SUSTAINABLE DESIGN MANAGEMENT PLAN

PROPOSED RECREATIONAL FLIGHT SCHOOL

1070 PRINCES HIGHWAY, FROGS HOLLOW

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Draft	24/04/2018	Karen Jamieson	Stephanie Anderson	Lizzie Olesen - Jensen
Final	01/05/2018	Stephanie Anderson	Lizzie Olesen - Jensen	Lizzie Olesen - Jensen

www.nghenvironmental.com.au e ngh@nghenvironmental.com.au

suite 1, 39 fitzmaurice st (po box 5464)
wagga wagga nsw 2650
t 02 6971 9696

unit 18, level 3, 21 mary st
surry hills nsw 2010 australia
t (02) 8202 8333

Suite 4, level 5, 87 wickham terrace
Spring hill qld 4000
t 07 3129 7633

7/11 union st
newcastle west nsw 2302 australia
t (02) 4929 2301

unit 8, 27 yallourn st (po box 62)
fyshwick act 2609 australia
t (02) 6280 5053

suite 1, 216 carp st (po box 470)
bega nsw 2550 australia
(02) 6492 8333

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1 INTRODUCTION

1.1 BACKGROUND

This Sustainable Design Management Plan (SDMP) has been developed in support of a development application for a proposed recreational flight school at 1070 Princes Highway, Frogs Hollow.

The Recreational Flight School is located on the western side of the Princes Highway in the locality of Frogs Hollow approximately 10 kilometres travel southwest of the Bega CBD. The location of the site with respect to the Bega CBD is shown in Figure 1 below.

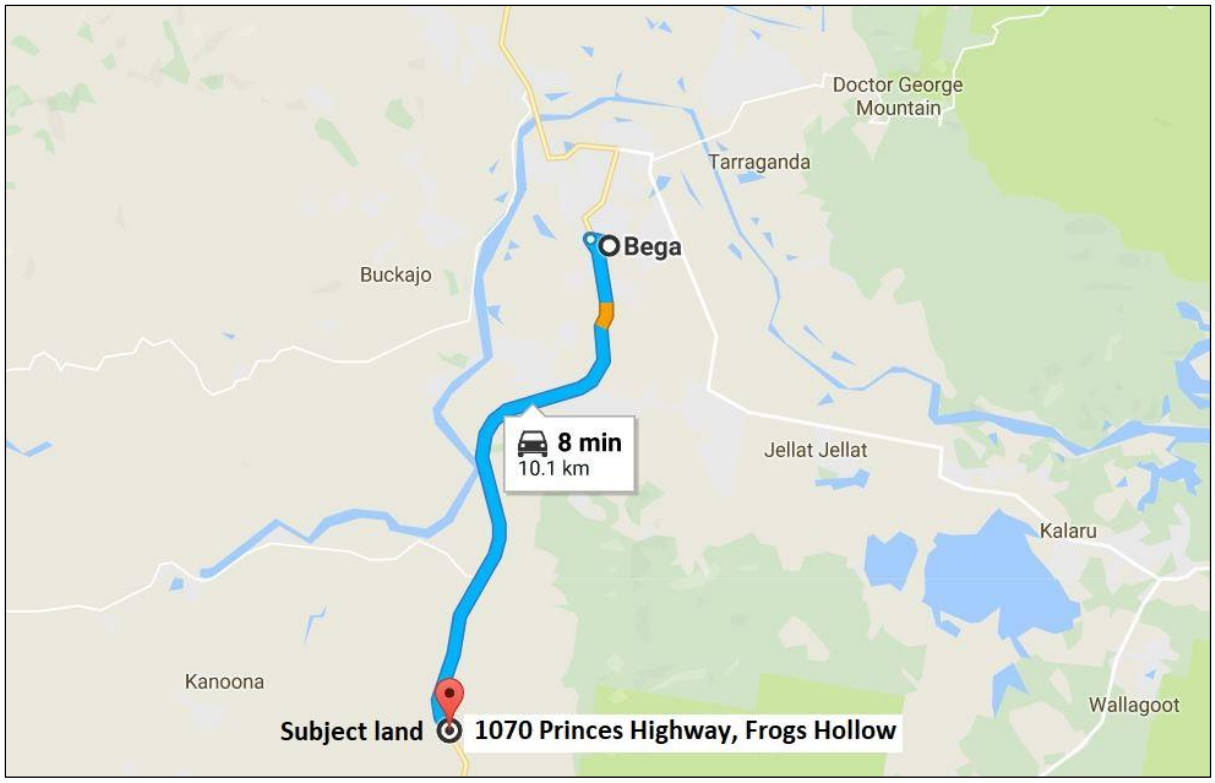

Figure 1: Location of the subject land (Source: Google Maps)

1.2 SCOPE OF THIS PLAN

This Sustainable Design Management Plan (SDMP) has been prepared in accordance with the requirements set out in Section 5.5 Sustainable Design Principles in the Bega Valley Development Control Plan 2013. Section 5.5 of the BVDCP requires all development in the Bega Valley Shire to implement sustainable design principles. The scope for the SDMP has not been provided by Council in this instance, as is indicated by Section 5.5.1.1. of the BVDCP.

This SDMP describes how the principles of Ecologically Sustainable Development (ESD) would be incorporated into the construction and operation elements of the proposed development of the recreational flight school.

Ecologically Sustainable Development is defined as "using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased" according to the National Strategy for Ecologically Sustainable Development.

2 APPLICATION OF SUSTAINABLE DESIGN PRINCIPLES

2.1 WATER RESOURCES

The sustainable water use objectives are to ensure the efficient use of water, reduce total potable water use, encourage the harvesting and reuse of stormwater and encourage the use of grey water where appropriate.

The proposed development would harvest all possible rainwater from the roofs of proposed buildings, for use as potable water. The water would be filtered and sterilised prior to use as outlined in the accompanying Fire Protection and Water Supply Addendum report.

Further, it is proposed that a component of wastewater would be recycled for re-use in WC flushing, reducing the overall reliance on potable water in an appropriate way.

The proposed buildings would also need to achieve the minimum efficiency standards contained within specialist Section J of the Building Code of Australia (BCA). This would necessitate the selection of water saving fixtures and water efficient appliances throughout the proposed buildings. This would be demonstrated by way of a Section J efficiency certification report, which would be provided with the construction certificate for the proposed development.

It is also proposed that any landscaped areas would establishing using low-water use native plantings that require minimal watering and maintenance. A landscape plan would be supplied for Council's consideration with the construction certificate.

Importantly, all landscaped areas would also be irrigated using treated effluent and not potable water, thereby reducing the potable water use and providing avenues for beneficial re-use of wastewater.

2.2 STORMWATER MANAGEMENT

The sustainable stormwater management objectives are to reduce the impact of stormwater runoff, to improve the water quality of stormwater runoff, achieve best practice stormwater quality outcomes and incorporate water-sensitive urban design principles.

The proposed development would be substantially consistent with water-sensitive urban design principles, given the intended harvesting of all possible rainwater from the roofs of proposed buildings, for use as potable water.

A detailed design plan for stormwater management would be supplied to Council with the construction certificate of the development, demonstrating compliance with stormwater runoff quantity and quality objectives. The proposed harvesting of a substantial proportion of rainwater will contribute to the achievement of limiting peak discharge volumes from the site.

The proposed onsite wastewater disposal is not considered to pose a concern for water quality in the locality. The onsite disposal of wastewater is common to all developments within the locality as there is no reticulated system to discharge to. The accompanying Onsite Wastewater Management Addendum report demonstrates that the subject site can accommodate the proposed wastewater management arrangements according to the parameters set in AS 1547 'On-site domestic wastewater management' and the Sydney Catchment Authority guideline 'Designing and installing on-site wastewater systems'. In

addition, the assessment determined there are several different disposal options and areas that would be satisfactory according to the above standards and so reliance on the runway for irrigation would be reduced. It is also noted that there are no waterways or watercourses within the subject site and buffers are maintained to surrounding ephemeral and intermittent watercourses.

2.3 WASTE MANAGEMENT

The sustainable waste management objectives are to ensure waste avoidance, reuse and recycling and ensure long-term reusability of building materials.

It is proposed to reuse a component of the wastewater generated for WC flushing, reducing the overall volume of wastewater to be disposed of.

It is proposed that wastewater would be reused on-site to maintain vegetative cover on the runways and on landscaped areas. The remainder of the wastewater would be disposed of on-site. The accompanying Onsite Wastewater Management Addendum report demonstrates that the subject site can accommodate the proposed wastewater management arrangements according to the parameters set in AS 1547 'On-site domestic wastewater management' and the Sydney Catchment Authority guideline 'Designing and installing on-site wastewater systems'.

A minimalist and modest design scheme has been adopted for proposed buildings. The form and style of the buildings is uncomplicated, which reduces the volume of building materials required and accordingly reduces the volume of construction waste (excess materials, offcuts and material packaging) that could be generated.

The proposed buildings could be fitted with bin systems that require waste stream separation. This would reduce the volume of waste for landfill and increase the proportion of recycling that occurs.

2.4 ECOLOGY

The sustainable ecology objectives are to protect and enhance biodiversity, provide sustainable landscaping, protect and manage remnant indigenous plant communities and encourage the planting of indigenous vegetation.

The accompanying Biodiversity Impact Assessment and Addendum report determined that the proposed development would not significantly impact diversity values of the land. It was determined that whilst 6.76 hectares of native vegetation (Lowlands Grassy Woodland EEC) would be impacted by infrastructure, there was an opportunity to actively conserve the remaining 35 hectares in perpetuity.

It is noted that the OEH database profile for the Lowlands Grassy Woodland EEC details a number of threats that are impacting on this community such as; passive land management, invasion by non-native plant species, dieback associated with Noisy Miner colonies, grazing by livestock and feral animals and the like. Each of these threats could be better managed or eliminated under the proposed development regime and controlled by conditions of consent and the implementation of a VMP. Actions included in the VMP would align with the Recovery Strategy in place for this vegetation community.

Whilst the existing passive land management techniques would avoid the initial vegetation clearing that would be associated with the proposed development, there are no actions being implemented that address the multitude of other identified threats included the OEH database profile.

It is also proposed that any landscaped areas would establishing using low-water use native plantings that require minimal watering and maintenance. A landscape plan would be supplied for Council's consideration with the construction certificate.

Any proposed tree removal could be offset using indigenous species plantings.

With all traffic within the site confined to formed access pathways, it is likely that natural regrowth of indigenous flora will occur over time. Temporary fencing would be installed during the construction phase to limit the disturbance area and to protect existing trees.

2.5 ENERGY

The sustainable energy use objectives are to ensure passive solar design including layout of buildings on the property, reduce energy peak demand, encourage renewable energy generation, reduce total operating greenhouse emissions and encourage building materials with low embodied energy.

It is noted that the electricity demands of the proposed development would not be significant as only single-phase electricity supply is required. Over time, this will be transitioned to solar power supply from photovoltaic panels installed on all buildings.

The proposed buildings would also need to achieve the minimum energy efficiency and thermal comfort standards contained within Section J of the Building Code of Australia (BCA). This would necessitate the selection of energy saving lighting fixtures, improving reliance on natural lighting over artificial lighting, energy efficient appliances throughout the proposed buildings, use of improved glazing for windows and doors and zoning for heating and cooling systems where possible. This would be demonstrated by way of a specialist Section J energy efficiency certification, which would be provided with the construction certificate for the proposed development.

2.6 INDOOR ENVIRONMENT QUALITY

The sustainable objectives are to achieve a healthy indoor environment quality for the wellbeing of building occupants, including the provision of fresh air intake, cross ventilation, natural daylight, external views and appropriate levels of lighting. Other objectives include minimising the need for mechanical heating and cooling, reduce indoor pollutants and minimise noise levels.

As indicated above, the proposed buildings would also need to achieve the minimum energy efficiency and thermal comfort standards contained within Section J of the Building Code of Australia (BCA). This would necessitate the selection of energy saving lighting fixtures, improving reliance on natural lighting over artificial lighting, energy efficient appliances throughout the proposed buildings, use of improved glazing for windows and doors and zoning for heating and cooling systems where possible. This would achieve consistency with the indoor environmental air quality objectives.

The proposed buildings would not be subject to adverse levels of internal noise during day time hours as indicated in the accompanying Noise Impact Assessment and noting that internal noise levels with window ventilation are typically accepted as at least 10dB(A) below external levels and further again with windows closed. Further, there would be no flight training conducted during the evening and night time so noise would not affect sleeping occupants.

2.7 TRANSPORT

The sustainable transport objectives are to ensure the building environment is designed to promote the use of walking, cycling and public transport in that order, to ensure accessibility for all ages and capabilities, to minimise car dependence, to promote the use of low-emissions technologies.

The proposed buildings have been clustered on the subject site, to provide for ease of walking about the site.

Given that the subject site is located 10km from the Bega centre and approximately 16km from the Merimbula centre, it would not be possible for employees to walk. There may be opportunities for cycling.

All students would be transported between the site and Canberra airport as well as to social outings and guided tours on buses. They would not have access to a private vehicle for the duration of their stay, so this would reduce the overall vehicle use.

As required by the Building Code of Australia, all buildings would be accessible for people with a disability.

All aircraft to be used as part of the proposed flight school would be fitted with a 4-stroke Rotax engine, which would use unleaded petrol, rather than aviation gasoline. This would have a beneficial impact on emissions. It is also noted that aviation emissions account for a low proportion of total emissions (1.24 percent of total emissions in 2011 were created by domestic aviation activity).

3 CONCLUSION

This Sustainable Design Management Plan (SDMP) has been developed in support of a development application for a proposed recreational flight school at 1070 Princes Highway, Frogs Hollow.

It has been prepared in accordance with the requirements set out in Section 5.5 Sustainable Design Principles in the Bega Valley Development Control Plan 2013.

This SDMP describes how the principles of Ecologically Sustainable Development (ESD) would be incorporated into the construction and operation elements of the proposed development of the recreational flight school. Ecologically Sustainable Development is defined as "using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased" according to the National Strategy for Ecologically Sustainable Development.

The SDMP demonstrates that the design of the proposed development and its ongoing operations give regard to the principles of Ecologically Sustainable Development (ESD) and incorporate measures that reduce the use of resources such as water and energy. The plan also provides evidence that the proposed development would be self-sufficient in many aspects and not place a burden on community resources.

There are opportunities to incorporate additional Ecologically Sustainable Development measures in the detailed design phase of the development.