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

Sugarloaf Pipeline Project

Environmental Officer, Sugarloaf Pipeline Integration

November 2011

State Government Victoria

Melbourne Water

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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	Environment Protection and Biodiversity Conservation Act 1999
FFG	*Flora and Fauna Guarantee 1988(Vic)*
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 2010 – 30 June 2011), with the exception of one breach of condition 11(b). This is discussed in detail in section 3.2 of this report.

There was one Alliance noncompliance report during the reporting period 1 July 2010 – 30 June 2011 relating to biosecurity procedures. This is discussed in detail in section 2.14 of this report.

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 MFL monitoring until 2014.
8. Water Quality Monitoring	Compliant
9. Provision of Waterway Crossing Plans	Compliant
10. Approval of Water Quality Monitoring Procedure	Compliant
11. Limitation of Pipeline Operational Volumes	Compliant with exception of Condition 11.b.ii on one occasion
12. Passage of Groundwater	Compliant
13. Forest Rehabilitation Plans	Agreement of Sugarloaf Reservoir Reinstatement Plan relating to habitat reinstatement still under discussion between DSE and MW.
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 Experiment on	Annually over 4 visits until 2014

[1] Adaptive management was utilised and resulted in reduced monitoring of Matted Flax-lily during 2011 further details are provided in section 4.6

	Sheoak property.	
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[2]

[2] Adaptive management has recommended reduced monitoring of Matted Flax-lily, further details are provided in section 4.6

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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 Melbourne's share of the 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 6 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 managed 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 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 offtakes for fire-fighting purposes.

In the 2010/11 financial year, the last day in which water was transferred through the Sugarloaf Pipeline was 28 October 2010.

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.

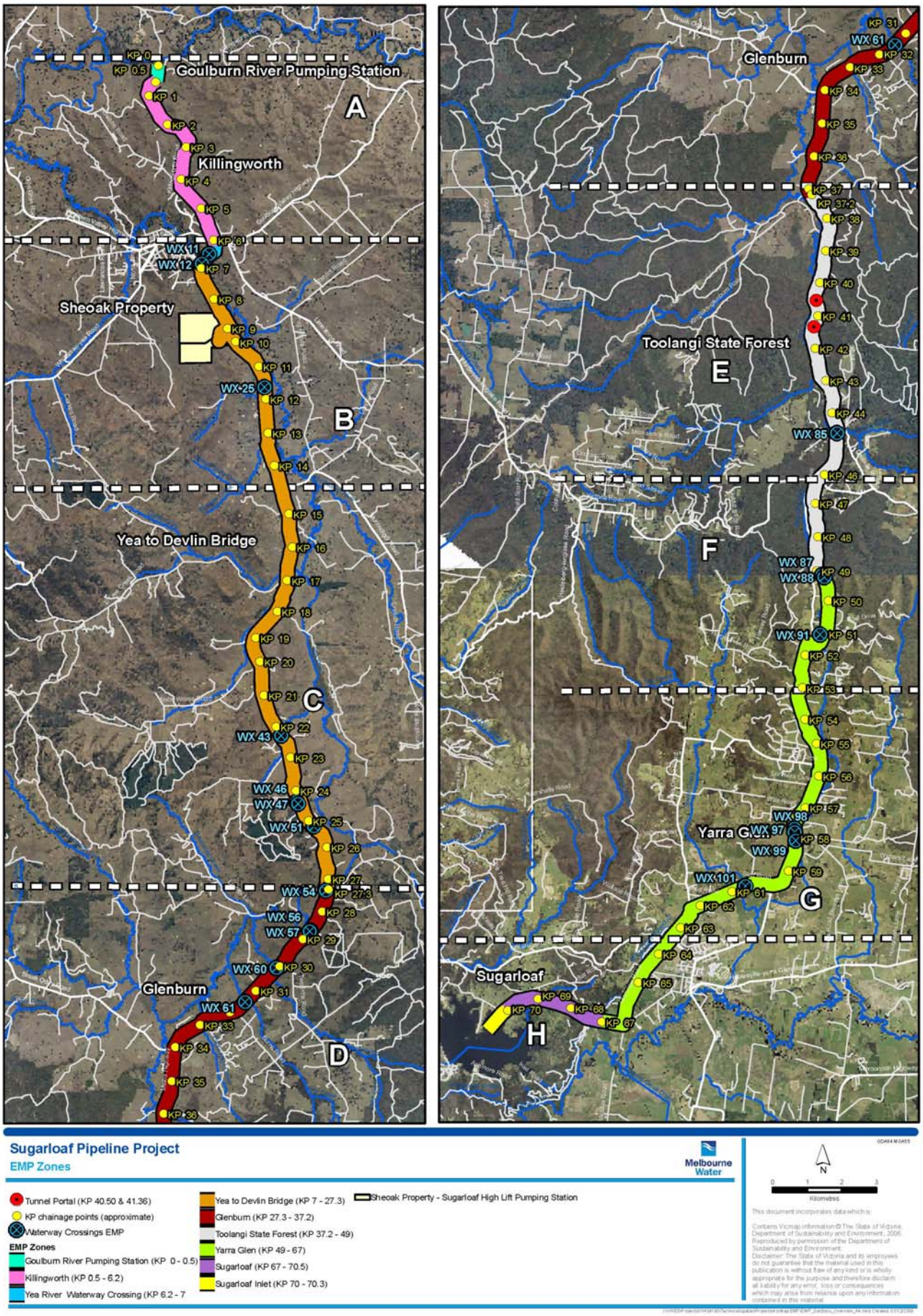

Figure 1: Map of the Sugarloaf Pipeline Project with EMP Zones marked[3]

[3] 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.

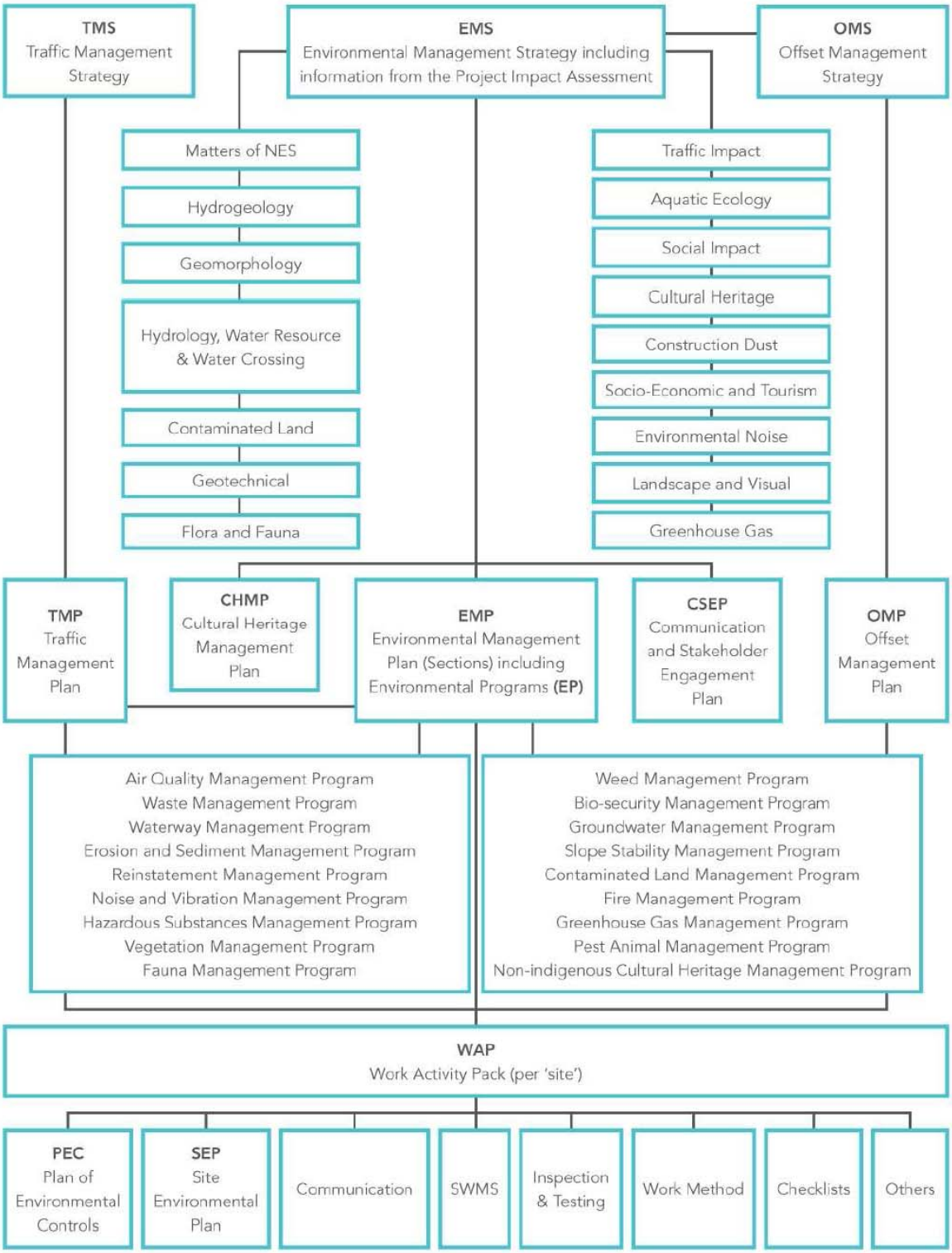

Figure 2: Environmental Management Documentation

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 in the Mitigation Plan for EPBC Act and Victorian Flora and Fauna Guarantee Act 1988 (FFG Act) Listed Flora Species July 2008 for flora species was 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 was developed by the Alliance in consultation with DEWHA, DSE and Melbourne Water. The MFL Translocation Commitment was endorsed by the above parties.

We note that the section 69 agreement referred to in the Translocation Commitment has not been developed. Section 69 of the *Conservation, Forests and Lands Act 1987* (Vic) gives DSE the power to enter into agreements with 'any land owner relating to the management, use, development, preservation or conservation of land.' A s69 'may be expressed to be binding on a land owner's successors in title.' Melbourne Water is still in discussions with DSE and DSEWPC regarding the s69 agreement.

Translocation of the Matted Flax Lily was undertaken in accordance with the Permit to Take Protected Flora (Permit No. 10004246), which was issued to Melbourne Water by the Department of Sustainability and Environment (DSE) on 5 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 (Isoodon 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 Sugarloaf Pipeline 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 contain procedures for monitoring, management and mitigation of listed species that Melbourne Water 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 species, and all other fauna species.

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 Mitigations 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.

Ongoing requirements for the monitoring and management have been implemented and are discussed in section 4.5.

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.

The Alliance has also 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.

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 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 Matted Flax-lily translocation document which was endorsed by DEWHA, DSE and other relevant stakeholders. See section 4.6 for details on Matted Flax-lily 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 the Alliance has completed construction of the Project 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, Melbourne Water, 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.

Water extracted to the Sugarloaf Pipeline between 1 July 2010 and 30 June 2011 has generally been compliant with condition 11 of the EPBC Approval, with the exception of condition 11(b). There was one occasion where operation of the pipeline was in breach of the requirement that any variation in daily pumping rate is limited to a maximum of 200ML. This event also breached the relevant diversion rate specified by the GBCMA. Section 3.2 of this report provides details of this non-compliance event and measures taken to prevent similar breaches occurring in the future.

Details of compliance with conditions 11 (a), (c), (d) and (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.

Groundwater levels were monitored within the Yea flood plain on a monthly basis from the completion of construction until December 2010. Groundwater monitoring bores were positioned upstream and downstream of the pipeline alignment. Groundwater monitoring showed an increase in water levels, which is consistent across the project study area and region and is a result of recent increases in rainfall. Changes in water levels are consistent on both the upstream and downstream sides of the pipeline, which indicates the pipeline is not obstructing groundwater flow within the flood plain.

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 and DSE. The outcome of these discussions will be reported on in the 2012 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 if the measures implemented to mitigate the impact on EPBC listed species.

This report is the 2010/11 annual report addressing this condition. Note that the variation decision dated 28 October 2010 changed the due date to 30 November of each year.

There was one Alliance noncompliance report during the reporting period 1 July 2010 – 30 June 2011 relating to biosecurity procedures. A table summarising this noncompliance is included as Appendix A. The Alliance responded by assessing the risk of an impact to the environment and to prevent any similar non-compliance

occurring again. In this instance the Alliance is of the view that there were no impacts on any EPBC listed species and therefore it is considered that the Project has complied with conditions of Approval.

Appendix A does not include any Non-Compliances relating to extraction of Water. These are addressed separately in Section 3 below.

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.

No changes to documentation or conditions have been made during the period 1 July 2010 – 30 June 2011.

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 may be taken and transferred through the Sugarloaf Pipeline is ABA065907 (Note that all ABAs previously created for the transfer of water through the Sugarloaf Pipeline have been traded into this ABA). Section 3.1 summarises the water savings allocated to the Sugarloaf Pipeline via ABA065907. The Water Savings Audit Reports (provided in Appendix I for 2010/11, and provided as part of Melbourne Water's previous DSEWPC submission for 2009/10) contain details on the source, volume and timing of the water to be accrued to this account.

Information on the volume and timing of any water released for supply to Melbourne via the Sugarloaf Pipeline is 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 2010/11 financial year is documented in Table 3. It should be noted that the Retailers are able to carryover water from one

year to the next, subject to the same rules that apply to all entitlement holders that carryover water in Northern Victoria, including deduction of a standard 5% on carry over for evaporation losses.

Table 3: Water for Melbourne carried over into 2010/11

Carry over into 2010/11	Volume (ML)
Volume brought forward for carry over at 30/6/2010	10,996
Evaporation losses at 30/6/2010 (5%)	550
Total volume carried over into 2010/11	**10,446**

3.1 Water Savings Audited

An independent audit of water savings achieved in 2010/11 has been undertaken and a copy of the Audit report is provided in Appendix I. Audit reports for 2009/10 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 2009/10 and 2010/11 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:

- Goulburn-Murray Water, Melbourne Water and the Retailers have 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 – the Water Savings Supply and Transfer Agreement. This agreement is a primary entitlement under clause 7 of the Bulk Entitlement (Eildon-Goulburn Weir) Conversion Order 1995, as amended. The water savings to which this agreement relates 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.

Water allocated to Melbourne in 2010/11 was derived from a number of sources. These sources are summarised in Table 4.

Table 4: Water allocated to Melbourne in 2010/11

Allocation in 2010/11 (from water savings projects in 2009/10)	Volume (ML)
Goulburn Water Quality reserve for 2010/11^	10,000
CG1234 audited savings from 2009/10*	5,674
Shepparton audited savings from 2009/10*#	7,924
NVIRP Stage 1 savings - Goulburn Trading Zone 1A 2009/10*†	22,712
NVIRP Stage 1 savings - Murray Trading Zone 6 2009/10*§	601
NVIRP Stage 1 savings - Murray Trading Zone 7 2009/10*£	570
Total volume allocated to Melbourne Retailers in 2010/11	**47,481**

^ 10 000 ML of water has been reserved specifically for Melbourne from other measures. On 28 June 2009, the Victorian Minister for Water, Under Section 33 AAA(1) of the Victorian Water Act, approved a temporary qualification of rights in the Goulburn Water System, so that 10 000 ML, of the water available each year to make additional releases to maintain water quality in the Goulburn River and Broken Creek, in accordance with clause 12.3 (d) of the bulk entitlement, must be reserved for the purpose of supply to Melbourne.

* Savings made in one irrigation season are not audited and allocated until following irrigation season, in accordance with Water Savings Protocols.

14,527 ML of savings from the Shepparton Modernisation Project have already been allocated to the Environmental Entitlement (Goulburn System - Living Murray) 2007 in accordance with the terms and conditions of this entitlement, and so the balance of 7,924 ML remains available for allocation to Melbourne.

† This is the savings achieved in the Central Goulburn 5-9, Rochester and Pyramid/Boort irrigation districts (23,091 ML) minus the additional savings in excess of the 75,000 ML savings already allocated to Melbourne that has been allocated to irrigators and the environment (379 ML).

§ Murray Trading Zone 6 refers to the Murray Valley Irrigation District

£ Murray Trading Zone 7 refers to the Torrumbarry Irrigation District

Table 5 summaries the water available to Melbourne in 2010/11, the water used by Melbourne in 2010/11, and the water carried over into the 2011/12 year. This takes into account the volume deducted annually for evaporative losses.

Table 5: Water for Melbourne carried over into 2011/12

Carry over into 2011/12	Volume (ML)
Volume available to Melbourne in 2010/11*	57,927
Volume used by Melbourne in 2010/11	7,476
Volume brought forward for carry over at 30/6/2011	50,451
Evaporation losses at 30/6/2011 (5%)	2,523
Total volume carried over into 2011/12	**47,929**

* This is the total volume carried over into 2010/11 (10,446 ML) plus the total volume allocated in 2010/11 (47, 481 ML).

As specified in the *Water Savings Supply and Transfer Agreement* (Clause 8.4) a third of the total phase 3 audited savings in the 2010/11 irrigation season will be allocated to the Melbourne Retailers in 2011/12. Water to be allocated to Melbourne in 2011/12 was derived from a number of sources. These sources are summarised in Table 6 with full detail documented in Appendix I.

Table 6: Accrued allocation for Melbourne in 2011/12

Accrued Allocation for 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 expected allocation 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.

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 offtakes for fire-fighting purposes.

In the 2010/11 financial year, the last day in which water was transferred through the Sugarloaf Pipeline was 28 October 2010.

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.*
f. *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 2010 to 30 June 2011.

3.2.1 Compliance Reporting: 1 July 2010 to 30 June 2011

Summary

The Sugarloaf Pipeline was operated in compliance with Condition 11 of the *Environment Protection and Biodiversity Conservation Approval (EPBC Approval)* for the period 1 July 2010 to 30 June 2011, with the exception of Condition 11(b) on one occasion.

The maximum permissible variation in daily pumping rate of 200 ML/day under Condition 11(b) of the *EPBC Approval* was exceeded on 8 September 2010 when Melbourne Water ceased pumping on that day (from 300 ML/day). This was done in the face of heavy rain and to help balance water harvesting rates across its system, especially into Sugarloaf Reservoir where flows from the pipeline join flows from the Yarra River and Maroondah Reservoir.

Table 7: Summary of compliance for the period 1 July 2010 to 30 June 2011

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 *Living Murray Initiative* or the *Water for Rivers*	✓
11.e	not deplete water designated in the environmental reserve	✓
final statement	water sourced from projects that comply with the EPBC Act 1999	✓

* For the period 1 July 2010 to 30 June 2011 there was a non-compliance event on 8 September 2010

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 2010 to 30 June 2011, transferring a total of 7.5 GL 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.

The Sugarloaf Pipeline was operated in compliance with the 360 ML per day condition for the period 1 July 2010 to 30 June 2011.

The maximum permissible variation in daily pumping rate of 200 ML/day was exceeded on 8 September 2010 when Melbourne Water ceased pumping (from 300 ML/day). This was done in the face of heavy rain and to help balance water harvesting rates across its system, especially into Sugarloaf Reservoir where flows from the pipeline join flows from the Yarra River and Maroondah Reservoir.

As the flow in the Goulburn River was very high at this time (16,000 ML/d), Melbourne Water expected that the resultant fluctuations in river level would have had minimal impact on river health. The Goulburn-Broken Catchment Management Authority subsequently advised Melbourne Water that the ramp-down protocols should still be implemented under these circumstances. Melbourne Water will implement GBCMA's subsequent advice that the ramp-down protocols should be adhered in these situations.

It is worth noting that this non-compliance with condition 11(b) of the EPBC Approval was also documented in last year's Sugarloaf Pipeline Alliance Annual Report to DSEWPC (November 2010) under the reporting period 1 December 2009 to 30 November 2010 (first 12 months that the Sugarloaf Pipeline was implemented).

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.

The Sugarloaf Pipeline was operated in compliance with this condition for the period 1 July 2010 to 30 June 2011. For this period, G-MW records indicate that Melbourne Water ordered a total volume of 8.8 GL from the metropolitan Retailers' Allocation Bank Account from Lake Eildon, with G-MW actually releasing 8.8 GL. Melbourne Water diverted 7.5 GL of this released volume from the Goulburn River at Killingworth to the Sugarloaf Pipeline. The disparity between the volume ordered and pumped was due to unscheduled outages, which were exacerbated by the two day lag time between orders and releases from Lake Eildon.

As per Goulburn-Murray Water's policy for supplying its customers, water released from Lake Eildon by Melbourne Water but not diverted to the Sugarloaf Pipeline was not debited from the metropolitan Retailer's Account. Instead, it was recaptured by Goulburn-Murray Water downstream at Waranga Basin and used to supply other customers.

All water diverted to the Sugarloaf Pipeline over this period has been taken from Melbourne's share of the water savings. This water has been sourced from a number of water saving initiatives that are documented in a letter from Melbourne Water to DEWHA dated 23rd December 2009. Independent reports (dated 14/12/09 & 21/12/09) supplied by Melbourne Water to DEWHA as an attachment to that letter confirm that the sources of Melbourne's share of water comply with the EPBC Approval.

Melbourne Water places orders with G-MW for water from Lake Eildon at least two days in advance (effectively 3 days) of the diversion date. The orders are placed with G-MW either through their 'WaterLine Online' system or by telephone. In the event of a planned outage Melbourne Water must give G-MW at least 2 days notice (effective 3 days) that a water order needs to be cancelled or amended. The process of ordering water has been complied with over the period 1 July 2010 to 30 June 2011. In the event of unplanned outages of the pipeline the ordering process acknowledges that Melbourne Water may be unable to give this two days notice. Any water released from Lake Eildon and not diverted to the Sugarloaf Pipeline is recaptured at Waranga Basin.

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.

The Sugarloaf Pipeline was operated in compliance with this condition for the period 1 July 2010 to 30 June 2011. The water diverted from the Goulburn River to the Sugarloaf Pipeline has been allocated to Melbourne's share of Lake Eildon from a number of water saving initiatives that are documented in a letter from Melbourne Water to DEWHA dated 23rd December 2009. Independent reports (dated 14/12/09 & 21/12/09) supplied by Melbourne Water to DEWHA as an attachment to that letter confirm that the sources of Melbourne's share of water comply with the *EPBC Approval*.

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.

The Sugarloaf Pipeline was operated in compliance with this condition for the period 1 July 2010 to 30 June 2011. The water diverted from the Goulburn River to the Sugarloaf Pipeline has been allocated to Melbourne's share of Lake Eildon from a number of water saving initiatives that are documented in a letter from Melbourne Water to DEWHA dated 23rd December 2009. Independent reports (dated 14/12/09 & 21/12/09) supplied by Melbourne Water to DEWHA as an attachment to that letter confirm that the sources of Melbourne's share of water comply with the *EPBC Approval*.

Since the commencement of the operation of the pipeline, the minimum daily passing flow recorded in the Goulburn River at Killingworth (while pumping) has been 1,605 ML/day (31 July 2010).

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.

The Sugarloaf Pipeline was operated in compliance with this condition for the period 1 July 2010 to 30 June 2011. All water diverted to the Sugarloaf Pipeline over this period has been sourced from a number of water saving initiatives that are documented in a letter from Melbourne Water to DEWHA dated 23rd December 2009. Independent reports (dated 14/12/09 & 21/12/09) supplied by Melbourne Water to DEWHA as an attachment to that letter confirm that the sources of Melbourne's share of water comply with the requirements of the *Environment Protection and Biodiversity Conservation Act 1999.*

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

For the period 1 July 2010 to 30 June 2011, Sugarloaf Pipeline operations did not comply with the Goulburn Broken Licence requirements specified in the *Water Savings Supply and Transfer Agreement* on one occasion. On 8 September 2010, Melbourne Water decided to cease pumping for the day (from 300 ML/day) to help balance harvesting rates across its system in the face of heavy rain. As the flow in the Goulburn River was very high at this time (16,000 ML/d), Melbourne Water expected that the resultant fluctuations in river level would have had minimal impact on river health. The Goulburn-Broken Catchment Management Authority subsequently advised Melbourne Water that the ramp-down protocols should still be implemented under these circumstances.

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 2010 Annual Report to DEWHA and are not repeated here. The following describes the mitigation measures undertaken Post construction over the period 1 July 2010 – 30 June 2011.

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. The Alliance does not believe it will act as a barrier to terrestrial fauna.

Pest control measures as outlined in the Pest Animal Control Program have also been implemented during post-construction. This has included provision of funding to a post-fire predator control project managed by Parks Victoria to protect faunal values in fire affected areas under the Caring for our Country Bushfire Recovery Program. Funding was also provided to the Yea River Catchment Landcare Group to train members in pest control methods.

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) as well as the FFG listed Brown Toadlet. 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 ARI 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

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.

A small frog was captured and released within the farm dam on property #103 in the Glenburn EMP Section, the frog was suspected to be a Brown Toadlet (*Pseudophryne bibroni*). The photographic evidence of the frog unfortunately was not sufficient to conclusively identify that the frog was a Brown Toadlet, however the precautionary principle was adopted and the Alliance proceeded as though the frog was a Brown Toadlet. This species is listed as threatened under the FFG Act, but not the EPBC Act. After consultation with DSE, the agreed future course of action involved the retention of this water body, installation of fauna-proof fencing around its boundary for the duration of construction and placement of additional habitat features (including woody debris) around the edge of this water body.

Monitoring of the Brown Toadlet and the water body habitat was undertaken three times during autumn 2010 and a further three times during autumn 2011. Despite the surveys being undertaken during the species' active period and under favorable conditions no Brown Toadlets were heard or captured. Without more pre-construction data on the presence and size of the Brown Toadlet population, very little can be concluded from these monitoring results. No conclusion can be reached regarding the likely impact of construction on toadlets at the site.

4.4 Grassland Habitats

4.4.1 GSM habitats

Pre-construction and construction monitoring of GSM has been reported in the 2010 Annual report to DSEWPC.

4.4.1.1 Monitoring Overview

The following monitoring was undertaken for GSM adults and pupa cases during the second post construction flight season:

- Monitoring of GSM and the recovery of GSM habitat values as part of Habitat Slab Replacement Experiment;
- Monitoring of GSM and the recovery of GSM habitat values as part of Grassland Reinstatement Experiment;
- Monitoring GSM adults and pupal cases in all other **known** GSM grassland habitats intercepted by the Construction Area; and
- Monitoring GSM adults and pupal cases across the broader Sheoak Property.

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).

Two flight seasons of Post Construction Monitoring for GSM has been completed. At the Sheoak property the GSM monitoring will continue for a further three years. The ongoing monitoring includes the adult surveys and continuation of the Grassland experiment.

4.4.1.2 Adaptive Management

The GSM monitoring program for the 2010/2011 flight season required adaptive management for the following reasons:

- Adult GSM emerged later in the season compared to recent years
- Weather conditions (ie temperature and sunniness) were generally unsuitable for conducting surveys before and during the time of expected adult GSM emergence
- Adult GSM continued emerging, and were being seen in flight by Alliance Ecologists, beyond the time period specified in the approved documents (ie. GSM were seen in flight beyond January 2011)
- Access to a number of private properties containing **known** GSM habitat could not be obtained for a substantial portion of the GSM flight season.

For all these reasons, GSM monitoring surveys during the 2010/2011 flight season were not undertaken in the manner and intensity specified within the approved documents. The extent to which the monitoring surveys deviated from the approved surveys is detailed in the Post Construction Golden Sun Moth Monitoring Results 2010 – 2011 Flight Season SPA-REP-GL-ENV-0050 (Appendix B).

DSE was kept informed of the monitoring issues facing the Alliance ecologists during the 2010/2011 flight season and many other fauna consultants and ecologists across Victoria also faced similar difficulties with their GSM surveys.

4.4.1.3 Results from 2010/2011 Flight Season

Eight GSM and no GSM pupal cases were detected/collected in the habitat slabs during the 2010/2011 flight season. There were too few GSM detected to draw any firm conclusions, however the numbers were substantially less then during the 2009/2010 flight season.

Preliminary results from the habitat slab flora monitoring suggest that habitat value for GSM has decreased within the disturbed areas and that the laydown treatment may provide intermediate GSM habitat when compared with controls and set down areas. Further analysis is required to provide more conclusive results.

Surveys of the Grassland Habitat Restoration Project recorded only four adult GSM during one of the five visits and no GSM pupal cases, meaning there were insufficient observations to draw any meaningful conclusions about or between treatments. As with the habitat slab monitoring the numbers of GSM sighted were substantially fewer than for the 2009/2010 flight season. This was consistent across all the GSM monitoring for the Project as well as consistent with GSM observations across Victoria.

Findings from the flora monitoring within the Grassland Habitat Restoration Project suggest that Tussock replacement does re-introduce a range of native species more quickly than other treatments, but that is moderated by the re-introduction of many introduced species at the same time. Additional monitoring is required to determine longer term effects of treatments.

GSM adult surveys were conducted within the construction corridor and adjacent property/road reserve during December 2010/January 2011. No adult GSM were detected. This is in comparison to a total of 272 adult moths observed during November/December 2009. The difference may be partially attributable to the lesser amount of surveys undertaken at ‘appropriate’ times of the year during the 2010/2011 flight season. However, other contributing factors could include the less suitable weather conditions for GSM in 2010/2011 compared to previous years, and also the tall dense regrowth along the construction corridor within some of the properties as a result of intensive post-construction reinstatement. Some instances of cattle grazing may also have influenced the GSM results.

A total number of 251 adult GSMs were observed across the broader Sheoak property (i.e. not including the ROW) during the six monitoring surveys undertaken during November/December 2010 and January 2011. This is in comparison with over 1800 in the previous 2009/2010 flight season.

4.4.1.4 Discussion

Even though GSM numbers were substantially lower compared to the first Post-construction season, and the results of the experimental procedures have not produced clear-cut findings, the Alliance believes that there has been some important information learnt about how the species responds during a year of above average rainfall. Namely:

- There can be substantially differing time of emergence from year-to-year
- The conclusion of the 'flight season' can be well beyond 'early-January'
- The emergence of adults appears to be reduced in years of above average rainfall, although it is uncertain if this is due to the rainfall that occurred before or during the flight season (or both).
- It is possible that GSM had been able to establish in some low-lying areas during consecutive years of below average rainfall, but may have been removed from these areas (or at least considerably depleted) following the flooding and/or heavy rainfall during the 2010/2011 season.

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

- "Post Construction Golden Sun Moth Monitoring Results 2010 – 2011 Flight Season SPA-REP-GL-ENV-0050" (Appendix B),
- "Post Construction Restoration Project Experiment: Flora Monitoring Results 2009-2011 SPA-REP-GL-ENV-0068" (Appendix C),
- "Post Construction Habitat Slab Experiment: Flora Monitoring Results 2009-2011 SPA-REP-GL-ENV-0069" (Appendix D),

4.4.2 Striped Legless Lizard Habitats

Pre-construction and construction monitoring of SLL has been reported in the 2010 Annual report to DEWHA.

Post Construction Monitoring for SLL across the SLL monitoring sites (Seven locations within the construction corridor where five or more SLL were captured), began in May 2010 and will be completed in January 2012 (Two years after the SLL release). At the Sheoak property the SLL monitoring will continue for a further three years.

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;
- 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.

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 5 rows of 10 shelters, with each shelter placed 5 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 three occasions during the period 1 July 2010 – 30 June 2011.

- The shelters were all checked by ecologists in mid-October 2010. No SLL or other vertebrate fauna species were detected underneath the shelters;
- The shelters were all checked by ecologists in mid-November 2010. No SLL were detected underneath the shelters. Two small skinks were seen basking on top of two shelters but disappeared into nearby grasslands upon approach by the ecologists.
- The shelters were all checked mid-December 2010. No alive SLL were detected underneath the shelters however one dead reptile (probably *Delma impar*) was detected under one shelter. Three eastern brown snakes, four spotted marsh frogs and a Blue tongue lizard were also detected under the shelters.
- Further checks of these shelters occurring broadly across the Sheoak property are to occur on four occasions (July, October, November and December) throughout 2011, 2012, 2013 and 2014.

A further 6 grids will be 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 one grid on properties 302.1, 26/28 and 326, and two grids on each of 327 and 328. As per the Sheoak property, each grid comprises 50 evenly spaced wooden shelters. For the first three 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 three occasions during the period 1 July 2010 – 30 June 2011. In summary:

- Small numbers of skinks (mostly Garden Skinks *Lampropholis guichenoti*) were detected underneath numerous shelters across most properties during the October 2010 check of the shelters, and at property 26/28 during the November 2010 check of the shelters. An eastern brown snake was also detected at property 327 North during October 2010;
- During the December 2010/ January 2011 check a common species of skink (Garden Skink *Lampropholis guichenoti*) and Spotted marsh Frog (*Limnodynates tasmaniensis)* were detected.

In addition:

- Following heavy rainfall and flooding through late winter and early spring, 14 of the shelters at property 26/28 were found to have washed away prior to the October 2010 checks. Another 10 shelters were found but had been washed out of position. Following the November 2010 checks of the remaining shelters at this location, all of the shelters were moved nearby to slightly higher ground, and new shelters were installed to replace those that had been lost;
- In September 2010, there was an unanticipated need to undertake emergency resowing of bare land where reinstatement had not been successful (on a very small scale). This included some areas on property 328, which were in close proximity to some of the shelters. An ecologist checked these shelters prior to the commencement of resowing. No SLL or other fauna were detected in the shelters occurring adjacent to the resowing, but one SLL was detected underneath a shelter in the adjacent roadside area. Appropriate details were documented for the lizard (while on site), and it was then released;

- Slashing of grasses along roadsides has resulted in the loss of ten shelters at 302.1 and 1-2 shelters elsewhere. New shelters have been placed in nearby locations less likely to be damaged by future roadside slashing.

Further checks of all of these shelters occurring in locations where five or more SLL were detected during the course of the project are to occur on four occasions through 2011 (July, October, November and December). A full report will be prepared at the conclusion of the two years monitoring.

It is difficult to draw any conclusions from the results of the first year of 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.

Further details, results and maps of the SLL monitoring surveys are included in the report "2010 Post Construction Monitoring Report - Striped Legless Lizard SPA-REP-GL-ENV-0047" which is attached as Appendix E.

4.5 Aquatic Surveys

A total of 143 fish were collected as part of post construction surveys throughout 2010/11, belonging to 11 species. Two-spined blackfish (*Gadopsis bispinosus*) was the most abundant native species sampled within Yea River. Brown Trout (*Salmo trutta*) was the most abundant exotic species sampled within the Yea River and Carp (*Cyprinus carpio*) were the most abundant exotic species recorded in the Goulburn River.

A single Macquarie Perch (*Macquaria australasica*) was recorded at a site downstream of Devlins Bridge in November 2009. In the subsequent post construction monitoring undertaken in 09/10 and 10/11 no further Macquarie Perch were recorded however efforts to monitor this particular population were hindered by property access issues and high flow events within the Yea river.

No Murray Spiny Crayfish (listed as threatened under FFG Act 1988) were recorded in the Yea River during the 2010/2011 aquatic surveys.

Since 2007 a number of catchment scale events have interrupted the sampling regime for this project and are likely to have influenced the data. In 2009-2010 bushfires completely destroyed the upper Yea river catchment, resulting in large amounts of ash being deposited into the Yea River and its tributaries. In 2010-2011 an unusually

wet summer significantly impacted on the sampling effort. Attempts were made to conduct surveys in November 2010, January and February 2011 however due to high river flows the sampling was postponed and completed in June 2011.

The 2 years of post construction monitoring surveys as required under the species mitigation plan are now complete. 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 is minor compared with the catchment scale impacts caused by the 2009 fires.

Further details and results of the Aquatic Surveys are included in the report "Sugarloaf Pipeline Project: Aquatic Ecology – Fish Survey Results" which is attached as Appendix F.

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. Maps showing the location of MFL patches throughout the project have been included as Appendix G.

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 has been 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 Matted Flax-lily has commenced. The monitoring report "Matted Flax-lily (*Dianella amoena*) Translocation: Monitoring Spring/Summer 2010/2011" is attached in Appendix H. The next monitoring report Spring/Summer 2011/2012 is due in February 2012 and will be reported on in the 2012 Annual Report.

The monitoring carried out during Spring/summer 2010-2011 found that:

- Good (acceptable) survival of the *Dianella amoena* plants translocated, with only 5% mortality of the plants which is minor in the opinion of the specialist.
- The performance of the plants, that is growth and flowering, has also been good with only 35% without inflorescences or infructescences. This is judged to be an acceptable rate of flowering/fruiting.

- Flowering has extended beyond the usual October – January flowering period into March and the number of fruits produced indicates natural pollination is occurring.
- Overall plant growth including exotic and native plants at the site has been quite prolific in sections. Presence of some exotic species such as Brown-top Bent, present a major threat to the planted Matted Flax-lily and require weed control.

The in-situ sub populations on Gulf road were intended to be monitored but on the inspection in February 2011, no evidence of Matted Flax-lily was seen. Several reasons may be behind this:

- Most of the site was slashed and of that remaining unmown, most was covered by a dense growth of exotic grass (predominantly Cocksfoot (*Dactylis glomerata*)
- Growing conditions this year have been extraordinarily favourable for weed growth particularly on the fertile soils locally.

The specialist concluded that *Dianella amoena* could easily fall extinct on these highly vulnerable road reserve populations.

Patch 8 is located within a patch of remnant vegetation on the west side of the Melba Highway. A portion of this patch was removed without authorisation in March 2009 and was identified in the 2008/2009 Annual report to DEWHA. In agreement with DSE and DEWHA the plants collected without authorisation were returned to their patch. The patch is considered likely to persist at the current location, based on monitoring to July 2009 and advice from MFL Specialist Geoff Carr. Monitoring was not undertaken during 2010/11 but will be monitored over 2011/12 and reported on in the 2012 Annual Report.

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 2011, this did not occur. 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 rational 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. As detailed in the Matted Flax-Lily monitoring reports the translocated plants have established very well and have performed as well as any expectations would envisage; they are thriving even with strong weed competition.

Further details and results of the MFL monitoring surveys are included in the report "Matted Flax-lily (*Dianella amoena)* Translocation: Monitoring Spring/Summer 2010-1011" which is attached as Appendix H.

5 Conclusion

5.1 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, with the exception of one breach of condition 11(b).

Melbourne Water breached maximum permissible variation in daily pumping on 8 September 2010 when pumping was ceased for the day (from 300 ML/day) in the face of heavy rain and to help balance water harvesting rates across its system. As the flow in the Goulburn River was very high at this time (16,000 ML/d), one would expect that the resultant fluctuations in river level would have had minimal impact on river health. Procedures have now been put in place to ensure appropriate 'ramping-down' occurs if the pipeline is shut-down during normal operation in the future.

Three EPBC Listed species have been located in the construction ROW:

- 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.

There was one minor breach of biosecurity procedures. However, because of the multiple steps in the biosecurity procedures it is the view of the Alliance that the additional risk of pathogens being spread is low.

A large population of SLL was detected, and appropriate measures have been implemented throughout the project. One year of post-construction monitoring has been completed with no alive SLL observed in the monitoring grids to date. The second year of post-construction monitoring will be complete in December 2011. Monitoring will continue for a further three years (until December 2014) on the Sheoak property.

Large populations of GSM have also been detected. Monitoring to date has provided variable results for the different Habitat Replacement Experiment Slab plots, but generally shows evidence of more GSM in these plots than in the Grassland Restoration Project plots. Monitoring of GSM has been completed for two flight seasons following construction, and will continue for five flight seasons post construction 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 during 2010 and 2011.

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: Noncompliance Reports Relating to EPBC Approval Conditions

EMP SECTION	Date Raised	ALLIANCE NONCOMPLIANCE REPORT	ALLIANCE RESPONSE
All	10/6/11	Personal Biosecurity was only performed on entry to properties not on exit as required under the biosecurity procedure.	As biosecurity was done prior to entry to each property the risk of spread of diseases between properties was negligible. Alliance members were made aware of the correct biosecurity procedure and are now completing on entry and exit.

* Non-compliances with Condition 11(b) are not included in the table above but are detailed in Section 3.2.

Appendix B: (Attached)
Post Construction Golden Sun Moth Monitoring Results 2010 – 2011 Flight Season

Appendix C: (Attached)
Post Construction Grassland Restoration Experiment: Flora Monitoring Results 2009-2011

Appendix D: (Attached)
Post Construction Habitat Slab Experiment: Flora Monitoring Results 2009-2011

Appendix E: (Attached)
2010 Post Construction Monitoring Report – Striped Legless Lizard

Appendix F: (Attached)
Sugarloaf Pipeline Project: Aquatic Ecology-Fish Survey Report

Appendix G: (Attached)
Maps of MFL Locations

Appendix H: (Attached)
Matted Flax-lily (Dianella amoena) Translocation: Monitoring Spring/Summer 2010-2011

Appendix I: (Attached)
Audit of Water Savings NVIRP