

Annual Report to the Federal Department of Sustainability, Environment, Water, Population and Communities.

Sugarloaf Pipeline Project

November 2012

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Abbreviations

Alliance	Sugarloaf Pipeline Alliance
DEWHA	Department of Environment, Water, Heritage and the Arts
DSE	Department of Sustainability and Environment
DSEWPC	Department of Sustainability, Environment, Water, Population and Communities
EMP	Environmental Management Plan
EPBC	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FFG	<i>Flora and Fauna Guarantee 1988(Vic)</i>
GSM	Golden Sun Moth
GHD	Gutheridge Haskins and Davey Pty Ltd
JH	John Holland Pty Ltd
MFL	Matted Flax-lily
MW	Melbourne Water Corporation
Project	Sugarloaf Pipeline Project
SKM	Sinclair Knight Mertz Pty Ltd
SLL	Striped Legless Lizard

Executive Summary

The Project has complied with the conditions of the EPBC Approval for the current reporting period (1 July 2011 – 30 June 2012). Three EPBC Listed species were located in the construction corridor:

- Striped Legless Lizard
- Golden Sun Moth
- Matted Flax-lily

The management of the above species and all other EPBC listed species has been in accordance with the Environmental Management Strategy which has been endorsed by State and Federal Government, except in unexpected situations where adaptive management has been necessary and subsequently approved before implementation.

The status of compliance with the conditions of the EPBC Approval are summarised below:

Table 1: Compliance with EPBC Approval

Condition of EPBC Approval	Status
1. Implementation of EMS	Compliant
2. Implementation of Flora Mitigation Plans	On track – ongoing monitoring until 2014
3. Implementation of Fauna Mitigation Plans	On track – ongoing monitoring until 2015
4. Implementation of Aquatic Fauna Plans	Compliant
5. Management of Golden Sun Moth	On track – ongoing monitoring until 2014
6. Management of Little Pink Spider Orchid	Compliant
7. Management of Matted Flax-lily, Clover Glycine, River Swamp Wallaby Grass and Little Pink Spider Orchid	Compliant ¹ . Ongoing Matted Flax-Lily monitoring until 2014.
8. Water Quality Monitoring	Compliant

¹ Adaptive management resulted in reduced monitoring of Matted Flax-Lily from 2011 onwards, further details are provided in section 4.6

9. Provision of Waterway Crossing Plans	Compliant
10. Approval of Water Quality Monitoring Procedure	Compliant
11. Limitation of Pipeline Operational Volumes	Compliant
12. Passage of Groundwater	Compliant
13. Forest Rehabilitation Plans	On track – amendments to Sugarloaf Reservoir Reinstatement Plan are consistent with compliance pending approval from DSE and DSEWPC.
14. Annual Report on Compliance with Conditions	Ongoing – compliant to date. Confirmation of the ongoing provision and content of report to be confirmed with DSEWPC.
15. Changes to documents/conditions	Compliant
16. Record keeping	Ongoing – compliant to date.
17. Commencement of construction	Compliant

The ongoing monitoring requirements are summarised below:

Table 2: Ongoing EPBC Monitoring

Aspect	Monitoring	Frequency & Timing
Woodland & Scattered Tree Habitats	Bandicoot Monitoring Program Habitat linkages in Toolangi	Quarterly during 2015 8 month period during both 2013/2014
Golden Sun Moth Habitat	GSM adult survey of transect lines and Grassland Restoration Experiment on Sheoak property.	Annually over 4 visits until 2014
Striped Legless Lizard	Monitor established shelter grids on Sheoak property	4 times (July, October, November, December) annually until 2014
Matted Flax-lily	MFL monitoring of translocation site, in- situ sub populations on Gulf road and Patch 8 (Melba Hwy).	Annually in Spring/Summer until 2014

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1 Introduction

1.1 Project Background

Melbourne Water constructed the \$625 million Sugarloaf Pipeline linking the Goulburn River near Yea to the Sugarloaf Reservoir in Melbourne's north-east (*the Project*).

The purpose of the Project was to construct a pipeline and associated infrastructure to transfer water savings from the Goulburn River catchment to Melbourne's water distribution network via Sugarloaf Reservoir. The Project comprised two major pump stations, associated power supply connections, balancing storage(s) and a 70km pipeline capable of transferring up to 75GL per annum from the Goulburn River to Melbourne Water's Sugarloaf Reservoir.

The Project received State Government approval on 6th August 2008 and Federal approval under the Environmental Protection and Biodiversity Conservation Act 1999 (*the EPBC Act*) on 12 September 2008, subject to conditions.

The Project was completed by the Sugarloaf Pipeline Alliance in February 2010. The Sugarloaf Pipeline Alliance was comprised of Melbourne Water Corporation (MW), Sinclair Knight Merz Pty Ltd (SKM), Gutheridge Haskins and Davey Pty Ltd (GHD) and John Holland Pty Ltd (JH). The Sugarloaf Pipeline Alliance was responsible for overall planning, design, procurement, construction, commissioning and completion activities associated with the Project. The Alliance contract has now ended and the Pipeline is now being maintained and operated by Melbourne Water.

Water was transferred through the Sugarloaf Pipeline until 9 September 2010 when the receiving storage, Sugarloaf Reservoir, became full due to prolonged wet conditions in Melbourne's catchments enabling the reservoir to be filled from its two other sources – Maroondah Reservoir (via aqueduct) and the Yarra River (via pumps at Yering Gorge). Very small volumes (31 million litres) were transferred until 28 October 2010 for pipeline testing and maintenance purposes.

Following the Victorian Coalition being elected to Government in November 2010, Melbourne Water has implemented the Coalition's pre-election commitment to only use the Sugarloaf Pipeline in times of 'critical human need'. This policy means that the pipeline will only be used in the event that the volume of water in Melbourne's 10 dams is below 30% as at 30 November in any year, or there is a need to use the pipeline's off takes for fire-fighting purposes. The Victorian Minister for Water

amended Melbourne Water's *Statement of Obligations (System Management)* to implement the Coalition's policy on the management of the Pipeline, effective 29th March 2012 when a notice appeared in a special gazette.

1.2 What is the purpose of this report?

This report provides information on the Projects compliance with Condition 14 of the *EPBC Act 1999* approval (EPBC 2008/3960).

Condition 14 of the EPBC Approval states:

"The person taking the action must provide by August each year an annual report on the compliance with these conditions, including the results of all EPBC listed surveys and environmental monitoring undertaken, independent audited reports of water savings achieved and the amount of water allocated for extraction, any adaptive management, any remedial actions taken and the effectiveness of the measures implemented to mitigate the impact on EPBC listed species. "

The Federal Department currently responsible for administering the EPBC Act is the Department of Sustainability, Environment, Water, Population and Communities (DSEWPC), which was established 14 September 2010. This report refers to the previous Department of Environment Water Heritage and the Arts (DEWHA) for matters prior to September 2010.

1.3 Have the conditions been varied since approval?

A variation to Condition 14 was approved by DSEWPC on 28th October 2010 to alter the date in the above condition to 30th November each year. This change was made to harmonise reporting requirements to DSEWPC with independent annual audits on water allocations and transfers via the pipeline.

1.4 Report Structure

To address the requirements of the EPBC Approval conditions, the remainder of this report has been structured as follows:

- Section 2 the project's compliance with the conditions of the EPBC Approval;
- Section 3 the independent audited reports of water savings achieved;
- Section 4 outlines the results of monitoring of EPBC listed species undertaken; and
- Section 5 the conclusion.

2 Summary of Compliance with DEWHA Conditions

The EPBC Approval granted to the Project on 12 September 2008 is subject to 17 conditions. This section provides each of those conditions, with a summary of the Project's compliance for the current reporting period. The wording in the original EPBC Approval has been maintained, with variations noted where relevant.

2.1 Protection of *Environment Protection and Biodiversity Act 1999* listed species

Condition 1: To protect the Environment Protection and Biodiversity Conservation Act 1999 (EPBC) listed species that are known or could potentially occur in the action area, the person taking the action must implement the commitments made in the Environmental Management Strategy July 2008 and the associated documents referred to in the Environmental Management Strategy July 2008.

As part of the Environmental Management Strategy (EMS), Mitigation Plans were developed for fauna, flora and aquatic species listed under either the EPBC Act or the Fauna and Flora Guarantee Act 1988 (Vic) (the FFG Act). The EMS was implemented through detailed plans and programs outlined below.

2.1.1 Environmental Management Plans

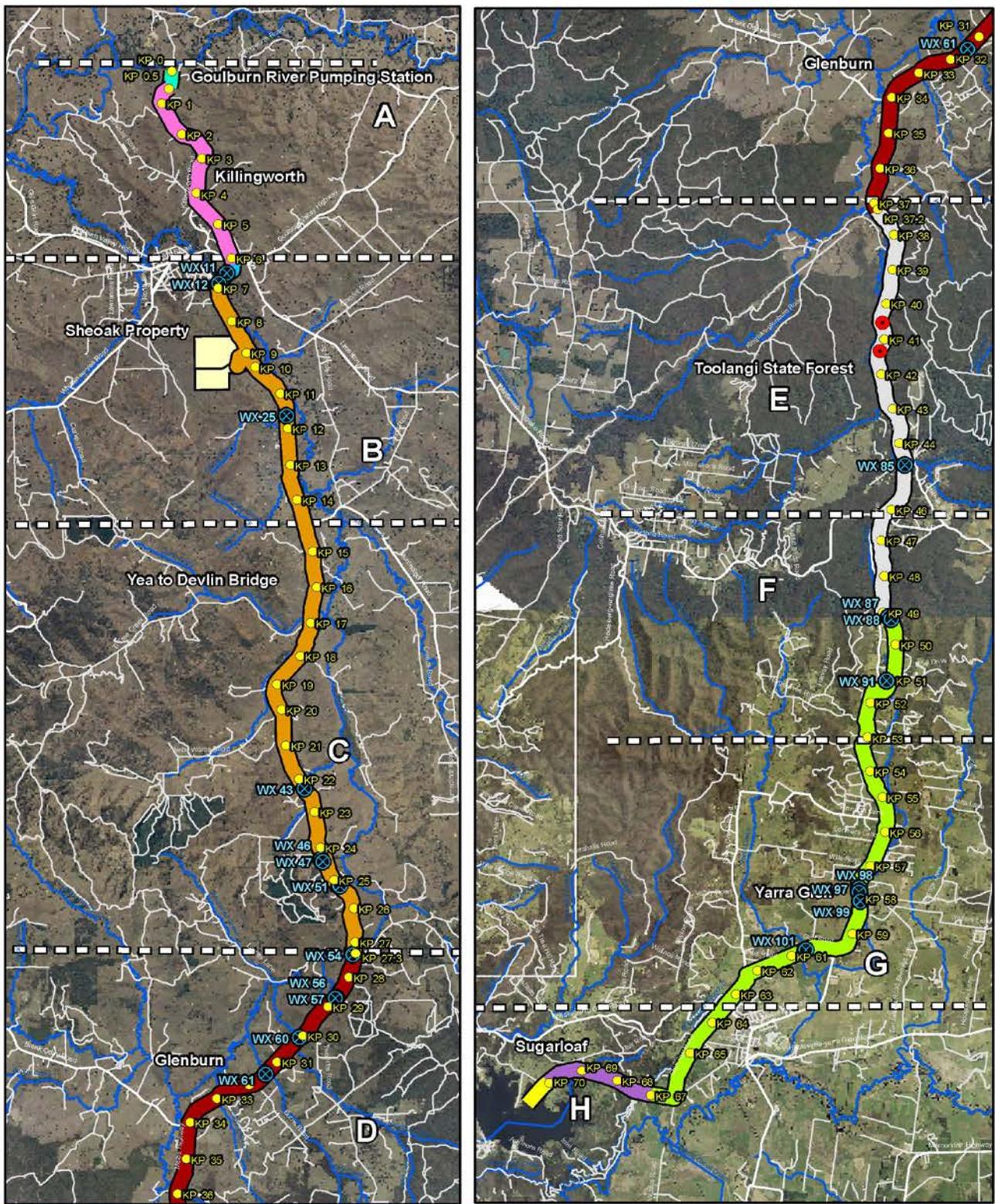
For each designated geographical section of the Project, a draft EMP was prepared. Feedback for each draft EMP was then sought from the Victorian Department of Sustainability and Environment (DSE), the Victorian Department of Planning and Community Development (DPCD) and other relevant regulatory authorities. As requested, feedback was sought from DEWHA for the Toolangi State Forest, Sugarloaf Reservoir, Tunnel Portals and Category A Waterway Crossing EMPs. Feedback from regulatory authorities was incorporated by the Alliance in the preparation of final EMPs.

All EMPs were endorsed or approved by the relevant regulatory authorities.

The area specific EMPs applied to each of the following seventeen sections:

- Goulburn River Pump Station;
- Killingworth;
- Yea to Devlin Bridge;
- Glenburn;
- Toolangi State Forest;
- Yarra Glen;
- Sugarloaf Reservoir;
- Sugarloaf Reservoir Goulburn Inlet;
- Temporary Pipe Storage – Sugarloaf Reservoir;
- Temporary Pipe Storage – Yarra Ranges;
- Temporary Goulburn Access Track;
- Sheoak High Lift Pump Station (Sheoak HLPS);
- Tunnel Portals;
- Waterway Crossings – Yea River at Yea and Kalatha Creek;
- Waterway Crossings – Yea River at Castella;
- Waterway Crossings – Yea River at Devlins Bridge;
- Waterway Crossings - Category B.

Figure 1 shows the pipeline EMP sections. The smaller waterway crossings EMPs and the Temporary works EMPs are not represented on this map.



Sugarloaf Pipeline Project
EMP Zones

- Tunnel Portal (KP 40.50 & 41.36)
 - KP chainage points (approximate)
 - X Waterway Crossings EMP
- EMP Zones**
- Goulburn River Pumping Station (KP 0 - 0.5)
 - Killingworth (KP 0.5 - 6.2)
 - Yea River Waterway Crossing (KP 6.2 - 7)
 - Yea to Devlin Bridge (KP 7 - 27.3)
 - Glenburn (KP 27.3 - 37.2)
 - Toolangi State Forest (KP 37.2 - 49)
 - Yarra Glen (KP 49 - 67)
 - Sugarloaf (KP 67 - 70.5)
 - Sugarloaf Inlet (KP 70 - 70.3)



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Figure 1: Map of the Sugarloaf Pipeline Project with EMP Zones marked²

² KP – Kilometre Point used a reference locator and WX – Waterway Crossing

2.1.2 Environmental Programs

Each EMP includes environmental management information and requirements of the specific area covering several disciplines. Each discipline has an environmental programs specific to that EMP section. The aspects covered by these environmental programs include:

- Air Quality Management;
- Fauna Management;
- Vegetation Management;
- Greenhouse Gas Management;
- Biosecurity Management;
- Contaminated Land Management;
- Erosion and Sediment Management;
- Fire Management;
- Groundwater Management;
- Slope Stability Management;
- Hazardous Substances Management;
- Cultural Heritage Management;
- Pest Animal Management;
- Noise and Vibration Management;
- Reinstatement Management;
- Waste Management;
- Waterways Management;
- Weed Management.

2.1.3 Site Specific Environmental Plans

The project is further divided at site level, with the construction team being provided for a 'Work Activity Pack' (WAP) for each individual site. The WAP compiles all the necessary information to ensure that the Project construction teams implement all planning and environmental requirements. Each WAP includes a site specific 'Plan of Environmental Controls' (PEC) and a 'Site Environmental Plan' (SEP), which is an aerial photograph showing of environmental controls for the site.

Figure 2 outlines the interactions between the environmental management documents.

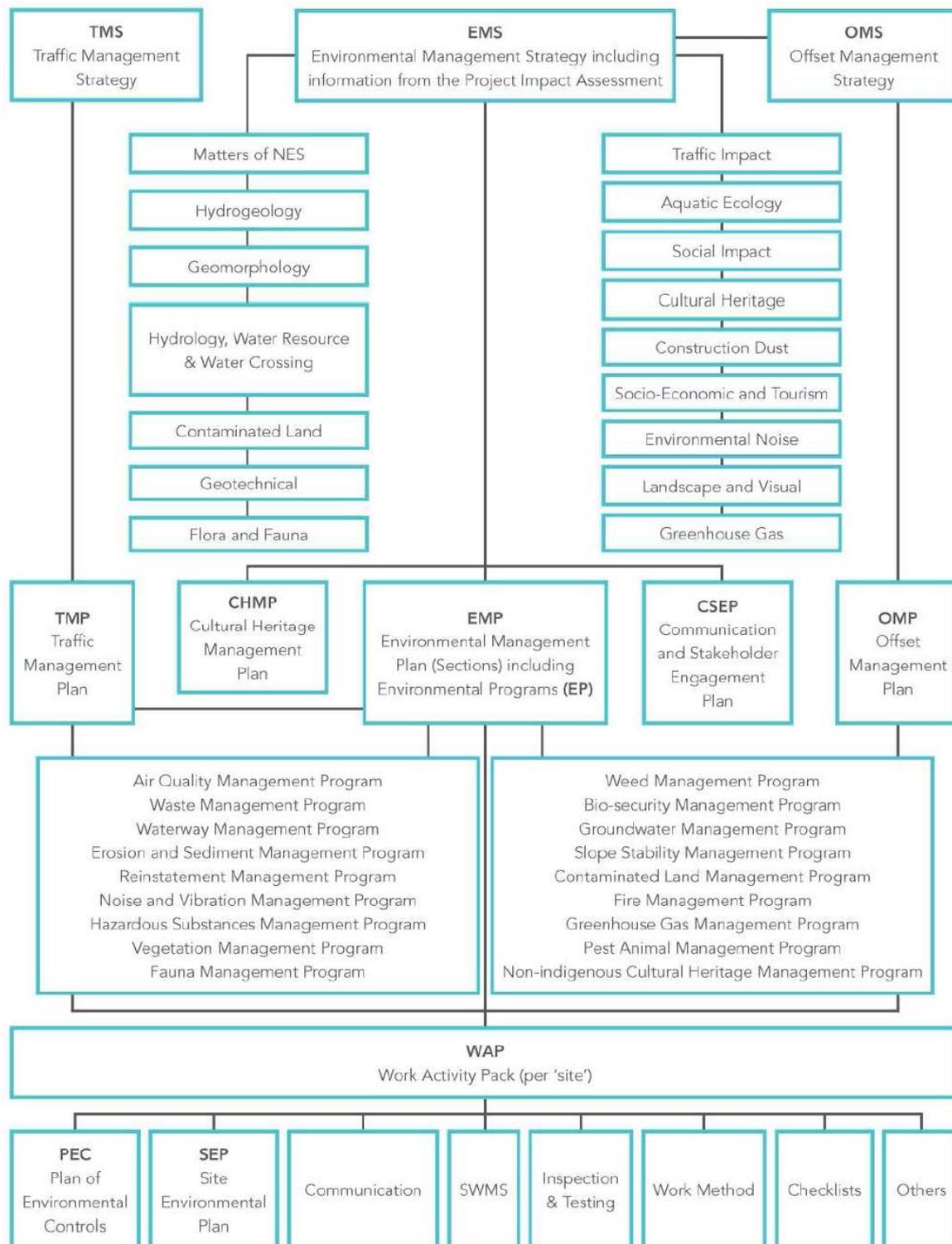


Figure 2: Environmental Management Documentation

2.2 Implementation of Flora Mitigation Plans

Condition 2: To protect the EPBC listed flora species that are known to occur or could potentially occur in the action area, in particular the Matted Flax-lily (*Dianella amoena*), Clover Glycine (*Glycine latrobeana*), Little Pink Spider Orchid (*Caladenia rosella*) and the River Swamp Wallaby Grass (*Amphibromus fluitans*), the person taking the action must implement the 'Mitigation Plan for EPBC Act and Victorian Flora and Fauna Guarantee Act 1988 (FFG Act) Listed Flora Species July 2008'.

The obligations within the 'Mitigation Plan for EPBC Act and Victorian FFG Act Listed Flora Species July 2008' for flora species were transferred into the relevant EMPs and EPs. The 'Vegetation Management Program' and 'Reinstatement Management Program' for each EMP section contain procedures for monitoring, management and mitigation of listed species that the Alliance has implemented.

The only EPBC listed flora species confirmed to occur by the Alliance's botanists through targeted on ground surveys was Matted Flax-lily (*Dianella amoena*). *Clover Glycine (*Glycine latrobeana*), Little Pink Spider Orchid (*Caladenia rosella*) and the River Swamp Wallaby Grass (*Amphibromus fluitans*)* were not identified during the surveys.

Management of the Matted Flax-lily included the formation of exclusion zones where construction would not impact on the species and translocation where impact is unavoidable. Several patches of Matted Flax-lily were removed from the Yarra Glen EMP Section and translocated. A 'Matted Flax-lily Translocation Commitment' document was developed by the Alliance in consultation with DEWHA, DSE and MW. The 'MFL Translocation Commitment' was endorsed by the above parties.

We note that the Section 69 agreement under the *Conservation, Forests and Lands Act 1987* (Vic) referred to in the Translocation Commitment was not developed. Following discussion with DSE and DSEWPC, MW was informed via letter (DSEWPC, 15th February 2012) that the Section 69 Agreement was no longer required as the site continues to be subject to state and national legislation and approval processes.

Translocation of the Matted Flax-Lily was undertaken in accordance with the 'Permit to Take Protected Flora (Permit No. 10004246)', which was issued to MW by DSE on 5th September 2008.

Ongoing requirements for monitoring and management will continue to be implemented for the Matted Flax-Lily. Further information is provided in section 4.6.

2.3 Implementation of Fauna Mitigation Plans

Condition 3: To protect the EPBC listed terrestrial species that are known to occur in the action area, in particular the Striped Legless Lizard (*Delma impar*), Southern Brown Bandicoot (*Isodon obesulus obesulus*), Spotted Tail Quoll (*Dasyurus maculatus maculatus* [SE mainland population]), Growling Grass Frog (*Litoria rainformis*), and Golden Sun Moth (*Synemon plana*), the person taking the action must implement the Mitigation Plan for Terrestrial Fauna Listed under the EPBC Act and FFG Act July 2008.

The obligations in the Mitigation Plan for Terrestrial Fauna Listed under the EPBC Act and FFG Act July 2008 for terrestrial fauna species were transferred into the relevant EMPs and EPs. The Alliance incorporated relevant procedures into the section based EMPs and WAPs which have been implemented. The 'Fauna Management Program', 'Pest Animal Management Program' and 'Reinstatement Management Program' for each EMP section contained procedures for monitoring, management and mitigation of listed species that MW will continue to implement.

During the course of the project, targeted on-ground surveys identified the presence of the Golden Sun Moth (GSM) and Striped Legless Lizard (SLL) at a number of locations in the construction Right of Way (ROW). Comprehensive mitigation and management procedures were implemented during construction of the Project. The finding of larger than anticipated populations of GSM resulted in the development and implementation of mitigation measures being incorporated into EMPs. These measures were more comprehensive than specified within the 'Mitigation Plan for Terrestrial Fauna'.

Despite a range of targeted surveys for EPBC listed species, no Growling Grass Frogs, Spotted Tail Quolls or Southern Brown Bandicoots were found within the construction area during the project. Specific mitigation measures as noted within the 'Mitigation Plan for Terrestrial Fauna' were still implemented for these and all other fauna species (refer to sections 2.8 and 4.2).

Ongoing requirements for monitoring and management will continue to be implemented for GSM and SLL and are discussed in section 4.4.1 and 4.4.2 respectively.

2.4 Implementation of Aquatic Fauna Plans

Condition 4: To protect the EPBC listed aquatic fauna species that are known to occur or could potentially occur in the action area, in particular the Macquarie Perch (*Macquaria australasica*), Trout Cod (*Maccullochella macquariensis*) and Murray Cod (*Maccullochella peelii*), the person taking the action must implement to Mitigations Plan for EPBC Act and FFG Act Listed Aquatic Fauna Species July 2008.under the EPBC Act and FFG Act July 2008.

The obligations in the 'Mitigation Plan for EPBC Act and FFG Act Listed Aquatic Fauna Species July 2008' were transferred into the relevant EMPs and EPs. The relevant procedures were incorporated into the section based EMPs and WAPs. These have been implemented. The 'Fauna Management Program', 'Erosion and Sediment Management Program' and 'Waterway Management Program' for each EMP section contain procedures for monitoring, management and mitigation for the above species. These actions have been implemented.

During aquatic surveys in November 2009, a Macquarie Perch was recorded in the Yea River, at a site downstream of the Devlin's Bridge crossing. The Macquarie Perch was not found within the construction corridor, and additional management measures were not required.

The two years of post construction monitoring were completed in 2011. Overall the monitoring identified that the construction of the pipeline is unlikely to have had an on-going impact on the intersected waterways, and any impact that may have occurred was minor compared with the catchment scale impacts caused by the 2009 fires.

2.5 Management of Golden Sun Moth

Condition 5: Where Golden Sun Moth known habitat cannot be avoided during February to September, the person taking the action must implement the experimental process of habitat slab replacement in known Golden Sun Moth habitat. The area in which the process is undertaken must be monitored for two years following the completion of the habitat slab replacement.

If monitoring indicates a decline or loss of the Golden Sun Moth population, an offset package must be submitted to the Department within 6 months of the monitoring results. This package must be approved by the Department

and implemented. The offset package may include the purchasing of an area of Golden Sun Moth habitat of at least equal size for conservation and contribution to research and recovery.

MW has undertaken several mitigation measures including development of a Conservation Management Plan (CMP) for the Sheoak property. Through discussion with DSE and DSEWPC the CMP will form the basis of an offset package as detailed in the Golden Sun Moth – Offset Package Proposal SPA-REP-GL-ENV-0019 submitted to DEWHA in September 2009. DEWHA has indicated its satisfaction that should the monitoring indicates a decline or loss of the GSM population, the Sheoak Property offset package along with other measures already committed to by Melbourne Water would be sufficient to offset this loss. The final draft CMP is currently with DSE for approval prior to the final being sent to DSEWPC for Commonwealth approval.

2.6 Management of Little Pink Spider Orchid

Condition 6: If the Little Pink Spider Orchid is found within the construction corridor and avoidance is not possible, the Department must be notified before construction in the area can commence and the persons taking the action must provide evidence that all alternative mitigation options for this species have been exhausted prior to proposing to translocate. The Department must approve the translocation.

Little Pink Spider Orchid was not found within the construction corridor. As construction is now completed it is no longer necessary to report on compliance with this condition.

2.7 Management of Matted Flax-lily, Clover Glycine, River Swamp Wallaby Grass and Little Pink Spider Orchid

Condition 7: If, following the outcomes of required monitoring, the translocation and adaptive management of the Matted Flax-lily, Clover Glycine, River Swamp Wallaby Grass and Little Pink Spider Orchid is found not to have been successful, an offsets package for each relevant species must be provided to the Department within 6 months. The offsets package must be approved by the Department and Implemented. The offsets package may include the purchasing of an area of know habitat of at least equal size for conservation and the contribution to research and recovery.

No Clover Glycine, River Swamp Wallaby Grass or Little Pink Spider Orchid have been located.

No Clover Glycine, River Swamp Wallaby Grass or Little Pink Spider Orchid were identified in on-ground surveys.

Several patches of Matted Flax-lily (MFL) were located in the Yarra Glen and Killingworth EMP Sections and translocation was undertaken where the species would be impacted. The Alliance produced a specific 'MFL Translocation Commitment document' which was endorsed by DEWHA, DSE and other relevant stakeholders. See section 4.6 for details on MFL mitigation measures.

2.8 Water Quality Monitoring

Condition 8: To protect the Macquarie Perch and Growling Grass Frog, water quality must be monitoring during construction of waterway crossings to meet State Environment Protection Policy (SEPP) (Waters of Victoria 2003) objectives. If the water quality fails to meet SEPP (WoV), due to construction activities associated with the project adaptive management must be implemented. In this event the Department must be provided, within two months of the monitoring results being known, with a report stating the corrective action implemented and the results.

The construction of waterway crossings is now completed therefore it is no longer necessary to report on compliance with this condition.

2.9 Provision of Waterway Crossing Plans

Condition 9: The Waterway Crossings Category A and B Plans must be provided to the Department for approval prior to construction of the waterway crossings. These plans must include turbidity controls and creeks to be tunnelled. These plans must be implemented.

The EMPs for each of the Category A and B Waterway Crossings were endorsed by DSE and DEWHA prior to commencement of construction on these sections.

As construction is complete it is no longer necessary to report on compliance with this condition.

2.10 Approval of Water Quality Monitoring Procedure

Condition 10: The Water Quality Monitoring Procedure must be provided to the Department for approval prior to construction commencing of the waterway crossings. This procedure must include turbidity monitoring. This procedure must be implemented.

As construction is complete it is no longer necessary to report on compliance with this condition.

2.11 Limitation of Pipeline Operational Volumes

Condition 11: To protect EPBC listed fish species (Trout Cod (*Maccullochella macquariensis*), Murray Cod (*Maccullochella peelii*) and Macquarie Perch (*Macquaria australasica*)) that occur or may occur in the Goulburn River, the water extracted to the Sugarloaf Pipeline must be:

- a) not more than 75GL in any one year;**
- b) not more than 360 ML per day, with any variation in this daily pumping rate limited to a maximum of 200 ML to minimise the rise and fall in river levels upstream and downstream of the off-take structure.**
- c) met only through controlled, pre-ordered releases from Melbourne's share of the water savings allocated to it pursuant to any bulk entitlement issued under the Victorian Water Act 1989;**
- d) sourced from savings not allocated to the Living Murray Initiative or the Waters for Rivers; and**
- e) zero if the necessary regulated releases are for the maintenance of environmental flows or materially deplete water stored in Eildon Weir that is designated as being an environmental reserve.**

All water savings taken from the Goulburn River must be sourced from projects that comply with the requirements of the Environment Protection and Biodiversity Conservation Act 1999.

Note that a variation to clause (a) above was approved by DSEWPC on the 28th of October 2010, to provide clarity, and now reads:

- a) not more than 75GL in any period of 12 calendar months beginning on 1 July in any year and ending on 30 June in the following year;**

Throughout November and December 2008, MW, DSE and the Goulburn-Broken Catchment Management Authority (GBCMA) negotiated the following conditions, as part of the Heritage Rivers Act approval, to ensure that rates of rise and fall of the

Goulburn River in response to diversion at the Sugarloaf Pipeline Intake are managed to within acceptable levels (as specified by State and Federal Government):

- For river passing flows below 300 ML/day, there is no diversion to the pipeline;
- For river passing flows between 300ML/day and 799ML/day, diversion can only be increased or decreased by up to 75ML/day;
- For river passing flows between 800ML/day and 1499ML/day, diversion can only be increased or decreased by up to 120ML/day;
- For river passing flows of 1500ML/day or greater, diversion can only be increased or decreased by up to 180ML/day.

These conditions were negotiated in response to the conditions placed by DEWHA on the water volume and operational limitations of water extraction from the Goulburn River. Further details of these licence conditions are provided at the conclusion of Section 3.2.1 of this report.

Full compliance with these conditions was achieved because no water was extracted to the Sugarloaf Pipeline between 1 July 2011 and 30 June 2012. Details of compliance with conditions 11 (a) to (e) are also provided in Sections 3.1 and 3.2 of this report.

2.12 Passage of Groundwater

Condition 12: The pipeline crossings of the Yea River flood plain must ensure passage of groundwater. This may be achieved by use of groundwater shunt within the deep channel to permit the water tables to equilibrate post construction across the pipeline or by some alternative method.

As groundwater level monitoring for the Yea River flood plain was completed in December 2010 it is no longer necessary to report on compliance with this condition.

2.13 Forest Rehabilitation Plans

Condition 13: Prior to construction through the Toolangi State Forest and the Sugarloaf Forest, the person taking the action must provide the Department with the Toolangi State Forest Rehabilitation Management Plan and the Sugarloaf Forest Rehabilitation Management Plan for approval. These plans, once approved, must be implemented.

Reinstatement Management Programs were produced for each of the sections of the pipeline including the Toolangi State Forest, Tunnel Portals and Sugarloaf Forest.

These Reinstatement Management Plans and the subsequent amendment to the Toolangi State Forest RMP have been approved by DEWHA and implemented by the Alliance.

Some items included in the 'Sugarloaf Reservoir Reinstatement Management Program' relating to habitat reinstatement are still under discussion with MW, DPCD and DSEWPC. These items relate to the construction of habitat linkages for Brush-tailed Phascogale at Sugarloaf Reservoir. Melbourne Water has submitted a request to DPCD (cc DSEWPC and DSE) in August 2012 for variation to the Sugarloaf Reservoir Reinstatement Management Program based on an independent review of the conditions relating to these habitat linkages. The outcome of these discussions will be reported on in the 2013 annual report.

2.14 Annual Report on Compliance with Conditions

Condition 14: The person taking the action must provide by August each year an annual report on the compliance with these conditions, including the results of all EPBC listed surveys and environmental monitoring undertaken, independent audited reports of water savings achieved and the amount of water allocated for extraction, any adaptive management, any remedial actions taken and the effectiveness of the measures implemented to mitigate the impact on EPBC listed species.

This report is the 2011/12 annual report addressing this condition. Note that the variation decision dated 28th October 2010 changed the due date to 30th November of each year to better align with timing of independent audit reports of water savings achieved and the amount of water allocated for extraction.

2.15 Changes to Documentation/Conditions

Condition 15: If the person taking the action wishes to carry out any activity otherwise than in accordance with the documents identified in the above conditions relevant to EPBC listed species, the person taking the action must submit for the Department's approval a revised version of the document. If the Department approves a revised document, that document must be implemented in place of the document originally approved.

Several changes to documentation and conditions have been requested during the period 1st July 2011 – 30th June 2012. The first relates to the Section 69 Agreement

required by the Matted Flax-Lily Translocation Commitment. Following discussion with DSE and DSEWPC, Melbourne Water was informed via letter (DSEWPC, 15th February 2012) that the Section 69 Agreement was no longer required as the site continues to be subject to state and national legislation and approval processes.

Three additional changes have been requested via letter to DPCD (cc DSEWPC and DSE) in August 2012, including:

- Retention of farm fencing on private agricultural land
- Brush-tailed phascogale reinstatement requirements
- Ongoing monitoring of Matted Flax-Lily

Several landholders have requested that current farm fencing arrangements be retained as an asset for their future use. As a result Melbourne Water has requested amendments to the following management programs:

- Killingworth Fauna Management Program
- Yea to Devlin's Bridge Fauna Management Program
- Yarra Glen Fauna Management Program
- Glenburn Fauna Management Program
- Waterway Crossings – Category B Fauna Management Program
- Killingworth Reinstatement Management Program
- Yea to Devlin's Bridge Reinstatement Management Program
- Yarra Glen Reinstatement Management Program
- Glenburn Reinstatement Management Program
- Waterway Crossings – Category B Reinstatement Management Program

The Brush-tailed Phascogale reinstatement requirements at Sugarloaf Reservoir have undergone an independent review and Melbourne Water has requested an amendment to the Sugarloaf Reservoir Reinstatement Management Program.

Finally, the monitoring requirements within the Matted Flax-Lily Translocation Commitment document have been reviewed and Melbourne Water has requested an amendment to this document for annual rather than quarterly monitoring (for further information see section 4.6.3 of this report).

2.16 Recordkeeping

Condition 16: The person taking the action must maintain accurate records of all activities associated with or relevant to the above conditions of approval, and make them available on request by the Department. Such records may be subject to audit by the Department, and used to verify compliance with the conditions of approval.

The maintenance of accurate records and project documentation is currently undertaken by MW. Any such documentation is readily available to DSEWPC on request.

2.17 Commencement of Construction

Condition 17: If the person taking the action has not commenced construction of the action within 5 years of this approval then they must notify the Minister in writing and not commence construction without the Minister's agreement.

As the Alliance has completed construction of the project this condition is no longer applicable.

3 Independent Audited Reports of Water Savings

As part of Condition 14, DEWHA requires “independent audited reports of water savings achieved and the amount of water allocated for extraction”. The following information is also required to determine compliance with the water savings audit component of Condition 14:

- All water ‘accounts’ held in Lake Eildon from which water will be drawn to supply the Sugarloaf Pipeline;
- Source, volume and timing of any water accruing to the above accounts;
- Volume and timing of any water released from the above accounts to supply the Sugarloaf Pipeline;
- Volumes of water allocated to any other users also held in the above accounts;
- Following completion of the pipeline, volume and timing of water transferred to the Sugarloaf Reservoir; and if any water savings projects are deemed to be compliant with the EPBC Act without being referred, detailed information on how that conclusion was reached.

Goulburn-Murray Water manages the Allocation Bank Account (ABA) for the three metropolitan retail water corporations in Melbourne (the Retailers). Melbourne Water has been delegated the authority to order water from the Retailers’ ABA on their behalf.

The ABA from which water was able to be taken and transferred through the Sugarloaf Pipeline in 2011/12 was ABA065907. Melbourne’s water allocation was managed in this account under the Water Savings Supply and Transfer Agreement.

This account was replaced by ABA088033 and given effect on 2 July 2012 when the Victorian Minister for Water granted bulk entitlements for water savings to the Melbourne Retailers. The Water Savings Supply and Transfer Agreement and ABA065907 were terminated when the bulk entitlements were granted. Further descriptions of the entitlements are provided in section 3.1.

Section 3.1 summarises the water savings allocated to the Melbourne Retailers’ accounts in Lake Eildon under both the Water Savings Supply and Transfer Agreement (for 2011/12) and Melbourne’s Goulburn System Bulk Entitlements (for 2012/13 to date). The Water Savings Audit Reports (provided in Appendix F for 2011/12, and provided as part of Melbourne Water’s previous DSEWPC submission for 2010/11) contain details on the source, volume and timing of the water to be accrued to these accounts.

No water was released for supply to Melbourne via the Sugarloaf Pipeline during 2011/12. Further details are provided in Section 3.2.

No water held in the above accounts has been allocated to any other users.

As per Melbourne Water's letter to DEWHA dated 23 December 2009, all sources of water are considered to comply with the EPBC Act. No additional sources of water have been allocated for extraction to the Sugarloaf Pipeline.

The Melbourne Retailers' carry over into the 2011/12 financial year is documented in Table 3. It should be noted that the Retailers are able to carry over water from one year to the next, subject to the same rules that apply to all entitlement holders that carry over water in Northern Victoria, including deduction of a standard 5% on carry over for evaporation losses.

Table 3: Water for Melbourne carried over into 2011/12

Carry over into 2011/12	Volume (ML)
Volume brought forward for carry over at 30/6/2011	50,422
Evaporation losses at 30/6/2011 (5%)	2,521
Total volume carried over into 2011/12	47,901

3.1 Water Savings Audited

An independent audit of water savings achieved in 2011/12 has been undertaken and a copy of the Audit report is provided in Appendix F. Audit reports for 2010/11 were provided to DSEWPC last year as part of Melbourne Water's previous submission. The audit reports present the *actual* volume of water savings achieved for the 2010/11 and 2011/12 irrigation seasons (referred to as Phase 3 savings) as well as *long-term average LTCE* water savings (referred to as Phase 4 savings), in accordance with the Victorian Government's Water Savings Protocols.

For the purposes of determining allocations to Melbourne in 2011/12:

- Goulburn-Murray Water, Melbourne Water and the Retailers had entered into an agreement under section 124(7) of the Water Act 1989 (Vic) for the supply of a share of water savings from irrigation modernisation projects to Melbourne via the Sugarloaf Pipeline. This is known as the Water Savings Supply and Transfer Agreement. The agreement was a primary entitlement under clause 7 of the

Bulk Entitlement (Eildon-Goulburn Weir) Conversion Order 1995, as amended. The water savings to which the agreement related are water savings from the CG1234 Modernisation Project and the Shepparton Modernisation Project up until 30 June 2010, and water savings from Stage 1 of NVIRP.

- It is the actual volume of water savings (Phase 3 savings) that is allocated for Melbourne.

For allocations to Melbourne in 2012/13 and beyond:

- The Retailers have been granted bulk entitlements, in both the Goulburn and Murray systems, to a collective one-third share of water savings from Stage 1 of NVIRP each year. The water allocation and diversion rules in the bulk entitlements, including carryover rules, are consistent with the rules in the Water Savings Supply and Transfer Agreement. In addition, the starting allocation provided under the Goulburn system bulk entitlements effectively transferred the volume of water allocation in ABA065907 immediately prior to being terminated across to ABA088033 to ensure Melbourne's allocations were not forfeited when the Agreement was terminated.
- The supply of water savings to Melbourne via the Sugarloaf Pipeline can only occur under the Goulburn system bulk entitlements. Water allocated to the Melbourne retailers under their Murray system bulk entitlements must be traded to ABA088033 for it to be supplied to Melbourne. In past years, this process was carried out by Goulburn-Murray Water in accordance with the Water Savings Supply and Transfer Agreement.

Water allocated to Melbourne in 2011/12 was derived from a number of sources. These sources are summarised in Table 4.

Table 4: Water allocated to Melbourne in 2011/12

Allocation in 2011/12 (from water savings projects in 2010/11)	Volume (ML)
NVIRP Stage 1 savings - Goulburn Trading Zone 1A 2010/11*†	8,638
NVIRP Stage 1 savings - Murray Trading Zone 6 2010/11*§	462
NVIRP Stage 1 savings - Murray Trading Zone 7 2010/11*£	951
Total volume allocated to Melbourne Retailers in 2011/12	10,051

* Savings made in one irrigation season are not audited and allocated until following irrigation season, in accordance with Water Savings Protocols. For savings made in 2010/11 (and allocated in 2011/12), this is one third of the total phase 3 savings.

† Goulburn Trading Zone 1A refers to Central Goulburn 5-9 (CG 5-9), Rochester (RO) and Loddon Valley (previously Pyramid/Boort (PB)) irrigation districts.

§ Murray Trading Zone 6 refers to the Murray Valley (MV) Irrigation District.

£ Murray Trading Zone 7 refers to the Torrumbarry (TO) Irrigation District.

Table 5 summaries the water available to Melbourne in 2011/12, the water used by Melbourne or spilled in 2011/12, and the water carried over into the 2012/13 year, including the volume deducted for evaporative losses.

Table 5: Water for Melbourne carried over into 2012/13

Carry over into 2012/13	Volume (ML)
Volume available to Melbourne in 2011/12*	57,952
Volume used by Melbourne in 2011/12	0
Volume of spill 2011/12	3,639
Volume brought forward for carry over at 30/6/2012	54,313
Evaporation losses at 30/6/2012 (5%)	2,716
Total volume carried over into 2012/13	51,597

* This is the total volume carried over into 2011/12 (47,901 ML) plus the total volume allocated in 2011/12 (10,051 ML).

As specified in the Melbourne retail water companies' Goulburn and Murray system bulk entitlements a third of the total phase 3 audited savings in the 2011/12 irrigation season will be allocated to the Melbourne Retailers in 2012/13. Water to be allocated to Melbourne in 2012/13 was derived from a number of sources. These sources are summarised in

Table 6 with full detail documented in Appendix F.

Table 6: Accrued allocation for Melbourne in 2012/13

Accrued Allocation for 2012/13 (from water savings projects in 2011/12)	Volume (ML)
NVIRP Stage 1 savings - Goulburn Trading Zone 1A 2011/12*†	18,099
NVIRP Stage 1 savings - Murray Trading Zone 6 2011/12*§	4,466
NVIRP Stage 1 savings - Murray Trading Zone 7 2011/12*£	4,477
Total expected allocation to Melbourne Retailers in 2012/13	27,042

* Savings made in one irrigation season are not audited and allocated until following irrigation season, in accordance with Water Savings Protocols. For savings made in 2011/12 (and allocated in 2012/13), this is one third of the total phase 3 savings.

† Water savings achieved from NVIRP works in Central Goulburn (CG 5-9), Rochester (RO) and Pyramid Bort (PB) contribute to the allocations from Goulburn Trading Zone 1A.

§ Water savings achieved from NVIRP works in Murray Valley (MV) contribute to the allocation from Murray Trading Zone 6.

£ Water savings achieved from NVIRP works in Torrumbarry (TO) contribute to the allocation from Murray Trading Zone 7.

3.2 Water Savings Released and Supplied to Melbourne

Water was transferred through the Sugarloaf Pipeline until 28 October 2010. Following the Victorian Coalition being elected to Government in November 2010, Melbourne Water has implemented the Coalition's pre-election commitment to only use the Sugarloaf Pipeline in times of 'critical human need'. This policy means that the pipeline will only be used in the event that the volume of water in Melbourne's 10 dams is below 30% as at 30 November in any year, or there is a need to use the pipeline's off takes for fire-fighting purposes.

In the 2011/12 financial year, no water was transferred through the Sugarloaf Pipeline.

Condition 11 of the *Environment Protection and Biodiversity Conservation Approval (EPBC Approval)* specifies the rates, volumes and sources of water that can be extracted from the Goulburn River and transferred via the Sugarloaf Pipeline for Melbourne. Condition 11 states:

11. To protect EPBC listed fish species, Trout Cod (*Maccullochella macquariensis*), Murray Cod (*Maccullochella peelii*), and Macquarie Perch (*Macquaria australasica*) that occur or may occur in the Goulburn River, the Melbourne water extracted to the Sugarloaf Pipeline must be:
- a. not more than 75 GL in any period of 12 calendar months beginning on 1 July in any year and ending on 30 June in the following year;
 - b. not more than 360 ML per day, with any variation in this daily pumping rate limited to a maximum of 200 ML to minimise the rise and fall in river levels upstream and downstream of the river off-take structure;
 - c. met only through controlled, pre-ordered releases from Melbourne's share of the water savings allocated to it pursuant to any bulk entitlement issued under the Victorian Water Act 1989;
 - d. sourced from savings not allocated to the Living Murray Initiative or the Waters for Rivers; and
 - e. zero if the necessary regulated releases are for the maintenance of environmental flows or materially deplete water stored in Eildon Weir that is designated as being an environmental reserve.

All water savings taken from the Goulburn River must be sourced from projects that comply with the requirements of the Environment Protection and Biodiversity Conservation Act 1999.

This section describes Melbourne Water's compliance with these conditions for the reporting period from 1 July 2011 to 30 June 2012.

3.2.1 Compliance Reporting: 1 July 2011 to 30 June 2012

Summary

Full compliance with Condition 11 was achieved because no water was extracted to the Sugarloaf Pipeline for the period 1 July 2011 to 30 June 2012.

Table 7: Summary of compliance for the period 1 July 2011 to 30 June 2012

Condition	Description	DEWHA Compliance
11.a	not extract more than 75 GL in any financial year	✓
11.b.i	not extract more than 360 ML in any one day	✓
11.b.ii	limit variation of extraction to not more than 200 ML/day	✓
11.c. i	only extract controlled, pre-ordered releases	✓
11.c. ii	only extract water from Melbourne's share of water savings	✓
11.d	not extract water from the <i>Living Murray Initiative</i> or the <i>Water for Rivers</i>	✓
11.e	not deplete water designated in the environmental reserve	✓
final statement	water sourced from projects that comply with the EPBC Act 1999	✓

Condition 11(a)

The water extracted to the Sugarloaf Pipeline must be not more than 75 GL in any period of 12 calendar months beginning on 1 July in any year and ending on 30 June in the following year.

Melbourne Water has complied with this condition for the period 1 July 2011 to 30 June 2012 as no water was transferred through the pipeline over this period.

Condition 11(b)

The water extracted to the Sugarloaf Pipeline must be not more than 360 ML per day, with any variation in this daily pumping rate limited to a maximum of 200 ML to minimise the rise and fall in river levels upstream and downstream of the river off-take structure.

Melbourne Water has complied with this condition for the period 1 July 2011 to 30 June 2012 as no water was transferred through the pipeline over this period.

Condition 11(c)

The water extracted to the Sugarloaf Pipeline must be met only through controlled, pre-ordered releases from Melbourne's share of the water savings allocated to it pursuant to any bulk entitlement issued under the Victorian Water Act 1989.

Melbourne Water has complied with this condition for the period 1 July 2011 to 30 June 2012 as no water was transferred through the pipeline over this period.

Condition 11(d)

The water extracted to the Sugarloaf Pipeline must be sourced from savings not allocated to the Living Murray Initiative or the Waters for Rivers.

Melbourne Water has complied with this condition for the period 1 July 2011 to 30 June 2012 as no water was transferred through the pipeline over this period.

Condition 11(e)

The water extracted to the Sugarloaf Pipeline must be zero if the necessary regulated releases are for the maintenance of environmental flows or materially deplete water stored in Eildon Weir that is designated as being an environmental reserve.

Melbourne Water has complied with this condition for the period 1 July 2011 to 30 June 2012 as no water was transferred through the pipeline over this period.

All water savings taken from the Goulburn River must be sourced from projects that comply with the requirements of the Environment Protection and Biodiversity Conservation Act 1999.

Melbourne Water has complied with this condition for the period 1 July 2011 to 30 June 2012 as no water was transferred through the pipeline over this period.

Goulburn Broken CMA Licence

The *Environment Protection and Biodiversity Conservation (EPBC) Approval* for the Sugarloaf Pipeline was issued on 12 September 2008. The Goulburn Broken Catchment Management Authority (GBCMA) subsequently issued a licence on 22 December 2008 for the Sugarloaf Pipeline under the *Water Act 1989* following consideration of an assessment under the *Heritage Rivers Act 1990*.

The GBCMA licence included additional requirements beyond those in the *EPBC Approval*, which were ultimately incorporated into the *Water Savings Supply and Transfer Agreement (WSSTA)* between Goulburn-Murray Water, Melbourne Water and the metropolitan Retailers.

These conditions are chiefly to ensure the ecological health of the Goulburn River and those conditions concerning river flows, and performance against them, is included in this report in the interests of completeness and transparency. In particular, the *WSSTA* states that water may only be taken from the Goulburn River when passing flows are at least 300 ML/day and the Sugarloaf Pipeline may be operated to increase or decrease the daily diversion rate by up to:

- a. 75 ML per day when the flow in the Goulburn River at Killingworth is between 300 and 799 ML per day
- b. 120 ML per day when the flow in the Goulburn River at Killingworth is between 800 and 1,499 ML per day
- c. 180 ML per day when the flow in the Goulburn River at Killingworth is at least 1,500 ML per day

4 Surveys and Monitoring for threatened fauna and flora

4.1 General measures for all Terrestrial Fauna

Pre Construction and Construction mitigation measures for all Terrestrial Fauna have been previously described in the 2011 annual report to DSEWPC and are not repeated here. The following describes the mitigation measures undertaken post construction over the period 1 July 2011 to 30 June 2012.

The majority of the fauna fencing was removed post construction to reduce barriers to dispersing for ground-dwelling fauna. Some fencing of the construction corridor remains where private landholders requested. The fencing that remains is standard farm fencing similar to what is found throughout the surrounding region. MW does not believe it will act as a barrier to terrestrial fauna.

Site rehabilitation in line with the Reinstatement Management Programs for the EMP sections has also been undertaken to help facilitate re-colonisation of fauna species.

Post construction monitoring has been undertaken for EPBC listed species, Striped Legless Lizard (SLL) and Golden Sun Moth (GSM). The findings from the monitoring are summarised below.

4.2 Woodland Forest and Scattered Tree Habitats

Appropriate pre-construction and construction surveys were undertaken by the Alliance in accordance with the Fauna Mitigation Plan and were reported in the 2010 annual report to DEWHA.

In consultation with DSE, the Alliance has agreed to a Bandicoot Monitoring Program to be undertaken by the Arthur Rylah Institute (ARI) in 2015. This program will monitor the bandicoots (and other animals) use of structures installed throughout the Toolangi State Forest to facilitate crossing the Sugarloaf Pipeline vehicle access track. Remote cameras will be installed at each of the four crossings and monitoring will occur every 3 months for a total of 4 visits during 2015.

Monitoring of the Toolangi Habitat Linkages has also been agreed to in consultation with DSE and will be undertaken by GHD during 2013/2014. The program will monitor the habitat linkages installed in Toolangi State Forest through the use of remote

cameras installed at 32 sites. Data will be recorded over an 8 month period in 2013 and repeated in 2014.

4.3 Water body Habitats

Post construction surveys of water body habitat surveys were completed in 2010/11 and therefore it is no longer necessary to report on compliance with this condition.

4.4 Grassland Habitats

4.4.1 Golden Sun Moth habitats

Two years (equivalent to two flight seasons) of post construction monitoring for GSM have been completed and were reported in the 2011 annual report to DSEWPC. The Grassland Restoration Experiment and Habitat Slab Replacement monitoring were completed in 2011, and the final reports are attached as Appendix B (Grassland Restoration Experiment: Final Report, 2012) and Appendix C (Post Construction Habitat Slab Replacement: Final Report, 2012). Three additional years of GSM monitoring will be undertaken on the Sheoak property, with 2011/12 flying season as the first of these additional years.

4.4.1.1 Monitoring Overview

In accordance with the approval conditions, adult GSM surveys were undertaken across the broader Sheoak property and the grassland reinstatement experiments for the 2011/12 GSM flight season. The survey method and effort employed was compliant with the approved mitigation plan for the species. The proposed monitoring program and methods for the project were developed as a stand-alone document prior to the commencement of the 2009/10 flight season and were generally consistent with the recently released national guidelines for the minimum acceptable standards for persons or organisations undertaking GSM surveys (DEWHA, 2009).

4.4.1.2 Adaptive Management

The GSM monitoring period for 2011/12 did not require adaptive management as the aims, timing, effort and conditions during all surveys throughout the 2011/12 GSM flying season were consistent with the DSEWPC guidelines.

4.4.1.3 Results from 2011/2012 Flight Season

Seventy-one male GSM were observed on the broader Sheoak property during four rounds of surveys (over nine days) during the 2011/12 flight season. No female GSM

were detected. Eight GSM were observed at the Grassland Restoration Experiment site during the 2011/12 flight season.

4.4.1.4 Grassland Restoration Experiment

The Grassland Restoration Experiment was established at the Sheoak property in the re-instated area following construction of the pipe in October 2009, in accordance with the requirements outlined in the Fauna Management Program. Monitoring was undertaken in accordance with the methodology outlined in the Golden Sun Moth Overarching Document, and this experiment is now complete.

Whilst most treatments included in this experiment were successful in returning grasslands similar to the surrounding area to the site after two years, none of the treatments including the control have consistently produced what may be termed native grasslands. Concurrent surveys for GSM have been conducted at the same time as this experiment but have been confounded by poor environmental conditions (high rainfall, low temperatures and lack of sunny periods) for GSM over the past two years. A total of eight GSM were detected during the 2011/12 flight season for the Grassland Restoration Experiment site, including four incidental detections. Three GSM were observed flying over a plot being surveyed, one GSM was observed landing in a plot being surveyed, and four GSM were recorded as incidental detections at the time of survey.

The Grassland Restoration Experiment is now complete, but further GSM population surveys to be completed in 2012/13 and 2013/14 flight seasons will include the experiment site and will be referenced in determining the success of this experiment.

4.4.1.5 Habitat Slab Replacement

The Habitat Slab Replacement experiment was undertaken at six locations along the ROW, all of which contain known GSM grassland habitat (i.e. GSM was recorded at these locations before construction of the pipeline commenced). Two locations occurred on the Sheoak property (#326), two occurred on property #335, and one occurred on each of properties #327 and #328. Monitoring was undertaken in accordance with the method outlined in the Golden Sun Moth Overarching Document and the Fauna Management Program, and this experiment is now complete.

Data analysis was undertaken to determine the trends observed across the six slab sites for the 27 month monitoring period (May 2009 – August 2011). The aims of the GSM monitoring undertaken as part of the Habitat Slab Replacement experiment were to determine whether GSM larvae are able to survive the 'slabbing' process, and

whether 'slabbing' improves habitat reinstatement for the GSM compared to the project's standard reinstatement method. The aim of the experiment was not to determine whether there was a decline in the overall GSM population due to construction activities but merely to determine whether they were able to survive this particular reinstatement technique; however, depending on the results obtained, it may have been possible to infer information on a decline.

Overall, the results of the experiment strongly suggest that the Habitat Slab Replacement treatment is unlikely to be the most appropriate rehabilitation technique for both restoring semi-native grassland habitat following ground disturbance, and for promoting GSM habitat for the first 27 months following disturbance. The numbers of GSM seen in the 2010/11 season (8) were well below the previous 2009/10 season (879) within the habitat slab areas. As the numbers of moths were depleted all across the state in 2010/11, it is not possible to conclusively comment on the relationship between the rehabilitation of the habitat slabs and the presence of GSM. The contrasting results in GSM recorded between the two flight seasons when considered against the weather conditions experienced, suggests that the emergence of GSM adults is reduced in years of above-average rainfall.

4.4.1.6 Discussion

The number of GSM detected on the Sheoak property in the 2011/12 flight season (71) is significantly lower than the number of detections made in previous years surveys (i.e. 251 GSM in 2010/11, and 1879 GSM in 2009/10). While these results suggest that the population on broader Sheoak is in decline, given the contrasting weather conditions between the 2009/10 and the 2011/12 flight seasons, it is problematic to draw conclusions regarding the population at Sheoak, particularly considering that the species appears to be highly weather-dependant for emergence and activity.

Further information provided by consultants and GSM specialists confirms that GSM did not emerge in reasonable numbers across the majority of its Victorian distribution until late November / early December 2011 and that they continued to be seen in flight until late January, in southern Victoria. This activity is outside the prescribed survey period as described by the Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (DEWHA, 2009), and highlights the variability in activity of the species. Detections of GSM from across the state were commonly made in small numbers (i.e. less than 10 individuals per sighting), which suggests a low-level of activity for the species across their Victorian range. These observations are consistent with GSM activity detected on the Sheoak property during the 2011/12 flight season.

As the numbers of GSM were depleted all across the state, it is not possible to conclusively comment on the lower numbers of GSM seen during the flight season. The continued monitoring of GSM on the Sheoak property will assist in the collection of data to improve the knowledge of the population.

Further details, results and maps of GSM monitoring surveys are included in the reports:

- Post Construction Golden Sun Moth Monitoring Results, 2011-12 Flight Season (Appendix A)
- Grassland Restoration Experiment: Final Report, 2012 (Appendix B)
- Post Construction Habitat Slab Replacement: Final Report, 2012 (Appendix C)

4.4.2 Striped Legless Lizard Habitats

As part of the approvals process for the Sugarloaf Pipeline Project, the Alliance committed to conducting monitoring for SLL during the post-construction phase for a period of two years at the following locations:

- broadly across the Sheoak property; and
 - at locations where 5 or more lizards were detected during the course of the project.
- A draft monitoring plan was developed by the Alliance. Following further consultation, discussion and revisions, the document was endorsed by DSE.

Post Construction Monitoring for SLL across the SLL monitoring sites (seven locations within the construction corridor where five or more SLL were captured) was completed in January 2012 (two years after the SLL release). Three additional years of SLL monitoring will be undertaken on the Sheoak property.

4.4.2.1 Monitoring at Sheoak

In late 2009 and early 2010, nine sets of lizards monitoring grids were established broadly across the Sheoak property. Each grid consisted of 50 wooden shelters placed in five rows of ten shelters, with each shelter placed five metres from the next nearest shelter. Each shelter comprises a block of wood that is about 30 cm long, 20 cm wide and 7.5-10 cm thick. An additional 2cm x 2cm strip of wood is also placed along one edge of the shelter to raise it from the ground slightly.

These shelters have been checked on four occasions during the period 1 July 2011 – 30 June 2012.

- The shelters were checked by ecologists in early August 2011. One SLL was detected in Grid I. Photos of the captured SLL were compared to photos taken by

Melbourne Zoo to determine if that animal had been captured and released post-construction. The SLL individual did not appear to be a recaptured animal. Two juvenile Blue-tongued lizards were also recorded in Grid G.

- The shelters were checked by ecologists in mid October 2011. No SLL were detected underneath the shelters.
- The shelters were checked by ecologists mid November 2011. No live SLL were detected underneath the shelters however one incidental SLL detection was made during GSM surveys near Grid H on 29th November 2011. One skink was detected in Grid B.
- The shelters were checked by ecologists in mid December 2011. One SLL was possibly detected adjacent to Grid D on 14th December 2011, but as the individual was heard and not seen, this observation was not confirmed. One skink was detected in Grid D.
- Further checks of these shelters occurring broadly across the Sheoak property will occur on four occasions (July, October, November and December) throughout 2012, 2013 and 2014.

A further 6 grids were set up across the Sheoak property in late 2011 and these grids in combination with the existing nine grids will be monitored for a further three years until late 2014. A summary report will be prepared annually with a full report prepared at the conclusion of the five years monitoring.

4.4.2.2 Monitoring at other properties

In late 2009 and early 2010, lizard monitoring grids were established within (and immediately adjacent to) the reinstated construction area at seven locations where five or more lizards had been detected during the course of the project. This included properties 302.1, 26/28, 327 and 328. As per the Sheoak property, each grid comprises 50 evenly spaced wooden shelters. For the first two properties listed above, half of the shelters were placed in land that had been directly affected by construction, and the remainder were placed in the same property but within immediately adjacent areas that were not directly affected by the construction process. For the latter two properties, half of the shelters were placed in the land directly affected by construction, and the other half were placed in the immediately adjacent roadside reserve alongside the Melba Highway.

These shelters have been checked on four occasions during the period 1 July 2011 – 30 June 2012. In summary:

- No SLL were detected under shelters on private properties during this period of monitoring;

- Four species of frog and at least two reptile species were detected under shelters in both the former construction area and adjacent undisturbed areas;
- Skinks were commonly observed basking on the shelters

It is difficult to draw many conclusions from the results of the first two years of monitoring. There is a marked difference between the number of SLL detected during the construction phase (65) compared to the two-year post construction monitoring period (5). The main reason for this disparity is likely to be the survey techniques employed, rather than a reflection of the SLL population present (i.e. disturbing and digging large tracts of ground with heavy machinery during construction, compared to localised shelter check for post construction monitoring). The population in the vicinity of the shelter grids appears to be small, but there is insufficient information to determine the exact population size, or if the population size in this area has changed since the construction process. The paucity of SLL detections may not necessarily reflect the population present due to a number of factors such as survey techniques, effectiveness of grid shelters for SLL, availability of alternative natural shelter, timing of survey (i.e. time of day) and seasonal variation in resource availability or use of shelters by SLL.

Further details, results and maps of the SLL monitoring surveys are included in the 'Report for 2011 Post Construction Striped Legless Lizard Monitoring' which is attached as Appendix D.

4.5 Aquatic Surveys

Post construction surveys of water body habitat surveys were completed in 2010/11 and therefore it is no longer necessary to report on compliance with this condition.

4.6 Matted Flax-lily

Matted Flax-lily has been recorded in at least 18 different sites/properties within the survey corridors, with a total of at least 41 discrete patches. The distribution of this species is strongly linked with road reserves and public land within the broader Yarra Glen area, with two outlying occurrences near Yea.

The construction corridor has impacted the following areas supporting Matted Flax-lily:

- Maroondah Aqueduct (4 patches between Steels Creek Road and Gulf Road);
- Gulf Road (3 patches in road reserve);

- 1 patch immediately adjacent to Maroondah Aqueduct access track entrance point;
- 1 patch on northern side of road reserve, immediately east of a row of exotic trees;
- 1 patch on steep northern roadside embankment, east of aqueduct and west of Melba Highway;
- Glenview Road (1 patch on west side of road reserve, north of Yarraview Road);
- In addition the following patch has been impacted though it was not within the construction corridor and is included in this document:
- Melba Highway (1 patch on west side of road reserve, south of Hunts Lane).

Impact sites were surveyed in February 2009 with detailed results provided in the Matted Flax-lily translocation agreement.

4.6.1 Translocation of Impacted Matted Flax-lily Patches

Impacted patches of Matted Flax-lily were removed in April 2009 under the supervision of an expert in the biology of Matted Flax-lily, Mr Geoff Carr. Mr Carr was recommended by DSE for his knowledge of the biology of Matted Flax-lily.

The removed Matted Flax-lily was transported to the Buxton Zoo Nursery which specialises in the growth of indigenous species. The plants were individually labelled, potted and grown on. They were transplanted into the receptor site in autumn 2010.

The receptor site for the MFL is located within the Maroondah Aqueduct close to the positions of Patches 1 to 4 (discussed above). The site covers an area of 120 x 3 m, and is situated along the southern boundary fence line of the aqueduct, between the Sugarloaf Pipeline access track and the fence line. The site was fully cleared during pipeline construction but was reinstated with stored topsoil, and then replanted with a locally indigenous species mix. This section of the aqueduct is known to support MFL as shown by the persistence of the species in this area prior to the construction of the Sugarloaf Pipeline.

A Matted Flax-lily Translocation Commitment was developed by the Alliance in consultation with DEWHA, DSE and MW and has been endorsed. This Commitment is a detailed discussion of the translocation requirements and ongoing management actions to help facilitate the ongoing survival of this species over a five year period at the receptor site.

4.6.2 Monitoring

Monitoring of the translocated MFL commenced in November 2010. The monitoring report "Matted Flax-lily (*Dianella amoena*) Translocation: Monitoring Spring/Summer 2011/2012" is attached in Appendix E. The next monitoring report (for Spring/Summer 2012/2013) is due in February 2013 and will be reported on in the 2013 Annual Report.

The 2011/12 monitoring program included MFL plants at the Maroondah Aqueduct receptor site as well as the populations to the north and south of Hunts Lane. Monitoring of MFL within the translocation site on the pipeline easement found that:

- There was good (acceptable) survival of the *Dianella amoena* plants translocated, with minimal mortality.
- The number of shoots per plant typically increased from 2-12 times that of last year. The maximum leaf length for most plants was longer than that of last year.
- Flowering and fruiting at best was excellent with more plants flowering this season compared with last season, and with more inflorescences and larger inflorescences than last year.
- Plants were generally highly reproductive with a protracted flowering season that extended from October to April.
- Fruit production was outstanding and this indicates that the bee pollinators are active on the site.

The monitoring report also noted an increase in the amount of weeds present at the translocation site. Weed management activities have been undertaken since the translocation in April 2009, but growing conditions in the last two years have favoured weed growth. Following receipt of the 2011/12 monitoring report, a Weed Management Plan was developed for the site in order to address the weed issues at the site thereby enhancing the performance of the MFL population. This Weed Management Plan was submitted to DSEWPC in November 2012.

The MFL Translocation Commitment document also identified several 'control' sites against which the translocated population could be evaluated. These were located on roadsides, as follows:

- Maroondah Aqueduct (east side), approximately 30 m north of Yarraview Road (1 patch);
- Melba Highway (east side), adjacent to property no. 650, approximately 1 km north of Gulf Road (3 patches); and
- Patch 8 on Melba Highway (west side), approximately 150-175 m south of Hunts Lane (1 patch).

During field work in both 2011 and 2012 these populations could not be found, with the exception of the Hunt's Lane patch (Patch 8 on the Melba Highway). It is assumed that plants no longer exist, that is they have become extinct because of a combination of mowing (slashing) of the road reserves by local Councils, coupled with weed invasion. The patches near Gulf Road suffered a similar fate as discussed in the 2010/2011 monitoring report provided with the DSEWPC annual report 2011. The specialist concluded that MFL could easily fall extinct on these highly vulnerable road reserve populations.

4.6.3 Adaptive Management

Under section 1.5.1 of the Matted Flax-lily Translocation Commitment document monitoring was scheduled to occur during autumn and winter each year, but this did not occur in 2012. The specialist deemed monitoring at this time would not provide any meaningful results (as detailed below) and has recommended that monitoring described in section 1.5.5 of the MFL commitment document be amended to an annual inspection during Spring/Summer for a further three years until 2014.

The specialists rationale behind a reduced monitoring program are that the growth and responses of the plants is highly seasonal and they go into a quiescent period in summer, usually with considerable loss of leaves (which are facultatively deciduous in response to drought). Growth recommences in autumn following the autumn break. The specialist believes that nothing will be gained by monitoring in seasons other than the spring-early summer flowering period because we are interested in (i) the maximum seasonal expression of vegetative growth, and (ii) flowering and fruiting responses as a measure of successful establishment and reproductivity. Both these aspects of performance are best and most appropriately monitored in the spring-early summer flowering period. Vegetative performance documentation at other times may be quite ambiguous as to its interpretation. In June 2012 MW wrote to DPCD (cc DSEWPC and DSE) requesting that this change to the monitoring frequency be endorsed.

Further details and results of the MFL monitoring surveys are included in the report "Matted Flax-lily (*Dianella amoena*) Translocation: Monitoring Spring/Summer 2011-12" which is attached as Appendix E.

5 Conclusion

The Sugarloaf Pipeline Alliance and Melbourne Water have implemented actions and adhered to the conditions placed on the Project by the Federal Minister for the Environment, Heritage and the Arts.

Full compliance with pipeline operational volume conditions was achieved because no water was extracted to the Sugarloaf Pipeline between 1 July 2011 and 30 June 2012.

Three EPBC Listed species have been located in the construction ROW - Striped Legless Lizard, Golden Sun Moth and Matted Flax-lily. The management of these species and all other EPBC listed species has been in accordance with the Environmental Management Strategy which has been endorsed by State and Federal Government, except in unexpected situations where adaptive management has been necessary and subsequently approved before implementation.

A large population of SLL was detected, and appropriate measures have been implemented throughout the project. Two years of post-construction monitoring (2009, 2010), and one additional year of monitoring (2011) have been completed; with one live SLL observed in the monitoring grids to date. Monitoring will continue for a further two years (until December 2014) on the Sheoak property.

Large populations of GSM have also been detected. Monitoring of GSM has been completed for two post construction flight seasons (2009/10, 2010/11) and one additional year of monitoring (2011/12), and will continue for two further flight seasons (2012/13 and 2013/14) at the Sheoak property.

Impacted patches of Matted Flax-lily were removed from areas around Yarra Glen and were translocated to the agreed receptor site in autumn 2010. Monitoring and management measures have been undertaken each year in 2010, 2011 and 2012.

A number of the EPBC Approval conditions apply primarily to the construction phase of the project. Future annual reports will focus on monitoring and management of SLL, GSM and Matted Flax-lily; as well as compliance with the limitations of pipeline operational volumes set out in condition 11, in the event that the pipeline is used under conditions of 'critical human need.'

Appendix A: (Attached)
Post Construction Golden Sun Moth Monitoring
Results 2011 – 2012 Flight Season

Appendix B: (Attached)
Grassland Restoration Experiment: Final
Report 2012

Appendix C: (Attached)
Post Construction Habitat Slab Experiment:
Final Report 2012

Appendix D: (Attached)
Report for 2011 Post Construction Striped
Legless Lizard Monitoring

Appendix E: (Attached)
Matted Flax-lily (*Dianella amoena*)
Translocation: Monitoring Spring/Summer
2011-12

Appendix F: (Attached)
Audit of Water Savings: NVIRP 2011/12