

Project Number: 5-C4353.54

WAKA KOTAHI NZ TRANSPORT AGENCY WEIGH RIGHT PROGRAMME

BOMBAY COMMERCIAL VEHICLE SAFETY CENTRE



Landscape Maintenance and Management Plan

25/01/2024



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Document History and Status

REVISION	DATE	AUTHOR	REVIEWED BY	APPROVED BY	STATUS
A	16/01/2024	Abby Liang	Terry Palethorpe	Fariz Rahman	Draft
B	24/01/2024	Abby Liang	Terry Palethorpe	Fariz Rahman	Final Draft

Revision Details

REVISION	DETAILS
A	Draft for client review
B	Updated notes regarding the planting of the Terramesh retaining wall

Acronyms and Abbreviations Used

REVISION	DETAILS
HCVs	Heavy Commercial Vehicles
LMMP	Landscape Maintenance and Management Plan
P39	NZTA (Waka Kotahi) Standard Specification for Highway Landscape Treatments



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1 Introduction

1.1 General

The overall Project area is an approximately 1.233 hectares greenfield site located 250 m east of the Bombay / Pukekohe Interchange at 253 Mill Road, Bombay, South Auckland. The Project proposes the establishment of a Commercial Vehicle Safety Centre (CVSC), which is used to detect and assess the safety of Heavy Commercial Vehicles (HCVs) using State Highway 1.

The Project involves the construction of key components comprising new buildings, asphalt surfacing, ancillary site furniture, earthworks and retaining structures along the northern, eastern and southern boundaries.

A range of landscape treatment measures are proposed to mitigate potential adverse landscape and visual effects. These include screen planting along the site boundaries, low amenity planting adjacent to the compliance building, planting around the proposed stormwater outlet and planting a portion of the adjacent induced wetland that falls within the designation boundary.

1.2 Purpose and scope

This Landscape Maintenance and Management Plan (LMMP) is prepared in response to the Auckland Council s92 request regarding landscape matters. In accordance with NZTA (Waka Kotahi) Standard Specification for Highway Landscape Treatments (P39), best practices are adopted to ensure successful and sustainable plant establishment and coverage at the end of the defects liability and maintenance period.

The LMMP sets out the landscape objectives and specific treatment measures for the site, along with the implementation and management of each proposed landscape component, and the associated maintenance works required.

1.3 Site Information

The Project site is in a rural working environment setting, with built development within the immediate vicinity of the Project including dwellings and accessory buildings related to farming activities. Numerous rural business operations with associated sheds and buildings are located within the wider landscape. A modified natural intermittent stream connects an induced wetland located at the northeast corner of the site and the Ngakoroa stream, which is located to the north of the site. A portion of the wetland (approximately 210m² in size) is located within the designation boundary, but is outside the footprint of the Project works.

1.4 Landscape Objectives and Treatment Measures

A range of landscape measures are proposed to remedy and mitigate potential adverse effects of the Project. The key landscape design objectives and treatment measures are described in Table 1 below:

Landscape Objectives	Proposed Treatments
Screen views into the site to retain rural character of the landscape	Planting along the site boundaries to visually screen the proposed facilities, structures and pavement.

Remedy the potential changes to the local landscape and rural character, enhance the rural and natural values of the wetland	Riparian planting of the wetland within the designation boundary to remedy the changes to the local landscape and rural character, and to link and integrate areas of planting to enhance natural character values. Screen planting which integrates with rural vegetation patterns in the wider landscape.
Mitigate potential adverse visual effects of paving, buildings and retaining structures	The use of grassed and planted Terramesh retaining walls to visually soften and integrate the walls in the landscape. These walls will be planted with both grass and <i>Muehlenbeckia complexa</i> . Additionally, low shrubs along the walls in between adjacent hard-seal edges will further reduce the visual effects. Amenity planting within the site to visually soften the extent of paving and buildings.
Maintaining vehicle clearance and sightline requirements for safe vehicular and pedestrian use	Planting of low growing native vegetation along the western site frontage, new building, and along the full length between the Terramesh walls and hard seal surface. Screen planting on the western site frontage is positioned (and maintained) so as not to obstruct sightlines.
Reinstate areas of the wider construction footprint outside of the designation boundaries	Areas outside of the designation boundary are to be reinstated to pasture and integrated with adjoining farmland external to the site.

Table 1: Landscape Objectives and Treatment Measures

1.5 Temporary Construction Treatments

In addition to the treatment measures above, the following measures are proposed to address potential issues that might arise during the construction period:

- Limit the extent of exposed earthworks and the duration of exposure where feasible.
- Locate access for construction vehicles in areas where visual effects are minimised.
- Locate and form stockpiles of materials and/or hard fill in areas where visual effects are minimised.
- Restore disturbed areas of land to a grassed surface where immediate planting is not possible due to being outside the planting season.

2 Landscape Implementation

This section outlines measures to be taken during the implementation of all proposed landscape works.

2.1 Roles and responsibilities

All personnel working on the Project who might affect landscape outcomes should be informed of and adhere to the requirements set out in this LMMP, including the following aspects relating to landscape implementation and management:

- Information on how construction activities have the potential to cause adverse impacts on landscape characters and values.
- A clear articulation of the Landscape Objectives and Treatment Measures for the Project.
- Consent requirements

Prior to any site clearance and earthworks being undertaken, the project team shall meet on site to go through the drawings and specifications to identify any potential issues and hazards and discuss the work programme.

Prior to undertaking the works, the appointed Landscape Contractor shall consider and refine how implementation and maintenance of the landscape works will be carried out to avoid creating areas that would be costly and inefficient to maintain, in consultation with the main Contractor or Project Supervisor.

2.2 Plant Implementation and Management

Detailed landscape plans have been prepared to address the extent and location of landscape planting (refer to Attachment A). The design is to be implemented and maintained in accordance with Waka Kotahi P39 standards, and to meet the performance criteria to achieve the quality landscape outcomes sought by NZTA. These include ground preparation expectations, eco-sourcing requirements, plant stock quality, species diversity, plant establishment expectations and establishment management requirements. Any proposed changes in implementation and maintenance practices are also to be reviewed and applied in such a way as to meet the design objectives.

Landscape works shall be a key consideration in the sequence of the wider construction project. All planting shall be carried out within the planting season (begins 1st April and ends 1st September, subject to regional variations) and to construction programmes. This means that when construction is completed, planting may not be immediately possible at that time of year and instead will take place in the following planting season. All earthworks upon completion will be hydroseeded or protected by some other means to stabilise the surface and reduce runoff, erosion and dust. The areas designated for planting shall be sprayed 2 to 3 times (as required) with an approved herbicide to eliminate grass and any weeds. These spraying applications shall be carried out two weeks apart and two weeks prior to final clearing for planting, in accordance with P39 Section D: Plant Pest Control and Animal Pest Control.

Table 2 below describes the relevant sections in P39 that will apply to this project. These sections will specify the requirements for landscape implementation to achieve the quality landscape outcomes sought by NZTA.

P39 Sections	Relevant Information
Section A: General	Includes general information on materials, workmanship and other applicable codes and standards.

	<p>This section also describes the performance criteria necessary to achieve the quality landscape outcomes desired by NZTA. It includes the acceptable criteria for plant and grass coverage both at practical completion and at the end of the Defects Liability and Maintenance period.</p>
<p>Section B: Quality Control, Inspections and Reporting</p>	<p>Includes information on quality control of plant materials and workmanship, reporting and inspection requirements.</p> <p>Note during the implementation stage, samples of planted areas will be inspected as part of the quality control requirements.</p>
<p>Section C: Site Preparation</p>	<p>Identifies site preparation information including vegetation clearance, erosion and sediment control, earthworks, existing on-site topsoil quality control and testing requirements.</p>
<p>Section D: Plant Pest Control and Animal Pest Control</p>	<p>Information on general plant pest and animal pest control methodology and requirements. Note plant pests are to be controlled across the designation during the construction works and during the Defects Liability and Maintenance Period (unless otherwise stated in the contract).</p> <p>The Contractor is required to submit a detailed methodology and programme report for the approval of the Landscape Architect prior to site inspection and planting.</p> <p>Note refer to P39 Section E 3.4 for information on biosecurity control of pest animals including Argentine ants and rainbow skinks.</p>
<p>Section E: Plant Propagation</p>	<p>Describes important information and requirements on plant propagation including eco-sourcing, inspection and reporting, and delivery of plant materials.</p> <p>Note where required by Consent conditions, all plants shall be sourced from the same Ecological District (Manukau Ecological District) the work site is within.</p> <p>During the propagation process the Contractor is required to notify the Landscape Architect for inspection. Final inspection of plant materials will be conducted by the Landscape Architect on arrival of the materials on site to confirm acceptance, with the contractor present.</p>
<p>Section F: Topsoil Supply</p>	<p>Describes aspects of topsoil supply and testing requirements; it also includes information on required topsoil depths in various planted areas including grassed areas, shrub beds and tree pits.</p>
<p>Section G: Planting</p>	<p>Describes specifications and requirements of planting works, including preparation, plant supply, skating, fertilising, watering and mulching.</p>
<p>Section H: Grassed Surfaces and Section I:</p>	<p>Describes the planting and establishment requirements on grassed surfaces, including hydroseeding and specialist surfaces.</p>

Hydroseeding Grassed (& specialist surfaces)	<p>Note that the vertical faces of the Terramesh retaining walls shall be treated as specialist grassed surfaces, and are subjected to weed control requirements (with no mowing requirement due to geometric constraints).</p> <p>Planting of the Terramesh walls shall be in accordance with the manufacturers specifications and engineering requirements to ensure the integrity of the walls are maintained.</p>
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Table 2: Summary of the relevant sections in P39 that will apply to this project. Refer to the P39 document for more detailed information.

3 Landscape Maintenance

3.1 General

Following the Practical Completion of the planting, a five-year Defects Liability and Maintenance period will come into effect. During this period, the Contractor will be responsible for maintaining all grassed surfaces and planting.

Key maintenance tasks required over the Defects Liability and Maintenance period:

- Checking all planted areas to ensure plants are maintained in good health and tidy conditions and check if remediation and replanting is required. Maintenance activities for planted areas include (but not limited to) weed and pest control, pruning, re-mulching, fertilisation, and replanting where necessary.
- Regular checks for problem weeds, especially those that are aggressive and invasive, and to deal with these in the early stages of infestation when control is relatively easy.
- Allow for self-seeding where appropriate.
- Check trees and large screen planting for any pruning, re-staking, re-mulching, fertilisation and replanting actions as required.
- Observation to detect and notify the main Contractor / Project Supervisor of any damage from pests and diseases, waterlogging, and vandalism.
- Checks following heavy rainfall or long dry periods so remedial actions can be taken if required.
- Modification of planting around the wetland and stormwater management areas to align with water levels, including seasonal variations.
- Modification to planting around barriers, signages and other structures to ensure setbacks are maintained.
- Modifications to planting around pedestrian access routes to ensure planting does not obscure visibility or access.
- Checking of Terramesh retaining walls to suppress perennial and invasive weeds to ensure tidy amenity appearance.
- Inspecting for any plant damage due to animal grazing and taking immediate remedial actions, such as installing a farm fence to discourage grazing and replanting the lost species as required.

The Contractor is responsible for remedy of all defects relating to landscape treatment works at the first available opportunity or within a reasonable time of being notified by the Landscape Architect. Replanting shall be addressed within the planting season. Refer to P39 Section K that describes further requirements on addressing defects of various landscape components.

3.2 Maintenance Plan and Schedule

The Contractor shall develop a Maintenance Plan outlining monthly work plan and check list based on the guidance Maintenance Schedule included in P39 Section K 2.2 and submit to the Landscape Architect for approval. This Maintenance Plan shall include information on the number of maintenance visits proposed for the years throughout the Defects and Liability Period. Maintenance frequency is generally on a decreasing scale (refer to P39 Section L 2.0 for further information).

Watering, pest and disease control associated with defects liability of landscape treatments shall be at a frequency proposed by the Contractor and agreed with the Landscape Architect.

In addition, the Contractor shall supply to the Landscape Architect a Maintenance Schedule which details the location and dates of proposed visits and detail of work to be undertaken.

3.3 Specific Maintenance Requirements

3.3.1 *Weed Management*

Controlling and managing weeds will be a major factor for both plant establishment and its ongoing management. The Contractor is responsible for removal and control of weeds throughout the whole period of maintenance. Removal of weeds at the end of the Defects Liability and Maintenance Period only will not be acceptable.

While it is preferable for weeds to be removed by hand, if herbicides are used this shall be applied by spot spraying rather than blanket spraying to avoid potential adverse effects on the plants being maintained. Spraying shall only be non-residual contact herbicide and appropriate for use and applied by a suitable qualified Registered Spray Applicator.

For further requirements on weed management, refer to P39 Section K 6.3.

3.3.2 *Pruning*

All pruning shall be undertaken in accordance with a Health and Safety Plan.

Following good arboriculture practice, trees and shrubs shall be pruned to maintain vehicle sightlines and develop a balanced foliage structure suitable to the species where required. Pruning of specimen trees shall be undertaken as required.

All material from pruning shall be removed to waste as they arise, leaving the planting and grass areas in a clean and tidy condition.

Refer to P39 Section K 6.7.3 for detailed tree pruning requirements.

3.3.3 *Mulch and Geofabric*

The Contractor shall maintain and top up mulch depths to the original specified depth of 100mm to avoid inadequate mulch depths contributing towards excessive weed growth. Additional mulch shall be spread to ensure an even surface, and care shall be taken to keep the mulch clear of plant stems. Areas where mulch has been compacted due to service or construction machinery creating anaerobic conditions shall be aerated by forking without disturbing the soil surface. See P39 Section G 3.9 for installation requirements on mulch.

The Contractor shall check areas of Geofabric (BioMac CJ450 or equivalent approved) for any damage that has caused gaps and exposed the soil underneath. If gaps are detected, the

Contractor shall cover the affected areas with a patch of Geofabric /coconut matting cut to size and extend 300mm beyond the edges. This matting will help suppress weeds while plants become established. If plants have not established and covered the area, manual removal or spraying may be needed for weed control.

3.3.4 Stakes and Ties

The Contractor shall repair stakes and ties, which are broken, and adjust ties to prevent chaffing to plant stems. Plants must be supported in such a way as to protect the plant and stem from damage. The Contractor is responsible for the supply and replacement of stakes and ties, and shall ensure that all stakes are driven firmly into the ground to prevent lateral movement. Broken stakes shall be replaced.

Refer to P39 Section C 3.5, and 5.7 for stake and tie installation requirements.

3.3.5 Fertiliser

The Contractor shall apply slow-release fertiliser to the plants at the time of plant installation. Further applications of approved slow-release fertiliser shall be applied in accordance with the Maintenance Schedule (see Section 3.2 of this LMMP), to the requirements outlined in P39 Section K 6.4.

3.3.6 Plant Health – Pests and Diseases

Planting shall be kept in good health, free of pests and diseases. The Contractor shall check and monitor plant health and diseases and apply the appropriate remedy methods throughout the period of maintenance. Refer to P39 Section D for further information.

3.3.7 Wetland planting

Wetland plants require weed removal and replacement of dead or damaged plants. The Contractor shall check water levels regularly, especially after severe weather events such as heavy rainfall or prolonged dry periods, to promptly take remedial actions. The Contractor shall monitor planting around wetland and outlets to ensure alignment with suitable water levels for the growth of specific plant species.

Certain herbicides cannot be used in wetlands due to their impacts on aquatic environments. The Contractor is responsible for seeking specialist advice (e.g. territorial authority guidance) on the use of herbicides within wetland planting areas.

Fertiliser shall not be applied to wetland plants.

3.3.8 Grass mowing

Areas within the construction footprint and beyond the designation boundaries are to be reinstated with appropriate pasture grass and are to be protected against traffic by the Contractor until the grass is well established. The Contractor is responsible to ensure the grass is maintained at a maximum height of 200mm, or any other height approved by the Landscape Architect.

3.3.9 Trimming edges

Edges include roads and driveway edges, around pavement, buildings, footpaths, fences, light poles, signs, cesspits, and the like. Edges shall be trimmed by the Contractor to provide a neat and tidy appearance. Where manual methods of control are used, the protruding vegetation

shall be cut by use of weed-eaters, clippers or some other mechanical device that make a precise, even cut. Refer to P39 Section K 6.8.2 Trimming.

3.3.10 Infill Planting

Infill planting may be required in planting areas, depending on plant health and success.

Where shrubs and groundcover planting has died and left gaps in the vegetation cover, the Contractor shall replace these gaps with supplementary planting to establish a 100% cover. Any trees or screen planting that have died shall be replaced. Replacement planting shall consist of the same species as in the original design, and in a consistent spacing and pattern as the original layout. When applicable, replacement species should match the adjacent healthy plants of the same category.

If more than 10% of an individual plant species has failed and it is obvious that a particular plant species is not suited to the growing conditions, then a substitution species will be required. The Contractor shall seek the Landscape Architect's advice on a suitable replacement.

The Contractor shall carry out all infill planting within the current or nearest planting season (typically 1st April to 1st September).

3.3.11 Terramesh Retaining Wall

The proposed Terramesh wall includes both grass cover and planting. The vertical facing will be treated as specialist grassed surfaces that is subject to weed control requirements (without the need for mowing requirement due to geometric constraints).

Grass cover and planting shall meet the performance criteria outlined in P39 Section H.

3.3.12 Watering

All plants shall be thoroughly watered a few hours prior to planting.

The Contractor is responsible for ensuring that all planting beds receive sufficient water that supports plant growth.

Watering adjustments shall be made as needed to accommodate seasonal fluctuations. The Contractor shall water all plants over periods of dry weather and undertake additional watering to ensure plant survival and growth as part of the Contractor's obligations relating to Defects Liability.

The Contractor is responsible for ensuring a suitable water supply for plant watering (using water carts if necessary). The Contractor may choose to use an automatic irrigation system installed at their own expense.

4 Performance Monitoring

4.1 Maintenance Visit Frequency

Maintenance visits shall be undertaken by the Contractor in accordance with the Maintenance Plan (see Section 3.2). Additional visits may be undertaken as required to achieve plant establishment and coverage of the ground.

4.2 Site Visit Record

The Contractor shall keep site visit records and Maintenance Schedule which details the location, dates of visits and details of work undertaken and shall include specific maintenance tasks as listed in Section 3.3 where applicable. The Contractor shall make these records available to the Landscape Architect upon request.

4.3 Performance Criteria

To achieve quality establishment of all landscape components, the Contractor is required to meet the P39 Performance Criteria for each activity following practical completion, defects liability and maintenance period and contract completion. These criteria are listed in P39 Section K 1.1, and the relevant items for this Project are described below:

- *All ground preparation, topsoil and mulch shall support plant growth.*
- *All planting shall include quality plant stock, true to form and shape with healthy signs of growth.*
- *All associated plant ancillaries (such as matting, tree stakes and ties) shall meet P39 specification requirements.*
- *All planting shall be 100% completed at practical completion.*
- *At the completion of the defects liability and maintenance period, 10% maximum plant loss shall be acceptable for grades smaller than 15Litres / PB28, provided that the losses are spread evenly throughout the planting and there are no noticeable bare patches.*
- *All larger plant grades 15Litres/PB28 and over shall be 100% complete at practical completion, with no loss being acceptable at the completion of the defects liability and maintenance period (by contract completion).*
- *Planting shall achieve an 80% canopy coverage of the ground by contract completion.*
- *Grass covers and hydro seeding coverage shall achieve 95% coverage of the area by contract completion with no single area of exposed soil greater than 100mm diameter in any one location.*
- *The effects of pest plants shall be managed by the Contractor to ensure the establishment of all plantings and amenity outcomes. Limiting the distribution of pest plants that result in costly retrospective maintenance across the network is required of the Contractor through the contract period.*
- *All defects shall have been progressively rectified during the defects period and prior to issue of the Defects Liability Certificate.*
- *At contract completion, the Landscape Architect nominated in the tender shall complete a producer statement. The statement shall confirm that the contract works have been undertaken in accordance with the plans and specification. NZTA may accept the producer statement as evidence the landscape works comply with the landscape design and the requirements included in the NZTA Standard Specification for Highway Landscape Treatments.*



ATTACHMENT A: LANDSCAPE DRAWING SET



- LEGEND**
- DESIGNATION BOUNDARY
 - PROPERTY BOUNDARY
 - SECURITY FENCE
 - PERMANENT FARM FENCE
 - EXISTING STOCK FENCE
 - TIMBER RETAINING WALL
 - TEMPORARY CONSTRUCTION FENCE
 - OBSERVED WETLAND
 - CONCRETE PAVING
 - PLANTED TERRAMESH RETAINING WALL
 - AMENITY PLANTING (MAX. 1M HIGH)
 - EDGE PLANTING (MAX. 1M HIGH)
 - WETLAND EDGE PLANTING
 - RIPARIAN SCREEN PLANTING
 - SCREEN UNDERPLANTING
 - RIP RAP (REFER TO STORMWATER DRAWINGS)
 - PROPOSED TREE
 - PROPOSED SHRUB / SMALL TREE

300 mm
200
100
50
0 10 mm

1:500 @ A1
1:1000 @ A3

REVISION	AMENDMENT	APPROVED	DATE
A	ISSUED FOR RESOURCE CONSENT	FR	25/09/2023
B	ISSUED FOR RESOURCE CONSENT	FR	19/01/2024
C	ISSUED FOR RESOURCE CONSENT	FR	25/01/2024



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LANDSCAPE ARCHITECTURE

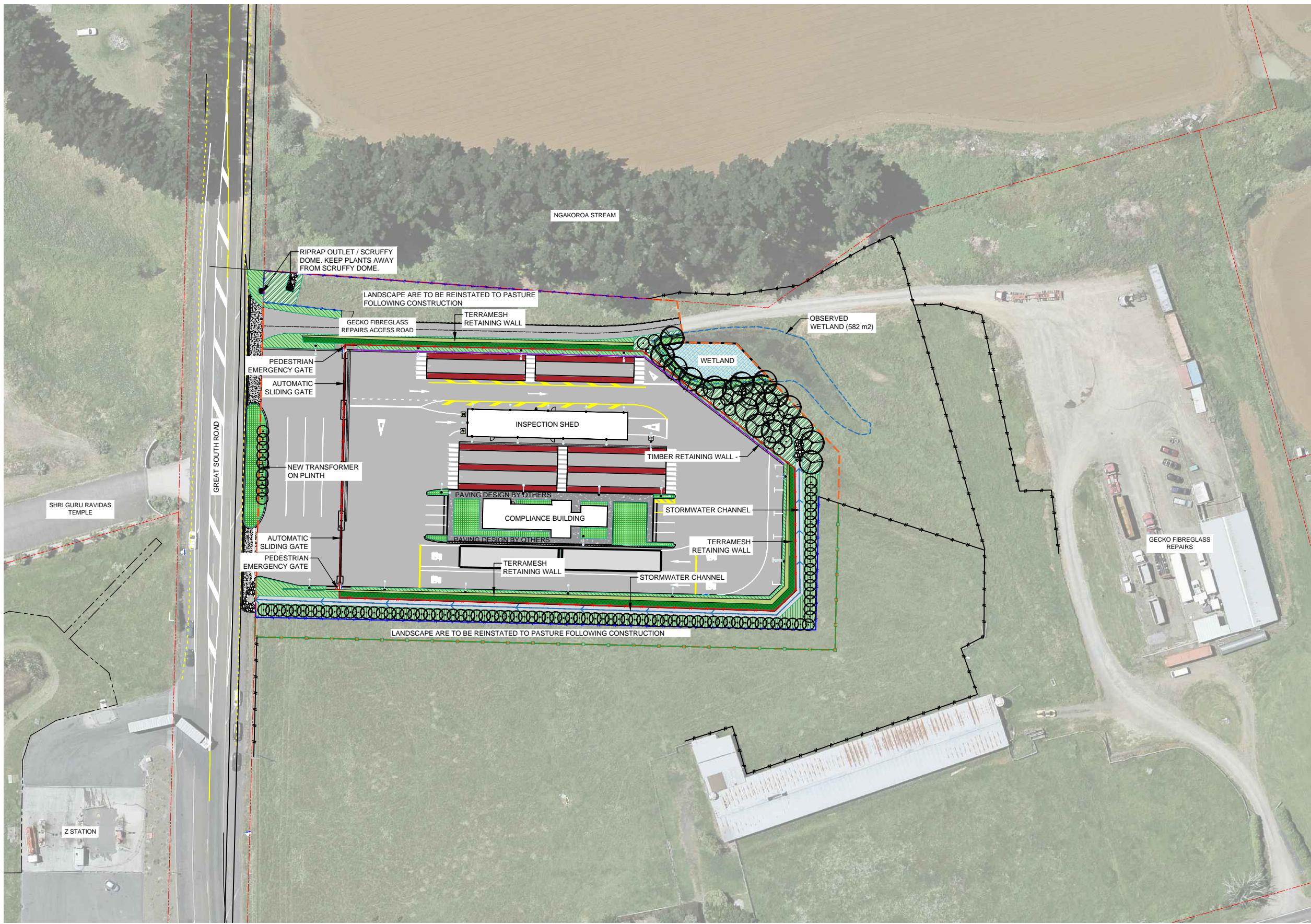
SCALES	DESIGNED	APPROVED
1:250 (A1), 1:500 (A3)	J. FRENCH	F. RAHMAN

RESOURCE CONSENT

PROJECT
WAKA KOTAHI NZ TRANSPORT AGENCY
BOMBAY, AUCKLAND
WEIGH RIGHT PROGRAMME - BOMBAY CVSC
TITLE
LANDSCAPE GENERAL ARRANGEMENT PLAN
WSP PROJECT NO. (SUB-PROJECT)
5C4353-WSP-54-DR-
SHEET NO.
L-1000
REVISION
C



- LEGEND**
- DESIGNATION BOUNDARY
 - PROPERTY BOUNDARY
 - SECURITY FENCE
 - PERMANENT FARM FENCE
 - EXISTING STOCK FENCE
 - TIMBER RETAINING WALL
 - TEMPORARY CONSTRUCTION FENCE
 - OBSERVED WETLAND
 - CONCRETE PAVING
 - PLANTED TERRAMESH RETAINING WALL
 - AMENITY PLANTING (MAX. 1M HIGH)
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 - WETLAND EDGE PLANTING
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 - PROPOSED SHRUB / SMALL TREE



1:500 @ A1
1:1000 @ A3

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LANDSCAPE ARCHITECTURE

SCALES	DESIGNED	APPROVED
1:500 (A1), 1:1000 (A3)	J. FRENCH	F. RAHMAN

RESOURCE CONSENT

PROJECT
WAKA KOTAHI NZ TRANSPORT AGENCY
BOMBAY, AUCKLAND
WEIGH RIGHT PROGRAMME - BOMBAY CVSC

TITLE
LANDSCAPE GENERAL ARRANGEMENT PLAN - WIDER CONTEXT

WSP PROJECT NO. (SUB-PROJECT)
5C4353-WSP-54-DR-

SHEET NO.
L-1001

REVISION
C



LEGEND

- TREES**
- C.au *Cordyline australis*
 - D.da *Dacrydium dacrydioides*
 - L.no *Laurelia novae-zelandiae*
 - P.te *Pittosporum tenuifolium*
 - P.to *Podocarpus totara*
 - S.mi *Sophora microphylla*

- SHRUBS AND GROUNDCOVERS**
- MIX 1 Terramesh retaining wall planting
 - MIX 2 Amenity planting (max. 1m high)
 - MIX 3 Edge planting (max. 1m high)
 - MIX 4 Wetland edge planting
 - MIX 5 Riparian screen planting
 - MIX 6 Screen underplanting

- OTHERS**
- DESIGNATION BOUNDARY
 - PROPERTY BOUNDARY
 - OBSERVED WETLAND

1:250 @ A1
1:500 @ A3

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LANDSCAPE ARCHITECTURE

SCALES	DESIGNED	APPROVED
1:250 (A1), 1:500 (A3)	J. FRENCH	F. RAHMAN

RESOURCE CONSENT

PROJECT
WAKA KOTAHI NZ TRANSPORT AGENCY
BOMBAY, AUCKLAND
WEIGH RIGHT PROGRAMME - BOMBAY CVSC

TITLE
LANDSCAPE PLANTING PLAN

WSP PROJECT NO. (SUB-PROJECT) SHEET NO. REVISION
5C4353-WSP-54-DR- L-2000 C

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50
0 10 mm

NOTES



GENERAL

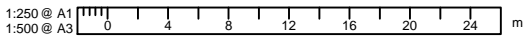
1. THE LANDSCAPE PLANTING LAYOUT PLAN SHOWS A MASS PLANTING ARRANGEMENT WITHIN THE EXTENT OF WORKS. NOTE THAT HATCHES SHOWN ON THESE DRAWINGS ARE INDICATIVE ONLY AND DO NOT REPRESENT A PLANTING PATTERN.
2. DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE NZTA P39 STANDARD SPECIFICATION FOR HIGHWAY LANDSCAPE TREATMENTS (THE SPECIFICATION) AND ALL WORKS CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATION.
3. ALL DIMENSIONS SHOWN IN MM UNLESS OTHERWISE STATED.
4. DO NOT SCALE OFF THE DRAWINGS. USE DIMENSIONED MEASUREMENTS ONLY.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORK.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL ON-SITE SETOUT TO ENGINEER APPROVAL.
7. CONTRACTOR IS TO TAKE ALL CARE TO CONFIRM LOCATION AND DIRECTION OF SERVICES PRIOR TO UNDERTAKING WORKS AND PROTECT THOSE TO BE RETAINED. INSPECT AND DOCUMENT EXISTING SERVICES BEFORE WORK COMMENCES. NOTIFY THE ENGINEER OF ANY DAMAGE.
8. CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND DOCUMENTING ALL ITEMS TO BE RETAINED, INCLUDING PRIVATELY OWNED ASSETS PROXIMATE TO THE WORKS, PRIOR TO COMMENCING WORKS.

PLANTING

1. ALL PLANTING AREAS TO HAVE A MINIMUM 300MM DEPTH GOOD QUALITY TOPSOIL AS PER THE SPECIFICATION TO FINISHED LEVELS.
2. ALL PLANTING AREAS TO HAVE MINIMUM 100MM DEPTH MULCH AS PER THE SPECIFICATION.
3. WHERE POSSIBLE, ALL NATIVE SPECIES TO BE ECO-SOURCED FROM THE LOCAL ECOLOGICAL AREA WITHIN THE AUCKLAND REGIONS.
4. ALL PLANTS TO BE PLACED IN A QUINCUNX ARRANGEMENT. CONFIRM SETOUT WITH LANDSCAPE ARCHITECT PRIOR TO UNDERTAKING ANY PLANTING WORK.
5. ALL TREES THAT ARE BEING REMOVED ARE TO BE CONFIRMED BY LANDSCAPE ARCHITECT ONSITE.

PLANT PALETTE

BOTANICAL NAME	COMMON NAME	GRADE (L)	SPACING (m)	PLANT % MIX	QUANTITY	PLACEMENT NOTES
Trees						
C.au <i>Cordyline australis</i>	Ti kouka/ Cabbage tree	45	as shown	-	13	
D.da <i>Dacrydium dacrydioides</i>	Kahikatea	45	as shown	-	5	Wetland edge planting mix
L.no <i>Laurelia novae-zelandiae</i>	Pukatea	45	as shown	-	5	
P.te <i>Pittosporum tenuifolium</i>	Kohuhu	45	2m / as shown	-	97	Screening
P.to <i>Podocarpus totara</i>	Totara	45	as shown	-	4	
S.mi <i>Sophora microphylla</i>	Kowhai	45	as shown	-	4	
Shrubs and Groundcovers						
Mix 1 Terramesh Retaining Wall Planting						
 <i>Muehlenbeckia complexa</i>	Pohuehue	1.5	4/m2	100%	1206	Top planting (290 m2)
 <i>Muehlenbeckia complexa</i>	Pohuehue	Root Trainer	1/m2	100%	500	Vertical facing
Mix 2 (378 m2) Amenity Planting (max. 1m high)						
<i>Carex testacea</i>	New Zealand Hair Sedge	1.5	4/m2	20%	315	Plant min. 2m from path edges
<i>Coprosma 'Hawera'</i>	Sand Coprosma	1.5	4/m2	50%	785	
<i>Libertia peregrinans</i>	Creeping NZ Iris	1.5	4/m2	20%	315	
<i>Phormium cookianum 'Green Dwarf'</i>	Mountain Flax	1.5	1/m2	10%	39	
Mix3 (396 m2) Edge Planting (max. 1m high)						
<i>Coprosma 'Hawera'</i>	Sand Coprosma	1.5	4/m2	50%	823	
<i>Phormium cookianum 'Green Dwarf'</i>	Mountain Flax	1.5	1/m2	50%	206	
Mix 4 (81 m2) Wetland Edge planting						
<i>Austroderia fulvida</i>	Toetoe	1.5	4/m2	20%	67	Planted away from water
<i>Carex secta</i>	Purei	1.5	4/m2	20%	67	Planted closer to water
<i>Carex virgata</i>	Small swamp sedge	1.5	4/m2	20%	67	
<i>Cyperus ustulatus</i>	Giant umbrella sedge	1.5	4/m2	20%	67	
<i>Juncus edgariae</i>	Wiwi	1.5	4/m2	20%	67	
Mix 5 (432 m2) Riparian Screen Planting						
<i>Austroderia fulvida</i>	Toetoe	1.5	4/m2	20%	360	
<i>Carex virgata</i>	Small swamp sedge	1.5	4/m2	20%	360	
<i>Coprosma robusta</i>	Karamu	1.5	4/m2	20%	360	
<i>Entelea arborescens</i>	Whau	1.5	1/m2	10%	44	
<i>Letospermum scoparium</i>	Manuka	1.5	1/m2	20%	90	
<i>Phormium tenax</i>	Harakeke	5	1/m2	10%	44	
Mix 6 (591m2) Screen Underplanting						
<i>Phormium cookianum 'Green Dwarf'</i>	Kohuhu	5	1/m2	100%	614	



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C	ISSUED FOR RESOURCE CONSENT	FR	25/01/2024



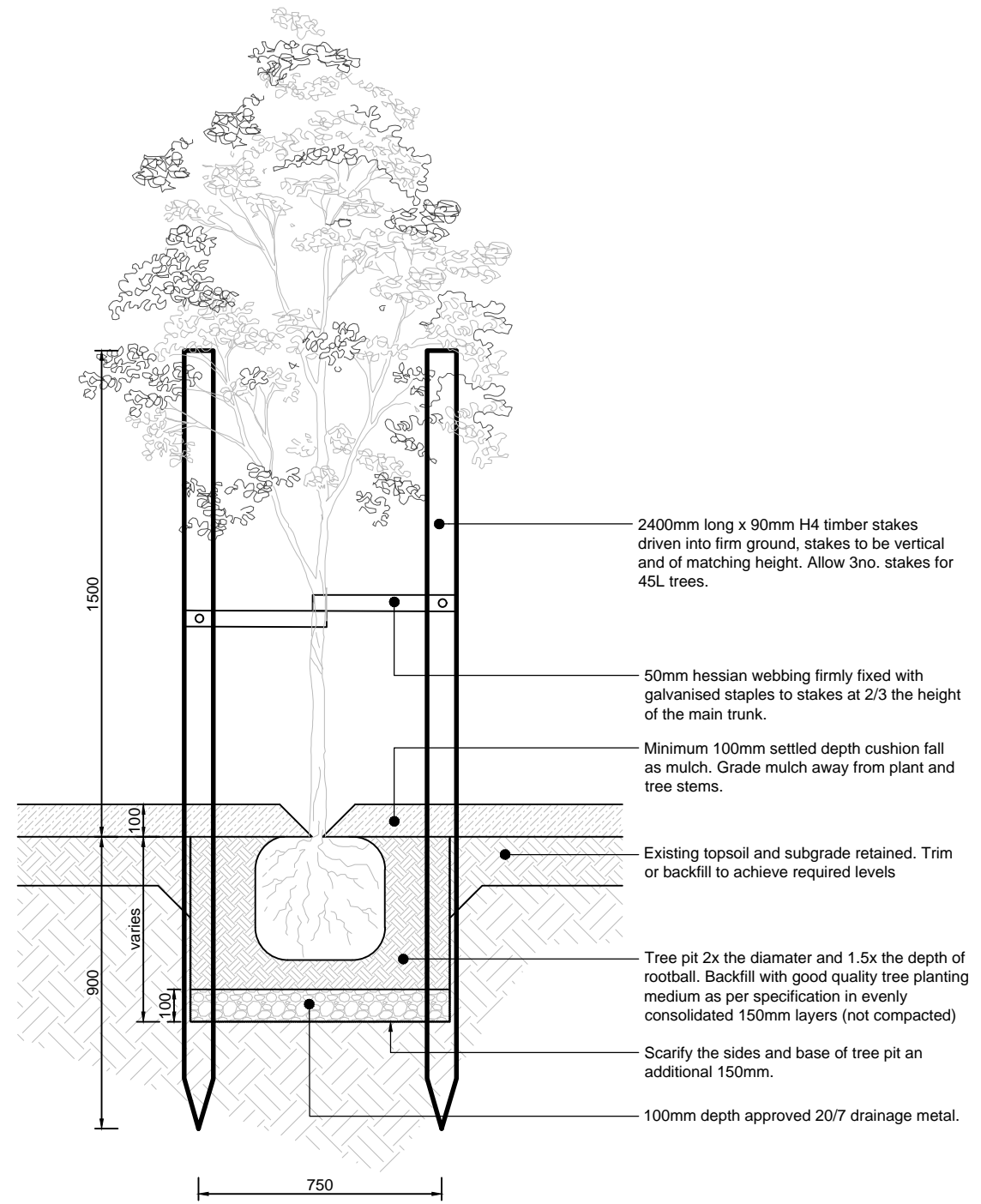
LANDSCAPE ARCHITECTURE

SCALES		ORIGINAL SIZE
1:250 (A1), 1:500 (A3)		A1
DRAWN	DESIGNED	APPROVED
J. FRENCH	J. FRENCH	F. RAHMAN
DRAWING VERIFIED	DESIGN VERIFIED	APPROVED DATE
M. DRYSDALE	M. DRYSDALE	25/01/2024

RESOURCE CONSENT

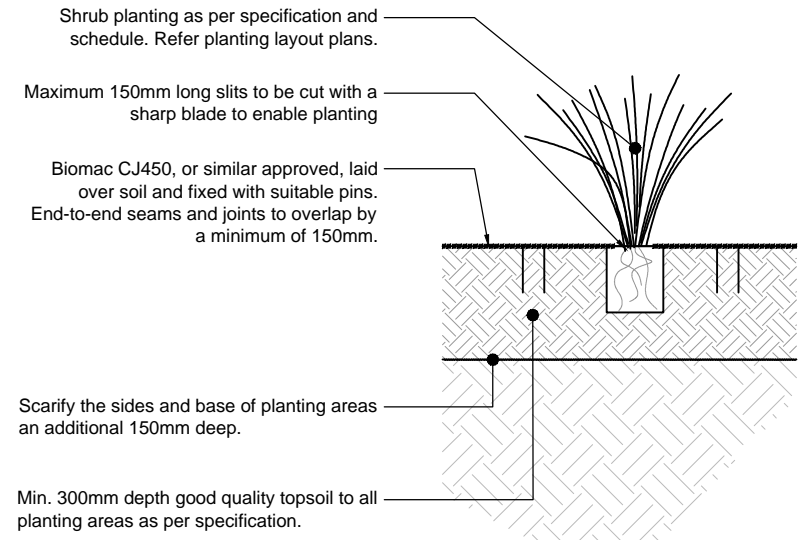
PROJECT	
WAKA KOTAHI NZ TRANSPORT AGENCY BOMBAY, AUCKLAND WEIGH RIGHT PROGRAMME - BOMBAY CVSC	
TITLE	
LANDSCAPE PLANT SCHEDULE AND NOTES	
WSP PROJECT NO. (SUB-PROJECT)	SHEET NO.
5C4353-WSP-54-DR-	L-3000
REVISION	
C	

300 mm
200
100
50
0 10 mm



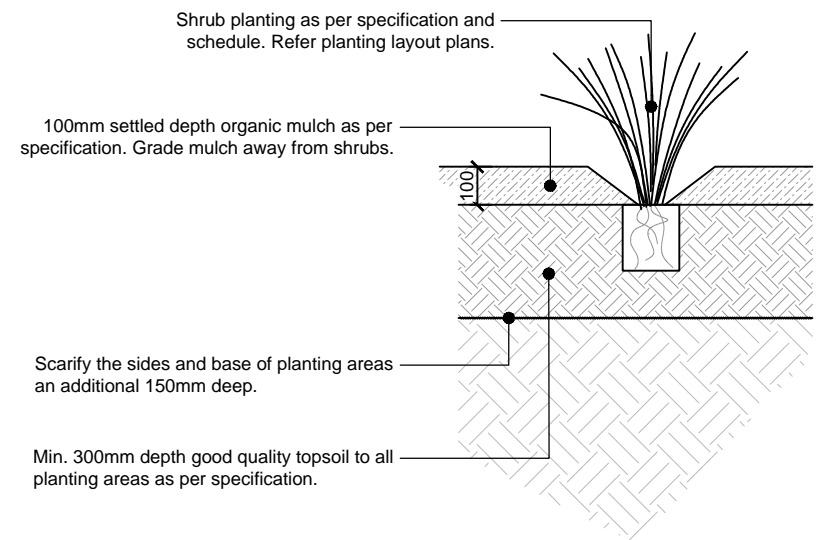
01 TYPICAL 45L TREE PLANTING
4000 Scale: 1:10 (A1) 1:20 (A3)

- 2400mm long x 90mm H4 timber stakes driven into firm ground, stakes to be vertical and of matching height. Allow 3no. stakes for 45L trees.
- 50mm hessian webbing firmly fixed with galvanised staples to stakes at 2/3 the height of the main trunk.
- Minimum 100mm settled depth cushion fall as mulch. Grade mulch away from plant and tree stems.
- Existing topsoil and subgrade retained. Trim or backfill to achieve required levels
- Tree pit 2x the diameter and 1.5x the depth of rootball. Backfill with good quality tree planting medium as per specification in evenly consolidated 150mm layers (not compacted)
- Scarify the sides and base of tree pit an additional 150mm.
- 100mm depth approved 20/7 drainage metal.



02 TYPICAL SHRUB PLANTING (GEOFABRIC) - MIX 3, MIX 4 & MIX 5
4000 Scale: 1:10 (A1) 1:20 (A3)

- Shrub planting as per specification and schedule. Refer planting layout plans.
- Maximum 150mm long slits to be cut with a sharp blade to enable planting
- Biomac CJ450, or similar approved, laid over soil and fixed with suitable pins. End-to-end seams and joints to overlap by a minimum of 150mm.
- Scarify the sides and base of planting areas an additional 150mm deep.
- Min. 300mm depth good quality topsoil to all planting areas as per specification.



03 TYPICAL SHRUB PLANTING (MULCH) - MIX 1, MIX 2 & MIX 6
4000 Scale: 1:10 (A1) 1:20 (A3)

- Shrub planting as per specification and schedule. Refer planting layout plans.
- 100mm settled depth organic mulch as per specification. Grade mulch away from shrubs.
- Scarify the sides and base of planting areas an additional 150mm deep.
- Min. 300mm depth good quality topsoil to all planting areas as per specification.

1:10 @ A1
1:20 @ A3
0 100 200 300 400 500 600 700 800 900 1000 mm

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C	ISSUED FOR RESOURCE CONSENT	FR	25/01/2024



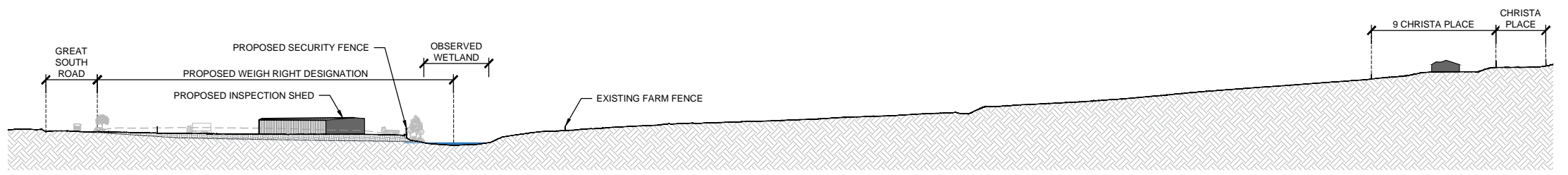
wsp
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Wellington 6144
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LANDSCAPE ARCHITECTURE

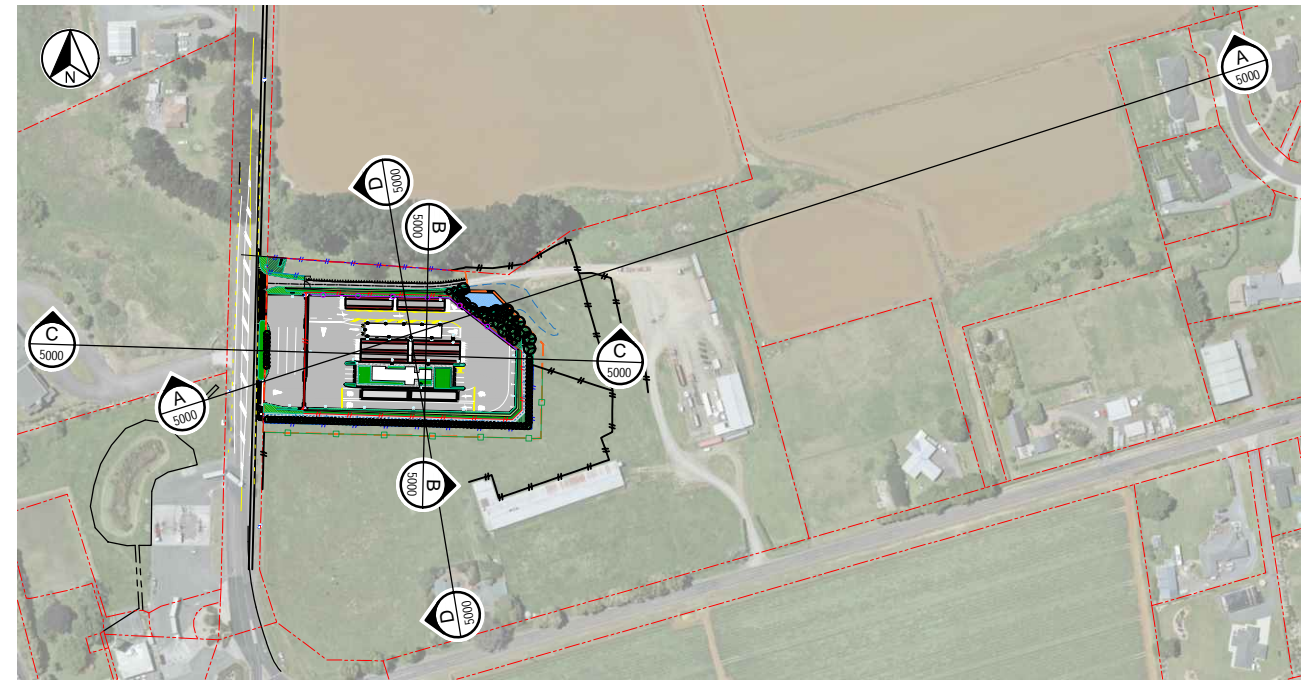
SCALES	DESIGNED	APPROVED	ORIGINAL SIZE
1:10 (A1), 1:20 (A3)	J. FRENCH	F. RAHMAN	A1
DRAWN	J. FRENCH	F. RAHMAN	
DRAWING VERIFIED	M. DRYSDALE	APPROVED DATE	
M. DRYSDALE	M. DRYSDALE	25/01/2024	

RESOURCE CONSENT

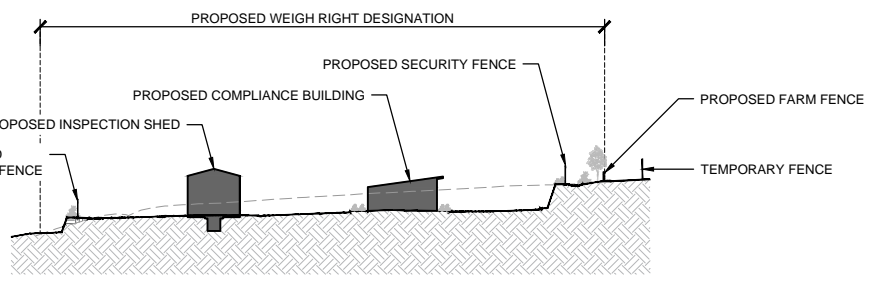
PROJECT	TITLE	WSP PROJECT NO. (SUB-PROJECT)	SHEET NO.	REVISION
WAKA KOTAHI NZ TRANSPORT AGENCY BOMBAY, AUCKLAND WEIGH RIGHT PROGRAMME - BOMBAY CVSC	LANDSCAPE TYPICAL PLANTING DETAILS	5C4353-WSP-54-DR-	L-4000	C



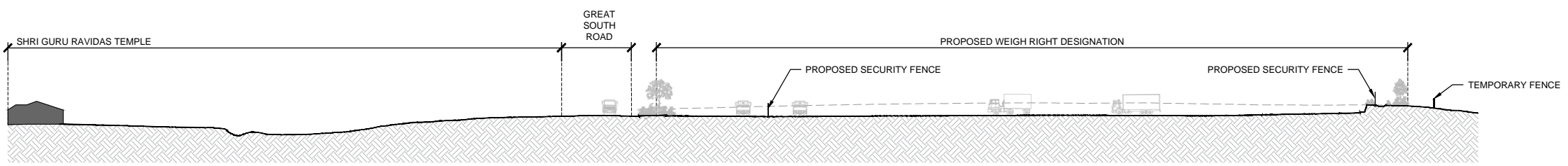
LONG SECTION A-A
SCALE 1:1000(A1)



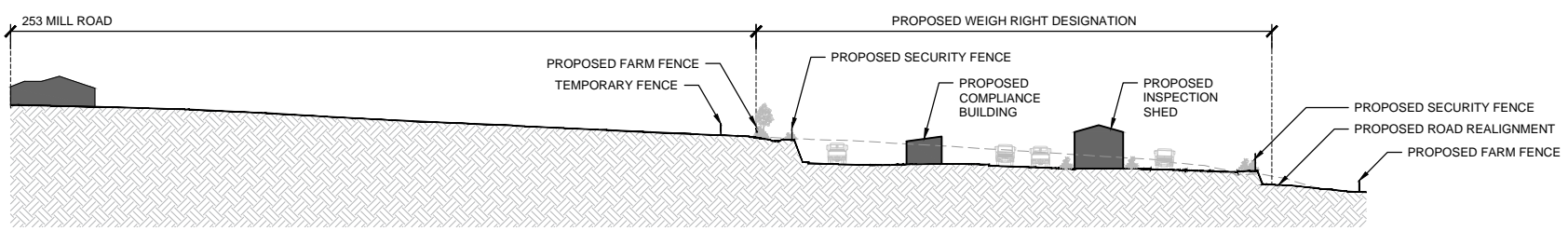
PLAN
SCALE 1:2000(A1)



SECTION B-B
SCALE 1:500(A1)



LONG SECTION C-C
SCALE 1:500(A1)



LONG SECTION D-D
SCALE 1:500(A1)

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C	ISSUED FOR RESOURCE CONSENT	FR	25/01/2024

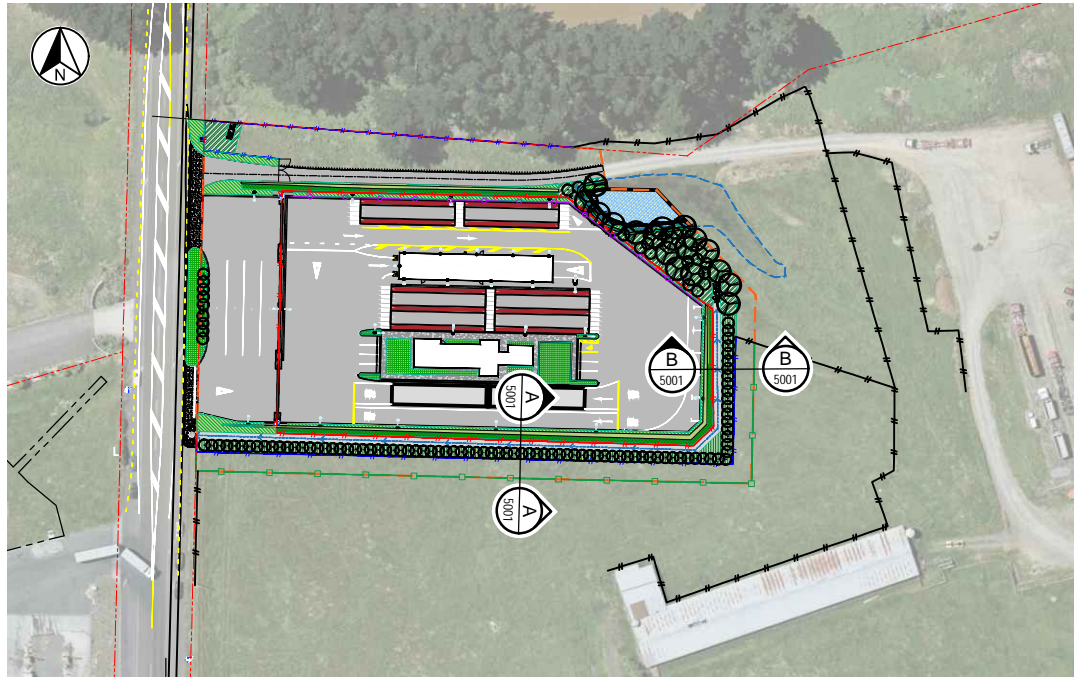


LANDSCAPE ARCHITECTURE

SCALES	DESIGNED	APPROVED	ORIGINAL SIZE
AS SHOWN	J. FRENCH	F. RAHMAN	A1
DRAWN	J. FRENCH	F. RAHMAN	
DRAWING VERIFIED	M. DRYSDALE	APPROVED DATE	
		25/01/2024	

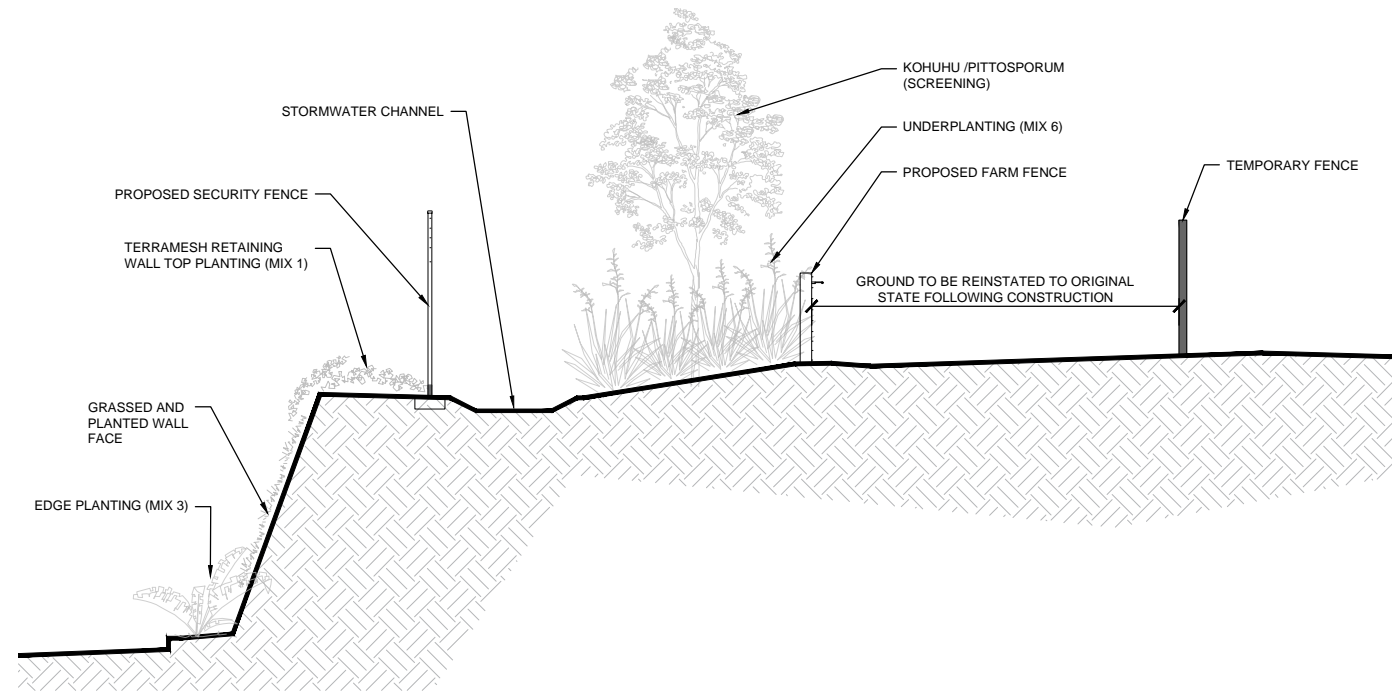
RESOURCE CONSENT

PROJECT	
WAKA KOTAHI NZ TRANSPORT AGENCY	
BOMBAY, AUCKLAND	
WEIGH RIGHT PROGRAMME - BOMBAY CVSC	
TITLE	
LANDSCAPE SECTIONS	
WSP PROJECT NO. (SUB-PROJECT)	SHEET NO.
5C4353-WSP-54-DR-	L-5000
REVISION	
C	

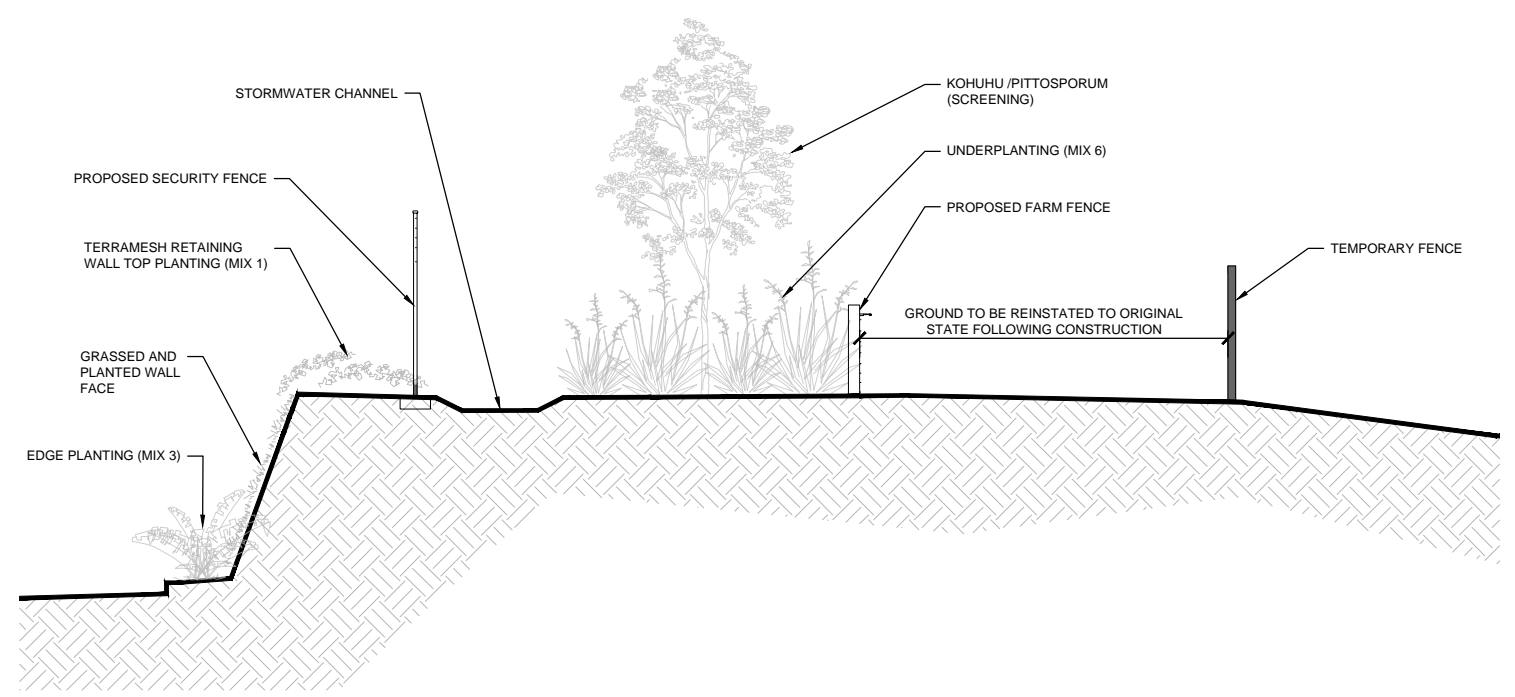


PLAN
SCALE 1:2000(A1)

300 mm
200
100
50
0 10 mm



SECTION A-A
SCALE 1:50(A1)



SECTION B-B
SCALE 1:50(A1)

REVISION	AMENDMENT	APPROVED	DATE
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B	ISSUED FOR RESOURCE CONSENT	FR	25/01/2024



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LANDSCAPE ARCHITECTURE

SCALES	DESIGNED	APPROVED	ORIGINAL SIZE
AS SHOWN	J. FRENCH	F. RAHMAN	A1
DRAWN	DESIGNED	APPROVED	
A. LIANG	J. FRENCH	F. RAHMAN	
DRAWING VERIFIED	DESIGN VERIFIED	APPROVED DATE	
M. DRYSDALE	M. DRYSDALE	25/01/2024	

RESOURCE CONSENT

PROJECT
WAKA KOTAHI NZ TRANSPORT AGENCY
BOMBAY, AUCKLAND
WEIGH RIGHT PROGRAMME - BOMBAY CVSC

TITLE
LANDSCAPE SECTIONS

WSP PROJECT NO. (SUB-PROJECT)
5C4353-WSP-54-DR-

SHEET NO.
L-5001
REVISION
B