Annual EPBC Act Approval Compliance Report- North East Link

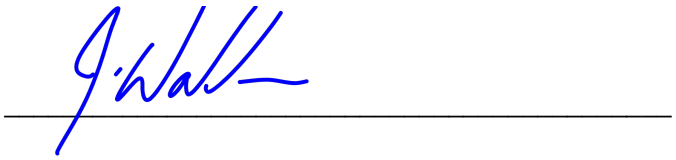
21 Jun 2024

EPBC Approval: 2018/8142

Declaration of Accuracy

I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed: 

Full Name: Jim Waller

Position: Executive Program Director of the North East Link Program, in my capacity as a statutory delegate of the Secretary to the Department of Transport and Planning (the Project Authority for North East Link).

Organisation: Major Road Projects Victoria (MRPV) (a division of the Victorian Infrastructure Delivery Authority (VIDA) (ABN 69 9812 087 82)

Date: 11th July 2024

Contents

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Tables

1 Introduction

1.1 Purpose of this Report

This compliance report covers the reporting period between 18 May 2023 and 17 May 2024 in respect of EPBC Approval 2018/8142 issued to the Department of Transport and Planning (DTP) on 12 December 2019, as varied on 28 August 2020 and 29 June 2021 (EPBC Approval 2018/8142). The purpose of this report is to document compliance with the conditions for the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) Approval 2018/8142 Condition 12. Details of compliance are provided, and where appropriate, the timing of completion of individual actions is identified.

The key dates that relate to the approval are detailed in Table 1.

Table 1 – Key Project EPBC Dates

Action	Key Date
Commonwealth approval	12/12/2019
Commencement of the action	18/05/2020
Commonwealth Variation Approval	28/08/2020
Commonwealth Variation Approval	29/06/2021
Expiry of the Commonwealth Approval	**03/10/2039**

2 Description of activities

2.1 Overview of project

Major Road Projects Victoria (MRPV), a division of the Victorian Infrastructure Delivery Authority (VIDA), is responsible for delivering the North East Link, M80 Ring Road Completion, and Eastern Freeway Upgrades including Eastern Busway (referred to herein as 'the Project') on behalf of the Victorian State government. The three interrelated projects were previously referred to as the North East Link , an approved action under EPBC Approval 2018/8142.

The Project will upgrade the Metropolitan Ring Road (M80) and the Eastern Freeway from Hoddle Street to Springvale Road and create a new connection between these two roads. The Project has been broken down into packages to allow seamless delivery. The initial phase – Enabling Works (previously referred to as Early Works) – allowed for utilities and secondary infrastructure to be prepared prior to the major development. Works included the relocation of utilities, relocation of Sports and Recreation spaces and development of Park and Ride services for Public Transport linkages. The subsequent packages, the North East Link (previously known as Central Package), M80 Ring Road Completion, and Eastern Freeway Upgrades (Burke to Tram) are

currently in the construction phase. Two further packages will complete the Eastern Freeway Upgrades. See Figure 1 – Project Map– Project Map for an overview of the Project.

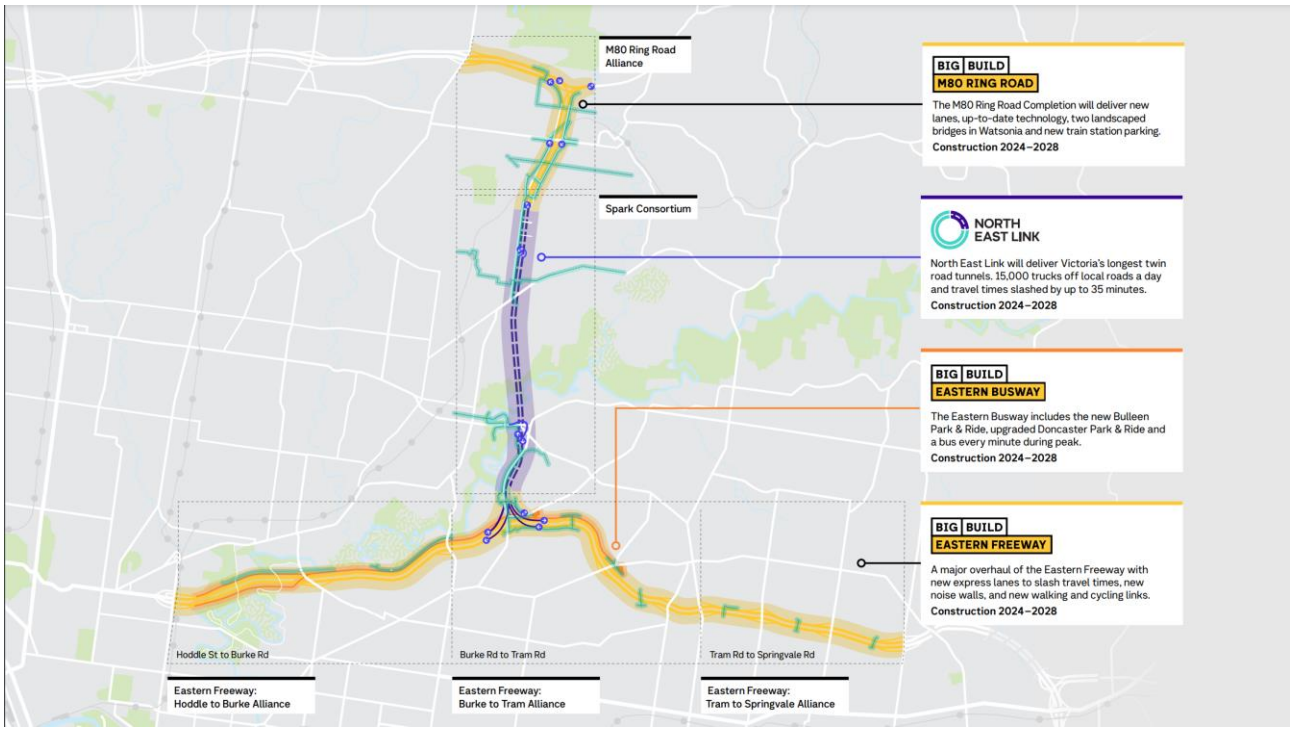

Figure 1 – Project Map

2.2 Works undertaken during reporting period

The following works have been undertaken in the approval area during the 2023-2024 reporting period.

2.2.1 Enabling Works

- Telecommunications tower and ancillary utilities relocation
- Realignment and utility relocations along Thompsons Road
- Completion of premium bus station with parking facilities at Bulleen Park and Ride
- Construction of new sporting facilities including three soccer pitches, pavilion, car park and associated civil infrastructure at Templestowe Road Soccer Facility
- Defects rectification

2.2.2 North East Link

- Site establishment works including:
  - Demolition of existing structures
  - Mobilisation of activity specific plant and equipment

  - Topsoil stripping, site clearing, grubbing, tree and vegetation removal
  - Compound establishment including carparks, offices, access, hoarding and storage
- Bulk excavation works and D-Wall construction
- Excavation and preparation for Tunnel Boring Machine (TBM) launch
- Piling works
- Utilities relocations (NBN, Optus, power, and gas)
- Surface road works and diversions
- Installation and commissioning of traffic signals

2.2.3 Eastern Freeway Upgrades: Burke to Tram

- Site Investigation works including utilities, geotechnical testing, and structure inspections
- Site establishment works including demolition and compound construction works
- Relocation of utilities
- Civil works including profiling, asphalting, line marking and traffic barrier replacement
- Construction of hoarding and temporary shared user paths (SUPs)
- Grubbing and earthworks including tree and vegetation removal
- Traffic signal modifications

2.2.4 M80 Ring Road Completion

- Site establishment works including site clearing, tree and vegetation removal, topsoil stripping, installation of hoarding, fencing, concrete barriers, access gates and construction of hardstand
- Construction compound establishment including carparks, offices, access and storage
- Utilities relocation and removal works
- Civil excavation, bulk earthworks and piling works
- Weighbridge installation
- Drainage modification and temporary pavement installation
- Rail signalling upgrades between Macleod and Greensborough Stations

3 Approval condition compliance

<table>
<tr><th>Condition No.</th><th>Approval Condition</th><th>Compliance Status</th><th>Comments and supporting documentation</th></tr>
<tr><td rowspan="4">1</td><td colspan="3">Unless otherwise agreed to in writing by the Minister, the approval holder must not clear more than:</td></tr>
<tr><td>a) 139 Matted Flax-lily plants and/or patches of Matted Flax-lily</td><td>Compliant</td><td>The Project has salvaged 132 of the 139 plants/patches of Matted Flax-lily (MFL) and is therefore compliant within the scope of the approval. There are currently no plans to salvage more MFL as impacts have been avoided.

<table>
<tr><th>Pre-Clearance survey date</th><th>Date of Salvage</th><th>Location</th><th>Number of plants/patches</th></tr>
<tr><td>March 2020</td><td>01/04/2020</td><td>Simpson Barracks</td><td>7</td></tr>
<tr><td>July 2020</td><td>02/09/2020</td><td>Simpson Barracks</td><td>20</td></tr>
<tr><td>April 2021</td><td>23/08/2021-
24/08/2021</td><td>Simpson Barracks</td><td>103</td></tr>
<tr><td>December 2022</td><td>10/10/2023</td><td>M80 Interchange
Grimshaw Street Railway Reserve</td><td>2</td></tr>
</table>

The locations of the MFL salvaged to date are presented in Appendix A.</td></tr>
<tr><td>b) 11.866 hectares of Plains Grassy Woodland within Simpson Barracks</td><td>Compliant</td><td>Vegetation removal has been completed in this location. Reconciliation will occur at the completion of the North East Link works to confirm the expected removal of 11.852 ha of Plains Grassy Woodland, therefore the Project is compliant with this Condition.</td></tr>
<tr><td rowspan="4">2</td><td colspan="3">To compensate for the clearing the number of Matted Flax-lily plants and/or patches of Matted Flax-lily:</td></tr>
<tr><td>a) Prior to any clearance, the approval holder must undertake a pre-clearance survey to identify the total numbers of Matted Flax-lily plants and patches of Matted Flax-lily that, if not salvaged, would be impacted by the approved action</td><td>Compliant</td><td>As outlined above, pre-clearance surveys have occurred in March 2020, July 2020, April 2021, and December 2022 prior to salvaging events for MFL. The pre-clearance surveys were undertaken in accordance with the MFL Salvage and Translocation Plan (Rev 5 - December 2022) (Salvage and Translocation Plan). The Project is therefore compliant with this Condition.</td></tr>
<tr><td>b) Prior to construction, the approval holder must salvage all Matted Flax-lily plants and patches of Matted Flax-lily that were previously recorded in a pre-clearance survey and that would otherwise be impacted due to the approved action. In the event that construction occurs in stages, prior to commencing each stage the approval holder must salvage all Matted Flax-lily plants and patches of Matted Flax-lily that were previously recorded in a pre-clearance survey and that would otherwise be impacted by that stage of work</td><td>Compliant</td><td>MFL salvage and translocation has been completed for Enabling Works, North East Link, and M80 Ring Road Completion packages in accordance with the Salvage and Translocation Plan. No further MFL impacts are anticipated, therefore the Project is compliant with this Condition.</td></tr>
<tr><td>c) The approval holder must propagate the salvaged Matted Flax-lily plants and patches and translocate them, excepting some Matted Flax-lily plants and patches that may be kept as an insurance population, to a recipient site. The number of Matted</td><td>Compliant</td><td>As outlined in the Salvage and Translocation Plan sufficient material was taken from each plant to generate the required six (6) clones per plant/ patch. The individuals were salvaged and processed at the selected nursery in accordance with the Salvage and Translocation Plan and are surviving at the time of reporting.</td></tr>
</table>

Condition No.	Approval Condition	Compliance Status	Comments and supporting documentation
	Flax-lily plants and patches kept as an insurance population must not be the majority of Matted Flax-lily plants or patches propagated. All propagated Matted Flax-lily plants and patches of Matted Flax-lily, excepting those kept as an insurance population, must be translocated within 2 years of salvage of each Matted Flax-lily plant and patch of Matted Flax-lily.		The MFL have been planted in two batches. The Batch 1 MFL plants were translocated to Cherry Street Reserve in August 2022 while the Batch 2 MFL were planted in October 2023 at Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve both within two years of Salvage (April/September 2020, August 2021 (Batch 1), October 2023 (Batch 2). There are currently 264 plants held as an insurance population at the selected nursery with the majority of MFL translocated to the above two recipient sites. The Project is therefore compliant with this Condition.
	d) The approval holder must manage the recipient site for a period of 10 years commencing on the date that the first Matted Flax-lily plant or patch of Matted Flax-lily is translocated to the recipient site	Compliant	Translocation of the MFL plants from Batch 1 and Batch 2 occurred in August 2022 and October 2023, respectively, and management of the sites is ongoing. The management of the sites is detailed in site schedules for both Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve. Maintenance will be continued and adapted as the needs of the MFL plants change over time. The Project is therefore compliant with this condition.
	e) The approval holder must monitor the recipient site for a period of at least 10 years, commencing on the date that the first Matted Flax-lily plant or patch of Matted Flax-lily is translocated to the recipient site and, concluding no sooner than 5 years after the last Matted Flax-lily plant or patch of Matted Flax-lily is translocated to the recipient site	Compliant	A total of 528 MFL have been translocated to date. MRPV have commenced monitoring of the recipient sites (Gresswell Forest and Cherry Street). Monitoring is occurring at the frequencies outlined in the Salvage & Translocation Plan. Monitoring occurred at both sites for four weeks in November 2023, with further monitoring occurring on a monthly basis thereafter (December - April 2024). The next monitoring event will be undertaken in June 2024 and will continue to be undertaken quarterly until September 2025, and then biannually until at least winter 2028. Therefore, the Project is compliant with this Condition. The MFL Annual Compliance Report (Appendix B) outlines timing of monitoring events in Table 2.
	f) The approval holder must, until otherwise agreed in writing by the Minister, provide the Department with a report each year as part of the compliance report, which must detail the numbers of Matted Flax-lily plants and patches that have been translocated to the recipient site and the numbers of translocated and propagated plants and patches that have survived until the end of the period reported on. The report must also document threats to the translocated Matted Flax-lily plants and patches and any management actions, including corrective actions, taken or proposed	Compliant	A copy of the MFL Annual Compliance Report can be found in Appendix B. Monitoring and management of the translocation site is ongoing. In August 2022 108 MFL plants (Batch 1) were translocated into Cherry Street Reserve. In December 2023, 105 were observed to be alive and thriving. It is considered likely that two other MFL plants were present but unable to be located due to high levels of biomass in the reserve and that only one plant is dormant. In October 2023 additional 420 MFL plants (Batch 2) were translocated in Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve. In December 2023, 419 are still alive and only one is considered dormant. The threats to MFL survival include high amounts of biomass, herbivory and waterlogging. Corrective actions have been taken including adding more soil to some MFL plants, hand-weeding around MFL plants, and selective weed spraying. The Project is therefore compliant with the Condition.
3	**By implementing contingency measures, the approval holder must ensure that a minimum of 85 per cent of 4 times the number of salvaged Matted Flax-lily plants and patches have survived at the recipient site at least 5 years after the date the last Matted Flax-lily plant or patch, excepting plants or patches from the insurance population, is translocated to the recipient site. The approval holder must ensure that the location of each translocated Matted Flax-lily plant and patch is recorded in the Atlas of Living Australia and Victorian Biodiversity Atlas within 6 months of being translocated**	Compliant	To comply with this requirement, at the end of five years at least 449 (85% of 528) of the MFL plants at Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve need to survive. As of December 2023, 107 are confirmed to be alive from Batch 1 and 419 from Batch 2, well above the minimum required. MFL location data for the MFL plants that are reported on in this report have been added to the VBA under project ID 6931 for Batch 1 and 5731 for Batch 2. MFL location data for the MFL plants that are reported on in this report have been submitted to the Atlas of Living Australia and assigned number 175071 for Batch 1 and 195464 for Batch 2 to the data. The Project is therefore compliant with this Condition.
4	**If the Minister is not satisfied that the requirements of condition 3 have been, or are likely to be, achieved, and has given the approval holder written notice to this effect, the approval holder must:**		
	a) Within 1 year of receiving written notification by the Minister to this effect, plant propagated Matted Flax-lily plants and/or patches to the recipient site in accordance with directions made by the Minister	Not Applicable	MRPV have not received written notification from the Minister indicating that the Minister is not satisfied that the requirements of Condition 3 have been, or are likely to be, achieved. Therefore, Condition 4a has not been triggered.
	b) Provide the Department with a report each year for an additional 5 years as part of the compliance report, which must detail the numbers of Matted Flax-lily plants and patches that have been translocated to the recipient site and the numbers of translocated and propagated plants and patches that have survived until the period reported on. The report must also document threats to the translocated Matted Flax-lily plants and patches and any management actions, including corrective actions, taken or proposed	Not Applicable	MRPV have not received written notification from the Minister to this effect as described in Condition 4. Therefore, Condition 4b has not been triggered.

Condition No.	Approval Condition	Compliance Status	Comments and supporting documentation
	c) Each 12 months, for the following 5 years, the approval holder must translocate an additional number of Matted Flax-lily plants and/or patches to the recipient site equal or greater than the number which have not survived during the preceding 12 months. The translocated Matted Flax-lily plants and patches must be sourced from the plants and patches propagated as required under condition 2c	Not Applicable	MRPV have not received written notification from the Minister to this effect as described in Condition 4. Therefore, Condition 4c has not been triggered.
5	**Prior to the commencement of the action at Simpson Barracks, to compensate for the loss of up to 11.866 hectares of Plains Grassy Woodland, the approval holder must establish an offset in accordance with the Victorian Government Guidelines and provide to the Department written evidence that DELWP is satisfied that the offset meets the requirements of the Victorian Government Guidelines. Within 2 weeks of the offset being established, the approval holder must provide the Department with evidence that the offset has been established**	Compliant	In accordance with Victorian Government Guidelines, the Project has secured sufficient native vegetation offsets to compensate for the loss of up to 11.866 ha of Plains Grassy Woodland at Simpson Barracks. Offsets were secured and evidence provided to the Department over the course of 2020, therefore the Project is compliant with this Condition.
6	**The approval holder must implement the Studley Park Gum Management Framework for the period of effect of the approval. The approval holder must provide the Department with a report, as part of the compliance report, every year for 3 years, commencing from the date the first Studley Park Gum tree is planted in accordance with the Studley Park Gum Management Framework. This report must detail the number, condition, and threats faced by the Studley Park Gum trees that have been planted, as well as any maintenance or corrective actions that have been taken or are proposed**	Compliant	The Studley Park Gum (SPG) Management Framework was prepared and published in October 2021 and is available on the Project website (the website) https://bigbuild.vic.gov.au/__data/assets/pdf_file/0009/527094/Studley-Park-Gum-Management-Framework-November-2021.pdf. Implementation of the Framework has been ongoing since the planting of saplings at three recipient sites between May 2021 and May 2022. The SPG Annual Compliance Report (Appendix C of this report) details the number, condition, and threats faced by the trees, as well as maintenance and/or corrective actions, therefore the Project is compliant with this Condition.
7	**The approval holder must notify the Department in writing of the date of commencement of the action within 10 business days after the date of commencement of the action**	Compliant	Written notification was sent to DCCEEW on 28 May 2020 notifying of the commencement of the action on 18 May 2020, therefore the Project is compliant with this condition.
8	**The approval holder must maintain accurate and complete compliance records**	Compliant	MRPV is maintaining compliance records in accordance with this Condition.
9	**If the Department makes a request in writing, the approval holder must provide electronic copies of requested compliance records to the Department within the timeframe specified in the request, or an alternative timeframe agreed in writing with the Department**	Not Applicable	Condition 9 has not been triggered as no request from the Department has been made at the time of preparing this report.
10	**The approval holder must:**		
	a) Publish the Salvage and Translocation Plan and Studley Park Gum Management Framework, not as an attachment or appendix within a larger document, on the website within 20 business days of the date of this approval of the action, or of the date a revised action management plan is submitted to the Minister or the Department, unless otherwise agreed to in writing by the Minister	Compliant	The two plans were initially published on the Project website on the 19/12/2019. The 'Matted Flax-lily Salvage and Translocation Plan' was updated in Dec 2022 (Rev 5) and published on the website on 02/10/2023. As approval was received from DCCEEW on 29/09/23, therefore the 20 business day requirement was met. The 'Studley Park Gum Management Framework' (Rev 3, October 2021) remains available on the website. The Project is compliant with this Condition.
	b) Exclude or redact sensitive ecological data from plans published on the website or provided to a member of the public; and	Compliant	No information was required to be redacted. The Project is therefore compliant with this condition.

Condition No.	Approval Condition	Compliance Status	Comments and supporting documentation
	c) Keep plans published on the website until the end date of this approval	Compliant	The and Salvage and Translocation Plan continue to be available on the Project website. The Project is therefore compliant with this Condition. The Studley Park Gum Management Framework is available at https://bigbuild.vic.gov.au/__data/assets/pdf_file/0009/527094/Studley-Park-Gum-Management-Framework-November-2021.pdf The Matted Flax-lily Salvage and Translocation Plan is available at https://bigbuild.vic.gov.au/__data/assets/pdf_file/0004/527098/Matted-Flax-lily-salvage-and-translocation-plan-December-2022.pdf
11	**The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under conditions of this approval, is prepared in accordance with the Department's Guidelines for biological survey and mapped data (2018) and submitted electronically to the Department as part of the reports required under condition 2f, condition 4b and condition 6**	Compliant	The SPG and MFL Annual Compliance Reports (Appendix B and Appendix C) containing monitoring data will be provided to speciesmetadata@environment.gov.au as required by the Department's Guidelines for biological survey and mapped data (2018), therefore the Project is compliant with this condition.
12	**Unless otherwise agreed to in writing by the Minister, the approval holder must prepare a compliance report for each 12-month period following the date of commencement of the action until the approval expires, or otherwise in accordance with an annual date that has been agreed to in writing by the Minister. The approval holder must:**		
	a) Publish each compliance report on the website within 60 days following the relevant 12-month period;	Compliant	As the date of commencement of the action was the 18th of May 2020, the first Annual Compliance Report covered the period to 17th of May 2021 and was published on the Project website on the 15th of July 2021. The 2021/2022 Annual Compliance Report was published on the Project website the 13th of July 2022 and the 2022/2023 Annual Compliance Report was published on the Project website the 14th of July 2023. The 2023/2024 Annual Compliance Report covers the period between 18th May 2023- 17th May 2024, and as such, will be published on the Project website by the 10th of August 2024 to remain compliant with this Condition.
	b) Notify the Department by email that a compliance report has been published on the website and provide the weblink for the compliance report within five business days of the date of publication;	Compliant	The Department was notified by email within five business days of the 2020/2021, 2021/2022 and 2022/2023 Annual Compliance Reports being published on the Project website. The Department will be notified by email within five business days of the publication of the 2023/2024 Annual Compliance Report.
	c) Keep all compliance reports publicly available on the website until this approval expires;	Compliant	All previous Annual Compliance Reports are publicly available on the Project website at https://bigbuild.vic.gov.au/library/north-east-link/reports/compliance-reports.The Project is therefore compliant with this Condition.
	d) Exclude or redact any sensitive ecological data or other sensitive information from compliance reports published on the website; and	Not Applicable	The Annual Compliance Report has been reviewed to determine if any sensitive ecological data was required to be redacted. Condition 12d was not triggered as no sensitive ecological data was identified.
	e) Where any sensitive ecological data or other sensitive information has been excluded from the version published, submit the full compliance report to the Department within 5 days of publication	Not Applicable	The Annual Compliance Report has been reviewed to determine if any sensitive ecological data was required to be redacted. Condition 12e was not triggered as no sensitive ecological data has been excluded.
13	**The approval holder must notify the Department in writing of any: incident, non-compliance with the conditions, or non-compliance with the commitments made in plans. The notification must be given as soon as practicable, and no later than two business days after becoming aware of the incident or non-compliance. The notification must specify:**		
	a) Any condition which is or may be in breach;	Compliant	There have been no notifiable incidents or non-compliances during the reporting period. The Project is therefore compliant with this Condition.
	b) A short description of the incident and/or non-compliance; and	Compliant	There have been no notifiable incidents or non-compliances during the reporting period. The Project is therefore compliant with this Condition.
	c) The location (including co-ordinates), date and time of the incident and/or non-compliance. In the event the exact information cannot be provided, provide the best information available	Compliant	There have been no notifiable incidents or non-compliances during the reporting period. The Project is therefore compliant with this Condition.

Condition No.	Approval Condition	Compliance Status	Comments and supporting documentation
14	**The approval holder must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in plans as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying:**		
	a) Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;	Not Applicable	There have been no notifiable incidents or non-compliances during the 2023/2024 compliance reporting period.
	b) The potential impacts of the incident or non-compliance; and	Not Applicable	There have been no notifiable incidents or non-compliances during the 2023/2024 compliance reporting period.
	c) The method and timing of any remedial action that will be undertaken by the approval holder	Not Applicable	There have been no notifiable incidents or non-compliances during the 2023/2024 compliance reporting period.
15	**The approval holder must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the Minister**	Not Applicable	Condition 15 has not been triggered as no request has been received from the Minister for an independent audit.
16	**For each independent audit, the approval holder must:**		
	a) Provide the name and qualifications of the independent auditor and the draft audit criteria to the Department	Not Applicable	Not Applicable - Condition 15 has not been triggered as no request has been received from the Minister for an independent audit.
	b) Only commence the independent audit once the audit criteria have been approved in writing by the Department	Not Applicable	Not Applicable - Condition 15 has not been triggered as no request has been received from the Minister for an independent audit.
	c) Submit an audit report to the Department within the timeframe specified in the approved audit criteria	Not Applicable	Not Applicable - Condition 15 has not been triggered as no request has been received from the Minister for an independent audit.
17	**The approval holder must publish the audit report on the website within 10 business days of receiving the Department's approval of the audit report and keep the audit report published on the website until the end date of this approval**	Not Applicable	Not Applicable - Condition 15 has not been triggered as no request has been received from the Minister for an independent audit.
18	**Within 30 days of the completion of the action, the approval holder must notify the Department in writing and provide completion data**	Not Applicable	Not Applicable - the action has not yet been completed.

4 New environmental risks

Over the course of the 2023/2024 reporting period no new risks have been identified. MRPV will continue to monitor and manage environmental risk potential as the Project progresses.

5 Appendices

A. Salvaged MFL Locations

B. Matted Flax - lily Annual Compliance Report

C. Studley Park Gum Annual Compliance Report

Appendix A A. Salvaged Matted Flax Lily Locations

Paper Size A3

0 110 220

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- MFL salvaged at Simpson Barracks
- NEL Project Boundary (PSA GC98/Inc Doc/SCO)

North East Link Project

Job Number 31-35006
Revision A
Date 20 Jun 2022

Simpson Barracks
Salvaged Matted Flax-lily Locations

180 Lonsdale Street Melbourne VIC 3000 Australia **T** 61 3 8687 8000 **F** 61 3 8687 8111 **E** melmail@ghd.com **W** www.ghd.com

\\ghdnet\ghd\AU\Melbourne\Projects\31\35006\GIS\Maps\Working\Specialist Submission\SimpsonBarrack_Eco_EPBCactMFL_Salvage_and_Translocation\3135006_SB_MFL_Salvaged_A3L_RevA.mxd

Data source: CIP Imagery - DELWP - 2021 | Roads, LGA, Watercourses, Rail - Vicmap - 2021 | Project Boundary, MFL Locations - GHD - 2021. Created by:zzuo

Paper Size A3

0 25 50

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Existing Matted Flax-lily
- Matted Flax-lily to be removed
- Project Boundary (SCO GC98/Inc Doc/PSA)

NORTH EAST LINK PROGRAM

GHD

North East Link Project

Date: 19 May 2023
Rev A

Matted Flax-lily Removal Locations

Figure 2

G:\31\35006\GIS\Maps\Working\Operational\Ecology\Ad hoc\20230519_MFL_Removal\20230519_MFL_Removal_Mapping.aprx

180 Lonsdale Street, Melbourne VIC 3000 Australia **T** 61 3 8687 8000 **E** melmail@ghd.com **W** www.ghd.com

Data Sources: CIP Imagery - DELWP - 2021 | Cadastre, Roads, Planning Zones - Vicmap - 2021 | NELP data - 2022 Created by:kgardner

Paper Size A3

0 25 50

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Existing Matted Flax-lily
- Matted Flax-lily to be removed
- Project Boundary (SCO GC98/Inc Doc/PSA)

NORTH EAST LINK PROGRAM

GHD

North East Link Project

Date: 19 May 2023
Rev A

Matted Flax-lily Removal Locations

Figure 1

G:\31\35006\GIS\Maps\Working\Operational\Ecology\Ad hoc\20230519_MFL_Removal\20230519_MFL_Removal_Mapping.aprx

180 Lonsdale Street, Melbourne VIC 3000 Australia **T** 61 3 8687 8000 **E** melmail@ghd.com **W** www.ghd.com

Data Sources: CIP Imagery - DELWP - 2021 | Cadastre, Roads, Planning Zones - Vicmap - 2021 | NELP data - 2022 Created by:kgardner

Appendix B Matted Flax Lily Annual Compliance Report

NEL-PW-GHD-9990-EEE-REP-0037

Matted Flax-lily 2024 Annual Compliance Report

North East Link Program

Revision 0
03/07/2024

→ **The Power of Commitment**

Project name	North East Link Technical Advisor
Document title	Matted Flax-lily 2024 Annual Compliance Report
Project number	3135006
Document number	NEL-PW-GHD-9990-EEE-REP-0037

Revision	Release Status	Comment	Date
0	Final	Issued for Use	03/07/2024

Refer to the relevant GHD Work Verification Record for detail on Designer/Author/Originator, Checker, Verifier and Approver.

GHD Pty Ltd | ABN 39 008 488 373
180 Lonsdale Street, Level 9
Melbourne, Victoria 3000, Australia
T +61 3 8687 8000 | **F** +61 3 8732 7046 | **E** melmail@ghd.com | **ghd.com**

Executive Summary

The North East Link Program (NELP) received approval to remove up to 139 Matted Flax-lily (MFL) plants as part of the environmental approvals required prior to the construction of North East Link (NEL) ('the project'). A condition of the project's approval was the development of a Salvage and Translocation Plan for Matted Flax-lily that would need to be endorsed by DEECA and implemented by the project. The Salvage and Translocation Plan outlined the requirement for a replacement ratio of 4:1 (four MFL to be planted for every one individual impacted or relocated). To date there have been 132 MFL plants impacted (salvaged) and there have been 528 plants cloned and/or propagated and translocated into Cherry St Reserve and Gresswell Forest Nature Conservation Reserve in Macleod. No other MFL plants are proposed to be impacted for the project.

The 132 MFL plants were salvaged between 2020 and 2023 and stored at a nursery where new individuals were also propagated from the salvaged plants. The 528 MFL (comprising the original salvaged plants and the newly propagated plants) have been translocated to the two receptor sites in two batches: Batch 1 in August 2022 and Batch 2 in October 2023. The monitoring program details the timeline for monitoring of the translocated individuals, which reduces in frequency over time up to a ten year post translocation period.

The results of the annual post translocation monitoring indicate that the monitoring program is currently on track with no significant issues identified to suggest the program would not succeed if it continued on its current trajectory. Based on the findings from monitoring activities to date, some maintenance and corrective actions have been proposed to address identified threats to the translocated MFLs. This includes addressing locations where sunken soil is present around the base of translocated individuals, monitoring and managing excessive buildup of biomass around translocated individuals in addition to invasive plant and pest animal control.

This report documents the results of the annual monitoring for the project (undertaken in December 2023). The monitoring events in 2024 for Batch 1 will be conducted in March, June, September and December, and for Batch 2 they will be conducted in January, February, March April, June, September and December. The monitoring will continue to be undertaken quarterly until June 2024, and then biannually until at least winter 2027 for Batch 1. For Batch 2, quarterly monitoring will continue until September 2025 and then biannually until at least winter 2028.

Abbreviations

Abbreviations	
cm	Centimetre
DAWE	Department of Agriculture, Water and the Environment (now DCCEEW)
DCCEEW	Department of Climate Change, Environment, Energy and Water (formerly DOEE and DAWE)
DEECA	Department of Energy, Environment and Climate Action (formerly DELWP)
DELWP	Department of Environment, Land, Water and Planning (now DEECA)
DOEE	Department of Environment and Energy (now DCCEEW)
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EPR	Environmental Performance Requirement
EVC	Ecological vegetation class
FFG Act	*Flora and Fauna Guarantee Act 1988*
ha	Hectare
m	Metre
mm	millimetre
MFL	Matted Flax-lily
NEL	North East Link (the 'project')
NELP	North East Link Program (the 'proponent')
PER	Public Environment Report
VBA	Victorian Biodiversity Atlas
VIDA	Victorian Infrastructure Delivery Authority

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1. Introduction

1.1 Project Background

The North East Link Program (NELP) is a division of the Victorian Infrastructure Delivery Authority (VIDA) and on behalf of the Victorian State government, is currently undertaking the North East Link (NEL) program (referred to herein as 'the project'). The project is a new freeway-standard road connection to the north-east of the Melbourne Central Business District that would complete Melbourne's ring road. Specifically, the project will connect the Metropolitan Ring Road (M80) to the Eastern Freeway and includes works along the Eastern Freeway from near Hoddle Street to Springvale Road.

The impacts to biodiversity values due to the project have been determined through ecological impact assessments. These assessments informed the development of an Environment Effects Statement (EES) in accordance with the *Victorian Environment Effects Act 1978* and a Public Environment Report (PER) in accordance with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The ecological impact assessments identified the project has the potential to negatively impact *Dianella amoena* (Matted Flax-lily), which is classified as 'Endangered' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and as 'Critically endangered' on the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) threatened flora list.

The project received approval to remove up to 139 Matted Flax-lily (MFL) individuals, subject to a range of approval conditions, including:

– The development of a MFL Salvage and Translocation Plan that would detail the requirements for salvage and storage of MFL
– Selection of suitable recipient sites
– Translocation, monitoring and reporting for a period of up to ten years

A total of 132 MFL individuals have been salvaged for the project to date, between April 2020 – October 2023, stored and cloned and/or propagated at ABZECO nursery. Based on the Matted Flax-lily Salvage and Translocation Plan (GHD 2022), four clones of each salvaged MFL plant will be translocated in the recipient sites. Hence, a total of 528 MFLs were translocated in two batches:

– Batch 1: In August 2022, 108 MFL plants were translocated to Cherry Street Reserve, Macleod (Zone B).
– Batch 2: In October 2023 420 MFLs were translocated to Cherry Street Reserve (Zone A) and Gresswell Forest Nature Conservation Reserve, Macleod. Fifty of these Batch 2 MFLs were planted at Cherry Street Reserve (Zone A) while the remaining 370 were planted at Gresswell Forest Nature Conservation Reserve site.

The 528 MFL plants translocated in Batch 1 and 2 comprise the full set of plants subject to the MFL Salvage and Translocation Plan. No further salvage works are proposed for Matted Flax-lily for the project.

This report documents the results of the annual monitoring for the project (undertaken on 30 March to 13 December 2023 for Batch 1 and 30 October to 12 December 2023 for Batch 2). The monitoring events in 2024 for Batch 1 will be conducted in March, June, September and December, and for Batch 2 they will be conducted in January, February, March April, June, September and December. The monitoring will continue to be undertaken quarterly until June 2024, and then biannually until at least winter 2027 for Batch 1. For Batch 2, quarterly monitoring will continue until September 2025 and then biannually until at least winter 2028.

1.2 Approval conditions

The project is subject to approval conditions relating to impacts to Matters of National Environmental Significance (MNES).

The ministerial assessment of the EES included a number of recommendations relating to the Environmental Performance Requirements (EPR) for NELP. One EPR for the project addresses the potential impacts to MFL, EPR FF7, which states '*Where direct impacts on Matted Flax-lily occur, a salvage and translocation plan must be developed and implemented to the satisfaction of the Department of Environment, Land, Water and Planning (now DEECA) and the Commonwealth Department of Environment and Energy (now DCCEEW), prior to the commencement of relevant works'*. The Matted Flax-lily Salvage and Translocation Plan (GHD 2022) has been endorsed by DEECA and DCCEEW, and this report is part of the implementation requirements of the plan.

Conditions 1, 2, 3 and 4 of the EPBC 2018/8142 approval allows for the project to remove up to 139 MFL individuals, and to salvage, propagate and translocate the impacted MFLs into an appropriate recipient site. Following translocation of any MFL individuals, NELP must also monitor the translocated MFLs on a weekly, monthly, quarterly and finally biannual basis for a period of at least five years. The results of the monitoring would be summarised in a series of reports submitted to the DCCEEW documenting the current progress of the translocation plan.

As the translocation of the two batches of MFL was staggered between August 2022 and October 2023, the subsequent monitoring schedule for MFL for the project are also staggered (Table 1 & Table 2). This Annual Compliance report consolidates the monitoring results for both Batch 1 (108 MFL) and Batch 2 (420 MFL). MFL monitoring reports and timing of submissions are detailed in Table 3.

Table 1 Timing of approved translocation and monitoring events for Batch 1

Year	Event	Expected date of event	Date Event completed
0	Translocation	N/A	April and September 2020
1	Planting of salvaged MFL	August 2022	2 August 2022
1	Event 1 – Weekly	August 2022	10 August 2022
1	Event 2 - Weekly	August 2022	18 August 2022
1	Event 3 - Weekly	August 2022	24 August 2022
1	Event 4 - Weekly	August 2022	31 August 2022
1	Event 5 - Monthly	September 2022	26 September 2022
1	Event 6 - Monthly	October 2022	21 October 2022
1	Event 7 – Monthly	November 2022	24 November 2022
1	**Event 8 – Monthly**	**December 2022**	**13 December 2022**
1	Event 9 - Quarterly	March 2023	30 March 2023
1	Event 10 - Quarterly	June 2023	6 June 2023
2	Event 11 - Quarterly	September 2023	26 September 2023
2	**Event 12 - Quarterly**	**December 2023**	**13 December 2023**
2	Event 13 - Quarterly	March 2024	
2	Event 14 - Quarterly	June 2024	
3	**Event 15 - Biannually**	**December 2024**	
3	Event 16 - Biannually	June 2025	
4	**Event 17 - Biannually**	**December 2025**	
4	Event 18 - Biannually	June 2026	
5	**Event 19 - Biannually**	**December 2026**	
5	Event 20 - Biannually	June 2027	

Table 2 Timing of approved translocation and monitoring events for Batch 2

Year	Monitoring Event	Expected date of event	Date Event completed
0	Salvage of MFLs	N/A	August 2021 and October 2023
1	Planting of salvaged MFL	October 2023	20 and 23 October 2023
1	Event 1 – Weekly	November 2023	31 October 2023
1	Event 2 - Weekly	November 2023	9 November 2023
1	Event 3 - Weekly	November 2023	15 November 2023
1	Event 4 - Weekly	November 2023	23 November 2023
1	**Event 5 - Monthly**	**December 2023**	**12 December 2023**
1	Event 6 - Monthly	January 2024	
1	Event 7 – Monthly	February 2024	
1	Event 8 – Monthly	March 2024	
1	Event 9 - Monthly	April 2024	
1	Event 10 - Quarterly	June 2024	
1	Event 11 - Quarterly	September 2024	
2	**Event 12 - Quarterly**	**December 2024**	
2	Event 13 - Quarterly	March 2025	
2	Event 14 - Quarterly	June 2025	
2	Event 15 - Quarterly	September 2025	
3	**Event 16 - Biannually**	**December 2025**	
3	Event 17 - Biannually	June 2026	
4	**Event 18 - Biannually**	**December 2026**	
4	Event 19 - Biannually	June 2027	
5	**Event 20 - Biannually**	**December 2027**	
5	Event 21 - Biannually	June 2028	

Table 3 Overview of monitoring reporting requirements

Monitoring Report	Timing
Baseline and first three month monitoring report (Batch 1 only)	Completed – December 2022
Baseline and first three month monitoring report (Batch 2 only)	Completed- May 2024 (GHD 2024)
Annual reporting: Year 1-4 (Batch 1 and 2)	2024 (this report), 2025, 2026, 2027
Annual report Year 5 (Batch 1) (including review of translocation against approved success criteria for the project and recommendations for the requirements for future monitoring and reporting).	December 2026
Annual Report: Year 5 (Batch 2) (including review of translocation against approved success criteria for the project and recommendations for the requirements for future monitoring and reporting).	December 2028

This annual monitoring report is compliant with the conditions outlined in the project Salvage and Translocation Plan (GHD 2022). A review of the MFL translocation and monitoring program against the conditions outlined in the Salvage and Translocation Plan is detailed in Section 4 of this report, and the project is on track to meet the benchmarks for success.

1.3 Purpose of this report

The purpose of this report is to describe the monitoring program and method applied to assess and record the condition of the 528 MFLs (Batch 1 and 2) following the translocation events at Cherry Street Reserve, Macleod and Gresswell Forest Nature Conservation Reserve, Macleod (the recipient sites; Figure 1a & Figure 1b) in August 2022 and October of 2023.

This report addresses the reporting requirements of the EPBC Act approval (EPBC 2018/8142) conditions and the requirements of the Matted Flax-lily Salvage and Translocation Plan (GHD 2022) as required by the EPBC2018/8142 approval.

Following this report, an annual monitoring report will continue to be prepared for DCCEEW for the life of the monitoring program (up to 10 years).

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0 5 10 20 30 40

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Gresswell Forest Reserve Translocation Site
- Batch 2 (Translocated October 2023)
- Annual Monitoring Quadrats
- Photo Monitoring Point
- Rabbit Warren

NORTH EAST LINK PROGRAM

GHD

North East Link Project

Date: 31 May 2024
Rev D

Matted Flax-lily Recipient Sites
Gresswell Forest Reserve

Figure 1a

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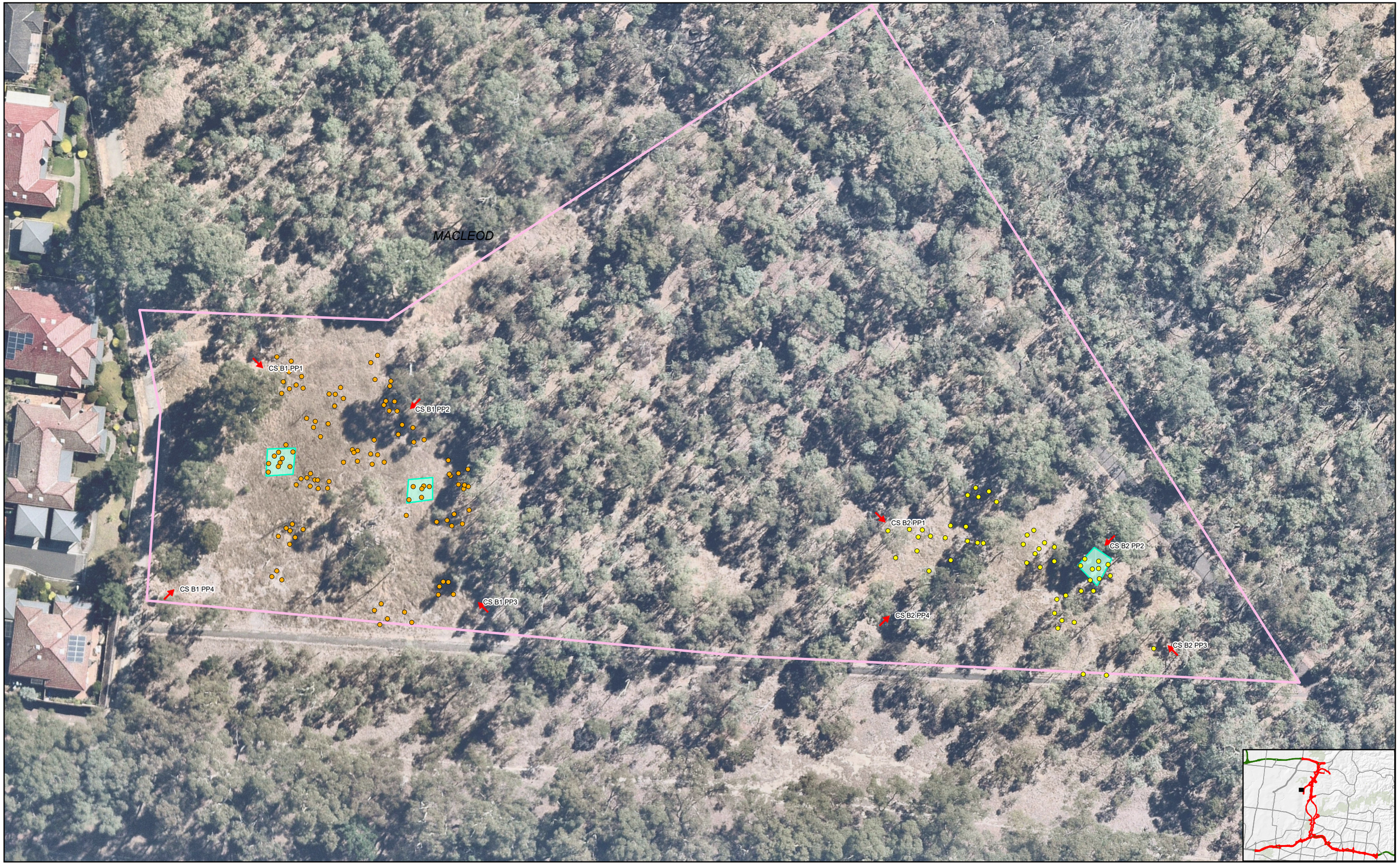
Data Sources: Nearmap - Imagery (Date extracted: 09/10/2023) | Cadastre, Roads, Planning Zones - Vicmap - 2021 | NELP data - 2022 Created by:ekafai



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Cherry Street Reserve Translocation Site
- Batch 1 (Translocated Aug 2022)
- Batch 2 (Translocated October 2023)
- Annual Monitoring Quadrats
- Photo Monitoring Point

NORTH EAST LINK PROGRAM

GHD

North East Link Project

Date: 31 May 2024
Rev D

Matted Flax-lily Recipient Sites
Cherry Street Reserve

Figure 1b

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2. Performance benchmarks

The objective of the Matted Flax-lily Salvage and Translocation Plan (GHD 2022) is to ensure the genetic diversity of the species is conserved, and the population affected by the project is re-established into suitable habitat and managed for the survival and reproduction of this species. Performance criteria have been developed to aid assessment of the MFL translocation program's progress towards meeting this goal over the 10-year monitoring period. The following performance criteria are derived from Vallee et al. (2004) with adaptation to suit the circumstances of the current project and species to be translocated.

The performance criteria for the MFL translocation program are:

1. At least 85% of transplanted clones survive, including representatives from the range of genetic individuals salvaged
2. The translocated populations displayed similar growth, development and vigour as naturally occurring populations
3. Transplants survived to reproductive stage (producing flowers and fruit)
4. If plants did not survive to reproductive stage, then the plants will be replaced
5. Regeneration occurs in the translocated individuals (since the recruitment of MFL through seed is thought to be rare, the production of ramets at a rate similar to naturally occurring populations is considered sufficient to meet this criterion)
6. The number of individuals within the population was stable or had been increased by natural (including vegetative) recruitment
7. Adequate levels of genetic diversity were maintained

The number of surviving plants at the end of the 10-year monitoring program that are needed to meet the long-term success criteria of the translocation program would depend on the number of clones propagated and planted out. Condition and success of the clones would continue to be monitored for up to 10 years with the aim of achieving 85% survival of clones by the fifth year. If performance targets are met within five years, it is envisaged that a significantly reduced monitoring program could be implemented for the remaining five years. Should 85% of survival would not be achieved at the end of five years, contingency planning would be initiated.

Based on the current salvage of 132 MFL plants and the subsequent translocation of 528 propagated and/or cloned MFL plants (Batch 1 and Batch 2), the MFL Salvage and Translocation Plan would be considered a success at the five-year mark if survival of at least 449 plants, with representative clones from each 132 salvaged plants were achieved. Of the 449 plants survival target, approximately 357 plants should come from Batch 2 (85% of the 420 translocated Batch 2 MFLs) and approximately 92 plants should come from Batch 1 (85% of the 108 translocated Batch 1 MFLs).

2.1 Recipient site locations

The Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve (both in Macleod, Victoria) were selected (from the possible locations specified in the Matted Flax-lily Salvage and Translocation Plan (GHD 2022) through consultation with Darebin Council, DEECA and DCCEEW.

Within the Cherry St Reserve the MFL have been planted into a 1 hectare (ha) area in the southern end of the Reserve (Zone A and Zone B), which was selected with advice from the City of Darebin Biodiversity Officers (Figure 2).

Within the Gresswell Forest Nature Conservation Reserve the MFLs have been planted into a 3.4 ha area in the northern end of the Reserve. This was selected with advice from the Parks Victoria officers who manage the site (Figure 2).

2.1.1 Cherry Street Reserve site preparation

To assist in preparations to translocate the MFL plants from the ABZECO nursery, the site at Cherry Street Reserve was divided into three management zones. The site is divided into Zones A, B and C (Figure 2) to enable management actions to be targeted to the specific conditions and ecological values in each zone. ABZECO are engaged to manage this site and have prepared a Cherry St Reserve Site Schedule (ABZECO 2022) (approved by DEECA) to detail how the three zones would be managed over the life of the monitoring program. The schedule includes the tasks required to prepare the zones for the planting of Matted Flax-lilies.

A summary of the Site Schedules for Zones A, B and C are outlined below.

Zone A – Batch 2 MFL Planting Area

- Staged thinning of eucalypts Year 1 summer 2023-24 from mapped planting areas only. Trees were selected for retention. Regrowth will continue to be removed.
- Control of herbaceous and woody weeds – across entire zone.
- Hand weeding only in high quality patches with herbs/shrubs.
- Spot spraying with selective herbicide in exotic dominated areas.
- Handheld weed burners for use in areas away from lilies, orchids, herbs and shrubs.
- MFL planted in October 2023 were translocated in tussock gaps and avoided areas with herbs, lilies, and shrubs.

Zone B – Batch 1 MFL Planting Area

- Staged thinning of eucalypts completed in July 2022. Eucalypt regeneration will be managed.
- Control of herbaceous and woody weeds across entire zone.
- Hand weeding only in high quality areas with herbs/shrubs.
- Handheld weed burners in areas away from lilies, orchids, herbs, and shrubs.
- Spot spraying with selective herbicides in exotic dominated areas.
- MFL planted in August 2022 in tussock gaps avoiding areas with herbs, lilies, and shrubs.

Zone C – Fuel Management Zone

- Control of herbaceous and woody weeds across entire zone
- No MFL to be planted in this area
- Brushcut annually in January after seed set of the Kangaroo Grass (*Themeda triandra*)

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Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Cherry Street Reserve
- Management zones
- Batch 1 (translocated Aug 2022)
- Batch 2 (translocated October 2023)

NORTH EAST LINK PROGRAM

GHD

North East Link Project

Date: 29 Apr 2024
Rev A

Management zones
Cherry Street Reserve

Figure 2

Security Classification: OFFICIAL: Sensitive
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2.1.2 Gresswell Forest Nature Conservation Reserve site preparation

To restore and maintain the Gresswell Forest Nature Conservation Reserve recipient site as a grassy woodland, the preparation focus was on woody weeds, exotic pasture grasses and ecological thinning of indigenous trees and shrubs.

Initial surveys of the site condition conducted in March 2023 identified a mix of exotic and non-indigenous species as the initial focus of management to prepare the site for translocation. Ecological thinning was conducted to reduce the overdominance of midstory vegetation that was outcompeting the native understory vegetation, therefore Cassinia species were targeted. All of the *Cassinia sifton* (Drooping Cassinia) was then removed and approximately half of the *Cassinia longifolia* (Shiny Cassinia) were removed. This resulted in a 10-15 m spacing between Eucalyptus trees and Cassinia in the translocation area.

An appropriate fire regime is also essential for controlling grasses, shrubs and saplings. In April 2023 the translocation site was subject to a controlled burn. This cleared space to encourage understory diversity and will increase the chance of survival for the MFLs.

3. Method

The method applied to monitor the MFL outlined below is in accordance with the Matted Flax-lily Salvage and Translocation Plan (GHD 2022). As in all translocation programs conducted over a 10-year period, there are uncertainties that may impact the effectiveness of the translocation program, and unforeseen events that could impact the condition of the MFL. The Matted Flax-lily Salvage and Translocation Plan (GHD 2022) allows for adaptive management to be put in place to allow practitioners to respond to unforeseen events. Amendments to the approved plan would need to be developed in consultation with DEECA.

3.1 Monitoring program

The approved monitoring program stipulates that there would need to be more frequent monitoring, immediately following translocation to confirm the new transplants have established themselves at the recipient site. The monitoring could then occur less frequently once the plants are established (Table 1 and Table 2).

The program allows for monitoring to be conducted weekly for the first month after translocation, then monthly during the second through to the fifth month, and then quarterly visits over the first two-years (as detailed in Table 1 and Table 2). The monitoring would then be conducted on a six-monthly basis for up to five years. At the end of the five-year period, a review is proposed to tailor the management and monitoring program for the remaining five years.

It is expected that a reduced monitoring program would be implemented for Years 5-10. This schedule may be revised, with approval of DCCEEW and DEECA, depending on establishment rates and achievement of performance benchmarks. A final site assessment would be conducted at the end of the tenth year after the initial translocation event to confirm that performance benchmarks have been met.

3.2 Monitoring data

The monitoring at recipient sites involves collecting data against a range of parameters to assess the condition of the translocated MFL against the success criteria (as per the approved Matted Flax-lily Salvage and Translocation Management Plan, GHD 2022). The monitoring has been undertaken or overseen by a qualified botanist approved by DEECA and in consultation with the land managers (e.g. Council biodiversity officer or the Parks Chief Ranger).

3.2.1 General condition data collected during each monitoring event

The following data is collected at each monitoring event:

- A population count of all translocated MFL plants
  - Alive: With green material above ground
  - Dormant: Plants found with no green material above ground
  - Dead: Plants that have been dormant for an entire 12-month period will be classified as dead.
- Health status
  - Good: >70% leaves green
  - Moderate >30-<70% leaves green
  - Poor <30% leaves green
- Evidence of herbivory/ pathogens
  - Yes/ No
- Presence of noxious weeds
  - % cover of all noxious weeds within 0.5 m radius of each MFL
  - Comments listing each noxious weed species

- Presence of flowers and/or fruits and height of inflorescence or infructescence
  - Buds: yes/no
  - Flowers: early/ mid/ late
  - Fruit: early/ mid/ late
- Threats to MFLs
  - Notes about any new conditions or factors that could negatively impact the MFLs
- Photos
  - Representative photos
    - A selection of photos from random MFLs
  - Photo point monitoring
    - Photos from each corner of the recipient sites in Cherry St Reserve (Zone A and Zone B) and Gresswell Forest Nature Conservation Reserve (Figure 1; Table 4)
    - The photos are taken facing internally to show the reserves and translocation sites
    - Landscape format
- Overall site condition
  - Making a note of any new conditions or factors that could negatively impact the translocation site
  - Making a note of any conditions that need to be managed by the land managers
- Weather data
  - Using BOM Climate data (BOM 2024) rainfall and temperature minimums and maximums for the months between the current and previous monitoring period are compared to the 10-year average of those months.

Table 4 Photo point latitude and longitude locations for each of the three translocation sites

Photo point ID	Latitude	Longitude	Direction photo is taken
Cherry St Reserve (Zone B) Batch 1 points			
CS B1 PP1	-37.7236053	145.0646674	SE
CS B1 PP2	-37.7236791	145.0649763	SW
CS B1 PP3	-37.7240056	145.0651116	NW
CS B1 PP4	-37.7239736	145.0644696	NE
Cherry St Reserve (Zone A) Batch 2 points			
CS B2 PP1	-37.7238866	145.0659795	SE
CS B2 PP2	-37.7239332	145.0664418	SW
CS B2 PP3	-37.7241024	145.0665711	NW
CS B2 PP4	-37.7240429	145.0659842	NE
Gresswell Forest Nature Conservation Reserve Batch 2 points			
GF B2 PP1	-37.70900278	145.07252500	SE
GF B2 PP2	-37.70971389	145.07315000	SW
GF B2 PP3	-37.71142880	145.07221110	NW
GF B2 PP4	-37.71126944	145.07145389	NE

3.2.2 Detailed condition data collected during annual quadrat monitoring

To capture more detail on a subset of plants, six 25 m^2 quadrats have been established within the two translocation sites (Figure 1a-b). These quadrats have been distributed across each site in locations that are representative of the general conditions across the areas where MFL plants have been translocated. In December, the following data was captured for the MFL plants within these six quadrats as part of the annual monitoring program:

- MFL basal diameter, measured as the widest point between ramets
- No. of ramets
- Maximum leaf length
- Height of inflorescence or infructescence

These data will be collected every December when growth and inflorescence/infructescence numbers are expected to be highest.

The value of measuring the plant health can provide advance warning of potential issues for the translocation program. A small number of MFL plants in poor condition or dormant (i.e. no leaves) is not unusual for this species, especially at certain times of year. However, a large proportion of the plants in moderate or poor condition could indicate a change in condition of the site and that adaptive management is needed before the plants are beyond recovery. Details of the condition assessment and results from the monitoring event in December 2023 are shown in Table 5.

3.3 Adaptive management

The health and survival of the translocated plants will be monitored according to the methods described in Section 3.2, and if a large portion of the translocated population appears to be declining and/or translocation criteria are not being met, efforts will be made to identify the cause of the decline, and further adaptive management measures developed in consultation with DEECA. If the cause of any decline in condition was identified as being an aspect of the management of one or both of the recipient sites (such as insufficient watering or weed control), then modifications to site management will be evaluated and implemented as needed. In addition, if survival criteria were not being met, the number of clones in the nursery can be increased by creating further divisions of established nursery stock so that sufficient clones were available to replace losses. If contingency measures were implemented (at the end of the five-year monitoring period), the monitoring period would be extended for up to an additional five-year period.

The primary criteria for triggering replanting additional clones would be high levels of plant mortality at the recipient sites, based on the judgement of the project botanist. Plants in poor health and/or which are not sufficiently growing either in width or number of ramets should first be watered and monitored before being considered for replacement. Replacement would be considered if the plant has been dormant for an entire 12-month period, the plant has been watered in spring or summer (depending on weather conditions), and after the late summer/ autumn growing period where MFL typically put out new growth. If no new growth is observed then the plant should be considered for replacement.

As monitoring continues, a sufficient number of clones would be propagated and retained in the ABZECO nursery to replace any losses of the translocated plants at the recipient sites with the goal of 100 % genetic survivorship of salvaged material, i.e. at least one clone from each parent MFL plant becomes established. This is critical to the success of the monitoring program. Based on previous translocation programs, MFL can be successfully propagated in a nursery setting and a large number of clones can often be produced from a single parent plant.

3.4 Reporting

Following the baseline and the three months post translocation monitoring report (GHD 2024), yearly reports for the program's lifetime (minimum of five and up to 10 years) will be prepared. As the translocation of MFL plants has occurred in two staggered batches, this report combines the results of the second year of annual monitoring for Batch 1 MFL plants (encompassing quarterly monitoring data from March, June, September, and December 2023) and the first year of annual monitoring for Batch 2 MFL plants (encompassing monitoring data collected between October to December 2023). The annual monitoring reports for both batches of translocated plants will henceforth be combined for the life of the monitoring program.

The annual monitoring report will discuss the survivorship, condition and growth of the translocated MFL plants. It will also include information on conditions at the recipient site and the nursery, and an assessment of the status of the translocation program relative to the performance criteria. The reports will also discuss known or potential threats, management issues and maintenance or corrective actions that have been undertaken or any that are proposed. The report will include rainfall and watering data, the tabulated results from each monitoring event and the quarterly photos taken from each established photo point.

A final report will be provided after the tenth year and include an analysis of whether the translocation program has achieved the long-term performance criteria, or whether further management and monitoring is required. The final report will also include a summary of lessons learned and recommendations for future translocation programs.

Table 5 Performance management and contingency planning

Monitoring stage	Standard to be achieved	Contingency	Batch 1 Outcome	Batch 2 Outcome
Pre-planting	100% of salvage of pre-clearance plants Where achievable six clones to be created to replace salvaged plants.	If the six clones cannot initially be established, additional clones to be produced when plant mass is sufficient. Two clones maintained in nursery conditions	Compliant	Compliant
End of 1st year	>85% survivorship	No additional measures and continue to monitor	Standard was achieved – December 2023	On track to meet this criterion by December 2024
	<85% survivorship	Replant up to 85% survivorship of four clones		
End of 2nd year	>85% survivorship	No additional measures and continue to monitor	On track to meet this criterion by December 2024	
	<85% survivorship	Replant up to 85% survivorship of four clones		
End of 3rd year	>85% survivorship	No additional measures and continue to monitor		
	<85% survivorship	Replant up to 85% survivorship of four clones		
End of 4th year	>85% survivorship	No additional measures and continue to monitor		
	<85% survivorship	Replant up to 85% survivorship of four clones		
End of 5th year	Achieved a performance target of at least 85% of clones surviving? If so the salvage and translocation plan is declared a success.	No contingency management is required. Amend monitoring program years 5-10. Actively manage sites to 'maintain' population through threat management.		
Years 5-10	If the performance target has not been met at the end of the 5-year period continue with replanting strategy for a further five years.	Review the existing strategy and explore options to improve success rates. Replant with 'insurance clones' as required to achieve performance target and monitor until performance target achieved.		

4. Annual monitoring summary

4.1 Batch 1- Annual monitoring summary

4.1.1 Survivorship

During Event 12 on 13 December 2023 (the most recent data captured by this report), the survival rate of the MFL plants at Cherry Street Reserve Zone B was 99% (105 MFL plants) (Figure 3; Appendix C). Only one MFL was recorded as dead while two MFL plants were missing. It is considered likely that the two missing MFL plants are alive and were missed due to biomass growth making it difficult to find the individuals. For the purpose of this report dead and missing individuals have been recorded as dormant (and not dead unless the individuals are not found for another year).

The survivorship of the MFL plants has remained high over the course of the monitoring program. From Event 9 (30 March 2023) to Event 12 (13 December 2023) the overall number of MFL plants not recorded as 'present' has fluctuated, suggesting that the issue is finding the plant as a result of high biomass surrounding the translocated individuals, not that the plant has not survived. Figure 3 shows the number of surviving plants from March to December 2023 (Event 9 to 12).

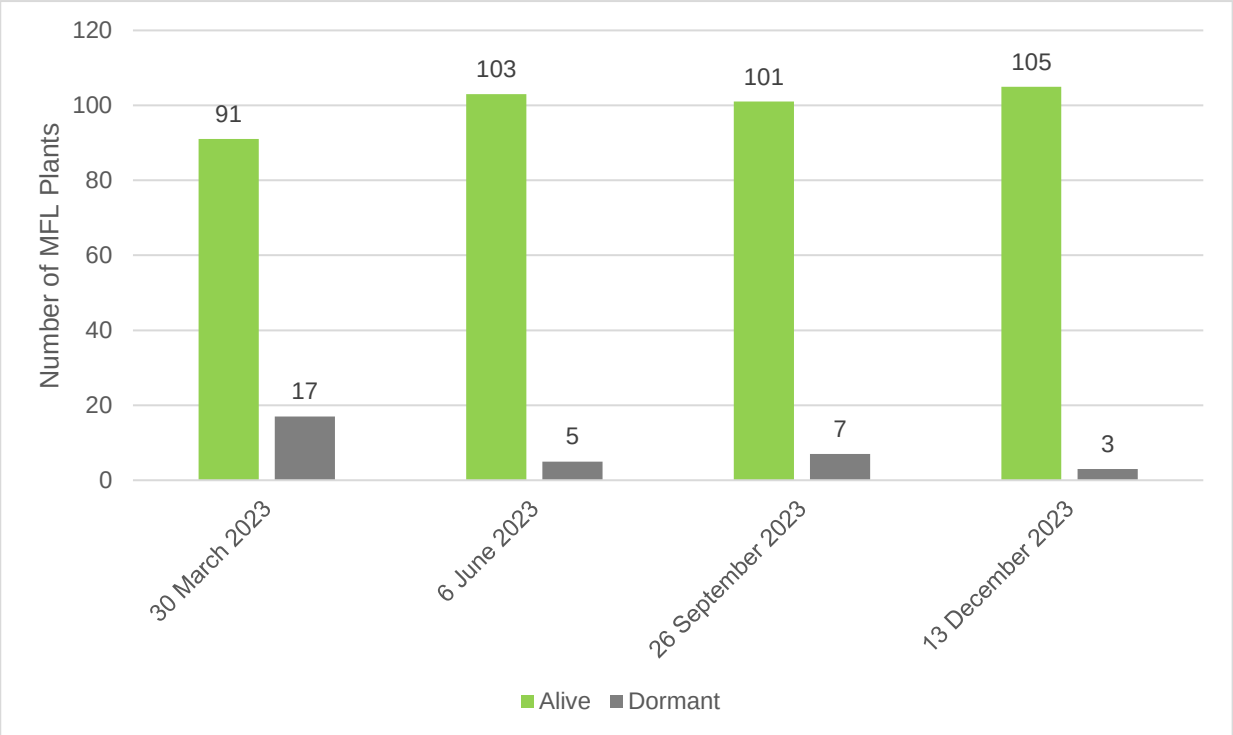


Figure 3 *Batch 1 MFL survivorship in Cherry Street Reserve Zone B between March (Event 9) to December 2023 (Event 12)*

The proportion of MFL plants with good health started low at the commencement of the monitoring in 2023 (Figure 4). The proportion of plants with good health (>70% green leaves) was recorded as 11% in Event 9 (30 March 2023) and significantly increased over the next 10 months to a high of 90% in Event 12 (13 December 2023). Consequently, the proportion of plants in poor condition (<30% green leaves) has decreased from 62% in Event 9 to 0% during Event 12 monitoring, suggesting that the MFL plants are successfully adapting to the translocation site.

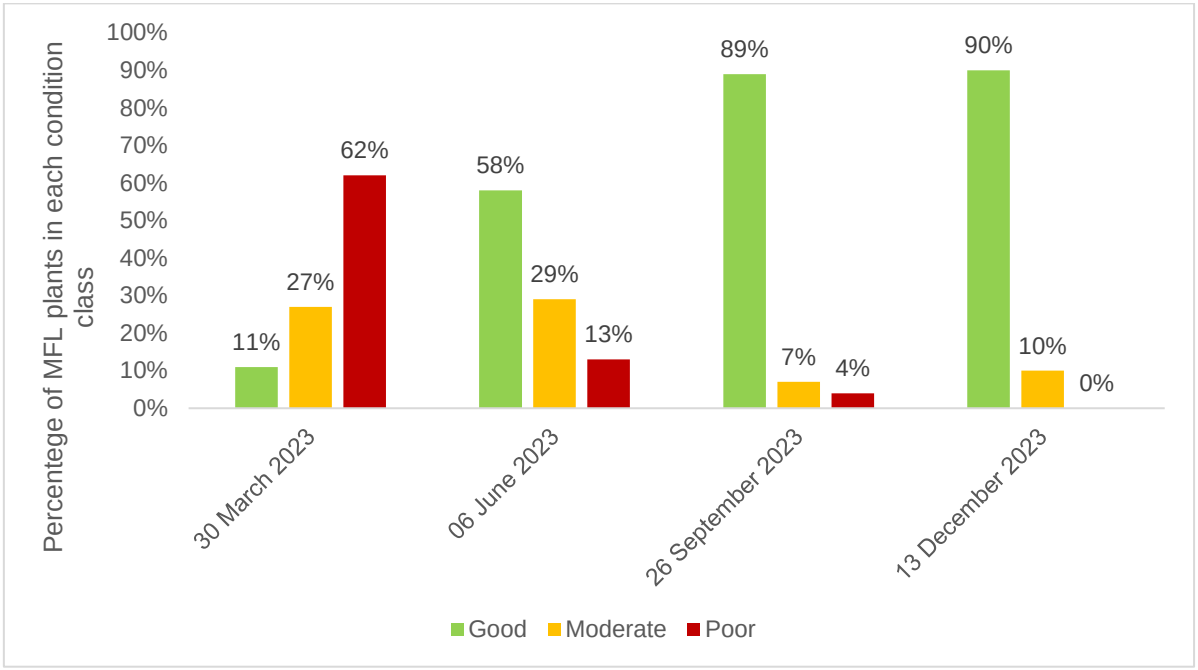


Figure 4 *Batch 1 MFL condition in Cherry Street Reserve Zone B between March (Event 9) to December 2023 (Event 12)*

During Event 9 (30 March 2023) monitoring, only 4% of MFL plants have reproductive materials observed. This increased in Event 12 (13 December 2023) with 27% of MFL plants showing some stage of reproduction (any of buds, flowering, fruiting). This is in line with the MFL plants expected flowering period. Figure 5 presents percentage of MFL plants with reproductive material from Event 9 to Event 12. The high proportion of plants displaying some stage of reproductive material is a good sign of Matted Flax-lily health.

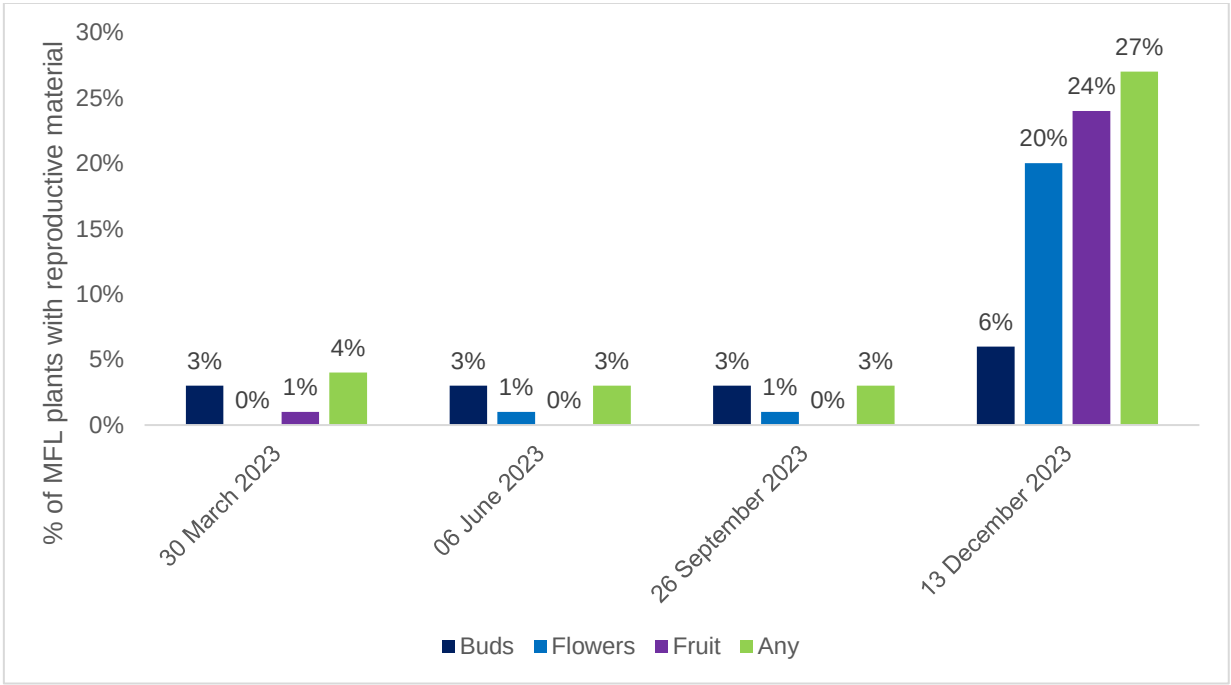


Figure 5 *Batch 1 MFL buds, flowering, and fruiting percentages in Cherry Street Reserve Zone B between March to December 2023*

In December 2022 and 2023, quadrat monitoring was conducted to assess additional characteristics about the MFL plants. These characteristics are summarised in Table 6. The average basal diameter decreased between monitoring events from 15.13 cm to 14.5 cm. However, this change is not statistically significant for a population of 15 plants. The average number of ramets also decreased from 14 in December 2022 to 7.2 in December 2023. This decrease is likely because the plants have had more difficult conditions in 2023, compared to the nursery where they were grown in through most of 2022. This is not necessarily a cause for concern and the plants could be building their root network and putting less effort into their leaves to better adapt to seasonal conditions. If the population does well over time, this average ramet count would be expected to rise.

Table 6 ***Batch 1 Additional monitoring data collected on a subset of the population in December 2022 and December 2023 - 15 MFL plants***

Annual monitoring data collected December 2023 – 15 MFL plants		
Monitoring event	Event 8 – December 2022	Event 12 – December 2023
Average leaf height (cm)	36.8	28.0
Average Basal diameter (cm)	15.1	14.5
Average no. of ramets	14	7.2

4.1.2 Weather

The following weather conditions (Table 7) were observed at the recipient site between Event 8 and Event 12 (13 December 2022 - 13 December 2023). Data was collected from the BOM Viewbank Weather Station (station 086068) (BoM 2023).

Table 7 ***Comparisons in weather conditions at Viewbank since the previous report (December 2022) and historical average for the January – December 2023 period***

	Actual from Viewbank Station (365 Days)	**2014-2023 average over the 12-month period**
Average Min temp C	10.4	10.2
Average Max temp C	20.9	21.0
Total rainfall (mm)	677	670.7
Number of days with rain >1 mm	94	90.1
Abnormal weather events in 2023	Rainfall was higher than average in the between March and May. Then from June to September the rainfall was lower than average. Overall there was higher rainfall in 2023 than the long-term average.	

4.1.3 Maintenance

The Cherry Street Reserve has been sprayed for broadleaf and grassy weeds and hand weeding around the MFL plants has been undertaken. This will assist with the establishment of plants and enable them to put on biomass, enabling plants to compete with the grass and weeds in the Reserve. This is part of the planned maintenance, and the current schedule is sufficient at this time.

The maintenance and corrective actions specified in Table 8 have taken place during the monitoring program between March – December 2023.

Table 8 ***Maintenance actions planned and completed in Cherry Street Reserve for the translocated Matted Flax-lilies (MFL) in 2023***

Action	Timing	Outcome
Tree thinning	March 2023	Reduction in number of young trees growing in the Reserve.
Weed control – C3 non-native grasses	April 2023	Reduced C3 grassy weed load across the year.
Controlled burn	May 2023	A reduction in the biomass load in the Reserve.
Weed control – Annual non-native grasses	June 2023	Reduced annual non-native grass weed load across the year.
Weed control – Broadleaf weed treatment	July 2023	Reduced broadleaf weed load across the year.
Weed control – Plantago treatment	August and September 2023	Reduction in the cover of Plantago in the Reserve.
Hand weeding of MFL plants	September 2023	More space around the MFL plants.
Weed control – Vernal-grass	September and December 2023	Reduction in the instances of Vernal-grass weeds in the Reserve.
Watering MFLs	November 2023	Application of water to the MFLs at a time when the monthly rainfall was 42.4 mm. This value is lower than the mean for November, 73.7 mm.

4.1.4 Genetic diversity

At Cherry Street Reserve, 100% of the parent plants are represented by living clones. As of Event 12 monitoring on 13 December 2023, two clones from MFL parent number 24 were not observed or dormant. It is strongly suspected that these two MFL plants are alive and were missed due to biomass growth making it difficult to find the individual. If these clones are not found in 2024 it is recommended that the plants be replaced.

4.1.5 Threats

4.1.5.1 Biomass

The biomass at Cherry Street Reserve Zone B has increased since the original translocation. The site was burnt as part of the preparation to receive the translocated MFL plants, which resulted in a lower than average biomass following the burn. The increasing biomass is expected in the months after a burn as well as coming into summer. There are some MFL plants that are completely covered by grass and are both difficult to find, but also very small plants that might be suffering from the overshadowing due to grass (Appendix C, Table C2). It is recommended that these six MFL plants are hand weeded to give them space to grow larger and establish more securely.

4.1.5.2 Herbivory

Event 10 (06 June 2023) recorded the highest herbivory in 2023 with 28% of affected MFL plants. It was reduced to 17% at the end of the year during the Event 12 monitoring on 13 December 2023. There has been little evidence of continued herbivory stress on the plants. This will be monitored over the life of the program in case conditions change.

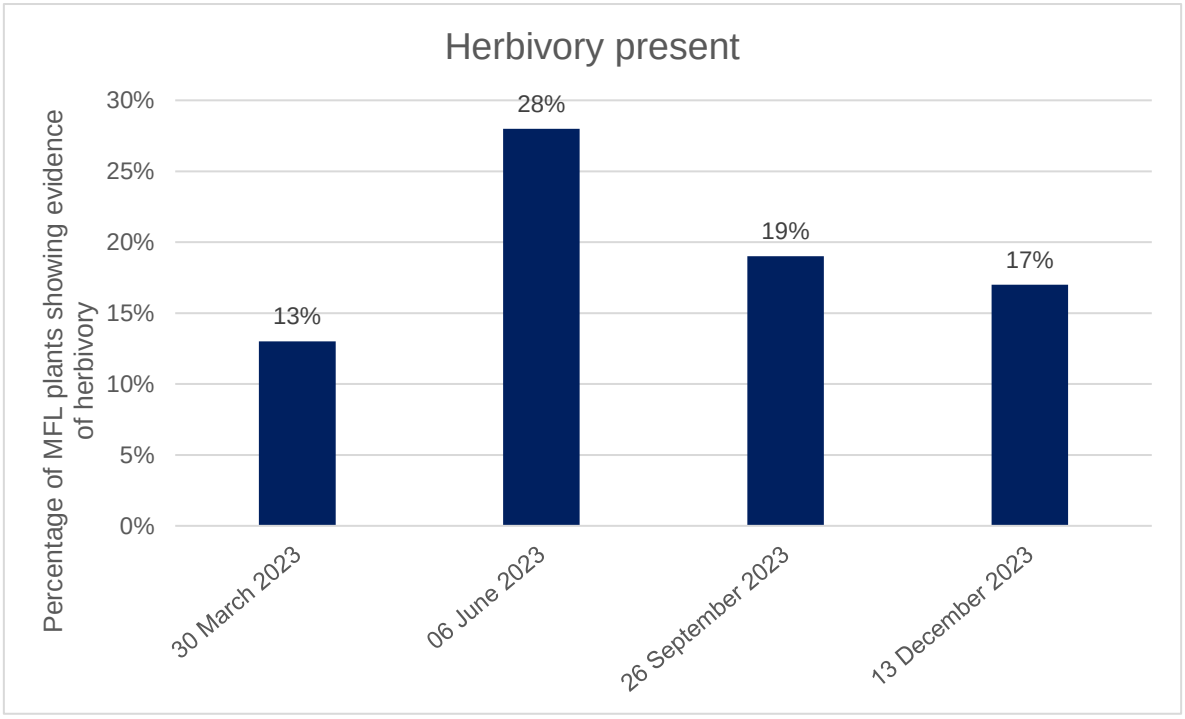


Figure 6 ***Batch 1 percentage of MFL plants impacted by herbivory in Cherry Street Reserve Zone B between March to December 2023***

4.1.5.3 Waterlogging

Waterlogging was a threat to MFL plants with some in the east side of the Cherry Street Reserve Zone B having their soil washed away and water pooling at the base of the plants in August 2022 (Plate 1). Corrective actions have since been taken including adding soil near the base of plants to ensure water is unable to pool around the root zone. During the Monitoring Event 12 (13 December 2023) there was no waterlogging evident around any of the MFL plants, and as a result the plants are currently not at risk of this threat.

1a– Example of waterlogging that occurred on 24 August 2022

1b– Example of Soil that was added back on 26 September 2022

Plate 1 Matted Flax-lily from Event 3 (1a) waterlogged due to soil washing away and recent rain. The same Matted Flax-lily during Event 5 (1b) after soil has been added back to the base of the plant.

4.1.6 Recommended additional maintenance

Hand weeding around six MFL plants that seem to be overgrown by the grass in the Cherry Street Reserve is recommended to give these plants a better chance of growing larger and establishing more securely. While it is anticipated that MFL plants would lose leaves over time, as conditions change some plants are only presenting with very small or unhealthy looking leaves. This could be due to limited access to light or nutrients due to the surrounding grass biomass.

4.1.7 Summary of results

Overall, the Batch 1 MFL translocation program is considered to be on track as 99% of MFL plants have been observed to have survived within the March 2023 to December 2023 timeframe. In addition, the majority of the translocated MFL plants show more than 70% healthy green leaves in that timeframe. The high proportion of plants showing reproductive material is also encouraging for the long-term survival of this translocated population.

Table 9 summarises the results at the end of the 10 months of monitoring. The annual monitoring data shown in Table 10 are collected in December of each year of the monitoring program to gain a deeper understanding of the condition of the translocated MFL plants.

Table 9 Batch 1 MFL Monitoring data collected at each from Event 9 to Event 12 in Cherry Street Reserve Zone B

Data collected every monitoring event	Event 9	Event 10	Event 11	Event 12
Living plants (no.)	91	103	101	105
Dormant plants (no.)	17	5	7	3
% of plants with >70% of healthy leaves (good condition)	11%	58%	89%	90%
% of plants with 30<70% of healthy leaves (moderate condition)	27%	29%	7%	10%
% of plants with <30% of healthy leaves (poor condition)	62%	13%	4%	0%
Proportion of plants with flowering / fruiting present	4%	3%	3%	27%
Noxious weeds present (within 0.5 m radius) %	0%	0%	0%	0%
Herbivory present (%)	13%	28%	19%	17%

Table 10 Batch 1 Monitoring data collected on a subset of the population in December 2023 - 15 MFL plants

Annual monitoring data collected December 2023 – 15 MFL plants	
Average leaf height (cm)	28.0
Average Basal diameter (cm)	14.5
Average no. of ramets	7.2
Programmed maintenance undertaken satisfactorily	Yes
Previous additional maintenance/ adaptive measures undertaken	Yes
Additional maintenance required	Yes

4.2 Batch 2- Annual monitoring summary

4.2.1 Survivorship

After the Batch 2 MFLs were planted on 20 and 23 October 2023, it took four weeks before all the MFL plants were located. This delay in finding all the plants was due to the small size of the plant and the large area and number of plants. By Event 4 (23 November 2023) all 420 plants had been identified and mapped. Of the 420 plants two were marked as dormant in Event 4 and these were not plants that had not been identified in earlier weeks.

During Event 5 on 12 December 2023 (the most recent data captured by this report) the survival rate of the Batch 2 MFL plants at Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve is 99.8% (419 MFL plants) (Figure 7; Appendix C). In Event 5 (12 December 2023) there was one plant assessed as “dead”. This plant is assumed to be dormant at this stage, but it will not be replaced until it has been assessed as “dead” for one year. It is expected that this plant will likely regrow its leaves when the conditions improve, after summer.

Consistent with the method, plants that cannot be found or have no living material above ground have been counted as dormant for the first year and if they are dormant the second year they will be counted as dead.

The survival of the MFL plants has remained high over the course of the monitoring program. Figure 7 shows the number of “dormant” plants which were not found or have no living material above ground during surveys but not considered dead at this point.

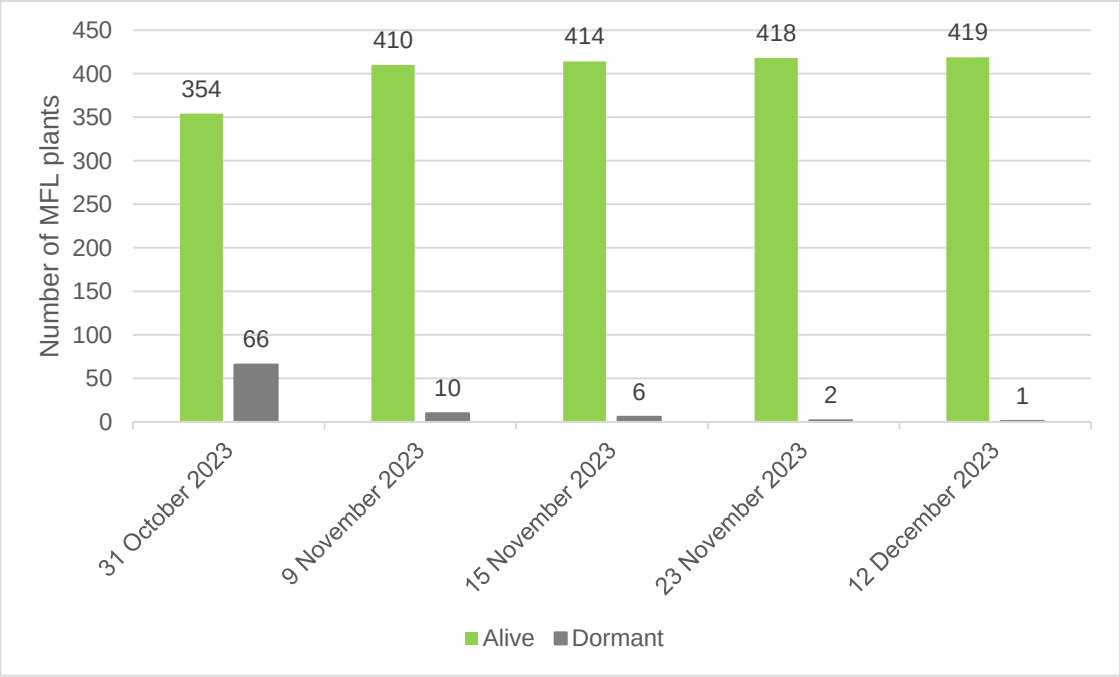


Figure 7 ***Batch 2 MFL survivorship in Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve between October to December 2023***

The health of the Batch 2 MFL plants started off high after being translocated from the nursery (Figure 8). The proportion of plants with good health (>70% green leaves) decreased over the next four weeks (31 October 2023 to 23 November 2023) since translocated to a low of 27%. On 12 December 2023, the proportion of good condition plants increased to 81%.

The proportion of plants in poor condition (<30% green leaves) has remained low, only increasing to 12% on Event 4 (23 November 2023) before decreasing again to 1% on Event 5 (12 December 2023).

This trend makes sense for this population. The stress of translocation caused the condition to decrease, but after a month the plants were able to settle into the reserves and their condition seems to have improved since then.

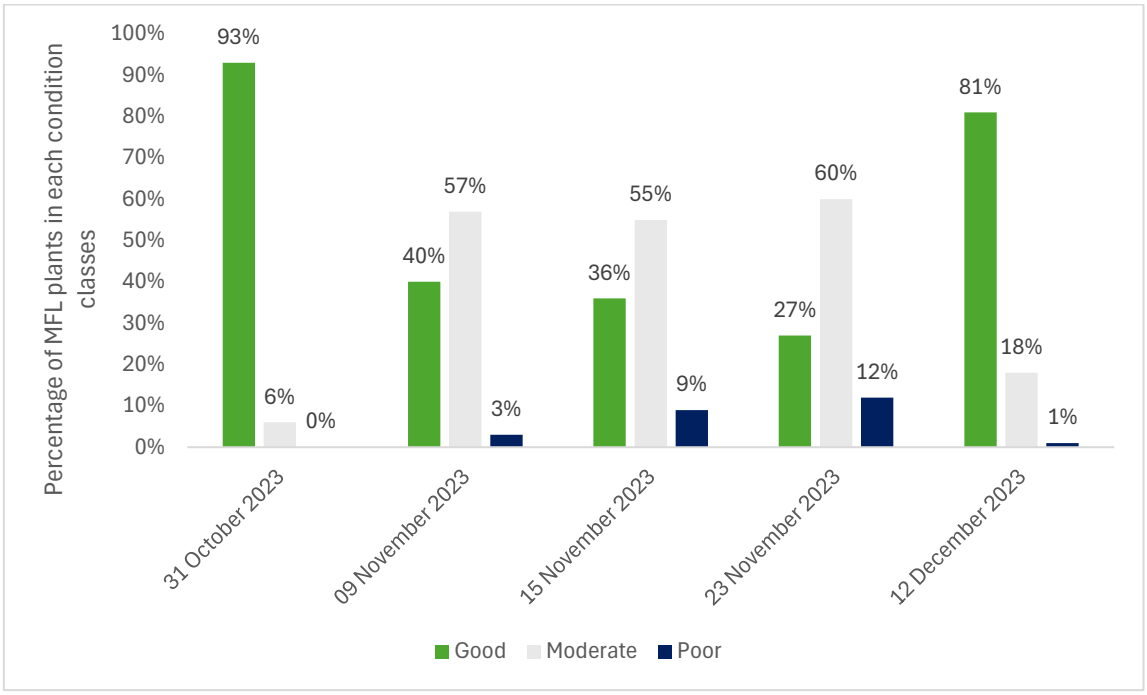


Figure 8 ***Batch 2 MFL condition in Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve between October to December 2023***

As early as Event 1 (31 October 2023) inflorescences were already observed with 33% of plants (113 plants) with at least one inflorescence. This is in line with the MFL plants expected flowering period. This increased on Event 5 (12 December 2023) with 44% of MFL plants showing some stage of reproduction (any evidence of either buds, flowering and/or fruiting) (Figure 9). The high proportion of plants displaying some stage of reproductive material is a good sign of Matted Flax-lily health.

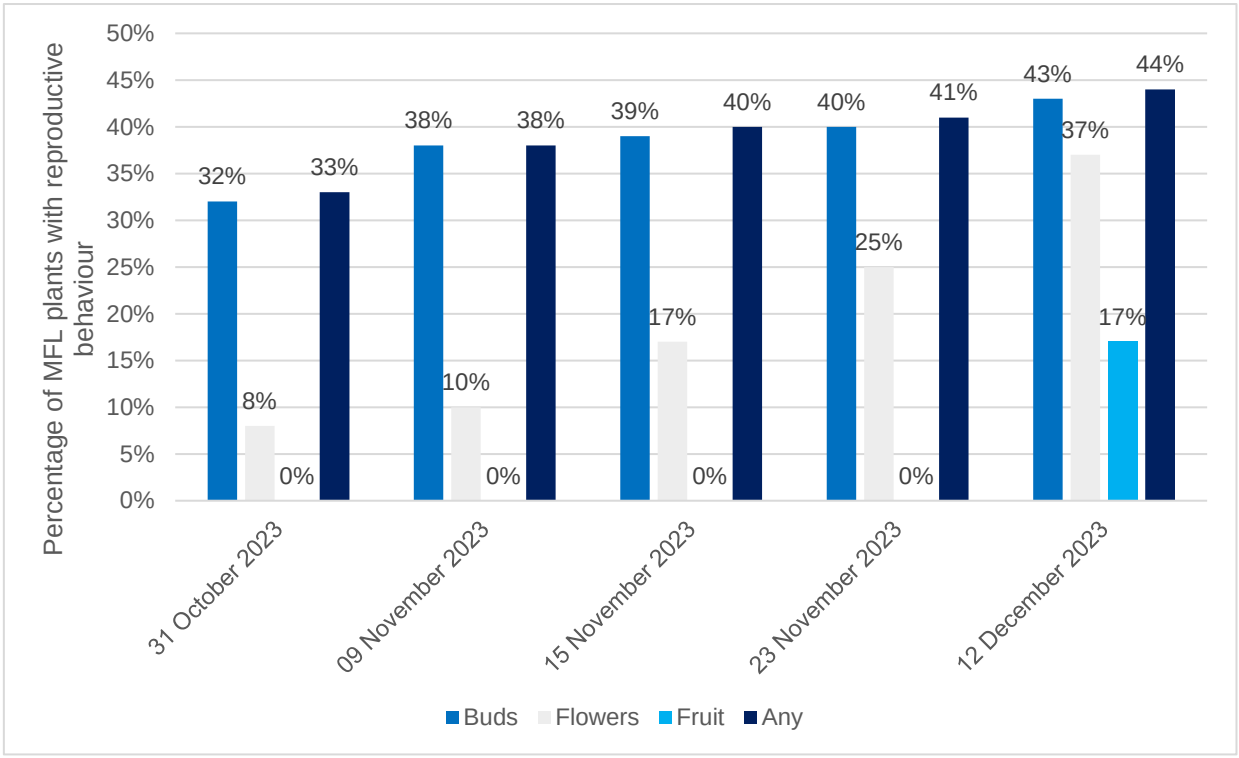


Figure 9 ***Batch 2 MFL buds, flowering and fruiting percentages Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve between October to December 2023***

The size of MFL plants is determined by measuring the basal diameter, leaf height and the number of ramets (Table 11). When this data is collected in the future, comparisons will be made to determine whether the Matted Flax-lily plants are growing and recruiting with new ramets.

Table 11 ***Batch 2 Additional monitoring data collected on a subset of the population in December 2023 - 23 MFL plants***

Annual monitoring data collected December 2023 – 23 MFL plants	
Monitoring event	Event 5 – December 2023
Average max leaf length (cm)	27.7
Average Basal diameter (cm)	10.3
Average no. of ramets	8.26

4.2.2 Weather

The following weather conditions (Table 12) were observed at the recipient site between planting of salvaged MFL (20 October 2023) and Event 5 monitoring (12 December 2023). Data was collected from the BOM Viewbank Weather Station (station 086068) (BoM 2023).

Table 12 Weather conditions at Viewbank since the previous report and historical average for the time period

	Actual from Viewbank Station (October 2023-December 2023)	10 year average over the 3-month period
Average Min temp C	11.8	11.1
Average Max temp C	22.7	23.5
Total rainfall (mm)	209.2	204.3
Number of days with rain >1 mm	27	24.4
Abnormal weather events in 2023	On 19 September, the BOM predicted an El Niño event for Australia during the 2023/2024 summer potentially leading to less rainfall, warmer and drier condition in the last quarter of 2023. The actual conditions recorded at Viewbank do not seem to follow that prediction. No other abnormal weather events of note were recorded for this time period.	

4.2.3 Maintenance

Since the translocation of the MFL plants they have been watered in accordance with the maintenance plan for the project (Table 13). Additionally, there has been some weed control conducted in December 2023. Further maintenance information can be found in Table 13.

Table 13 Maintenance actions planned and completed in Cherry Street Reserve for the translocated Matted Flax-lilies (MFL)

Action	Timing	Outcome
Watering MFL plants	November 2023	Application of water to the MFLs at a time when the monthly rainfall was 42.4 mm. This value is lower than the mean for November, 73.7 mm.
Weed control – Vernal-grass	December 2023	Reduction in the instances of Vernal-grass weeds in the Reserve.

4.2.4 Genetic diversity

100% of the Batch 2 parent plants are represented by living clones at Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve.

4.2.5 Threats

4.2.5.1 Drying out

At this stage of the monitoring program for Batch 2, the only threat to the plant health is environmental conditions such as heat and dryness. The rainfall in the area was significantly lower than the 10-year average and the plants needed to be watered in December. The monthly monitoring will continue to assess whether additional water is necessary.

4.2.5.2 Biomass

The increased grassy weed biomass is expected in the first three months, especially with the seasonal transition to spring and summer. Biomass increased in recipient sites to a point where five MFLs were covered by introduced grasses and were difficult to locate amongst the biomass (Appendix C, Table C3).

Regrowth of *Rosa rubiginosa* (Sweet Briar) was also observed near one MFL plant. This invasive plant can quickly colonise the planting area and hinder MFL establishment.

4.2.5.3 Herbivory

After the initial translocation, there were few signs of herbivory with leaves of many MFL plants being chewed across the Reserves (Figure 10). However, subsequent observations suggest minimal increase in herbivory stress on the plants. This will be monitored over the life of the program in case conditions change.

An active rabbit burrow was identified near one MFL. Uncontrolled rabbits can cause damage through herbivory and digging, potentially burying nearby MFLs.

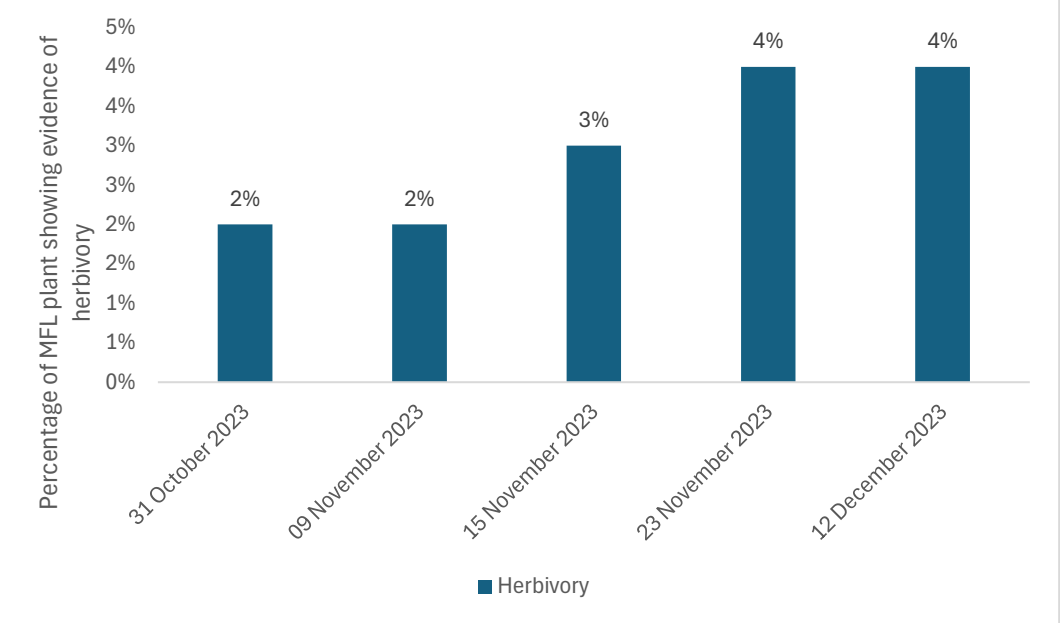


Figure 10 ***The percentage of Batch 2 MFL plants impacted by herbivory percentages Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve between October to December 2023***

4.2.5.4 Waterlogging

Eleven MFL plants were identified during Event 5 (12 December 2023) with sunken soil around their base, this has the potential to lead to waterlogging around the plants (Appendix C, Table C3). This waterlogging could be detrimental if the ground is not able to dry out adequately as it can result in tuber rot.

4.2.6 Recommended additional maintenance

Land managers should continue to follow the current schedule and review if conditions change. To address sunken soil issues, add extra soil and sand to the 11 MFL plants in Gresswell Forest Nature Conservation Reserve to avoid possible waterlogging. Conduct regular monitoring for excessive biomass buildup and manually remove excess vegetation around five MFL plants to ensure adequate light exposure and facilitate easier monitoring. Regularly monitor for regrowth of invasive species like *Rosa rubiginosa* (Sweet briar) near MFLs and use targeted weed control methods, such as hand-pulling or spot spraying of approved herbicides. Additionally, monitor for signs of rabbit activity and install rabbit traps or exclusion fencing around the affected MFLs as needed to prevent herbivory.

4.2.7 Summary of results

Overall, the Batch 2 MFL translocation program is considered to be on track as 99.8% of MFL plants have been observed to have survived within the October 2023 to December 2023 timeframe, with most plants showing more than 70% healthy green leaves in that timeframe. The high proportion of plants showing reproductive material is also encouraging for the long-term survival of this translocated population.

Table 14 summarises the results at the end of the four months of monitoring. The annual monitoring data shown in Table 15 are collected in December of each year of the monitoring program to gain a deeper understanding of the condition of the translocated MFL plants.

Table 14 Batch 2 Monitoring data collected at each event in 2023

Data collected every monitoring event	Event 1	Event 2	Event 3	Event 4	Event 5
Living plants (no.)	354	410	414	418	419
Dormant (no.)	66	10	6	2	1
% of plants with >70% of healthy leaves (good condition)	93%	40%	36%	27%	81%
% of plants with 30<70% of healthy leaves (moderate condition)	6%	57%	55%	60%	18%
% of plants with <30% of healthy leaves (poor condition)	0%	3%	9%	12%	1%
Proportion of plants with flowering / fruiting present	33%	38%	40%	41%	44%
Noxious weeds present (within 0.5 m radius)	0%	1%	2%	1%	1%
Herbivory Present (%)	2%	2%	3%	4%	4.4%

Table 15 Batch 2 Monitoring data collected on a subset of the population in December 2023 - 23 MFL plants

Annual monitoring data collected December 2023 – 23 MFL plants	
Average max leaf length (cm)	27.7
Average Basal diameter (cm)	10.3
Average no. of ramets	8.26
Programmed maintenance undertaken satisfactorily	Yes
Previous additional maintenance/adaptive measures undertaken	Yes. See section 4.1.6
Additional maintenance required	No

5. Assessment of translocation success against performance benchmarks

An assessment of the results of the translocation monitoring program against the approved performance benchmarks has been undertaken to enable a determination on the success of the MFL translocation program to date.

The monitoring plan is considered on track to meeting the survival targets. This determination has been made based on the numbers of currently living MFL plants, as well as the health and reproduction data that suggests the MFL plants have been successfully translocated into Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve. Table 16 provides an assessment of the results of the MFL monitoring program against the Salvage and Translocation Plan translocation performance benchmark criteria.

Table 16 Translocation criteria for success of the Matted Flax-lily translocation program from the Salvage and Translocation Management Plan (2022)

Translocation criteria	Batch 1 Outcome	Batch 2 Outcome
1. At least 85 percent of transplanted clones survived, including representatives from the range of genetic individuals salvaged	As of December 2023, one year and four months into the translocation program, 99% of the MFL plants have survived, including representatives from the full range of genetic individuals salvaged.	As of December 2023, three months into the translocation program, 99% of the MFL plants have survived, including representatives from the full range of genetic individuals salvaged.
2. The translocated populations displayed similar growth, development and vigour as naturally occurring populations	No individuals displayed signs of poor health, defined as less than 30% green leaves. In December 2023 90% of the MFL plants exhibited good health with over 70% green leaves, while the remaining 10% fell within the moderate range (30-70% green leaves).	Only 1% of the MFL plants displayed signs of poor health, defined as less than 30% green leaves. In December 2023 81% of the MFL plants exhibited good health with over 70% green leaves, while the remaining 18% fell within the moderate range (30-70% green leaves).
3. Transplants survived to a reproductive stage (producing flowers and fruit)	Over the 2023 spring and summer season, 27% of plants were observed in some stage of reproduction (presence of any buds, flowers or fruit).	Over the 2023 summer season, 44% of plants were observed in some stage of reproduction (presence of any buds, flowers or fruit). This high proportion of plants with reproductive material is likely due to the good conditions of the nursery and future years are expected to have lower rates of reproductive material present.
4. If plants didn't survive to reproductive stage, then the plants were replaced	No plants have been assessed as dead, therefore no plants have needed to be replaced. If MFL plants die and are not found for at least 12 months (a timeframe set to allow time for dormant plants to reshoot) then they would be replaced, meeting the criterion.	No plants have been assessed as dead, therefore no plants have needed to be replaced. If MFL plants die and are not found for at least 12 months (a timeframe set to allow time for dormant plants to reshoot) then they would be replaced, meeting the criterion.
5. Regeneration occurred in the translocated individuals (since the recruitment MFL through seed is thought to be rare, the production of ramets at a rate similar to naturally occurring populations is considered sufficient to meet this criterion)	There is no evidence that the MFL plants population is recruiting or expanding beyond the original plants at this stage.	Not applicable at this stage of the monitoring program. By the next annual report there will be enough data to compare number of ramets across the years and determine whether this criterion is being met.

Translocation criteria	Batch 1 Outcome	Batch 2 Outcome
6. The number of individuals within the population was stable, or had increased by natural (including vegetative) recruitment	Survivorship rate of the translocated MFL is high and the population size is currently stable.	Survivorship rate of the translocated MFL is high and the population size is currently stable.
7. Adequate levels of genetic diversity were maintained	As of December 2023, 100% of the salvaged plants are represented by living clones.	As of December 2023, 100% of the salvaged plants are represented by living clones.

6. Compliance with Environment Protection and Biodiversity Conservation (EPBC) approval conditions

Conditions 1, 2, 3 and 4 of the EPBC 2018/8142 grants approval for NELP to clear up to 139 MFL plants, and to salvage, propagate and translocate the impacted MFL plants into appropriate recipient sites. Following translocation, NELP must also monitor the translocated MFL plants each year for at least five years and provide a series of reports to the DCCEEW detailing the progress of the salvage and translocation plan.

Table 17 provides an assessment of the results of the MFL monitoring program against the EPBC Approval (EPBC 2018/8142) conditions.

Table 17 EPBC 2018/8142 Approval Conditions relevant to Matted Flax-lily plants

Condition no.	Approval Condition	Condition currently triggered	Compliance	Comments and supporting documentation
1	Unless otherwise agreed to in writing by the Minister, the approval holder must not clear more than: a) 139 MFL plants and/or patches of MFL	Yes	Compliant	The project has so far salvaged 132 of the 139 plants/patches of MFL and is therefore compliant within the scope of the approval. Pre-Clearance survey: March 2020 — Date of Salvage: 01/04/2020 — Location: Simpson Barracks — Number of plants: 7 Pre-Clearance survey: July 2020 — Date of Salvage: 02/09/2020 — Location: Simpson Barracks — Number of plants: 20 Pre-Clearance survey: April 2021 — Date of Salvage: 23/08/2021-24/08/2021 — Location: Simpson Barracks — Number of plants: 103 Pre-Clearance survey: October 2023 — Date of Salvage: 10/10/2023 — Location: M80 Ring Road and Grimshaw St — Number of plants: 2
2	To compensate for clearing the number of MFL plants and/or patches:	Yes		Please refer to the specific conditions below for details on compliance.
	a) Prior to any clearance, the approval holder must undertake a pre-clearance survey to identify the total numbers of MFL plants and patches of Mated Flax-lily that, if not salvaged, would be impacted by the approved action.		Compliant	Pre-clearance surveys occurred in March 2020, July 2020 and April 2021 prior to salvaging events of the MFL. The pre-clearance surveys were undertaken in accordance with the Matted Flax-lily Salvage and Translocation Plan (GHD 2022). The Project is therefore compliant with this condition.
	b) Prior to construction, the approval holder must salvage all MFL plants and patches of MFL that were previously recorded in a pre-clearance survey and that would otherwise be impacted due to the approved action. In the event that construction occurs in stages, prior to commencing each stage the approval holder must salvage all MFL plants and patches of MFL that were previously recorded in a pre-clearance survey and that would otherwise be impacted by that stage of work.		Compliant	MFL salvage and translocation has been completed for the early works stage and to facilitate the Primary (Tunnelling) Package of works in accordance with the Matted Flax-lily Salvage and Translocation Plan (GHD 2022) and is therefore compliant with the condition. Salvage (removal) occurred in three broad stages; to facilitate the early works program (completed) and a larger salvage to facilitate the Primary (completed) and Secondary (Freeway) Packages of Works (completed). NELP has recorded salvage and translocation information as it is completed in a Matted Flax-lily Asset Management Register spreadsheet.

Condition no.	Approval Condition	Condition currently triggered	Compliance	Comments and supporting documentation
	c) The approval holder must propagate the salvaged MFL plants and patches and translocate them, excepting some MFL plants and patches kept as an insurance population, to a recipient site. The number of MFL plants and patches kept as insurance population must not be the majority of the MFL plants or patches propagated. All propagated v plants or patches, excepting those kept as an insurance population, must be translocated within two years of salvage of each MFL plant and patch.		Compliant	As outlined in the Matted Flax-lily Salvage and Translocation Plan Rev 4 (Oct 2022), sufficient material was taken from each plant to generate the required six (6) clones per plant/ patch; the Project is therefore compliant with this condition. The individuals were salvaged and processed at the selected nursery in accordance with the Matted Flax-lily Salvage and Translocation Plan Rev 4 (GHD 2022). At least six (6) clones have been propagated from each original individual and are surviving at time of reporting. The MFL have been planted in two batches. the Batch 1 MFL plants were translocated to Cherry Street Reserve in August 2022 while the Batch 2 MFL were planted in October 2023 at Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve; the Project is therefore compliant with this condition.
	d) The approval holder must manage the recipient site for a period of 10 years commencing on the date that the first MFL is translocated to the recipient site.		Compliant	Translocation of the MFL plants from Batch 1 and Batch 2 occurred in August 2022 and October 2023, respectively, and management of the sites is ongoing. The management of the sites is detailed in site schedules for both Cherry St Reserve and Gresswell Forest Nature Conservation Reserve. Maintenance will be continued and adapted as the needs of the MFL plants change over time. The project is therefore compliant with this condition.
	e) The approval holder must monitor the recipient site for a period of at least 10 years, commencing on the date that the first MFL plant or patch of MFL is translocated to the recipient site and, concluding no sooner than five years after the last MFL plant or patch of MFL is translocated to the recipient site.		Compliant	Translocation of the MFL plants from the Batch 1 and Batch 2 occurred in August 2022 and October 2023, respectively, and management of the sites is ongoing. The first annual report for Batch 1 has been prepared and submitted. This report, as well, forms part of the ongoing monitoring and the Project is therefore compliant with the condition.

Condition no.	Approval Condition	Condition currently triggered	Compliance	Comments and supporting documentation
	f) The approval holder must, until otherwise agreed in writing by the Minister, provide the Department with a report each year as part of the compliance report, which must detail the numbers of MFL plants and patches that have been translocated to the recipient site and the numbers of translocated and propagated plants and patches that have survived until the end of the period reported on. The report must also document threats to the translocated MFL plants and patches and any management actions, including corrective actions, taken or proposed.		Compliant	Monitoring and management of the translocation site is ongoing. In August 2022 108 MFL plants (Batch 1) were translocated into Cherry Street Reserve. In December 2023, 105 were observed to be alive and thriving. It is considered likely that two other MFL plants were present but unable to be located due to high levels of biomass in the reserve and that only one plant is dormant. In October 2023 additional 420 MFL plants (Batch 2) were translocated in Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve. In December 2023, 419 are still alive and only one is considered dormant. The threats to MFL survival include high amounts of biomass, herbivory and waterlogging. Corrective actions have been taken including adding more soil to some MFL plants, hand-weeding around MFL plants, and selective weed spraying. Further details of the survivorship and threats of both Batch 1 and Batch 2 in Section 4 of this report, and the Project is therefore compliant with the condition.
3	By implementing contingency measures, the approval holder must ensure that a minimum of 85 percent of four times the number of salvaged MFL plants and patches have survived at the recipient site at least five years after the date the last MFL plant or patch, excepting plants or patches from the insurance population, is translocated to the recipient site. The approval holder must ensure that the location of each translocated MFL plant and patch is recorded in the Atlas of Living Australia and Victorian Biodiversity Atlas within six months of being translocated	Yes	Compliant	To comply with this requirement, at the end of five years at least 449 (85% of 528) of the MFL plants at Cherry Street Reserve and Gresswell Forest Nature Conservation Reserve need to survive. As of December 2023, 107 are confirmed to be alive from Batch 1 and 419 from Batch 2, well above the minimum required. MFL location data for the MFL plants that are reported on in this report have been added to the VBA under project ID 6931 for Batch 1 and 5731 for Batch 2. MFL location data for the MFL plants that are reported on in this report have been submitted to the Atlas of Living Australia and assigned number 175071 for Batch 1 and 195464 for Batch 2 to the data. The project is compliant with this condition.
4	If the Minister is not satisfied that the requirements of condition 3 have been, or are likely to be, achieved, and has given the approval holder written notice to this effect, the approval holder must:	No	Not applicable	Not applicable

Condition no.	Approval Condition	Condition currently triggered	Compliance	Comments and supporting documentation
	a) Within one year of receiving written notification by the Minister to this effect, plant propagated MFL plants and/or patches to the recipient site in accordance with directions made by the Minister	No	Not applicable	Not applicable
	b) Provide the Department with a report each year for an additional five years as part of the compliance report, which must detail the numbers of MFL plants and patches that have been translocated to the recipient site and the numbers of translocated and propagated plants and patches that have survived until the period reported on. The report must also document threats to the translocated MFL plants and patches and any management actions, including corrective actions, taken or proposed	No	Not applicable	Not applicable
	c) Each 12 months, for the following five years, the approval holder must translocate an additional number of MFL plants and/or patches to the recipient site equal or greater than the number which have not survived during the preceding 12 months. The translocated MFL plants and patches must be sourced from the plants and patches propagated as required under condition 2c	No	Not applicable	Not applicable

7. Conclusions

This report documents the results of the annual monitoring of MFLs for the project undertaken in December 2023. It also summarises the results of each monitoring event undertaken since the inception of the translocation program to understand any trends or shifts in the condition and health of the Matted Flax-lily plants to be identified. The results of the annual post translocation monitoring indicate that the monitoring program is currently on track with no significant issues identified to suggest the program would not succeed if it continued on its current trajectory.

The monitoring events in 2024 for Batch 1 will be conducted in March, June, September and December, and for Batch 2 they will be conducted in January, February, March April, June, September and December. The monitoring will continue to be undertaken quarterly until June 2024, and then biannually until at least winter 2027 for Batch 1. For Batch 2, quarterly monitoring will continue until September 2025 and then biannually until at least winter 2028.

7.1 Recommendations and next steps

In addition to continuing the ongoing monitoring program as prescribed in the Salvage and Translocation Monitoring Program (GHD 2022), based on the findings from monitoring activities to date, the following maintenance and corrective actions are proposed to address identified threats to some of the translocated MFLs:

- Sunken soil: Add extra soil and sand to the 11 MFL plants from Batch 2 in Gresswell Forest Nature Conservation Reserve found with sunken soil at the base of the plants to avoid possible water logging.
- Increased Biomass: Conduct regular monitoring for excessive biomass buildup. Manual removal of excess vegetation around 11 MFL plants (six in Batch 1 and five in Batch 2) may be necessary to ensure adequate light exposure of MFLs. Biomass removal will also make it easier to locate each MFL during monitoring activities.
- Invasive Plant Control: Undertake regular monitoring for regrowth of invasive species like *Rosa rubiginosa* (Sweet briar). Targeted weed control involving hand-pulling or spot spraying of approved herbicides will be used to prioritise controlling this invasive near the MFLs.
- Rabbit Control: Monitor for signs of rabbit activity. Rabbit traps can be installed to address MFL herbivory. Depending on the severity, rabbit exclusion fencing around the affected MFLs may also be installed.

Detailed records of all maintenance and corrective actions, including date, and type of action, will continue to be maintained. This data will be used to track the effectiveness of the actions and inform future management decisions. Additionally, the maintenance schedule will be reviewed and adapted as needed based on the monitoring results. The next annual monitoring will be undertaken December 2024 and the report documenting the results of the 2024 monitoring will be prepared in early 2025.

8. References

ABZECO (2022) Maintenance Schedule, Flora Species & Weed Cover Estimates, Cherry Street Receptor Site July 2022

BoM (2023) Climate Data Online. Australian Government Bureau of Meteorology

GHD (2022) North East Link Project Salvage and Translocation Plan December 2022

GHD (2024) Matted Flax-lily Baseline 2023 and 3 Month Monitoring Report May 2024.

Vallee L., Hogbin T., Monks L., Makinson B., Matthes M. & Rossetto M. (2004), Guidelines for the Translocation of Threatened Plants in Australia - Second Edition, Australian Network for Plant Conservation, Canberra

Appendices

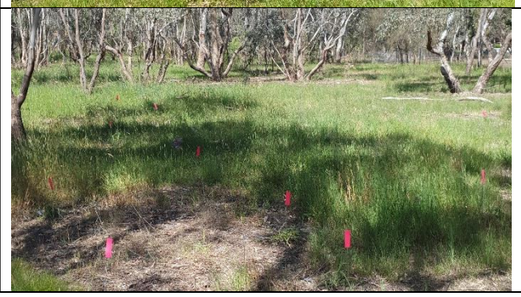
Appendix A

Photo monitoring points

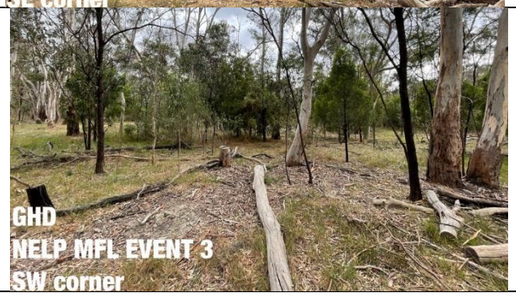
Cherry St Batch 1

Photo point	Event 9 March 2023	Event 10 June 2023	Event 11 September 2023
CS B1 PP1			
CS B1 PP2			
CS B1 PP3			
CS B1 PP4			

Cherry St Batch 2

Photo point	Event 1 October 2023	Event 2 November 2023	Event 4 November 2023
CS B2 PP1			
CS B2 PP2			Photo not taken
CS B2 PP3			Photo not taken
CS B2 PP4			

Gresswell Forest Nature Reserve Batch 2

Photo point	Event 1 October 2023	Event 3 November 2023	Event 4 November 2023	Event 5 December 2023
GF B2 PP1	Photo not taken		Photo not taken	
GF B2 PP2	Photo not taken		Photo not taken	
GF B2 PP3	Photo not taken		Photo not taken	
GF B2 PP4	Photo not taken		Photo not taken	

Appendix B

Representative photos of Matted Flax-lilies

Representative photos of Matted Flax-lily plants at each translocation site			
Location: Cherry Street Reserve Event 12 – 13 December 2023 (MFL Batch 1)			
MFL number		MFL number	
02-001		02 004	
03 004		06 001	

Representative photos of Matted Flax-lily plants at each translocation site			
Location: Cherry Street Reserve Event 5 – 12 December 2023 (MFL Batch 2)			
35 004		47 004	
54 004		62 003	

Representative photos of Matted Flax-lily plants at each translocation site			
Location: Gresswell Forest Nature Conservation Reserve Event 5 – 12 December 2023 (MFL Batch 2)			
86 002		115 004	
116 004		105 001	

Appendix C

Monitoring data (December 2023)

Table C1 *Data collected on a subset of Matted Flax-lilies located within the permanent monitoring quadrats established for the program during Event 12, 13 December 2023 (Batch 1, Cherry Street Reserve)*

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Plant Basal Diam cm	No Shoots	Max Leaf Length cm
Quadrat 1										
12	01_002	Alive	Good	No	No	Late	Mid	20	17	24
12	02_003	Alive	Good	No	Yes	Early		31	15	46
12	20_002	Alive	Good	No	No			18	5	15
12	21_002	Alive	Good	No	No			6	2	15
12	22_001	Alive	Good	No	No			14	9	24
12	23_002	Alive	Good	No	No			11	7	29
Quadrat 2										
12	03_003	Alive	Good	No	No			16	3	40
12	19_003	Alive	Moderate	No	No			18	14	23
12	20_004	Alive	Good	No	No			20	10	25
12	22_004	Alive	Good	No	Yes	Late	Mid	13	6	23
12	23_004	Alive	Good	No	No			8	3	38
12	24_001	Alive	Good	No	No			10	3	23
12	25_003	Alive	Good	No	Yes	Late	Mid	14	8	25
12	26_003	Alive	Good	No	No			8	4	56
12	27_003	Alive	Good	No	No			10	2	14

Table C2 *Data collected on a subset of Matted Flax-lilies located within the permanent monitoring quadrats established for the program during Event 5, 12 December 2023 (Batch 2, Gresswell Forest Nature Conservation Reserve)*

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Plant Basal Diam cm	No Shoots	Max Leaf Length cm
Quadrat 3										
5	055-004	Alive	Moderate	No	No			10	6	43
5	064-002	Alive	Good	No	No			6	5	35
5	068-004	Alive	Good	No	No			12	6	16
5	075-001	Alive	Good	No	No			11	3	26
5	082-001	Alive	Good	No	No			6	10	27
5	091-003	Alive	Good	No	No			5	8	24
Quadrat 4										
5	039-002	Alive	Good	No	No			12	5	21
5	093-004	Alive	Good	No	No			11	14	30
5	106-001	Alive	Good	No	Yes			7	6	35
5	121-001	Alive	Good	No	No			7	3	46
Quadrat 5										
5	054-004	Alive	Good	No	Yes	Mid	Early	10	14	24
5	061-004	Alive	Moderate	No	Yes	Mid	Early	16	5	29
5	111-002	Alive	Good	No	Yes	Late	Early	15	6	22
5	111-004	Alive	Moderate	No	No	Late		10	7	27
5	113-004	Alive	Good	No	No			6	2	30
Quadrat 6										
5	028-002	Alive	Moderate	No	No			15	18	19
5	029-004	Alive	Good	Yes	No			9	15	24
5	030-004	Alive	Good	No	Yes	Mid		11	15	28
5	031-003	Alive	Moderate	No	Yes	Mid	Early	14	7	37

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Plant Basal Diam cm	No Shoots	Max Leaf Length cm
5	033-003	Alive	Moderate	No	No			12	10	32
5	036-003	Alive	Good	No	No			9	9	25
5	044-002	Alive	Good	No	Yes	Early		11	8	19
5	058-002	Alive	Moderate	No	Yes	Mid		13	8	19

Table C3 Data from all Batch 1 Matted Flax-lilies (108 individuals) recorded in Event 12 survey, 13 December 2023

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
12	01_001	Alive	Good	No	No			
12	01_002	Alive	Good	No	No	Late	Mid	
12	01_003	Alive	Good	Yes	No			
12	01_004	Alive	Good	No	No			Need hand weeding - overgrown
12	02_001	Alive	Good	Yes	No			
12	02_002	Alive	Good	No	No			Leaves and tufts browning
12	02_003	Alive	Good	No	Yes	Early		No location marker
12	02_004	Alive	Good	No	No		Mid	soil around roots has ant nest. Very healthy
12	03_001	Dead						No evidence of plant present
12	03_002	Alive	Good	No	No	Late	Early	
12	03_003	Alive	Good	No	No			
12	03_004	Alive	Moderate	No	No			Overgrown, leaf tips browned
12	04_001	Alive	Good	Yes	No			
12	04_002	Alive	Good	Yes	No	Late	Early	
12	04_003	Alive	Good	No	No			
12	04_004	Alive	Good	No	No	Late	Mid	No location marker/flag
12	05_001	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
12	05_002	Alive	Good	Yes	No			
12	05_003	Alive	Good	No	No	Late	Early	Large plant
12	05_004	Alive	Moderate	No	No			Browning on leaf tips
12	06 _003	Alive	Good	No	No			Brown tips on some leaves
12	06_001	Alive	Good	No	No			Overgrown, needs hand weeding
12	06_002	Alive	Good	No	No			Only new growth
12	06_004	Alive	Good	No	Yes	Early		
12	07_001	Alive	Good	Yes	No			New growth
12	07_002	Alive	Moderate	Yes	No			Browned leaf tips
12	07_003	Alive	Good	No	No			
12	07_004	Alive	Good	No	No			
12	08_001	Alive	Good	No	No			
12	08_002	Alive	Good	No	No	Late	Early	
12	08_003	Alive	Good	No	No			
12	08_004	Alive	Good	No	No			
12	09_001	Alive	Good	No	No	Late	Early	
12	09_002	Alive	Good	No	No			
12	09_003	Alive	Good	No	No			
12	09_004	Alive	Good	No	No	Late	Early	
12	10_001	Alive	Good	No	No			
12	10_002	Alive	Moderate	Yes	No		Early	Browning on leaf tips
12	10_003	Alive	Good	No	No			Heavily overgrown
12	10_004	Alive	Good	No	No			
12	11_001	Alive	Good	No	No			
12	11_002	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
12	11_003	Alive	Good	No	No		Early	Some yellow leaves
12	11_004	Alive	Good	No	No			No tag, overgrown
12	12_001	Alive	Good	No	No			
12	12_002	Alive	Good	No	No			
12	12_003	Alive	Good	No	No			Very small growth
12	12_004	Alive	Moderate	No	No			
12	13_001	Alive	Good	No	No			
12	13_002	Alive	Good	No	No			New growth at base
12	13_003	Alive	Good	No	No			
12	13_004	Alive	Good	Yes	No			
12	14_001	Alive	Good	No	No	Late	Early	
12	14_002	Alive	Good	Yes	No		Early	
12	14_003	Alive	Good	No	No	Late	Early	
12	14_004	Alive	Good	No	No	Late	Mid	
12	15_001	Alive	Good	No	No			
12	15_002	Alive	Good	Yes	No			
12	15_003	Alive	Good	No	No			
12	15_004	Alive	Good	No	No			
12	16_001	Alive	Good	Yes	No			Singular tuft with chewed off growth
12	16_002	Alive	Good	No	No	Late	Early	
12	16_003	Alive	Good	No	Yes	Late	Mid	
12	16_004	Alive	Good	No	No			
12	17_001	Alive	Good	No	No			
12	17_002	Alive	Good	No	No	Late	Mid	
12	17_003	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
12	17_004	Alive	Good	No	No			
12	18_001	Alive	Good	No	No			Needs weeding
12	18_002	Alive	Good	No	No			
12	18_003	Alive	Moderate	No	No		Early	Some brown on leaves
12	18_004	Alive	Good	No	No	Late	Mid	
12	19_001	Alive	Good	No	No			Only 1 tuft
12	19_002	Alive	Good	No	No		Mid	
12	19_003	Alive	Moderate	No	No			
12	19_004	Alive	Moderate	No	No			Brown tip on leaves
12	20_001	Alive	Good	Yes	No			May need weeding
12	20_002	Alive	Good	No	No			
12	20_003	Alive	Good	No	No			Very small new growth
12	20_004	Alive	Good	No	No			only small tufts
12	21_001	Alive	Good	No	Yes	Early		No location marker
12	21_002	Alive	Good	No	No			2 small tuffs/ no location marker
12	21_003	Alive	Good	No	No			
12	21_004	Alive	Good	No	No			Maybe drying out
12	22_001	Alive	Good	No	No			
12	22_002	Alive	Good	Yes	No			
12	22_003	Alive	Good	Yes	No			Tiny growths only
12	22_004	Alive	Good	No	Yes	Late	Mid	
12	23_001	Alive	Good	Yes	No			Needs a flag, very small
12	23_002	Alive	Good	No	No			No location marker
12	23_003	Alive	Good	No	No			
12	23_004	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
12	24_001	Alive	Good	No	No			
12	24_002	Not found						Needs a flag
12	24_003	Not found						
12	24_004	Alive	Good	No	No			No flag, massively overgrown.
12	25_001	Alive	Moderate	Yes	No	Late	Early	
12	25_002	Alive	Good	No	No			Above senecio
12	25_003	Alive	Good	No	Yes	Late	Mid	
12	25_004	Alive	Moderate	No	No			
12	26_001	Alive	Good	Yes	No			Brown tips on leaves
12	26_002	Alive	Good	No	No			Needs a flag as identifier
12	26_003	Alive	Good	No	No			
12	26_004	Alive	Moderate	No	No			
12	27_001	Alive	Good	No	No			Overgrown, needs hand weeding
12	27_002	Alive	Good	No	No		Early	
12	27_003	Alive	Good	No	No			
12	27_004	Alive	Good	No	No			Only small tufts. needs hand weeding

Table C4 Data from all Batch 2 Matted Flax-lilies (420 individuals) recorded in Event 5 survey, 12 December 2023

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	028-001	Alive	Good	No	No			
5	028-002	Alive	Moderate	No	No			
5	028-003	Alive	Poor	No	Yes	Mid		
5	028-004	Alive	Good	No	No			
5	029-001	Alive	Moderate	Yes	No			
5	029-002	Alive	Good	No	Yes			
5	029-003	Alive	Good	No	No			
5	029-004	Alive	Good	Yes	No			
5	030-001	Alive	Good	No	Yes	Late		
5	030-002	Alive	Good	Yes	Yes	Mid		
5	030-003	Alive	Good	No	No			Planted next to remnant MFL
5	030-004	Alive	Good	No	Yes	Mid		
5	031-001	Alive	Moderate	No	No			
5	031-002	Alive	Good	No	No			
5	031-003	Alive	Moderate	No	Yes	Mid	Early	
5	031-004	Alive	Good	No	No			
5	032-001	Alive	Good	No	No			
5	032-002	Alive	Good	No	Yes	Mid	Early	
5	032-003	Alive	Good	No	Yes	Mid		
5	032-004	Alive	Good	No	No			
5	033-001	Alive	Good	No	Yes	Mid		
5	033-002	Alive	Good	Yes	Yes	Mid		
5	033-003	Alive	Moderate	No	No			
5	033-004	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	034-001	Alive	Good	No	Yes	Late	Early	
5	034-002	Alive	Good	Yes	Yes	Mid		
5	034-003	Alive	Good	No	No			
5	034-004	Alive	Moderate	No	No			
5	035-001	Alive	Good	No	No			
5	035-002	Alive	Moderate	No	Yes	Mid		
5	035-003	Alive	Good	Yes	Yes	Late		Some chewed leaves
5	035-004	Alive	Poor	Yes	Yes	Early		Inflorescence eaten
5	036-001	Alive	Good	No	No			
5	036-002	Alive	Good	No	Yes	Mid		
5	036-003	Alive	Good	No	No			
5	036-004	Alive	Good	No	No			Sunken soil
5	037-001	Alive	Good	No	No			
5	037-002	Alive	Moderate	No	Yes	Mid		
5	037-003	Alive	Moderate	No	No			Regrowing
5	037-004	Alive	Good	No	No			
5	038-001	Alive	Good	No	No			
5	038-002	Alive	Good	No	No			
5	038-003	Alive	Good	No	No			
5	038-004	Alive	Good	No	No			
5	039-001	Alive	Good	No	No			Only new growth
5	039-002	Alive	Good	No	No			
5	039-003	Dead						Needs watering
5	039-004	Alive	Good	No	Yes	Mid		
5	040-001	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	040-002	Alive	Good	No	No			
5	040-003	Alive	Good	No	No			
5	040-004	Alive	Good	No	No			
5	041-001	Alive	Moderate	No	Yes			
5	041-002	Alive	Good	No	No			
5	041-003	Alive	Good	No	No			Sunken soil
5	041-004	Alive	Moderate	No	Yes			
5	042-001	Alive	Good	No	No			
5	042-002	Alive	Moderate	No	No			
5	042-003	Alive	Good	No	Yes	Late	Early	
5	042-004	Alive	Moderate	No	No			
5	043-001	Alive	Good	No	No			
5	043-002	Alive	Good	No	No			
5	043-003	Alive	Good	No	No			
5	043-004	Alive	Moderate	No	No			
5	044-001	Alive	Good	No	No			
5	044-002	Alive	Good	No	Yes	Early		
5	044-003	Alive	Good	No	No			
5	044-004	Alive	Poor	No	Yes	Early		New growth coming in
5	045-001	Alive	Good	No	Yes	Early		
5	045-002	Alive	Good	No	No			
5	045-003	Alive	Good	No	Yes			
5	045-004	Alive	Good	No	No			
5	046-001	Alive	Good	No	No			
5	046-002	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	046-003	Alive	Good	No	No			
5	046-004	Alive	Good	No	No			
5	047-001	Alive	Good	No	No			
5	047-002	Alive	Good	No	No			
5	047-003	Alive	Good	No	Yes	Late	Early	
5	047-004	Alive	Good	No	Yes	Mid		
5	048-001	Alive	Good	No	No			
5	048-002	Alive	Good	No	Yes	Late	Early	
5	048-003	Alive	Good	No	Yes	Late	Early	
5	048-004	Alive	Good	No	Yes	Late	Early	
5	049-001	Alive	Good	No	Yes	Mid		
5	049-002	Alive	Good	No	No			
5	049-003	Alive	Good	No	No			Sunken soil
5	049-004	Alive	Good	No	No			
5	050-001	Alive	Good	No	No			
5	050-002	Alive	Good	Yes	No			
5	050-003	Alive	Good	No	No			
5	050-004	Alive	Good	No	No			
5	051-001	Alive	Good	No	No			
5	051-002	Alive	Good	No	No			
5	051-003	Alive	Good	No	No			
5	051-004	Alive	Good	No	No			
5	052-001	Alive	Good	No	No			
5	052-002	Alive	Good	No	No			
5	052-003	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	052-004	Alive	Good	No	No			
5	053-001	Alive	Good	No	No			
5	053-002	Alive	Good	No	No			
5	053-003	Alive	Good	No	Yes	Early		
5	053-004	Alive	Good	No	No			
5	054-001	Alive	Good	No	Yes	Mid	Early	
5	054-002	Alive	Moderate	No	Yes	Mid	Early	
5	054-003	Alive	Moderate	No	Yes	Early	Early	
5	054-004	Alive	Good	No	Yes	Mid	Early	
5	055-001	Alive	Good	No	No			
5	055-002	Alive	Good	No	No			
5	055-003	Alive	Good	No	No			
5	055-004	Alive	Moderate	No	No			
5	056-001	Alive	Good	No	Yes	Mid		
5	056-002	Alive	Good	No	No			
5	056-003	Alive	Good	No	Yes	Mid	Early	
5	056-004	Alive	Good	No	Yes	Early		*Rosa rubiginosa* regrowing near plant
5	057-001	Alive	Good	No	No			
5	057-002	Alive	Good	No	No			
5	057-003	Alive	Good	No	No			
5	057-004	Alive	Good	No	No			
5	058-001	Alive	Good	No	Yes	Mid	Early	
5	058-002	Alive	Moderate	No	Yes	Mid		
5	058-003	Alive	Moderate	No	Yes	Mid	Early	
5	058-004	Alive	Good	No	Yes	Mid		

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	059-001	Alive	Good	No	No			
5	059-002	Alive	Good	No	No			
5	059-003	Alive	Good	No	No			
5	059-004	Alive	Good	No	No			
5	060-001	Alive	Good	No	Yes	Early		
5	060-002	Alive	Good	No	No			
5	060-003	Alive	Good	No	No			
5	060-004	Alive	Moderate	No	Yes	Early		
5	061-001	Alive	Moderate	No	Yes			
5	061-002	Alive	Good	No	No			
5	061-003	Alive	Good	No	Yes	Early		
5	061-004	Alive	Moderate	No	Yes	Mid	Early	
5	062-001	Alive	Good	No	No			
5	062-002	Alive	Good	No	No			
5	062-003	Alive	Good	No	No			
5	062-004	Alive	Good	No	No			
5	063-001	Alive	Good	No	No			
5	063-002	Alive	Good	No	No			
5	063-003	Alive	Good	No	Yes	Mid		
5	063-004	Alive	Good	No	No			
5	064-001	Alive	Good	No	No			
5	064-002	Alive	Good	No	No			
5	064-003	Alive	Good	No	Yes	Mid		
5	064-004	Alive	Good	No	Yes	Mid	Early	
5	065-001	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	065-002	Alive	Good	Yes	No			
5	065-003	Alive	Good	No	No			
5	065-004	Alive	Good	No	No			
5	066-001	Alive	Good	No	No			
5	066-002	Alive	Good	No	Yes	Mid	Early	
5	066-003	Alive	Good	No	No			
5	066-004	Alive	Good	No	No			
5	067-001	Alive	Good	No	Yes	Mid		
5	067-002	Alive	Good	No	No			
5	067-003	Alive	Moderate	No	Yes	Mid		
5	067-004	Alive	Moderate	No	Yes	Mid	Early	
5	068-001	Alive	Good	No	No			
5	068-002	Alive	Good	No	No			
5	068-003	Alive	Good	No	No			
5	068-004	Alive	Good	No	No			Sunken soil
5	069-001	Alive	Good	No	No			
5	069-002	Alive	Good	No	Yes	Mid	Early	
5	069-003	Alive	Good	No	Yes	Early		
5	069-004	Alive	Good	No	No			
5	070-001	Alive	Good	No	No			Sunken soil
5	070-002	Alive	Good	No	No			
5	070-003	Alive	Good	No	No			
5	070-004	Alive	Good	No	No			Sunken soil
5	071-001	Alive	Good	No	No			
5	071-002	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	071-003	Alive	Good	No	No			
5	071-004	Alive	Good	No	No			
5	072-001	Alive	Good	Yes	Yes	Mid		
5	072-002	Alive	Good	No	Yes	Mid		
5	072-003	Alive	Good	No	No			
5	072-004	Alive	Good	No	No			
5	073-001	Alive	Good	No	Yes	Mid	Early	
5	073-002	Alive	Good	No	No			
5	073-003	Alive	Good	No	No			
5	073-004	Alive	Good	No	Yes	Late	Early	
5	074-001	Alive	Good	No	No			
5	074-002	Alive	Good	No	No			
5	074-003	Alive	Good	No	No			
5	074-004	Alive	Good	No	No			
5	075-001	Alive	Good	No	No			
5	075-002	Alive	Good	Yes	No			
5	075-003	Alive	Good	No	No			
5	075-004	Alive	Good	No	No			
5	076-001	Alive	Good	No	No			
5	076-002	Alive	Good	No	No			
5	076-003	Alive	Good	No	No			
5	076-004	Alive	Moderate	No	No			
5	077-001	Alive	Good	No	Yes	Mid		
5	077-002	Alive	Good	No	Yes	Early		
5	077-003	Alive	Moderate	No	Yes	Early		

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	077-004	Alive	Good	No	No			
5	078-001	Alive	Good	No	No			
5	078-002	Alive	Good	No	Yes	Mid	Early	
5	078-003	Alive	Good	No	No			
5	078-004	Alive	Good	No	Yes			
5	079-001	Alive	Good	No	No			
5	079-002	Alive	Good	No	No			
5	079-003	Alive	Good	No	No			
5	079-004	Alive	Moderate	No	Yes	Mid		
5	080-001	Alive	Good	No	No			
5	080-002	Alive	Good	No	No			
5	080-003	Alive	Good	No	No			
5	080-004	Alive	Good	No	No			
5	081-001	Alive	Good	No	No			
5	081-002	Alive	Good	No	No			
5	081-003	Alive	Good	No	No			
5	081-004	Alive	Good	No	No			
5	082-001	Alive	Good	No	No			
5	082-002	Alive	Good	No	No			
5	082-003	Alive	Good	No	No			
5	082-004	Alive	Good	No	No			
5	083-001	Alive	Good	No	Yes	Mid	Early	
5	083-002	Alive	Good	No	No			
5	083-003	Alive	Good	No	Yes	Mid	Early	
5	083-004	Alive	Moderate	No	Yes	Mid		

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	084-001	Alive	Good	No	No			
5	084-002	Alive	Good	No	Yes	Mid		
5	084-003	Alive	Good	No	No			
5	084-004	Alive	Good	No	No			
5	085-001	Alive	Good	No	No			
5	085-002	Alive	Good	No	No			
5	085-003	Alive	Good	No	Yes	Early		
5	085-004	Alive	Moderate	No	No			
5	086-001	Alive	Moderate	No	Yes	Mid	Early	
5	086-002	Alive	Good	No	Yes			
5	086-003	Alive	Moderate	No	Yes	Mid		
5	086-004	Alive	Good	No	Yes	Mid		
5	087-001	Alive	Good	No	No			
5	087-002	Alive	Good	No	No			
5	087-003	Alive	Moderate	No	Yes			
5	087-004	Alive	Good	No	No			
5	088-001	Alive	Good	No	No			
5	088-002	Alive	Good	No	No			
5	088-003	Alive	Good	No	No			Sunken soil
5	088-004	Alive	Good	No	No			
5	089-001	Alive	Good	No	No			
5	089-002	Alive	Moderate	No	No			
5	089-003	Alive	Moderate	No	Yes	Early		
5	089-004	Alive	Good	No	No			
5	090-001	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	090-002	Alive	Good	No	No			
5	090-003	Alive	Good	No	Yes	Mid		
5	090-004	Alive	Good	No	Yes	Mid		
5	091-001	Alive	Good	No	No			
5	091-002	Alive	Moderate	No	Yes			
5	091-003	Alive	Good	No	No			
5	091-004	Alive	Good	No	No			
5	092-001	Alive	Good	No	No			
5	092-002	Alive	Good	No	Yes			
5	092-003	Alive	Good	No	No			
5	092-004	Alive	Good	No	No			
5	093-001	Alive	Good	No	No			
5	093-002	Alive	Good	No	Yes	Mid	Early	
5	093-003	Alive	Good	No	No			
5	093-004	Alive	Good	No	No			
5	094-001	Alive	Good	No	Yes			Sunken soil
5	094-002	Alive	Good	No	Yes	Mid		
5	094-003	Alive	Good	No	No			
5	094-004	Alive	Good	No	No			
5	095-001	Alive	Good	No	Yes			
5	095-002	Alive	Good	No	Yes	Early		
5	095-003	Alive	Moderate	No	Yes			
5	095-004	Alive	Good	No	No			
5	096-001	Alive	Good	No	No			Sunken soil
5	096-002	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	096-003	Alive	Good	Yes	Yes	Mid		
5	096-004	Alive	Good	No	No			
5	097-001	Alive	Good	No	Yes	Mid		
5	097-002	Alive	Good	No	Yes	Late	Early	
5	097-003	Alive	Good	No	Yes	Late	Mid	
5	097-004	Alive	Good	No	Yes	Late	Early	
5	098-001	Alive	Poor	No	Yes	Mid	Early	
5	098-002	Alive	Good	No	No			
5	098-003	Alive	Good	No	No			
5	098-004	Alive	Good	No	Yes	Late	Early	
5	099-001	Alive	Good	No	Yes			
5	099-002	Alive	Moderate	No	Yes	Mid		
5	099-003	Alive	Good	No	Yes	Late	Early	
5	099-004	Alive	Good	No	No			
5	100-001	Alive	Good	No	Yes	Mid		
5	100-002	Alive	Good	No	Yes	Early		
5	100-003	Alive	Good	No	No			Sunken soil
5	100-004	Alive	Good	No	Yes	Late	Mid	
5	101-001	Alive	Good	No	Yes			
5	101-002	Alive	Poor	No	Yes	Mid		
5	101-003	Alive	Good	No	No			
5	101-004	Alive	Good	No	Yes	Mid		
5	102-001	Alive	Good	No	Yes	Early		
5	102-002	Alive	Good	No	No			
5	102-003	Alive	Moderate	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	102-004	Alive	Good	No	Yes			
5	103-001	Alive	Good	No	No			
5	103-002	Alive	Good	No	No			
5	103-003	Alive	Good	No	No			
5	103-004	Alive	Good	No	No			
5	104-001	Alive	Good	No	Yes	Late	Mid	
5	104-002	Alive	Good	No	Yes	Late	Early	
5	104-003	Alive	Good	No	Yes	Mid		Inflorescence broken
5	104-004	Alive	Good	No	Yes	Late	Early	
5	105-001	Alive	Good	Yes	Yes	Mid	Early	One leaf maybe chewed
5	105-002	Alive	Moderate	No	Yes			
5	105-003	Alive	Good	No	No			
5	105-004	Alive	Good	No	Yes	Early		
5	106-001	Alive	Good	No	Yes			
5	106-002	Alive	Good	No	Yes	Late	Mid	
5	106-003	Alive	Good	No	Yes	Late	Early	
5	106-004	Alive	Moderate	No	Yes	Late		
5	107-001	Alive	Good	No	Yes			
5	107-002	Alive	Moderate	No	Yes	Mid		
5	107-003	Alive	Good	No	No			
5	107-004	Alive	Good	No	Yes	Late	Early	
5	108-001	Alive	Good	No	No			
5	108-002	Alive	Good	No	No			
5	108-003	Alive	Good	Yes	No			Old broken ends
5	108-004	Alive	Good	No	Yes	Late	Mid	

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	109-001	Alive	Good	No	No			First time recorded.
5	109-002	Alive	Good	No	Yes	Late	Early	
5	109-003	Alive	Good	No	Yes	Late	Early	
5	109-004	Alive	Poor	No	No			New growth coming through
5	110-001	Alive	Good	No	Yes	Late	Mid	
5	110-002	Alive	Good	No	No			
5	110-003	Alive	Good	No	No			
5	110-004	Alive	Good	No	Yes	Late	Early	
5	111-001	Alive	Good	No	Yes	Late	Early	
5	111-002	Alive	Good	No	Yes	Late	Early	
5	111-003	Alive	Good	No	Yes	Mid		
5	111-004	Alive	Moderate	No	No	Late		
5	112-001	Alive	Good	No	Yes	Mid		
5	112-002	Alive	Good	No	Yes	Mid		
5	112-003	Alive	Good	No	Yes	Late	Early	
5	112-004	Alive	Moderate	No	Yes	Mid	Early	
5	113-001	Alive	Good	No	Yes	Late		
5	113-002	Alive	Moderate	No	No			
5	113-003	Alive	Good	No	No			
5	113-004	Alive	Good	No	No			
5	114-001	Alive	Moderate	No	Yes	Late	Mid	
5	114-002	Alive	Moderate	No	Yes	Mid		
5	114-003	Alive	Moderate	No	Yes	Mid		
5	114-004	Alive	Good	No	Yes			
5	115-001	Alive	Good	No	No			

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	115-002	Alive	Moderate	No	Yes	Mid	Early	
5	115-003	Alive	Moderate	No	Yes	Late	Early	
5	115-004	Alive	Good	No	Yes	Late	Early	
5	116-001	Alive	Good	No	Yes	Mid	Early	Sunken soil
5	116-002	Alive	Moderate	No	Yes	Mid		
5	116-003	Alive	Good	No	Yes	Early	Early	
5	116-004	Alive	Moderate	No	Yes	Mid	Early	
5	117-001	Alive	Good	No	Yes	Late	Early	
5	117-002	Alive	Good	No	Yes	Late	Mid	
5	117-003	Alive	Moderate	No	Yes	Late	Mid	
5	117-004	Alive	Moderate	No	Yes			
5	118-001	Alive	Moderate	No	Yes			
5	118-002	Alive	Moderate	No	Yes	Mid		
5	118-003	Alive	Moderate	No	Yes	Late	Early	
5	118-004	Alive	Moderate	No	Yes	Late	Mid	
5	119-001	Alive	Good	No	Yes	Mid		
5	119-002	Alive	Good	No	Yes	Late	Mid	
5	119-003	Alive	Moderate	No	No			
5	119-004	Alive	Good	No	No			
5	120-001	Alive	Good	No	Yes	Mid	Early	
5	120-002	Alive	Good	No	Yes	Mid	Mid	
5	120-003	Alive	Good	No	Yes	Mid		
5	120-004	Alive	Moderate	No	Yes	Mid		
5	121-001	Alive	Good	No	No			
5	121-002	Alive	Moderate	No	Yes	Mid		

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	121-003	Alive	Good	No	Yes	Mid		
5	121-004	Alive	Good	No	No			
5	122-001	Alive	Good	No	No			
5	122-002	Alive	Good	No	Yes	Early		
5	122-003	Alive	Good	No	No			
5	122-004	Alive	Good	No	No			
5	123-001	Alive	Good	No	No		Mid	
5	123-002	Alive	Good	No	Yes			
5	123-003	Alive	Good	No	Yes	Mid		
5	123-004	Alive	Good	No	Yes	Late	Early	
5	124-001	Alive	Good	No	Yes			
5	124-002	Alive	Good	No	No			
5	124-003	Alive	Good	No	Yes	Late	Early	
5	124-004	Alive	Good	No	No			
5	125-001	Alive	Moderate	No	No			
5	125-002	Alive	Good	No	No			
5	125-003	Alive	Moderate	No	Yes	Mid		
5	125-004	Alive	Moderate	No	Yes	Mid	Early	
5	126-001	Alive	Moderate	No	Yes	Early		
5	126-002	Alive	Moderate	No	No			
5	126-003	Alive	Moderate	No	Yes	Late	Mid	
5	126–004	Alive	Good	No	Yes	Mid		Tag broken needs replacing
5	127-001	Alive	Moderate	No	Yes	Mid		
5	127-002	Alive	Good	No	No		Mid	
5	127-003	Alive	Good	No	Yes	Late		

Monitoring Event	Plant Number	Status	Condition	Evidence of Herbivory	Buds	Flowering	Fruiting	Comment
5	127-004	Alive	Moderate	No	Yes	Mid		
5	128-001	Alive	Good	No	No			
5	128-002	Alive	Moderate	No	No			
5	128-003	Alive	Good	No	No			
5	128-004	Alive	Moderate	No	No			
5	129-001	Alive	Moderate	No	No			
5	129-002	Alive	Good	Yes	Yes	Mid		
5	129-003	Alive	Good	No	No			
5	129-004	Alive	Good	No	Yes	Early		
5	130-001	Alive	Moderate	No	Yes	Mid		
5	130-002	Alive	Good	No	Yes	Mid		
5	130-003	Alive	Good	No	Yes		Mid	
5	130-004	Alive	Good	No	No			
5	131-001	Alive	Good	Yes	No			
5	131-002	Alive	Moderate	Yes	No			
5	131-003	Alive	Good	No	No			
5	131-004	Alive	Moderate	No	Yes	Early		
5	132-001	Alive	Good	No	Yes	Early		
5	132-002	Alive	Moderate	No	No			
5	132-003	Alive	Good	Yes	No			
5	132-004	Alive	Good	No	No			

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The Power of Commitment

Appendix C Studley Park Gum Annual Compliance Report

Studley Park Gum Annual EPBC Compliance Report 2024

NEL-PW-GHD-9990-EEE-REP-0043

North East Link Program

Revision 0
21/06/2024

→ **The Power of Commitment**

Project name	North East Link Technical Advisor		
Document title	Studley Park Gum Annual EPBC Compliance Report 2024		
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GHD Pty Ltd | ABN 39 008 488 373
180 Lonsdale Street, Level 9
Melbourne, Victoria 3000, Australia
T +61 3 8687 8000 | **F** +61 3 8732 7046 | **E** melmail@ghd.com | **ghd.com**

Executive Summary

Overview

The North East Link ("the project") is a new freeway-standard road connection to the north-east of the Melbourne Central Business District that will complete Melbourne's ring road. Ecological impact assessments completed for the project identified that the project has the potential to impact *Eucalyptus* x *studleyensis* (Studley Park Gum), which is listed as 'Critically endangered' on the *Victorian Flora and Fauna Guarantee Act 1988* (FFG Act) threatened flora list. To mitigate impacts on the Studley Park Gum, a Studley Park Gum Management Framework and corresponding management plan were developed and implemented in consultation with the Department of Energy, Environment and Climate Action (DEECA (formerly DELWP)).

This report is the Year 3 annual compliance report following three years of active Studley Park Gum translocation. The purpose of this annual report is to summarise quarterly monitoring outcomes of the health and condition of the Studley Park Gums (SPGs) at the recipient sites.

Key Findings

– In March 2024, there were 241 living SPGs across the three sites, well above the target of 149 for year 2, most of which were in good (49%) or moderate condition (41%).
– Average plant height increased from 156 cm in March 2023 to 240 cm in March 2024. Four plants had some form of reproduction, which is encouraging, and it is expected that a greater proportion of plants will show some form of reproduction in the future as they age.
– Across the three sites, two (2) of 243 SPGs were dead or missing (1%). These rates are within expected range for in situ plantings. No herbivory, notable environmental stress or disease was observed during March 2024 monitoring.
– Ninety-five (95) plants are now three years old and can therefore be considered 'established' under the Studley Park Gum Management Framework. An additional 146 plants are two years old, and if remain alive they will be considered established in May 2025. As long as at least nine of these additional 146 trees survive until that date, the program will meet its establishment goal of 104 trees.

Management Recommendations

At this stage of establishment, protection from herbivore browsing and weed control is required to maximise translocation success. The following actions are a summary of what is required beyond March 2024 to achieve this:

– Fencing should be regularly inspected for damages and promptly repaired where necessary to prevent herbivore ingress into the translocation sites.
– Noxious weeds should continue to be targeted for selective spraying/hand-weeding. Ensure herbicide application only occurs at a distance greater than 50 cm from saplings.
– Continue to monitor insect herbivory and assess the need for snail/slug control or leaf insect control regularly.
– If Australia experiences an El Niño event in 2024, supplemental watering during dry periods should be considered to prevent tree health decline or excess mortality.

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1. Introduction

1.1 Project background

The North East Link Program (NELP) (a division of the Victorian Infrastructure Delivery Authority (VIDA)), on behalf of the Victorian State government, is currently undertaking the North East Link (NEL) project (referred to herein as 'the project'). The NEL is a new freeway-standard road connection to the north-east of the Melbourne Central Business District that will complete Melbourne's ring road. Specifically, the NEL will connect the Metropolitan Ring Road (M80) to the Eastern Freeway and includes works along the Eastern Freeway from near Hoddle Street to Springvale Road. The impacts to biodiversity values due to the project have been determined through ecological impact assessments, which informed the development of an Environment Effects Statement (EES) in accordance with the *Victorian Environment Effects Act 1978* and a Public Environment Report (PER) in accordance with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Ecological impact assessments have identified that the project has the potential to impact *Eucalyptus x studleyensis* (Studley Park Gum), which is listed as 'Critically endangered' on the *Victorian Flora and Fauna Guarantee Act 1988* (FFG Act) threatened flora list.

1.2 Approval conditions

The ministerial assessment of the EES made a number of recommendations regarding the Environmental Performance Requirements (EPR) for NELP. EPR FF10 states 'To mitigate impacts on the Studley Park Gum (SPG), a Studley Park Gum Management Framework must be developed, and corresponding management plan must be developed and implemented in consultation with the Department of Energy Environment and Climate Action (DEECA) (formerly the Department of Environment, Land, Water and Planning (DELWP)).

Condition 6 of the EPBC 2018/8142 approval requires NELP to implement the Studley Park Gum Management Framework and to report to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (formerly the Department of Agriculture, Water and the Environment (DAWE)) on the outcomes every year for three years as part of compliance reporting.

NELP has developed and obtained approval of the Studley Park Gum Management Framework (Emerge Associates and GHD 2021) by DCCEEW (formerly DAWE). Consequentially the Studley Park Gum Management Plan (Emerge Associates and GHD 2020) was prepared to support the Management Framework and implemented in consultation with DEECA (formerly DEWLP). The Studley Park Gum Management Framework (Emerge Associates and GHD 2021) and Studley Park Gum Management Plan (Emerge Associates and GHD 2020), outline the requirements for planting and ongoing management and monitoring of the SPGs.

1.3 Purpose of this report

This report is the Year 3 annual compliance report following three years of active SPG translocation. The purpose of this annual report is to summarise quarterly monitoring outcomes of the health and condition of the SPGs at the recipient sites; Westerfolds Park and Montpelier Reserve in the Yarra Valley Parklands. As the latest round of planting of SPG saplings was in May 2022 (2 years ago as of May 2024) this survival rate of the SPGs will be assessed against the year 2 targets. This report meets the reporting requirements of the EPBC Act approval (EPBC 2018/8142) conditions and the requirements of the Studley Park Gum Management Framework (Emerge Associates and GHD 2021) and the SPG Management Plan (Emerge Associates and GHD 2020).

2. Translocation goal

The goal of SPG translocation is to initiate and deliver the establishment of a new population of SPGs to assist with the ongoing conservation of the taxon. To achieve this goal, it was proposed to establish a minimum of **104 Studley Park Gum trees** across two recipient sites. For the SPG trees to be considered established, 104 individuals need to have survived three years following planting. The goal of 104 trees is based on a replacement ratio of two translocated SPGs established for each individual tree likely to be impacted by the North East Link Program.

To achieve the establishment goal of at least 104 plants for the NELP, it was proposed that a total of 303 SPG saplings are initially planted at the recipient sites. This accounts for unavoidable plant loss assuming a 70% survival rate for each year over a three-year period. The following provides details of the 70% survival rate:

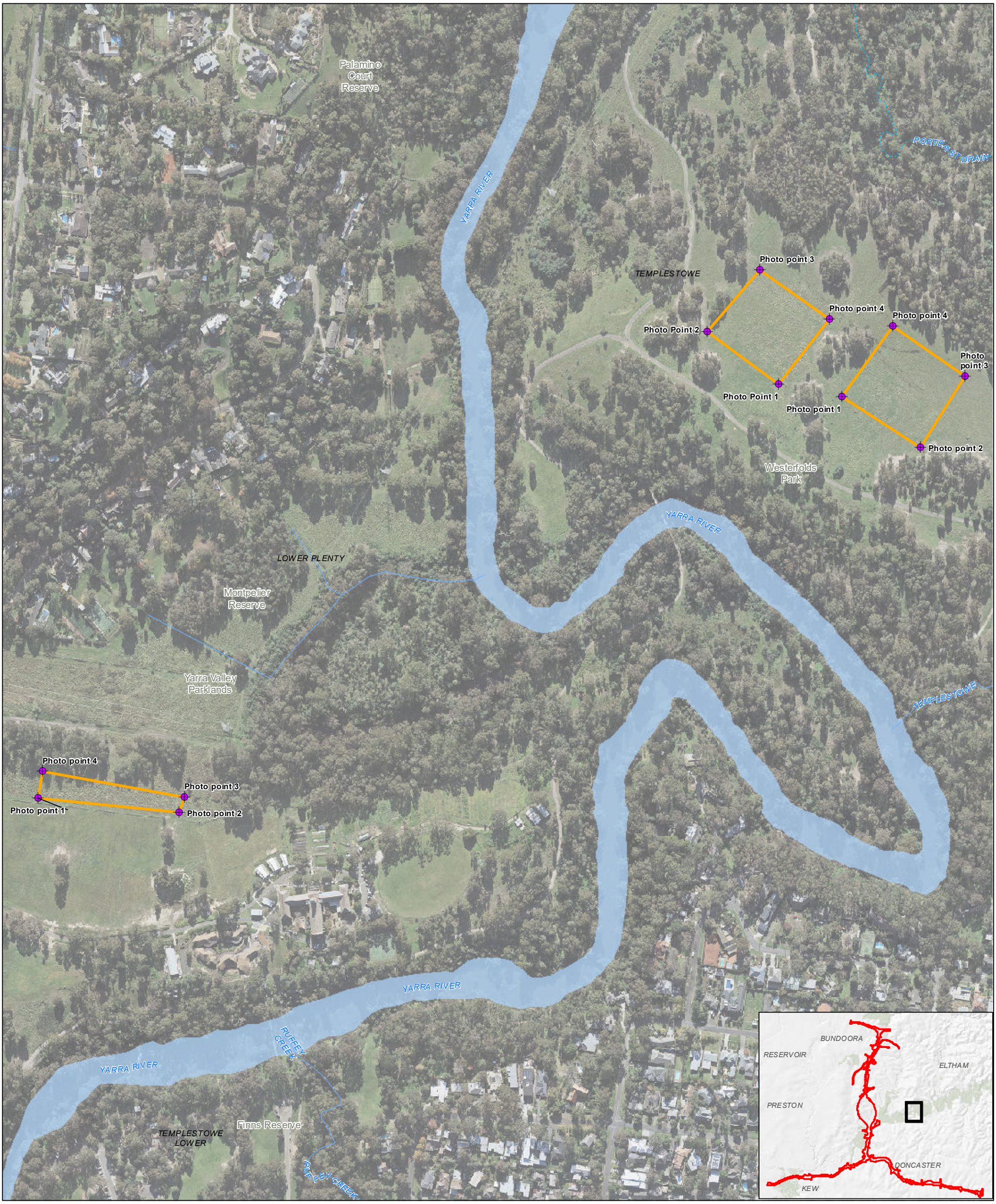
– Year 0 (2021): 303 saplings planted
– Year 1 (2022): 212 saplings (@ 70% survival)
– **Year 2 (2023): 149 saplings (@ 70% survival)**
– Year 3 (2024): 104 plants established (planted for at least three years)

In May and June 2021, 364 SPG saplings were planted at the recipient sites. After an unexpectedly high rate of tree mortality due to waterlogging and high rainfall, extra trees were planted to maximise the chance that the establishment goal would be met. Approximately 226 trees were planted between November 2021 and May 2022.

This has led to the plants being in two different stages of the monitoring program depending on year planted. A decision was made to review the program overall against the age of the youngest SPGs, which puts this report at the end of the second year of monitoring.

2.1 Recipient site locations

The Yarra Valley Parklands sites were deemed by the relevant land manager (and based on feedback from DEECA (formerly DEWLP) to be appropriate recipient sites (Emerge Associates and GHD 2021a). Discussions with Parks Victoria determined Westerfolds Park and Montpelier Reserve within Yarra Valley Parklands to be the suitable available recipient sites. Within these two sites, three recipient sites were prepared. Two sites are located within Westerfolds Park and one within Montpelier Reserve (Figure 1).



Legend

- Photo point locations
- Recipient Site
- Watercourse

Paper Size A3

0 60 120

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

North East Link Project

Security Classification: ***OFFICIAL: Sensitive*** Date: 25 Nov 2021
NEL-PW-GHD-9990-EEE-REP-0043 Revision 0 Revision: A
Studley Park Gum Annual EPBC Compliance Report 2024

Studley Park Gum Recipient Site

Figure 1

180 Lonsdale Street, Melbourne VIC 3000 Australia **T** 61 3 8687 8000 **E** melmail@ghd.com **W** www.ghd.com

\\ghdnet\ghd\AU\Melbourne\Projects\31\35006\GIS\Maps\Working\Operational\Ecology\Ad hoc\20211125_SPG_Recipient_Site\3135006_SPG_Recipient_Site_A3P_RevA.mxd

Data Sources: CIP Imagery - DELWP - 2020 | Cadastre, Roads, Planning Zones - Vicmap - 2021 | SPG data - 2021 | Created by: zzuo

3. Method

The following method as outlined in the Studley Park Gum Management Framework (Emerge Associates and GHD 2021) and the Studley Park Gum Management Plan (Emerge Associates and GHD 2020) was used to undertake the monitoring.

3.1 Monitoring timing

Monitoring has been undertaken quarterly during Year 1 and Year 2 and will continue for the remainder of the establishment period (first three years after planting until 104 SPGs are established). This is to determine whether plants are establishing and whether contingency actions need to be undertaken to facilitate plant survival. Monitoring will then become less frequent (minimum annually) until the goal of 104 trees considered established is met. Monitoring events will align with EPBC Act Approval 2018/8142 annual compliance reporting. Monitoring visits are to take place at the following intervals:

– Establishment period (Years 1, 2 & 3): monitor quarterly, at approximately the beginning of each season (e.g. September, December, March and June). This includes an initial monitoring visit in the week post-planting to record initial conditions (baseline) and audit the site establishment activities so that compliance is achieved with the Recipient Site Management Prescriptions.
– Post-establishment (Years 4 onwards): monitor annually until the goal of >104 SPG trees established has been met. Established means trees have survived for at least three years.
– Monitoring must occur for five years. If the goal of 104 established plants is not achieved after five years, then implementation of the plan will continue until the goal is met, up to a total of 10 years.

See Appendix A for a table of monitoring events that have been completed to date and future planned monitoring events.

3.2 Method

Monitoring involved a physical inspection of the saplings planted at the recipient sites by an appropriately skilled Ecologist/Botanist.

3.2.1 Data

Weather conditions

A desktop analysis of the conditions recorded by the Bureau of Meteorology at the Viewbank[1] weather station was undertaken to provide a summary of the weather conditions experienced at the recipient sites since the initial planting; these conditions were compared with site and time-matched long-term weather data. Data reviewed included:

– Number of days with rain >1 mm
– Temperature (Max and min temps)
– Total rainfall for the period and against the mean expected rainfall
– Any unexpected weather events (e.g., heat wave, storm, flooding)

Total number of living translocated plants

The total number of SPGs has been recorded by observing each SPG and determining if it was alive or dead. Dead plants were then removed from the monitoring program so as not to recount these individuals in future monitoring events.

[1] http://www.bom.gov.au/products/IDV60901/IDV60901.95874.shtml

The monitoring method has been amended so that:

– Trees recorded as dead for the first time were not removed to allow time to resprout.
– Trees counted as dead during two consecutive prior monitoring events were not counted again as dead in the current monitoring event.
– Trees recorded as dead or not present for a third consecutive monitoring event have been removed from the dataset.

Condition of translocated plants

The condition of the translocated plants at the time of the monitoring event were noted, including:

– Stress – if the tree is experiencing stress, the type of stress has been recorded (e.g., drought/herbivory/disease/other)
– Condition – to determine its likelihood of surviving. Condition classes are as follows:
  - Dead = no living material evident
  - Poor <30% leaves are healthy
  - Moderate 30<70% of leaves healthy
  - Good >70% leaves healthy
– Plant height (cm)
– Diameter of the trunk (cm) at the base of the tree until it reaches a height to record at both the base and at breast height (1.4 m) from the base
– Flowering / fruiting (Y/N)

Condition of the recipient site

To capture the condition of the recipient site, and threats that weeds and/or herbivores pose to SPG establishment, the following items were monitored:

– Presence of noxious weeds, estimate of the percentage cover within a 1.5 m radius of each SPG. The noxious weed cover measurement has been changed since previous assessments. The change is based on the correct use of the word “noxious”. In this and future assessments, noxious weeds will refer to weeds listed under the *Catchment and Land Protection Act 1994* (CaLP Act). A total weed cover measurement will be taken to keep track of the weed cover around the trees to help inform land management practices.
– Presence of herbivory within the recipient site, defined by the presence of partially eaten specimens, droppings/scats or diggings.

Incidental observations within the recipient site

Incidental observations within the recipient sites were recorded, including:

– Stagnant/excess water
– Emerging weeds
– If slashing is required to maintain biomass levels suitable for sapling establishment
– Other incidental observations

Maintenance requirements

The recording of programmed maintenance completed as prescribed in the Studley Park Gum Management Plan (Emerge Associates and GHD, 2020), or if previous monitoring events identified actions and if additional maintenance is required. This may include:

– Fencing maintenance
– Rectifying unauthorised access
– Slashing of grass within or surrounding recipient site
– Additional planting events

3.2.2 Photo points

Photo-point monitoring was also undertaken during monitoring. Mapped locations for photo-point monitoring are provided in Figure 1, and spatial locations provided in Table 1.

Table 1 Photo point locations (Eastings and Northings)

Photo Point	Westerfolds Site 1	Westerfolds Site 2	Montpelier
1	334805, 5820680	334732, 5820690	333889, 5820220
2	334894, 5820620	334651, 5820750	334049,5820200
3	334945, 5820700	334711, 5820820	334055, 5820220
4	334862, 5820760	334791, 5820760	333894, 5820250

3.2.3 Sample size

All SPG saplings translocated to the site were monitored throughout the monitoring period.

3.3 Adaptive management

The results of the quarterly monitoring (as reported in Section 4) during the first three years post-planting were used to inform site management, maintenance and track the survival of translocated plants. Any adaptive management actions required to rectify issues were identified at each monitoring event and timelines nominated for the task to be undertaken. The fourth quarterly event each year coincides with the annual monitoring event.

Further, an annual evaluation (this report) has been undertaken to determine progress of the site towards the collective goal. This involved tracking the number of surviving SPG plants in the recipient sites. Any actions resulting from the assessment against the evaluation process provided in Table 2 is provided in Section 5.

Table 2 Evaluation process for the recipient site

Timing	Measure	Action
Each quarter for 3 years after planting	Environmental changes that impact SPG survival	Alert management authority Alter Recipient Site Management Prescriptions, if needed
Each year for 3 years after planting	>70% SPG survival	None required
	<70% SPG survival	Undertake supplementary planting
End of 4th year after planting End of 5th year after planting	104 or more SPG plants established (which have been planted in recipient site for at least 3 years)	Hand over site to management authority Minimal ongoing management activity
	<104 SPG plants	Undertake supplementary planting
Years 5-10 (only required if goal is not met prior)	<104 SPG plants	Review management actions to improve success. Undertake supplementary planting

4. Results – March 2023 to March 2024

4.1 Monitoring summary

Site preparation at the three recipient sites commenced on 9 April 2021. Weed control and pest control were completed at each site by 30 April 2021. Fencing was erected from 21 May to 2 June 2021.

Planting commenced at the two Westerfolds recipient sites on 24 May 2021 and on 4 June 2021 at the Montpelier recipient site. Mulching around each plant was completed by 5 June 2021.

The initial baseline monitoring event and planting audit was undertaken on 15 June 2021. During baseline monitoring, the condition of the planted SPGs was recorded by GHD Senior Botanist, Jessica Lamb.

Subsequently, quarterly monitoring was undertaken between November 2021 and March 2024 by GHD Botanists. Timing and or scope of monitoring events was adjusted to accommodate COVID-19 restrictions, maintenance, plantings, or herbicide withholding periods where required (Appendix A).

4.1.1 Weather

The following weather conditions were observed at the recipient sites between the Year 2 4th quarterly event (27 and 29 March 2023) and the Year 3 4th quarterly event (29 March 2023 to 25 March 2024). Data were collected from the BOM Viewbank Weather Station (station 086068) (BoM 2024a, 2024b).

Throughout 2023 rainfall across Melbourne was close to long term averages, with above average rainfall in the months of July, August, September, and November. There was more rain in January compared to average, but February and March were much lower than expected, see Table 3.

Table 3 Annual weather summary

	Actual days from Viewbank Station (362 days)	Long-term annual average
Average min temp C	10.4	10.1
Average max temp C	21.3	21.0
Total rainfall (mm)	543.4	597.9
Number of days with rain >1 mm	75	84

4.1.2 Site preparation

A total of 364 saplings of Studley Park Gum were planted within the three recipient sites between 24 May 2021 and November 2021. This was above the target 303 saplings required to be planted, however; due to success in the nursery and available space in the sites more saplings were available and therefore used. Transplanted saplings were approximately seven months old, with an average height of 51.7 cm. Planted saplings were observed to be well spaced out and planted in clusters as per the SPG Management Plan prescriptions. Saplings were planted away from the fence to allow for future slashing.

Each planting location was previously sprayed with herbicide, and the grasses and forbs were observed to be dead during the baseline monitoring. Plant holes were greater in width than the plant and appropriately back filled with soil. Mulching was at the correct thickness, with some mulching washed into the planting holes due to the heavy rainfall events. Photos showing preparation of the sites are provided in Appendix B.

4.1.3 SPG translocation goal

In March 2024, there were 241 living SPGs across the three sites, well above the target of 149 for Year 2, most of which were in good (49%) or moderate condition (41 %). The proportion of plants in good condition has decreased over the course of the past year from 77% of plants in March 2023 to 49% in March 2024. This decrease in condition may be attributed to an unusually dry late summer period – February and March rainfall was 3.2 mm and 3.6 mm respectively, a significant reduction from the mean (42.0 mm and 42.6 mm). However, most plants still remained in moderate condition or above with only 9% of plants in poor condition, an increase from 3% in 2023.

Despite the dry end to the summer, conditions were still good enough for the plants to grow – average height increased from 156 cm in March 2023 to 240 cm in March 2024. Four plants had some form of reproduction, and it is expected that a greater proportion of plants will show some form of reproduction in the future as they age.

Across the three sites, two (2) of 243 SPGs were dead or missing (1%). These rates are within expected range for *in situ* plantings. No herbivory, notable environmental stress or disease was observed during March 2024 monitoring.

In March 2024, there are 95 SPGs from the original planting that are still alive. As it has been three years since their planting, they are considered established (Table 4). There are 146 trees from the subsequent plantings that are still alive and are now at least two years old. As long as at least nine of these 146 trees survive until May 2025, the program will meet its establishment goal of 104 trees.

Table 4 ***Number of living trees from the original planting in May and June of 2021 and the subsequent plantings of May 2022***

	Living trees			
Planting status	**Event 9**	**Event 10**	**Event 11**	**Event 12**
Original planted (3 years old)	95	97	97	95
Subsequent plantings (2 years old)	151	146	140	146

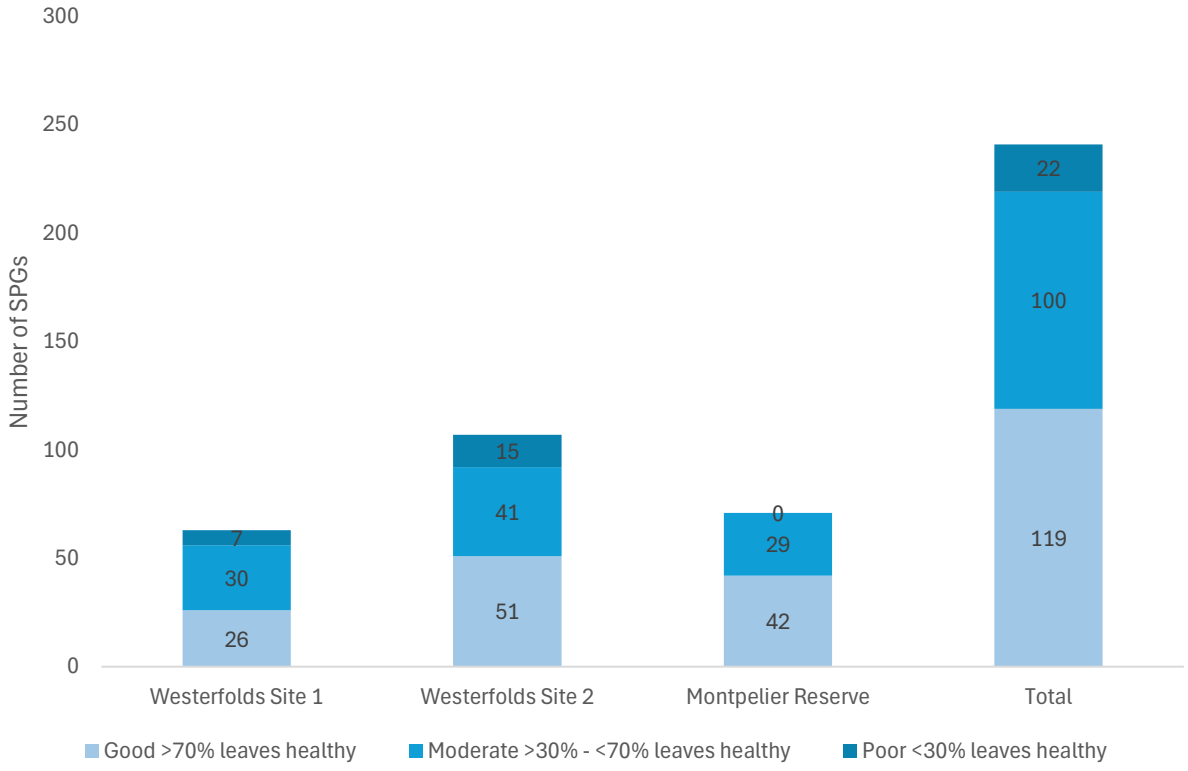


Figure 2 ***Condition of SPG across the three recipient sites: fourth quarterly survey March 2024***

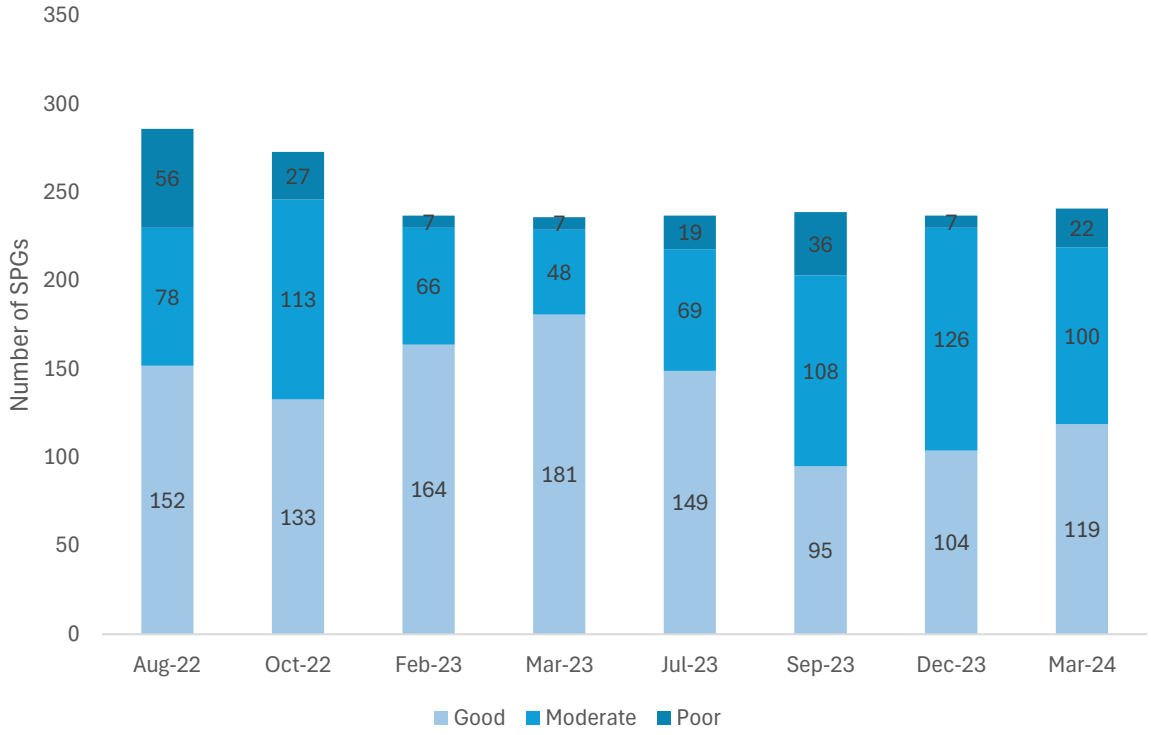


Figure 3 *Number of trees and condition across recipient sites across monitoring events*

4.1.4 Threats

Predominant threats to SPG establishment as of March 2024 include the following:

Brush-cutting damage

Some individual SPGs in Montpelier reserve showed evidence of damage as a result of the brush-cutting of noxious weed around the base of trees. Such activities are a necessary part of controlling biomass and reducing competition from noxious weeds, but land management staff should ensure to leave a sufficient buffer around SPG individuals and use alternative methods (such as hand weeding or secateurs) to minimise the risk of damage.

Fence condition and erosion

Erosion is causing a risk to fence condition and herbivory prevention at Montpelier, with hill and gully erosion forming in and around wombat burrows and rabbit warrens. There are four burrows under the fence on the north and south side of Montpelier Reserve, which need to be destroyed and/or rehabilitated to prevent pest animals from entering the reserve.

A crack is present in the north-western corner pole in Westerfolds Site 2 as a result of an external impact. This impact occurred in 2022 and is being monitored regularly by the land managers to determine if the pole needs to be replaced.

Noxious weed cover

Noxious weed cover within the 50 cm buffer around SPG individuals was below the threshold of 1% as a result of brush-cutting and other weed control activities.

Weed cover was above the recommended levels of <1% within SPG mulch circles at all sites during March 2024 survey. Total weed cover in mulch circles surrounding SPG saplings ranged between 55% (Montpelier) and 100% (Westerfolds Site 2) (Table 4). Weed cover was almost exclusively *Anthoxanthum odoratum* (Sweet Vernal Grass) across all sites, consistent with prior surveys. One small patch of *Rubus anglocandicans* (Blackberry) was observed in the planting area.

Sweet Vernal Grass is not acting as a noxious weed in this context, especially where trees are growing taller than the grass. Future surveys will not consider Sweet Vernal Grass as a noxious weed.

Cover of other grassy weeds was also high in all sites, predominantly contributed by perennial grassy weed *Phalaris aquatica* (Toowoomba Canary Grass).

It is noted that tree condition does not appear significantly compromised by weed cover at this stage. With the ongoing formation of gully erosion at Montpelier, and history of waterlogging at all sites, grassy cover is currently acting as a soil stabiliser and water 'diversion' until the SPGs are established enough to fulfil this ecological role.

The current approach of managing grassy weed biomass by brush-cutting rather than spraying is recommended to continue, so long as SPG health is maintained and are free of weeds to at least 50 cm from their base. Control of woody weeds and forbs should continue as per the Studley Park Gum Management Plan (Emerge Associates and GHD, 2020). Noxious weed *Nassella neesiana* (Chilean Needle Grass) should likewise be controlled as per the Studley Park Gum management plan, due to its high risk of biodiversity impact to the surrounding park, and its persistence in the soil seed bank.

Herbivory

It is recommended that insect herbivory continues to be monitored by the contractor and the need for snail/slug control or leaf insect control assessed regularly.

If the contractor observes significant slug/snail damage or leaf insect damage, then appropriate bait or insecticide may be appropriate to use in the short-term.

Herbivory by small mammals (e.g., rabbits) is less likely now that most trees are over 1 m tall. The fences can be removed after year five if the trees are considered safe from deer grazing. At this stage, the trees are mostly too short to be considered safe from deer grazing.

4.2 Recipient site results

Monitoring results recorded for the three recipient sites during March 2024 are provided in Table 5 with the summary of data of the four quarterly monitoring events presented in Table C1, and each quarterly monitoring data presented in full in Appendix E.

Photos taken at monitoring points in March 2023 and March 2024 are provided in Appendix C, with representative photos of establishing SPGs (March 2024) provided in Appendix D. Monitoring data for each site during each quarterly surveys (1-4) is provided in Appendix E.

Table 5 Monitoring results: fourth quarterly event – March 2024

Recipient Site	Westerfolds 1	Westerfolds 2	Montpelier	Total
Living plants (no.)	63	107	71	241
Dead plants (no.) (including missing)	1	1	0	2
% of living plants with >70% of healthy leaves (good condition)	41% (26 plants)	48% (51 plants)	59% (42 plants)	49% (119 plants)
% of living plants with 30<70% of healthy leaves (moderate condition)	48% (30 plants)	38% (41 plants)	10% (29 plants)	41% (100 plants)
% of living plants with <30% of healthy leaves (poor condition)	12% (7 plants)	14% (15 plants)	0% (0 plants)	9% (22 plants)
Average tree height (cm)	268 cm	238 cm	219 cm	241 cm
Average Basal diameter (cm)	2.6 cm	2.1 cm	1.6 cm	2.1 cm
Proportion of plants with flowering / fruiting present?	2	2	0	4
Average cover of noxious weeds within 1.5 m radius (%)	0%	0%	0.7%	0.21%
Average cover of weeds within 1.5 m radius (%)	99%	100%	55%	86%

Recipient Site	Westerfolds 1	Westerfolds 2	Montpelier	Total
Herbivory Present (%)	0%	1%	1%	0.8%
Programmed maintenance undertaken satisfactorily	Some	Some	Some	Some
Previous additional maintenance/ adaptive measures undertaken?	Yes	Yes	Some	Some
Additional maintenance required?	Yes	Yes	Yes	Yes

5. Adaptive management measures and recommendations

5.1 Proposed maintenance and/or corrective actions

Proposed maintenance and corrective actions undertaken during the reporting period (May 2023 – March 2024) are detailed in Appendix A.

At this stage of establishment, protection from herbivore browsing and weed control is required to maximise translocation success. The following actions are a summary of what is required beyond March 2024 to achieve this:

- Slashing or brush-cutting fence boundaries to allow easy inspection of fence condition and to reduce risk of herbivore egress during the SPG establishment period. Herbicide spraying on the Montpelier fence line is not recommended, as non-vegetated soil will be more susceptible to erosion and waterlogging.
- Fencing should be assessed for preventative repair and reinforcement at Westerfolds 2 and Montpelier Reserve.
- Trees 50 cm and smaller should be marked with a stake, and optionally also temporarily fitted with a tree guard so that they may be readily located during maintenance and monitoring events. In future, any replacement plantings should use both stakes and tree guards.
- Noxious weeds should be targeted for selective spraying/hand-weeding in line with the SPG Management Plan (GHD 2020). Spot spraying is to occur only at a distance greater than 50 cm from saplings and weed control within 50 cm of saplings is to be done by hand.
- Request the contractor to continue to monitor insect herbivory and assess the need for snail/slug control or leaf insect control regularly. If the contractor observes significant slug/snail damage or leaf insect damage, then appropriate bait or insecticide may be used in the short-term.
- If Australia experiences an El Niño event in 2024, supplemental watering during dry periods should be considered to prevent tree health decline or excess mortality.

6. Compliance assessment

Table 6 provides an assessment of the results of the SPG monitoring program against the EPBC Approval (EPBC 2018/8142) condition #6.

Table 6 EPBC 2018/8142 Approval Condition relevant to Studley Park Gums

Condition no.	Approval Condition	Condition currently triggered	Compliance	Comments and supporting documentation
6	The approval holder must implement the Studley Park Gum Management Framework for the period of effect of the approval. The approval holder must provide the department with a report, as part of the compliance report, each year for three years, commencing from the date the first Studley Park Gum tree is planted in accordance with the Studley Park Gum Management Framework. This report must detail the number, condition and threats faced by the Studley Park Gum trees that have been planted, as well as any maintenance or corrective actions that are taken or are proposed.	Yes	Compliant	The report provides an assessment of the state of the translocation program against the EPBC approval condition and the Studley Park Gum Management Framework. This is the second annual compliance report and due to the extra *ad hoc* plantings completed in November 2021, the program is being assessed against the Year 2 targets to account for these young plants not being planted for three years yet. There were 241 plants found alive in March of 2024, which is more than the target of 149 living plants for year 2 survivorship. 49% of these living plants were in good condition with only 9% in poor condition. There are 95 SPG trees that were planted in May and June of 2021 that are still alive now. These trees are considered established (survived for three years). There are 146 SPG trees that were planted by May 2022 that are still alive now. Noxious weed cover meets the target of <1% cover within 5 m of the SPGs. Whilst total weed cover is higher, it is dominated by grassy weeds such as *Anthoxanthum odoratum* (Sweet Vernal Grass), which would have little to no effect on the SPGs given their current size and age. Brush cutting and fence maintenance was performed over the course of the year (Appendix E). The Project is compliant with the approval condition to date. Monitoring will continue in accordance with the SPG Management Framework and Plan.

Green cells= target met, orange = target is not yet met but progress is on track, red = target is not met and action required.

Table 7 details the compliance of the translocation program against the requirements of the Studley Park Gum Management Framework.

Table 7 Compliance requirements in the Studley Park Gum Management Framework

Studley Park Gum Management Framework	Comments and supporting documentation
The plan goal of 70% survival rate for each year based on the below numbers: – Year 0: 303 saplings planted – Year 1: 212 saplings (@70% survival) – Year 2 149 Saplings (@70% survival) – Year 3 104 plants established	This report summarises the success of the program against the Year 2 targets because the youngest SPGs planted across the sites were planted in November 2021. Based on 241 living SPG plants across the three sites, the Year 2 target is exceeded (i.e. a survival rate of 79%, above the target for Year 2). Also worth noting that the program is close to achieving the end target of 104 established SPGs, with 95 SPGs now considered established (survived 3 years since planting).
Noxious weed cover levels within 5m radius of planted tube stock is to be controlled to ensure cover is less than 1%.	Noxious weed cover across all sites averaged out to less than 1%. Whilst some Blackberry was present, the vast majority (all but one plant) are surrounded by Sweet Vernal Grass. This species was present across the site before the translocation and is not acting as a noxious weed. Given most of the trees are taller than the grass height, the Sweet Vernal Grass cover is not a threat to tree survival.
Monitoring is required to assess impacts of herbivory of pest animals.	Herbivory rates across the sites is 0.8%. The current control methods (fence) are appropriate to protect plants from kangaroo, rabbits, and hares, but prompt repairs should be undertaken to avoid incursion through the protective fencing.

Green cells= target met, orange = target is not yet met but progress is on track, red = target is not met and action required.

7. References

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Appendices

Appendix A

Table of monitoring events

Table A1 Table of monitoring events

Year	Monitoring event	Expected date of event	Date event completed	Comments
0	Baseline Monitoring Event and 1st quarterly event.	Planting expected in May 2021, monitoring one week following planting.	Planting: 24/05/21 Monitoring: 15/06/2021	Monitoring delayed by one week due to Victorian Government mandated COVID-19 lockdown, and a public holiday between planting and monitoring event.
1	Event 2 - 2nd Quarterly event	September 2021	9/11/2021	Site visit paused until replacement plantings could be installed, as per prior audit recommendations. Monitoring occurred within one week of plant installation. During this monitoring event ecologists were unable to enter Westerfolds 2 site due to safety hazards.
1	Event 3 - 3rd Quarterly event	December 2021	18/01/2022	Delay from prior survey carried forward to this monitoring event, to allow time for meaningful plant growth to occur. Westerfolds 2 sapling numbers could not be assessed due to maintenance activities underway.
1	Event 4 - 4th Quarterly event	March 2022	12/05/2022 – 13/05/2022	Delayed due to herbicide withholding period, and to allow completion of maintenance activities.
2	Event 5 - 1st Quarterly event	June 2022	4th and 5th August 2022	Delayed allowing time for brushcutting so that staff could access site
2	Event 6 - 2nd Quarterly event	September 2022	18th and 19th October 2022	Delayed allowing time for brushcutting so that staff could access site.
2	Event 7 - 3rd Quarterly event	December 2022	9th and 14th February 2023	Monitoring conditions were delayed until site conditions were safe enough for a visit. Monitoring occurred post biomass control by land managers.
2	Event 8 - 4th Quarterly event	March 2023	27th and 29th March 2023	Monitoring undertaken at required time.
3	Event 9 - 1st Quarterly event	June 2023	20th and 21st of July 2023	Monitoring delayed to allow for appropriate resourcing.
3	Event 10 - 2nd Quarterly event	September 2023	20th and 21st of September 2023	Monitoring undertaken at required time.
3	Event 11 - 3rd Quarterly event	December 2023	7th and 14th December 2023	Monitoring undertaken at required time.
3	Event 12 - 4th Quarterly event	March 2024	18th, 19th, 25th, and 26th March 2024	Monitoring undertaken at required time.
4	1st Quarterly event	June 2024	To be completed	
4	2nd Quarterly event	September 2024	To be completed	
4	3rd Quarterly event	December 2024	To be completed	
4	4th Quarterly event	March 2025	To be completed	

Year	Monitoring event	Expected date of event	Date event completed	Comments
5	Annually in June	May 2025	To be completed	
6	Annually in June	May 2026	To be completed	
7	Annually in June	May 2027	To be completed	
8	Annually in June	May 2028	To be completed	
9	Annually in June	May 2029	To be completed	
10	Annually in June	May 2030	To be completed	
10	End of project	May 2031	To be completed	

Appendix B

Site preparation photos

Table B1 *Site preparation photos*

Fence		Correctly planted SPG, which has been water-logged due to the heavy rainfall event	
Appropriately spaced planting locations		Wombat burrow which has been closed off from the outside.	

Appendix C

Annual photo monitoring

Table C1 *Westerfolds 1 photo monitoring points: June 2023 to March 2024*

Location	June 2023	September 2023	December 2023	March 2024
1 (gate)				
2 (next corner anti-clockwise from gate)				
3 (opposite gate)				
4 (corner that is clockwise from the gate)				

Table C2 Photo point monitoring for Westerfolds site 2 showing June 2023 to March 2024

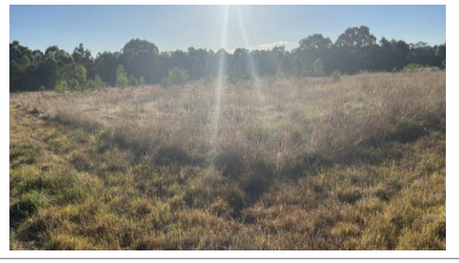
Location	June 2023	September 2023	December 2023	March 2024
1 (gate)				
2 (next corner anti-clockwise from gate)				
3 (opposite gate)				
4 (corner that is clockwise from the gate)				

Table C3 Photo point monitoring for Montpelier Reserve showing June 2023 to March 2024

Location	June 2023	September 2023	December 2023	March 2024
1 (gate)				
2 (next corner anti-clockwise from gate)				
3 (opposite gate)				
4 (corner that is clockwise from the gate)				

Appendix D

Monitoring data: recipient site results 2023 – 2024

Table D1 Summary of quarterly monitoring events: March 2023 – March 2024

Recipient Site	March 2023	July 2023	September 2023	December 2023	March 2024
Living plants (no.)	244	244	239	237	241
Dead plants (no.)	18	75	18	8	2
% of living plants with >70% of healthy leaves (good condition)	77% (188 plants)	62% (150)	40% (95)	44% (104)	49% (119)
% of living plants with 30<70% of healthy leaves (moderate condition)	20% (48 plants)	30% (74)	45% (108)	53% (126)	40% (100)
% of living plants with <30% of healthy leaves (poor condition)	3% (8 plants)	8% (20)	15% (36)	3% (7)	9% (22)
Average tree height (cm)	155.9 cm	162.0 cm	169 cm	190 cm	241 cm
Average Basal diameter (cm)	<1 cm	1 cm	1 cm	1.6 cm	2.1 cm
Number of plants with flowering/fruiting presence	1	1	1	4	4
Total weed cover	66%	Not recorded	Not recorded	Not recorded	86%
Noxious weed cover present (within 1.5 m radius)	Not recorded	0.04%	0.8%	1%	0.8%
Herbivory Present (%)	0%	28% (68)	3% (8)	0%	0.8%
Programmed maintenance undertaken satisfactorily	Mostly, follow up on actions required	Mostly yes, follow up actions required	Yes	No – some tree damage due to brushcutting.	Yes
Previous additional maintenance/ adaptive measures undertaken?	Yes	Yes	Yes	Yes	Yes
Additional maintenance required?	Yes	Yes – ongoing maintenance	Yes – ongoing maintenance	Yes – ongoing maintenance	Yes – ongoing maintenance

Appendix E

Previous maintenance or corrective actions: March 2023 – March 2024

Table E1 Previous maintenance or corrective actions undertaken (March 2023 – March 2024)

Site	Action	Date
All sites	Brush cutting and Mowing around SPGs	September and December 2023
All sites	Weed Control	September 2023 and January 2024

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