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Concept Plan for Expansion of Marrickville Metro Retail Centre - Infrastructure and Hydrology - Preferred Project Report

Submitted to:
AMP Capital Investors Pty Ltd

REPORT

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Report Number. 107626036-006-R-Rev1-Preferred Project Report

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1.0 INTRODUCTION

This report forms part of a Preferred Project Report (PPR) prepared on behalf of AMP Capital Investors (AMPCI) with respect to the Concept Plan Application under Part 3A of the NSW Environmental Planning and Assessment Act 1979 for the proposed redevelopment of the Marrickville Metro Shopping Centre.

This report has been prepared in response to the letter from the Department of Planning (DOP) dated 14 October 2010 requesting that a Preferred Project Report (PPR) be prepared. The letter requests that the proponent respond to the issues raised by the submissions and for the PPR to identify how the issues raised by the submissions including those of the DOP have been addressed and how the PPR minimises the environmental impacts of the proposal.

The Preferred Project includes the following key amendments to the original proposal:

- The adoption of the "alternative proposal" for Smidmore Street as outlined in section 5.6 of the Environmental Assessment Report, meaning that all proposed development within the Smidmore Street road reserve has been deleted from the proposal and the road will remain open to vehicle traffic.
- Removal of the draft VPA from the PPR following Marrickville Council's decision not to grant owner's consent for the inclusion of Smidmore Street in the application.
- Accompanying refinements to the design of the buildings fronting Smidmore Street to address the existing street interface, optimise pedestrian access between the two buildings and maximise street front retail activation and pedestrian amenity.
- A reduction in the gross leasable floor space of the new development from 21,470sqm to 16,767sqm (a reduction of 22% in floor area).
- A reduction in the number of new car parking spaces from 715 to 528.
- A significant reduction in the new building footprint above the existing shopping centre within the north-east section of the site, including the removal the spiral ramp near the corner of Victoria Road and Murray Street.
- Retention of the existing vehicle ramp location within Murray Street and the relocation of the access from Murray Street to the new loading dock 3 further to the south.
- A public domain 'concept vision' for Smidmore Street which will be subject to the further agreement of Marrickville Council.
- Retention of all existing mature Lemon Scented Gums in Smidmore Street.
- Revised Statement of Commitments.

1.1 Infrastructure and Hydrology

Golder Associates was commissioned by AMPCI through Bovis Lend Lease to prepare a report to accompany a Concept Plan Application under Part 3A of the *Environmental Planning and Assessment Act 1979* for the proposed redevelopment of the Marrickville Metro Shopping Centre. The development is being considered under Part 3A of the Act as it satisfies the criteria described in Schedule 1 of the Major Projects State Environmental Planning Policy (Major Projects SEPP).

The Infrastructure and Hydrology (I&H) report was prepared in general response to items 12 and 14 of the Director-General's Requirements (issued 3 March 2010) for consideration of the Concept Plan (Application No. MP 09_0191).

The relevant Director-General's Requirements were:

12. Drainage – The EA shall address drainage / groundwater / flooding issues associated with the development / site, including stormwater, drainage infrastructure and incorporation of Water Sensitive Urban Design measures.

14. Utilities – In consultation with relevant agencies, address the existing capacity and requirements of the development for the provision of utilities including staging of infrastructure works

The report addressed the drainage and flooding issues related to the proposed development. It also identified various Water Sensitive Urban Design (WSUD) measures for the development. For utilities assessment, this report discussed the infrastructure requirements related to stormwater, water supply and sewerage for the proposed development.

1.2 Preferred Project Report

Following review by DOP, the I&H report has been modified to address the issues raised in the submissions received from Marrickville Council (MC) and Sydney Water (SW). The following submissions were received from the two organisations:

- Letter from Manager Urban growth Strategy and Planning, Sydney Water, dated 19 August 2010.
- Letter from Director Development & Environmental Services, Marrickville Council, Reference 3415 dated 8 September 2010.

2.0 EXISTING DEVELOPMENT

Marrickville Metro Shopping Centre is located at 34 Victoria Road, Marrickville. The existing shopping centre fronts Victoria Road to the north, Murray Street to the east and Smidmore Street to the south and is adjoined by single storey residential dwellings to the west. The shopping centre is predominantly a single level retail building and comprises major tenants being Kmart, Woolworths and Aldi as well as a range of speciality stores. Car parking is located at roof top level with existing vehicle ramp access via Smidmore Street and Murray Street.

The land at 13-55 Edinburgh Road is located to the south of Smidmore Street and is bounded by Edinburgh Road and Murray Street. This site is currently used as a warehouse with associated ground level car parking.

The shopping centre is located within an established residential and industrial precinct surrounded by small lot residential housing to the north and west, and predominantly industrial land comprising larger allotments and larger building scales to the south and east.

3.0 PREFERRED PROPOSED DEVELOPMENT

AMP Capital Investors (AMPCI) owns Marrickville Metro Shopping Centre and the land to the immediate south at 13-55 Edinburgh Road, Marrickville.

AMPCI proposes to upgrade and expand Marrickville Metro Shopping Centre to accommodate additional retail floor space, improved facilities and services, as well as enhance convenience and accessibility for the community.

The proposal has two key elements:

- An extension of retail floor area at first floor level above the existing shopping centre building with further additional roof top parking above; and
- Redevelopment of the existing industrial land south of Smidmore Street (13-55 Edinburgh Road) to create a two level retail addition to the shopping centre with car parking above.

The additional retail floor area will primarily accommodate a discount department store, supermarket, mini major and specialty retail space. The development will incorporate additional car parking as well as improved vehicle access and loading facilities.

The proposal will include works to the public domain in order to improve the pedestrian, cycling and public transport connections to and from the site and enhance pedestrian and patron safety.

4.0 CONSULTATION WITH SYDNEY WATER AND MARRICKVILLE COUNCIL

Following review by DOP, further consultations were held with SW and MC to address the issues raised by the two organisations. Following the meetings, the agreed outcomes were minuted which are presented in Appendix A.

A summary of the agreed outcomes is presented below:

AGREED ACTIONS TO SATISFY SW REQUIREMENTS

1) The culvert under the new building at the 'industrial site' would be upgraded to match or exceed the lifespan of the built over structure. The requirement to upsize the culvert would be established after review of the existing flood study results for the local catchment.

2) On-site detention (OSD) would be provided for the new development on the 'industrial site'. The storage requirements and the permissible site discharge data would be provided by SW.

3) A Flood Emergency Response Plan would be prepared for the existing shopping centre.

4) WSUD measures would be provided for the new development at the 'industrial site' to meet the 1997 NSW EPA requirements. Improvements would be made to the existing shopping centre, where feasible.

AGREED ACTIONS TO SATISFY MC REQUIREMENTS

1) Undertake analysis of overland flowpath and pipe drainage options for improved flooding outcome for the existing shopping centre at Victoria Street and undertake the agreed stormwater works to Council's satisfaction.

5) OSD provisions will be determined at the detailed design stage.

6) Improve drainage near the intersection of Edinburgh Road and Steel St by relocation of the low point as part of the roundabout development at this location.

7) Undertake all drainage design work in accordance with appropriate standards including MC guidelines.

This report provides details of how the agreed outcomes would be achieved for the proposed development.

5.0 INFRASTRUCTURE ASSESSMENT

The proposed expansion is likely to impact on the following SW infrastructure:

- Stormwater culvert under the existing shopping centre and the industrial building to the south (proposed location for the new building for the shopping centre);
- Sewer network; and
- Water supply network.

The potential impact on this infrastructure is from the following two scenarios:

- *Impact from Physical Building Works* – where infrastructure physically "conflicts" with the proposed development, mechanical protection and / or diversion will be required to avoid damage and enable on-going maintenance / integrity; and
- *Impact from Additional Demand or Loading on the Utility* – an increase in use on the site can lead to additional demand on stormwater, sewer and water infrastructure. This may result in SW requiring augmentation of the service to suit future demands of the proposed development (and surrounding area). In addition Development Servicing Plan charges are generally applicable to new developments of this scale, to account for costs of on-going maintenance and upgrade of the local SW infrastructure.

The investigation work to undertake infrastructure assessment has included:

- Initial site inspection
- Assessment of available site survey data
- Review of Sydney Water asset records and utility plans
- Consultation and Feasibility Assessment with Sydney Water
- Coordination with stormwater drainage and flood assessments

Details of the assessment are presented below:

5.1 Existing Sydney Water Infrastructure

Appendix B provides a plan, which is an output from Sydney Water Hydra records. This plan provides the location of all recorded SW assets in the area of the proposed development. The following key assets have been identified, in relation to the respective development areas.

5.1.1 Existing Retail Centre (Victoria Road)

The following infrastructure services the existing retail centre:

- A stormwater drainage culvert (approx. 2.4m wide x 1.0m high) traverses north-south directly through the eastern portion of the site.
- Main trunk sewerage is located within the eastern boundary of the existing Marrickville Metro Retail Centre site. It diverts from the old alignment within the Victoria Road reserve (draining east) and re-connects (draining west) within the Smidmore Street road reserve. The system comprises DN300 vitreous clay pipes.
- Water supply surrounds the site within Victoria Road, Murray Street and Smidmore Street. The system comprises DN150 water mains (DICL and uPVC).

5.1.2 Shopping Centre Addition Site (Edinburgh Road)

The following infrastructure services the proposed site for the new development on Edinburgh Road:

- A stormwater drainage culvert (approx. 2.4m wide x 1.0m high) traverses north-south generally through the middle of the site.
- Main trunk sewerage, passing around the existing Retail Centre (upstream), continues directly through the middle of the proposed development site. It is located parallel, and directly west of the stormwater drainage culvert. This main remains as a DN300 vitreous clay pipe.
- A DN225 sewer sideline connects to the main DN300 trunk sewer mid-way through the site from the western side. This sideline services the properties on the western side of the Edinburgh Road block.

- A DN225 sewer sideline connects to the main DN300 trunk sewer mid-way through the site from the eastern side. This services properties on the eastern side of the Edinburgh Road block and properties upstream to the intersection of Edgeware Road and Victoria Road.
- Water supply is located within Smidmore Road and Edinburgh Road. This system comprises DN150 water mains (CICL and DICL).

5.2 Proposed Development

The proposal constitutes new building work at the following locations:

- The existing Marrickville Metro Retail Centre site; and
- The street block bounded by Smidmore Street (north), Murray Street (east) and Edinburgh Road (south and west) – Shopping Centre Addition site.

5.2.1 Development over Existing Sydney Water Infrastructure

The following components of SW infrastructure have been identified to traverse portions of the proposed development areas.

- Stormwater Drainage Culvert in Existing Retail Centre Site
- Sewer Mains in the Shopping Centre Addition Site
- Stormwater Drainage Culvert in the Shopping Centre Addition Site

5.3 Recommendations

The following considerations would be required for the respective components of SW infrastructure traversing the proposed development. These recommendations are based on the outcomes of a preliminary assessment of infrastructure and consultation with SW.

5.3.1 Stormwater Drainage Culvert within Existing Retail Centre Site

New building construction works in vicinity of the culvert will be subject to restrictions to building over and / or adjacent. Generally, this will limit filling in the vicinity of the culvert and require no structures or heavy machinery being used within the structural 'zone of influence' of the culvert – including piering to a minimum of 0.3m below the invert of the culvert.

We understand that all treatments with respect to structural integrity and flow capacity of the culvert passing through the existing retail centre site have been addressed as part of the previous development on the site.

5.3.2 Sewer mains within Smidmore Street and the Shopping Centre Addition Site

The existing sewer main should be diverted to be located outside proposed building areas. This includes providing existing mains connections outside the building area (i.e. for the existing eastern side-line from Edgeware / Victoria Road). A concept scheme for this is attached in Appendix C.

5.3.3 Stormwater Drainage Culvert in Smidmore Street and the Shopping Centre Addition Site

The existing stormwater drainage culvert needs to have integrity for the life of the new building over. On this basis, it is likely the culvert will require replacement beneath the building. Consideration should also be given to providing points for access directly upstream and downstream of the proposed building.

New building construction works in vicinity of the culvert will be subject to restrictions imposed by Sydney Water "General Requirements for Building Adjacent to Stormwater Channel". Generally, this will limit filling in vicinity of the culvert and require no heavy machinery or structure within the 'zone of influence' of the culvert – including piering to a minimum of 0.3m below the invert of the culvert.

It should be noted that final requirements for treatment of SW infrastructure will be subject to determination by SW via a formal Section 73 Application initiated by the Conditions of Development Consent. This will include final advice on augmentation requirements of services to suit future demands of the proposed development (and surrounding area). The need for this has not been identified by SW at this stage. In addition, the Development Servicing Plan charges are generally applicable to new developments of this scale. These charges account for costs of on-going maintenance and upgrade of the local SW system.

6.0 HYDROLOGY ASSESSMENT

The hydrology assessment was undertaken to address the flooding and stormwater issues related to the proposed development. The analysis also included identification of Water Sensitive Urban Design (WSUD) measures to improve the stormwater runoff quality from the proposed development.

6.1 Flooding Assessment

The proposed development lies within a flood prone area in Marrickville LGA. The impact of the proposed development on existing flood behaviour was assessed as per the guidelines provided in Floodplain Development Manual (2005). The impact has been assessed in terms of change in existing flood levels and hydraulic hazard in the catchment. Measures have also been identified to decrease the existing flood risk at the current Marrickville Metro site.

The assessment was carried out for the Preferred Concept Plan for the proposed development.

6.1.1 Existing Infrastructure and Flood Behaviour

Marrickville Metro lies in the EC East Subcatchment, which is one of the catchment management areas designated by Marrickville Council within the Local Government Area. Development in the catchment consists of high-density residential terrace-housing, with very few free-standing homes. Sydney Water drainage infrastructure carries the floodwaters through the catchment, which ultimately discharges into the Eastern Channel. Figure 1 shows the layout of the catchment and major drainage lines relevant to the study area.

The major components of the drainage lines include pipe culverts along Murray Street and an open channel downstream of Edgeware Road and Alice Street intersection (Figure 1). Major diversion works have been carried out in the past to divert flow from the open channel into the pipe culverts near the Edgeware Road/Alice Street intersection. All piped drainage upstream of this location that used to discharge in to the open channel is now carried by the pipe culverts, which ultimately discharge to the Eastern Channel. This diversion has effectively reduced the size of the catchment that drains to the Marrickville Metro to a small local catchment between Edgeware Road/Alice Street intersection to Victoria Road. Consequently, the flooding associated with the main channel and SW culvert under the Marrickville Metro has reduced significantly.

The Edgeware Road/Alison Street intersection is a natural low point and in flood events of 2 year ARI and above, all surface overland flow from the upstream catchment arrives at this location. Part of this ponded water enters the open channel and drains towards the Marrickville Metro. However, majority of the flow is carried down Edgeware Road and then on to Victoria Road.

The street drainage at the intersection of Llewelllyn Street, Alice Street and Edgeware Road also discharges into the open channel. This channel is closed under the Marrickville Metro and continues as such further downstream under the industrial building (location of the proposed new building). It ultimately discharges to an open channel (a tributary of Eastern Channel) near Sydney Steel Road.

A significant flow also travels along Victoria Road from the west and arrives at the low point on this road opposite the Marrickville Metro entrance. In addition some of the flow along Murray Street also diverts into Victoria Road from the east. Lastly, overtopping of the open channel at Victoria Road also contributes to flooding at that location. The ponded water at the low point overtops the street kerb in front of the Marrickville Metro and runs down to the open area in front of the Marrickville Metro entrance. This overtopping flow from Victoria Street starts at a 2 year ARI event.

Smidmore Road has a raised elevation near the entrance to the Marrickville Metro. In a 100 year event, the floodwaters enter Smidmore Road from both east and west but generally pond in the street, without creating a flow/path between Murray Street and Edinburgh Road.

6.1.2 Model Update

A two-dimensional TUFLOW hydraulic model of the catchment has been prepared as part of the Eastern Channel East Subcatchment Management Plan (Golder, 2010) for Marrickville Council. The model is based on an Aerial Laser Scanning (ALS) elevation dataset. Residential and commercial premises within the catchment were represented in the model by raising the elevation of those land parcels approximately 5 m above ground level. Where applicable, stand-alone buildings and current open areas were considered separately.

The elevation dataset of the model was updated in the vicinity of the site using new survey obtained as part of this study (William L. Backhouse, 2010). The purpose of the new survey was to improve geometric definition of the model in the vicinity of the proposed development. The new survey consisted of road crown levels, kerb and gutter levels, as well as levels along property boundaries. Spot elevation heights were also obtained in open areas where existing definition required supplementary information. Level information was also obtained for the Smidmore St property and consisted of footpath and wall heights.

Following update of the geometry of the model, the 2 y and 100 y Average Recurrence Interval (ARI) design flood events were modelled considering the 30 min and 60 min storm events (critical duration for the site). The reported modelled flood depths are the maximum of these two storm events.

Figures 3a and 3b present the modelled maximum flood depth for the 2 y and 100 y ARI design flood events. Figures 4a and 4b present the modelled maximum provisional flood hazard for the 2 y and 100 y ARI design flood events.

6.1.3 Modelling of Preferred Development

The preferred development was incorporated into the model by blocking out the proposed building footprint . The extent of the proposed development and the location of the two new delivery dock areas are shown in Figure 2.

The hydraulic model was then executed for the 2 y and 100 y design flood events using the 30 min and 60 min storm events. The difference in modelled flood depth and provisional flood hazard between existing conditions and the proposed development was then calculated.

6.1.4 Impact of Proposed Development

Figure 5 presents the change to modelled maximum flood depth for the 2 y and 100 y design flood events as a result of the proposed development. Figure 6 presents the change to modelled provisional flood hazard for the 2 y and 100 y design flood events.

From Figure 5, the modelled increase in flood depth in the 2 y and 100 y design flood events is less than 5 cm in the vicinity of the site, except for a very small area at the corner of Victoria Road and Murray St where the predicted increase in flood depth is more than 10 cm in the 100 y event.

From Figure 6, there is no change in modelled provisional flood hazard in the 2 y event. In the 100 y event there is a minor increase and decrease within individual cells along Murray St, however, this is not significant.

6.1.5 Existing Capacity of the Channel under the Proposed Development

As discussed above, the Sydney Water culvert (circa 1911) that runs under Marrickville Metro consists of a covered channel (6'6'' wide by 3'3'' tall). Below Smidmore St, the channel is slightly wider (7'9'' wide by 3'3'' tall) to Edinburgh Road. That culvert then continues to Eastern Channel.

Hydraulic analysis, as reported in Golder (2010), indicates that the upper portion of this culvert does not flow full in the 10 y ARI design flood event. However, it does flow full in the 100 y event. The level of service of the upper portion of this culvert is therefore between 10 y and 100 y ARI. For the lower portion of this

culvert, below Smidmore St, analysis indicates that it flows full in the 5 y event and above. The level of service of this part of the culvert is therefore between 2 y and 5 y ARI. Surface topography in the vicinity of the lower portion of the culvert, however, is flat and the low level of culvert service reflects impact of downstream levels within Eastern Channel.

As discussed in Section 6.1.1 the flow from majority of the catchment that drained to this culvert has been diverted in to pipe culverts laid under Murray Street. As such any enhancement of the culvert under Marrickville Metro is not likely to provide significant flood mitigating benefits.

6.1.6 Improvement to Existing Flood Risk

The existing Marrickville Metro is affected by flooding from the Victoria Street entrance. Various options were identified to address the flood risk and hydraulic modelling undertaken to assess the impact of these options.

Initially, it was assumed that the flows up to the 100 year ARI flood event could be blocked from entering the Marrickville Metro and a model run was undertaken to assess its impact on the neighbouring properties. The model results indicated that such an arrangement would adversely impact on the neighbouring properties by increasing the flood levels. Hence this was not an acceptable solution.

To minimise the impact on the neighbouring properties it was estimated that the improvement in the flood risk may only be possible for a small magnitude event and hence a second model simulation was carried out to determine the impact of preventing flooding of the Marrickville Metro in a 2 y ARI event. This involved a minor increase in ground elevation (5 to 10 cm) of the footpath along Victoria Road to prevent overtopping during this flooding event.

Figure 7 presents the change in modelled maximum flood depth for the 2 y and 100 y design flood event as a result of the proposed development as well as the minor increase of ground elevation of the footpath along Victoria Road. Figure 8 presents the change to modelled provisional flood hazard for these same design events.

From Figure 7, the modelled increases in flood depths in the 2 y and 100 y design flood events are less than 5 cm in the vicinity of the site, again except for a very small area at the corner of Victoria Road and Murray St, where the predicted increase in flood depth is more than 10 cm in the 100 y event.

From Figure 8, there is no change in modelled provisional flood hazard in the 2 y event. In the 100 y event, there are minor increases and decreases within individual cells along Murray St, however, this is not significant.

Hence the flood risk for the existing Marrickville Metro can only be improved to a 2 yr ARI event, without impacting the neighbouring properties.

After review by MC through the DOP review process, and as agreed with MC during the recent discussions, the following two additional options will be investigated:

- Provide pipe drainage from the low point in Victoria Road in front of the shopping centre to an appropriate location on Murray Street to achieve a suitable grade.
- Provide an overland flowpath from the low point on Victoria Road to an appropriate location on Murray Street to achieve a suitable grade.

The above options would be undertaken in consultation with MC in the later design stages keeping in view the limitations imposed by heritage paving and a row of mature trees along Victoria Road.

6.1.7 Recommended Floor Levels

The recommended floor levels were determined from the model simulation of the critical duration 100 y event, incorporating the proposed development. Figure 9 presents the modelled flood levels at various locations around the development. It is noted that a freeboard of 500 mm has been added to the modelled

levels, consistent with MC's Flood Policy. The recommended floor levels, based on modelling simulations, are summarised as follows:

- Recommended floor level for Smidmore St Building (New Building) is greater than or equal to 5.90 mAHD.
- Recommended floor level for Loading Dock 3 (Existing Building) is greater than or equal to 6.40 mAHD.
- Recommended floor level for Loading Dock 1 (Smidmore St Building) is greater than or equal to 5.75 mAHD.

The proposed floor level for the new building is 5.9 m AHD and therefore complies with the above requirements.

Critical infrastructure such as Electrical Substations and Electrical Control Rooms may require a higher level of protection.

6.1.8 Flooding of the Dock Areas

Modelled flood behaviour is discussed with respect to each of the dock areas.

Loading Dock 3 (Existing Building)

Modelled 100 y flood height at entrance to Loading Dock 3 is 5.82 mAHD. At the driveway entrance to the dock area there is a ramp commencing at 6.0 mAHD, rising to 6.6 mAHD. Modelled flood height including freeboard (6.40 mAHD) is less than proposed ground level at the top of the ramp. Therefore the driveway entrance to the dock area may be subject to ponded water in a 100 y event but the inner dock should remain flood free.

Floor level of the existing building is 6.6 mAHD, therefore potential refuge areas are available for employees whom happen to be working in the dock area at the time should the inner dock become flooded by another mechanism.

Loading Dock 1 (New Building)

Modelled 100 y flood height at entrance to Loading Dock 1 is 5.25 m AHD. At the driveway entrance to the dock there is a ramp commencing at elevation of 4.8 mAHD, rising to a maximum of 5.9 m AHD, being the proposed floor level for the Smidmore St (new) building. Modelled flood height, including freeboard, is 5.75 m AHD, therefore ponded water in the dock area (including freeboard) will range in depth from 0 cm inside the dock to 95 cm near the entrance.

Floor level of the Smidmore St building is 5.9 mAHD, therefore potential refuge is available for employees whom happen to be working in the dock area at the time.

7.0 WATER SENSITIVE URBAN DESIGN

Urban developments have significant impact on the local water cycle. WSUD principles provide the framework to implement measures for integrated urban water cycle management, which includes water supply, sewerage and stormwater management.

A number of measures have been identified for the proposed development to minimise its impact on the water environment. Various WSUD measures that are likely to fulfil SW and Marrickville Council requirements are discussed below:

7.1 On-site Detention

The purpose of OSD is to maintain the stormwater discharge from the site to the pre-development conditions and minimise impacts on the downstream environment.

The size of the OSD is determined by the change in the pre and post development landuse for the site. The proposed development would be constructed on a completely impervious existing industrial site. As such the

proposed development, which has a lower level of imperviousness than the current conditions, would not generate additional stormwater runoff. Therefore, in principle, OSD is not required for the proposed development. However, SW has indicated the need to provide an OSD for the benefit of downstream areas and recommended the following parameters for the provision of an OSD for the new building:

- Site Storage Requirement – 173 m^3
- Permissible Site Discharge – 318 L/s

The above requirements are for the 100 year ARI design storm. A copy of the SW letter that sets out the above OSD requirements is presented in Appendix D.

Since it is planned to connect the site drainage directly to the SW culvert, the MC OSD policy is not applicable to the proposed development as per the MC's Stormwater and On-site Detention Code (Feb, 1999)

7.1.1 Location of OSD

The proposed new building has a limited space to accommodate an OSD on the ground. However there are a few options available to provide the required OSD. The area under the proposed ramp for the new building presents an option. The available area for the OSD, however, will be limited since water quality improvement measures have also been earmarked for this area.

The extensive roof-top car park presents another option for an OSD. The site storage requirement can be accommodated in the car park area of approximately 8000 m^2. Further details of the OSD would be provided at the detailed design stage.

7.2 Stormwater Quality Improvement

The NSW Department of Environment Climate Change and Water (DECCW) guidelines presented in 'Managing Urban Stormwater – Council Handbook (1997)' establish the water quality discharge requirements for urban stormwater. The proposed new development at Edinburgh Road would provide appropriate WSUD measures to meet these requirements.

The majority of the runoff from the proposed development would originate from the car park provided at the roof of the new building. The possible contaminants are suspended solids, hydrocarbons and other trace elements such as zinc, copper and lead. Treatment of hydrocarbons would be of primary concern for the proposed development.

A low quantity of hydrocarbons can be treated in vegetated swales by continuous biological breakdown in the soils, without impacting the plants. However, given the size of the car park, it is likely that the load of hydrocarbons may not be treatable with vegetated swales alone and this may require more advanced treatment such as oil separators.

The proposed development incorporates some landscaped areas around the development. These areas would provide opportunity to treat the site runoff through bio-retention swales. Potential locations of bioswales are shown in the Landscape Design Package prepared by Site Image, Landscape Architects. These bioswales would need to be approved as part of the landscape design.

7.2.1 Preliminary WSUD concept

The proposed new development on Edinburgh Road provides an open space of approximately 800 m^2 under the ramp located in the south-west of the site. A preliminary concept of the required treatment train has been developed for this area to achieve the stormwater quality objectives. According to this concept, the runoff from the roof-top parking would first be passed through an oil and grit separator followed by a grassed swale to remove the coarse sediments. The runoff would then be diverted to a bio-retention system for removal of suspended solids and nutrients. The treated water would be discharged to the SW culvert via an underdrain of the bio-retention system. A layout of this treatment train is shown in Figure 10.

A preliminary estimate suggests that for the 9000 m^2 of the proposed development, approximately 450 m^2 would be required for a bioretention system to achieve the water quality objectives. This bioretention area can be accommodated in the available area under the ramp. A schematic for a conceptual bio-retention system is shown in Figure 12. Further analysis of the treatment system would be carried out at the detailed design stage for the development.

7.3 Water Re-use

The stormwater runoff from the site can potentially be captured and re-used on-site.. This can include irrigation of landscaped areas, hosing of hard areas and possibly toilet flushing. However, given the quality of runoff (discussed above), treatment measures would be provided to achieve the desired quality. In addition, storage would also be provided to meet demand for various uses on site.

Another possible source for water re-use is the greywater generated on site. Preliminary estimates are that greywater could be available for re-use within the proposed development. Further assessment of this re-use option would be undertaken at a later stage.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the study results, the following conclusions can be drawn regarding the impact of the proposed development:

1) Modelling results indicate that the proposed development has an insignificant impact on the existing flood levels.

2) There is no change in the existing flood hazard due to the proposed development.

3) By raising the spill level (footpath level) along Victoria Street by 5-10 cm, the flooding of the existing low area near the entrance of Marrickville Metro can be prevented from a 2 yr ARI event. This can be achieved with insignificant impact on the surrounding properties.

4) The current culvert under the new building on Edinburgh Road can carry flow for approximately a 5 yr ARI event. Any augmentation of this culvert is likely to provide only a minor benefit due to the impact of other hydraulic controls (flat slope and backwater effect) in the drainage system.

5) The proposed levels for the dock within the existing building would provide an appropriate flood safety for a 100 yr ARI event. The proposed levels for the dock within the new building would allow floodwaters to enter the dock in a 100 yr ARI event. However the hazard within the dock would be low. In addition, refuge areas would be available within the dock for employees working in this managed area.

6) An OSD for the proposed new development at Edinburgh Road would be provided as per SW recommendations. It has been assumed that the site drainage from this development would be connected directly to the SW culvert and therefore the MC requirements for provision of an OSD are not relevant.

7) The landscaped areas provide opportunity to improve the stormwater quality runoff generated from the site.

8) A treatment train including bioretention system is proposed for the new development at Edinburgh Road to improve the runoff quality from the development.

9) Rainwater re-use is proposed for this development.

10) The following recommendations are made for establishing floor levels for the proposed development.

11) The proposed floor level for the new building on Edinburgh Road is 5.9 mAHD. This level provides a freeboard of 500 mm above the 100 yr ARI event.

12) The other recommended floor levels are

a. Loading Dock 3 (Existing Building) - 6.40 mAHD

b. Loading Dock 1 (Smidmore St Building) - 5.75 mAHD

9.0 QUALIFICATIONS

This report has been prepared for AMP Capital Pty Ltd for supporting the Concept Plan of Marrickville Metro Shopping Centre Extension as a component of Part 3A application to Department of Planning. The report is subject to following qualifications:

- Update of the elevation dataset within the model was based on survey information supplied by William L. Backhouse Pty Ltd (reference no. CH4331 RevB.dwg dated 14 April 2010.
- Proposed development footprint and levels in Loading Dock 3 and Loading Dock 1 based on Drawing EA006 as provided by BLL (reference EA006.PDF received 29 October 2010).
- Pit and pipe information in the model is based on data supplied by Marrickville Council (issued to Golder Associates on 12 January 2009). Independent survey of relevant structures was not provided by BLL.
- Preliminary assessment has been carried out to identify the flood risk to existing shopping centre. Flood management measures have been proposed to alleviate some of this risk. A comprehensive flood risk assessment for the existing shopping centre has not been undertaken in this report nor have measures been identified to comprehensively manage this risk.

Further qualifications that apply to this report are presented in Appendix E.

References:

Golder Associates, 2010; “EC East Subcatchment Management Plan – DRAFT”, A report prepared for Marrickville Council

Graham Brooks and Associates, 2010; “Marrickville Metro Shopping Centre – Concept Plan - Statement of Heritage Impact”, A report prepared for AMP Capital Investors Pty Ltd

Report Signature Page

Habib Rehman
Principal Water Engineer

HR/LJ/hr

A.B.N. 64 006 107 857

j:\hyd\2010\107626036_lendlease_marrickvillemetro\correspondence out\107626036-006-r-rev1-preferred project report-final.docx

LEGEND

- Study Site
- Stormwater Drainage Network
- Catchment Boundary

Note 1: Datum GDA94, Projection MGA94, Zone 56
Note 2: Image dated 20.01.2007 supplied by and sourced under license from Google Earth Pro on 07.05.2010.

CLIENT: AMP Capital Investors Limited			PROJECT: MARRICKVILLE METRO			
DRAWN: JRB	DATE: 01-11-2010		TITLE: SITE LOCATION AND CATCHMENT BOUNDARY			
CHECKED: HR*	DATE: 01-11-2010					
SCALE: 1:6,000			PROJECT No: 107626036	FIGURE No: 1	REV No: 0	A3

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\
Note: The * beside the typed initials denotes the original drawing issue was signed or initialled by that respective person.

Golder Associates	CLIENT: AMP Capital Investors Limited		PROJECT: MARRICKVILLE METRO		
	DRAWN: JRB	DATE: 01-11-2010	TITLE: **PROPOSED DEVELOPMENT**		
	CHECKED: HR*	DATE: 01-11-2010			
	SCALE: 1:1,000		PROJECT No: 107626036	FIGURE No: 2	REV No: 0 A3

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\Technical Doc\GIS\
Note: The * beside the typed initials denotes the original drawing issue was signed or initialled by that respective person.

MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED MAXIMUM FLOOD DEPTH (m) EXISTING - 2 Y EVENT

LEGEND

Modelled Flood Depth (m)

- Up to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.4 m
- 0.4 m to 1.0 m
- More than 1.0 m

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,527.11

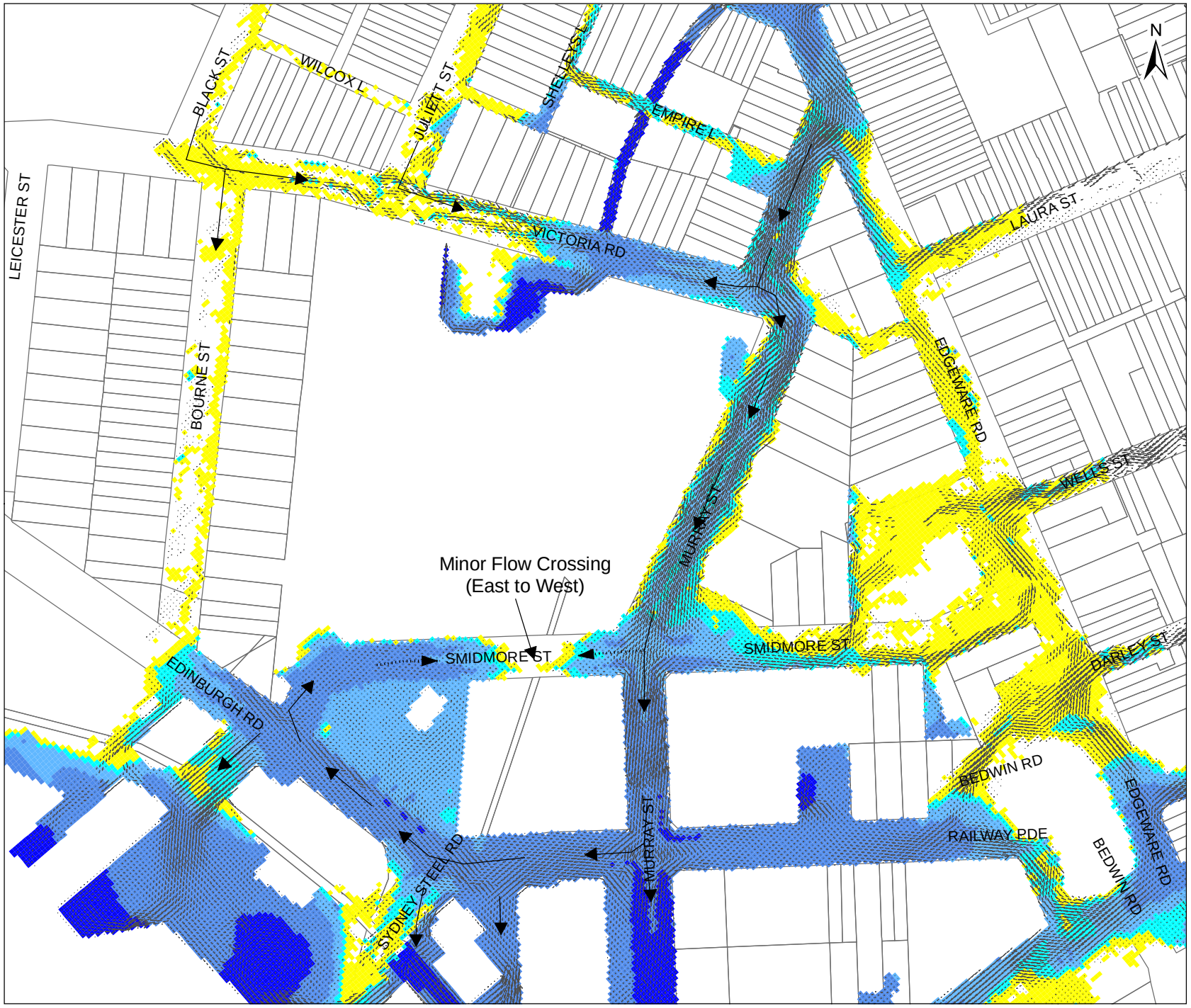
DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **107626036**
DATE: **10 MAY 2010**
DRAWN: **JRB**
CHECKED: **HR**

FIGURE 3a

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED MAXIMUM FLOOD DEPTH (m) EXISTING - 100 Y EVENT

LEGEND

Modelled Flood Depth (m)

- Up to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.4 m
- 0.4 m to 1.0 m
- More than 1.0 m

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,527.11

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **107626036**
DATE: **10 MAY 2010**
DRAWN: **JRB**
CHECKED: **HR**

FIGURE 3b

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\

MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED MAXIMUM PROVISIONAL HAZARD EXISTING - 2 Y EVENT

LEGEND

Modelled Hazard

- Low
- Intermediate
- High

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

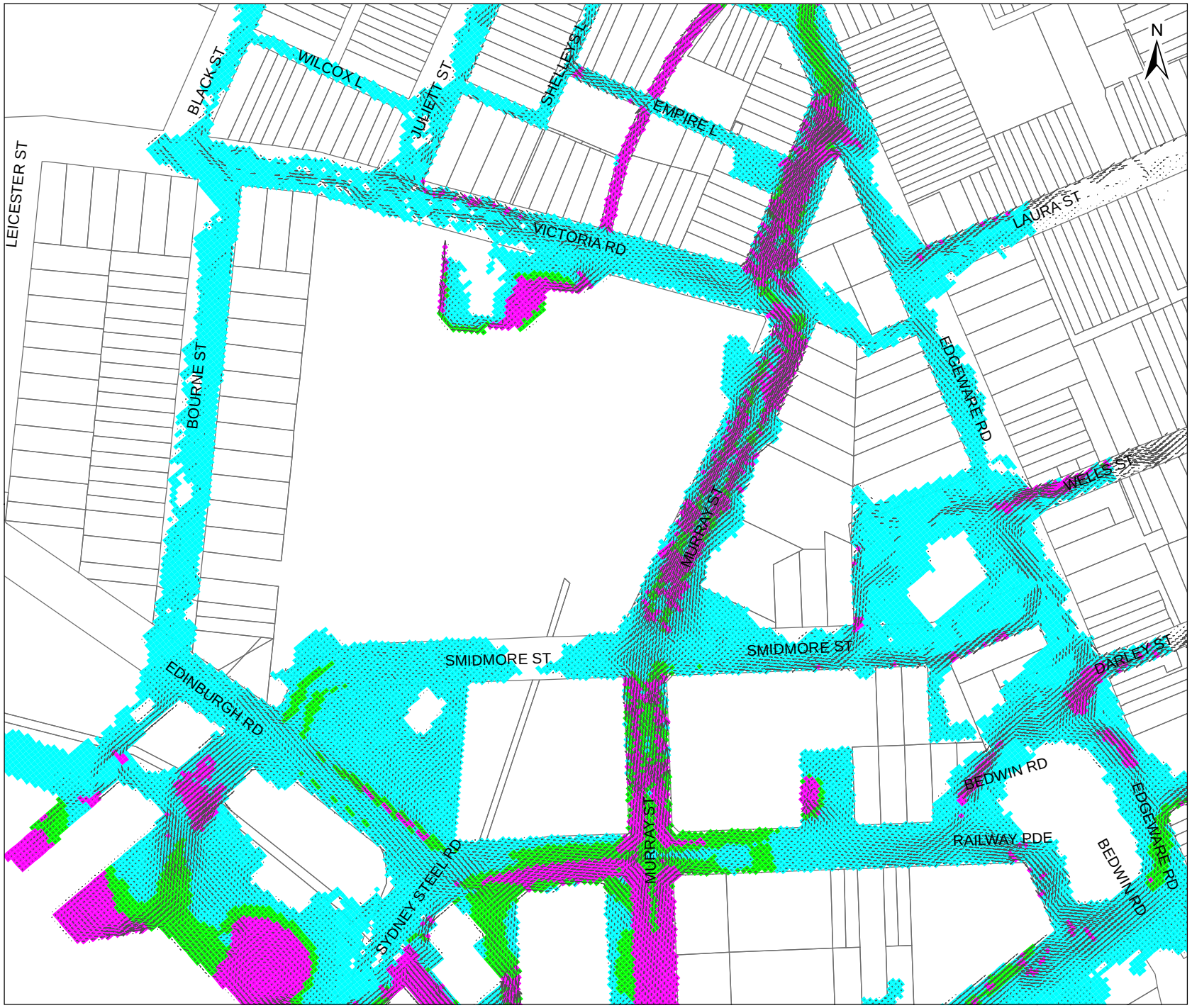
DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: 107626036
DATE: 10 MAY 2010
DRAWN: JRB
CHECKED: HR

FIGURE 4a

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED MAXIMUM PROVISIONAL HAZARD EXISTING - 100 Y EVENT

LEGEND

Modelled Hazard

- Low
- Intermediate
- High

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

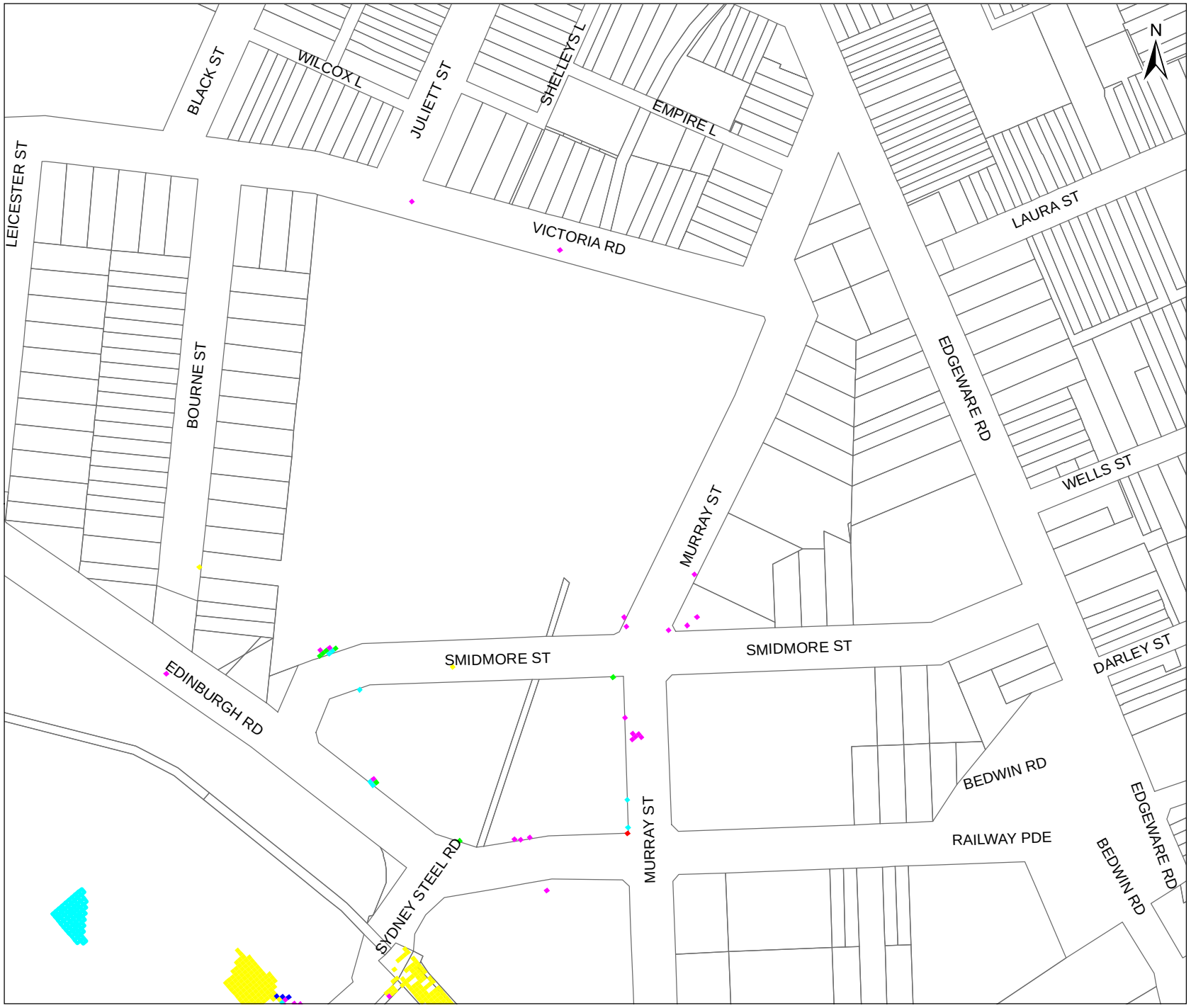
DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **107626036**
DATE: **10 MAY 2010**
DRAWN: **JRB**
CHECKED: **HR**

FIGURE 4b

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED CHANGE TO FLOOD DEPTH 2 Y EVENT

LEGEND

Change to Depth (m)

- Less than -10 cm
- -10 cm to -5 cm
- -5 cm to -1 cm
- +1 cm to + 5 cm
- +5 cm to +10 cm
- More than +10 cm

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

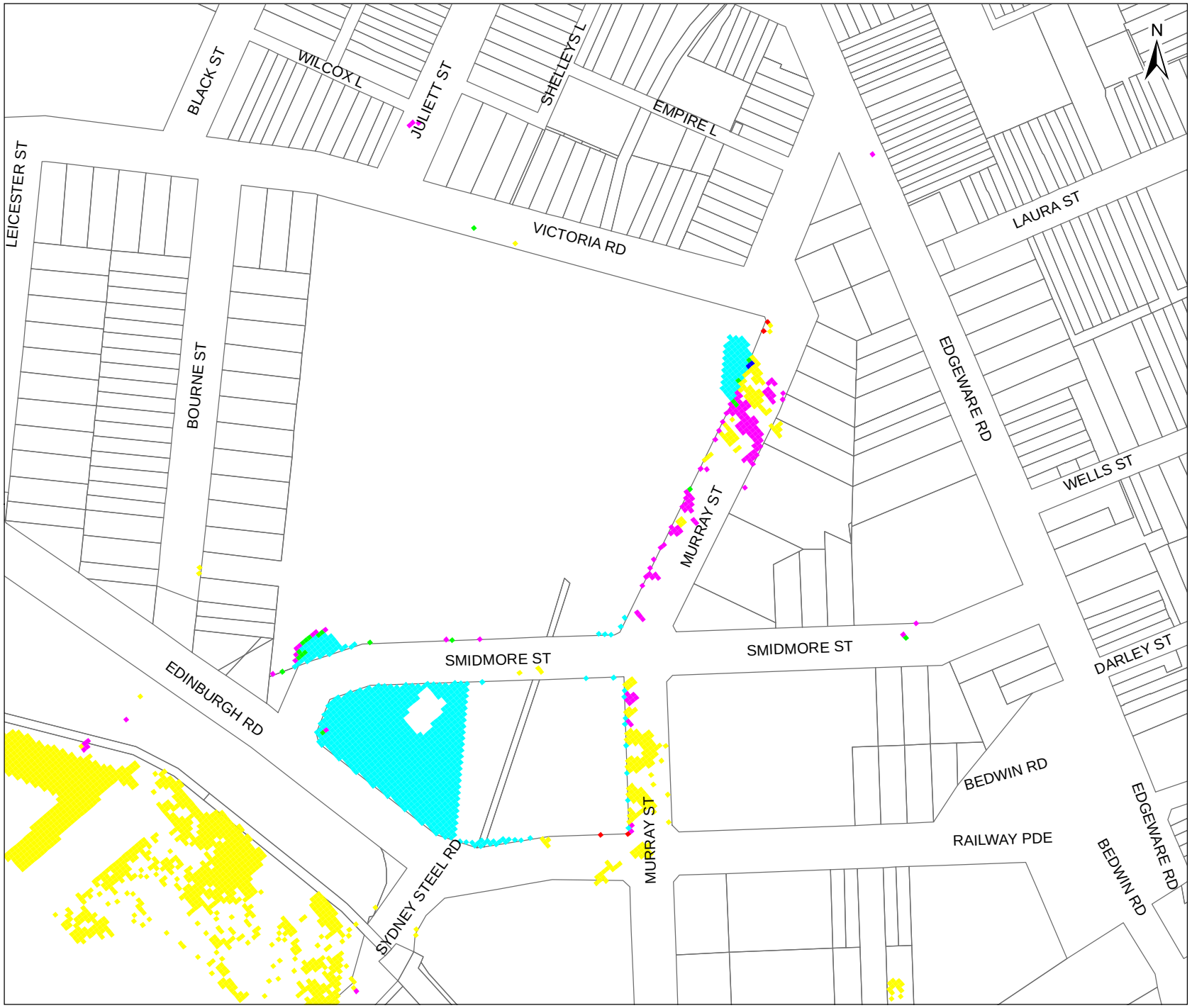
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 26 OCT 2010
DRAWN: JRB
CHECKED: HR

FIGURE 5a

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED CHANGE TO FLOOD DEPTH 100 Y EVENT

LEGEND

Change to Depth (m)

- Less than -10 cm
- -10 cm to -5 cm
- -5 cm to -1 cm
- +1 cm to + 5 cm
- +5 cm to +10 cm
- More than +10 cm

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

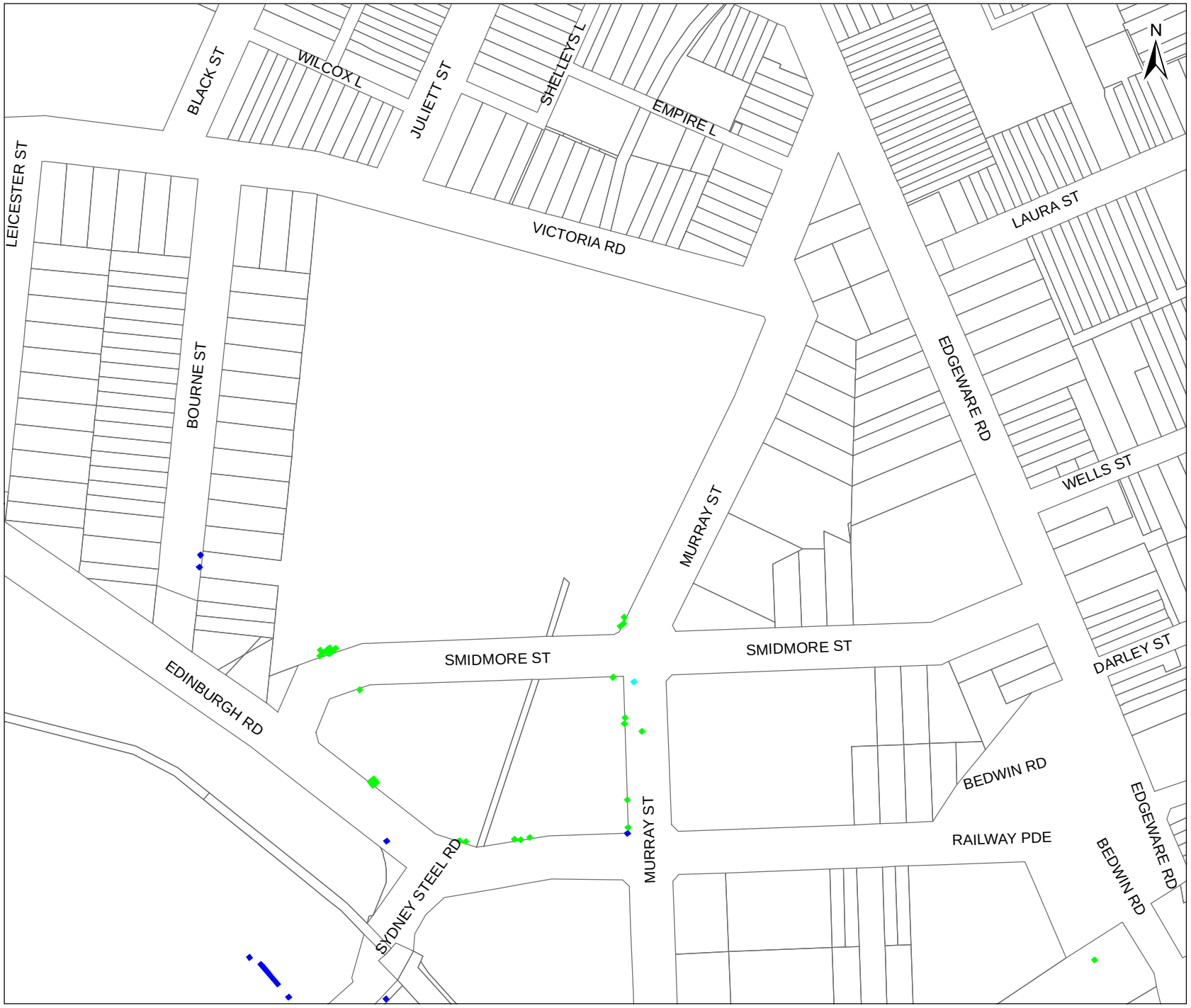
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 26 OCT 2010
DRAWN: JRB
CHECKED: HR

FIGURE 5b

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED CHANGE TO FLOOD HAZARD 2 Y EVENT

LEGEND

Change to Hazard

- -3 Classes
- -2 Classes
- -1 Class
- +1 Class
- +2 Classes
- +3 Classes

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

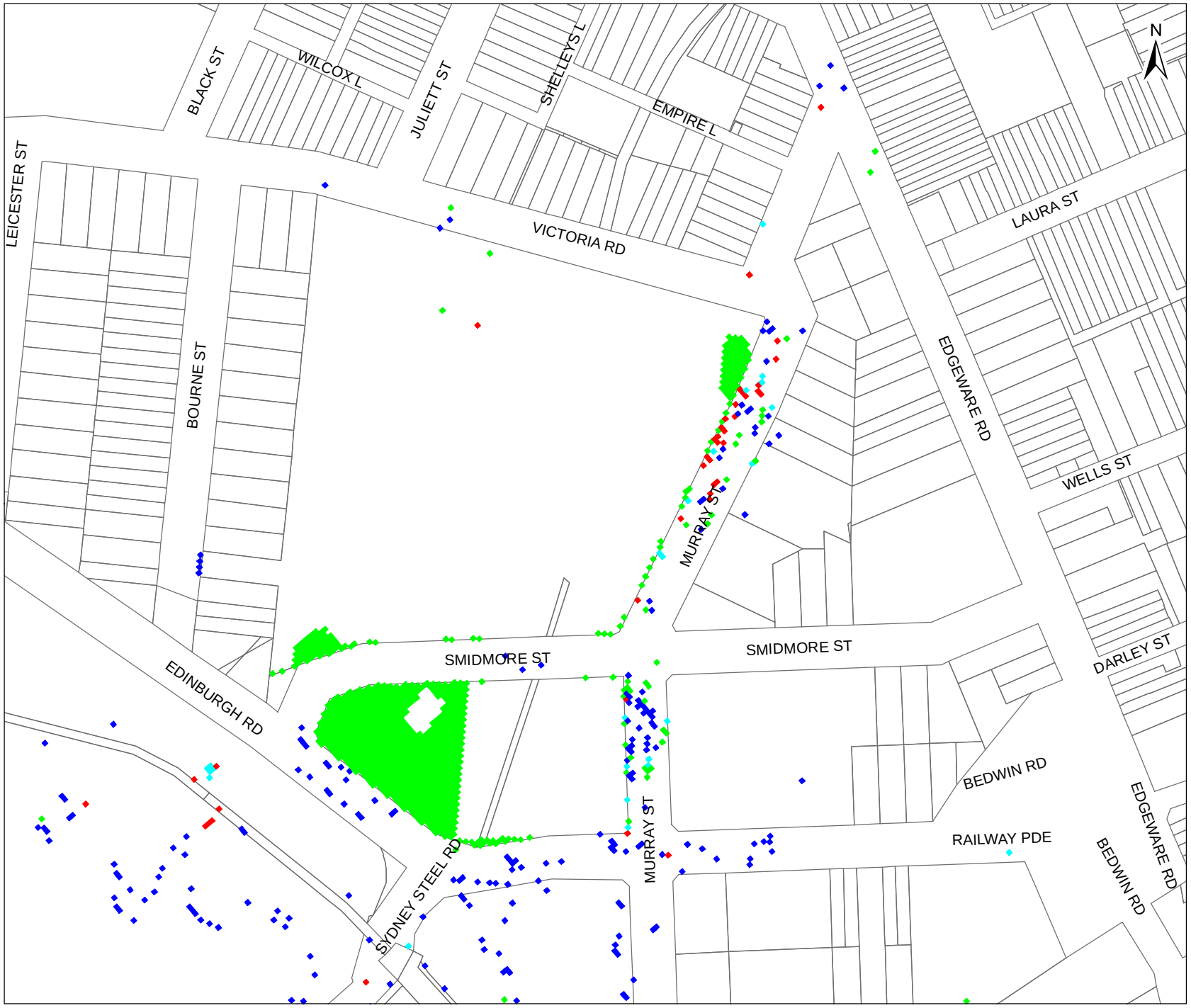
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 26 OCT 2010
DRAWN: JRB
CHECKED: HR

FIGURE 6a

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED CHANGE TO FLOOD HAZARD 100 Y EVENT

LEGEND

Change to Hazard

- -3 Classes
- -2 Classes
- -1 Class
- +1 Class
- +2 Classes
- +3 Classes

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

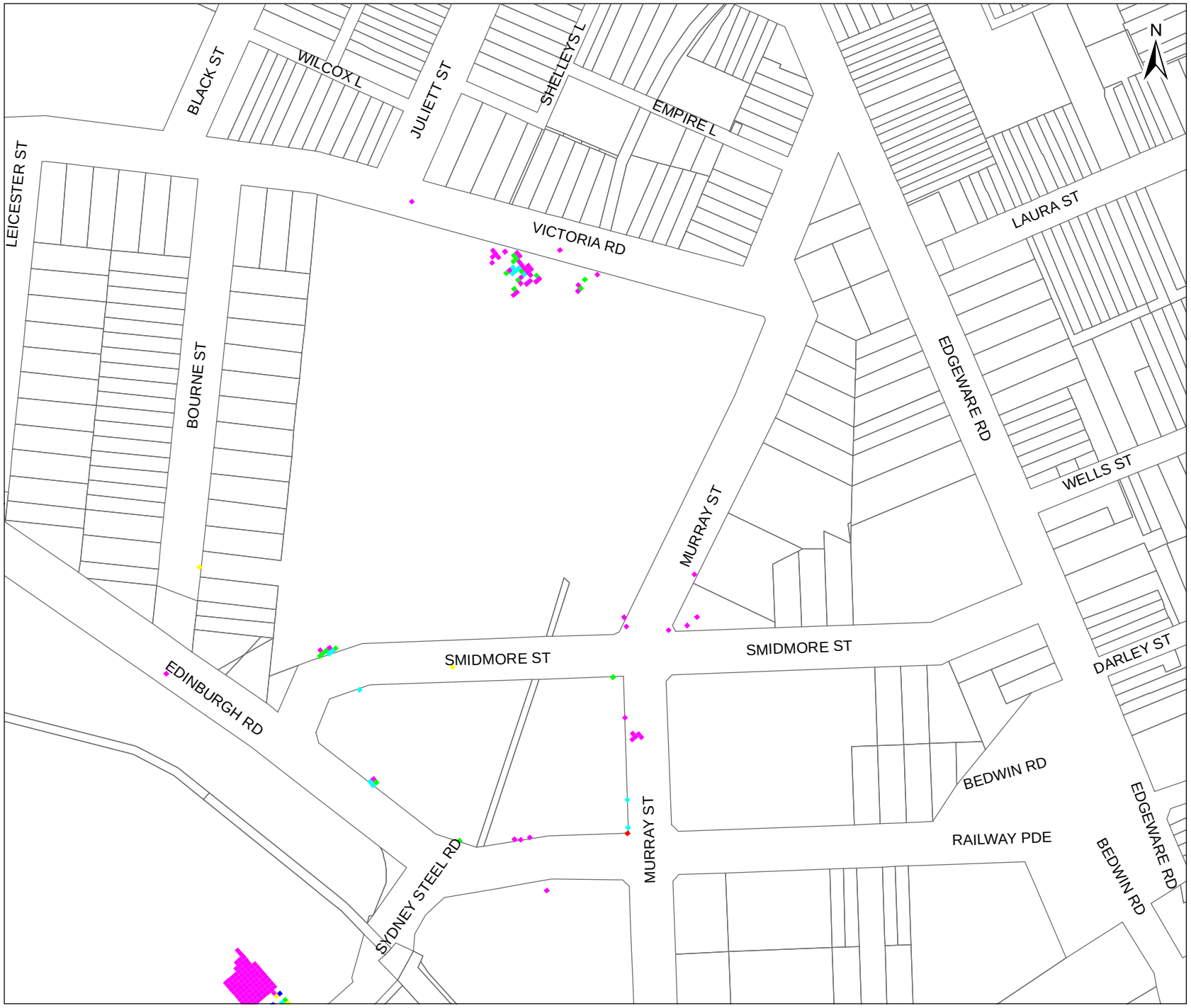
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 26 OCT 2010
DRAWN: JRB
CHECKED: HR

FIGURE 6b

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED CHANGE TO FLOOD DEPTH VICTORIA ROAD 2 Y EVENT

LEGEND

- Less than -10 cm
- -10 cm to -5 cm
- -5 cm to -1 cm
- +1 cm to + 5 cm
- +5 cm to +10 cm
- More than +10 cm

NOTES

Preliminary information only.

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Golder Associates Pty Ltd

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

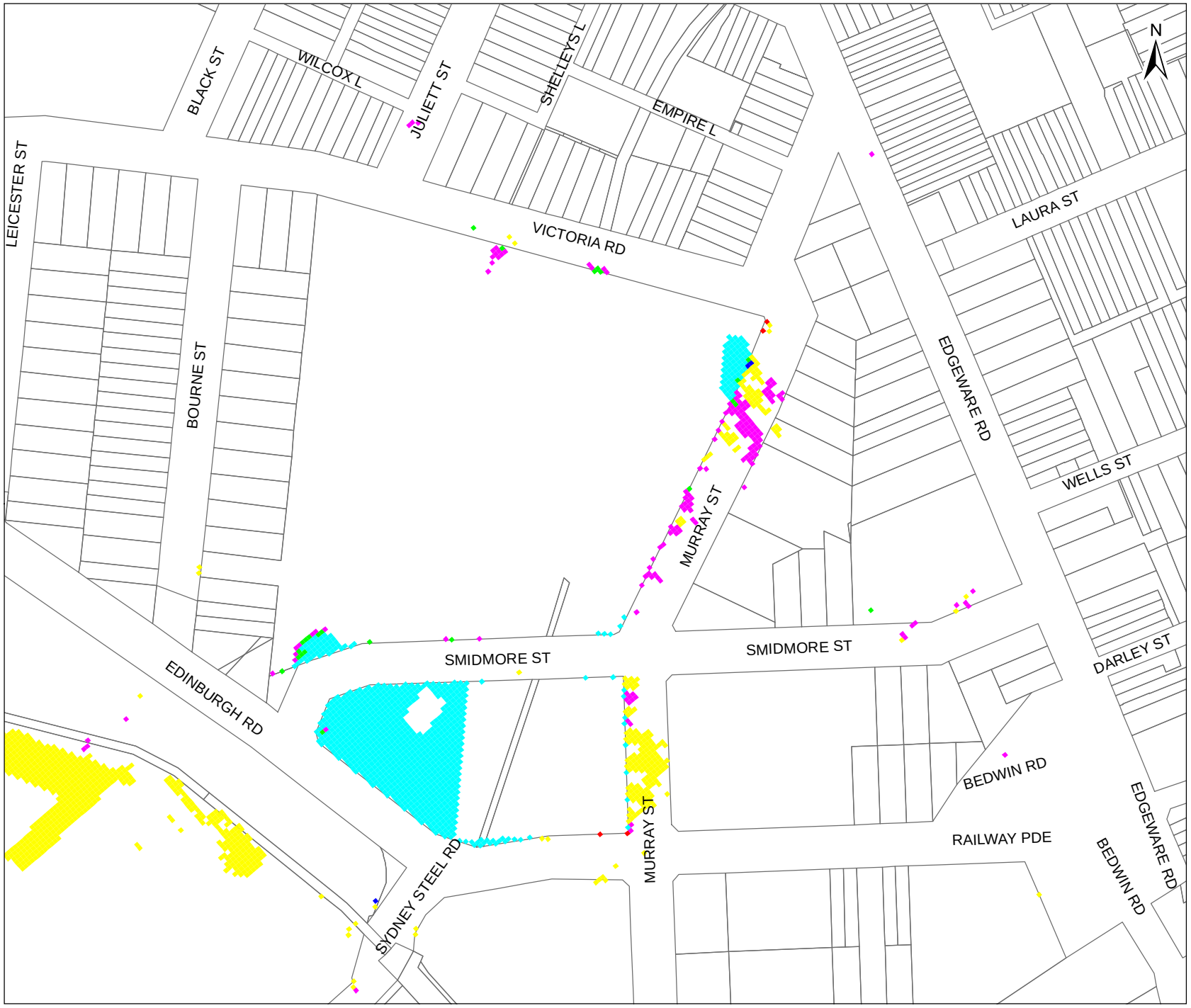
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 26 OCT 2010
DRAWN: JRB
CHECKED: HR

FIGURE 7a

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED CHANGE TO FLOOD DEPTH VICTORIA ROAD 100 Y EVENT

LEGEND

Change to Depth (m)

- Less than -10 cm
- -10 cm to -5 cm
- -5 cm to -1 cm
- +1 cm to + 5 cm
- +5 cm to +10 cm
- More than +10 cm

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

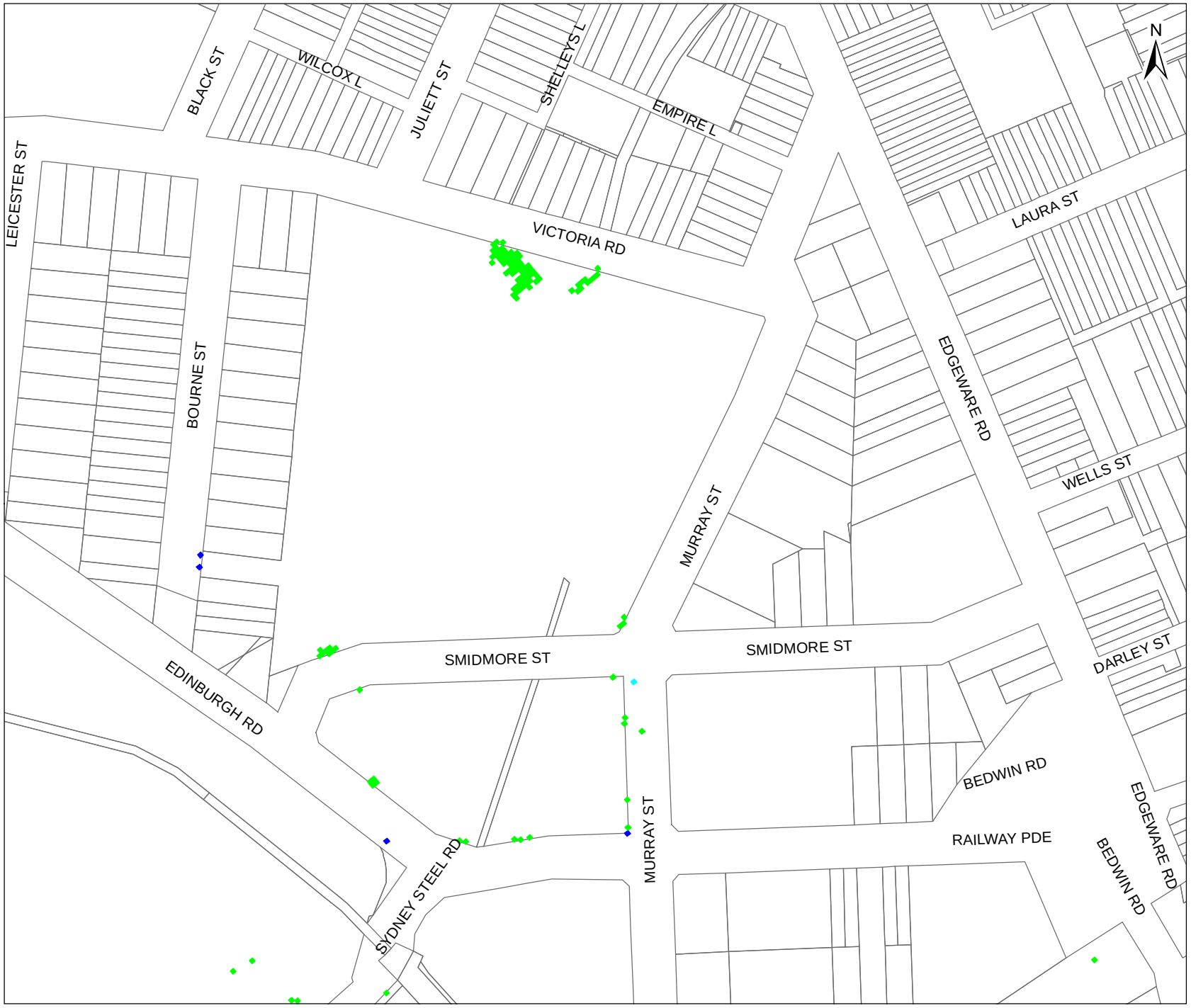
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 26 OCT 2010
DRAWN: JRB
CHECKED: HR

FIGURE 7b

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED CHANGE TO FLOOD HAZARD VICTORIA ROAD 2 Y EVENT

LEGEND

Change to Hazard

- -3 Classes
- -2 Classes
- -1 Class
- +1 Class
- +2 Classes
- +3 Classes

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

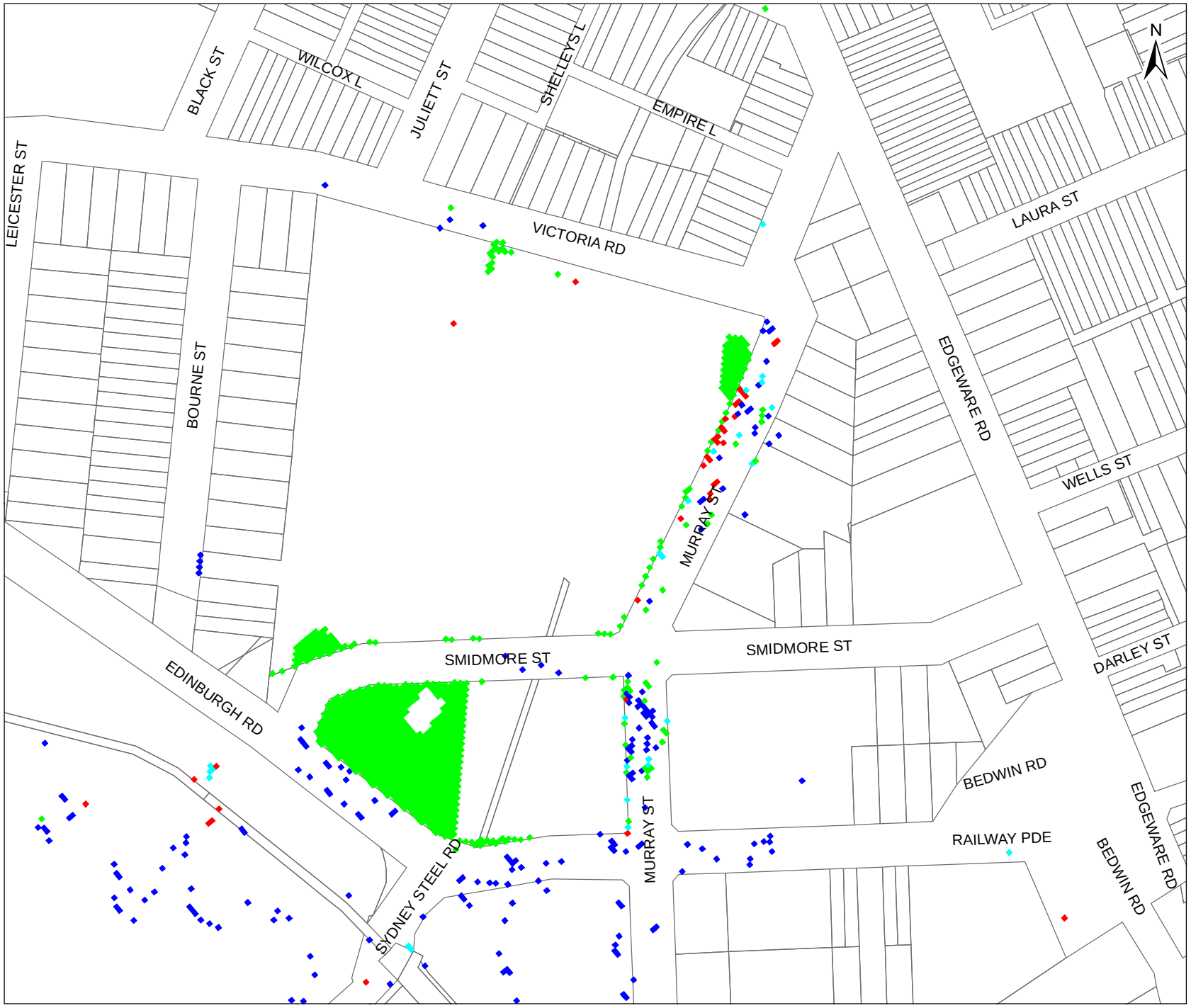
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 26 OCT 2010
DRAWN: JRB
CHECKED: HR

FIGURE 8a

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED CHANGE TO FLOOD HAZARD VICTORIA ROAD 100 Y EVENT

LEGEND

Change to Hazard

- -3 Classes
- -2 Classes
- -1 Class
- +1 Class
- +2 Classes
- +3 Classes

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

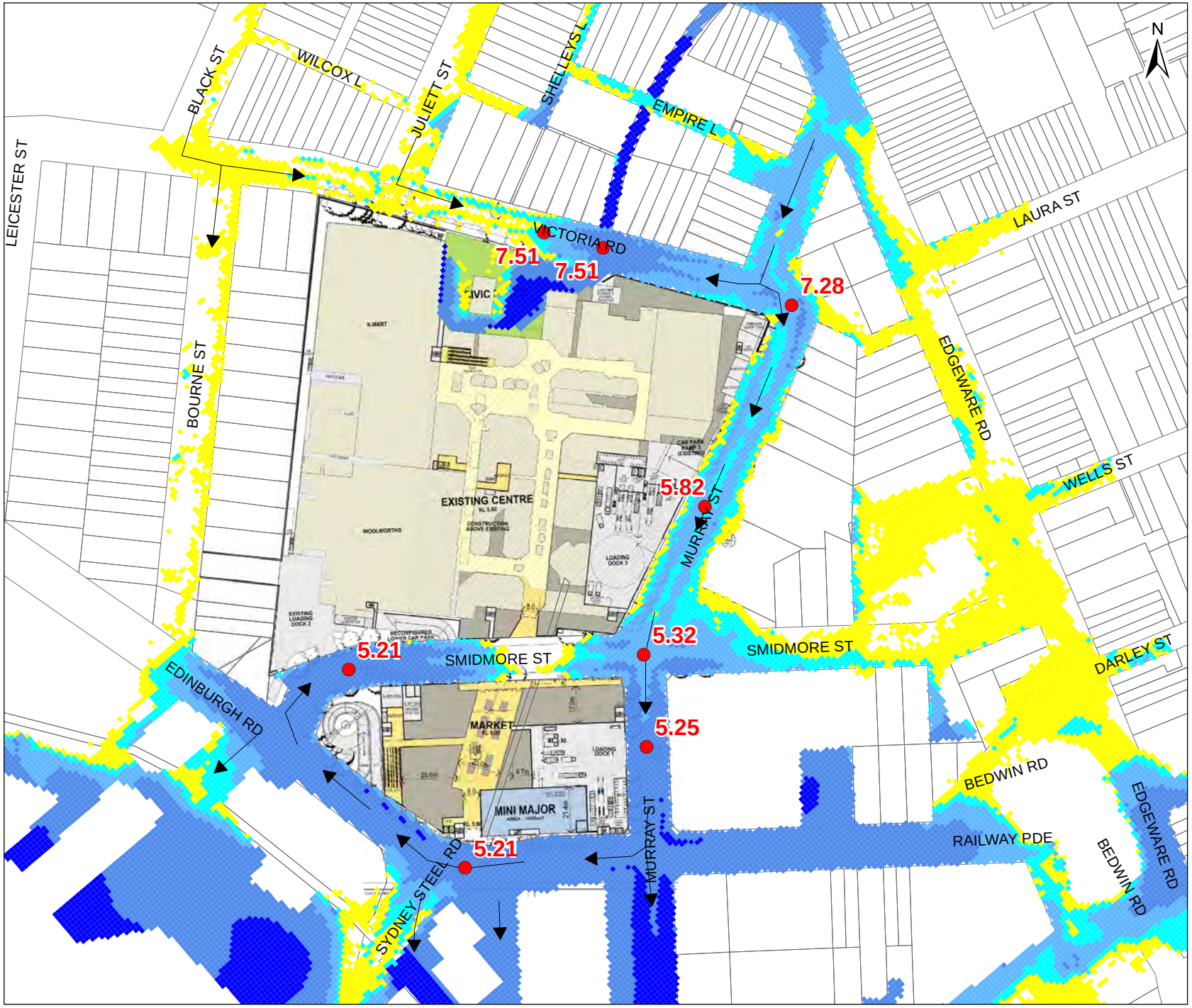
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 26 OCT 2010
DRAWN: JRB
CHECKED: HR

FIGURE 8b

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED MAXIMUM FLOOD HEIGHT (mAHD) DEVELOPED - 100 Y EVENT

LEGEND

- Modelled Height (mAHD)

Modelled Flood Depth (m)

- Up to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.4 m
- 0.4 m to 1.0 m
- More than 1.0 m

NOTES

Preliminary information only.

0 5 10 20 30 40 50 metres

SCALE (at A4) 1:2,500

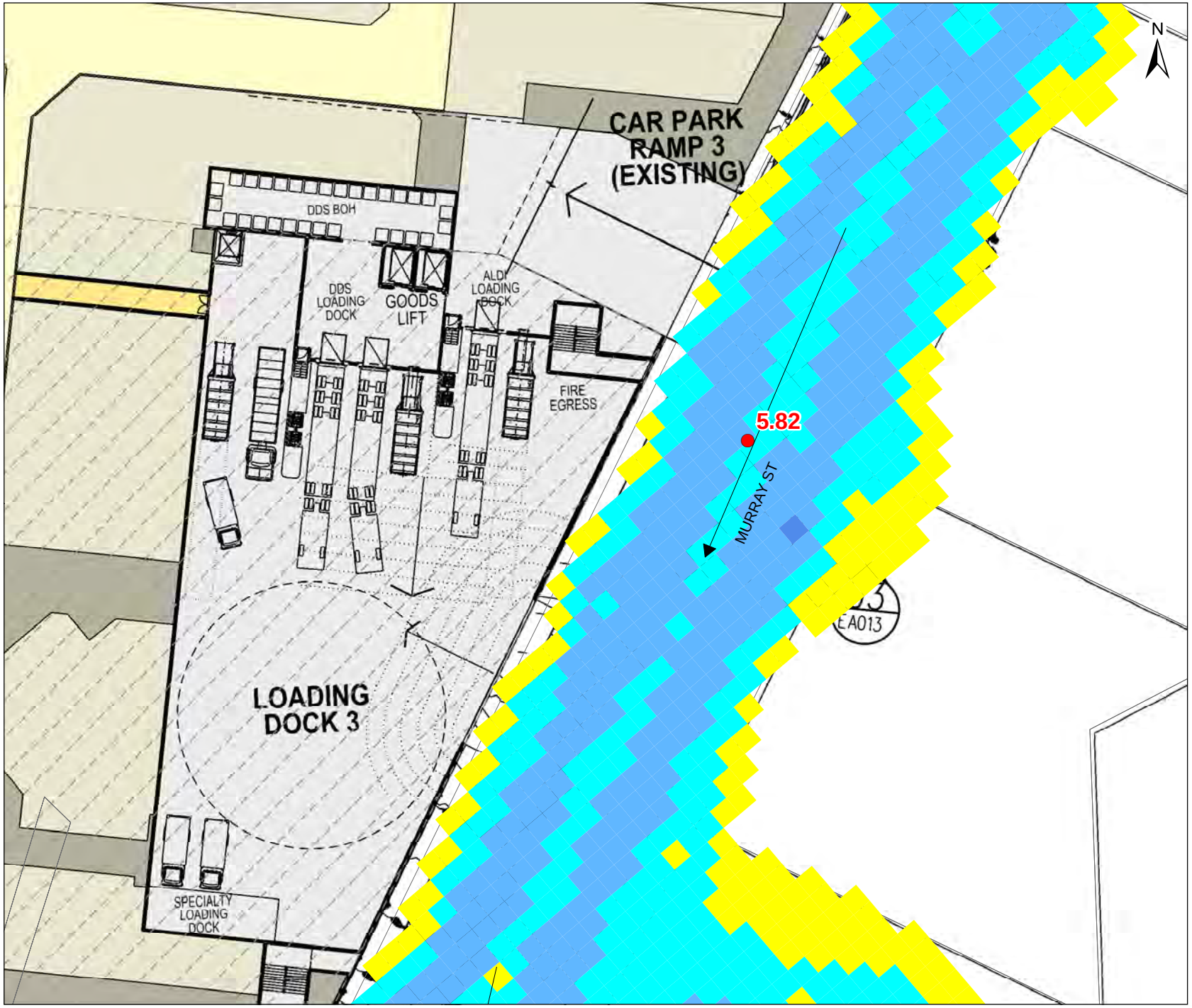
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 01 N0V 2010
DRAWN: JRB
CHECKED: HR

FIGURE 9a

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED MAXIMUM FLOOD HEIGHT (mAHD) DEVELOPED - 100 Y EVENT

LEGEND

- Modelled Height (mAHD)

Modelled Flood Depth (m)

- Up to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.4 m
- 0.4 m to 1.0 m
- More than 1.0 m

NOTES

Preliminary information only.

0 1 2 4 6 8 10 metres

SCALE (at A4) **1:500**

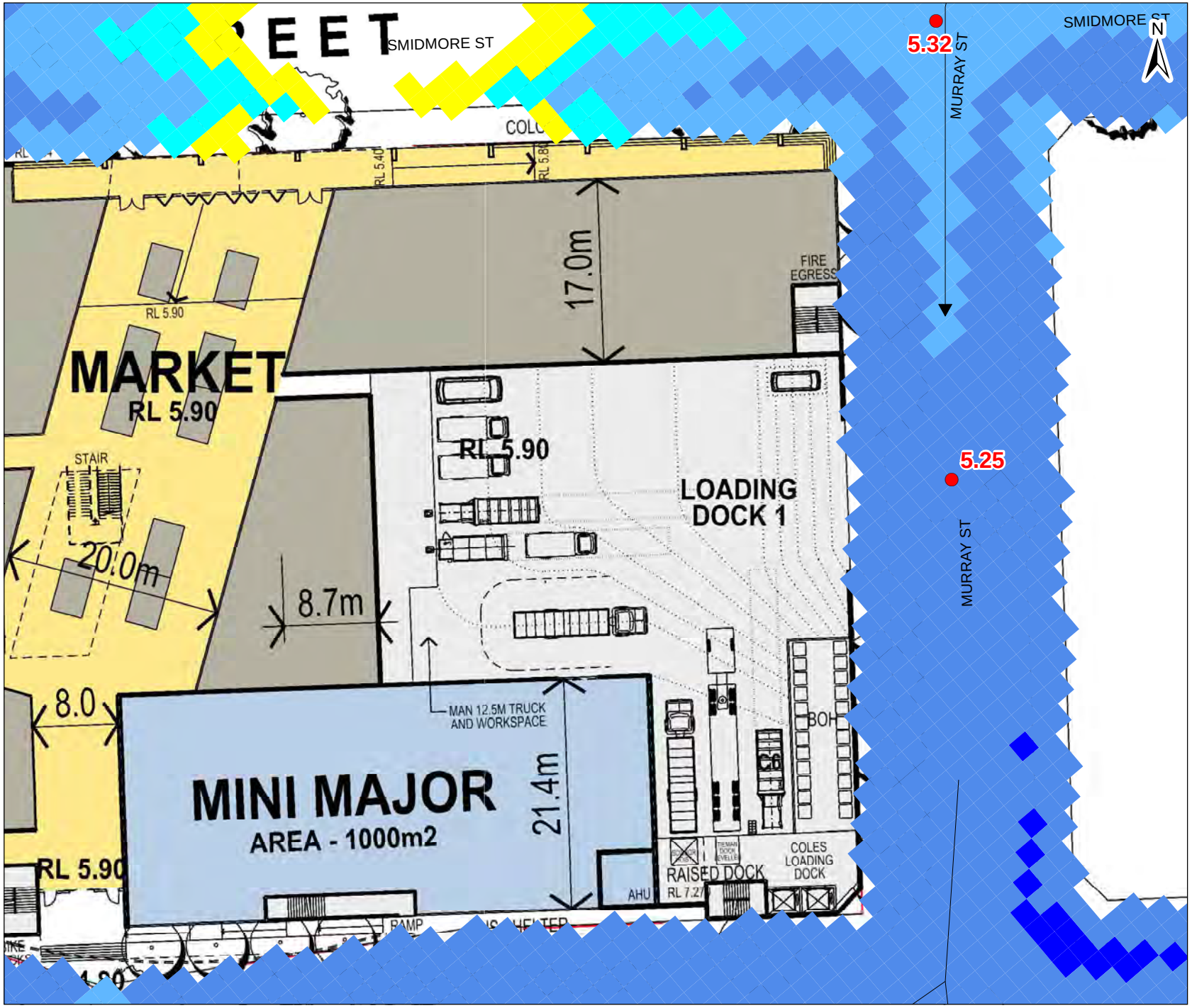
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: **107626036**
DATE: **01 NOV 2010**
DRAWN: **JRB**
CHECKED: **HR**

FIGURE 9b

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



MARRICKVILLE METRO

AMP CAPITAL INVESTORS LIMITED

MODELLED MAXIMUM FLOOD HEIGHT (mAHD) DEVELOPED - 100 Y EVENT

LEGEND

- Modelled Height (mAHD)

Modelled Flood Depth (m)

- Up to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.4 m
- 0.4 m to 1.0 m
- More than 1.0 m

NOTES

Preliminary information only.

0 1 2 4 6 8 10 metres

SCALE (at A4) 1:500

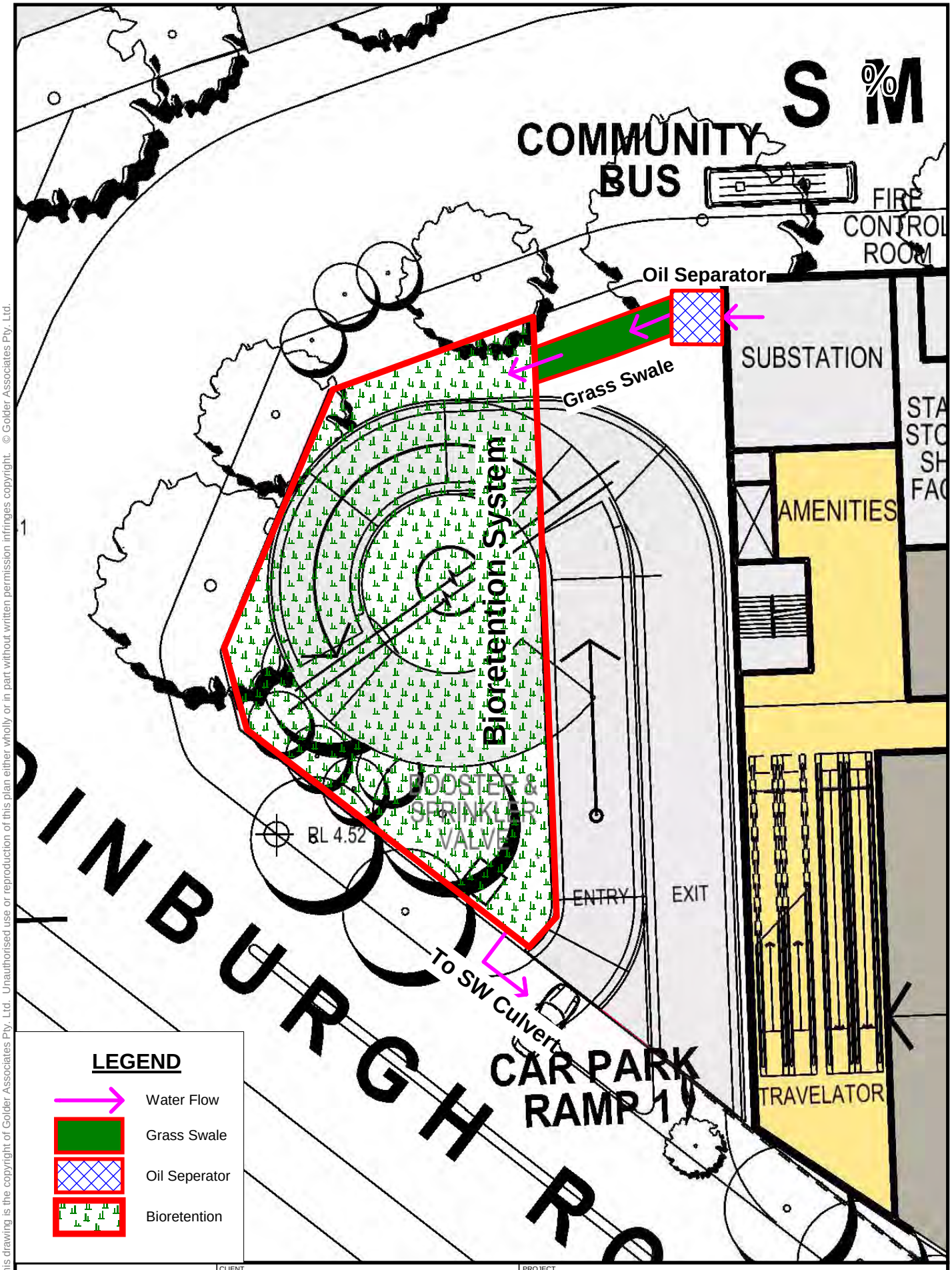
DATUM GDA 94, PROJECTION MGA Zone 56

PROJECT: 107626036
DATE: 01 NOV 2010
DRAWN: JRB
CHECKED: HR

FIGURE 9c

Golder Associates

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\



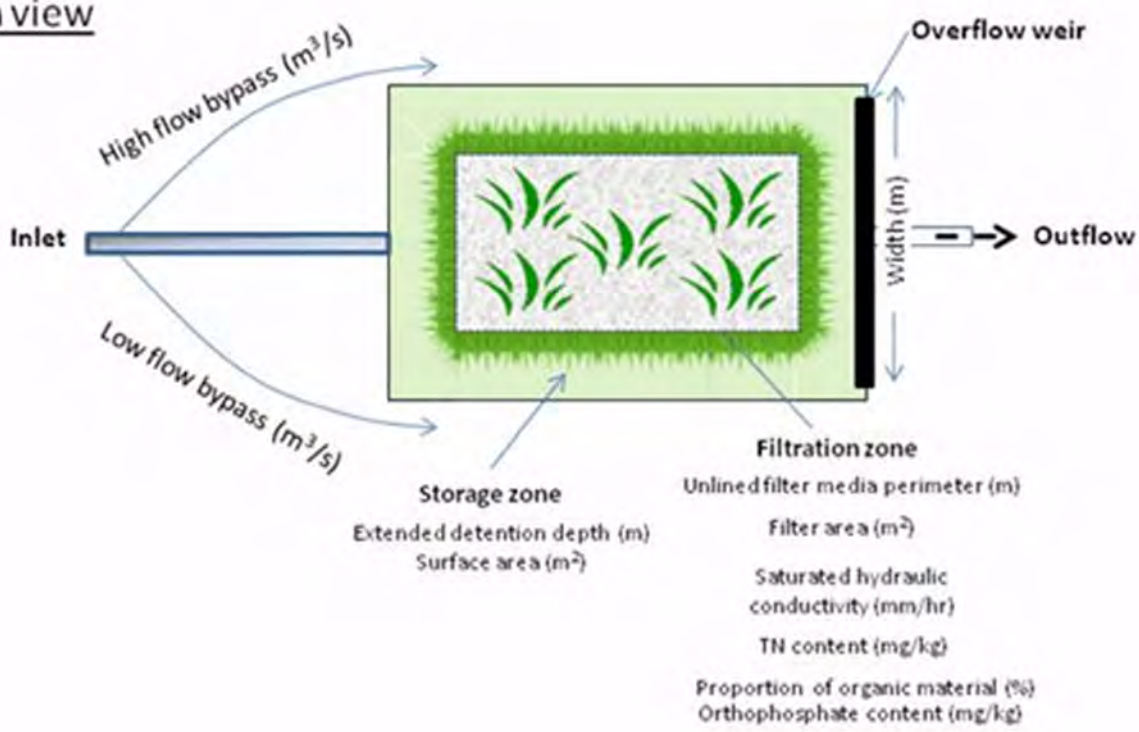
LEGEND

- Water Flow
- Grass Swale
- Oil Seperator
- Bioretention

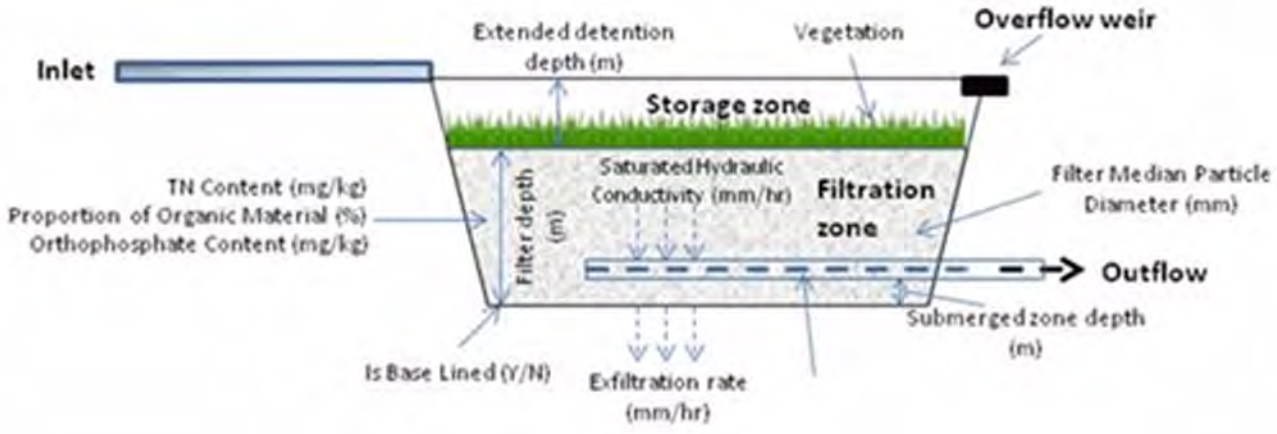
Golder Associates	CLIENT: AMP Capital Investors Limited		PROJECT: MARRICKVILLE METRO		
	DRAWN: JRB	DATE: 01-11-2010	TITLE: **Bio-retention System Layout**		
	CHECKED: HR	DATE: 01-11-2010			
	SCALE: 1:300		PROJECT No: 107626036	FIGURE No: **10**	REV No: **0** A4

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\Technical Doc\GIS\Project\

Plan view



Longitudinal section



Golder Associates	CLIENT: AMP Capital Investors Limited		PROJECT: MARRICKVILLE METRO			
	DRAWN: MB	DATE: 27-10-2010	TITLE: **Conceptual Bio-retention System**			
	CHECKED: JRB	DATE: 27-10-2010				
	SCALE: N/A		PROJECT No: 107626036	FIGURE No: **11**	REV No: **A**	A4

File Location: J:\hyd\2010\107626036_LendLease_MarrickvilleMetro\Technical Doc\GIS\Project\

APPENDIX A

CONSULTATION WITH SYDNEY WATER AND MARRICKVILLE COUNCIL

Bell, Justin

From: Rehman, Habib
Sent: Tuesday, 12 October 2010 2:21 PM
To: Bell, Justin
Subject: FW: Proposed Expansion to Marrickville Metro Retail Centre - Minutes of Meeting_ 30.09.10

From: LEWIS, MATTHEW [mailto:MATTHEW.LEWIS@sydneywater.com.au]
Sent: Monday, 11 October 2010 9:20 AM
To: 'Mathew Richards'
Cc: Burrows, Derrick; Rehman, Habib
Subject: RE: Proposed Expansion to Marrickville Metro Retail Centre - Minutes of Meeting_30.09.10

Hi Mat,

I write to confirm Sydney Water's agreement in principle to the "Agreed Actions" listed in the minutes of our meeting of 30th September 2010. Further detailed plans and supporting information will be required when seeking to obtain a Section 73 certificate for the development.

Please feel free to contact me should any further information be required.

Regards

Matthew Lewis | Senior Stormwater Asset Planner
Asset Management Division | Sydney Water
Level 11, 1 Smith Street Parramatta NSW 2150
PO Box 399 Parramatta NSW 2124
T 8849 4001
matthew.lewis@sydneywater.com.au | sydneywater.com.au

From: Mathew Richards [mailto:mathew@northrop.com.au]
Sent: Thursday, 7 October 2010 3:49 PM
To: LEWIS, MATTHEW
Cc: Burrows, Derrick; 'Rehman, Habib'
Subject: Proposed Expansion to Marrickville Metro Retail Centre - Minutes of Meeting_30.09.10

Hi Matt,

Reference our recent meeting held at Sydney Water Offices - 30.09.10. This is with regard to the proposed expansion to the Marrickville Metro Retail Centre. In particular this relates to providing Minutes as a record of the meeting.

To this end, we attach a copy of the Minutes for your records.

We would appreciate Sydney Water confirming these Minutes reflect the outcomes / topics discussed.

In the meantime, feel free to contact me if you would like to clarify anything – m. 0410 454 281.

Thanks,

Mat

Mathew Richards
Principal/ Civil Engineering Manager
Northrop Consulting Engineers Pty Ltd
T: 02 9241 4188
F: 02 9241 4324
M: 0410 454 281
L1 60 Hickson Road Sydney NSW 2000
P.O. Box H171 Australia Square NSW 1215
www.northrop.com.au

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PO Box H171 Australia Square NSW 1215
T (02) 9241 4188 F (02) 9241 4324 E sydney@northrop.com.au
www.northrop.com.au ABN 81 094 433 100

MEETING MINUTES

DATE: 07.10.10 **PAGES: 03**

JOB NAME	Marrickville Metro Retail Centre Expansion	**JOB NO.**	10371
FROM	Mathew Richards		
COMPANY	Sydney Water	**ATTN.**	Matthew Lewis
C.C	Bovis Lend Lease		Derrick Burrows
	Golder Associates		Habib Rehman
	Sydney Water		Ray Parsell
SUBJECT	Part 3A Application – Sydney Water Matters		

Location: Sydney Water – Parramatta Offices
Date: 30th September 2010
Time: 11:00am

Attendees:	Matthew Lewis (ML) -	Sydney Water
	Ray Parsell (RP)	Sydney Water
	Derrick Burrows (DB) -	Bovis Lend Lease
	Habib Rehman (HR) -	Golder Associates
	Mathew Richards (MR) -	Northrop

Distribution: Attendees
File

Item No.	Description	Action
1.0	**General**	
1.1	It was agreed the minutes of the meeting would form record of discussions and agreements for use in the next submission phase of the Part 3A process.	Note
1.2	DB explained that full demolition and development works were proposed only on the Smidmore / Edinburgh Road 'Industrial Site', and that works on the existing retail centre site (Victoria / Smidmore) comprised mainly refurbishment to existing and addition of upper levels.	Note
1.3	ML stated Sydney Water expects an attempt to provide stormwater management measures for any development work on the existing retail centre site, only where it is reasonable and generally within areas of proposed works.	Note
1.4	Works within Smidmore Street no longer form part of the proposed development	Note
2.0	**Culvert**	
2.1	RP stated the Sydney Water preferred position is that, if possible, no building occurs over the culvert. However he noted the Sydney Water Feasibility Letter (dated 20.04.10) provides opportunity for this development to build over – subject to fulfilling the stated criteria.	Note
2.2	RP discussed the Sydney Water expectation on up-sizing the new culvert as an improvement (despite current "choke points" downstream).	Note

Item No.	Description	Action
2.3	RP stated that the Applicant will have to demonstrate a socially acceptable flood standard in the context of the ultimate site development, and that this is particularly important if no up-sizing of the culvert is proposed. RP identified the new shopping centre site would increase the potential for people visiting a flood affected area, and hence measures need to be undertaken to demonstrate that the culvert works would result in "socially acceptable residual flooding outcome".	Note
2.4	ML discussed the management issue for Sydney Water maintaining their current asset / infrastructure and ensuring it operates fully to the lifespan of the building over.	Note
2.5	ML stated that access points to the culvert were required at the upstream and downstream ends (as a minimum). While Sydney Water would not insist, it was suggested the Applicant investigate any opportunity to incorporate an intermediate access point if it could be integrated within the development site.	Note
2.6	RP discussed the need for maintenance access at all times. The current culvert size (approx. 2.4 x 1.0m) requires access for manual maintenance crew (as a machine is too large). The proposed access provisions will need to demonstrate consideration of access for manual maintenance crews for a variety of activities including debris removal, structural repairs, chemical spills, etc – as possible scenarios.	Note
2.7	ML discussed the Sydney Water strategy to take opportunity to upgrade existing assets in line with new standards / codes, and that it was unlikely they would accept a dilapidation survey of existing stating the culvert would be adequate to be retained.	Note
2.8	RP discussed Sydney Water targeting upgrade of the whole system (including upgrades to "choke points" to system downstream) - over the long term.	Note
2.9	The requirement for the culvert to be upgraded to achieve / exceed the lifespan of development was discussed.	Note
3.0	**On-site Stormwater Detention (OSD)**	
	RP stated Sydney Water requires OSD for all new development within the subject catchment.	Note
	ML confirmed Sydney Water would provide the site storage requirement and permissible site discharge for OSD design; and that Jeya (Sydney Water) can provide this information upon his return from leave next week.	HR
	RP stated the alternative to providing OSD would require demonstrating no negative impacts based on a whole-of-catchment analysis.	Note
	RP confirmed OSD is required for the 'industrial site' (as the new development)	Note
	RP confirmed OSD design guidelines can fall in accordance with Upper Parramatta River Catchment Trust (Version 3).	Note
4.0	**Flooding**	
	It was discussed that an Emergency Flood Management Plan will need to be prepared by the Applicant – this undertaking will be identified in the Statement of Commitments for completion at a later stage.	Note
5.0	**Water Sensitive Urban Design**	
	ML discussed the importance of understanding the scale and nature of proposed WSUD measures early in the planning / design process – however Sydney Water would not look for this level of detail at this stage.	Note
	RP confirmed the guidelines for achieving water quality standards for the new development site were as outlined in the 20.04.10 Sydney Water Feasibility Letter (i.e. 1997 NSW EPA requirements). A brief description of methods for achieving this is expected in the Statement of Commitments.	Note
	All acknowledged the limitation for measures to be incorporated for development on the existing site. It was agreed that a case be put forward demonstrating all reasonable endeavours were made to making improvements where practicable.	Note

AGREED ACTIONS TO SATISFY SW REQUIREMENTS

1. The culvert under the new building at 'industrial site' would be upgraded to match or exceed the lifespan of the built over structure. The requirement to upsize the culvert would be established after review of the existing flood study results for the local catchment.
2. OSD would be provided for the new development on the 'industrial site'. The storage requirements and the permissible site discharge data would be provided by SW.
3. Flood Emergency Response Plan would be prepared for the existing shopping centre
4. WSUD measures would be provided for the new development at the 'industrial site' to meet the 1997 NSW EPA requirements. Improvements would be made to the existing shopping centre, where feasible.

Meeting Closed: 12:30pm (approx.)

Bell, Justin

From: Rehman, Habib
Sent: Wednesday, 27 October 2010 1:22 PM
To: Joe Bertacco
Cc: Bell, Justin
Subject: RE: Meeting Minutes - Marrickville Metro Development

Thanks a lot Joe. We will incorporate the suggested changes.

cheers
habib

Habib Rehman (BSc(Hons), MSc) | Principal Water Engineer | **Golder Associates Pty Ltd**
124 Pacific Highway, St. Leonards, New South Wales 2065, Australia (PO Box 1302, Crows Nest NSW 1585)
T: +61 2 9478 3900 | **D:** +61 2 9478 3956 | **F:** +61 2 9478 3901 | **M:** +61 437 277 939 | **E:** HRehman@golder.com.au | **www.golder.com**

Winner of twelve BRW Client Choice Awards 2010 2009 2008 2007 2006 ***Work Safe, Home Safe***

From: Joe Bertacco [mailto:endc@Marrickville.nsw.gov.au]
Sent: Wednesday, 27 October 2010 1:11 PM
To: Rehman, Habib
Subject: RE: Meeting Minutes - Marrickville Metro Development

Habib,

I refer to the attached letter from Golders and our recent discussions. Council is satisfied with the 4 points under agreed actions in your letter subject to the following amendments:

- The following line shall be added to the end of point 1

... and undertake the agreed stormwater works to Council's satisfaction.

- *The following words be inserted into point 3 after Steel St*

....by relocation of the low point...

Regards

Joe Bertacco
Development Engineer
Marrickville Council

service on behalf of Marrickville Council.

---

19 October 2010 Project No. 107626036

Joe Bertacco
Marrickville Council
PO Box 14
Petersham NSW 2049

MARRICKVILLE METRO DEVELOPMENT AT 35 VICTORIA ROAD AND 13-55 EDINBURGH ROAD – COUNCIL COMMENTS TO DEPARTMENT OF PLANNING

MINUTES OF MEETING HELD AT COUNCIL OFFICES ON 13 OCTOBER 2010

Dear Joe

Thank you for your time to discuss the Council's comments on the Marrickville Metro project as provided to the NSW Department of Planning. As per our discussion, the following minutes of our meeting are presented to confirm the additional assessments that Marrickville Council has requested to be undertaken to satisfy Council requirements with regard to the proposed development.

MINUTES

A meeting was held on 13 October 2010 at Council offices from 11.00 to 11.45 am. Joe Bertacco (JB) from Marrickville Council and Habib Rehman (HR) from Golder Associates were present.

The following discussion took place:

1. General – HR advised that the proposed development has been modified and no longer includes works within Smidmore Street.

2. Victoria Road Flooding – HR stated that an improvement in existing flooding of the Marrickville Metro from Victoria Road has been proposed by raising the footpath adjacent to the shopping centre building. The raised footpath would delay the onset of flooding into the shopping centre.

   JB however suggested that further investigations should be carried out since the proposed development presents an opportunity for improvement. It was decided that the following two additional options be investigated:

   a) Provide pipe drainage from the low point in Victoria Road in front of the shopping centre to an appropriate location on Murray Street to achieve a suitable grade.
   b) Provide an overland flowpath from the low point on Victoria Road to an appropriate location on Murray Street to achieve a suitable grade.

3. Onsite Detention (OSD) – HR advised that Sydney Water (SW) has a mandatory requirement for provision of an OSD and hence an OSD would be provided on site. JB advised that if the

development drainage is connected to Council's street drainage then Council would require an OSD as per Council's OSD policy. However, if the development drainage is connected to Sydney Water's drainage directly, then Council would not require an OSD. However, SW requirement would still stand.

4. Street Drainage Improvement – JB indicated that redevelopment of the Edinburgh Road and Steel Road intersection would require appropriate upgrading of the road and consequently the current low point on the Edinburgh Road would be located further west along the road.

5. Stormwater Drainage Design – JB advised that the drainage design would need to be carried out as per the relevant standards of Australian Rainfall and Runoff, Australian Standards and Marrickville Council's Stormwater and Onsite Detention Code. Pipe drainage would be required to cater for a 20 year ARI storm and flow paths would be required to safely convey runoff from a 100 year ARI storm.

AGREED ACTIONS TO SATISFY COUNCIL REQUIREMENTS

The following additional work will satisfy Marrickville Council's requirements as presented in their submission (Ref 3415, dated 8 September 2010) to the Department of Planning:

1. Undertake analysis of overland flowpath and pipe drainage options for improved flooding outcome for the existing shopping centre at Victoria Street
2. OSD provisions will be determined at the detailed design stage.
3. Improve drainage near the intersection of Edinburgh Road and Steel St as part of the roundabout development at this location.
4. Undertake all drainage design work in accordance with appropriate standards including Marrickville Council guidelines.

The above actions would form a record of discussion and agreements for the next submission of the Part 3A application for the proposed development. The above tasks would be included in the Conditions of Consent for the Preferred Project Report submission to Department of Planning. The options for Victoria Road flooding improvement (task 1 above) would be undertaken in consultation with Council in the later design stages keeping in view the limitations imposed by heritage paving and a row of mature trees along Victoria Road.

Please contact the undersigned if you have any further comments regarding the meeting outcomes or agreed actions.

GOLDER ASSOCIATES PTY LTD

Habib Rehman
Principal Water Engineer

HR/LJ/hr

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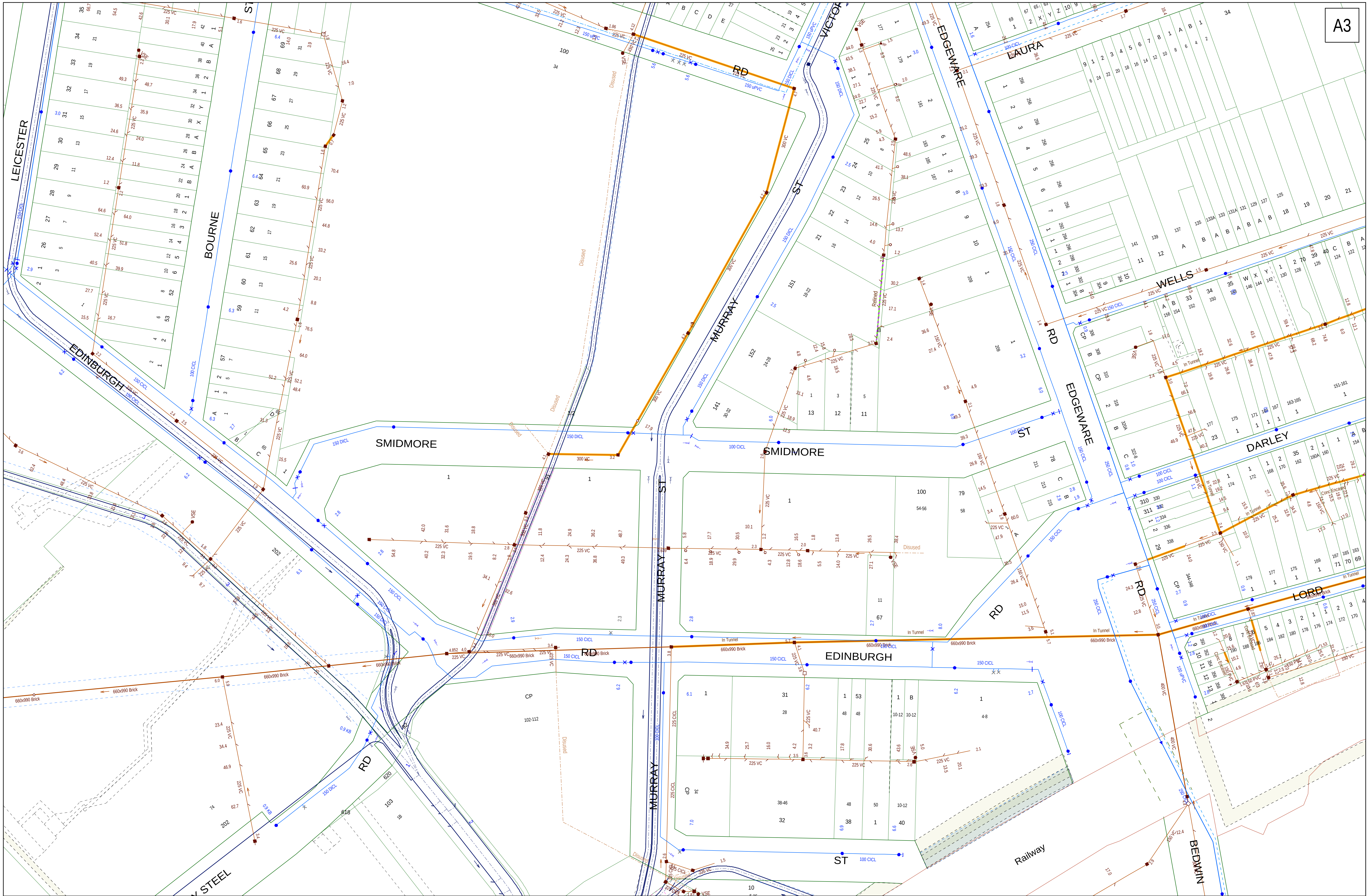
APPENDIX B

SYDNEY WATER HYDRA OUTPUT PLAN



DBYD Address:
Smidmore St
Marrickville NSW 2204

DBYD Job No: 182703

DBYD Sequence No: 17193508

Scale: 1:1500

Date of Production: 20/11/2009

Plan 1 of 1

N

0m 9m 18m 27m 36m

APPENDIX C

CONCEPT LAYOUT PLAN FOR TREATMENT OF SYDNEY WATER INFRASTRUCTURE (SEWER AND WATER)

A3

EXISTING SEWER ACCESS CHAMBER
DEPTH TO INVERT = 3.1m DEEP
APPROX. INVERT RL = 2.10m.

NEW DN300 SEWER MAIN WITH FOUR (4) NEW ACCESS CHAMBERS. APPROX. 3.0m DEEP

ALLOW TO RECONNECT EXISTING DN 225 SIDELINE. MADE DOWNSTREAM REDUNDANT

SANDFILL AND ABANDON EXISTING DN 300 PIPE BEING MADE REDUNDANT

EXISTING WESTERN SIDELINE MADE REDUNDANT

EXISTING SEWER ACCESS CHAMBER
DEPTH TO INVERT = 4.40m
APPROX. INVERT RL = -0.70m
APPROX. CONNECTION INVERT RL = 0.20 (DN 300)

UNDER-BORE EXISTING STORMWATER DRAINAGE CHANNEL

To Be Upgraded Within New Development Site

EXISTING STORMWATER CULVERT

DN 300 SEWER @ 1%

LEICESTER ST
BOURNE
EDINBURGH
SMIDMORE
MURRAY ST
EDGEWARE RD
LAURA
WELLS
DARLEY
LORD
RD

PRELIMINARY

NORTHROP
CONSULTING ENGINEERS

Grafton Bond Store
Level 1, 60 Hickson Road
Sydney NSW 2000

PO Box H171
Australia Square NSW 1215

T (02) 9241 4188
F (02) 9241 4324

MARRICKVILLE METRO RETAIL CENTRE REDEVELOPMENT
CONCEPT LAYOUT PLAN FOR TREATMENT OF SYDNEY WATER INFRASTRUCTURE (SEWER AND WATER) 26.10.10

DBYD Address:
Smidmore St
Marrickville NSW 2204

DBYD Job No: 182703

DBYD Sequence No: 17193508

Scale: 1:1500

Date of Production: 20/11/2009

Plan 1 of 1

N

0m 9m 18m 27m 36m

APPENDIX D

SYDNEY WATER OSD REQUIREMENTS

Sydney WATER

Telephone: 8849 4459
Fax: 8849 4228
Officer: John Hyde
Our Ref.: 2010/01126F

13 October 2010

Golder Associates Pty Ltd
PO Box 1302
Crows Nest NSW 1585

Attention: Mr Rehman Habib

Dear Sir,

ON SITE DETENTION REQUIREMENTS
13 – 55 Edinburgh Road, Marrickville

With reference to your email dated 8 October 2010 regarding the above subject.

The requirements are to apply for a year from the date of this letter after which the requirements will be updated on reapplication.

1. An application fee of $375.90 is payable to Sydney Water.

2. On-Site Detention of stormwater will be required for stormwater discharge. A maximum permitted site discharge (P.S.D.) of 318 litres/sec and a minimum on-site storage of 173 cubic meters is required for storage of the excess flow from a 100 year A.R.I. design storm (Total Site Area 9,000 square meters).

3. Hydraulic calculations and plans showing on-site storage are to be submitted for final approval prior to commencement of any drainage works.

4. Applicant should approach Council for their stormwater requirements including any floodway requirements.

5. Any structure within the zone of influence of stormwater channel require Sydney Water approval and should comply with "General Requirements for Building Adjacent to Stormwater Channel".

6. Any landscaping work within the zone of influence of the channel should consider the structural condition of the stormwater channel. If the stormwater channel is damaged as part of your proposed development work or landscaping work, then it is your responsible to repair the channel at your cost.

7. No machinery should be used within the zone of influence of stormwater channel which could affect the structural integrity of the stormwater channel.

Note: Upon completion of the work, the applicant is to submit a certified report from an appropriately qualified engineer or registered surveyor indicating that the OSD structure has been installed as per submitted plan.

If you have any questions about this Notice, you may contact the officer specified at the top of this notice.

Yours sincerely

Jeyadevan

for John Hyde
Development Services Representative

Jeya Jeyadevan.

APPENDIX E

QUALIFICATIONS/LIMITATIONS

LIMITATIONS

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