Submissions Report

STATE SIGNIFICANT DEVELOPMENT SSD-6026

Milk Processing Facility
111-113 Quarry Road, Erskine Park

28 November 2013

Devondale
MURRAY GOULBURN CO-OPERATIVE CO. LIMITED

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Prepared for **Murray Goulburn Co-operative Co. Limited**

Contents

Glossary & Abbreviations

Biodiversity Corridor	Natural areas within the Erskine Park Employment Area that are owned by DP&I and managed by Greening Australia.
Blue Book	Landcom, 2004, Managing Urban Stormwater: Soils and Construction (Volume 1, 4th edition)
CPESC	Certified Professional in Erosion and Sediment Control
Cut	An excavation for constructing below the natural ground level
Dewatering	Removal or draining of surface water or groundwater from construction site including excavations
DGRs	Director-General's Requirements for the Environmental Impact Statement
DP&I	NSW Department of Planning and Infrastructure
Early Works Package	Works which comprise of critical works required prior to the construction of the Proposal. These works include the bulk earthworks and piling which are necessary for preparing the site.
EIS	Environmental Impact Statement
EPA	NSW Environment Protection Authority (former name of NSW Office of Environment and Heritage)
EP&A Act	NSW Environmental Planning & Assessment Act 1979
EP&A Regulation	NSW Environmental Planning & Assessment Regulation 2000
EPL	Environment protection licence
Fill	Earth used to construct an embankment or raise the existing level of the ground
GDEs	Groundwater Dependent Ecosystems
GRC	George Rydell Constructions Pty Ltd
HDPE	High-density polyethylene
LEP	Local environmental plan
LGA	Local government area
MGC	Murray Goulburn Co-operative Ltd
NOW	NSW Office of Water
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
PESCPs	Progressive erosion and sediment control plans
POEO Act	NSW Protection of the Environment Operations Act 1997
POEO CA Regulation	Protection of the Environment Operations (Clean Air) Regulation 2002
PPV	Peak particle velocity
Proposal	The Proposal would involve the construction and establishment of a milk processing facility on industrial land at 111-113 Quarry Road, Erskine Park.
Proposal Area	The area in which the Proposal would operate and be constructed.
Riparian	Relating to the bank of a river or other water body
RMS	NSW Roads and Maritime Services
Salinity	The salt content of soil or water
SEPP	State Environmental Planning Policy

SEPP SRD	State Environmental Planning Policy (State and Regional Development) 2011
Site Compound	Area enclosing construction machinery, materials and site offices usually adjacent to construction sites
Spoil	Excess rock and/or earth material resulting from excavation activities
SSD	State Significant Development
SWMP	Soil and Water Management Plan
Wastewater System	System used to remove fats, oils and greases (FOG) and adjust the pH of wastewater generated by the Proposal in order to meet the trade waste discharge criteria
WM Act	NSW Water Management Act 2000

1. Introduction

1.1. The Proposal

Murray Goulburn Co-operative Limited (MGC) (the Proponent) prepared and submitted an Environment Impact Statement (EIS) to the NSW Department of Planning & Infrastructure (DP&I) to accompany the State Significant Development Application (SSD 60-26) for a proposed milk processing facility at 111-113 Quarry Road, Erskine Park (the Proposal). The facility would process up to 150 million litres of milk per year, sourced from locally based dairy farms (under normal seasonal conditions). The Proposal falls within a class of development that is identified under Schedule 1 of the State Environmental Planning Policy State and Regional Development 2011 (SRD SEPP 2011). Consequently, the Proposal is considered State Significant Development.

1.2. EIS Exhibition

The EIS was placed on public exhibition by the DP&I between 2 October 2013 and 11 November 2013 in accordance with Section 89F of the EP&A Act. The EIS was exhibited at the NSW Department of Planning and Infrastructure Head Office in Bridge Street, Sydney and the Sydney West Region Office in Parramatta, the offices of Penrith City Council, the Nature Conservation Council of NSW in Newtown and was available to view on the DP&I website. Notice of the EIS exhibition was advertised in the Penrith City Gazette, the Daily Telegraph and the Western Weekender.

During the exhibition period, comments were invited from both the public and stakeholders who had an interest in the Proposal. This Submissions Report documents and responds to the issues that were raised during the exhibition period and is structured as follows:

- Section 2: Submissions Received
- Section 3: Response to Issues
- Section 4: Management and Mitigation Measures
- Section 5: Conclusion

2. Submissions Received

A total of 6 submissions were received by DP&I. Table 1 provides a brief record of the submissions received, the issues raised and where these have been addressed in this report.

TABLE 1 - SUBMISSIONS RECEIVED

Submission Number	Source	Issues Raised	Relevant Section Responding to Submission
1	NSW Office of Water (NOW)	• Groundwater • Watercourse and riparian land • Ground conditions • Surface water	3.1
2	Environment Protection Authority (EPA)	• Surface water • Environment protection licences • Air quality and odour • Noise and vibration • Waste management	3.2
3	Sydney Water	• Utilities and services	3.3
4	Penrith City Council	• Design and landscaping of the facility	3.4
5	Roads and Maritime Services	• No objections or additional requirements	No responses required.
6	Public	• Indicated support for the Proposal	No responses required.

3. Response to Issues

3.1. Summary of Issues Raised

A total of 6 submissions were received in response to the public exhibition of the EIS. There was one public submission, one submission from Council and four submissions from government agencies.

None of the submissions objected to the Proposal. One submission expressed support for Proposal and one submission raised no objections or additional requirements.

The following sections provided a detailed response to the issues raised.

3.1.1. Submission 1: NSW Office of Water

TABLE 2 - ISSUES RAISED AND CORRESPONDING REPSONSES FOR SUBMISSION 1

(Note: a letter was sent to NOW providing a detailed response on groundwater issues. This letter is provided in Appendix 1 of this report)

Issues	Responses
Clarification is requested in relation to the degree of likely interaction with groundwater, and procedures to be followed if groundwater is encountered.	An Early Works package comprising of preparation works and earthworks for The Proposal was assessed and approved by Penrith City Council under Part 4 of the EP&A Act on 26 July 2013. Consequently, earthworks have been undertaken as part of the Early Works package. Observations during earthworks have noted that there was no interaction with groundwater, which was also predicted in the EIS.
The Construction Environmental Management Plan (CEMP) needs to clarify the procedures that will be followed if groundwater is encountered during construction works, and include the need to contact The Office of Water in such a situation.	The CEMP will include a procedure relating to groundwater interception. If groundwater is encountered work at that location would cease, the Proposal Manager would be contacted, and they would contact the NOW for advice. The Statement of Commitments will be amended to reflect this procedure and will include an additional commitment as follows (refer to Section 4): *Statement of Commitment GC13* *Should groundwater be encountered during construction, all activities at that location will cease, the Proposal Manager will be notified and Office of Water will be contacted.*

Issues	Responses
It is not clear if there will be an intersection of the Proposal with groundwater. While the EIS states groundwater occurs at depths greater than 20m below the ground surface (Volume 1, page 6-6-10), it predicts that seasonal perched water tables occur within the fill and the natural soils and the watertable depths are expected to fluctuate significantly in response to season and rainfall (Section 6.6.5, page 6-6-12). As such, the degree of fluctuation needs to be quantified.	The risks of works under the SSD approval intercepting groundwater, or causing groundwater pollution, are assessed as very low. The EIS states on page 6-6-12 the depths at which groundwater was encountered during geotechnical testing, as follows: *"Groundwater seepage was only recorded in BH 101, BH 108, and BH 111 at depths of 13.5m, 6m and 6.5m, respectively. The remaining boreholes were 'dry' during auger drilling. On completion of auger drilling standing water levels were recorded at depths of 7.6m (BH 101), 10.3m (BH 103), 10.2m (BH 104), 8m (BH 106), 8.7m (BH 107), 6m (BH 109 & BH 110), 4m (BH 111), 7.4m (BH 116) and 6.6m (BH 119) within a few hours or after a maximum of 8 days following completion of auger drilling."* The works to be undertaken under this SSD approval occur mainly above ground. Underground works involving excavation are limited to installation of the stormwater drainage system and services. These works would involve shallow excavations to depths generally less than 2m. This is significantly shallower than the depth at which groundwater was observed during geotechnical testing. (Note: a more detailed description of groundwater levels is provided in Appendix 1)
The excavation proposed for the Proposal is deemed to be an aquifer interference activity in accordance with the definition in the Water Management Act 2000. It is expected that the excavation and construction at the property will be conducted in accordance with the principles of the Aquifer Interference Policy. If groundwater is likely to be intercepted or extracted, depending on the volumes encountered and the duration of pumping, an authorisation may be required from the Office of Water in relation to construction excavation and dewatering activities. Consultation with the Office of Water is required to determine these requirements. The Office of Water can advise on the need for an authorization once information is available on the expected groundwater inflows.	The excavation does not represent an aquifer interference activity as it will not intercept groundwater. Observations during earthworks have noted that there was no interaction with groundwater, which was also predicted in the EIS. The works to be undertaken under this SSD approval occur mainly above ground. Underground works involving excavation are limited to installation of the stormwater drainage system and services. These works would involve shallow excavations to depths generally less than 2m. This is significantly shallower than the depth at which groundwater was observed during geotechnical testing. (Note: a more detailed description of groundwater levels is provided in Appendix 1)

Issues	Responses
Clarification is required as to why the EIS states there is no justification to monitor groundwater but the Technical Paper TP10c recommends the periodic monitoring of groundwater levels as a management method. It is recommended that regular periodic monitoring of groundwater levels is undertaken in order to demonstrate that the mitigation measures implemented at the site are effective.	Groundwater monitoring is not recommended as the Proposal works under the SSD application are not expected to intercept groundwater, change groundwater drainage patterns or place groundwater at risk of contamination. Technical Paper Tp10c (Salinity Assessment and Salinity Management Plan) contains a set of generic management and mitigation methods (Table A) in respect of salinity management that would be applicable to a broad range of sites and conditions. One of these management methods is "*7. Monitoring groundwater levels periodically*". The implementation of a management method is contingent on a number of triggers for action described in Table A. These triggers are either not applicable to the Proposal or have not been triggered by the Proposal. Therefore there is no need to implement the management methods including. "*7. Monitoring groundwater levels periodically*". This is reflected in the EIS therefore the EIS is consistent with Technical Paper 10c.
Clarification is required as to whether proposed retaining walls are free draining to avoid water-logging.	The retaining walls were built using interlocking keystone concrete blocks that are designed to allow progressive seepage of water and therefore, avoid water logging of retained areas. In addition, as built drawings show that a seepage drain is installed behind the retaining wall and has outlets at the toe of the wall via several small pipes.
Detention basins should be lined to avoid water logging and recharge of underlying perched water tables. Technical Paper TP10c recommends that an impermeable liner should be installed at the base and walls of the basins to minimise water logging, infiltration and potential recharge of the underlying perched aquifer (page 24). Details are required on the proposed depth of the temporary detention basins to determine if the basins are likely to intercept groundwater.	The sediment basin has been installed as part of the early works approval and is expected to be in place for not longer than approximately 9 months. The sediment basin is lined with an HDPE membrane. The basin is approximately 2m deep and is located in the far southwest of the site, in the area of deepest fill. The basin presents a negligible risk of recharging groundwater.
The Office of Water recommended in its DGR submission that the EIS provide details on the presence and distribution of Groundwater Dependent Ecosystems (GDEs) in the vicinity of the site and address any potential impacts on GDEs as a result of the proposal. The EIS has not addressed GDEs and should consider GDEs that may occur at the local scale in the biodiversity/ riparian corridor.	According to Project Ecologist, Travers Bushfire and Ecology, no GDEs were observed in the Proposal area. It is highly unlikely that GDEs would be observed in the landscape within which the Proposal is sited. In addition, if GDEs were found to exist, the impacts would most likely be related to surface water baseflow where the baseflow can be affected by changes to groundwater. In any event and as described earlier, the Proposal is not expected to intersect with or have an impact on groundwater or disrupt natural groundwater drainage patterns.

Issues	Responses
As the site adjoins the biodiversity riparian corridor, the Office of Water repeats the recommendation that any landscaping on the site, particularly adjacent to the corridor, where possible consist of native trees, shrubs and groundcover species from the relevant local vegetation community, consistent with the Guidelines for Controlled Activities on Waterfront Land.	The recommendation that any landscaping on the site, particularly adjacent to the corridor, where possible consist of native trees, shrubs and groundcover species from the relevant local vegetation community has been applied in the landscape treatment to the site boundaries. Planting to these boundaries consists of native species as identified in the Biodiversity Restoration Plan for the Erskine Park Release Area, replicating the indigenous species that exist in the bio-diversity corridor. Planting to the site boundaries has also taken into account the recommendations made with regard to bushfire hazard control where groups of planting are to be at a maximum of 100m^2 and separated by a minimum distance of 20m. Local native plant species have been selected to reduce the need for any long term irrigation past the establishment period. A small proportion of non-native plant species have been nominated to the formal garden beds at the entrance to the site. These plant species were selected for their hardy nature and to complement the existing streetscape character within the business park. These can be replaced with native species if required.
It is recommended that the following amendment be made to the Statement of Commitments in Table 7A of the EIS (Volume 1 of 4): *The Statement of Commitment (E4) is amended as follows:* ***Where the Biodiversity Corridor*** *~~All native vegetation areas~~* ***is*** *disturbed as a result of the proposed stormwater works, the area shall be stabilized and revegetated with native ground layer and shrub species f****rom the relevant local vegetation community*** *post completion of the works to minimise erosion and sedimentation.*	Any works undertaken within the Biodiversity Corridor will disturb vegetation comprised predominantly of exotic grass and weed species. Such areas will be stabilized and revegetated with appropriate groundcover species, consistent with the surrounding vegetation. The Statement of Commitment (E4) has been amended as follows (refer to Section 4): *Statement of Commitment (E4)* *~~All native vegetation areas~~* ***Where native vegetation areas within the Biodiversity Corridor are*** *disturbed as a result of the proposed stormwater works, the area shall be stabilized and revegetated with native ground layer and shrub species from the relevant local vegetation community post completion of the works to minimise erosion and sedimentation.* ***All other areas disturbed will be stabilised with appropriate groundcover species, consistent with the surrounding vegetation.***

Issues	Responses
It is recommended that the following amendment be made to the Statement of Commitments in Table 7A of the EIS (Volume 1 of 4): *The following Statement of Commitment is included:* *A Vegetation Management Plan (VMP) shall be prepared in accordance with the Office of Water Guidelines for Vegetation Management Plans (June 2012) to revegetate and rehabilitate areas within the biodiversity/riparian corridor disturbed by the proposal.*	The Statement of Commitments will include an additional commitment as follows (refer to Section 4): *Statement of Commitment E7* *A Vegetation Management Plan (VMP) shall be prepared in accordance with the Office of Water Guidelines for Vegetation Management Plans (June 2012) to revegetate and rehabilitate areas within the biodiversity/riparian corridor disturbed by the proposal.*

Issues	Responses
Clarification is required as to whether the proposal involves undertaking activities in, on or under waterfront land (i.e. in relation to stormwater works) and if so, what management measures will be implemented.	There is potential for stormwater drainage works to be undertaken on waterfront land, though the extent of this depends on the final stormwater outlet design. The stormwater discharge options (in order of priority) at the southwestern corner of the site are (refer to Appendix 2 and Appendix 3): (i) To existing Council drainage network, subject to Council approval; and (ii) Provide a new outlet pipe to discharge in a similar location to the existing Council outlet, subject to detailed design and confirmation/approval of adjoining landowner. The preferred stormwater discharge option involves connection to the existing Council drainage network and would involve no disturbance or activities in waterfront land. Council is yet to authorize this option, so the fallback option is to construct a new outlet. Works may also be required to improve the stormwater drainage along the eastern boundary to address an existing erosion issue where this stormwater discharges at the southeastern corner of the site over the existing retaining wall. These flows are predominantly generated offsite and discussions are being undertaken with adjoining landowners to confirm an approach to solving this issue. Any works within waterfront land would be undertaken in accordance with the Soil and Water Management Plan (SWMP) that will be prepared as part of the Construction Environmental Management Plan (CEMP). A progressive Erosion and Sediment Control Plan (PESCP) would be prepared for works in this area. Key environmental controls would include: • Limiting disturbance to the minimum area practicable; • Installing sediment controls (eg sediment fence) downslope of the works; and • Promptly stabilizing the site upon completion of works to limit ongoing erosion. • A plan showing the layout of the stormwater outlet options is provided in Appendix 2 and photographs of the location with the outlet structure overlaid are provided in Appendix 3.

Issues	Responses
Appendix 3 of Technical Paper TP3 notes the stormwater outlet location is within cleared lands and River-Flat Eucalypt Forest (page 34). The Office of Water recommends the following: • The stormwater outlet structure placed to avoid disturbing remnant native vegetation. • A scaled plan, which shows the location of: - The proposed stormwater structure route. - The creek and top of the bank. - The boundary of the Biodiversity Corridor. - Remnant vegetation potentially affected by the outlet structure.	The preferred stormwater discharge option involves connection to the existing Council drainage network and would involve no disturbance or activities in waterfront land (refer to Appendix 2). Council is yet to authorize this option, so the fallback option is to construct a new outlet. The new outlet structure would be located near the existing Council outlet and would involve only minimal clearing of native vegetation within the River Flat Eucalypt Forest, as shown in Appendix 3. The vegetation likely to be disturbed is relatively young regrowth. The new outlet structure would be primarily located in a grass strip area as shown in Appendix 3. Appendix 2 indicates the stormwater structure route and the boundary of the biodiversity corridor. The impact on remnant vegetation is described above and illustrated in Appendix 3. Appendix 4 provides a survey of the creek.
If it is not possible to avoid disturbing remnant native vegetation in the corridor, it is recommended: The area within the Biodiversity Corridor that is disturbed by the works is rehabilitated following the completion of the works with native species from the relevant local vegetation community. A VMP is prepared to provide details on how the rehabilitation will be carried out.	The recommendation to rehabilitate with native species will be implemented. The landscape strategy and any reference to the use of vegetation for landscaping and rehabilitation purposes will be amended to capture the recommendation. Note that native species will not be planted within the existing mown area, which extends as a fire break and access corridor to approximately 10m beyond the southern boundary of the Proposal site. A VMP will be prepared and will detail rehabilitation of disturbed areas.
The Office of Water agrees that the works should be designed to discharge stormwater in suitable locations at non-erosive velocities that will not cause damage to the receiving environment. As far as practicable, the works should be kept outside the 40m buffer surrounding the creek.	The new stormwater outlet (if required) would be located near the existing outlet. This is the preferred location as it takes advantage of the very low grades in the area, which will help control flow velocity at the outlet and benefit long term stability. This location also minimizes the need for vegetation disturbance. Works within the 40m buffer from the creek would be limited to the minimum necessary to construct a stable outlet.
The outlet structure should be in accordance with the Office of Water Guidelines for Outlet Structures on Waterfront Land (June 2012).	The outlet structure will be designed and constructed in accordance with the Office of Water Guidelines for Outlet Structures on Waterfront Land (June 2012).

Issues	Responses
It is important that erosion and sediment control measures are implemented prior to any earth works commencing at the site and these control measures are maintained during and following the completion of works until the site is appropriately stabilised and rehabilitated.	As mentioned previously, earthworks as per the Early Works package have commenced. Erosion and sediment controls were installed prior to these works in accordance with the Early Works Soil and Water Management Plan (SWMP) prepared by KMH Environmental (2013) which was approved by Council, and certified by a Certified Professional in Erosion and Sediment Control (CPESC). It is noted that the implementation and maintenance of erosion and sediment controls have been effective. These controls will be maintained until disturbed areas are stabilized and rehabilitated. The SWMP would be updated as part of the CEMP, to address the works subject to this SSD application.
The following Statement of Commitment is included: • The landscape areas within the site shall establish native plants and deep rooted trees from the local vegetation community to assist maintain or lower the groundwater table level. • If groundwater is observed during construction works the Office of Water needs to be contacted as part of the stop work process. • Regular periodic monitoring of groundwater levels shall be undertaken to demonstrate that the mitigation measures at the site are effective in preventing a rise in the groundwater table level and the development of saline conditions.	Refer to Section 4 for the updated Statement of Commitments. • Refer to E8 of the Statement of Commitments. The Statement of Commitments will be revised to include an additional commitment. • Refer to GC13 of the Statement of Commitments. The Statement of Commitments will be revised to include an additional commitment. • The Proposal works under the SSD application pose a very low risk of intercepting groundwater, changing groundwater drainage patterns or placing groundwater at risk of contamination. Groundwater monitoring will not be included in the Statement of Commitments.
The Statement of Commitment (SW1) is amended as follows: *Erosion and Sediment Controls shall be implemented **prior to any earthworks commencing at the site and** during construction works generally in accordance with the Earth Works Soil and Water Management Plan and updated as necessary.*	The Statement of Commitment (SW1) has been amended as per recommendation (refer to Section 4).

3.1.2. Submission 2: Environment Protection Agency

TABLE 3 - ISSUES RAISED AND CORRESPONDING REPSONSES FOR SUBMISSION 2

Issues	Responses
The EPA is concerned that the proposed controls within the tank farm may result in the pollution of waters as prescribed under section 120 of the POEO Act. Once licensed, the EPA will be interested in gaining a better understanding of both the facility's tank farm and the operation of the stormwater system.	The risk of pollution of waters under section 120 of the POEO Act has been assessed as low considering the implementation of the proposed controls within the tank farm. The Stormwater Management Strategy describes the controls for the tank farm as follows: • *The tank farm shall be designed with a bund surrounding it.* • *The tank farm shall be drained to the stormwater system under normal conditions.* • *A sensor shall detect if the effluent from the tank is clean or an incident has happened and needs to be diverted to trade waste.* • *The sensor shall trigger a valve that shuts the outfall to the stormwater system and diverts it to the trade waste system.* Further, the Stormwater Management Strategy states the following: • *The drainage system comprised of an underground detention system to maintain post development flows close to pre development conditions. In addition to that water quality treatment devices were incorporated to improve stormwater quality prior to discharging to natural water courses.* • *Generally, two main stormwater drains run on the southern and northern boundary to discharge into proposed underground onsite stormwater detention (OSD) at southwest corner of the property.* • *The proposed OSD would be constructed with modular systems method to prevent any stormwater seepage to the ground which could increase salinity of the area. The OSD can capture nearly 4.30 ha out of 4.75 ha thus leaving un-detained area of 0.45 ha which is less than 10% of the total area and acceptable.* It is anticipated that the controls for the tank farm and the proposed drainage system for the facility will be sufficient for preventing pollution of waters under the POEO Act. However, any specific requirements under the EPL will be implemented to compliment these controls.

Issues	Responses
The EPA notes that the Conceptual Soil and Water Management Plan (SWMP) has been prepared for early works associated with the facility undertaken in advance of major building works, and that progressive SWMPs will be prepared once detailed design plans, details of construction methodology and staging are available. Whilst the development of progressive SWMPs is not explicitly stated within the Statement of Commitment (SW1), the EPA assumes that the wording "updated as necessary" reflects this approach.	Whilst the Statement of Commitment (SW10) does not explicitly state this approach, the Conceptual SWMP does state the following: *Conceptual SWMP will be supplemented by the production of Progressive Erosion and Sediment Control Plans (PESCPs) as required, detailing any changes to the SWMP in response to finalisation of the detailed design, or to reflect alternative management measures or changes to the plan as the Proposal progresses through different stages. These PESCPs will be prepared once the detailed design documentation is available and once construction methodology and staging details are known, and before works begin in individual areas.* The wording "updated as necessary" in the Statement of Commitment (SW1) reflects the ongoing development of both the Conceptual SWMP and the PESCPs.
The proposal is listed as a scheduled activity under Schedule 1 of the Protection of Environment Operations Act, 1997 (POEO Act), and will therefore require an environment protection licence (EPL) from the EPA prior to commencing agricultural processing activities at the premises. To obtain an EPL the proponent will need to make a separate application to the EPA. It is encouraged the proponent discuss any issues with the EPA before submitting a licence application and this also ensures efficient assessment and issuing of the licence.	The requirement has been acknowledged. An application for an EPL will be made prior to commencing agricultural processing activities at the premises. The need for a separate application to the EPA has been acknowledged. The Proponent will discuss any issues with the EPA before submitting a licence application.
Based on the information provided in the EIS, it appears that the proposal is unlikely to trigger any other activities specified under Schedule 1 of the POEO Act (e.g. the quantities of chemicals stored on the site appear to be below the Schedule 1 criteria for chemical storage). However, the EPA recommends that, prior to submitting an application for an EPL to the EPA, the proponent ensures that there are no additional scheduled activities that should be included on the EPL.	The Proponent will ensure that there are no other scheduled activities to be included on the EPL before submitted a licence application.
The EPA notes that the proponent aims to commence operations of the facility before July 2014. It is recommended that the proponent factor into its timing that an EPL will generally be granted or refused within 60 days of lodgement with the EPA, providing all the supporting information and documents that the EPA needs to assess a licence application are supplied.	The Proponent will consider the timing of the EPL process with regards to the timing of facility operations.

Issues	Responses
The EPA notes that the EIS states the proponent will ensure that the "boiler design and operations management will comply with all the relevant emission limits and requirements under the POEO Act and POEO (Clean Air) Regulation". The EPA supports this measure and intends to include a special condition on the EPL relating to boiler stack verification testing (once operational) and reporting of the associated results.	The inclusion of the condition has been acknowledged. The Proponent will comply with all conditions contained in the EPL.
The EPA recommends that the proponent prepare and implement an Operational Environmental Management Plan prior to operations commencing at the premises, which includes (but is not limited to): • The identification of potential odour sources/ odorous activities being undertaken at the premises; • Details regarding the odour control, management and mitigation measures to be employed at the premises to address potential odour sources/activities; • Details of any odour monitoring undertaken at the premises; and • Details of the premises odour complaints management process.	The Proponent will prepare and implement an Operational Environmental Management Plan that will include details as per recommendation.
The EPA also recommends that the odour mitigation measures identified in the EIS, including those in the Air Quality Assessment report and the Statement of Commitments, are implemented.	The recommendation has been noted and the odour mitigation measures will be implemented as per the EIS, Air Quality Assessment report and Statement of Commitments.

Issues	Responses
The EPA notes that the proposed mitigation measures in the Air Quality Assessment (Section 4.4 and 9.2) to address dust from construction activities are more comprehensive that those specified in the EIS' Statement of Commitments. The EPA recommends that the proposed dust mitigation measures specified in the Air Quality Assessment are included in the Construction Environmental Management Plan proposed as part of the Statement of Commitment (AQ1).	The Construction Environmental Management Plan and the Statement of Commitment (AQ1) will be amended to include the following dust mitigation measures in the Air Quality Assessment (refer to Section 4): • Maintaining active road surfaces and application of water as a suppressant; • Damping exposed areas where there is any visible dust lift off; • Limit vehicle speeds; • Limit vehicle movement on-site to defined roads; • Minimising track out of mud onto public roads: • Observing good practice in handling of dusty materials; and • Rehabilitate/vegetate completed sections of the site as soon as is practicable.
Whilst the Proposal's noise assessment adequately demonstrates that noise impacts are likely to be insignificant at identified sensitive receptors and within noise assessment criteria, the EPA recommends that the proponent prepare and implement an Operational Environmental Management Plan that includes, amongst other issues, the management of operational noise should an issue arise.	The Proponent will prepare and implement an Operational Environmental Management Plan that will include details on management of operational noise. This has been added to the Statement of Commitments.
The EPA notes that the Waste Management Plan does not quantify some of the wastes or specify how regularly some of the wastes will be removed for disposal or recycling, for example, waste milk/ unutilised milk solids and waste product from dairy processing (including DAF sludge). The EPA recommends that when such details are available that the Waste Management Plan be updated and implemented accordingly.	The Waste Management Plan will be updated to include details as per recommendation.

3.1.3. Submission 3: Sydney Water

TABLE 4 - ISSUES RAISED AND CORRESPONDING REPSONSES FOR SUBMISSION 3

Issues	Responses
The drinking water main available for connection is the 250mm main on the eastern side of Quarry Road.	The Proponent acknowledges the available drinking water main connection.
The wastewater main available for connection is the 225mm main constructed under Case 117207VVW. Where proposed works are in close proximity to a Sydney Water asset, the developer may be required to carry out additional works to facilitate their development and protect the wastewater main. Subject to the scope of development, servicing options may involve adjustment/deviation and or compliance with the Guidelines for building over/ adjacent to Sydney Water assets. The proponent should refer to a Water Servicing Coordinator for details of requirements.	The Proponent acknowledges the available wastewater main connection. The Proponent acknowledges the potential requirement and will refer to a Water Servicing Coordinator should the need arise.
Should this development generate trade wastewater, this correspondence does not guarantee the applicant that Sydney Water will accept the trade wastewater to its sewerage system. In the event trade wastewater is generated, the property owner is required to submit an application for permission to discharge trade wastewater to the sewerage system before business activities commence.	The Proponent acknowledges the potential requirement and if necessary, will submit an application for permission to discharge trade waste water to the sewerage system before operations commence.

3.1.4. Submission 4: Penrith City Council

TABLE 5 - ISSUES RAISED AND CORRESPONDING REPSONSES FOR SUBMISSION 4

Issues	Responses
The proposed level of car parking is significantly less than the requirements of Penrith Development Control Plan 2006. However the design of the car park enables future expansion to support an expansion of staff numbers on the site. Therefore no objection is raised to the proposed level of parking.	The issue has been noted.
It is noted that the location of the farms supplying the milk processing facility have not been identified. Consideration should be given to the provision of a sleep quarters/ washing facilities within the building, particularly for long distance drivers attending the site.	The EIS states that: *"Milk would be sourced from dairy farms from various locations within NSW which are generally likely to be close to the Proposal."* MGC have yet to finalise details of dairy farms supplying milk to the Proposal and therefore cannot confirm exact locations of dairy farms. MGC intends to source dairy farms for the Proposal locally. The provision of sleep quarters/washing facilities within the building will not be required.
The provision of an outdoor area connecting to the lunchroom would provide a gathering space outside of the building for staff.	An outdoor area for staff has been provided as indicated in the Concept Landscape Plan (pg. 56) of the Urban Design, Landscape Strategy and Visual Assessment - 111-113 Quarry Road, Erskine Park. This plan illustrates a break out area for staff. This area is an outdoor area that will be paved, containing picnic tables and shelters, which would be suitable for a gathering space for staff.
Please ensure that the applicant use black, open style fencing is to all boundaries with a high quality at the street frontage setback behind landscaping.	The Urban Design, Landscape Strategy and Visual Assessment - 111-113 Quarry Road, Erskine Park states that: *"Fencing within the business park includes chain wire mesh either galvanised or black, and black palisade fencing at the entry to a number of developments.* *The use of black palisade fencing at the entry to the facility is in keeping with the streetscape character and will improve the appearance of the property from Quarry Road. Black palisade fencing is also proposed at all internal site fencing. The remaining property boundary fencing is to be black PVC coated wire mesh, selected to have minimal visual impact to the surrounding properties."*

4. Management and Mitigation Measures

In light of the submissions received, several changes have been made to the Management and Mitigation Measures in the EIS. In general, these changes relate to either:

- An amendment to a measure in response to an issue raised; or
- An inclusion of an additional measure in response to an issue raised.

Table 6 contains the updated Management and Mitigation Measures.

TABLE 6 - MANAGEMENT AND MITIGATION MEASURES

** Indicates new or revised Management and Mitigation Measures*

Reference No.	Management and Mitigation Measures
Air Quality, Odour and Greenhouse Gas	
AQ1 *	Construction dust impacts shall be managed through implementation of mitigation measures in the Construction Environmental Management Plan including: • Maintaining active road surfaces and application of water as a suppressant; • Damping exposed areas where there is any visible dust lift off; • Limit vehicle speeds; • Limit vehicle movement on-site to defined roads; • Minimising track out of mud onto public roads: • Observing good practice in handling of dusty materials; and • Rehabilitate / vegetate completed sections of the site as soon as is practicable.
AQ2	The boiler design and operation management shall comply with all the relevant emissions limits and requirements under the POEO Act and POEO CA Regulation.
AQ3	The boiler shall utilise a low NOX emitting design and a waste heat economiser to maximise energy efficiency and minimise gas consumption.
AQ4	The wastewater system shall be a fully contained system with hard piping for transferring wastewater with no surface discharge points.
AQ5	The wastewater system shall adequately process the maximum volume of process wastewater under normal operations and avoid prolonged storage and biological decomposition.
AQ6	Monitoring and assessment of odour at the facility shall take place after commencement of operations, at a time to be agreed with the EPA, and a report submitted to the EPA.
Bushfire	
B1	Asset protection zones shall be provided to meet the aims and objectives of *Planning for Bush Fire Protection 2006* and the Bushfire assessment.

Reference No.	Management and Mitigation Measures
B2	Incorporation of specific building construction standards for parts of the facility within the 20m asset protection zone. This includes: • The milk receival bay canopy and northern portion of the energy centre (within 20m of the boundary) are to be constructed with non-combustible materials; • Openable windows (including louvres) and doors shall be externally screened with metal mesh screens having a maximum aperture size of 3mm; • All external doors are fitted with weather strips where the doors do not close on a rebated edge, and • Roller doors are to be boxed in or sealed in a manner that restricts ember penetration.
B3	Southern landscaping adjacent to the biodiversity corridor shall not have continuous native vegetation in the form of shrubs and trees.
B4	Planting of trees and shrubs shall not occur within 10m of the facility.
B5	Species selection shall use less flammable species (ie those with a high moisture content, high level of salt, low volatile content of leaves, smooth barks without 'ribbons' hanging from branches or trunks, dense crown and elevated branches).
B6	Organic mulch shall not be used in landscaping.
B7	Reticulated water supply shall use a ring main system for areas with perimeter roads.
B8	Fire hydrant spacing, sizing and pressures shall comply with AS2419.1 (2005).
B9	Hydrants shall not be placed within any road carriageway.
B10	All above ground water and gas pipes external to the building shall be metal, including taps.
B11	A 65mm Storz outlet with a gate or ball valve shall be provided as a suitable connection for fire fighting purposes within the asset protection zones.
B12	Gate or ball valve and pipes shall be metal.
B13	Underground tanks shall have an access hole of 200mm to allow tankers to refill straight from the tank.
B14	Above ground tanks shall be concrete or metal and raised tanks shall have their stands protected. Tanks on the hazard side of the building shall be provided with shielding to protect fire fighters.
B15	All above ground water pipes external to the water pipe shall be metal including any taps. Pumps shall be shielded.
B16	Preparation of Emergency/Evacuation Plan consistent with the RFS Guidelines for the Preparation of Emergency/Evacuation Plans.
Ecology	
E1	A Proposal ecologist shall undertake a search of the area proposed for the stormwater pipe and outlet and relocate any Cumberland Plan Land Snail specimens into nearby bushland prior to construction works commencing.
E2	Phytopthera control protocols shall be followed to minimise the risk of plant pathogens spreading.
E3	Weed control measures shall be undertaken for Blackberry.

Reference No.	Management and Mitigation Measures
E4 *	Where native vegetation areas within the Biodiversity Corridor are disturbed as a result of the proposed stormwater works, the area shall be stabilized and revegetated with native ground layer and shrub species from the relevant local vegetation community post completion of the works to minimise erosion and sedimentation. All other areas disturbed will be stabilised with appropriate groundcover species, consistent with the surrounding vegetation.
E5	Temporary open weave jute mesh, not jute mat, shall be installed for stabilising disturbed grounds to promote natural regeneration.
E6	Weed control for noxious weed species such as Castor Oil Plant shall be undertaken in the Proposal site, in accordance with the NW Act.
E7 *	A Vegetation Management Plan (VMP) shall be prepared in accordance with the Office of Water Guidelines for Vegetation Management Plans (June 2012) to revegetate and rehabilitate areas within the biodiversity/riparian corridor disturbed by the proposal.
E8 *	The landscape areas within the site shall establish native plants and deep rooted trees from the local vegetation community to assist maintain or lower the groundwater table level.
Food Protection	
FP1	A site specific Quality Management System shall be prepared for the facility.
Ground Conditions	
GC1	In the event that fill material is to be imported onto the site, this material should meet the following importation criteria for salinity, aggressively and fertility criteria: • pH within the range 5.5 – 7. Material in this range shall generally be non-aggressive towards built structures and within the optimal range for plant growth; • ECe <2 – 4 (dS/m). Material in this range is non-saline to slightly saline and generally considered acceptable for plant growth; • CEC in the range 12 - 25 meq/100g. Material in this range is generally considered acceptable for plant growth; • ESP <5%. Material in this range is generally acceptable from a soil dispersion perspective; • Sulphate and Chloride <5,000 mg/kg. Material in this range shall generally be non-aggressive towards piles/foundations, and • Resistivity >5,000 ohm.cm. Material in this range shall generally be non-aggressive towards piles/foundations.
GC2	The proposed earthworks should be designed to minimise disturbance of the natural site drainage patterns wherever possible. Where these patterns are altered, appropriate artificial drainage should be installed in order to minimise water logging and localised flooding;
GC3	Subsoil drains should be provided in areas where seepage discharge from the underlying soil may occur, such as retained cuts, cut slopes, or changes in grade. Slabs, foundations and retaining walls should be designed with subsoil drains and good drainage to avoid water logging.
GC4	Stormwater should be managed appropriately in order to reduce infiltration. Stormwater infrastructure should be designed to minimise leakage. Guttering and down pipes should be properly connected and maintained at all times.

Reference No.	Management and Mitigation Measures
GC5	All roads, pavements, footpaths and hardstand areas should be graded to prevent surface water ponding. Subsoil drains should be provided in all such areas to collect stormwater and surface water run-off.
GC6	As salinity is a natural phenomenon that can change over time especially during extreme wet or dry conditions, regular inspections and maintenance of facilities should be undertaken in order to identify issues at an early stage.
GC7	Surplus fill material shall be disposed of to a NSW EPA licensed facility. The fill tested shall meet the classification of General Solid Waste.
GC8	A suitable Unexpected Finds Protocol should be developed and implemented during future development works at the site. The unexpected finds protocol shall provide a mechanism to identify and manage potential contamination issues.
GC9	Bunded areas (with impervious flooring) shall be used for storage of potentially hazardous and/or contaminating materials and activities. The bund shall have a capacity to capture 110% of the volume of the largest container being stored.
GC10	Hazard materials shall be located a suitable distance from stormwater drainage areas so as to avoid stormwater contamination.
GC11	Spill clean-up kits shall be located in suitable, easily observed locations throughout the site and use of items within the spill kit shall be demonstrated to all construction personnel.
GC12	Spills of fuel, oil or other hazardous materials shall be promptly cleaned up and any impacted soil removed from site and disposed to an approved facility.
GC13 *	Should groundwater be encountered during construction, all activities at that location will cease, the Proposal Manager will be notified and Office of Water will be contacted.
Hazards and Risks	
HR1	Dangerous good storage areas shall comply with the following standards: • AS 3780:2008 - "The storage and handling of corrosive substances"; • AS 4326:2008 - "The storage and handling of oxidising agents"; • AS NZS 4452:1997 - "The storage and handling of toxic substances"; • AS NZS 1596:2008 - "Anhydrous ammonia – Storage and handling"; • AS/NZS 1677.2:1998 - "Refrigeration systems – Safety requirements for fixed applications"; and • AS/NZS 3833:2007 -"The Storage and Handling of Mixed Classes of Dangerous Goods in Packages and Intermediate Bulk Containers".
HR2	Specific on-site personnel shall be trained in specific site procedures, emergency and first aid procedures and the use of fire extinguishers and hose reels.
HR3	Fire extinguishers and spill control kits shall be provided near high risk areas such as the Chemical Storage Area.
HR4	The storage of combustible or flammable materials should be prevented near high risk areas such as the Chemical Storage Area.
HR5	Site management shall prepare and maintain operational procedures to minimise the number of hazardous incidents and accidents on site and to mitigate the consequences of incidents regarding the handling of dangerous goods and chemicals.
HR6	Site employees and milk truck drivers shall be trained in the Milk Spill Management Plan prepared for the site.

Reference No.	Management and Mitigation Measures
HR7	A site Emergency Management Plan shall be prepared and include measures to notify neighbouring premises in the event of an emergency with potential offsite impacts.
HR8	The chilled water system shall be installed, tested, operated and maintained in accordance with the manufacturer's instructions by trained professionals or personnel. The ammonia detection system shall be installed and maintained in accordance with AS/NZS 1677.2:1998 (Refrigerating systems - Safety requirements for fixed applications).
Noise	
N1	Construction related noise should be managed in accordance with the Construction Environmental Management Plan.
N2*	The Proponent will prepare and implement an Operational Environmental Management Plan that will include details on management of operational noise.
Socioeconomic	
SE1	Consultation will continue with local business and residential community to identify, and where appropriate, address issues related to the further development and operation of the Proposal.
Surface Water	
SW1	Erosion and sediment controls shall be implemented during construction works, generally in accordance with the Early Works Soil and Water Management Plan, and updated as necessary. Erosion and sediment controls shall be designed, installed and maintained in accordance with Managing Urban Stormwater: Soils and Construction (Landcom, 2004) (the "Blue Book"). Appropriate erosion and sediment controls shall be installed early in the construction program and in advance of the works they are designed to protect. Controls shall remain in place until such time as the works they protect are completed and the land stabilised, in accordance with Blue Book requirements.
SW2	A stormwater drainage system shall be designed and installed in accordance with the Penrith City Council's requirements, and generally as outlined in the Stormwater Management Strategy. The stormwater system shall convey stormwater to the trunk drainage system in a manner that minimises potential flooding and downstream water quality impacts. An On-site Stormwater Detention (OSD) system shall be installed within the site drainage system, with the purpose of detaining stormwater flows to maintain post-development peak flows at pre-development levels, in accordance with the requirements of the Penrith City Council and generally as proposed in the Stormwater Management Strategy.
SW3	A stormwater treatment device shall be installed within the site capable of achieving pollutant retention in accordance with the requirements of Penrith Council and generally as proposed in the Stormwater Management Strategy.
SW4	Site operating procedures and operational management plans shall be developed that identify and assess potential risks to stormwater quality, and demonstrate appropriate management of these risks. This shall include reference to operational equipment, policies and procedures, maintenance and monitoring requirements, and individual responsibilities, aimed at protecting stormwater quality.
SW5	Emergency procedures shall be put in place to manage the containment and cleanup of hazardous materials in the event of a spill. Areas identified as posing a potential hazard to stormwater quality (e.g. hazardous materials storage areas and bulk product handling areas) shall be suitably isolated from the stormwater drainage system.

Reference No.	Management and Mitigation Measures
SW6	A stabilised drainage path shall be constructed near the eastern property boundary to convey inter-allotment drainage from areas to the north and east, safely through and away from the site. This is expected to require construction (or reconstruction) of grade control structures in the northeast and southeast of the site, to rectify the current unacceptable drainage conditions, which are causing appreciable erosion. Liaison with neighbouring landowners shall likely be required as works on adjoining lands may be required.
SW7	Upon completion of construction the site shall be stabilised such that it does not present an ongoing erosion hazard, including through landscaping of areas that do not contain buildings or hardstand areas. The southern batter shall be landscaped to halt the existing erosion.
Traffic and Transport	
T1	In relation to parking, the Proposal shall include disabled parking in accordance with Penrith City Council requirements and be designed in accordance with AS 2890.6 (Parking Facilities: Off-street parking for people with disabilities).
T2	In relation to bicycle parking facilities, the Proposal shall provide adequate bicycle parking facilities so as to provide the opportunity to reduce car dependency.
Visual and Landscape	
V1	The landscape plan shall be implemented to provide visual screening of the facility.
Waste Management	
WM1	Recommendations on waste management in the Waste Management Plan shall be implemented to adequately manage wastes generated during construction of the Proposal.
WM2	Recommendations on waste management in the Waste Management Plan shall be implemented to adequately manage wastes generated during operations.
Aboriginal Heritage	
AH1	A suitable Unexpected Finds Protocol shall be developed and implemented during construction of the Proposal.
Non-Aboriginal Heritage	
NH1	A suitable Unexpected Finds Protocol shall be developed and implemented during construction of the Proposal.

5. Conclusion

The EIS provided a comprehensive assessment of the environmental risks and potential environmental impacts associated with the Proposal as well as a suite of corresponding management and mitigation measures for minimizing and managing such impacts. These mitigation measures were laid out as a set of commitments (refer to the Statement of Commitments - Section 7 of the EIS).

In response to the submissions received, a number of amendments have been made to the Management and Mitigation Measures. These changes relate to commitments associated with:

- Air quality;
- Ecology;
- Groundwater; and
- Noise.

The responses in Section 3 and the revised Management and Mitigation Measures in Section 4 have appropriately addressed all issues raised by the submissions. It is noted that the submissions have not raised any environmental risks and impacts that were not previously identified in the EIS.

Should the Proposal proceed, the revised Management and Mitigation Measures in this report will form the framework for carrying out the required environmental management during construction and operation of the Proposal and would be used to prepare and develop the CEMP and Operational Environmental Management Plan. It is concluded that the implementation of these commitments will ensure that potential environmental impacts will be effectively mitigated and managed.

6. References

Murray Goulburn Co-operative (July 2013) *Development Application DA13/0695 Industrial Development - Early works comprising of bulk earthworks, piers and caps and limited drainage works at 111-113 Quarry Road Erskine Park*

Murray Goulburn Co-operative (July 2013) *Environmental Impact Statement – Devondale Milk Processing Facility Erskine Park SSD 60-26*

Appendix 1 – Letter to NSW Office of Water in Response to Groundwater Issues

27 November 2013

Mr. Wayne Jones
Land Use Planning Coordinating Officer
NSW Office of Water
Level 48, MLC Centre,
19 Martin Place Sydney NSW 2000

Cc. David Mooney, Senior Planner, Department of Planning & Infrastructure

Dear Mr. Jones

RE: Erskine Park Milk Processing Facility (SSD-6026)

This letter responds to the submission prepared by the NSW Office of Water (NOW) and submitted to the NSW Department of Planning & Infrastructure (DP&I), in relation to the Erskine Park Milk Processing Facility (SSD-6026) Environmental Impact Statement (EIS).

NOW's submission raises several questions in relation to groundwater and this letter, along with the Submissions Report, responds to those concerns. This letter is appended to the Submissions Report.

The letter summarises:

1. Groundwater conditions and data presented in the EIS;
2. Groundwater interactions during the completed Early Works development phase;
3. Whether the SSD project is likely to intercept or affect groundwater;
4. Engineering measures incorporated into the structural design to deal with salinity/groundwater.

A meeting was also held with NOW, DP&I and Murray Goulburn's representatives to further explain the approvals strategy for the Proposal and the current construction status of early works approved by Penrith City Council.

1. Groundwater Conditions

The available groundwater data is described in detail in Technical Paper (TP10) of the EIS. Groundwater investigations of the site were conducted through:

- a desktop review of local groundwater conditions via a search of registered groundwater bore records on the NSW Office of Water website; and
- comprehensive geotechnical investigations over the site, conducted by JK Geotechnics (2013).

The registered bore search found that groundwater occurs at depths greater than 20m below ground surface (mBGS) within the sedimentary bedrock, with standing water level recorded at two bores between 9 and 10m mBGS.

The onsite geotechnical investigations involved auger and core drilling. Generally, the boreholes encountered compacted fill (2.5 – 8.5m thick) and residual silty clays (0.65 – 6.5m thick) overlying weathered shale and sandstone bedrock at moderate to significant depth. Groundwater was intermittently encountered at moderate depth. Standing water levels were observed in auger holes within a few hours or after a maximum of eight days following completion of auger drilling. On completion of core drilling water flush levels were recorded a short time after completion to up to five days after completion.

Water levels observed in the auger and cored boreholes shortly after drilling are presented in Table 1.

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Borehole locations and interpreted groundwater contours are shown in Figure 1.

Figure 2, Figure 3 and Figure 4 show approximate geotechnical sections through the site, indicating the stratigraphy and observed groundwater depths.

Note that the groundwater observations represent "point in time" measurements of groundwater depths a short time after drilling. In the case of core drilling, introduction of water during drilling may have resulted in artificially raised standing water levels.

No long term monitoring of groundwater has been undertaken; hence it is not possible to provide information with respect to groundwater fluctuations or flow directions. Such detailed investigations have been considered unnecessary due to the shallow nature of the proposed works.

The groundwater observations are interpreted as evidence of a perched (or seasonal) groundwater table, caused by impeded drainage due to a low permeability horizon relatively deep within the soil profile. It should be noted that seasonal high water tables are a common feature of the clay soils derived on Wianamatta Group shales in Western Sydney as evidenced by the typically mottled colours of the subsoils. These mottled horizons often occur to within 300-500mm of the surface and are a product of impeded shallow drainage, and wetting and drying cycles in response to climatic conditions.

Table 1 **Standing Water Levels Shortly after Drilling**

Borehole	Groundwater Seepage observed (m BGL)	Standing Groundwater Levels (m BGL)
Auger Drilling standing water levels		
BH 101	13.5	7.6m
BH 103	dry	10.3m
BH 104	dry	10.2m
BH 106	dry	8m
BH 107	dry	8.7m
BH108	6	
BH 109	dry	6m
BH 110	dry	6m
BH 111	6.5	4m
BH 116	dry	7.4m
BH 119	dry	6.6m
BH A	dry	n/a
BH C	dry	n/a
BH G	dry	n/a
Core Drilling water flush levels		
BH A	n/a	6.1
BH C	n/a	5.8
BH D	n/a	3.5
BH G	n/a	3.2
BH 102	n/a	6.2
BH 105	n/a	15.8
BH 108	n/a	5.6
BH 112	n/a	9.1
BH 113	n/a	8.7
BH 115	n/a	3.3

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BH 116	n/a	7.4
BH 117	n/a	6.6
BH 118	n/a	2.7
BH 120	n/a	5.5

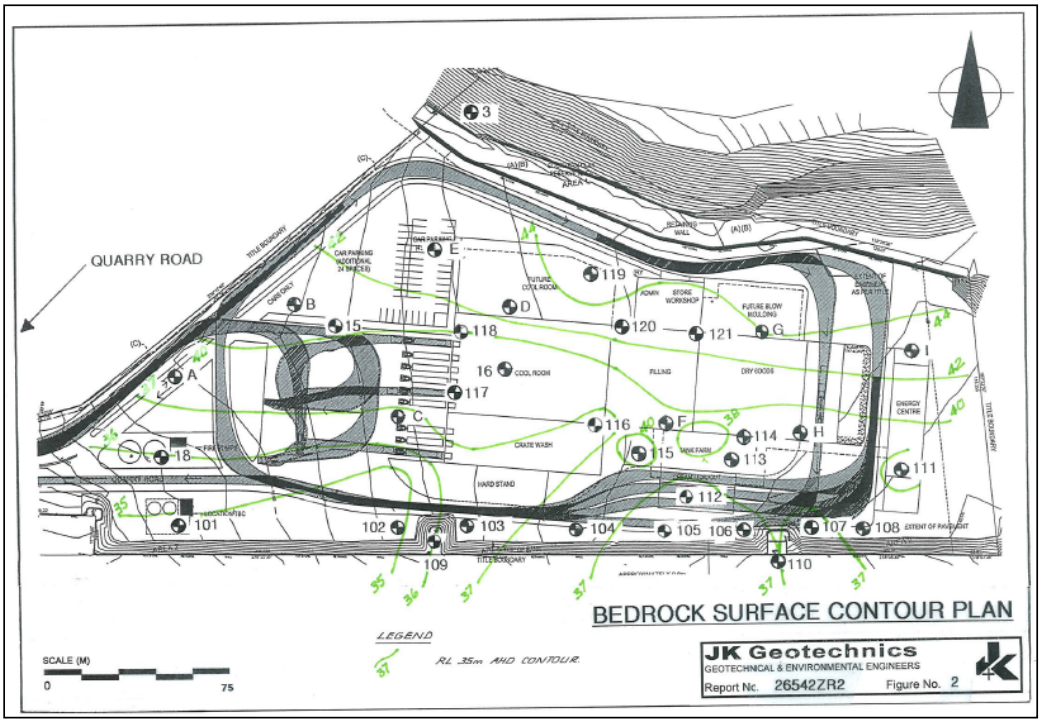

Figure 1 Borehole Locations and Interpreted Groundwater Contours

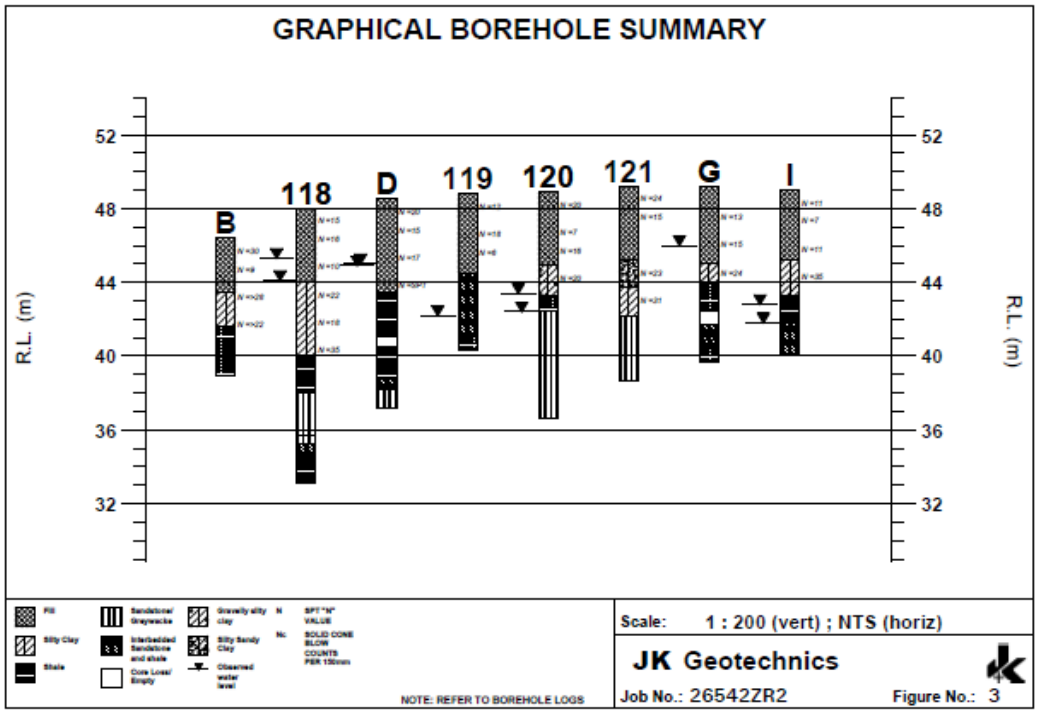

Figure 2 Geotechnical Section 1

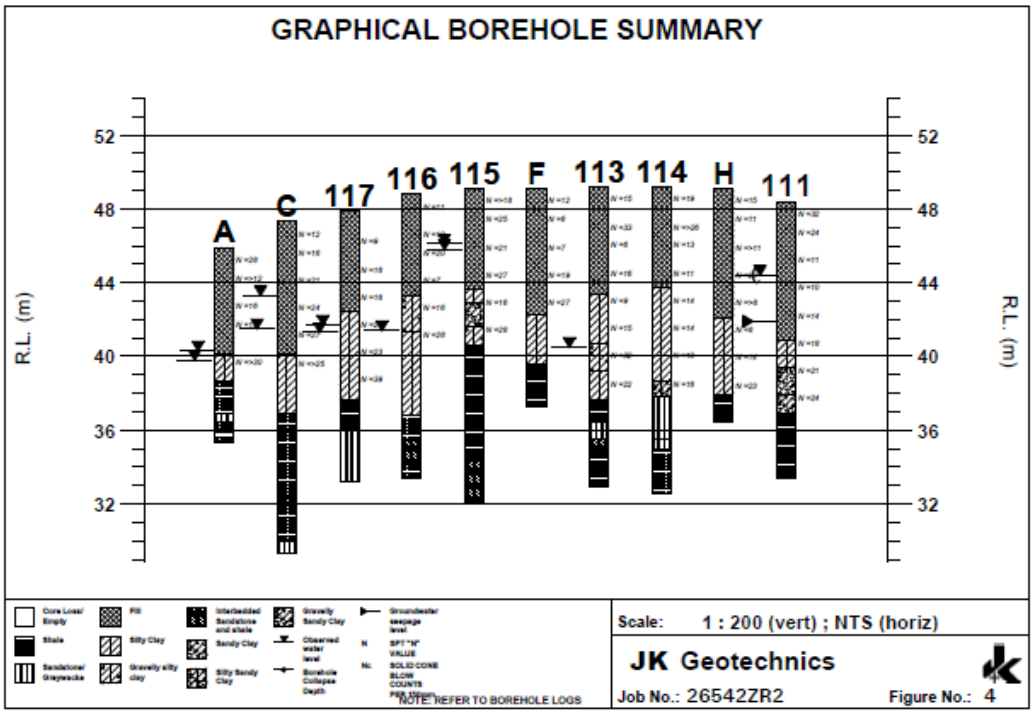

Figure 3 Geotechnical Section 2

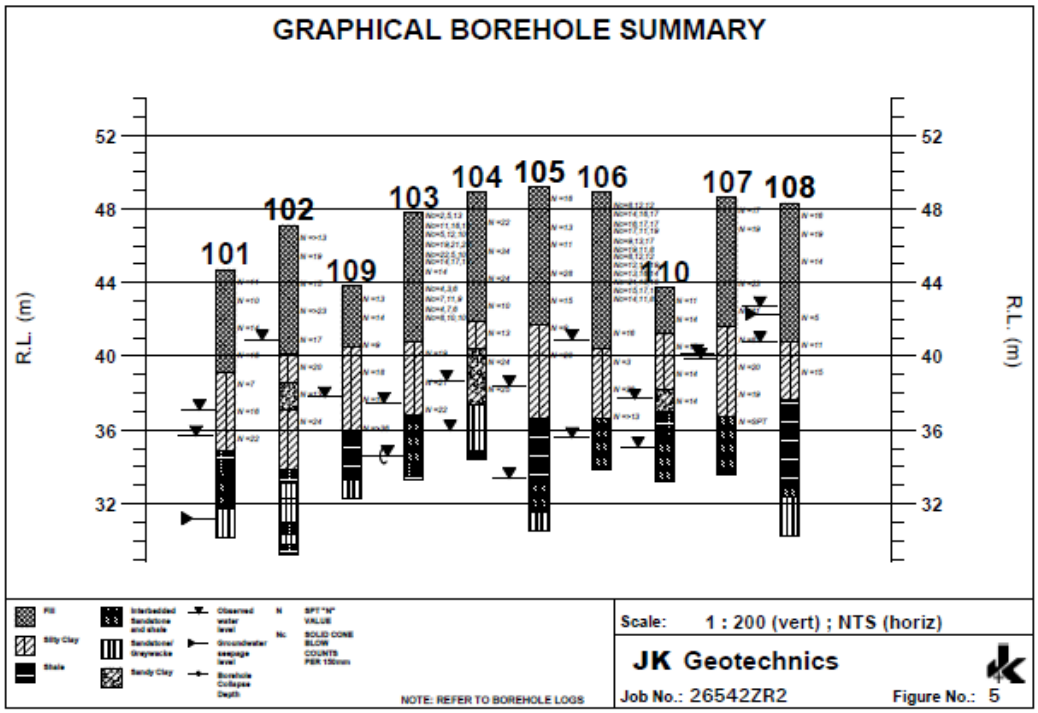

Figure 4 Geotechnical Section 3

2. Groundwater Interactions During Early Works

The early works (as approved by Penrith City Council) involved some re-leveling of the site via cut to fill earthworks within the proposed building footprint. These earthworks involved excavations up to 1.5m deep (predominantly less than 1.0m) and occurred within the existing fill only, and were restricted mainly to the more elevated central parts of the site. During these cut to fill earthworks groundwater was not encountered. This confirmed the prediction that groundwater would not be encountered, based on the groundwater depths during geotechnical drilling being significantly deeper than the extent of earthworks.

The early works also involved the drilling and installation of some 400 bored piles to depths of approximately 13m. These works have been completed. No groundwater monitoring was conducted during the early works and no specific need to manage groundwater during these works was identified.

Early works also involved installation of a sediment basin in the southwestern corner of the site, within an area of relatively deep fill. Groundwater was not encountered during basin construction and groundwater seepage into the basin has not been observed at any time since during the basin's operation.

3. Predicted interactions with Groundwater During SSD Works

The works to be undertaken under this SSD approval occur mainly above ground. Underground works involving excavation are limited to installation of the stormwater drainage system and services. These works would involve shallow excavations to install pits and pipes, to depths mostly less than 2m. Towards the eastern end of the site excavations up to 2.8m (but commonly 2.0m) will be undertaken for installation of below ground onsite stormwater detention (OSD) tanks.

This is significantly shallower than the depth at which groundwater was observed during geotechnical testing, as indicated in Figure 2, Figure 3 and Figure 4. Note that when viewing these cross-sections, surface levels have changed by as much as 1m in the central part of the site; however, there remains a significant vertical separation between the planned excavations works and the observed perched groundwater levels.

A summary of the measures employed to mitigate potential impacts from groundwater and salinity conditions include:

- No excavations deeper than the groundwater table are expected;
- The SSD project works and early works involve only superficial earthworks to level the site, and these changes are not expected to impact on groundwater conditions;
- The sediment basin has been lined to prevent seepage to groundwater;
- There are no planned stormwater infiltration measures and irrigation would be minimised during operations, to prevent groundwater levels being raised by the Project.

In addition, it should be noted that the retaining wall to the north of the site is served by a drainage system behind the wall which would reduce the risk of high ground water tables across the development site.

Based on the observed groundwater levels and the anticipated depths of excavations, the risks of works under the SSD approval intercepting groundwater, or causing groundwater pollution, are assessed as very low. On this basis there is no justification for ongoing groundwater monitoring.

4. Engineering Measures

The salinity assessment undertaken by Environmental Investigation Services (EIS, 2013) and presented in Technical Paper 10 of the EIS, included an exposure classification assessing the aggresivity of soils and groundwater towards buried concrete and steel piles and foundations. The results indicate that the groundwater is non-aggressive towards buried concrete and steel; however, with due consideration to the soil types and potential for conditions to change over time, it was recommended that a “mildly aggressive” exposure classification should be adopted for design of concrete piles/footings as a conservative measure. It is understood that the structural engineering design has proceeded on the basis of these recommendations.

If you require any further information in relation to this matter please contact the undersigned.

Yours sincerely,

Adam Bishop
Senior Environmental Consultant
KMH Environmental

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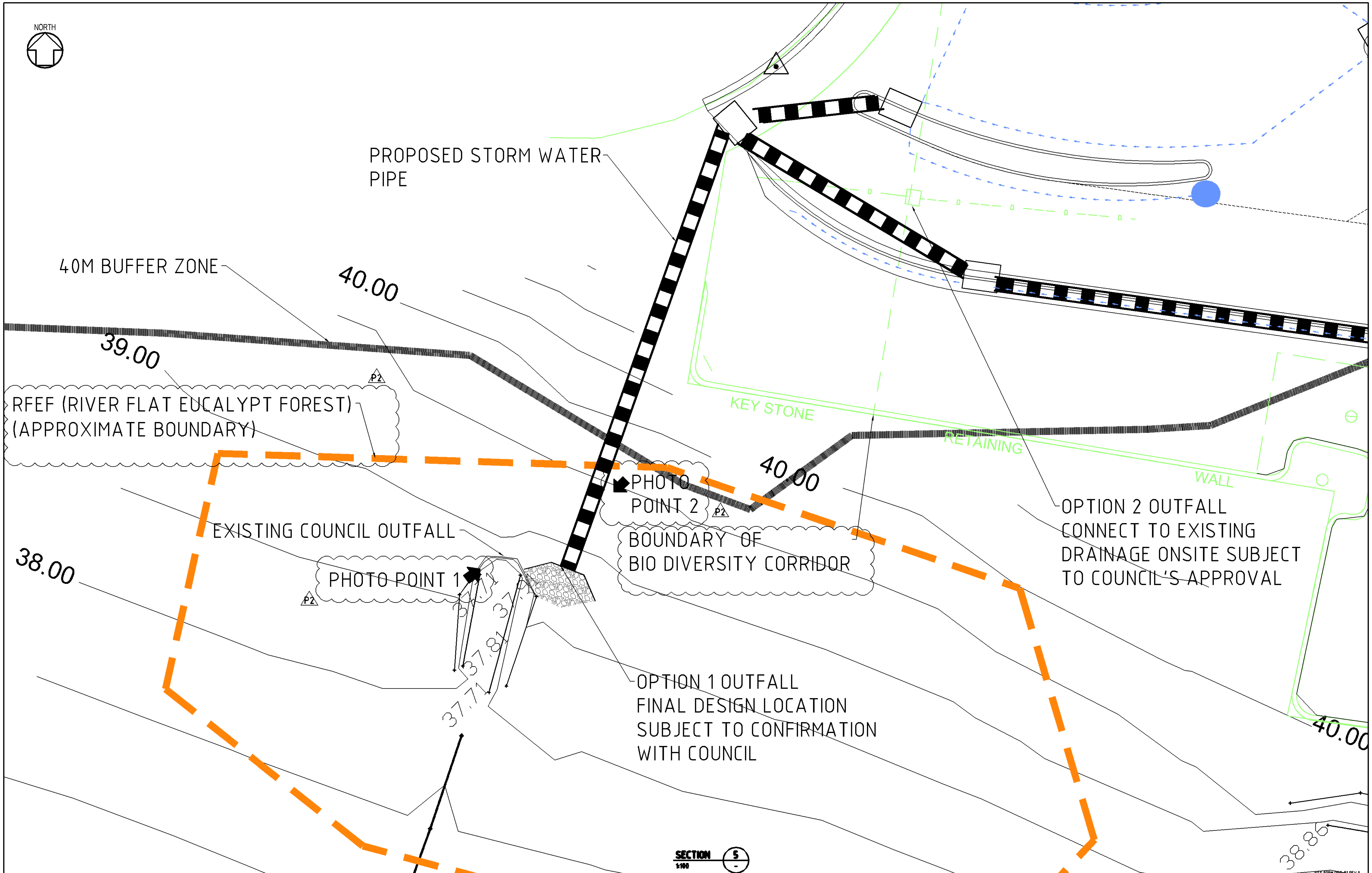
Appendix 2 - Stormwater Outlet Drawing



DRAWING REVISION HISTORY

No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE
P2	PRELIMINARY ISSUE - ADDITIONAL NOTES ADDED	PMD	SH	JS	27/11/13
P1	ISSUED FOR INFORMATION	JS	SH	JS	22.11.13
		SP	SH	DC	SEP 2013

APPROVED: ORIGINAL COPY ON FILE "e" SIGNED BY D CONLEY
SIGNED
DATE 28.06.2013

SCALE (PLOTTED FULL SIZE) 1:500
SHEET SIZE B1

REDUCED SCALE PLOT

CAUTION: THIS DRAWING MAY NOT COMPLY WITH AS1100 IF PLOTTED AT A REDUCED SCALE

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CLIENT: MURRAY GOULBURN
CONTRACT TITLE: PROJECT INVERLOCH - NSW
STATUS: **PRELIMINARY**

DRAWING TITLE: **ULTIMATE DESIGN OUTFALL OPTIONS**
DATUMS: AHD / MGA PLANE
CLIENT No. C500
DRAWING No. ML13007-C500
REVISION P2
Nov. 27, 13 - 14:25:47 Name: ML13007-C500.dwg Updated By: Patrick Daly

Appendix 3 – Stormwater Outlet Photos

FIGURE 1

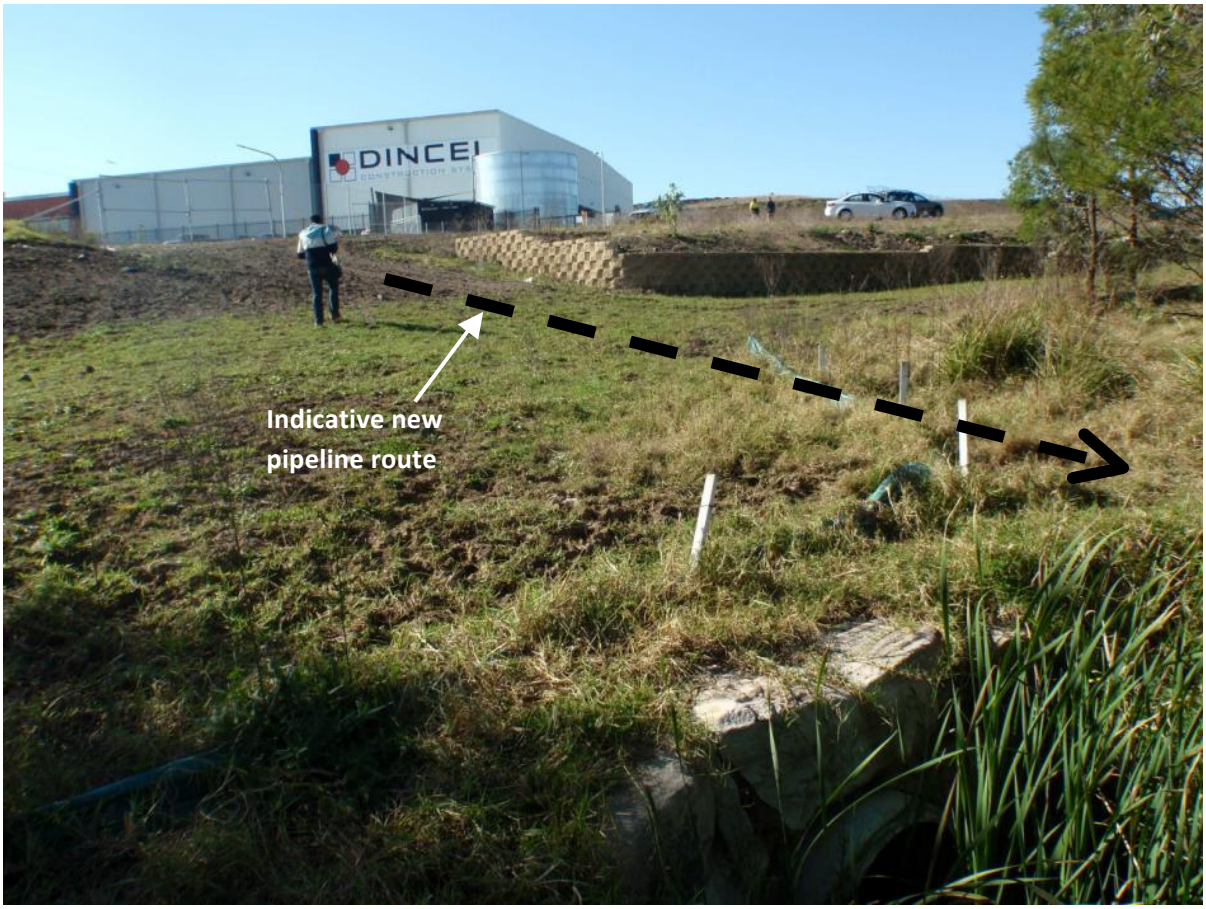


Figure 1 – View of indicative new underground stormwater pipeline route looking north towards the Project site. Note that the pipeline crosses previously disturbed land containing a mix of introduced grasses and weeds. In the foreground is the existing Council stormwater outlet. A suitable position for the new outlet would be immediately adjacent this existing outlet.

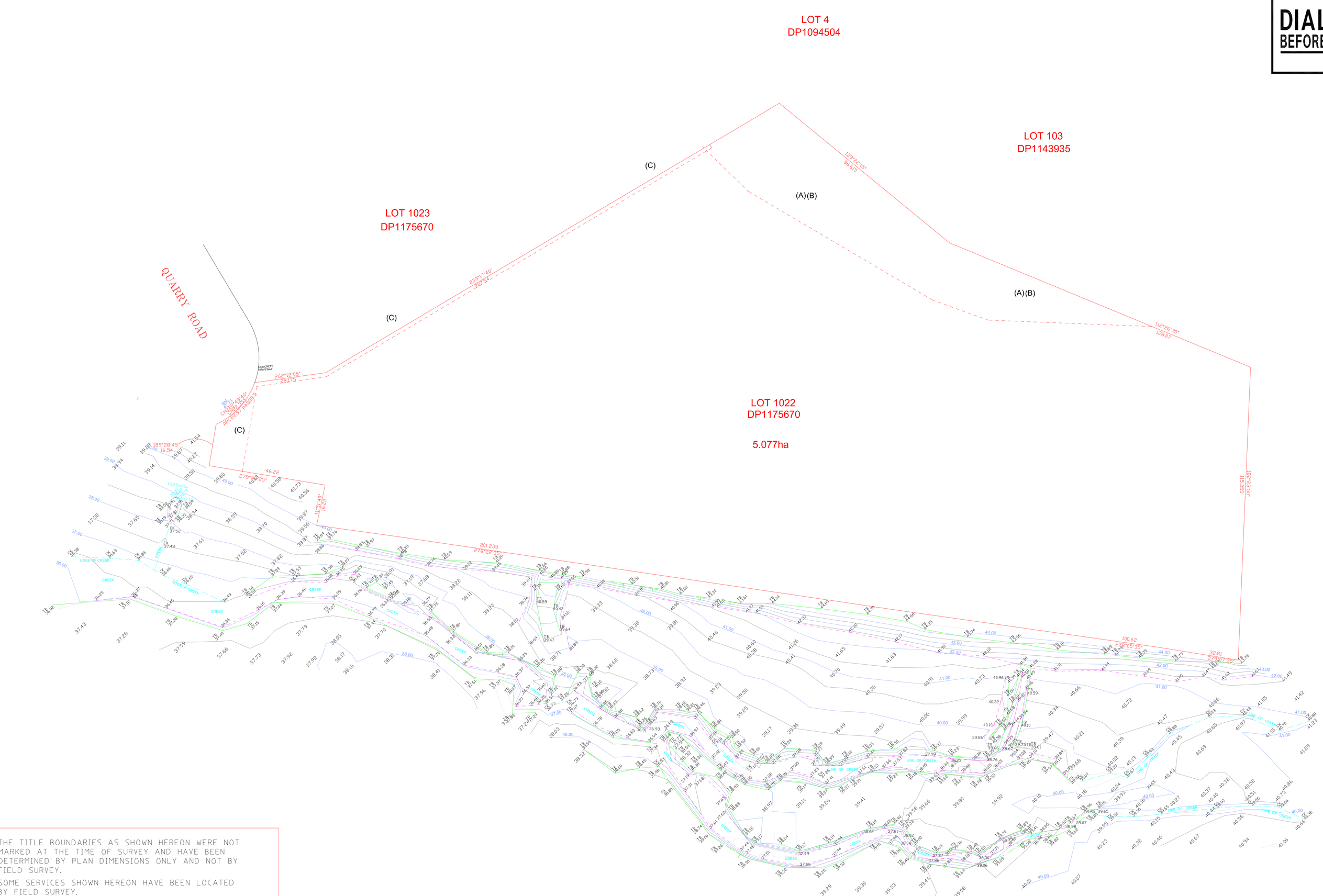
FIGURE 2

Figure 2 – Reverse view (looking south) of the indicative new outlet headwall location. The shaded area is indicative of the area of disturbance that may be required downstream of the outlet, to construct an energy dissipater. Vegetation clearing would be minimal.

Appendix 4 – Creek Survey

A0

M.G.A



THE TITLE BOUNDARIES AS SHOWN HEREON WERE NOT MARKED AT THE TIME OF SURVEY AND HAVE BEEN DETERMINED BY PLAN DIMENSIONS ONLY AND NOT BY FIELD SURVEY.

SOME SERVICES SHOWN HEREON HAVE BEEN LOCATED BY FIELD SURVEY.

NOTE:LOCATIONS OF DOMESTIC SERVICE CROSSINGS ARE UNKNOWN.

PRIOR TO EXCAVATION THE CONTRACTOR MUST:
- × NOTIFY A.G.L. ON 0419527919
- × OBTAIN TELSTRA'S "DUTY OF CARE" DOCUMENT REGARDING WORKING IN THE VICINITY OF TELSTRA PLANT.
- × VERIFY CO-AXIAL/OPTIC FIBRE CABLE LOCATION

PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.

DIAL 1100 BEFORE YOU DIG

EAST coast POSITIONING

SURVEYORS

NORTHWEST
P.O. BOX 7388, BAULKHAM HILLS
N.S.W. 2153, Australia
Mob: 0408556914 or 0418416285
Email: ms@ecpsurveyors.com.au

CAMPBELLTOWN
P.O. BOX 58, INGLEBURN
N.S.W. 1890, Australia
Mob: 0418416285 or 0408556914
Email: pah@ecpsurveyors.com.au

CLIENT/PROJECT

PITT & SHERRY

CREEK SURVEY

LOT 1022 DP1175760
QUARRY RD, ERSKINE PARK

SURVEYOR:	AG/AH
CHECK:	AG
AUTHORISED:	MS

DETAIL SURVEY

AUTHORITY	PENRITH
PROPERTY	LOT 1022 DP1175670
LOCALITY	ERSKINE PARK
ORIGIN OF LEVELS	-
DATUM	AHD
DATE	20/06/13
DRAWN BY	AG
SHEET	1 OF 1
DRAWING No.	ECP210.D.02_CREEKSURV
AMENDMENT	-
1:600 SCALE	-20 0 20 40 (m)

No.	AMENDMENTS	DRAWN	DATE:
A	EASEMENTS ADDED	MS	15/05/13

FILE NAME: ECP210.D.02_CREEKSURV