Roydon Quarry, Jones Road, Selwyn District

FULTON HOGAN

Landscape Management Plan

Project No. 2017_031|B
ROYDON QUARRY, JONES ROAD, SELWYN DISTRICT

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1. INTRODUCTION

This Landscape Management Plan (LMP) has been prepared for Fulton Hogan for the establishment of a quarry on Jones Road, Selwyn District. The management relates to the establishment of landscape planting around the perimeter of the site and the management of grass bunds.

2. THE PURPOSE OF THE LMP

The purpose of the LMP is to outline the methods to be implemented during the life of the quarry to avoid, remedy and mitigate adverse effects on landscape and visual amenity and to manage all planting and bunds associated with the proposed Quarry. The LMP documents the permanent mitigation measures, as well as the necessary monitoring and management required to successfully implement and maintain those measures during the life of the quarry, and post rehabilitation of the site.

3. IMPLEMENTATION OF WORKS

The LMP recognises that the bunds and planting are to be established around the entire site as part of the initial establishment works and will be maintained for the duration of the quarry’s operational life. Refer to the attached figures for layout and design of the bunds and planting. The bunds are to be constructed from material excavated from site, and imported clean material, with a 300mm topsoil cover. Topsoil, recovered from excavation works on site, shall be tested to ensure its suitability for planting. A certificate shall be provided outlining the following details:

- pH value, this should be between 5.0 and 7.0.
- moisture content, this should be between 15% - 35%.
- Total organic matter, this should be between 7.0 and 17.0%. The total nitrogen content should be between 0.3 - 0.6%.

The bunds are to have a grass cover.

Landscape planting is to occur in the first available planting season following construction and grassing of the bunds. All earthworks and planting shall be suspended when the ground is waterlogged or during periods of frost, snow, drying winds or prolonged rain. An irrigation system is to be installed for at least the first two years of the planting to enable successful establishment, with all plants are to be planted with rabbit proofing.

The plan should be read in conjunction with the drawings prepared as part of the Landscape and Visual Impact Assessment.

4. BUND AND PLANTING DESIGN (MITIGATION MEASURES)

The proposed planting has been designed to screen views into the quarry site and ‘create’ a soft edge to the quarry which is consistent with other shelters in the local area.
The philosophy behind the design of the shelter belts surrounding the quarry is for the area to blend into the surrounding rural character utilizing species common to the area and which are known to grow well in the sometimes-harsh growing conditions:

4.1 EDGE TREATMENT 1 – CURRAGHS ROAD

Length: 1200m

A 3m high, 15m wide earth bund is to be constructed along the Curraghs Road frontage. The outer edge of the bund has a 1:3 slope with a variable 1:2 - 1:1 gradient on the inside slope. A 1m wide maintenance path runs along the top of the bund. The front toe of the bund is setback 5m from the property boundary to ensure protection of the existing Pinus radiata shelter belt which is to be retained.

A single row of Pinus radiata is to be planted behind the existing shelter belt, 3m from the edge of the bund’s front toe (on the bund itself). The plants are to be 250mm high root trainer @ 1500mm spacings. It is estimated 805 trees will be required along this boundary.
4.2 EDGE TREATMENT 2 - MADDISONS ROAD (WESTERN SECTION)

Length: 660m

A 3m high, 16 m wide earth bund is to be constructed on the western section of the Maddisons Road frontage, noting the quarry boundary is approximately 240m from the Maddisons Road boundary then turns at right angles towards Maddisons Road for a length of 140m. The outer edge of the bund has a 1:3 slope (18.4°) with a 1:2 (26.6°) gradient on the inside slope. A 1m wide maintenance path runs along the top of the bund and a 4m wide landscape strip runs along the front of the bund.

The landscape strip will consist of 3 rows of planting:

Outside row: *Cordline australis, Phormium tenax and poa cita* @ 1000mm centres.
150mm high root trainers. 660 plants.

Middle row: *Pittosporum tenufolium, hoheria sextylosa, plagianthus regius,*
*Pittosporum eugenioides* @ 1500mm centres. 150mm high root trainers,
440 plants

Inner row: *Pinus radiata, eucalyptus cordata, Cupressus macrocarpa* @ 2000mm centres. 250mm high root trainers, 330 plants

![Diagram of Edge Treatment 2 - Maddisons Road (Western Section)](image-url)
4.3 EDGE TREATMENT 3 – MADDISONS ROAD (EASTERN SECTION)

Length: 800m

A 3m high, 16m wide earth bund is to be constructed along the boundary adjoining 319 Maddisons Road. The outer edge of the bund has a 1:3 slope with a 1:2 gradient on the inside slope. A 1m wide maintenance path runs along the top of the bund. The front toe of the bund is on the property boundary. The existing conifer shelter belt is on the property of 319 Maddisons Road.

Single row: Pinus radiata, eucalyptus cordata, Cupressus macrocarpa @ 2000mm centres. 250mm high root trainers, 400 plants
4.4 EDGE TREATMENT 4 – DAWSONS / JONES ROAD

Length: 1350m (Dawsons Road) + 1320m (Jones Road)

A 3m high, 16 m wide earth bund is to be constructed on the Dawsons and Jones Road frontages. The outer edge of the bund has a 1:3 slope with a 1:2 gradient on the inside slope. A 1m wide maintenance path runs along the top of the bund and a 4m wide landscape strip runs along the front of the bund.

The landscape strip consists of 3 rows of planting:

Outside row: *Cordline australis*, *Phormium tenax* and *poa cita* @ 1000mm centres. 150mm high root trainers. 2670 plants.

Middle row: *Pittosporum tenuifolium*, *hoheria sextiloa*, *plagianthus regius*, *Pittosporum eugneioides* @ 1500mm centres. 150mm high root trainers, 1780 plants

Inner row: *Pinus radiata*, *eucalyptus cordata*, *Cupressus macrocarpa* @ 2000mm centres. 250mm high root trainers, 1335 plants
5. **MONITORING AND MAINTENANCE OF LANDSCAPE BUNDS AND PLANTING POST ISSUING OF PRACTICAL COMPLETION CERTIFICATE**

Following the issuing of the Practical Completion Certificate for the bunds and landscape planting, a minimum two-year (24-month) monitoring and maintenance period will commence to achieve successful establishment of plantings. The following information outlines the Consent Holder’s requirements relating to monitoring and maintenance associated with the planting works including during this initial period and on an ongoing basis for the life of the project.

5.1 **ESTABLISHMENT PERIOD AND MONITORING**

The Consent Holder shall undertake inspections of the site at least once every month during the growing season (Nov – Mar) and once every two months (Apr - Oct) for the remaining duration of the Establishment period. The Consent Holder shall notify the Project Landscape Architect of pending site inspections no later than two days (48 hours) prior to commencement and shall provide subsequent written confirmation of any observations/actions taken as a result.

Following each site visit, a site record will be issued by the Landscape Architect noting any remedial works that maybe required, along with photos. A copy of this record will be forwarded to Selwyn District Council for their records.

5.2 **MAINTENANCE DURING THE ESTABLISHMENT PERIOD**

To fulfil the requirements of the consent the Consent Holder shall undertake maintenance duties in accordance with the items outlined below:

- At each inspection all litter, stones and other debris shall be removed from all planted and grasses areas and taken off site.
- Maintenance Works shall also include:
  - Any pruning or spraying necessary to control weeds, pests, and diseased or defects in the plants.
  - Pruning dead wood flush with the stem.
  - Grass cutting – to a minimum height of 20mm
  - Firming down ground around plants, which have rocked or heaved.
  - Checking rabbit proofing and removing any weeds which may inhibit plant growth
- During installation and establishment, the Consent Holder shall ensure that soil in all planting areas and to a depth of at least 200 mm, is moist enough to maintain active plant growth throughout the growing season (September — May).
- The Consent Holder is to establish a temporary irrigation system for planted areas. The system must be maintained for a minimum of two years following planting.
5.2.1 WEED CONTROL

All areas shall be kept weed free throughout the Establishment period.

Spraying may be carried out following confirmation from the Landscape Architect. If, in the opinion of the landscape architect, substantial weed is present weeding shall be carried out within one week of the Consent Holder being informed of its presence. If any loss of plant material results from the use of herbicide (particularly spray drift) replacement plant costs shall be borne by the Consent Holder.

If in any case of extreme infestations, the Consent Holder may seek the approval by the Architect to use an approved herbicide. The Consent Holder shall comply with all statutory requirements and guidance regarding the handling use of herbicides and the Consent Holder's attention is drawn to the continuing requirement to ensure public safety during and after application of herbicides.

All chemical application on planted areas shall be carried out by qualified, trained personnel and according to the Growsafe Code of Practice for Safe Use Pesticides and Herbicides; NZS 8409 ‘The Agrichemical Users Code of Practice’ and any manufacturers’ directions. All spraying operations shall be carried out in windless, dry conditions, when rain is not imminent for at least 12 hours and at times which minimise possible hazards or disruption to the public, animals or other beneficial fauna. Care shall be taken to prevent spray drifting onto non-target areas or plants.

5.2.2 REMEDIAL WORKS

Any material or plant which does not show leaf or does not make adequate growth during the Establishment Period, including by vandalism, shall be replaced by the Consent Holder.

Replacement plants to make good defects during the Establishment Period shall be planted at the earliest opportunity during the planting season immediately following their loss. All associated works including stakes and ties shall be made good or replaced as soon as found to be defective or prior to the next site visit.

5.2.3 CERTIFICATE OF COMPLETION

Upon completion of the confirmed Establishment Period the Consent Holder shall notify the Project Architect, at which time a Certificate of Completion shall be issued to the Consent Holder. Issuing of the Certificate of Completion may be withheld by the Project Architect if any aspect of the works described within this specification or the relevant drawings and plant schedule is deemed unsatisfactory.

6. MONITORING AND MAINTENANCE OF LANDSCAPE BUNDS AND PLANTING POST ISSUING OF CERTIFICATE OF COMPLETION

Following the completion of the Establishment Period and the issuing of the Certificate of Completion to the Consent Holder, it will be the responsibility of the Consent Holder to maintain the bunds and landscape planting to achieve a full screening of the site from adjacent roads, as per the conditions of consent.
Annual checks of the bunds and landscape planting will be carried out in March of each year with a site record, including photos, supplied to Selwyn District Council for their records. The record will outline maintenance works undertaken over the year, any replacement plantings undertaken and comments on the general health of the plants.