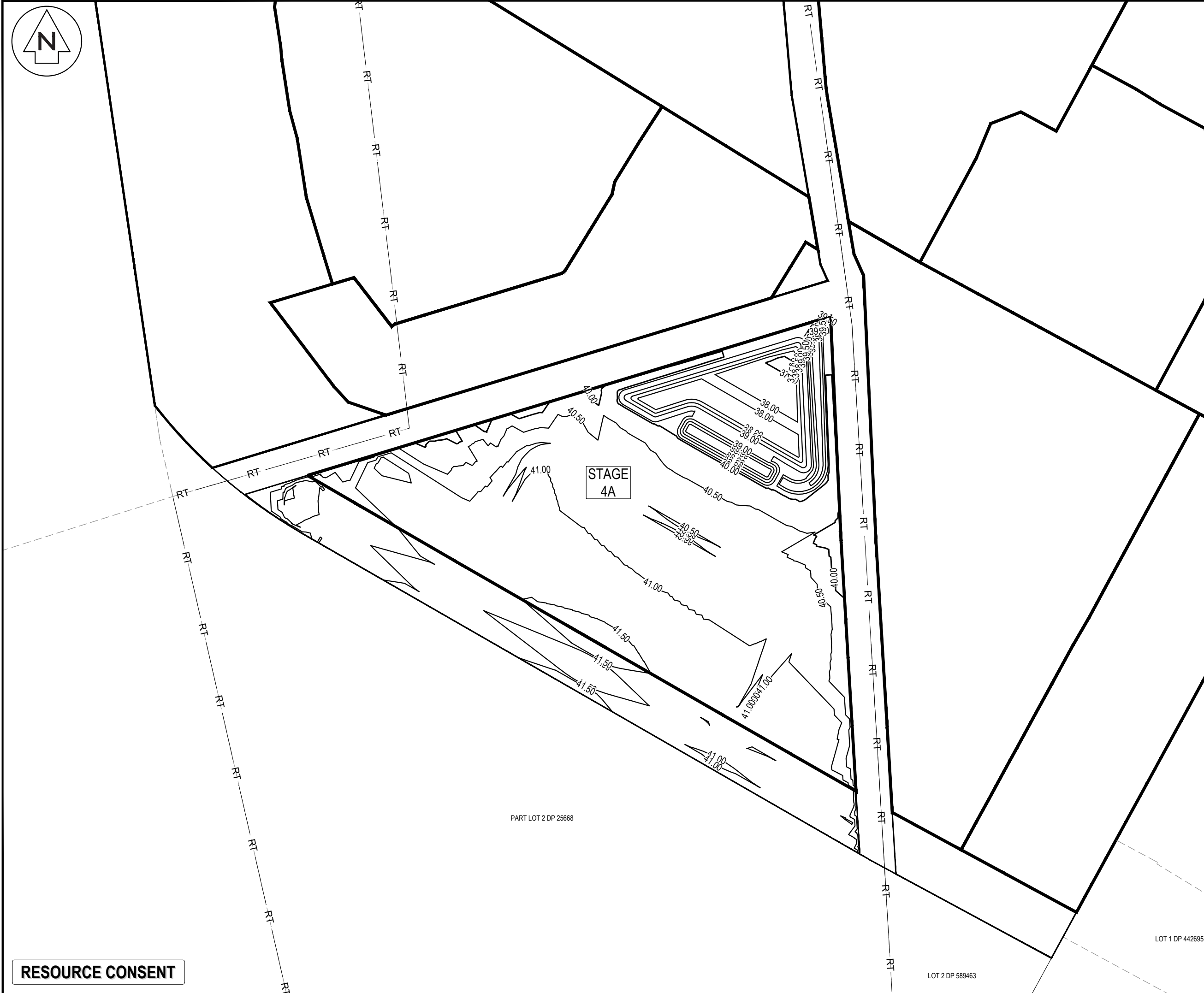
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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
STAGE 3
CONTOUR PLAN**

Project no.	298001-R1 SL1
Scale	1:2000 @ A3
Cad file	298001-R1-C200 EARTHWORKS.DWG
Drawing no.	R1-C200-3
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.
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LEGEND	
	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PROP EXTENT WORK
	PROP CLEANWATER
	PROP DIRTYWATER
	PROP SILT FENCE
	PROP STOCKPILE
	PROP DECANT
	PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	RJM		11/2025
Drawn	RJM		11/2025
Checked	DJM		11/2025



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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
STAGE 4
CONTOUR PLAN**

Project no.	298001-R1 SL1		
Scale	1:2000 @ A3		
Cad file	298001-R1-C200 EARTHWORKS.DWG		
Drawing no.	R1-C200-4	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.
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LEGEND

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PROP EXTENT WORK
	PROP CLEANWATER
	PROP DIRTYWATER
	PROP SILT FENCE
	PROP STOCKPILE
	PROP DECANT
	PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	RJM		11/2025
Drawn	RJM		11/2025
Checked	DJM		11/2025



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Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGE 5
CONTOUR PLAN**

Project no.	298001-R1 SL1		
Scale	1:2000 @ A3		
Cad file	298001-R1-C200 EARTHWORKS.DWG		
Drawing no.	R1-C200-5	Rev	A

RESOURCE CONSENT



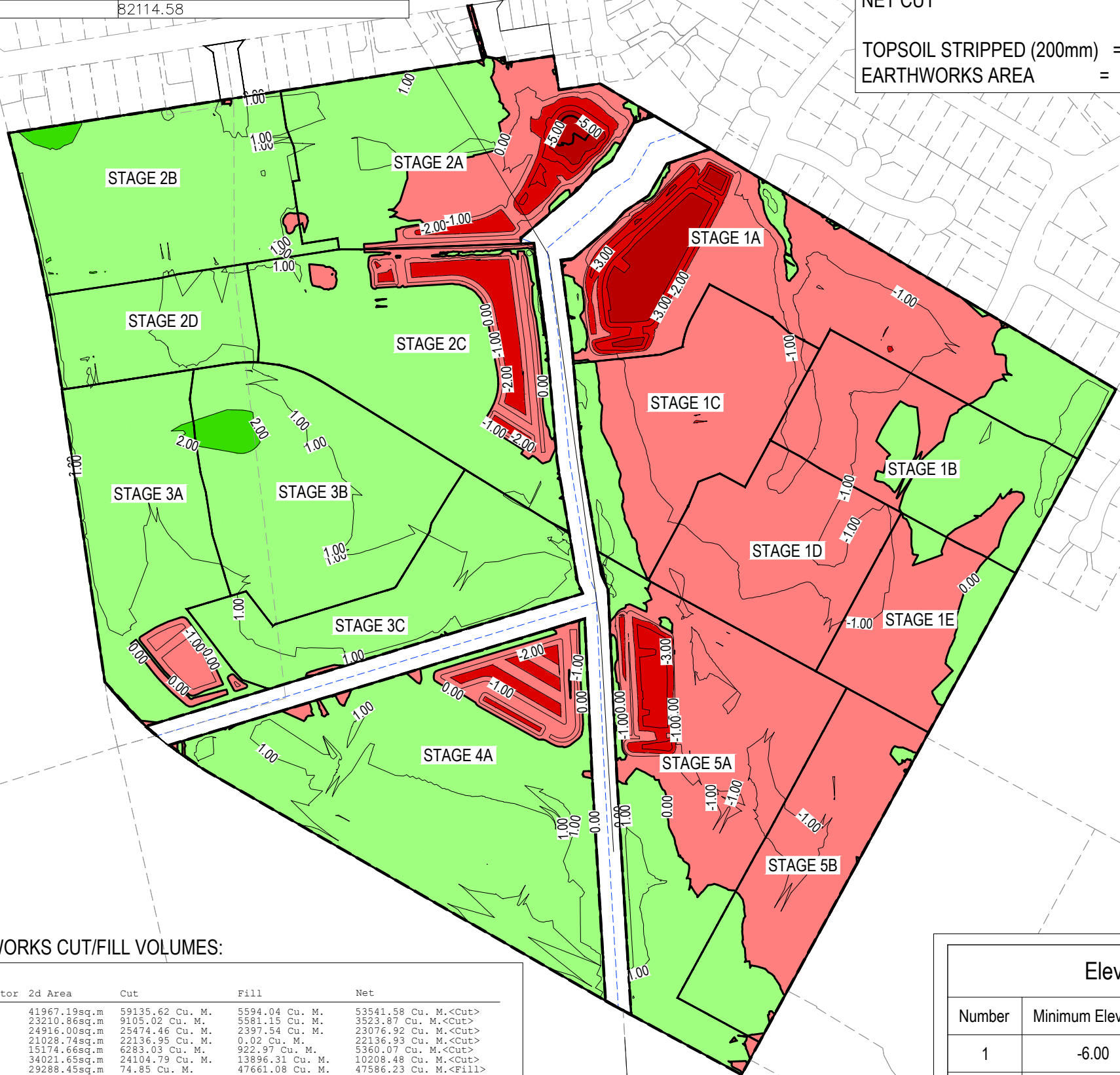
Extrapolated/Estimated Spoils Excavated (cu.m.)	
SW Pipe Embedment Spoils	6110.71
SW Manhole Spoils	260.25
WW Pipe Embedment Spoils	1449.78
WW Manhole Spoils	426.02
WS Pipe Spoils	301.88
Road Paving Excavated	47103.37
Footpath Paving Excavated	10585.03
JOAL Paving Excavated	15877.54
Total	82114.58

WHOLE SITE EARTH WORKS (SURFACE PSGL COMPARISON WITH SURFACE ESGL)

CUT VOLUME	207,910 m ³
CUT VOLUME (FROM SPOILS)	82,100 m ³
FILL VOLUME	272,850 m ³
NET CUT	17,160 m ³

TOPSOIL STRIPPED (200mm)	= 86,690 m ³
EARTHWORKS AREA	= 433,460 m ² / 43.34 Ha

- NOTES
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WHOLE SITE STAGING BULK EARTHWORKS CUT/FILL VOLUMES:

Cut/Fill Summary						
Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
PSGL vs ESGL - STAGE 1A	1.000	1.200	41967.19sq.m	59135.62 Cu. M.	5594.04 Cu. M.	53541.58 Cu. M.<Cut>
PSGL vs ESGL - STAGE 1B	1.000	1.200	23210.86sq.m	9105.02 Cu. M.	5581.15 Cu. M.	3523.87 Cu. M.<Cut>
PSGL vs ESGL - STAGE 1C	1.000	1.200	24916.00sq.m	25474.46 Cu. M.	2397.54 Cu. M.	23076.92 Cu. M.<Cut>
PSGL vs ESGL - STAGE 1D	1.000	1.200	21028.74sq.m	22136.95 Cu. M.	0.02 Cu. M.	22136.93 Cu. M.<Cut>
PSGL vs ESGL - STAGE 1E	1.000	1.200	15174.66sq.m	6283.03 Cu. M.	922.97 Cu. M.	5360.07 Cu. M.<Cut>
PSGL vs ESGL - STAGE 2A	1.000	1.200	34021.65sq.m	24104.79 Cu. M.	13896.31 Cu. M.	10208.48 Cu. M.<Cut>
PSGL vs ESGL - STAGE 2B	1.000	1.200	29288.45sq.m	74.85 Cu. M.	47661.08 Cu. M.	47586.23 Cu. M.<Fill>
PSGL vs ESGL - STAGE 2C	1.000	1.200	35498.51sq.m	13851.66 Cu. M.	15068.12 Cu. M.	1216.46 Cu. M.<Fill>
PSGL vs ESGL - STAGE 2D	1.000	1.200	12606.45sq.m	0.00 Cu. M.	16847.56 Cu. M.	16847.56 Cu. M.<Fill>
PSGL vs ESGL - STAGE 3A	1.000	1.200	27326.55sq.m	2719.46 Cu. M.	32129.16 Cu. M.	29409.70 Cu. M.<Fill>
PSGL vs ESGL - STAGE 3B	1.000	1.200	31286.41sq.m	0.00 Cu. M.	46036.93 Cu. M.	46036.93 Cu. M.<Fill>
PSGL vs ESGL - STAGE 3C	1.000	1.200	21113.31sq.m	7.92 Cu. M.	25662.40 Cu. M.	25654.48 Cu. M.<Fill>
PSGL vs ESGL - STAGE 4A	1.000	1.200	53087.67sq.m	8623.46 Cu. M.	49833.35 Cu. M.	41209.90 Cu. M.<Fill>
PSGL vs ESGL - STAGE 5A	1.000	1.200	41521.63sq.m	27600.06 Cu. M.	9305.01 Cu. M.	18295.05 Cu. M.<Cut>
PSGL vs ESGL - STAGE 5B	1.000	1.200	21410.89sq.m	8792.78 Cu. M.	1913.89 Cu. M.	6878.90 Cu. M.<Cut>
Totals			433458.96sq.m	207910.08 Cu. M.	272849.54 Cu. M.	64939.46 Cu. M.<Fill>

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	-6.00	-4.00	Red
2	-4.00	-2.00	Red
3	-2.00	0.00	Light Red
4	0.00	2.00	Light Green
5	2.00	4.00	Green

RESOURCE CONSENT

Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

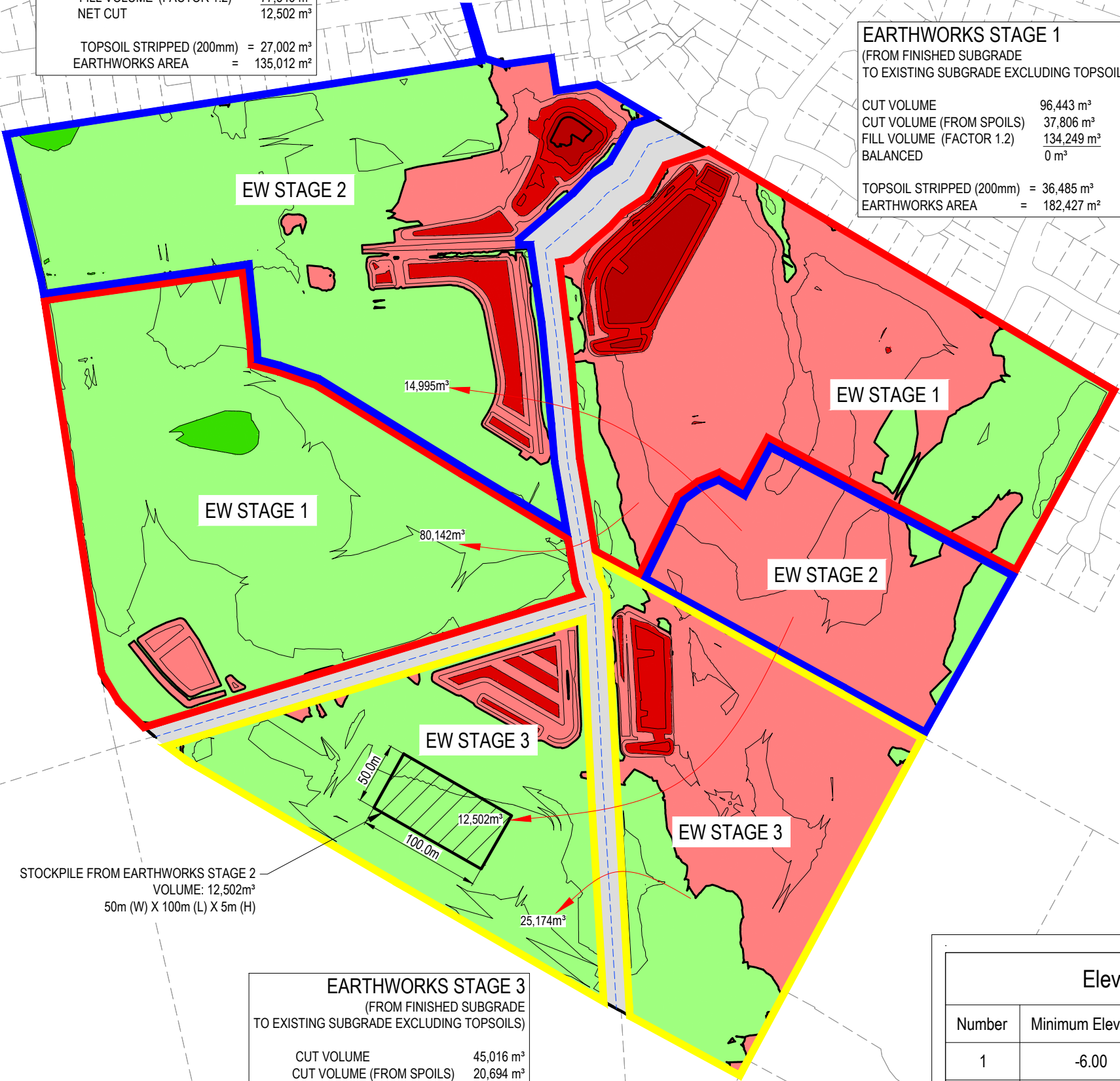
Title
**PROPOSED
CUT/FILL
OVERVIEW PLAN**

Project no.	298001-R1 SL1
Scale	1:4000 @ A3
Cad file	298001-R1-C220 EW CUT&FILL.DWG
Drawing no.	R1-C220
Rev	A



EARTHWORKS STAGE 2	
(FROM FINISHED SUBGRADE TO EXISTING SUBGRADE EXCLUDING TOPSOILS)	
CUT VOLUME	66,451 m³
CUT VOLUME (FROM SPOILS)	23,600 m³
FILL VOLUME (FACTOR 1.2)	77,549 m³
NET CUT	12,502 m³
TOPSOIL STRIPPED (200mm) = 27,002 m³	
EARTHWORKS AREA = 135,012 m²	

EARTHWORKS STAGE 1	
(FROM FINISHED SUBGRADE TO EXISTING SUBGRADE EXCLUDING TOPSOILS)	
CUT VOLUME	96,443 m³
CUT VOLUME (FROM SPOILS)	37,806 m³
FILL VOLUME (FACTOR 1.2)	134,249 m³
BALANCED	0 m³
TOPSOIL STRIPPED (200mm) = 36,485 m³	
EARTHWORKS AREA = 182,427 m²	



STOCKPILE FROM EARTHWORKS STAGE 2
VOLUME: 12,502m³
50m (W) X 100m (L) X 5m (H)

EARTHWORKS STAGE 3	
(FROM FINISHED SUBGRADE TO EXISTING SUBGRADE EXCLUDING TOPSOILS)	
CUT VOLUME	45,016 m³
CUT VOLUME (FROM SPOILS)	20,694 m³
FILL VOLUME (FACTOR 1.2)	61,052 m³
NET CUT	4,658 m³
TOPSOIL STRIPPED (200mm) = 23,204 m³	
EARTHWORKS AREA = 116,020 m²	

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-6.00	-4.00	Dark Red
2	-4.00	-2.00	Red
3	-2.00	0.00	Light Red
4	0.00	2.00	Light Green
5	2.00	4.00	Green

- NOTES
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A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		11/2025
Drawn	MKS		11/2025
Checked	DJM		11/2025

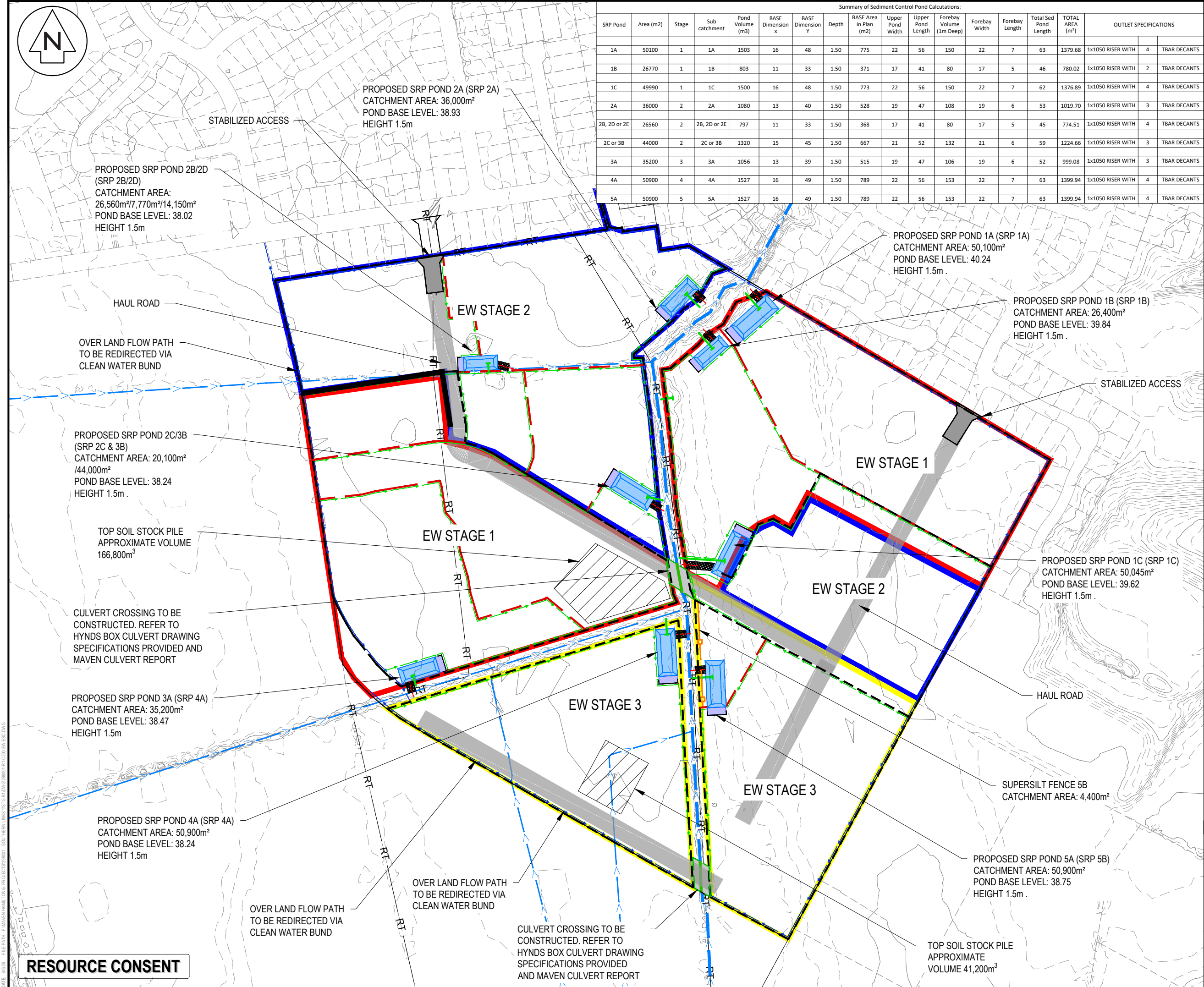


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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SL1 CONSORTIUM GROUP**

Title PROPOSED CUT/FILL STAGING PLAN			
Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C220-1 EW CUT&FILL.DWG		
Drawing no.	C220-1	Rev	A

RESOURCE CONSENT



Summary of Sediment Control Pond Calculations:																
SRP Pond	Area (m2)	Stage	Sub catchment	Pond Volume (m3)	BASE Dimension x	BASE Dimension Y	Depth	BASE Area in Plan (m2)	Upper Pond Width	Upper Pond Length	Forebay Volume (1m Deep)	Forebay Width	Forebay Length	Total Sed Pond Length	TOTAL AREA (m²)	OUTLET SPECIFICATIONS
1A	50100	1	1A	1503	16	48	1.50	775	22	56	150	22	7	63	1379.68	1x1050 RISER WITH 4 TBAR DECANTS
1B	26770	1	1B	803	11	33	1.50	371	17	41	80	17	5	46	780.02	1x1050 RISER WITH 2 TBAR DECANTS
1C	49990	1	1C	1500	16	48	1.50	773	22	56	150	22	7	62	1376.89	1x1050 RISER WITH 4 TBAR DECANTS
2A	36000	2	2A	1080	13	40	1.50	528	19	47	108	19	6	53	1019.70	1x1050 RISER WITH 3 TBAR DECANTS
2B, 2D or 2E	26560	2	2B, 2D or 2E	797	11	33	1.50	368	17	41	80	17	5	45	774.51	1x1050 RISER WITH 4 TBAR DECANTS
2C or 3B	44000	2	2C or 3B	1320	15	45	1.50	667	21	52	132	21	6	59	1224.66	1x1050 RISER WITH 3 TBAR DECANTS
3A	35200	3	3A	1056	13	39	1.50	515	19	47	106	19	6	52	999.08	1x1050 RISER WITH 3 TBAR DECANTS
4A	50900	4	4A	1527	16	49	1.50	789	22	56	153	22	7	63	1399.94	1x1050 RISER WITH 4 TBAR DECANTS
5A	50900	5	5A	1527	16	49	1.50	789	22	56	153	22	7	63	1399.94	1x1050 RISER WITH 4 TBAR DECANTS

- NOTES
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- PROP BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- EXISTING DRAIN
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- PROP EXTENT WORK
- PROP CLEANWATER
- PROP DIRTYWATER
- PROP SILT FENCE
- PROP CATCHMENT BDY
- PROP STOCKPILE
- PROP DECANT
- PROP DECANT BAR

A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
Survey	MAVEN		12/2025
Design	MJRA		04/2026
Drawn	MJRA		04/2026
Checked	NDL		05/2026

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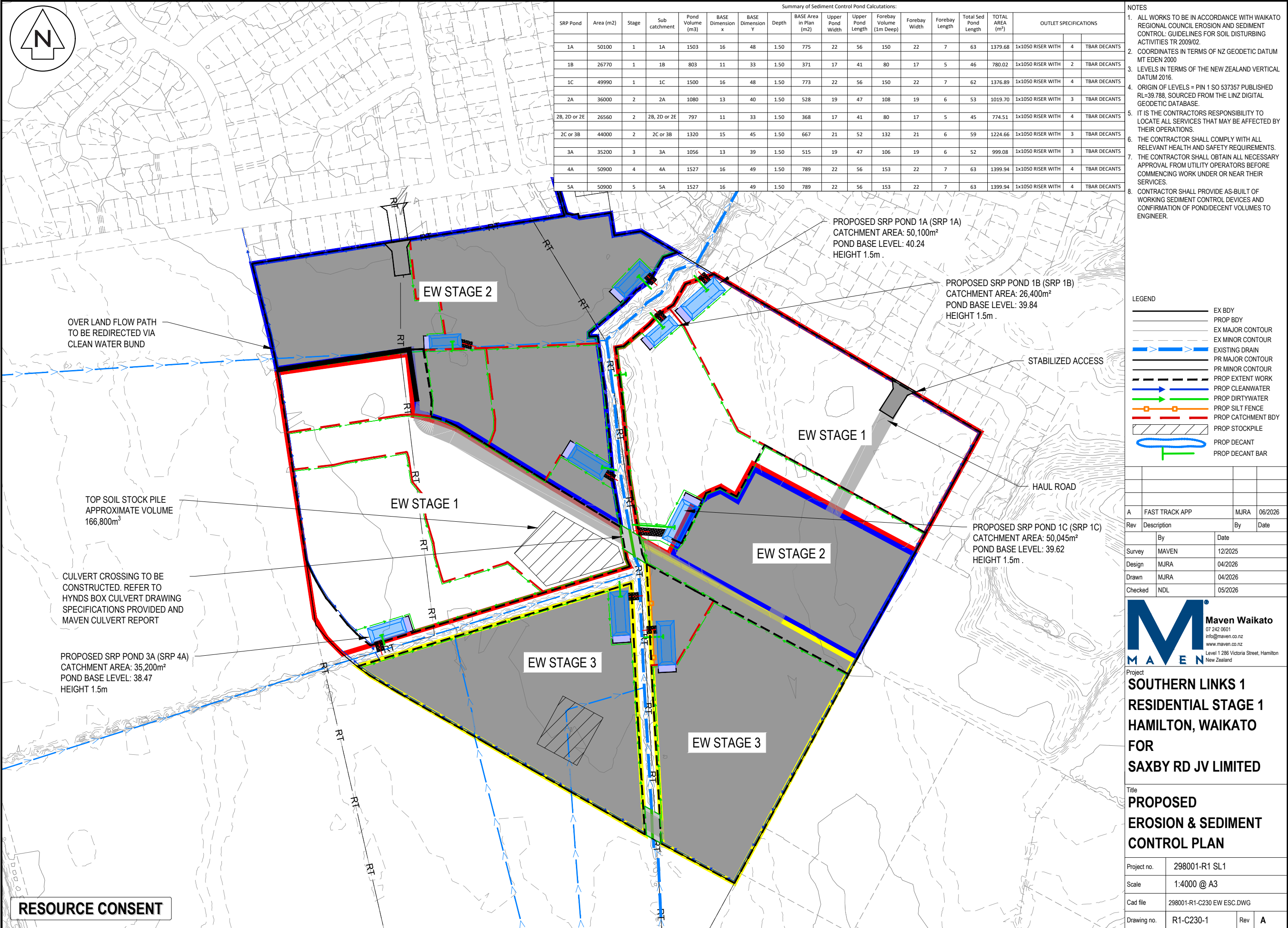
Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
EROSION & SEDIMENT
CONTROL PLAN**

Project no.	298001-R1 SL1
Scale	1:4000 @ A3
Cad file	298001-R1-C230 EW ESC.DWG
Drawing no.	R1-C230
Rev	A

DATE: 6/9/25 FILEPATH: F:\MVEN\HAMILTON\6 PROJECTS\298001 - SOUTHERN LINKS 1\B10\298001-R1-C230 EW ESC.DWG

RESOURCE CONSENT



LEGEND

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	EXISTING DRAIN
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
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A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
	By	Date	
Survey	MAVEN	12/2025	
Design	MJRA	04/2026	
Drawn	MJRA	04/2026	
Checked	NDL	05/2026	



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Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
EROSION & SEDIMENT
CONTROL PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C230 EW ESC.DWG		
Drawing no.	R1-C230-1	Rev	A



PROPOSED SRP POND 2A (SRP 2A)
CATCHMENT AREA: 36,000m²
POND BASE LEVEL: 38.93
HEIGHT 1.5m

PROPOSED SRP POND 2B/2D
(SRP 2B/2D)
CATCHMENT AREA:
26,560m²/7,770m²/14,150m²
POND BASE LEVEL: 38.02
HEIGHT 1.5m

PROPOSED SRP POND 2C/3B
(SRP 2C & 3B)
CATCHMENT AREA: 20,100m²
/44,000m²
POND BASE LEVEL: 38.24
HEIGHT 1.5m .

PROPOSED SRP POND 1C (SRP 1C)
CATCHMENT AREA: 50,045m²
POND BASE LEVEL: 39.62
HEIGHT 1.5m .

Summary of Sediment Control Pond Calculations:																		
SRP Pond	Area (m2)	Stage	Sub catchment	Pond Volume (m3)	BASE Dimension x	BASE Dimension Y	Depth	BASE Area in Plan (m2)	Upper Pond Width	Upper Pond Length	Forebay Volume (1m Deep)	Forebay Width	Forebay Length	Total Sed Pond Length	TOTAL AREA (m²)	OUTLET SPECIFICATIONS		
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3A	35200	3	3A	1056	13	39	1.50	515	19	47	106	19	6	52	999.08	1x1050 RISER WITH	3	TBAR DECANTS
4A	50900	4	4A	1527	16	49	1.50	789	22	56	153	22	7	63	1399.94	1x1050 RISER WITH	4	TBAR DECANTS
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	PROP CATCHMENT BDY
	PROP STOCKPILE
	PROP DECANT
	PROP DECANT BAR

A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
Survey	MAVEN		12/2025
Design	MJRA		04/2026
Drawn	MJRA		04/2026
Checked	NDL		05/2026

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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
EROSION & SEDIMENT
CONTROL PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C230 EW ESC.DWG		
Drawing no.	R1-C230-2	Rev	A

RESOURCE CONSENT

DATE: 6/9/25 FILEPATH: F:\MAVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STG1\DWG\298001-R1-C230 EW ESC.DWG



Summary of Sediment Control Pond Calculations:																		
SRP Pond	Area (m2)	Stage	Sub catchment	Pond Volume (m3)	BASE Dimension x	BASE Dimension Y	Depth	BASE Area in Plan (m2)	Upper Pond Width	Upper Pond Length	Forebay Volume (1m Deep)	Forebay Width	Forebay Length	Total Sed Pond Length	TOTAL AREA (m²)	OUTLET SPECIFICATIONS		
1A	50100	1	1A	1503	16	48	1.50	775	22	56	150	22	7	63	1379.68	1x1050 RISER WITH	4	TBAR DECANTS
1B	26770	1	1B	803	11	33	1.50	371	17	41	80	17	5	46	780.02	1x1050 RISER WITH	2	TBAR DECANTS
1C	49990	1	1C	1500	16	48	1.50	773	22	56	150	22	7	62	1376.89	1x1050 RISER WITH	4	TBAR DECANTS
2A	36000	2	2A	1080	13	40	1.50	528	19	47	108	19	6	53	1019.70	1x1050 RISER WITH	3	TBAR DECANTS
2B, 2D or 2E	26560	2	2B, 2D or 2E	797	11	33	1.50	368	17	41	80	17	5	45	774.51	1x1050 RISER WITH	4	TBAR DECANTS
2C or 3B	44000	2	2C or 3B	1320	15	45	1.50	667	21	52	132	21	6	59	1224.66	1x1050 RISER WITH	3	TBAR DECANTS
3A	35200	3	3A	1056	13	39	1.50	515	19	47	106	19	6	52	999.08	1x1050 RISER WITH	3	TBAR DECANTS
4A	50900	4	4A	1527	16	49	1.50	789	22	56	153	22	7	63	1399.94	1x1050 RISER WITH	4	TBAR DECANTS
5A	50900	5	5A	1527	16	49	1.50	789	22	56	153	22	7	63	1399.94	1x1050 RISER WITH	4	TBAR DECANTS

- 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. ORIGIN OF LEVELS = PIN 1 SO 537357 PUBLISHED RL=39.788, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
 5. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY THEIR OPERATIONS.
 6. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
 7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
 8. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

LEGEND	
	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	EXISTING DRAIN
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PROP EXTENT WORK
	PROP CLEANWATER
	PROP DIRTYWATER
	PROP SILT FENCE
	PROP CATCHMENT BDY
	PROP STOCKPILE
	PROP DECANT
	PROP DECANT BAR

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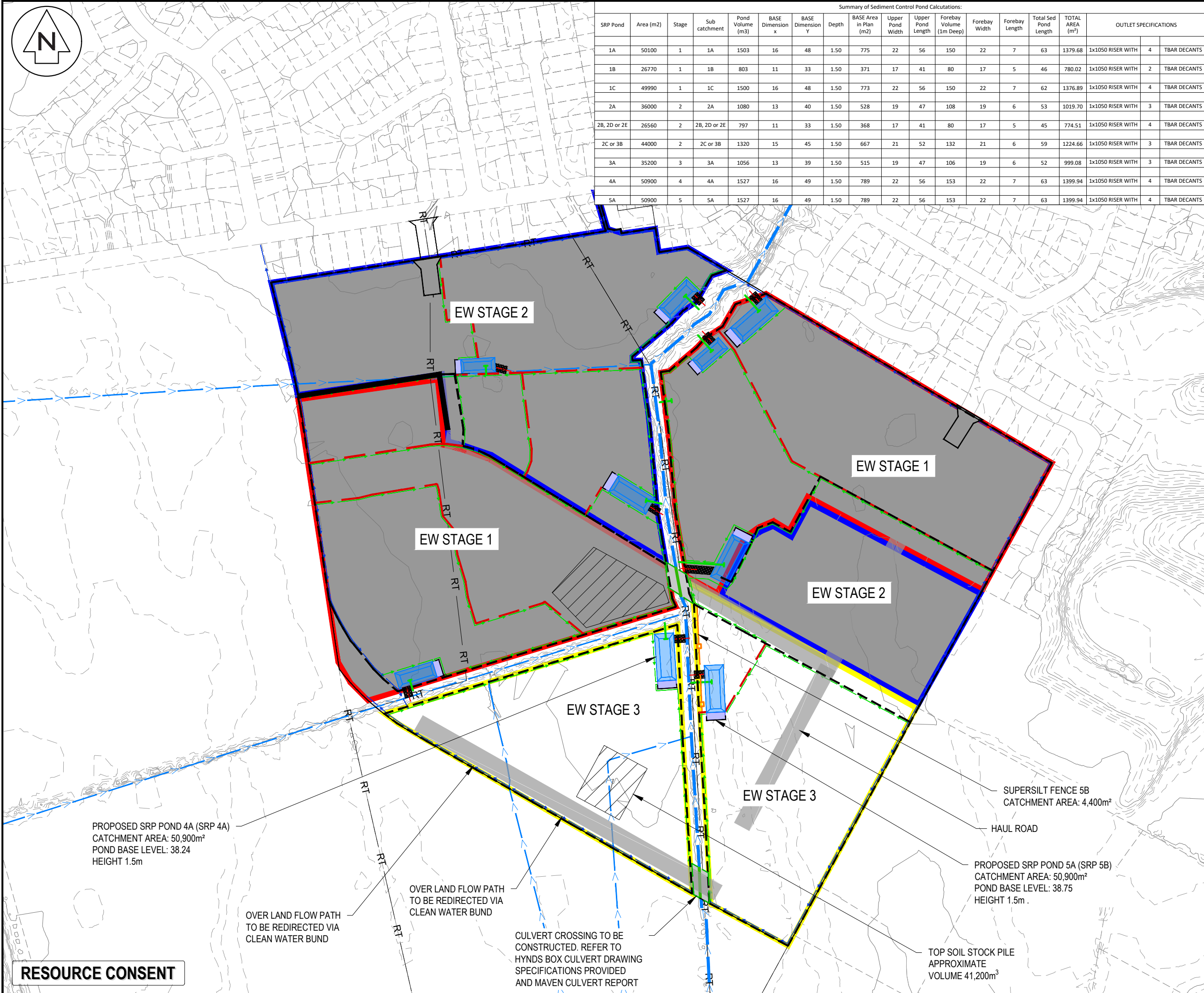


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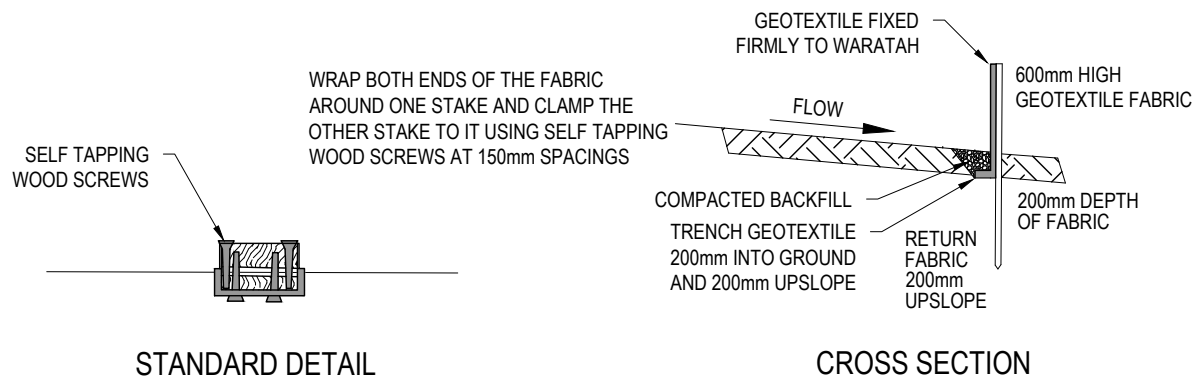
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Project no.	298001-R1 SL1
Scale	1:4000 @ A3
Cad file	298001-R1-C230 EW ESC.DWG
Drawing no.	R1-C230-3
Rev	A

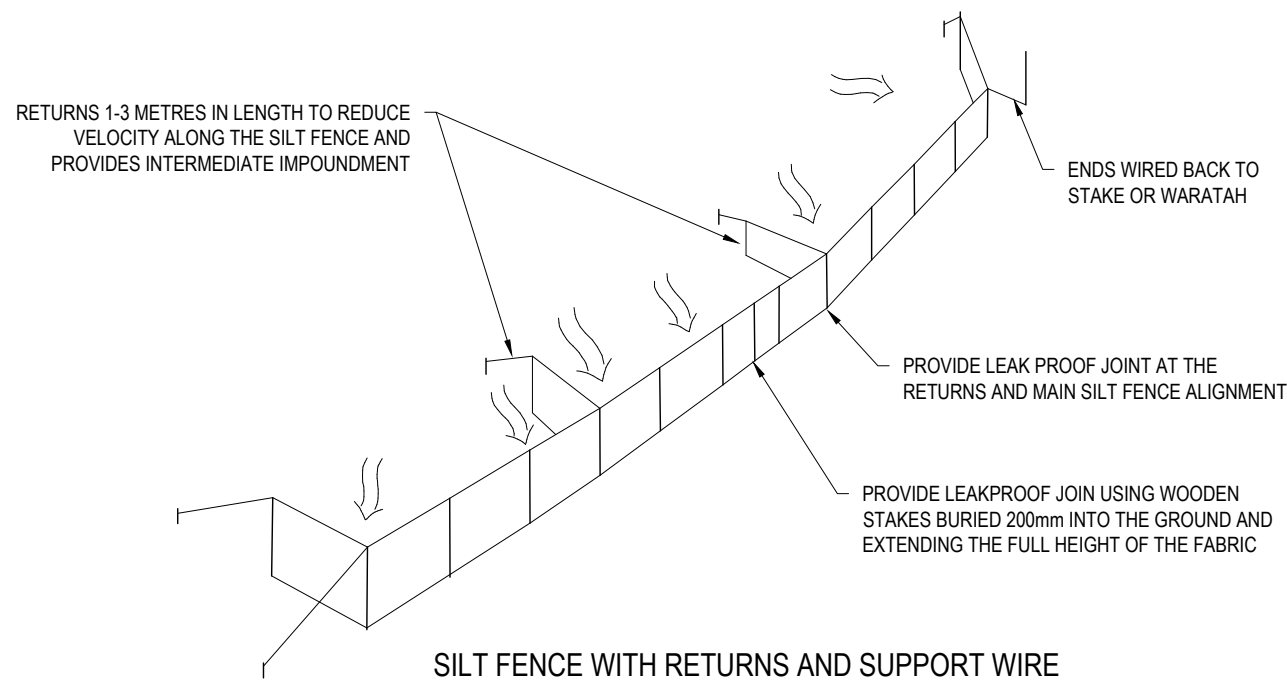
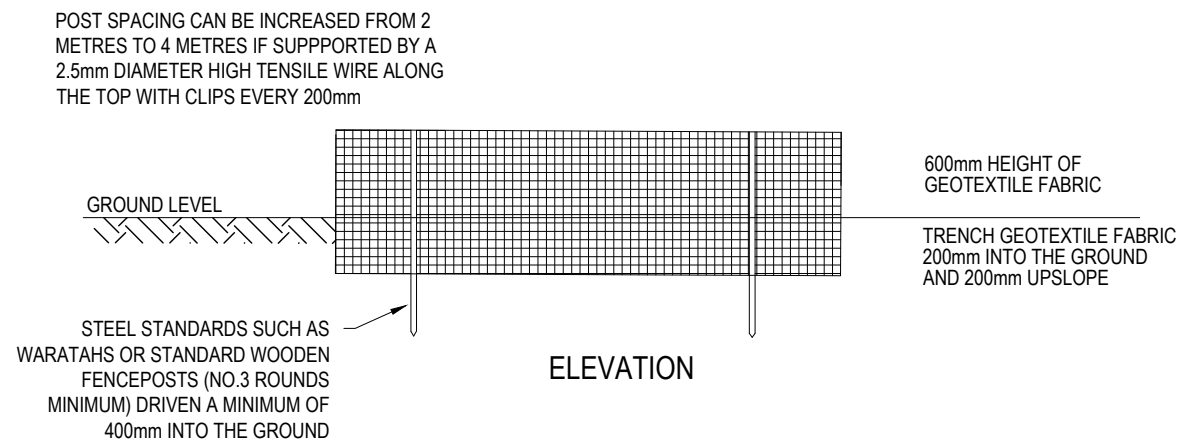


RESOURCE CONSENT

DATE: 9/2/25 FILEPATH: F:\MAVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STG1\R1\DWG\298001-R1-C240 EW ESC DETAILS.DWG



FABRIC JOIN



RESOURCE CONSENT

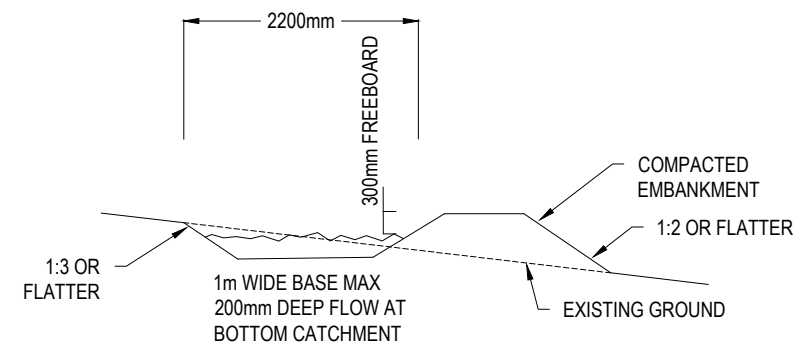
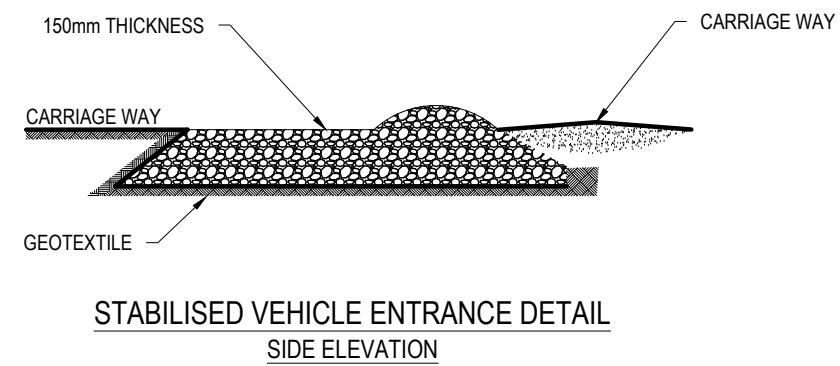
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Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		11/2025
Drawn	MKS		11/2025
Checked	DJM		11/2025

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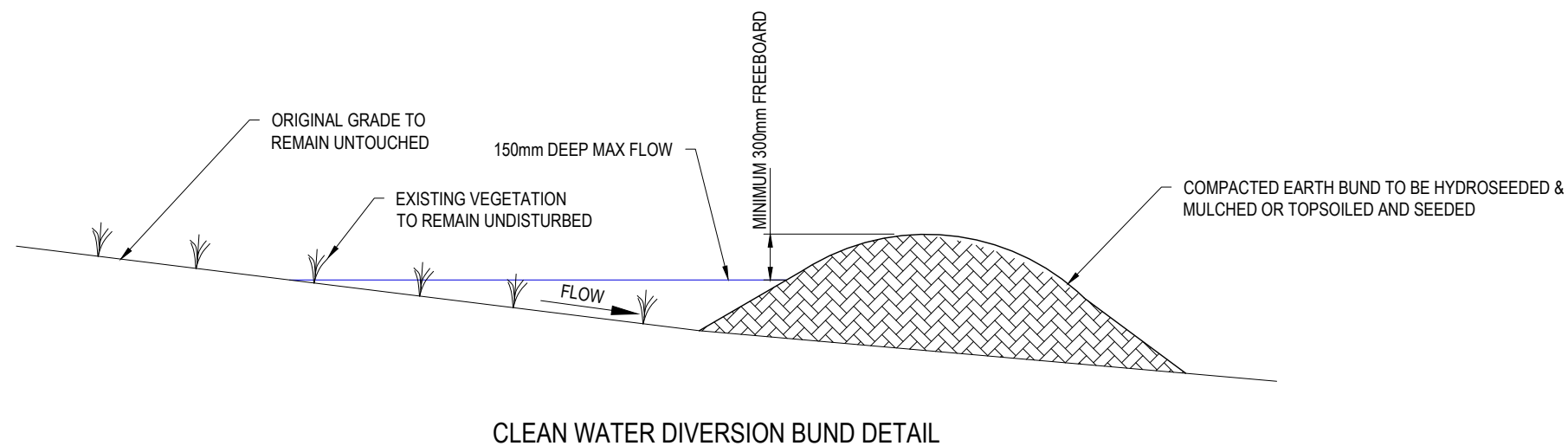
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Project no.	298001-R1 SL1
Scale	N.T.S.
Cad file	298001-R1-C240 EW ESC DETAILS.DWG
Drawing no.	R1-C240-1
Rev	A



TYPICAL CROSS SECTION OF A RUNOFF DIVERSION
TYPICAL DIMENSIONS UNLESS OTHERWISE NOTED



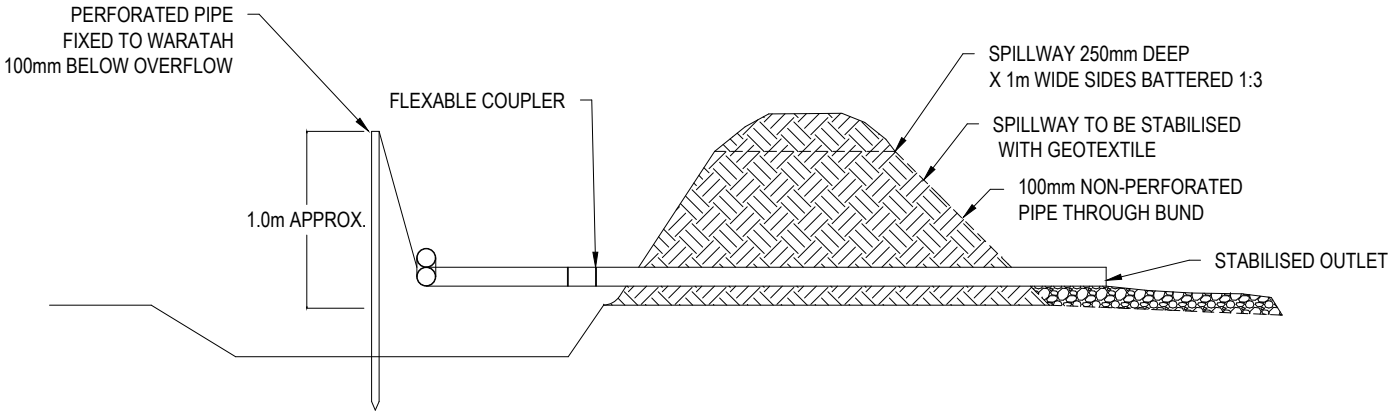
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Rev	Description	By	Date
	By	Date	
Survey	MAVEN	06/2025	
Design	MKS	11/2025	
Drawn	MKS	11/2025	
Checked	DJM	11/2025	



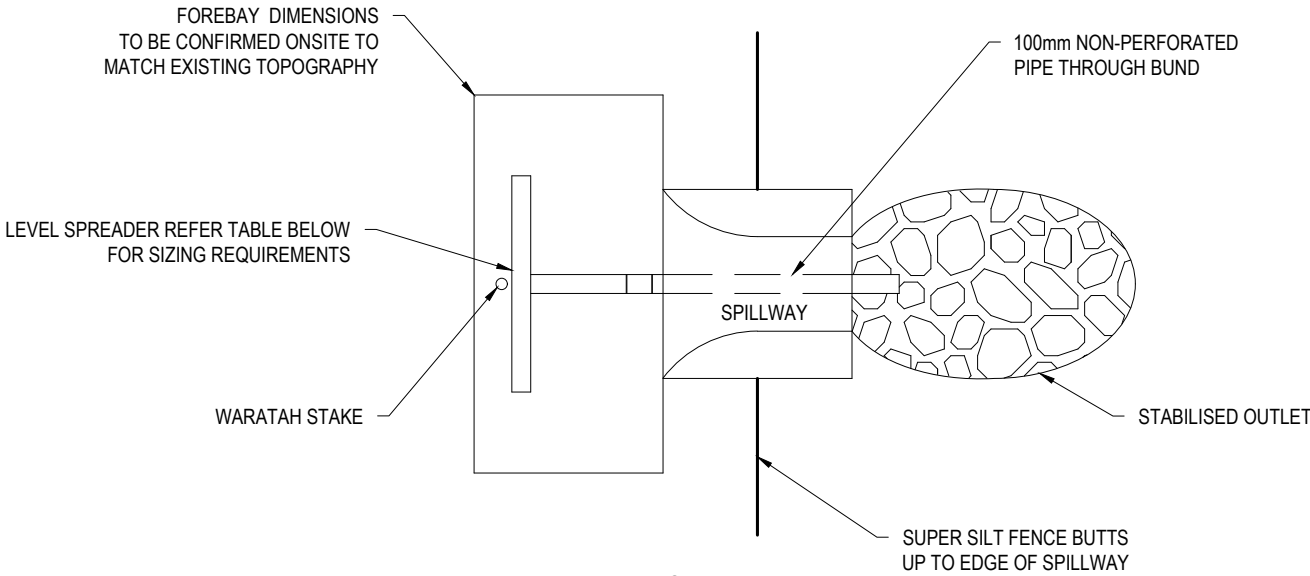
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Project no.	298001-R1 SL1		
Scale	N.T.S.		
Cad file	298001-R1-C240 EW ESC DETAILS.DWG		
Drawing no.	R1-C240-2	Rev	A



EARTH BUND DECANT DETAIL A
N.T.S



DECANT PLAN VIEW
N.T.S

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

RESOURCE CONSENT

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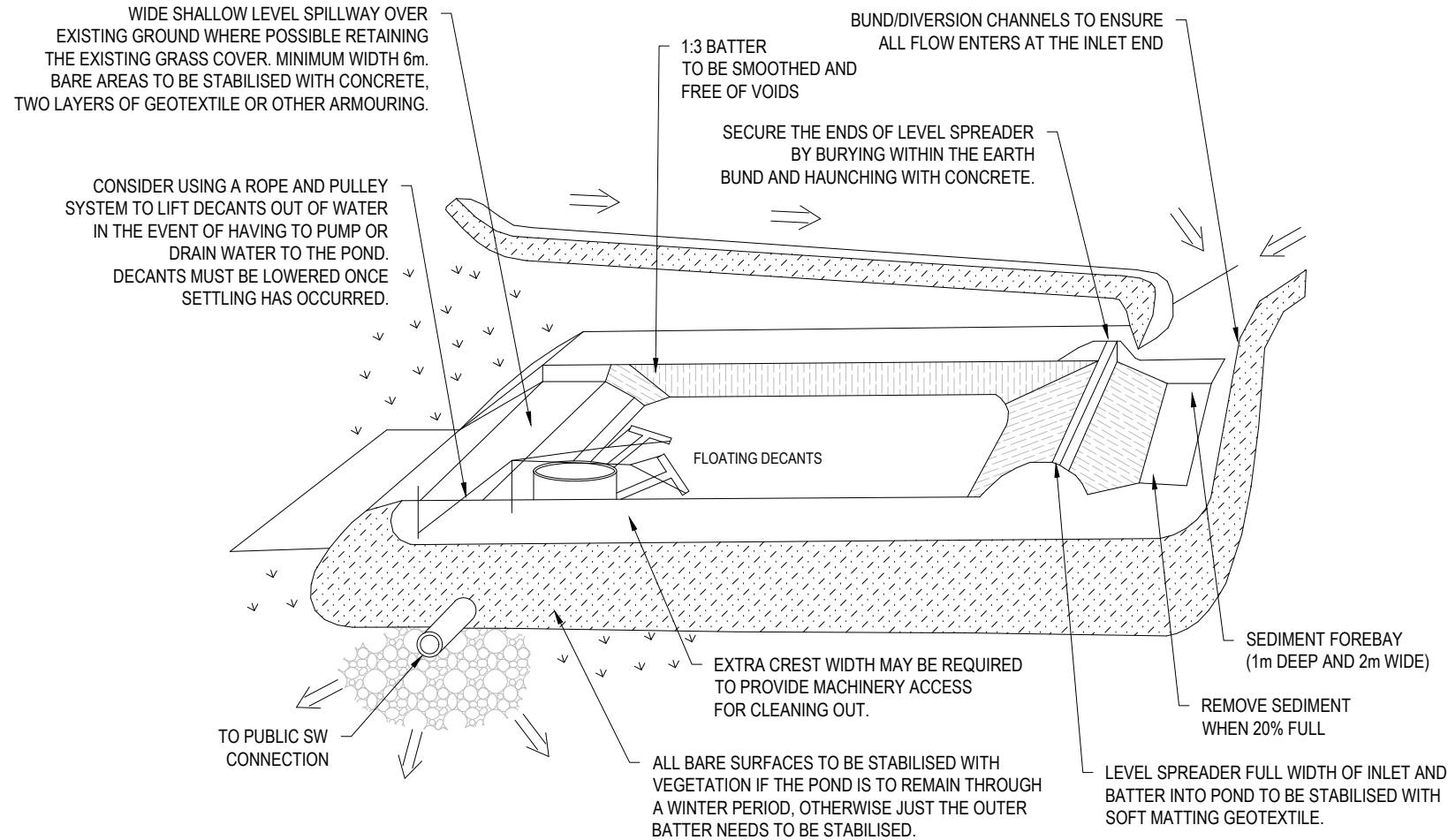
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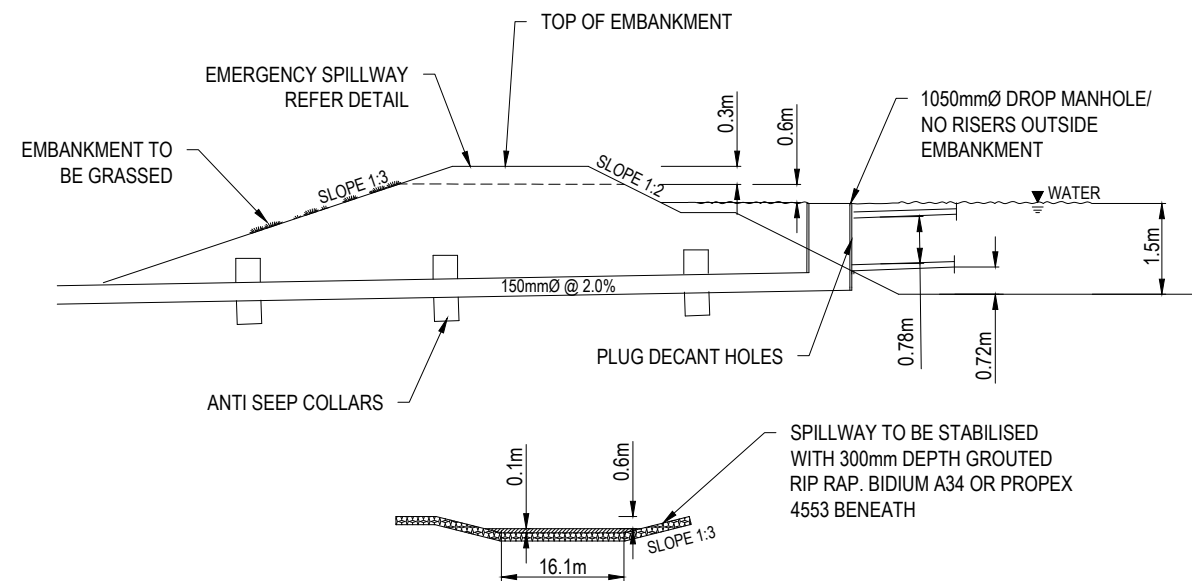
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Project no.	298001-R1 SL1		
Scale	N.T.S.		
Cad file	298001-R1-C240 EW ESC DETAILS.DWG		
Drawing no.	R1-C240-3	Rev	A



CROSS SECTION A-A OF SEDIMENT TREATMENT POND



EMERGENCY SPILLWAY

A	FAST TRACK APP	PK	06/2026
Rev	Description	By	Date

	By	Date
Survey	MAVEN	06/2025
Design	MKS	11/2025
Drawn	MKS	11/2025
Checked	DJM	11/2025

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Project no.	298001-R1 SL1
Scale	N.T.S.
Cad file	298001-R1-C240 EW ESC DETAILS.DWG
Drawing no.	R1-C240-4
Rev	A

RESOURCE CONSENT