



LILYDALE PIPELINE PROJECT

NET GAIN & FLORA ASSESSMENT OF 130-132 AND 175 VICTORIA ROAD

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1 INTRODUCTION

1.1 Background

Jemena Asset Management (6) Pty Ltd ('Jemena') has been engaged by Multinet Gas Pty Ltd ('Multinet') to deliver the Lilydale Pipeline Project. The proposed pipeline will commence near the intersection of Maroondah Highway and Victoria Road, Lilydale (Melways ref: 38 A6) and travel in a northerly direction to pass under the Yarra River and terminate at the Yarra Glen City Gate at the intersection of Yarraview and Glenview Roads, Yarra Glen, a distance of about ten kilometres.

Monarc Environmental Pty Ltd ('Monarc') has undertaken a flora and fauna assessment of the project area to identify any risks to significant flora and fauna values within the area (Monarc Environmental 2010, Monarc Flora and Fauna Assessment 2010). The flora and fauna report documented the

- Findings of the flora and fauna survey;
- Identified suitable locations for the pressure reduction station;
- Recommended targeted surveys for selected flora and fauna;
- Advised on the potential pipeline location and route.

However since then another two properties have been identified as suitable locations for the Pressure Reduction Station and this supplementary report documents the Net Gain assessment and flora and fauna values of these properties.

This supplementary report should be read in conjunction with the Environment Report (Monarc 2010) & Flora and Fauna Assessment (Monarc 2010) both completed by Monarc for Jemena.

1.2 Previous Assessments

An ecological assessment was conducted in 2010 and information from available reports and databases maintained by the federal Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) and the Victorian Department of Sustainability and Environment (DSE) was reviewed (Monarc Environmental 2010). This found that a number of threatened species/communities have been listed in the region to be traversed by the proposed gas pipeline route.

A walk-through survey of the proposed construction corridor for the entire pipeline was undertaken by two experienced ecologists from Monarc in June/July 2010 (Monarc Environmental 2010). The inspection assessed the flora and fauna values of the proposed construction footprint for suitable habitat for threatened species that may occur in the area.

The survey identified potential habitat for threatened species at a number of locations along the proposed route. As a result, the following surveys were undertaken in suitable areas:

- A targeted survey for a number of threatened flora species in a portion of the proposed construction area north of the Yarra River;
- A targeted survey at a number of drainage channels, billabongs and constructed wetlands along the proposed alignment for the Growling Grass Frog (*Litoria raniformis*);
- A targeted survey at a number of drainage channels, billabongs and constructed wetlands along the proposed alignment for the Dwarf Galaxias (*Galaxiella pusilla*).

The flora and fauna study of the proposed alignment assessed both sides of Victoria and Glenview Roads. The area assessed extended from the centreline of the road to the property boundary fence on each side of the road.

Where the Pressure Reduction Station was proposed, the assessment of these areas included the first 100m of each property. The properties assessed included the Lilydale Memorial Park, 171 Victoria Road and 175 Victoria Road. The previously surveyed Lilydale Memorial Park was the preferred location; however this is unlikely to proceed. Property 171 Victoria Road was excluded due to a drainage channel and indigenous vegetation. Property 175 Victoria Road was excluded

initially due to transmission powerlines bisecting the property. Property 175 has been re assessed and is included in this assessment.

The CSR quarry located next to the Lilydale Memorial Park was not assessed in the initial flora and fauna study. This property is located at 130-132 Victoria Road

1.3 Study Area

The study area is located between Lilydale and Yarra Glen, about 35km east-north-east of the Melbourne CBD. The proposed pipeline originates at the existing Multinet Lilydale Regulator Station on the north side of the Maroondah Highway at its intersection with Victoria Road (Melways ref: 38 A6). It then runs in a northerly direction along Victoria Road for a distance of approximately 8km before turning north-east to pass under the Yarra River and continue in a northerly direction along Glenview Road to finish at the existing APA Group Yarra Glen City Gate.

The three proposed options for the Pressure Reduction Station lie approximately midway along the alignment between Switchback and Coldstream West Roads.

1.4 Scope of Works

Assess the quality of vegetation found in the

- CSR Quarry located at 130-132 Victoria Road;

Assess the quality of vegetation and conduct a net gain/habitat hectare assessment of the vegetation found at the entrance to the quarry (The quarry is located next to and north of the Lilydale Memorial Park).

The assessment area included the front 50 x 56 metres of the property south of the driveway to the south side fence bordering the Lilydale Memorial Park. Refer to Figure 2

- 175 Victoria Road:

Reassessment of the vegetation assessed in the preliminary flora and fauna survey. The area assessed measured approximately 100m x 160m. Refer to Figure 3

Provide a Net gain/habitat hectare assessment of the vegetation found in the naturestrip outside 175 Victoria Road. Refer to Figure 3.

- Make recommendations for any vegetation offsets required under the Native Vegetation Management Framework within the areas defined above.

2 FLORA SURVEY & NET GAIN ASSESSMENT

2.1 Ecological Vegetation classes

The project area lies on the north-eastern outskirts of Melbourne within the valley of the Yarra River. The river rises in the rugged forests of the southern slopes of the Great Dividing Range approximately 40 kilometres to the east of Warburton and flows for approximately 245 kilometres westwards to Port Phillip.

Over one third of Victoria’s native plant and animal species occur in the catchment. The Yarra River between Warburton and Warrandyte has been identified as a Victorian Heritage River. As a result, the Yarra River Valley is considered a significant landscape classified by the National Trust.

Modelling of the distribution of vegetation units, or Ecological Vegetation Classes (EVCs), has been undertaken by DSE and remnant units expected in the local area are summarised in ‘Table 1’ and Figure 1.

Table 1: Ecological Vegetation Classes within Local Area

EVC Number and Name	Highlands Southern Fall Bioregion Status	Sighted Within Survey Area
47 Valley Grassy Forest	Vulnerable	No
56 Floodplain Riparian Woodland	Endangered	No
126 Swampy Riparian Complex	Endangered	No
164 Creekline Herb-rich Woodland	Vulnerable	No

Prior to European settlement, the original vegetation type in the southern portion of the pipeline route is expected to have consisted largely of Valley Grassy Forest interspersed with Herb-rich Woodland along minor creek lines. At the northern end of the route, towards the valley floor, the area was probably dominated by Swampy Riparian Complex with Floodplain Riparian Woodland bordering the river. Areas to the east and west also contained patches of Plains Grassy Woodland (EVC 55), Grassy Dry Forest (EVC 22) and Grassy Forest (EVC128).

Following extensive land clearing for both urban and pastoral development, historic EVC classes have been vastly reduced in size and distribution, resulting in habitat fragmentation and loss of biodiversity. Valley Grassy Forest has been reduced to fragmented patches and roadside corridors while Herb-rich Woodland may exist in minor patches bordering drainage lines. Fragments of Swampy Riparian Complex may still remain in the lower parts of the route while remnants of Floodplain Riparian Woodland are found in Spadoni’s Reserve and along the riparian zone of the Yarra River.

The two ecological vegetation classes presently mapped within the vicinity of the two options for the proposed Pressure Reduction Station are described as follows:

- EVC 47 Valley Grassy Forest is an open forest, generally to 20m tall, with a variety of eucalypts over a sparser shrub middlestorey. The species generally prefer moist or more fertile conditions and in season a rich array of herbs, lilies, grasses and sedges can dominate the ground layer although, in drier conditions, the ground layer may be sparse and less diverse. Typical tree species include Yellow Box (*Eucalyptus melliodora*), Candlebark (*E. rubida*), Narrow-leaf Peppermint (*E. radiata*), Red Stringybark (*E. macrorhyncha*) and Long-leaf Box (*E. goniocalyx*).
- EVC 164 Creekline Herb-rich Woodland is a woodland or open forest to 15 m tall occurring on creek terraces and along shallow drainage lines with ephemeral flows. Soils are mostly alluvial deposits of seasonally wet sands and silts. The community is characterised by a sparse shrub layer above a grassy/sedgy understorey, often rich in herbs within the inter-tussock spaces. Typical tree species include Swamp Gum (*E. ovata*).

2.2 Net Gain Assessment

2.2.1 Methodology

The quality of remnant native vegetation is assessed using a methodology developed as part of the Native Vegetation Management Framework (DNRE 2002) and known as the Habitat Hectares scoring method (DSE 2004). The method is intended to provide an objective means of assessing the vegetation quality within any patch of remnant native vegetation by comparing the patch against benchmark criteria established by DSE for each recognized vegetation class. The resulting site condition score can then be used to generate the Net Gain requirements applicable under the Policy should clearance of the vegetation be shown to be unavoidable.

The final habitat hectare value for a particular patch of vegetation is a measure of both the quality (habitat score) and area of the vegetation. It is determined by multiplying the habitat score (converted to a decimal score out of 1 by the number of hectares in the habitat zone to obtain a score in 'habitat hectares'. It is purely a measure of the relative value of the whole zone being assessed.

Under the Native Vegetation Management Framework the Net Gain requirements are assessed based on the following:

- The quality of the vegetation to be removed (how representative the patch is considered to be of the vegetation class being assessed, as determined under the Habitat Hectares assessment method)
- The conservation significance of the vegetation to be removed (how rare or endangered the vegetation class is)

The conservation significance assigned to the EVC determines the Net Gain offset rate required to be applied for calculation of areas of vegetation compensation. The approach and criteria for determining conservation significance is outlined in the Framework. It utilises a combination of:

- The conservation status of EVC 47 within the bioregion
- The habitat score for each vegetation zone assessed

Note that the conservation status of the EVC is distinct from the conservation significance of the vegetation and is based on the rarity of the vegetation type within the bioregion as determined by DSE. The following bioregional conservation status applies to the vegetation in this assessment:

- Bioregional Conservation Status EVC 47 - Vulnerable

2.2.2 CSR Quarry

A survey of the CSR quarry at 130-132 Victoria Road has been undertaken on the 15th of February 2011 by two experienced ecologists from Monarc Environmental. The area surveyed was approximately 50m long x 56m wide. This is located at the entrance to the quarry and on the south side only and extends east 50m from the front fence and 56m wide and south of the driveway. Refer Figure 2.

The area assessed consists predominantly of an introduced ground layer with planted eucalyptus trees. There was very little indigenous understorey, apart from very small areas of Spear Grass (*Stipa sp*) located along the front fence, and one indigenous tree a Narrow-Leaf Peppermint (*Eucalyptus radiata* s.l.). This tree was surrounded by planted Blue Gums (*Eucalyptus globulus subsp bicostata*) Red Ironbark (*Eucalyptus sideroxylon*) with an understorey including Giant Honey Myrtle (*Melaleuca armillaris*), Bottle Brush (*Callistemon spp*), Variable Sallow Wattle (*Acacia mucronata*) and Blackwood (*Acacia melanoxylon*).

The understorey vegetation was dominated by Paspalum (*Paspalum dilatatum*), Toowoomba Canary Grass (*Phalaris aquatica*), Blackberry (*Rubus fruticosus* agg), Patterson's Curse (*Echium plantagineum*), Flatweed (*Hypochoeris radicata* L.), Spear Thistle (*Cirsium vulgare*), Fennel (*Foeniculum vulgare*), Panic Veldt Grass (*Ehrharta erecta*), Wild Carrot (*Daucus carota*), Mallow

(*Malva parvifolia*), Wild Radish (*Raphanus raphanistrum*), Scarlet Pimpernel (*Anagallis arvensis*), White clover (*Trifolium repens*), Montbretia (*Crocoshia x crocosmiiflora*), Sorrel (*Acetosella vulgaris*) and Haretail (*Lagurus ovatus*).

Due to the lack of indigenous understorey herbs, grasses, shrubs and trees the area assessed didn't meet the DSE benchmark for EVC 47 Valley Grassy Forest. The vegetation required for removal will therefore be assessed as scattered trees.

Small remnants of native vegetation (to be avoided during the proposed project) occur 100m east of the area assessed. This vegetation has been modelled as EVC 47 Valley Grassy Forest under the Biodiversity Information system maintained by DSE.

The *Port Phillip and Westernport Native Vegetation Plan* provides detail on the necessary response to clearing scattered trees. Because the Narrow-leaf Peppermint is indigenous and is 60cm in diameter its removal must be offset and the offset is based on Table 3.4C of the Native Vegetation Plan - *Offset requirements for the loss of scattered trees of various ages and sizes*. Under this method of assessment the removal of this tree requires an offset of one of the following:

Table 2: Offset Requirements -CSR Quarry

EVC No	Bioregional Conservation significance	Large Old Tree - Diameter at Breast height (DBH)	Assessed Tree size (DBH)	Offset Required Protect and Recruit	Offset Required Recruitment Only
47	Medium	70cm	60cm	Protect 1 medium old tree Recruit 15 new plants	Recruitment Only 35 new plants

Trees can belong to any EVC in the bioregion and the offsets are to be initiated within 12 months of the loss occurring.

2.2.3 175 Victoria Road

Property 175 Victoria Road has been proposed as a possible location for the Pressure Reduction Station. The assessment therefore covered the front 100m west of the eastern boundary and 160m south of the northern boundary of the property. Refer to Figure 3.

This property included a large dam with vegetation which has been provisionally assigned by DSE as having EVC 164 Creepline Herb-rich Woodland. However this vegetation community was not apparent. The property also has high tension powerlines bisecting the property.

The vegetation inside the property was predominantly introduced vegetation with small patches of indigenous vegetation along the Victoria Road fence near the Narrow-Leaf Peppermints in the road reserve. Spear Thistle (*Cirsium vulgare*) was the dominant plant along with Ox tongue (*Helminthotheca echioides*), Couch (*Cynodon dactylon*), Milk Thistle (*Silybum marianum*), Fescue (*Festuca arundinacea*), Mallow (*Malva parvifolia*), Ribwort (*Plantago lanceolata*), Fleabane (*Conyza* spp), Wimmera Rye Grass (*Lolium rigidum*), Wild Carrot (*Daucus carota*), White clover (*Trifolium repens*), Tall Wheat Grass (*Lophopyrum ponticum*) Dock (*Rumex crispus*) and Blackberries (*Rubus fruticosus* agg). The vegetation around the lake included the emergent indigenous Common Reed (*Phragmites australis*), Rush (*Juncus* spp), Typha (*Typha* spp) and Slender Knotweed (*Persicaria decipiens*).

The road reserve consisted of a similar vegetation community to the above species found inside property 175. The naturestrip also contains 5-10% indigenous vegetation including Wallaby Grass (*Austrodanthonia* sp), Spear Grass (*Stipa* spp) and Weeping Grass (*Microleana stipoides*). The indigenous grasses were predominantly along the fence near the two groups of trees. The five trees

have been identified as Narrow Leaf Peppermints (*Eucalyptus radiata subsp radiata*). These trees are multi stemmed and each tree is 40cm in diameter. One tree was approximately 90 metres south of the north east corner of the property. The other four trees were 150m south.

The *Port Phillip and Westernport Native Vegetation Plan* provides detail on the necessary response to clearing scattered trees. Because these trees are 40cm dbh Narrow-leaf Peppermints and are not within an EVC their removal must be offset based on Table 3.4D of the Native Vegetation Plan - *Offset requirements for the loss of scattered trees of various ages and sizes*. Under this method of assessment the removal of these trees requires an offset of one of the following:

Table 3: Offset Requirements -175 Victoria Road

EVC No	Bioregional Conservation significance	Large Old Tree - Diameter at Breast height (DBH)	Assessed Tree size (DBH)	Offset Required Protect and Recruit	Offset Required Recruitment Only
47	Medium	70cm	40cm		Recruitment Only 30 new plants for each tree removed

There are five trees in the naturestrip, all are Narrow Leaf Peppermints. If all trees are removed the offset required equals 150 plants. The trees can belong to any EVC in the bioregion OR to a very high or high significance vegetation/habitat in an adjacent bioregion.

3 RECOMMENDATIONS

Monarc was requested by Jemena to undertake a study of flora and fauna values associated with the CSR Quarry at 130-132 Victoria Road and 175 Victoria Road as possible locations for the Pressure Reduction Station and provide offset recommendations with respect to the findings of the supplementary survey.

3.1 CSR Quarry

The area surveyed in the CSR Quarry contained a number of planted eucalyptus trees with one indigenous tree (Narrow Leaf Peppermint). The middle and understorey were lacking diversity. As such this tree was assessed under the Native Vegetation Framework as a scattered tree. An offset is required for the removal of this tree. The offset required is either one of two options. One is protection of a medium old tree AND recruitment of 15 new plants. Two is recruitment only of 35 new plants.

3.2 175 Victoria Road

The area assessed inside the property fence of 175 Victoria Road didn't contain any EVC. The vegetation was predominantly introduced with only minor patches of indigenous grasses along the boundary fence near the Narrow Leaf peppermints in the naturestrip.

The naturestrip vegetation was predominantly introduced with only 5-10% indigenous vegetation which included Spear Grass, Weeping Grass (along the fence) and five Narrow Leaf peppermints. These trees may be avoided as they are at least 90 metres from the northeast corner of the property. If all trees are removed 150 indigenous plants must be offset. For each tree removed 30 new plants are required for offset.

3.3 Options for Offset Implementation

It may be possible to create either offset on site around the perimeter fencing of the pressure reduction station under agreement with the respective property owners. Alternatively an agreement may be reached with the Shire of Yarra Ranges to create either offset at Spadoni's Reserve. Either option will require discussion with Council.

4 REFERENCES

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5 STATEMENT OF LIMITATIONS

Monarc Environmental Pty Ltd ('Monarc') has prepared this assessment on behalf of Jemena Asset Management (6) Pty Ltd ('Jemena') for the Lilydale Pipeline Project.

Monarc has exercised care in checking and interpreting the data and information referred to in this report. The assessment has been designed in good faith in a manner that seeks to confirm the information available and test its accuracy and completeness. However, Monarc cannot guarantee the accuracy or completeness of that data and information. Accordingly, while our conclusions are based on the information available to us during our assessment of the Site, some of the conclusions could be different if the information upon which they are based is determined to be inaccurate.

Persons seeking to rely upon the report should only do so after seeking independent expert advice from appropriately qualified persons. The extent of any environmental risks associated with the site may vary significantly according to the proposed use or development of the site.

Therefore, any representation, statement, opinion or advice expressed or implied in this report is made in good faith but on the basis that Monarc, its agents and employees are not liable to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above.

Monarc disclaims any obligation to update the report for events taking place, information becoming available or known to us, after the preparation of this report.

Properties Assessed and EVC's in Area

FIGURE 1



- | | |
|--------------------------------------|---------------------|
| ROADS | WATERBODIES |
| Freeway | Watercourse Area |
| Highway | Permanent Waterbody |
| Main Road | Wetland Area |
| Secondary Road | Inundation Area |
| Local Road | BUILT UP AREAS |
| 2WD (Unsealed) | |
| 4WD Only | |
| Walking or Cycle Track | |
| UNNAMED DRAINAGE LINES | |
| ECOLOGICAL VEGETATION CLASSES | |
| 194 Creeklane Herb- | |

Disclaimer: This map is a snapshot generated from Victorian Government data. This material may be of assistance to you but the State of Victoria does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for error, loss or damage which may arise from reliance upon it. All persons accessing this information should make appropriate enquiries to assess the currency of the data.

Map Scale 1:10,290



Filename: LTYG AFS
Date drawn: 16 Feb 2011
Base Map: NearMap
Project: JAM1007
Version: 1.0
Not to Scale

Lilydale Pipeline Project Nat Gain/Habitat Hectare Survey @ CSR Quarry 130-132 Victoria Road

FIGURE 2
Net Gain Habitat
Hectare Survey @
130-132 Victoria
Road



Filename: LTYG AFS
Date drawn: 16 Feb 2011
Base Map: NearMap
Project: JAM1007
Version: 1.0
Not to Scale

Lilydale Pipeline Project Nat Gain/Habitat Hectare Survey @ 175 Victoria Road

FIGURE 3
Net Gain Habitat
Hectare Survey @
175 Victoria Road

APPENDIX A - PHOTOS



P07: CSR Quarry - survey area to the right of the driveway



P08: CSR Quarry - survey area to the right of the driveway



P09: CSR Quarry - from outside the front fence



P10: CSR Quarry - from outside the front fence



P11: CSR Quarry - from outside the front fence



P12: CSR Quarry - Naturestrip



P13: 175 Victoria Road



P14: 175 Victoria Road



P15: 175 Victoria Road



P16: 175 Victoria Road



P17: 175 Victoria Road



P18: 175 Victoria Road



P19: 175 Victoria Road



P20: 175 Victoria Road- Narrow-Leaf Peppermints



P21: 175 Victoria Road- Narrow-Leaf Peppermints



P22: 175 Victoria Road- Narrow-Leaf Peppermints



P23: 175 Victoria Road- Narrow-Leaf Peppermints



P24: 175 Victoria Road naturestrip.