Internal Memo

TO: Melissa Thomas, Station 14

FROM: Jenna Garwood

DATE: 12 April 2011

SUBJECT: DA 10/1770 – Rehabilitation of Melaleuca Swamp at Hunter Wetlands Centre Australia located at 434 Sandgate Road, Shortland and installation of drainage channel between Reed Marsh and Ironbark Creek

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Recommendation

The Compliance Services Unit (CSU) has reviewed this application and has no objections provided the following conditions are applied to address potential environmental impacts.

Proposal

The proposed development includes the rehabilitation of two areas of wetland habitat at the Hunter Wetlands Centre Australia site located at 434 Sandgate Road, Shortland. The proposed development includes two separate projects:

- Manage the water level and water quality in Melaleuca Swamp by pumping water from Melaleuca Swamp to the nearby Melaleuca plantation. The Melaleuca Swamp currently contains high levels of nutrients and experiences common algae blooms. The pumping of the nutrient-rich water from Melaleuca Swamp will aid in the natural cycling of the wetland. The pumping is proposed to be carried out annually, during January, for a period of two to three weeks.

- Excavation of a drainage channel through Ironbark Marsh to allow connection of Reed Marsh to the existing drainage line entering Ironbark Creek. In addition a flow control system will be installed between Reed Marsh and the adjacent section of Canoe Channel to enable surface water from upstream water bodies to bypass Ironbark Marsh and discharge directly into Canoe Channel. Tidal flap gates would also be maintained to prevent saline intrusion.

Documents reviewed

- Environmental Impact Statement, BMT WBM, October 2010
- Letter, BMT to Damien Jaeger, 20 January 2011-04-04
- Addendum to Environmental Impact Statement, BMT WBM, January 2011
- Second Addendum to Environmental Impact Statement, BMT WBM, March 2011

Discussion of Proposal

Flora and Fauna

The proposed development has the potential to impact on threatened native fauna that have been identified within the vicinity of the Hunter Wetland Centre Australia site. Identified species include the Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*), Australasian Bittern (*Botaurus poiciloptilus*) and Magpie Goose (*Anseranas semipalmata)* The Environmental Impact Statement prepared by BMT WBM dated October 2010 has undertaken an assessment of the potential impacts of the proposed development on the

identified threatened species listed under the *Threatened Species Conservation Act 1995* and found the proposed development is unlikely to result in significant impacts on any threatened species as the proposed works will not remove or modify any habitat potentially utilised by the individual threatened species. Furthermore, the proposed alterations to the hydrological flow are an effort to return the water regimes to conditions that more closely resemble the naturally occurring process. The return of a naturally occurring hydrological flow has the potential to benefit threatened species via native vegetation colonisation or expansion of habitat.

Melaleuca Swamp contains a vegetation assemblage that is considered to be Swamp Sclerophyll Forest, which is identified as an endangered ecological community (EEC) under the *Threatened Species Conservation Act 1995*. Melaleuca Swamp is also a wetland considered under *State Environmental Planning Policy (SEPP) 14 – Coastal wetlands*. Melaleuca Swamp currently experiences a prolonged or permanent hydroperiod due to earthworks conducted on the site in the mid 1980s. The prolonged inundation of Melaleuca Swamp has contributed to seasonal blooms of algae and cyanobacteria as well as the death of *Melaleuca quinquenervia* trees. The permanent inundation has also impeded wetland plant regeneration from seeds and nutrient assimilation. The proposed works would facilitate better nutrient breakdown, germination and growth of wetland plants. Therefore, the proposed drainage of Melaleuca Swamp is unlikely to impact upon the EEC, due to no removal of vegetation, and may potentially benefit the vegetation community.

Melaleuca Swamp is an important conservation site due to the seasonal presence of various waterbirds. The proposed alterations to the existing hydrological pattern and associated changes to existing habitat raises concerns that a seasonally dry wetland may reduce the quality of the area for nesting by a number of migratory waterbird species. In order to prevent any disruption to nesting the draining of Melaleuca Swamp will not occur until after breeding has commenced and is well established in any year. This mitigation measure will be incorporated into an Operations Management Plan (OMP) and addressed by an appropriate condition of consent.

The proposed drainage channel from Reed Marsh crosses a coastal freshwater wetland, which is identified as an EEC under the *Threatened Species Conservation Act 1995*. However, a seven part test has demonstrated there will be no significant impact on this EEC as the proposed development will result in no reduction in habitat and the alterations to the water flow will resemble a more naturally occurring hydrological process. The OMP will include mitigation measures to manage volumes and pollutant loads within the wetlands and watercourses as a result of the proposed development.

Water quality

The proposed pumping of Melaleuca Swamp has the potential to discharge high concentrations of nutrients and algae into the surrounding wetlands and watercourses. The discharge of nutrients and algae into a watercourse may potentially be considered pollution of waters under the *Protection of the Environment Operations (POEO) Act 1997* (POEO Act). The Second Addendum to Environmental Impact Statement prepared by BMT WBM in March 2011 proposes to manage/prevent water pollution by preparing an Operations Management Plan (OMP) outlining the operational protocols for both rehabilitation strategies that will enable Hunter Wetlands Centre Australia to complete the proposed activities without committing an offence under the *POEO Act 1997*. The requirement for preparation and implementation of the OMP will be addressed by an appropriate condition of consent.

Environmental monitoring

The Addendum to Environmental Impact Statement prepared by BMT WBM in January 2011 outlines a monitoring program which will be undertaken to assess and manage the impacts/success of the proposed hydrological changes. The monitoring program will encompasses monitoring not only from a hydrological/nutrient perspective, but includes

potential (micro)biological and ecological changes in the wetland environment as well. The monitoring program will include baseline data (most of which had already been collected) and will be contained within the overall OMP.

Contamination

The proposed drainage channel between Reed Marsh and the existing drainage connection is located near a disused rubbish tip. The Hunter Wetlands Centre Australia site also contains fill material from previous filling practices. Soil sampling was undertaken in the area of the proposed drainage channel. Soil sampling revealed no elevated levels of contaminants within the drainage channel development footprint. Therefore, the project is not expected to result in the disturbance or removal of any contaminated material.

Acid sulfate soils

Acid sulphate soils were identified within soil samples taken from Melaleuca Swamp at depths of between 150 to 300mm. However, excavation is not proposed within Melaleuca Swamp and actual acid sulfate soils would not be exposed beyond existing natural water level variability. Samples collected within the vicinity of the proposed drainage channel from Reed Marsh revealed acid sulfate soils were not present and were unlikely to result in acid water discharge. As a precautionary measure an Acid Sulfate Soil Management Plan (ASSMP) has been prepared. The ASSMP contains the following information:

- Management of acid water generated on site;
- Measures to remove or neutralize any potential acid sulfate soils
- Procedures and protocols for leachate and sediment control;

The requirement for implementation of the ASSMP will be addressed by an appropriate condition of consent.

Noise

Noise impacts with the proposed development relate primarily to the construction of the drainage channel and the draining of the Melaleuca Swamp using a portable pump. The construction of the drainage channel may generate potential noise impacts for existing residential dwellings located along Blanch Street. However, the distance of the proposed construction site to residential dwellings and short construction time (approximately four weeks) will reduce potential construction noise impacts and not significantly impact upon the existing acoustic environment.

Draining of the Melaleuca Swamp is proposed to be undertaken annually for a period of approximately 3 weeks. Draining of the Melaleuca Swamp will be conducted with a portable pump operating a maximum of 12 hours a day. The proposed pump is a quiet solution pump that limits pump operation noise to a level of 62dBA (at a distance of 7m). Due to the pump, when in use, being located a significant distance from residential dwellings no adverse noise impacts are expected.

Odour

The existing primary source of odour at the site is waste matter, from the roosting bird population located primarily around Melaleuca Swamp, entering the wetlands. The proposed draining of Melaleuca Swamp may result in potential short-term odour generation from exposure of sediment and release of anaerobic gases. To mitigate potential odour impacts the OMP will include a water level control strategy that minimizes the need for complete exposure of bottom sediments. The controlled exposure of sediment via water level control will reduce odour in the short term and the project will result in an appreciable reduction in odour from Melaleuca Swamp in the long-term. The requirement for preparation of the water

control strategy within the OMP and implementation over the course of the development will be addressed by an appropriate condition of consent.

Conditions of Consent

Standard Conditions

5.100
5.105
5.139
5.141

Additional Conditions

- Prior to the commencement of operation of the proposed development, the proponent must prepare and implement an Operations Management Plan (OMP) to monitor and assess the impact of the project on the surrounding environment. The OMP must be submitted to Council prior to the commencement of operation of the proposed development and shall include, but not be limited to:

  (a) A environmental monitoring program identifying strategies, sampling design, surveying and reporting requirements for assessment of the following environmental indicators

  - Water levels within Melaleuca Swamp, Reed Marsh and surrounding watercourses
  - Water quality within the wetlands and surrounding watercourses utilising parameters such as dissolved oxygen, salinity, pH, turbidity, temperature and nutrients
  - Changes in vegetation including variation in community types, species and condition and changes to vegetation over time
  - Changes to presence or distribution of fauna, including microbiological organisms, fish, amphibians, terrestrial fauna and avifauna

  (b) A water level control strategy outlining measures that will enable the project to be completed without generating water pollution. The water level control strategy shall include.

  - Maximum sustainable application rates of water pumped to the melaleuca plantation and long-term pumping schedules. Indicators for cessation of pumping should be defined.
  - Site management measures to prevent artificial discharges to Ironbark Creek and Canoe Channel. Monitoring should be conducted in both Ironbark Creek and Canoe Channel to allow assessment of volume changes and nutrient loads.

Reason: To prevent environmental pollution and harm to flora/fauna and to ensure compliance with the relevant provisions of the *Protection of the Environment Operations Act 1997*.

- All vegetated areas outside the boundaries of the proposed development being kept free from disturbance of machinery, parked vehicles and waste material.

Reason: To prevent environmental pollution and harm to flora/fauna and to ensure compliance with the relevant provisions of the *Protection of the Environment Operations Act 1997*.

- Any fill material imported into the site being Virgin Excavated Natural Material or material subject to a Resource Recovery Exemption that is permitted to be used as a fill material, in accordance with the provisions of the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment (Waste) Regulation 2005.*

Reason: To ensure that any imported fill is of an acceptable standard for environmental protection purposes.

- Any fill material subject to a Resource Recovery Exemption received at the site must be accompanied by documentation demonstrating that material's compliance with the conditions of the exemption, and this documentation must be provided to Council officers or the Principal Certifying Authority on request.

Reason: To ensure that any imported fill is of an acceptable standard for environmental protection purposes.

- Any excavated material to be removed from the site being assessed, classified, transported and disposed of in accordance with the Department of Environment and Climate Change's (DECC) '*Waste Classification Guidelines Part 1: Classifying Waste'*.

Reason: To prevent environmental pollution and to ensure observance of appropriate health standards.

- Appropriate erosion protection and soil stabilisation measures being designed and implemented during site works in accordance with the requirements of the *Managing Urban Stormwater: Soils and Construction 4th Edition - Vol. 1* (the "Blue Book") published by Landcom, 2004.

Reason: To control soil erosion and prevent sedimentation of surrounding lands both private and public.

- The proposed development being carried out in accordance with Acid Sulphate Soils Management Plant (ASSMP) prepared by the HWC dated 2010

Reason: To ensure appropriate management of Acid Sulphate soils and to protect the environment of the locality

Please advise the writer if it is necessary to expand on any of this information to contact Compliance Services. If you have any queries regarding the above or wish to discuss the matter please contact (02) 4974 2546.

Jenna Garwood
Environment Protection Officer
COMPLIANCE SERVICES