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Asbestos Management Plan

7 Montore Road, Minto NSW

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1. Introduction

1.1 Background

Mr Anthony Males of Concrete Recyclers Pty Ltd engaged EI to develop an Asbestos Management Plan (AMP) for the property located at 7 Montore Road, Minto NSW (the 'site').

The site is situated within the Local Government Area of the Campbelltown City Council. A site layout plan outlining the site locality is presented as **Figure 1, Appendix A**.

The client wishes to redevelop the site into a resource recovery facility, and requires the land to be made suitable for commercial/industrial land use activities, in accordance with site acceptance criteria defined by the *National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Amendment Measure*, 1999 (2013 Amendment) (NEPC, 2013). Site characterisation was completed, and identified the presence of asbestos containing material within fill across isolated areas in the southern part of the site, and a remediation strategy was prepared, being:

- EI (2020b) *Remediation Action Plan, 7 Montore Road, Minto NSW.* Report No. E24373.E06_Rev2, dated 15 April 2021 (the 'RAP').

A full summary of the site characterisation works is provided within the RAP, however of relevance to this AMP, the EI (2020b) RAP has outlined the extent of remediation required to be:

- Excavation and off-site disposal of friable asbestos materials at locations TP14 and TP123; and
- Excavation and off-site disposal of fill materials at locations NS1, NS2, SS01, TP107, TP114, TP115, TP118, TP125 and TP306. The fill material would require processing of oversize materials (to remove bricks/concrete) to enable sustainable disposal, and anual removal of the bonded asbestos from these locations was proposed.

The locations of these samples are presented in **Figure 2, Appendix A**.

To date, no asbestos materials have been identified in any of the examined soils from the northern half of the site. However, this finding should be treated with caution, as the area was occupied during site characterisation activities, which restricted access to the surface. It was further recommended that the surface of the northern portion be inspected periodically during the proposed remediation (and on-going development), to check for the presence of ACM.

The EI (2020) RAP presented detailed procedures to reduce the risks posed by the asbestos contamination, which comply with relevant guidelines while mitigating adverse effects for site workers and users of the surrounding land. This AMP should be read in conjunction with the EI (2020b) RAP.

1.2 Proposed Redevelopment

EI received plans pertaining to the proposed development as:

- *Proposed Plans, prepared by Martens & Associates Pty Ltd*, Project No: 1203464, Release No: R12, dated 2 March 2020; and
- *Survey Plan, prepared by William L. Backhouse Pty Ltd*, Project Ref: CH5241.001, dated 8 June, 2019.

Copies of these plans are presented in **Appendix B.** The proposed development will result in the construction of a resource recovery facility including site offices and car-parking, weighbridge and wheel wash facilities, concrete storage and stockpile areas, a concrete crushing and a sand wash plant, a pug mill (for processing clay), a machinery repair workshop,

rain and stormwater tanks, and an access driveway. The expected excavation for construction would be minimal, and would be restricted to site levelling only, with no deep excavation proposed. However, the removal of surface material would be required, for geotechnical unsuitable material, the extent of which would be determined by experienced geotechnical engineers.

1.3 Purpose of AMP

Due to the presence of asbestos-impacted filling, appropriate management measures are required for implementation during excavation of any asbestos material. This document outlines such measures, to ensure that the following objectives are met:

- Site works are conducted in an appropriate and safe manner;
- Site workers operating during the site remediation and construction phases comply with relevant work health and safety (WHS) regulations; and
- Persons working within or using the surrounding land remain protected from potential risks originating from the site works.

The expected outcome from the implementation of this plan is that all excavated materials on the site will be managed in a way that poses a negligible risk to human health from potential exposure to asbestos.

2. Regulatory Requirements

2.1 Work Health and Safety (WHS)

All activities must comply with the following WHS requirements in relation to asbestos:

- Work Health and Safety Act 2011 (NSW);
- Work Health and Safety Regulation 2017 (NSW);
- SafeWork NSW (2019), Code of Practice: How to Manage and Control Asbestos in the Workplace;
- SafeWork NSW (2019), Code of Practice: How to Safely Remove Asbestos;
- WorkCover NSW (2014), Managing asbestos in or on soil; and
- SafeWork Australia (2005) Code of Practice for the Safe Removal of Asbestos (NOHSC:2002) 2005.

In general, the principal authority for the governance of asbestos management in the workplace is WorkCover NSW.

2.2 Environment

All activities must comply with the following environmental regulations and legislation in relation to asbestos:

- Protection of the Environment Operations Act 1997 (NSW);
- Protection of the Environment Operations (Waste) Regulation 2014 (NSW);
- Contaminated Land Management Act 1997 (NSW);
- State Environmental Planning Policy No. 55 - Remediation of Land and the Managing Land Contamination - Planning Guidelines;

In addition, all transporters of asbestos waste must now use 'WasteLocate' to track the movements of any asbestos waste load over 100kg, or which contains 10m^2 or more of asbestos sheeting within NSW. (https://wastelocate.epa.nsw.gov.au/).

EI note, asbestos is considered a risk to human health receptors only, therefore was not considered to be a risk to ecological receptors of the site.

2.3 Council Conditions & Policy

The proposed development was considered to be a state significant development (SSD) and requires preparation of an environmental impact statement (EIS). In addition, specific stages of the works may be subject to development consent as required by Campbelltown City Council, to ensure the works present a low and acceptable risk to human health and ecological receptors of the site and surrounds. In general, Campbelltown City Council requires the removal of any asbestos material to be in accordance with the (NOHSC:2002) (2005) *Code of Practice for the Safe Removal of Asbestos* and specifies the following actions to be met when removing asbestos:

1 *If fibro (or bonded) sheeting:*

   a) *Do not use power tools. Asbestos fibres can be released if power tools are used for anything other than the removal of screws.*

b) Wear an Australian Standards Protection Level 2 (P2) minimum half face disposable mask and disposable coveralls. These are generally available from hardware suppliers. Non-Australian Standard certified masks should not be used where asbestos is present.

c) Wet fibro sheets down to reduce dust generation and movement.

d) Seal fibro sheets in construction grade plastic. (This should be 200 microns thick); and

e) Contact your Local Council for a licensed disposal point in your area. Waste Services NSW on (02) 9934 7000 will be able to help if you live in the Sydney Metropolitan area.; and

f) If the area of bonded asbestos sheeting (fibro) is over 10 square metres, then you need to have it removed by a licenced asbestos removal contractor. If under this amount, then a license is not required; and

2 Should the asbestos be in powder form or can be crumbled, pulverized or reduced to powder by hand pressure when dry, then an asbestos removal contractor with an AS1 licence is required for its removal.

3. Scope & Basis of the Asbestos Management Plan

3.1 Basis of AMP

This AMP has been triggered by the requirements of the EI (2020) RAP, to assist with the management of asbestos impacted fill**.** The presence of fibrous asbestos (FA) was identified at TP14 and TP123, located in the north-eastern part of the southern portion of the site, and was considered to be a result of ACM degradation within the uncontrolled fill material, imported to site from an unknown source. Given the extent of impacts identified in the southern portion of the site, his AMP is to be adhered to by all personnel conducting soil disturbance works of fill across the entire southern portion of the site, as a precautionary measure. This includes, but is not limited to:

- Earthworks involving the excavation, handling or other form of disturbance of fill soils;
- Environmental inspection of the excavated surfaces for site validation purposes; and
- The manual removal of construction and demolition wastes (C&D waste) and hand picking of bonded asbestos from asbestos-impacted fill soils on site.

3.2 Responsibilities

Various personnel involved in the project have responsibility for the successful implementation of this AMP, including EI Australia (the environmental consultant), Concrete Recyclers Pty Ltd (client), the Site Manager (to be nominated by the client), and all personnel working on or visiting the site. Specific details of individual responsibilities are provided in **Section 6** of this plan.

3.3 Documentation of Asbestos-Related Works

The maintenance of records relating to asbestos works undertaken on site is also an important component of this AMP. The individuals responsible for conducting this task are described in **Section 6**. The records can include:

- Copies of all Waste Classification Assessment reports and details of disposal;
- Safety training records and site inductions completed; and
- Asbestos clearance certificates for remediated areas of the site.

3.4 Review & Update

The procedures detailed by this AMP will be subject to review as required, to ensure the plan reflects any changes in site activities, conditions of consents (to be issued) and meets the relevant legislation and/or codes of practice. The review will assess the effectiveness of the AMP to:

- Identify asbestos hazards;
- Raising awareness among workers and guiding contractors to complete the required works in accordance with relevant legislation (**Section 2**);
- Ensure the handling and management of asbestos impacted soils does not pose an unacceptable risk to site workers or users of the surrounding land;

- Present accurate information regarding the extent of asbestos impacts and the remediation required at the site.

The individuals responsible for conducting the review and updating of the AMP are described in **Section 6**.

4. Asbestos Impacted Fill

4.1 EIS (2018) Site Investigation

Previous consultants, Environmental Investigation Services (EIS) completed soil sampling investigations in 2018. The findings were reported as:

- EIS (2018) *Stage 1 / Stage 2 Environmental Site Assessment; 7 Montore Road, Minto NSW 2566* Report E29448KrptRev1, dated 10 January 2018.

The works collected a total of 39 samples for asbestos analysis from across the entire site, 6 of which returned positive detections of asbestos from:

- NS1 and NS2, collected from 'material' within the northern embankment, at the northern site boundary;
- CS1 and CS2, collected from fill within the central embankment, located across the central part of the site;
- SS01, being a surface sample collected from the surface within the central part of the southern portion of site; and
- TP14, present in the north eastern part of the southern portion of site.

The exceeding samples reported by EIS (2018) are presented as **Figure 2, Appendix A.** However, the sampling completed was qualitative only, therefore additional works were completed by EI to adequately assess the extent of the asbestos impacts, and the findings were reported as:

- EI (2020a), *Additional Site Assessment, 7 Montore Road, Minto NSW.* EI Report E24373.E03_Rev1 dated 24 March 2020.

Details of the EI (2020a) ASI works are presented below.

4.2 EI (2020a) Characterisation of Northern Portion

During the EI (2020a) investigation, the northern portion of site was occupied by 'Coates Hire'. As a result, EI were unable to identify the former embankments (north and central) identified by EIS (2018) (as depicted in site survey, **Appendix B**). It was considered likely that the former embankment material may have been spread across the surface, for levelling purposes. Therefore, due to access restrictions, the subsurface was assessed using soil boreholes BH226 – BH257 positioned in a triangular grid pattern across the northern portion of the site.

The fill encountered across the northern part of site appeared similar to a naturally derived quarry 'road base' product (approximately 0.1m thick) followed by 'Sandy Gravel' fill described as *fine to coarse sub angular to angular gravels, dark grey with fine to coarse sands.* The fill was estimated to be at least 0.4 – 0.7m thick (max 1.1m at BH250), with natural, silty clays encountered beneath this fill material. No asbestos was identified in any of the 32 fill samples submitted for analysis, and it was considered likely that the former surface encountered by EIS (2018) had undergone modification, making it suitable for use by Coates Hire. These modifications may have removed the former embankments, however EI recommended regular surface inspections of this part of site, during excavation and construction works, to ensure the area remains free of ACM. Apart from these inspections, no further remedial activities were required for asbestos in the northern portion of site.

VERY IMPORTANT NOTE - ASBESTOS CONTAMINATION MAY ALSO BE PRESENT IN FILL SOILS AT LOCATIONS IN THE NORTHERN PORTION THAT HAVE NOT PREVIOUSLY BEEN TESTED, SUCH AS BENEATH ONSITE STRUCTURES.

4.3 EI (2020a) Characterisation of Southern Portion

EI (2020a) found the southern portion of the site to be vacant, and fully accessible therefore test pit sampling methods were employed. No evidence of the central embankment were identified as stated above, however two stockpiles of fill material (identified as SP1 and SP2) were present, as shown in **Figure 2, Appendix A**. EI advanced test pits TP101-TP125 and TP301 to TP314 using onsite machinery, in a triangular grid pattern across the southern portion of the site.

The fill encountered in the southern portion varied, but generally consisted of three fill types as follows:

- Fill type 1: Gravelly sandy fill, dark brown, fine to coarse grained gravels with inclusions of brick, ceramics, concrete and trace root fibres (at TP101, TP102, and TP308);
- Fill type 2: Silty sandy / sandy silty / sandy fill or topsoil, brown, with gravels and trace inclusions of brick, ceramic and concrete fragments (at TP103, TP301 to TP307, TP309 to TP314);
- Fill type 3A Silty Clay / sandy clayey fill, pale brown to brown, medium plasticity with gravels, root fibres, trace brick and ceramic fragments (at TP104, TP105, TP106 and TP107); and
- Fill type 3B: Sandy clayey fill, brown, low to medium plasticity, with gravels, root fibres and anthropogenic inclusions (brick, ceramics, concrete fragments – boulders, soft plastic, asphalt) (at TP108, TP109, TP114, TP115, TP116 to TP125)

Fill type 3A and 3B appeared similar in characteristics; however the 3B material contained an increased presence of C&D waste, including concrete boulders. Except for TP107, all samples reported to contain asbestos were collected from type 3B fill. TP107 was the only sample from type 3A fill which reported asbestos to be present, and as such, all clay dominant fill materials should be thoroughly inspected for the presence of ACM within the southern portion of site.

The EI (2020) RAP identified isolated areas to be remediated within the southern portion of site, as presented in **Figure 3, Appendix A**. An asbestos exclusion zone will be installed around each working of the remediation areas (1 to 6) area when excavating asbestos impacted materia.

5. Site Induction & Training

It is important that all persons who are required to work near ACM are aware of asbestos hazards, control measures and associated risks. When asbestos-impacted soils are left undisturbed, potential fibres cannot be mobilised. The risk of inhalation of respirable asbestos fibres is therefore prevented, which removes the potential risk to human health in relation to this exposure route.

Concrete Recyclers Pty Ltd must ensure workers who are involved with asbestos removal hold the appropriate licences and qualifications. The majority of asbestos identified was found to be non-friable ACM which requires the Asbestos Removal Contractor to hold a current asbestos removal Class B licence. As minimal asbestos was detected in the northern part of the site, an exclusion zone separating the northern portion from the southern portion is recommended. In addition:

- Personnel undertaking asbestos removal works are to be inducted and have licenses specific to their activities conducted on site.
- Entry to the Asbestos Soil Exclusion Zone will be restricted to workers who have completed a site induction and hold the required licenses. All personnel should also sign onto relevant safe work method statements (SWMS) which have been approved by the Site Manager.
- A toolbox talk incorporating aspects of occupational health and hygiene is to be undertaken prior to any asbestos soil works being undertaken on site.
- All workers are to be made aware of the identified hazards on the site and the management procedures for anticipated or unexpected soil contamination hotspots.
- Additional training related to the correct use and maintenance of respirators for those workers in the asbestos soil removal exclusion zone will also be demonstrated; and
- Records will be maintained for personnel whom have completed site induction training. Where required, updates on training and awareness will be provided at pre-starts and/or toolbox talks.

5.1 Friable Asbestos

As friable asbestos (excluding asbestos fines) was identified in soil sampled as TP14 (EIS, 2018) and TP123 (EI, 2020a) removal of this material will occur separately from all other material, and will require installation of a separate asbestos exclusion zone to be installed around these areas. All removal of soil in these friable areas should be undertaken by contractors holding a ‘Class A’ Asbestos Removal License and overseen by an Environmental Consultant holding an Asbestos Assessor Licence with all necessary measures and precautions implemented in accordance with this AMP and the WHS Act And Regulations 2017.

6. Site Responsibilities

6.1 Individual Responsibilities

The responsibilities of relevant project team members, in regards to the implementation of this AMP are outlined in **Table 6-1**.

Table 6-1 Project Team Responsibilities

Responsible Person	Description of role in relation to AMP implementation
HazMat Consultant (EI)	▪ Prepare AMP. ▪ Provide onsite guidance to Site Manager on proper implementation of measures and procedures described in the AMP. ▪ Remain on site to ensure the materials are disposed in the location specified, as communicated by the Site Manager and/or the Project Manager. ▪
Site Manager	▪ Undertake a toolbox talk on asbestos removal for all workers on site ▪ Oversee the appropriate implementation of the asbestos soil control measures and procedures described in this AMP. ▪ Notify the EI / HazMat Consultant when unexpected finds are found during the fill excavation process. ▪ Monitor site works and take appropriate action to ensure that all workers in the Asbestos Soil Removal Exclusion Zone comply with the requirements of this AMP. ▪ Oversee the excavation works of all soils impacted with asbestos ▪ Review current control measures and improve, where applicable (i.e. should site conditions change). This may include improved work practices, use of further control measures, or changing the work methodology and will be discussed during the Safety Induction.
Project Manager	▪ Ensure there are adequate resources for the safe management of asbestos-impacted soils on the site. ▪ Ensure that asbestos materials are disposed in the locations specified as communicated by the Site Manager and/or the Project Manager. ▪ Ensure that a registered surveyor undertakes a survey of the location of the asbestos cell including the boundary with top and bottom surface coordinates
Site Workers	▪ All personnel working within the Asbestos Soil Removal Exclusion Zone must comply with the requirements of this AMP and follow the directions of the Site Manager. ▪ All other site workers (not working within the Exclusion Zone) should work indoors and/or remain clear of the soil excavation works.

6.2 Environmental (Hazardous Materials) Consultant

The HazMat Consultant will provide guidance while on site to ensure the control measures and removal methods described in this AMP are clearly understood by all onsite personnel. Further tasks to be completed by the HazMat Consultant in relation to the asbestos-impacted fill soils are outlined in **Table 6-1**. The onsite presence of the HazMat consultant is required throughout the disturbance of soil in the friable asbestos areas.

6.3 Site Manager

In the absence of the EI representative on site, the Site Manager will be responsible for compliance with this AMP during asbestos removal works. EI will provide further support and guidance, as required, in response to communications by the Site Manager or the Project Manager. Further tasks to be completed by the Site Manager in relation to the asbestos-impacted fill soils are outlined in **Table 6-1**.

6.4 Other Site Workers

Where possible, all personnel should conduct works using machinery with air conditioned, enclosed cabins. If this is not possible, personnel should ensure that they remain outside the Asbestos soil Removal Exclusion Zone (i.e. away from excavation works) to minimise the risk of exposure to airborne contaminants generated by the process.

Persons conducting works within the Asbestos soil Removal Exclusion Zone must comply with the personal protective equipment (PPE) requirements for the specific area (i.e. bonded asbestos and friable asbestos exclusion zones).

6.5 Competencies

The required minimum competencies of an environmental practitioner engaged to assist in implementation, audit and review of this AMP are outlined below.

Environmental Consultant

- Established environmental consultancy with policies, procedures and experience sufficient for acceptance by the Australian Contaminated Land Consultants Association (ACLCA) or other equivalent professional association.

Environmental Scientist/Occupational Hygienist

- Tertiary qualifications in Environmental Science, Environmental Engineering or equivalent from a recognised tertiary institution; and
- Minimum of two years of professional experience in environmental sampling and practice.

Competent Person

In accordance with the SafeWork NSW *How to Safely Remove Asbestos (2019)* code of practice, this refers to a person competent in asbestos assessment and identification.

7. Asbestos Management & Control Measures

7.1 Workplace Health and Safety (WHS) Plan

This AMP forms part of the site work health and safety plan (WHS plan).

7.2 Exclusion Zone Demarcation

The asbestos soil exclusion zone will have a clearly identified boundary. The area should be barricaded and signposted to identify asbestos works in progress. A 'bonded Asbestos' exclusion zone should be erected in such a manner so that the southern portion of the site is separated from the northern portion, restricting free access between the two. In addition, separate 'friable asbestos' exclusion zones shall be erected around former sampling locations TP14 and TP123, in locations as shown in **Figure 3, Appendix A.**

7.3 Signage and Warning Labels

Warning signs will be placed at work areas where asbestos is present and during all asbestos removal works

7.4 Site Pedestrian Access

Site Pedestrian access to contaminated areas will be restricted. Disturbance of asbestos debris by pedestrian activity may result in the release of asbestos fibres, increasing the risk of exposure. Potential control measures include barrier tapes, fencing, and dedicated footpaths with signage.

7.5 Personal Protective Equipment

The following PPE additional to the site requirements shall be worn, as a minimum, by workers entering the bonded asbestos-soil removal exclusion zone:

- Disposable coveralls rated type 5, category 3 (prEN ISO 13982–1) or equivalent
- Waterproof boots fitted with a steel toe meeting AS/NZS 2210:2000. Latex surgical gloves (low protein (powder free)) or Nitrile work gloves meeting AS/NZS 2161:2000 requirements. Standard work gloves may also be worn over the surgical gloves for convenience, and should be disposed of as asbestos waste with the disposable overalls.
- Hard hats meeting AS/NZS 1800:1998 requirements shall be worn when working around machinery or as directed by the site operator or their representative.
- Hearing protection meeting AS/NZS 1270:2002 requirements shall be worn when working around machinery if noise levels exceed 85dB(A).

All respiratory protective equipment shall conform to the requirements of Australian Standards AS 1715 and AS 1716. All respirators are to be issued for personal use only and are to be clearly labelled with the user's name. As a minimum, non-disposable half face Class P2 respirators suitable for asbestos work shall be used. All workers undertaking asbestos removal works are to be clean shaven each day. Workers who are not clean shaven will be required to supply their own shaving equipment to remove any stubble.

7.6 Asbestos Air Monitoring

Air monitoring is not required for the removal of non-friable (bonded) ACM; however, it is recommended that air monitoring be undertaken as a precautionary measure, since asbestos-contaminated soils are to be excavated, and thus there may be a risk for aerial dispersion of asbestos fibres.

Air monitoring is recommended for each boundary of the southern portion of site (north, south east and west), however is compulsory for the individual boundaries of the friable asbestos exclusion zones (northern, southern, eastern and western extent), for the duration of the soil disturbance works.

No excavation of soil without air monitoring shall occur without adequate validation of the area, deeming the area to be 'free of asbestos' to the practical extent.

All asbestos fibre air monitoring must be conducted in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC: 3003 (2005)] and analysed by a NATA-accredited laboratory. The criteria and actions that will apply to this project are summarised in **Table 7-1** below.

Table 7-1 Asbestos Criteria for Air Monitoring

Control Level (fibres/mL)	Control / Action
< 0.01	No Action. Continue with existing control measures.
≥0.01	Asbestos Consultant to notify PPM and EC of results as soon as practicable. PPM to notify/engage a Licensed Asbestos Removal Contractor. Asbestos Consultant, EC and PPM to review current control measures and improve, where applicable. This may include improved work practices, use of further control measures (e.g. plastic screening or wet wiping techniques) or changing the work methodology.
≥0.02	Asbestos Consultant to notify PPM and EC of results as soon as practicable. Asbestos Consultant to advise Licensed Asbestos Removal Contractor to stop work immediately. Asbestos Consultant to conduct investigations to establish cause of problem. Asbestos Consultant to advise Licensed Asbestos Removal Contractor on necessary works to rectify problem. Asbestos air monitoring to be continued by Asbestos Consultant. Contractors will be allowed to return to works area after results are <0.01 fibres/mL.

7.6.1 Friable Asbestos Air Monitoring

For the friable asbestos zones (being TP14 and TP123), a Licenced Asbestos Assessor should be engaged to undertake all asbestos fibre air monitoring. All monitoring will be carried out in accordance with the National Occupational Health and Safety Commission (NOHSC) "Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust [NOHSC: 3003 (2005)] as recommended by SafeWork and approved by the NSW EPA. This is in accordance with Chapter 8 of the Work Health and Safety Regulation 2017, being:

- Clause 475 - A person conducting a business or undertaking who commissions asbestos removal work requiring a Class A asbestos removal licence at a workplace must ensure that an independent licensed asbestos assessor undertakes air monitoring of the asbestos removal area at the workplace.

7.7 Fill Wetting Measures and Dust Suppression

The excavation of all (friable and non-friable) asbestos removal is to be performed as a wet process in accordance NSW WHS Regulation 2017 and the SafeWork Australia (2005) Code of Practice for the safe removal of Asbestos (NOHSC:2002) . This shall favour the use of

machinery, and shall limit (to the practical extent) personal exposure to asbestos containing soils.

During all works on site involving the movement of fill soils, the material is to be kept damp to maintain dust suppression and to minimise the potential release of asbestos. This should be conducted using the following measures:

- The use of a hose with a spray fitting or similar to apply a light misting spray to the surface of stockpiles and exposed grounds; and
- The use of a light misting spray during the loading of trucks to ensure dust suppression is maintained (i.e. sprinklers on the surface of stockpiles/exposed soils or misting along boundary fence lines).

It is important to ensure that the water applied to the area is sufficient to provide suppression of dusts, but not excessive. Over wetting is to be avoided to prevent sediment and water migration from the immediate work area.

7.8 Excavation of Asbestos Contaminated Soil

7.8.1 Bonded ACM – Southern Portion and Northern Bund

Procedures for excavating the bonded ACM material will be as follows:

- Install boundary air monitors on site boundary to ensure no unauthorised fibres are released from the site boundary;
- Wet down all soil prior to excavation. Soil should be damp during all disturbance works, and staff will require implementation of asbestos related personal protective equipment (PPE), including the use of P2 dust masks. See **Section 7.5**,
- The fill layer to be excavated should be classified prior, to enable direct excavation and load out; reducing the exposure of ACM impacted materials. Procedures outlined in **Section 8** of the EI (2020) RAP shall be implemented;
- Once classified, carefully excavate ACM impacted material using appropriate equipment (e.g. excavators / backhoes) to the depth of natural soil or layer not previously found to contain asbestos. Excavation of this material should be conducted under the supervision of a suitably qualified environmental professional. Once classified, the ACM impacted fill will be directly loaded into trucks for off-site disposal to a lawful premise authorised to accept the waste.
- Selective excavation of fill layers previously found to be impacted with bonded asbestos fragments, spreading the material, hand picking of visible bonded asbestos fragments, validation sampling of each stockpile and the walls and base of the remedial pit in accordance with the strategy presented in Section 8 of the EI (2020) RAP. Excavation and manual removal of ACM should be conducted under the supervision of a suitably qualified environmental professional; and
- Stockpiles generated from treated material will be deemed unsuitable for on-site reuse, until validated otherwise, in accordance with EI (2020). Adequate sampling of the stockpile and quantitative sampling of asbestos will be required to ascertain the suitability of treated material for onsite retention.
- Complete validation sampling of each remedial pit, in accordance with the strategy presented in Section 10 of EI (2020) RAP.

7.8.2 Friable Asbestos – TP14 and TP123

- Install boundary air monitors on site boundary to ensure no unauthorised fibres are released from the site boundary;
- Wet down all soil prior to excavation. Soil should be damp during all disturbance works, and staff will require implementation of asbestos related personal protective equipment (PPE), including the use of P2 dust masks. See **Section 2.1**,
- The fill layers previously found to contain friable asbestos at former sampling locations TP14 (to 0.6m) and TP123 (to 1m) should be classified prior to remediation, to enable direct excavation load out to reduce exposure.
- Once classified, soil will be removed using machinery, and personnel must remain within a reticulated air conditioned cabin, to reduce exposure. Where this is not possible, positive pressure dust masks shall be employed.
- Once all fill is excavated to natural, validation sampling of the remedial pit (walls and base) in accordance with the strategy will be required, as presented in Section 10 of the EI (2020) RAP.

EI note, all works involving fill soils surrounding TP14 and TP123 must be completed under the supervision of a 'Class A' licenced asbestos removalist. The advice of this licenced person will always supersede the requirements of this plan, and should be documented for inclusion within the site validation report.

7.9 Vehicle Movements

Vehicles impart strong force on the ground and can significantly increase the risk of exposure if asbestos debris is subjected to disturbance. Vehicle movements across the contaminated areas of the site should therefore be restricted to vehicles with wide, rubber tyres; and where vehicular access is required, this should be accompanied by suitable wetting techniques.

Vehicles should not drive from asbestos impacted areas to clean, non-asbestos areas of site wherever practical. Should such movements be necessary, adequate wheel washing will be required prior to entering the asbestos free zones.

Decontamination of vehicles is presented in **Section 7.12.2** below and should be adhered to.

7.10 Asbestos Sampling & Assessment

7.10.1 Use of Competent Practitioners and Guidance

Soil investigations for asbestos assessment and all other types of contamination assessment will be conducted on by persons who are deemed to be competent environmental practitioners, as per the competencies described in **Section 6.5**.

Any additional testing for asbestos in soils should be performed using laboratory methods that are accredited by the National Association of Testing Authorities (NATA) and should be in accordance with the NEPM (2013) assessment of site contamination guidelines provided under Chapter 4 *Asbestos material in Soil*, in Schedule B1 *Guideline on Investigation Levels for Soil and Groundwater*, and Chapter 11 *Assessment of Asbestos Soil Contamination*, in Schedule B2 *Guideline on Site Characterisation*.

7.10.2 Asbestos Soil Assessment for Backfill

Asbestos was identified in soil samples collected from several locations, as referenced in **Section 4** and presented in **Figures 2 and 3, Appendix A**.

Any additional sampling for the impacted materials that may be discovered during excavation works will be conducted by standard environmental methods. Additional soil testing for asbestos identification (i.e. testing for the presence or absence of asbestos), will be performed using laboratory methods that are accredited by the National Association of Testing Authorities (NATA).

7.10.3 Soil Assessment for Site Validation

Fill materials that will not be removed from the southern part of site, or from the northern embankment / bund site should be sampled directly from the final excavated surface for validation testing purposes after the removal and offsite disposal of any fill soils to enable the placement of clean, validated backfill soils over the residual fill. A strategy for validation is presented in the EI (2020) RAP.

Any validation sampling should be done in accordance with the NEPM guidelines for site characterisation.

7.11 Clearance Inspections

A clearance inspection will be required at the conclusion of soil excavation works to confirm that the work area is free of ACM fragments. This inspection should be conducted by a licensed asbestos assessor, or competent person as defined under in the SafeWork NSW *How to Safely Remove Asbestos* code of practice.

Asbestos clearances will include a final visual inspection of the asbestos soil removal exclusion zone. When satisfied that the area is free of asbestos, a clearance certificate will be issued and included in the final Site Validation Report.

7.12 Decontamination and Personal Hygiene

7.12.1 Decontamination and change area

It is recommended a dry decontamination or allocated change area is required at the exit of the asbestos removal area to allow for the removal of PPE when exiting the asbestos-soil removal exclusion zone. Disposable overalls are to be removed and placed into asbestos waste bags prior to exiting the work area. The respirator should be worn until the removal of soiled PPE is complete. Personnel are required to remove disposable overalls and respirators every time they exit the asbestos-soil removal exclusion zone.

Items to be contained within the dry decontamination area should include:

- An adequate supply of disposable respirators and disposable coveralls;
- Boot wash facilities and water supply to assist with personal decontamination;
- A misting unit to spray to remove contaminants from disposable coveralls prior to removing coveralls when exiting the area; and
- Asbestos waste bags (200μm polythene) for the disposal of soiled gloves, coveralls and used filters.

Additionally workers should ensure they wash their hands and face before eating/smoking and only eat/smoke in areas outside of the asbestos-soil removal exclusion zone.

7.12.2 Decontamination of Tools, Plant and Equipment

All tools, plant and equipment must be decontaminated prior to leaving asbestos work area. Any tools, plant or equipment that can't be decontaminated must be disposed as asbestos waste.

Vehicle decontamination is to occur immediately after exiting the asbestos removal area and prior to exiting site. Vehicles are to be inspected by the licensed asbestos removal contractor to ensure no soils remain on external areas of the truck.

An inspection may be required by a Licenced Asbestos Assessor on all tools, plant **and** equipment once decontamination has been achieved at the completion of all works.

7.12.3 Failure to Decontaminate

A rigorous degree of hygiene must be observed to ensure that asbestos fibres are not transported from within the Work Area, through the decontamination unit to other environments when personnel leave the area, or when equipment or asbestos waste bags are removed from the Work Area. Furthermore it is important to note in relation to correct decontamination:

- Personnel who do not thoroughly decontaminate on departure from the Work Area will carry asbestos fibres out on their person and therefore risk exposing themselves and others to asbestos.
- Regardless of how thoroughly personnel may clean themselves, if the procedures are not followed correctly (i.e. removal of respirator at the wrong stage of the process), considerable personal exposure can occur during the decontamination process.

7.13 Unexpected Finds

An unexpected finds protocol is presented within the EI (2020) RAP as Appendix C and should be adhered to in the instance that unexpected finds are identified. If buried materials having a fibrous or cement sheeting-like appearance are discovered during excavation, it must be assumed that they contain asbestos. Work in the immediate area must be stopped to allow inspection and/or testing to confirm if the materials are asbestos-containing. If asbestos is confirmed by sampling and assessment (as described in **Section 4**), or by visual confirmation by a competent environmental practitioner (as described in **Section 6.2**), the material will be either:

- Removed from the site by an appropriately licensed contractor for disposal as *Asbestos Waste – General Solid Waste (Non-putrescible)*, or Asbestos Waste – Restricted Solid Waste, subject to the waste classification obtained by chemical assessment, in accordance with the NSW EPA (2014) Waste Classification Guidelines; or
- Manually treated onsite in accordance with the EI (2020) RAP.

8. Statement of Limitations

This report has been prepared for the exclusive use of Concrete Recyclers Pty Ltd (the client), who is the only intended beneficiary of EI's work. The scope of the investigations carried out for this report is limited to those agreed with the client.

No other party should rely on the document without the prior written consent of EI, and EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including its appendices and attachments.

The conclusions presented in this report are based on a limited investigation of conditions, with specific sampling locations chosen to be as representative as possible under the given circumstances.

EI's professional opinions are reasonable and based on its professional judgment, experience, training and results from analytical data. EI may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified by EI.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or validation testing and analysis during remedial activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions. This report was prepared for the above-named client and no responsibility is accepted for use of any part of this report in any other context or for any other purpose or by other third parties.

This report does not purport to provide legal advice.

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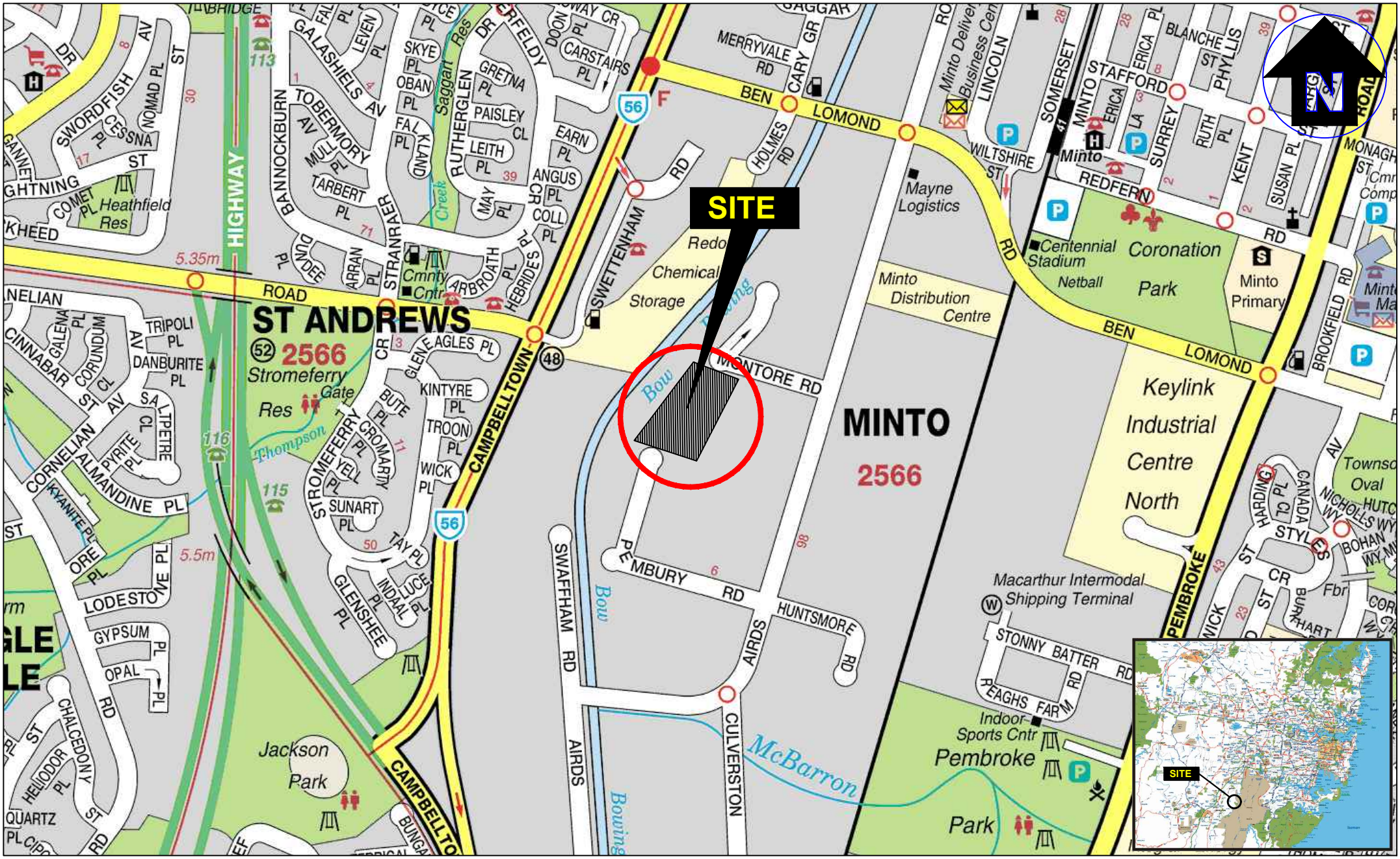
Appendix A - Figures



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Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	L.C.
Approved:	E.W.
Date:	15-12-20
Scale:	Not To Scale

Concrete Recyclers Pty Ltd

Asbestos Management Plan

7 Montore Road, Minto NSW

Site Locality Plan

Figure: 1

Project: E24373.E12_Rev0

KEY

Exceedance	Criteria Limit
Asbestos in soil (>7mm ACM)	0.05 %w/w
Asbestos in soil (>2mm to <7mm AF/FA)	0.001 %w/w
Asbestos in soil (<7mm AF/FA)	0.001 %w/w

Notes:
All concentrations are in %w/w.
The table above shows exceedance criteria for HIL-D: *Commercial / Industrial Sites*.
= Exceedance of Health Screening Level

Northern Portion

Exceedances	NS2
Sampling Depth (mBGL)	N/A
Bonded asbestos detected	Yes

Exceedances	NS1
Sampling Depth (mBGL)	N/A
Bonded asbestos detected	Yes

Exceedances	TP125
Sampling Depth (mBGL)	0.2-0.5
Asbestos in soil (>7mm ACM)	2.4
Asbestos in soil (>2mm to <7mm AF/FA)	0.046
Asbestos in soil (>7mm AF/FA)	0.046

Exceedances	TP306
Sampling Depth (mBGL)	0.2-0.6
Asbestos in soil (>7mm ACM)	0.23

Exceedances	TP114
Sampling Depth (mBGL)	0.1-0.4
Asbestos in soil (>2mm to <7mm AF/FA)	0.006
Asbestos in soil (>7mm AF/FA)	0.006

Exceedances	TP115
Sampling Depth (mBGL)	0.2-0.6
Asbestos in soil (>2mm to <7mm AF/FA)	0.003
Asbestos in soil (>7mm AF/FA)	0.003

Exceedances	TP107
Sampling Depth (mBGL)	0.1-0.3
Asbestos in soil (>2mm to <7mm AF/FA)	0.019
Asbestos in soil (>7mm AF/FA)	0.019

Exceedances	TP123
Sampling Depth (mBGL)	0.3-0.6
Asbestos in soil (>2mm to <7mm AF/FA)	0.009
Asbestos in soil (>7mm AF/FA)	0.009

Exceedances	TP14
Sampling Depth (mBGL)	0.0-0.2
Matted asbestos detected	Yes

Exceedances	TP118
Sampling Depth (mBGL)	0.4-0.8
Asbestos in soil (>7mm ACM)	0.99

Exceedances	SS01
Sampling Depth (mBGL)	N/A
Bonded asbestos detected	Yes

SP1
SP2

Southern Portion

0 10 50 100
Approx. Scale (m)

Map Source: Nearmap, Imagery date: 04-09-2019

LEGEND

- Approximate site boundary
- Approximate borehole location
- Approximate test pit location
- Approximate stockpile location
- Approximate surface / stockpile sample location (EIS, 2018)
- Approximate test pit location (EIS, 2018)
- Northern Bund

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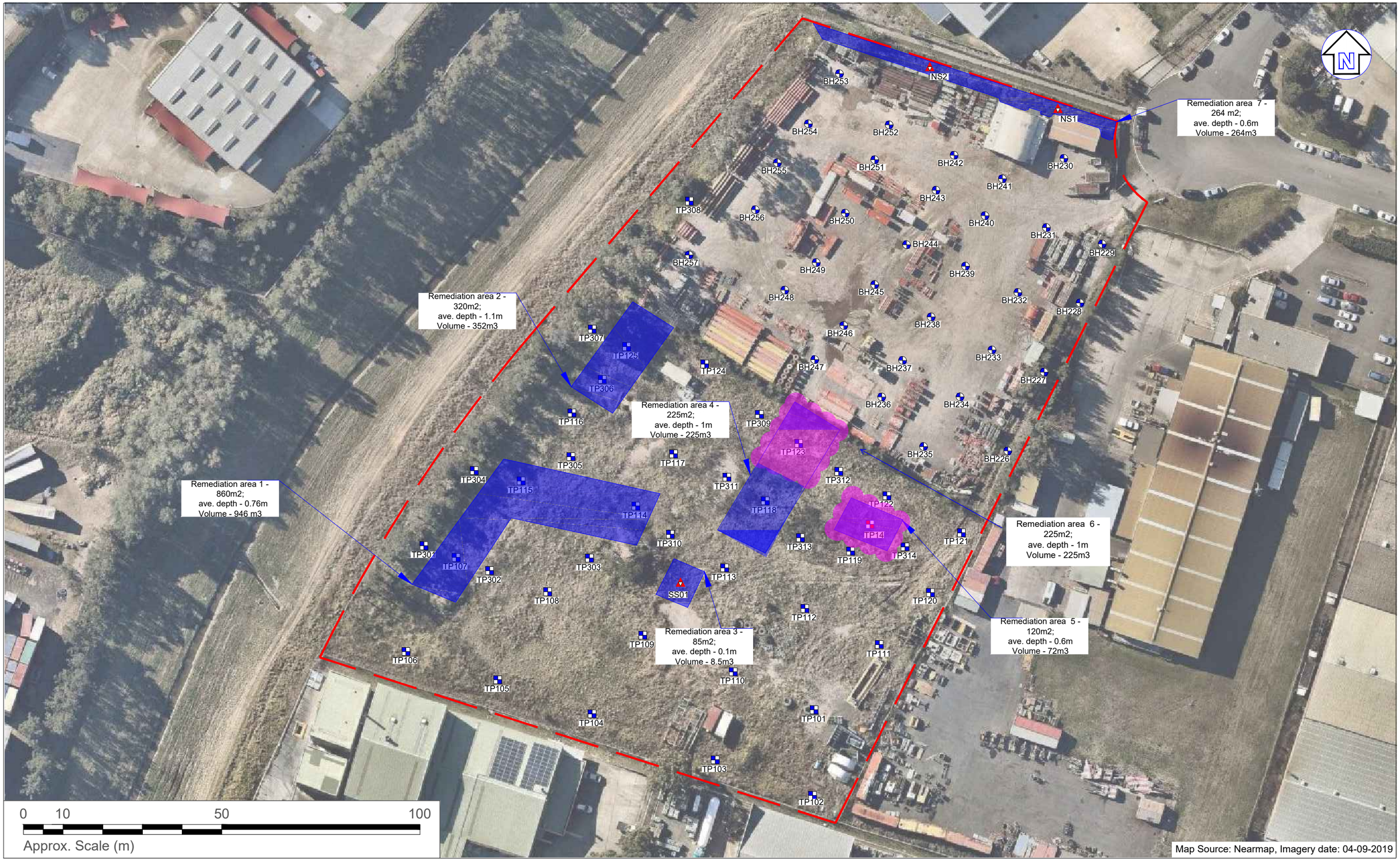
Approved:	E.W.
Date:	15-12-20

Concrete Recyclers Pty Ltd
Asbestos Management Plan
7 Montore Road, Minto NSW

Analytical Exceedance Plan

Figure: 2

Project: E24373.E12_Rev0



LEGEND

- Approximate site boundary
- Approximate borehole location (EI, 2019)
- Approximate test pit location (EI, 2019)
- Approximate surface / stockpile sample location (EIS, 2018)
- Approximate test pit location (EIS, 2018)
- Approximate friable asbestos exclusion area

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Approved:	S.E.
Date:	15-12-20

Concrete Recyclers Pty Ltd
Asbestos Management Plan
7 Montore Road, Minto NSW
Proposed Remediation Areas

Figure: 3

Project: E24373.E06_Rev0

Appendix B – Proposed Development

PROJECT: MINTO CONCRETE RECYCLERS

PLANSET: SITE EARTHWORKS

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

LOCALITY PLAN
N.T.S.

LGA: CAMPBELLTOWN

7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

DRAWING LIST		
DWG NO.	REV	DWG TITLE
GENERAL		
PS02-A000	L	COVER SHEET
PS02-A300	B	RIPARIAN FEATURES CONSTRAINTS PLAN
PS02-A400	I	SITE LAYOUT
PS02-AZ00	E	SITE FENCING, FIRE FIGHTING AND SPRINKLERS PLAN
CONSTRUCTION MANAGEMENT WORKS		
PS02-B300	G	SEDIMENT AND EROSION CONTROL PLAN
PS02-B350	B	SEDIMENT AND EROSION CONTROL DETAILS
EARTHWORKS		
PS02-C100	G	EARTHWORKS PLAN - SHEET 01
PS02-C105	C	EARTHWORKS PLAN - SHEET 02
PS02-C600	G	EARTHWORKS CUT & FILL ANALYSIS PLAN
PS02-C700	E	EARTHWORKS SECTIONS - SHEET 01
PS02-C701	E	EARTHWORKS SECTIONS - SHEET 02
ROADWORKS		
PS02-DZ01	H	SWEPT PATH ANALYSIS - SHEET 1 (TURNING MANOEUVRE ON SITE)
PS02-DZ02	H	SWEPT PATH ANALYSIS - SHEET 2 TURNING MANOEUVRE ON SITE)
PS02-DZ03	E	SWEPT PATH ANALYSIS - SHEET 3 (ENTRANCE AND EXIT MANOEUVRES)
PS03-DZ04	E	SWEPT PATH ANALYSIS - SHEET 4 (TURNING MANEOUVRE ON SITE)
PS03-DZ05	E	SWEPT PATH ANALYSIS - SHEET 5 (TURNING MANEOUVRE ON SITE)
PS03-DZ10	E	SITE LOADING AND UNLOADING PLAN
DRAINAGE		
PS02-E100	J	DRAINAGE PLAN
PS02-E200	D	DRAINAGE DETAILS
PS02-E201	A	SEDIMENT BASIN CROSS SECTIONS
PS02-E410	A	DRAINS CATCHMENT PLANS
PS02-E600	C	DRAINS MODELLING RESULTS
PS02-E700	A	WATER QUALITY CATCHMENT PLAN
SITEWORKS		
PS02-F101	F	DRIVEWAY PLAN
PS02-F102	F	CARPARK PLAN
PS02-F103	E	DRIVEWAY CROSS SECTION
PS02-F200	G	RETAINING WALL PLAN
PS02-F201	E	RETAINING WALL DETAILS
PS02-F400	C	DRIVEWAY LONGITUDINAL AND TYPICAL CROSS SECTIONS
PAVEMENT AND SIGNAGE		
PS02-G100	F	PAVEMENT PLAN

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
L	**MINOR AMENDMENTS**	**02/03/2020**	LL	**EZ**	**TH**	**TH**
K	NEW PAGE ADDED	15/11/2019	RK/LL	EZ	TH	TH
J	MINOR AMENDMENTS	12/10/2018	RK	EZ	TH	TH
I	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	EG/JCF/EZ	TH	TH
H	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
G	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
F	UPDATE	09/08/2018	PB	EZ		
E	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH

SCALE

GRID	DATUM	PROJECT MANAGER
---	---	TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE: COVER SHEET

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-A000	L

DRAWING ID: P1203464-PS02-R12-A000

PRINTED: ---- - USER: LUU
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

KEY:

- SITE BOUNDARY
- CONCRETE LINED CHANNEL
- 40 m WATERFRONT LAND BUFFER
- RIPARIAN ZONE

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
A	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF	JCF		

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GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
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PROJECT NAME/PLANSET TITLE
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SITE EARTHWORKS
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DRAWING TITLE
RIPARIAN FEATURES CONSTRAINTS PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-A300	B

DRAWING ID: P1203464-PS02-R12-A300

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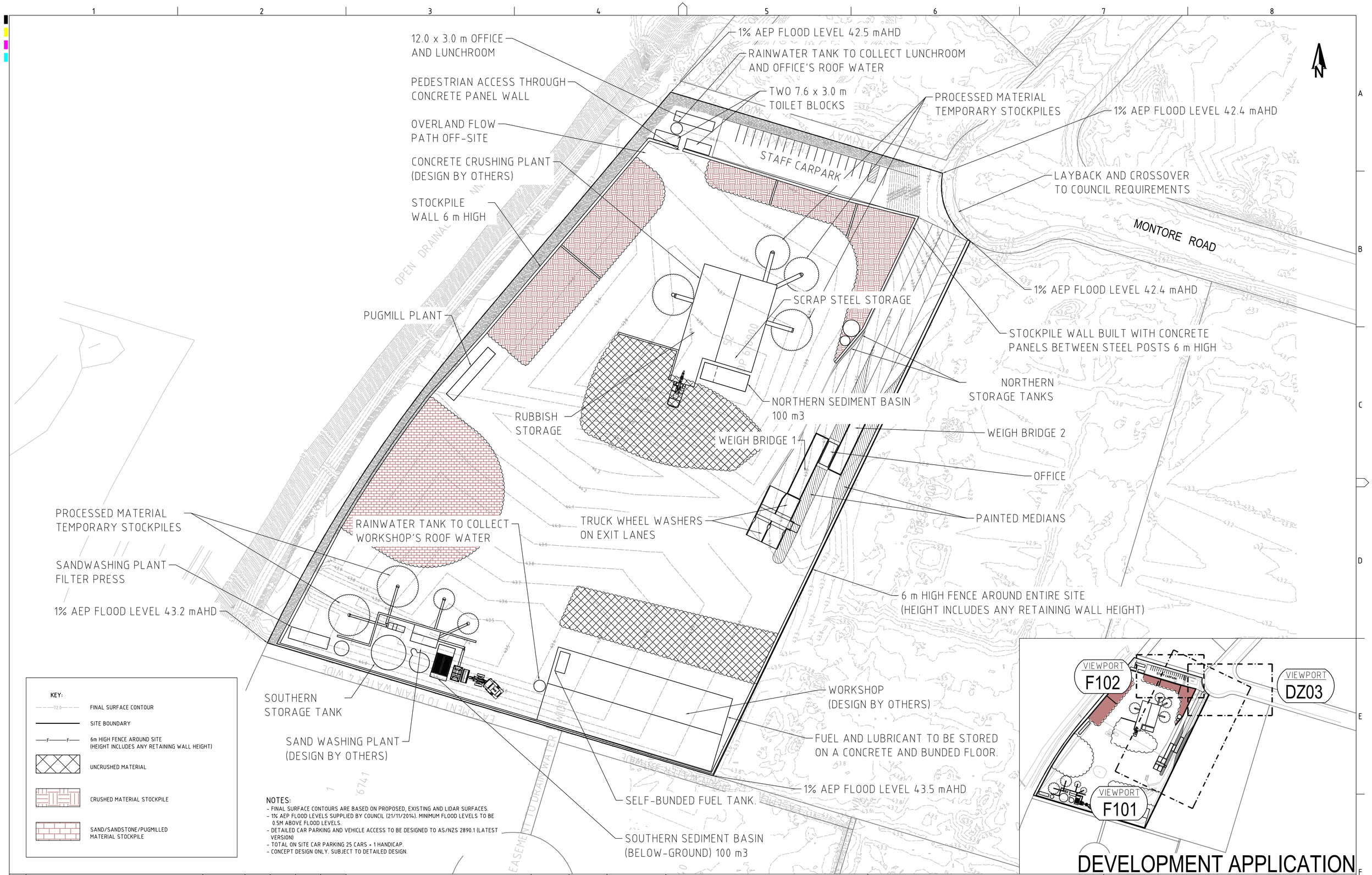

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
I	**MINOR AMENDMENTS**	**02/03/2020**	**LL**	**JCF**	**TH**	**TH**
H	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
G	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
F	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
E	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
D	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
C	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	CG/JCF	TH	

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GRID	DATUM	PROJECT MANAGER
MGA	MAHD	TH

CLIENT
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PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE
SITE LAYOUT

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-A400	I

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A1 / A3 LANDSCAPE (A1LC_v02.0.01)
DRAWING ID: P1203464-PS02-R12-A400

KEY

- SITE BOUNDARY
- CONCRETE PANEL FENCE
- CHAIN WIRE FENCE
- CLIP LOCK FENCE
- VYR-60 SPRINKLER
- TORO TG101 OR EQUIVALENT SPRINKLER
- VYR-65 OR EQUIVALENT SPRINKLER (NOTE: ENDS OF CONVEYORS WILL ALSO HAVE MISTING SPRAYS)

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**02/03/2020**	**LL**	**JCF**	**TH**	**TH**
D	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
C	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
A	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH

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GRID | DATUM | PROJECT MANAGER: TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
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SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
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DRAWING TITLE
SITE FENCING, FIRE FIGHTING AND SPRINKLERS PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-AZ00	E

DRAWING ID: P1203464-PS02-R12-AZ00

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KEY:

- INDICATIVE STOCKPILE
- GEOTEXTILE INLET FILTER
- SEDIMENT FENCE
- STABILISED SITE ACCESS

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
G	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**CG/JCF**	**TH**	**TH**
F	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
E	CLIENT REQUESTED AMENDMENTS	03/08/2018	PB	JCF	TH	TH
D	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
C	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	CG/JCF	TH	
A	BALANCE SITE EARTHWORKS	07/11/2017	CG	CG	TH	

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GRID	DATUM	PROJECT MANAGER
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CLIENT
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DEVELOPMENT APPLICATION

DRAWING TITLE
SEDIMENT AND EROSION CONTROL PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-B300	G

DRAWING ID: P1203464-PS02-R12-B300

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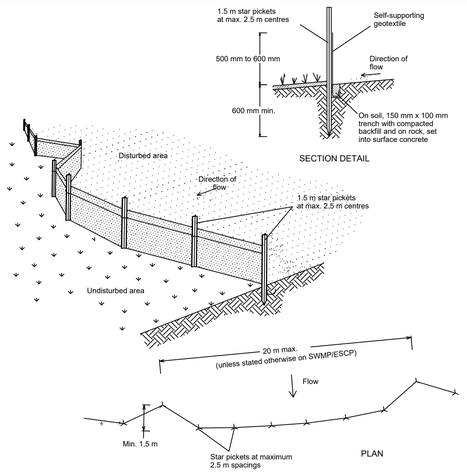
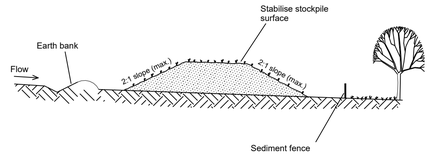


Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

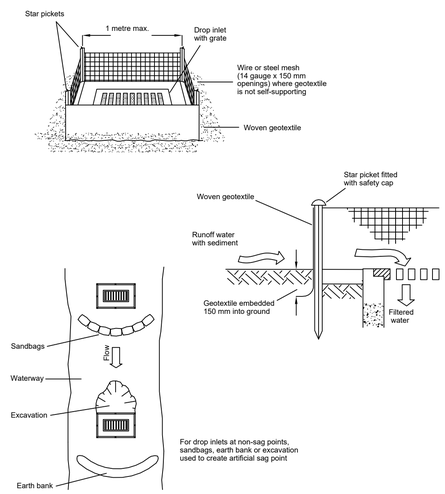
SEDIMENT FENCE — SD 6-8



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

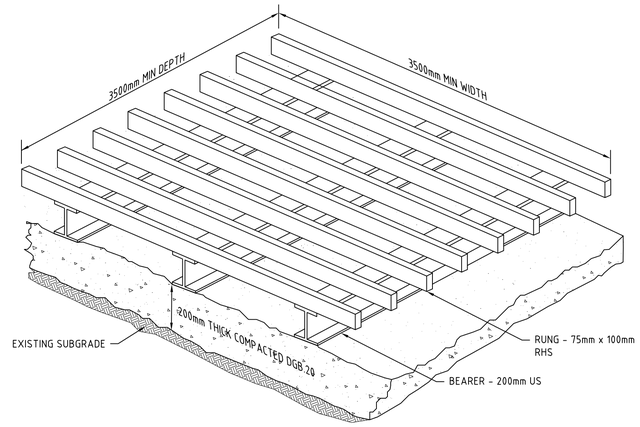
STOCKPILES — SD 4-1



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-7 and Standard Drawing 6-8 for installation procedures for the straw bales or geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

GEOTEXTILE INLET FILTER — SD 6-12



Construction Notes

A correctly designed and installed shaker pad will assist in preventing sediment transfer from a site. Any stabilised access point (SAP) can be designed with a shaker pad (compulsory in Type II SAP's)

Shaker pads can be designed and constructed to enable re-use on future projects.

The shaker pad:

1. Must be designed and certified by a practicing structural engineer. The certified design should be submitted with the relevant application.
2. Can be constructed from any suitable material.
3. Must be located on a suitably prepared and compacted sub-grade/base material.
4. Must be situated such thatthe rungs of the shaker pad are level with the adjoining natural surface.
5. Must be a minimum of 3.5 m in length.
6. Must be a minimum of 3.5 m in width.
7. Must have clear spacing between rungs of 200 - 250 mm.
8. Rings must have a maximum width (bearing area) of 75 mm.
9. Must have a minimum clear depth of 300 mm ie. from the top of the rung to the finished sub-grade/base level.
10. Must be provided with suitable barriers at the sides to ensure that all tyres of vehicles leaving the site traverse the device.

SHAKER PAD (CATTLE GRID)

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**CLIENT REQUESTED AMENDMENTS**	**03/08/2018**	**PB**	**JCF**	**TH**	**TH**
A	BALANCE SITE EARTHWORKS	07/11/2017	CG	CG	TH	

SCALE

GRID	DATUM	PROJECT MANAGER
---	---	TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

martens & Associates Pty Ltd
Consulting Engineers
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Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DEVELOPMENT APPLICATION

DRAWING TITLE
SEDIMENT AND EROSION CONTROL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-B350	B

DRAWING ID: P1203464-PS02-R12-B350

EXISTING SITE CONTOURS

PROPOSED SITE CONTOURS

KEY

- EXISTING CONTOURS — 72.0 —
- DESIGN CONTOURS — 72.0 —
- INTERFACE
- RETAINING WALL
- EXTERNAL BOUNDARY
- OVERLAND FLOW

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
G	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**CG/JCF**	**TH**	**TH**
F	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
E	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
D	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
C	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	CG/JCF	TH	
A	BALANCE SITE EARTHWORKS	07/11/2017	CG	CG	TH	

SCALE
0 7.5 15.0 22.5 30.0 37.5 45.0 52.5 60.0 67.5 75.0 METRES
A1 (A3) 1:750 (1:1,500)

GRID	DATUM	PROJECT MANAGER
MGA	MAHD	TH

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SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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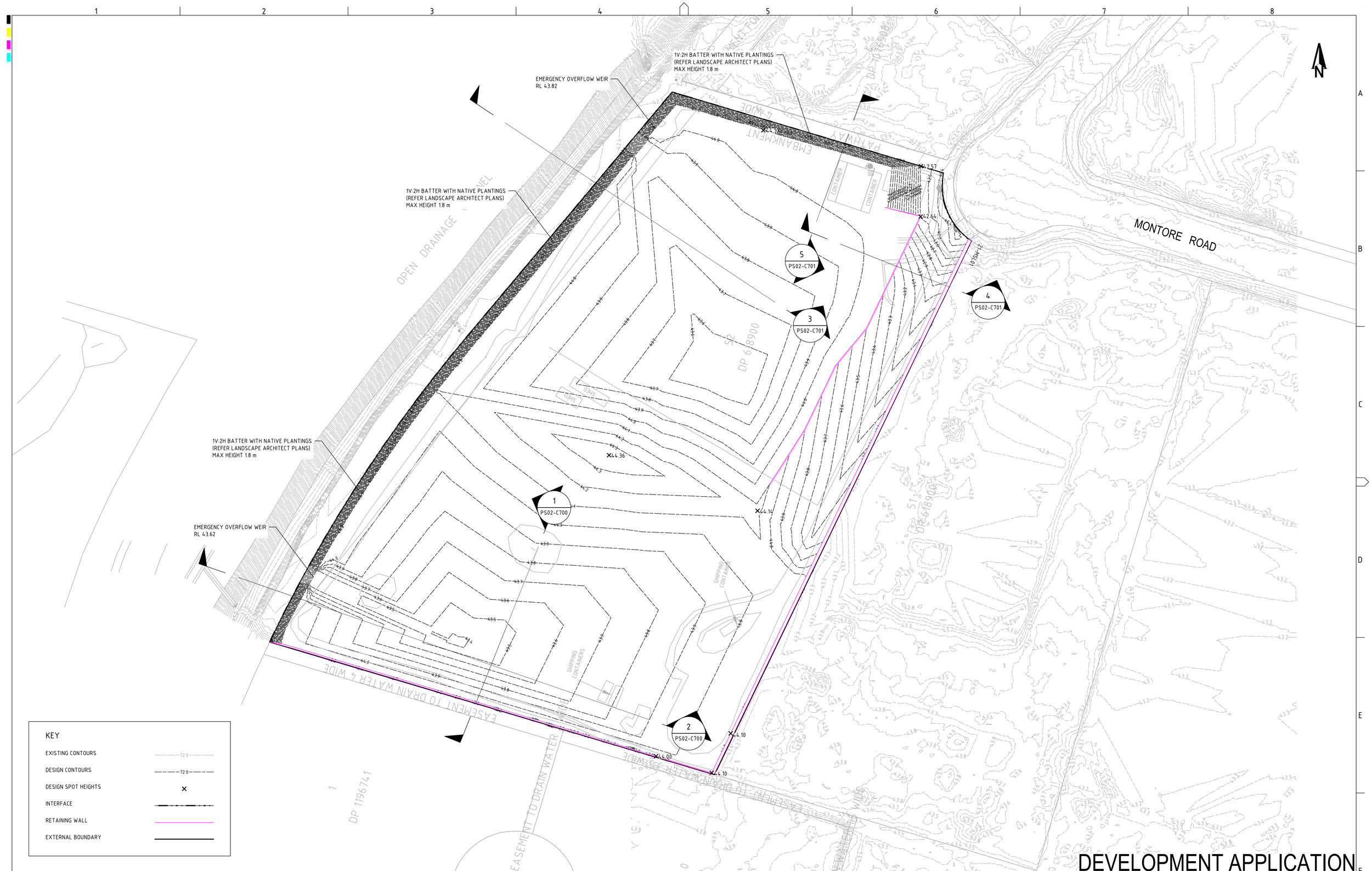
DRAWING TITLE
EARTHWORKS PLAN
SHEET 01

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-C100	G

DRAWING ID: P1203464-PS02-R12-C100

PRINTED ---- USER LUU

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	CG/JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
A	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH

SCALE
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A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
		TH

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SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE
EARTHWORKS PLAN
SHEET 02

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-C105	C

DRAWING ID: P1203464-PS02-R12-C105

PRINTED: ---- - USER: LUU
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CUT FILL ANALYSIS

LESS THAN -3.000m			
-3.000	to	-2.250	m
-2.250	to	-1.500	m
-1.500	to	-0.750	m
-0.750	to	-0.150	m
-0.150	to	0.150	m
0.150	to	0.750	m
0.750	to	1.500	m
1.500	to	2.250	m
2.250	to	3.000	m
GREATER THAN 3.000m			

EARTHWORKS SUMMARY

	CUT	FILL
EARTHWORKS VOLUME (m^3)	-1298	7810
EARTHWORKS BALANCE (m^3)	-	6512
IMPORTED PAVEMENT (m^3)	-	6432
TOTAL BALANCE (m^3)	-	80

NOTES:
- EARTHWORKS VOLUMES MEASURED FROM EXISTING LEVELS TO DESIGN SURFACE LEVELS.
- APPROX. 6432 M3 OF HARDSTAND PAVEMENT AT 0.3 M DEPTH REQUIRED (21440 X 0.3).

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
G	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	CG/JCF	TH	TH
F	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
E	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
D	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
C	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	CG/JCF	TH	
A	BALANCE SITE EARTHWORKS	07/11/2017	CG	CG	TH	

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
---	MAHD	TH

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SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
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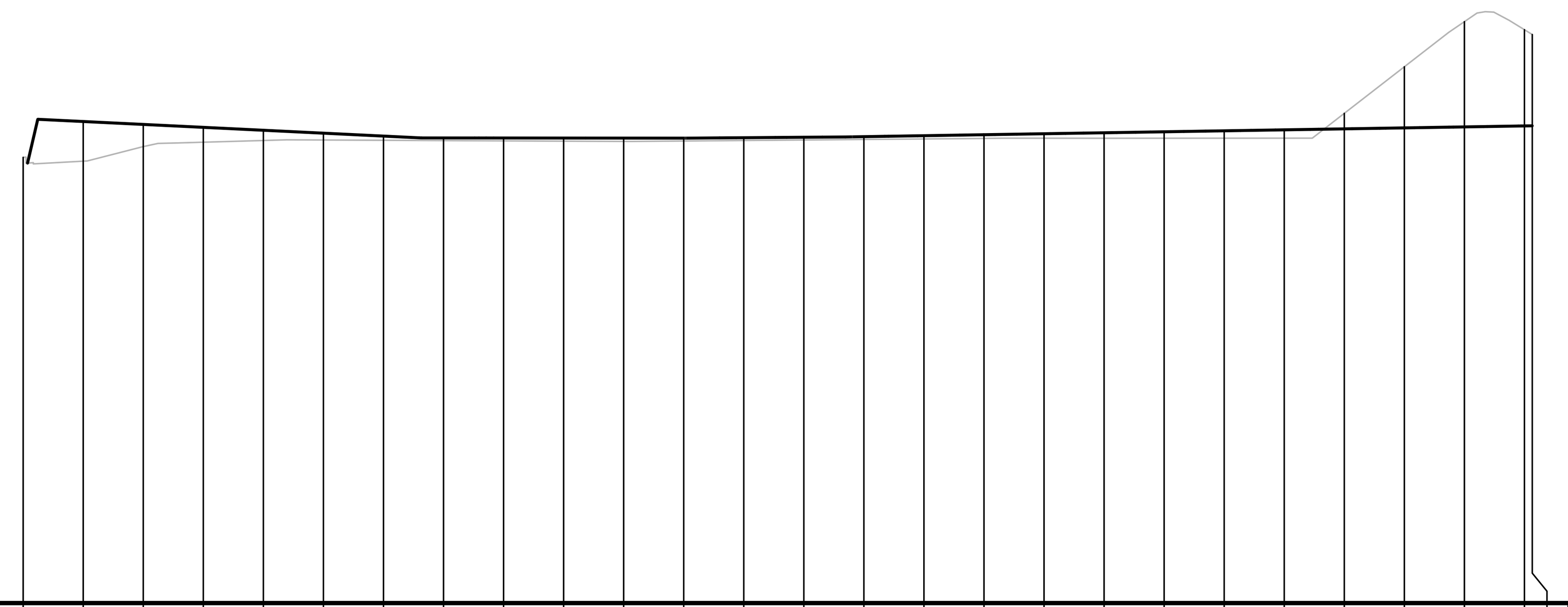
DRAWING TITLE
EARTHWORKS CUT & FILL ANALYSIS PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-C600	G

DRAWING ID: P1203464-PS02-R12-C600

PRINTED: ---- USER: LOU
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

1 2 3 4 5 6 7 8

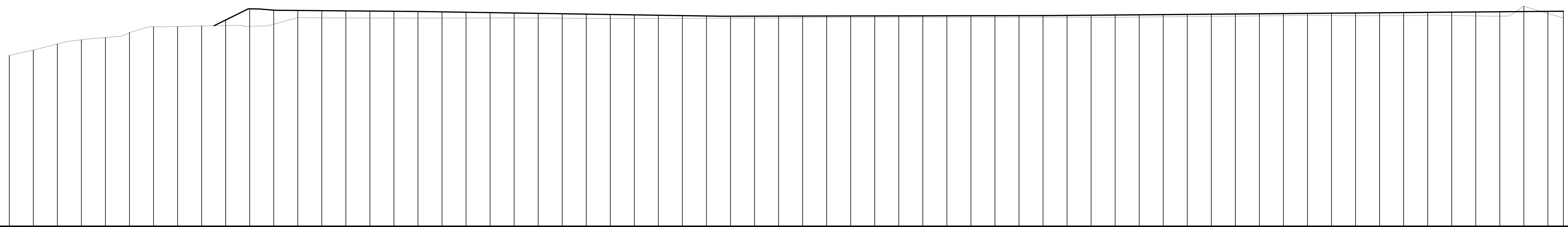


DATUM RL 28.000

DESIGN SURFACE LEVELS		44.027	43.93	43.833	43.736	43.639	43.542	43.479	43.478	43.476	43.475	43.473	43.488	43.503	43.522	43.555	43.587	43.62	43.652	43.685	43.717	43.75	43.782	43.815	43.847	43.879	43.884
EXISTING SURFACE LEVELS	42.834	42.707	43.192	43.338	43.395	43.411	43.402	43.392	43.383	43.373	43.365	43.378	43.395	43.412	43.429	43.446	43.464	43.471	43.469	43.470	43.471	43.473	44.298	45.847	47.348	47.080	46.921
CUT / FILL DEPTH	-0.432	1.241	0.558	0.218	0.080	0.065	0.076	0.086	0.096	0.103	0.110	0.095	0.092	0.091	0.092	0.104	0.116	0.138	0.169	0.199	0.228	0.258	-0.537	-2.055	-3.524	-3.225	-3.061
CHAINAGE	0.000	2.000	4.000	6.000	8.000	10.000	12.000	14.000	16.000	18.000	20.000	22.000	24.000	26.000	28.000	30.000	32.000	34.000	36.000	38.000	40.000	42.000	44.000	46.000	48.000	50.000	50.260

SECTION 1

SCALE: HORIZONTAL - 1:200
VERTICAL - 1:200



DATUM RL 26.000

DESIGN SURFACE LEVELS										43.17	44.098	43.988	43.965	43.946	43.929	43.913	43.896	43.878	43.847	43.816	43.785	43.753
EXISTING SURFACE LEVELS	40.224	40.668	41.170	41.522	41.713	42.119	42.609	42.629	42.680	42.713	42.653	42.822	43.369	43.348	43.342	43.336	43.330	43.325	43.329	43.332	43.336	43.347
CUT / FILL DEPTH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.457	1.432	1.158	0.445	0.397	0.372	0.360	0.349	0.301	0.238	0.174	0.109	0.039
CHAINAGE	0.000	2.000	4.000	6.000	8.000	10.000	12.000	14.000	16.000	18.000	20.000	22.000	24.000	26.000	28.000	30.000	32.000	34.000	36.000	38.000	40.000	42.000

DESIGN SURFACE LEVELS	43.722	43.691	43.66	43.629	43.597	43.566	43.535	43.504	43.486	43.49	43.495	43.499	43.503	43.507	43.511	43.514	43.518	43.522	43.526	43.53	43.533	43.537
EXISTING SURFACE LEVELS	43.335	43.323	43.311	43.301	43.301	43.303	43.311	43.319	43.327	43.335	43.344	43.355	43.367	43.379	43.391	43.403	43.403	43.400	43.400	43.400	43.399	43.399
CUT / FILL DEPTH	0.035	0.047	0.059	0.069	0.069	0.067	0.059	0.051	0.043	0.035	0.026	0.015	0.013	0.018	0.023	0.027	0.044	0.064	0.081	0.098	0.115	0.133
CHAINAGE	44.000	46.000	48.000	50.000	52.000	54.000	56.000	58.000	60.000	62.000	64.000	66.000	68.000	70.000	72.000	74.000	76.000	78.000	80.000	82.000	84.000	86.000

DESIGN SURFACE LEVELS	43.551	43.568	43.585	43.602	43.619	43.636	43.652	43.669	43.686	43.703	43.72	43.737	43.754	43.77	43.787	43.804	43.821	43.838	43.855	43.872	43.888	43.899
EXISTING SURFACE LEVELS	43.399	43.400	43.402	43.417	43.435	43.453	43.473	43.492	43.512	43.532	43.552	43.540	43.527	43.532	43.533	43.566	43.552	43.511	43.491	44.308	43.726	43.336
CUT / FILL DEPTH	0.150	0.165	0.180	0.182	0.181	0.180	0.177	0.174	0.171	0.168	0.165	0.193	0.223	0.235	0.251	0.234	0.266	0.323	0.361	-0.434	0.170	0.572
CHAINAGE	88.000	90.000	92.000	94.000	96.000	98.000	100.000	102.000	104.000	106.000	108.000	110.000	112.000	114.000	116.000	118.000	120.000	122.000	124.000	126.000	128.000	129.289

SECTION 2

SCALE: HORIZONTAL - 1:200
VERTICAL - 1:200

A B C D E F

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**CG/JCF**	**TH**	**TH**
D	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
C	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	CG/JCF	TH	
A	BALANCE SITE EARTHWORKS	07/11/2017	CG	CG	TH	

PRINTED: ---- - USER: LLIU

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

SCALE
0 2 4 6 8 10 12 14 16 18 20 METRES
A1 (A3) 1:200 (1:400)

GRID	DATUM	PROJECT MANAGER
MGA	MAHD	TH

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PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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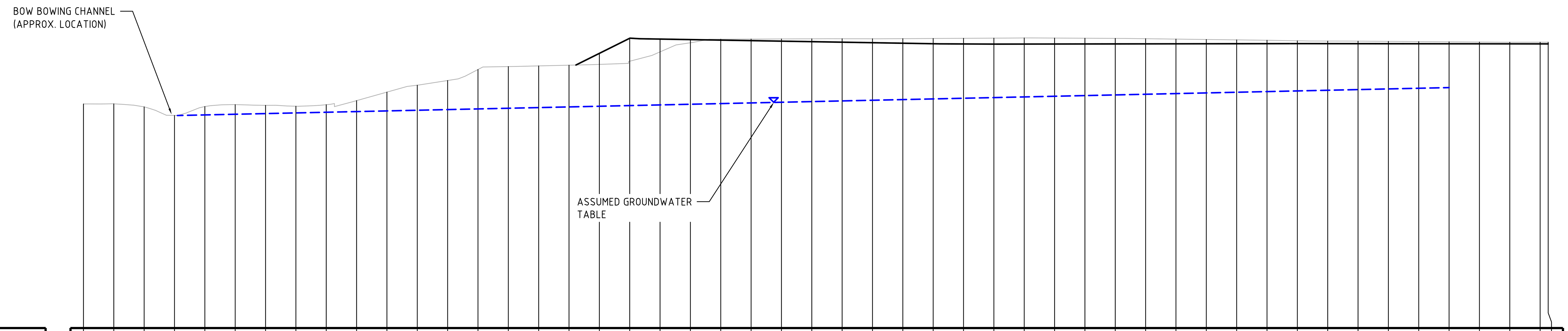
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
EARTHWORKS SECTIONS
SHEET 01

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-C700	E

DRAWING ID: P1203464-PS02-R12-C700

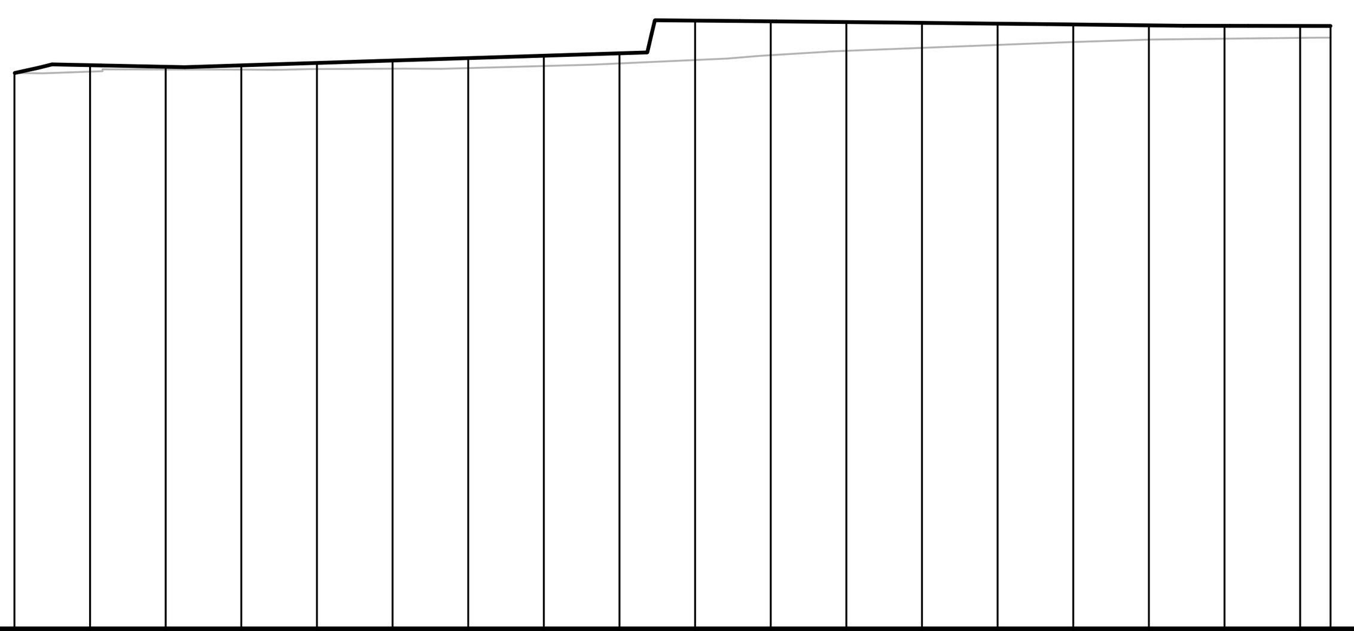


DATUM RL 25.000

CHAINAGE	DESIGN SURFACE LEVELS	EXISTING SURFACE LEVELS	CUT / FILL DEPTH
0.000		39.764	0.000
2.000		39.771	0.000
4.000		39.572	0.000
6.000		39.008	0.000
8.000		39.594	0.000
10.000		39.719	0.000
12.000		39.674	0.000
14.000		39.615	0.000
16.000		39.715	0.000
18.000		39.984	0.000
20.000		40.545	0.000
22.000		41.000	0.000
24.000		41.310	0.000
26.000		42.034	0.000
28.000		42.228	0.000
30.000		42.272	0.000
32.000		42.319	0.000
34.000	43.098	42.372	0.727
36.000	44.093	42.579	1.514
38.000	44.039	43.196	0.843
40.000	44.005	43.797	0.208
42.000	43.971	44.031	-0.060
44.000	43.937	44.039	-0.102
46.000	43.903	44.047	-0.144
48.000	43.869	44.057	-0.188
50.000	43.835	44.061	-0.226
52.000	43.801	44.059	-0.258
54.000	43.767	44.067	-0.301
56.000	43.733	44.079	-0.346
58.000	43.718	44.090	-0.372
60.000	43.709	44.101	-0.392
62.000	43.711	44.113	-0.402
64.000	43.714	44.107	-0.392
66.000	43.718	44.096	-0.378
68.000	43.721	44.084	-0.363
70.000	43.724	44.064	-0.339
72.000	43.727	44.038	-0.310
74.000	43.731	44.012	-0.282
76.000	43.734	43.987	-0.253
78.000	43.737	43.961	-0.224
80.000	43.74	43.926	-0.186
82.000	43.738	43.909	-0.171
84.000	43.736	43.903	-0.167
86.000	43.734	43.888	-0.154
88.000	43.732	43.873	-0.141
90.000	43.73	43.858	-0.128
92.000	43.728	43.843	-0.115
94.000	43.726	43.833	-0.107
96.000	43.723	43.834	-0.111
96.531	43.723	43.835	-0.112

SECTION 3 - CONCEPTUAL GROUNDWATER MODEL

SCALE: HORIZONTAL - 1:200
VERTICAL - 1:200

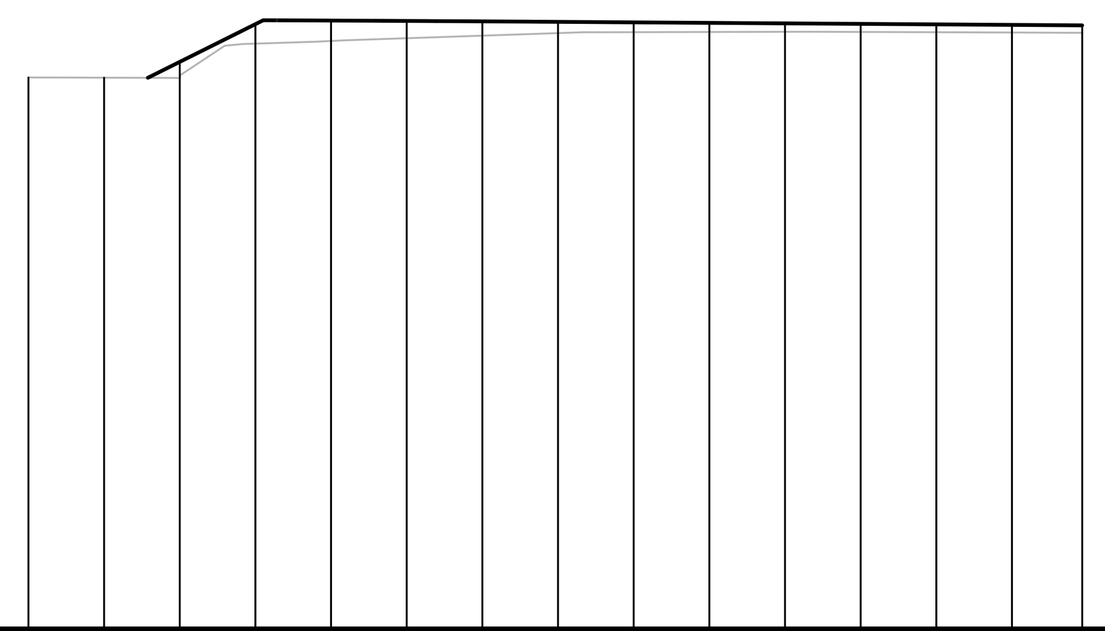


DATUM RL 28.000

CHAINAGE	DESIGN SURFACE LEVELS	EXISTING SURFACE LEVELS	CUT / FILL DEPTH
0.000		42.706	0.000
2.000	42.912	42.741	0.171
4.000	42.87	42.799	0.071
6.000	42.907	42.794	0.113
8.000	42.971	42.810	0.161
10.000	43.035	42.819	0.216
12.000	43.099	42.835	0.264
14.000	43.162	42.890	0.272
16.000	43.226	42.959	0.267
18.000	44.091	43.049	1.041
20.000	44.071	43.176	0.894
22.000	44.052	43.292	0.757
24.000	44.032	43.370	0.657
26.000	44.01	43.448	0.556
28.000	43.989	43.525	0.454
30.000	43.965	43.588	0.365
32.000	43.953	43.612	0.315
34.000	43.95	43.634	0.265
34.804	43.949	43.639	0.248

SECTION 4

SCALE: HORIZONTAL - 1:200
VERTICAL - 1:200



DATUM RL 28.000

CHAINAGE	DESIGN SURFACE LEVELS	EXISTING SURFACE LEVELS	CUT / FILL DEPTH
0.000		42.587	0.000
2.000		42.582	0.000
4.000	42.999	42.572	0.427
6.000	43.997	43.482	0.515
8.000	44.092	43.552	0.534
10.000	44.082	43.625	0.444
12.000	44.071	43.693	0.359
14.000	44.058	43.760	0.272
16.000	44.044	43.785	0.227
18.000	44.031	43.790	0.200
20.000	44.018	43.795	0.173
22.000	44.004	43.791	0.153
24.000	43.991	43.784	0.137
26.000	43.978	43.776	0.122
27.857	43.965	43.767	0.113

SECTION 5

SCALE: HORIZONTAL - 1:200
VERTICAL - 1:200

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**CG/JCF**	**TH**	**TH**
D	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
C	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	CG/JCF	TH	
A	BALANCE SITE EARTHWORKS	07/11/2017	CG	CG	TH	

SCALE: 0 2 4 6 8 10 12 14 16 18 20 METRES
A1 (A3) 1:200 (1:400)

GRID: --- | DATUM: MAHD | PROJECT MANAGER: TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

martens & Associates Pty Ltd
Consulting Engineers
Environment
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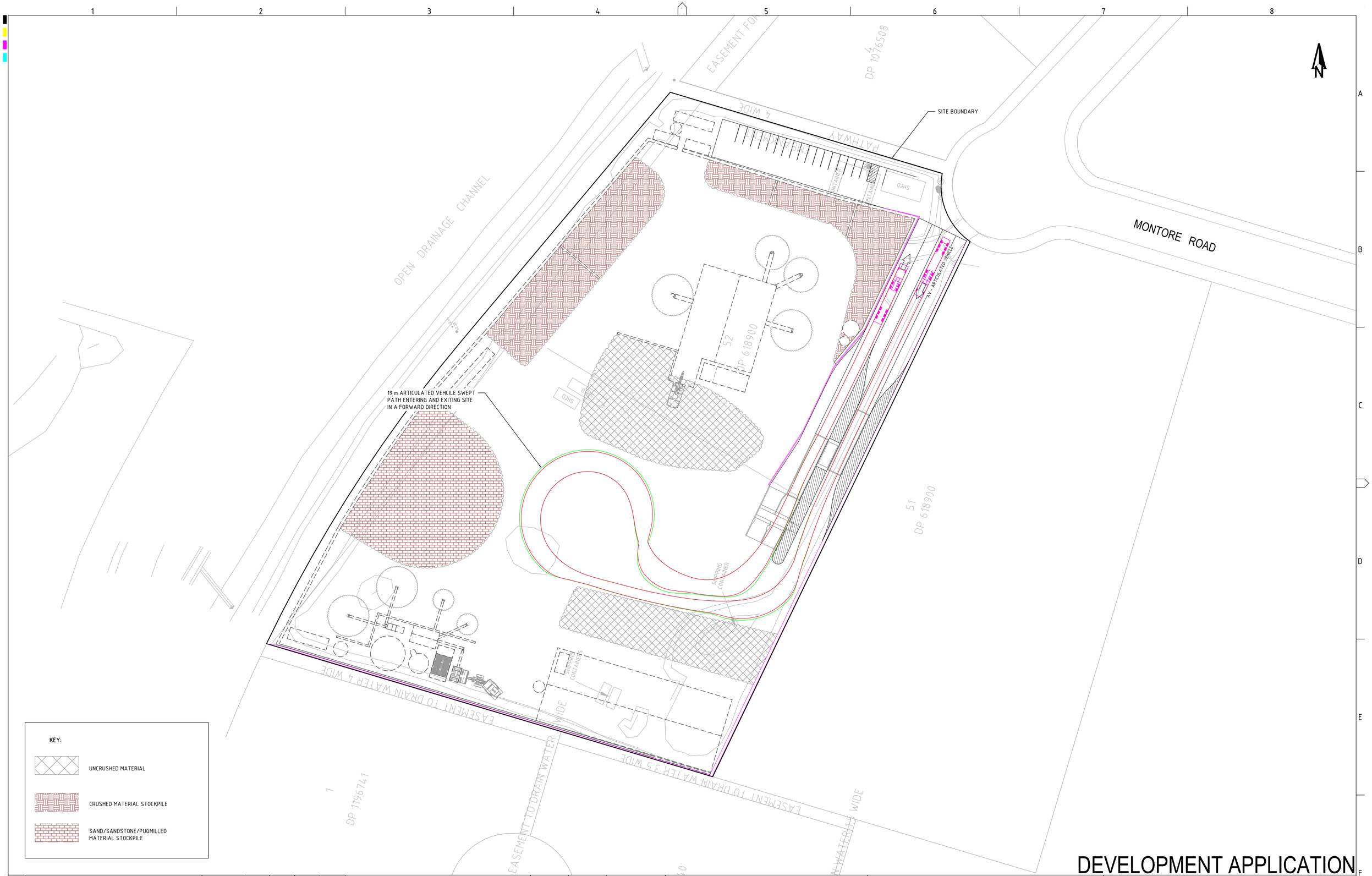
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: EARTHWORKS SECTIONS SHEET 02

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-C701	E



KEY:

- UNCRUSHED MATERIAL
- CRUSHED MATERIAL STOCKPILE
- SAND/SANDSTONE/PUGMILLED MATERIAL STOCKPILE

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
H	**MINOR AMENDMENTS**	**02/03/2020**	**LL**	**JCF**	**TH**	**TH**
G	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
F	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
E	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
D	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
C	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
A	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	JCF	TH	

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

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PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

martens & Associates Pty Ltd
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DRAWING TITLE
SWEPT PATH ANALYSIS - SHEET 1
TURNING MANOEUVRE ON SITE

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-DZ01	H

DRAWING ID: P1203464-PS02-R12-DZ01

PRINTED: ---- USER: LUU
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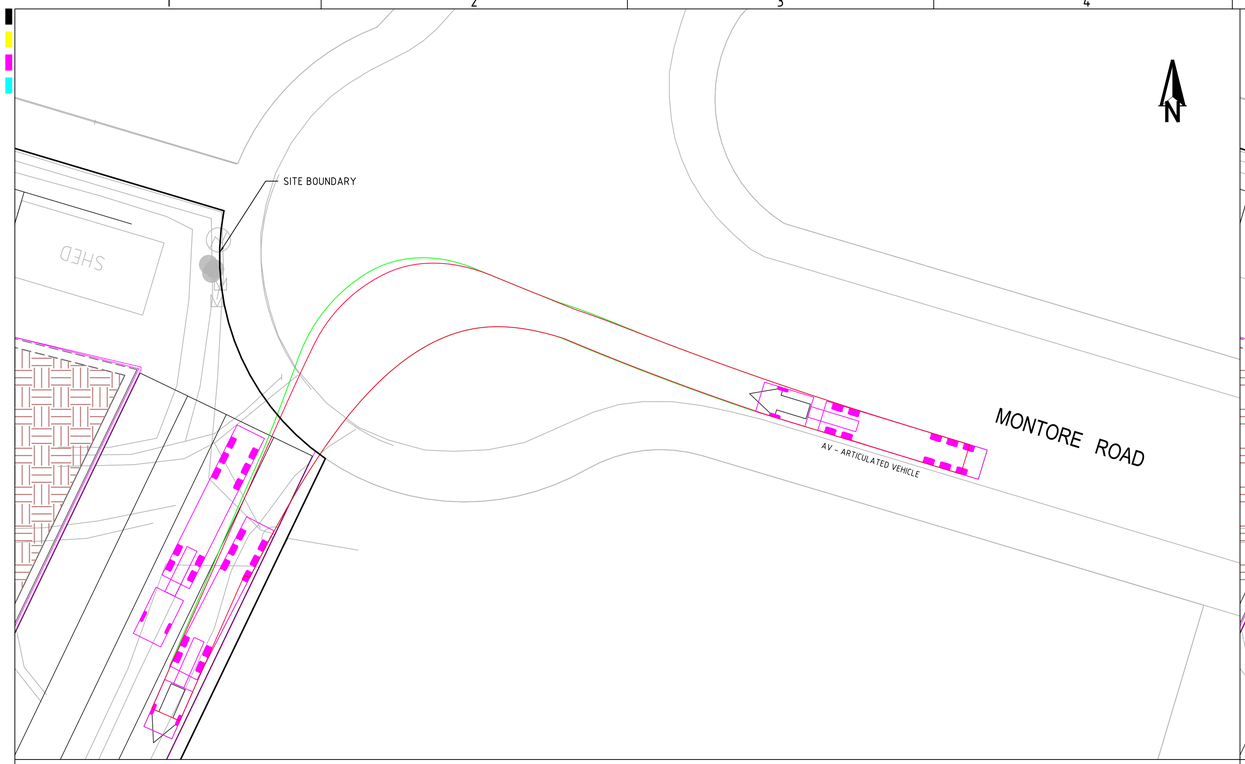
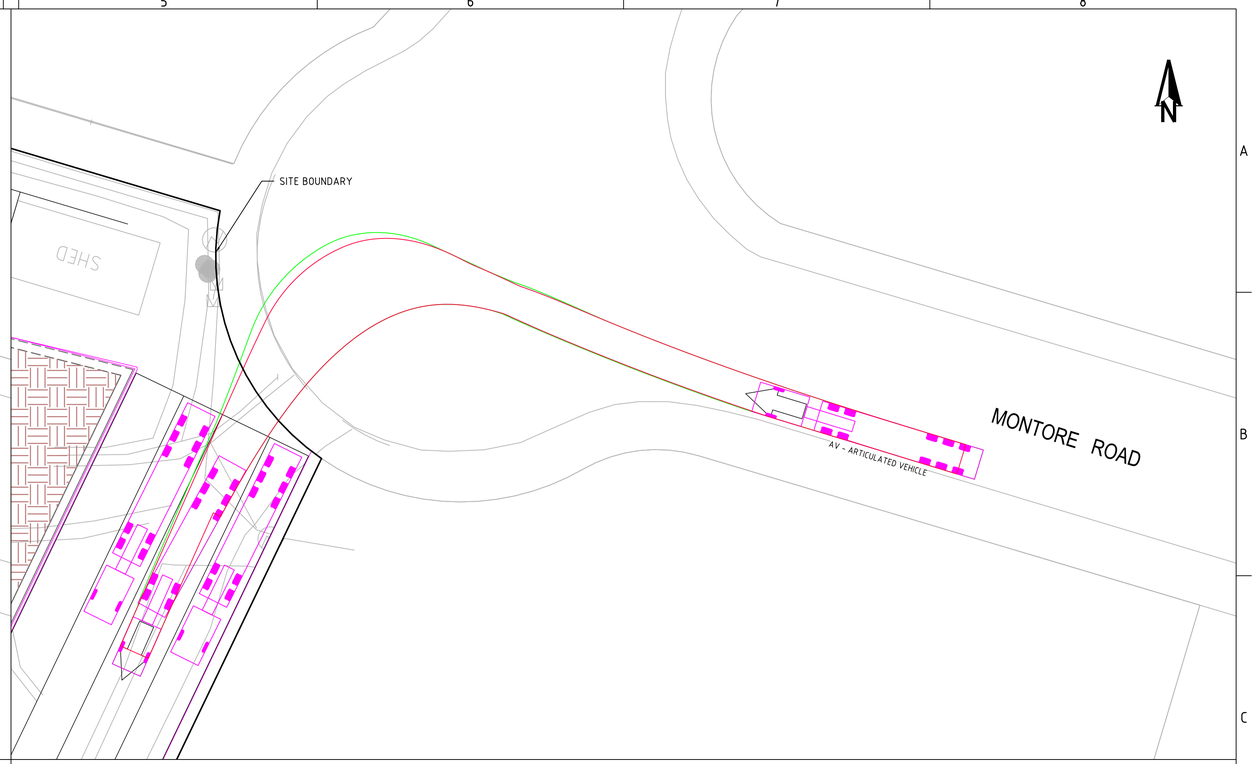
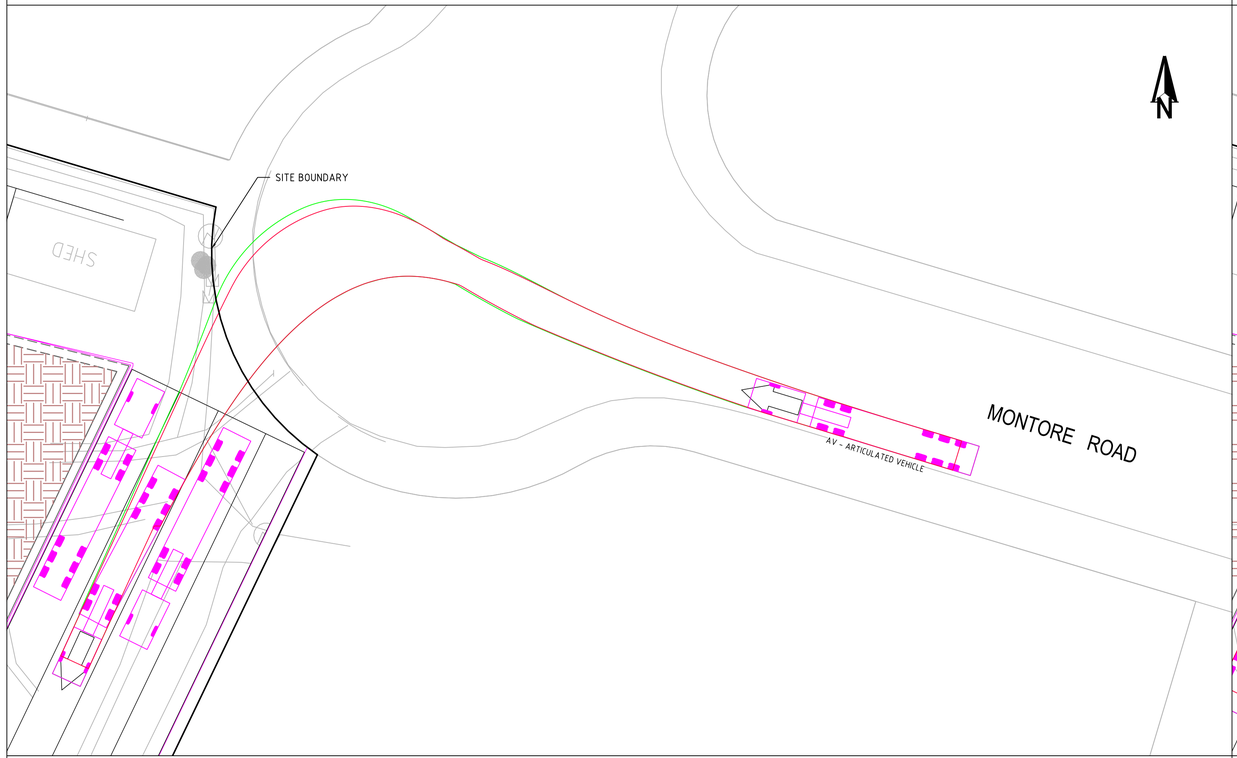


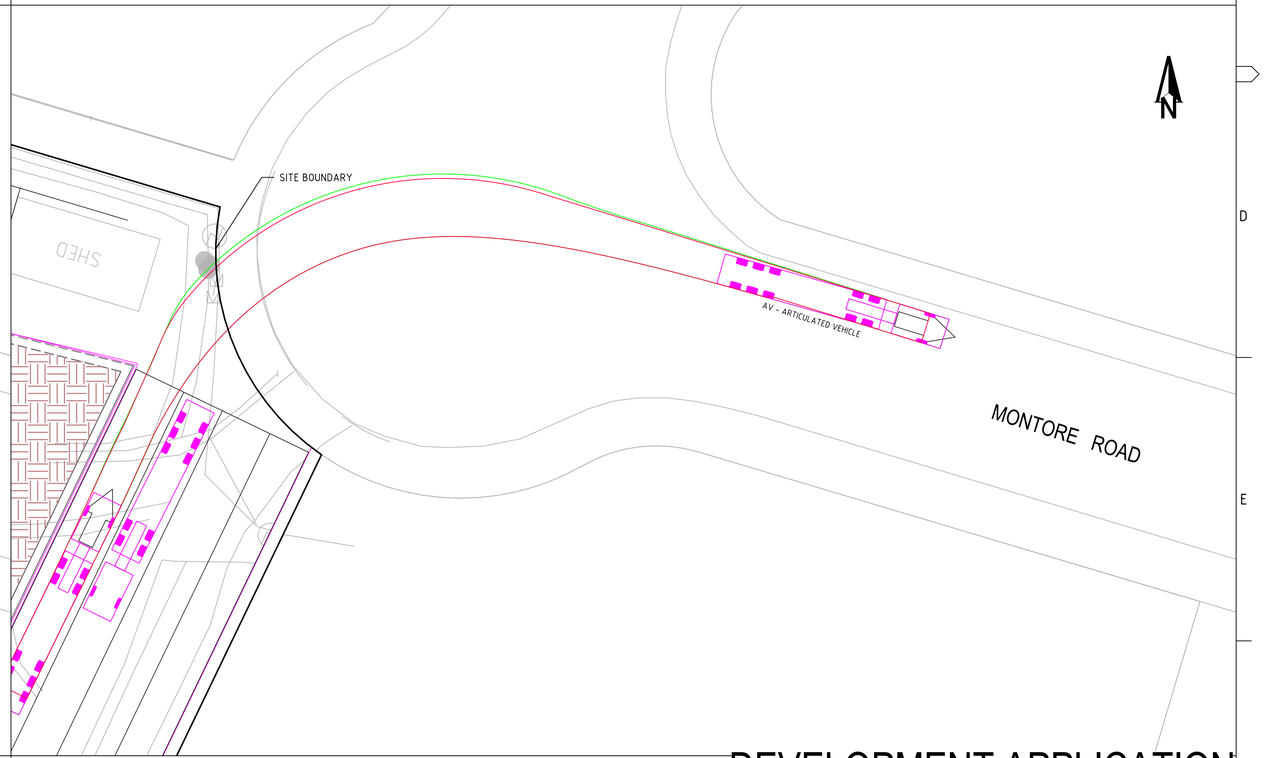
ENTERING SITE, LEFT LANE



ENTERING SITE, MIDDLE LANE



ENTERING SITE, RIGHT LANE



EXITING SITE

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**02/03/2020**	LL	JCF	TH	TH
D	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
C	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
A	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	JCF	TH	

SCALE
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

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CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE
SWEPT PATH ANALYSIS - SHEET 3
ENTRANCE AND EXIT MANOEUVRES

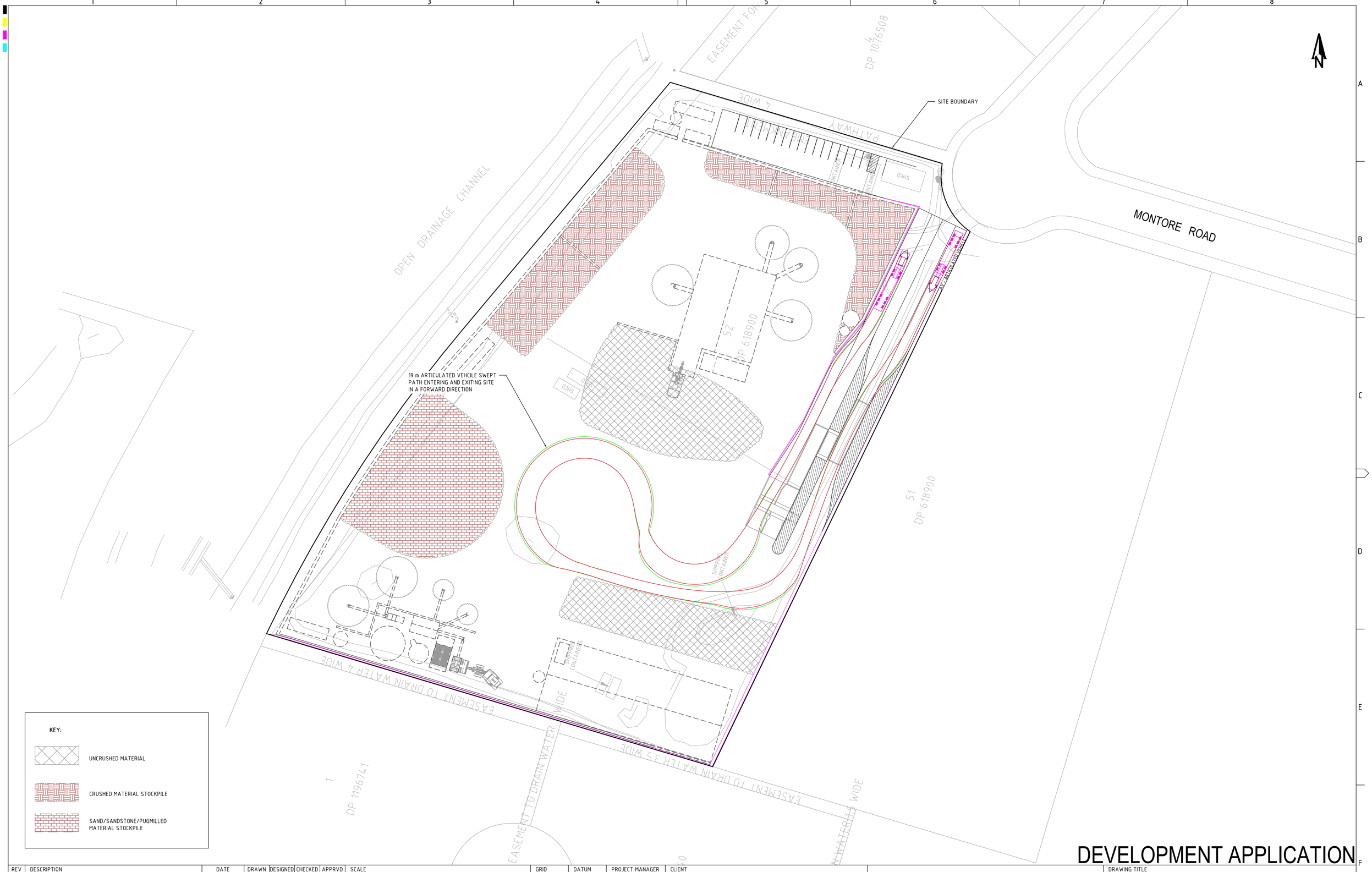
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-DZ03	E

DEVELOPMENT APPLICATION

PRINTED: ---- USER: LLU

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

DRAWING ID: P1203464-PS02-R12-DZ03



DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
H	**MINOR AMENDMENTS**	**02/03/2020**	**LL**	**JCF**	**TH**	**TH**
G	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
F	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
E	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
D	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
C	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
A	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	JCF	TH	

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
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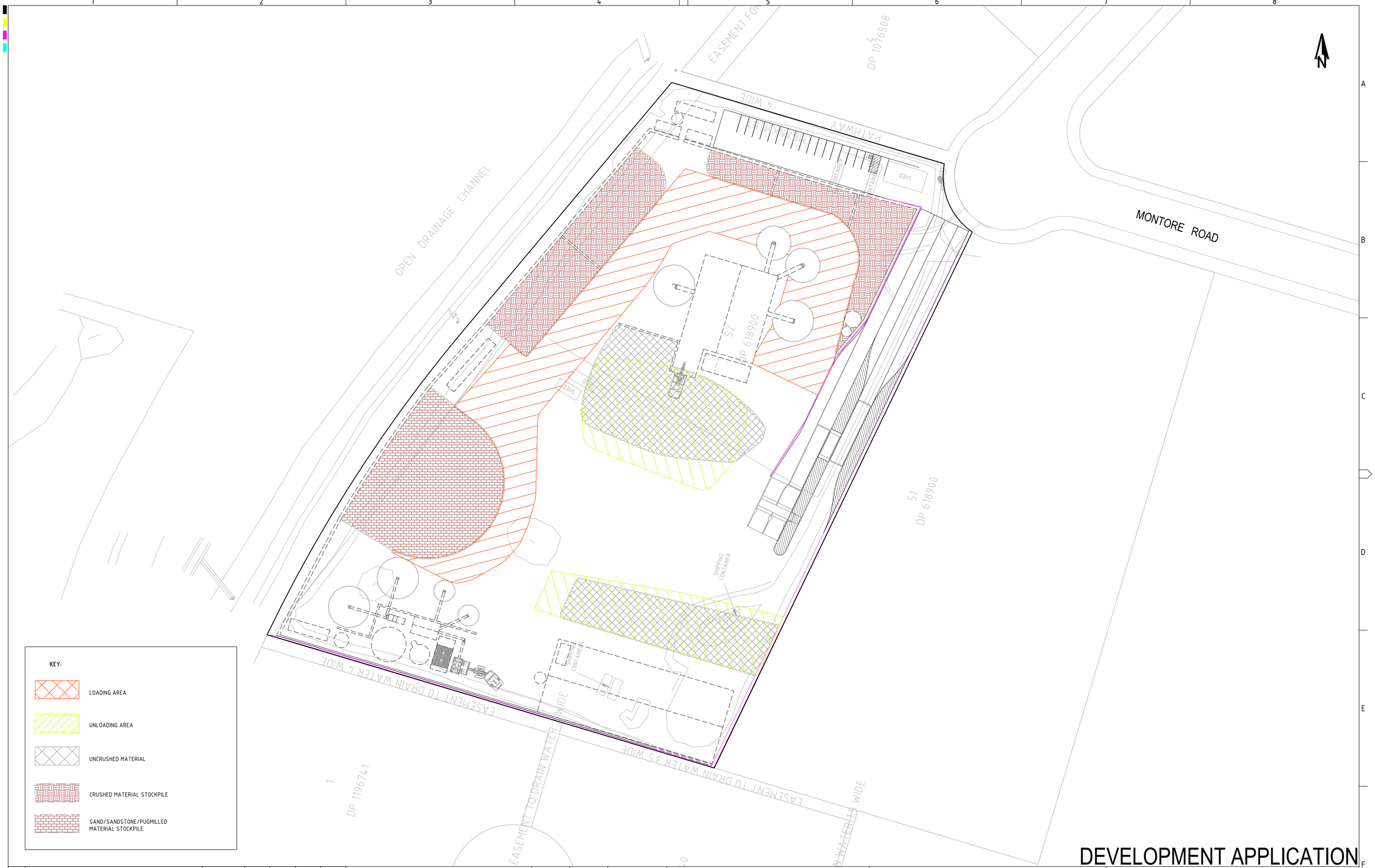
DRAWING TITLE
SWEPT PATH ANALYSIS - SHEET 2
TURNING MANOEUVRE ON SITE

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-DZ02	H

DRAWING ID: P1203464-PS02-R12-DZ02

PRINTED: ---- USER: LIU
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



KEY:

- LOADING AREA
- UNLOADING AREA
- UNCRUSHED MATERIAL
- CRUSHED MATERIAL STOCKPILE
- SAND/SANDSTONE/PUGMILLED MATERIAL STOCKPILE

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**02/03/2020**	**LL**	**JCF**	**TH**	**TH**
D	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
C	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
A	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH

SCALE: 0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

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All measurements in millimetres unless otherwise specified.

PROJECT NAME/PLANSET TITLE

MINTO CONCRETE RECYCLERS
SITE EARTHWORKS

7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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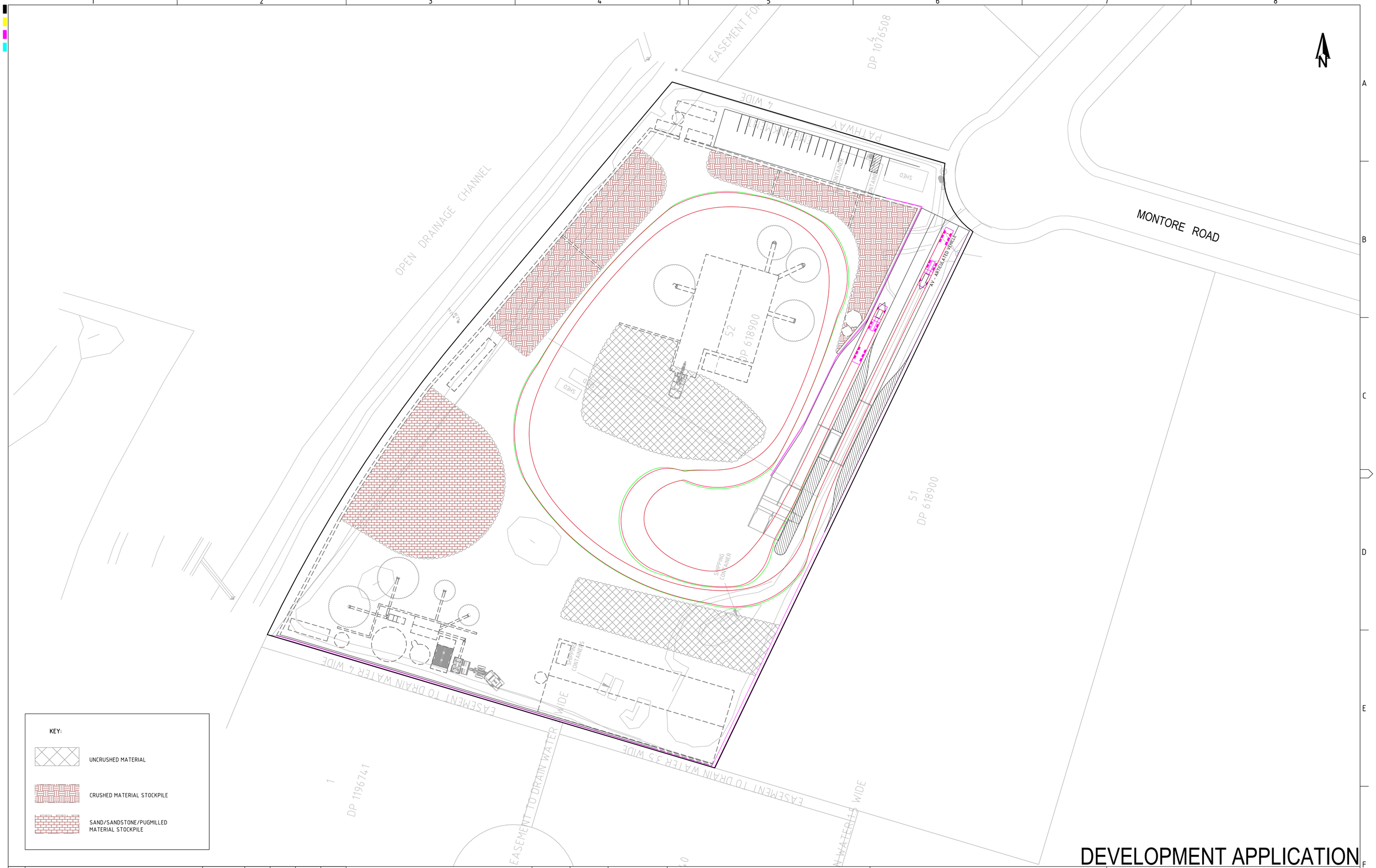
DRAWING TITLE: SITE LOADING & UNLOADING PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-DZ10	E

DRAWING ID: P1203464-PS02-R12-DZ10

PRINTED: --- (USER: LL)

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**02/03/2020**	**LL**	**JCF**	**TH**	**TH**
D	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
C	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
A	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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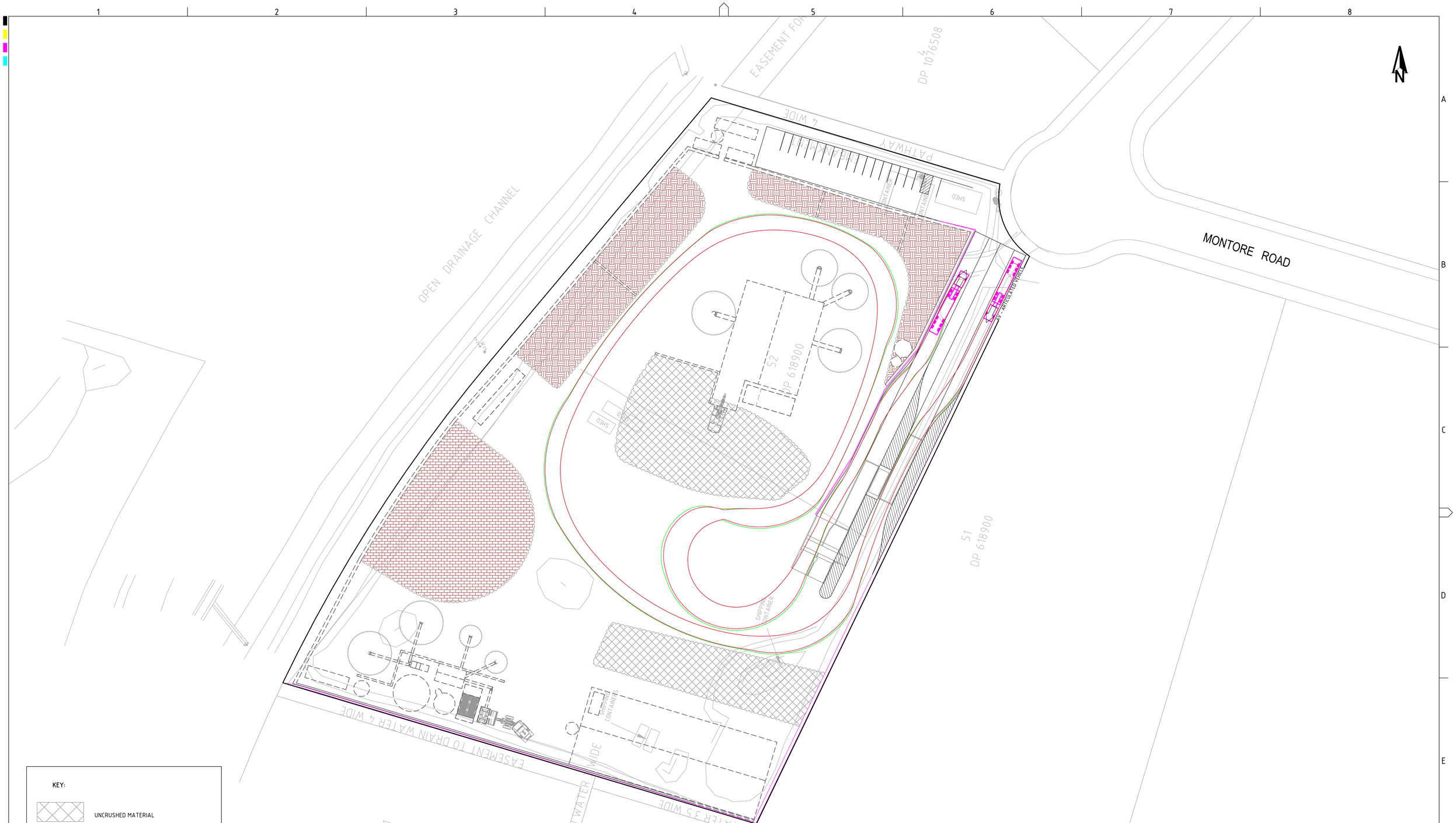
DRAWING TITLE
SWEPTH PATH ANALYSIS - SHEET 4
TURNING MANEOUVRE ON SITE

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-DZ04	E

DRAWING ID: P1203464-PS02-R12-DZ04



KEY:

- UNCRUSHED MATERIAL
- CRUSHED MATERIAL STOCKPILE
- SAND/SANDSTONE/PUGMILLED MATERIAL STOCKPILE

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**02/03/2020**	LL	JCF	TH	TH
D	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	JCF	TH	TH
C	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
A	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID: MGA | DATUM: m AHD | PROJECT MANAGER: TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

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All measurements in millimetres unless otherwise specified.

PROJECT NAME/PLANSET TITLE

MINTO CONCRETE RECYCLERS
SITE EARTHWORKS

7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE

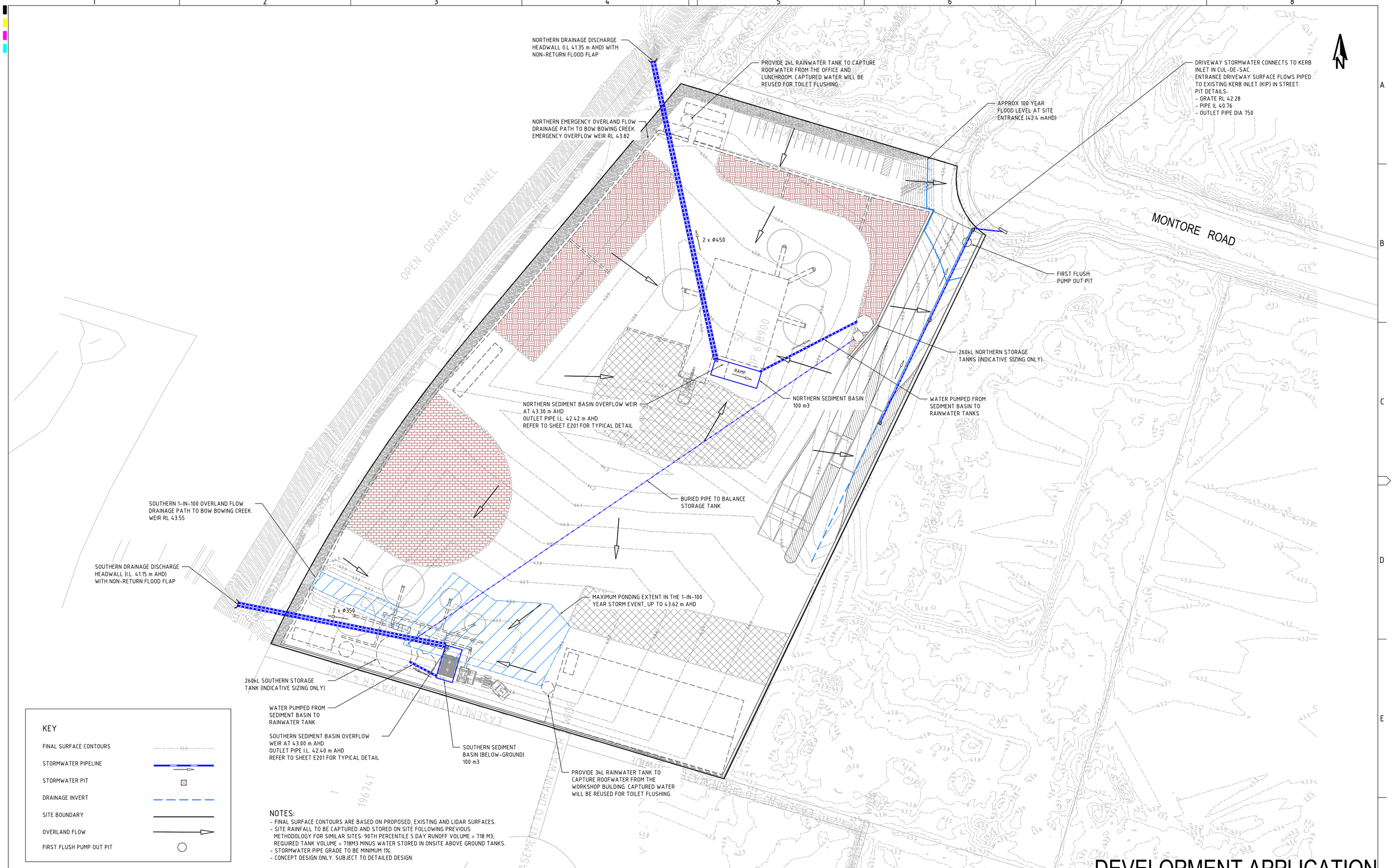
SWEPTH PATH ANALYSIS - SHEET 5
TURNING MANEOUVRE ON SITE

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-DZ05	E

DRAWING ID: P1203464-PS02-R12-DZ05

PRINTED: ---- USER: LLU

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



KEY

- FINAL SURFACE CONTOURS
- STORMWATER PIPELINE
- STORMWATER PIT
- DRAINAGE INVERT
- SITE BOUNDARY
- OVERLAND FLOW
- FIRST FLUSH PUMP OUT PIT

NOTES:

- FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.
- SITE RAINFALL TO BE CAPTURED AND STORED ON SITE FOLLOWING PREVIOUS METHODOLOGY FOR SIMILAR SITES: 90TH PERCENTILE 5 DAY RUNOFF VOLUME = 718 M3; REQUIRED TANK VOLUME = 718M3 MINUS WATER STORED IN ONSITE ABOVE GROUND TANKS.
- STORMWATER PIPE GRADE TO BE MINIMUM 1%.
- CONCEPT DESIGN ONLY. SUBJECT TO DETAILED DESIGN.

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
J	**MINOR AMENDMENTS**	**02/03/2020**	LL	EZ	TH	TH
I	MINOR AMENDMENTS	12/10/2018	RK	EZ	TH	TH
H	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	DG/EZ/JCF	TH	TH
G	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
F	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	EZ/JCF		
E	CLIENT REQUESTED AMENDMENTS	03/08/2018	PB	JCF	TH	TH
D	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
C	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	

SCALE: A1 (A3) 1:500 (1:1,000) — METRES

GRID	DATUM	PROJECT MANAGER
MGA	MAHD	TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE: MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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Civil
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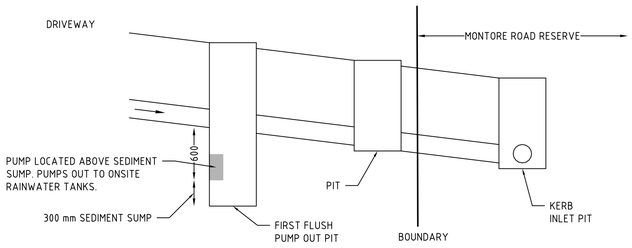
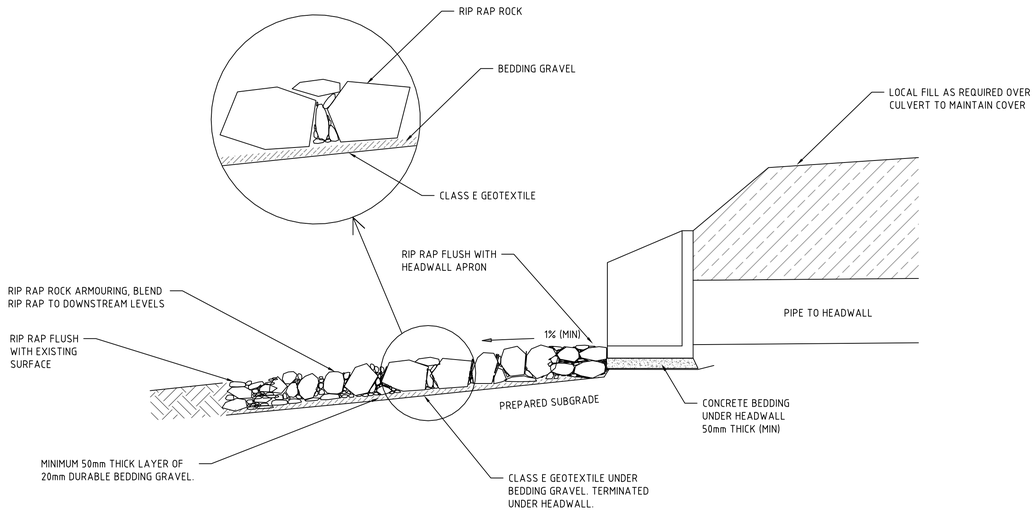
DRAWING TITLE: DRAINAGE PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-E100	J

DRAWING ID: P1203464-PS02-R12-E100



DETAIL: DRIVEWAY FIRST FLUSH PUMP



DETAIL: HEAD WALL OUTLET AND RIP RAP SECTION

NOT TO SCALE

NOTES:
- CONCEPT DESIGN ONLY. SUBJECT TO DETAILED DESIGN.

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**EZ/JCF**	**TH**	**TH**
C	AMENDMENTS AS PER CLIENT COMMENTS	20/09/2018	PB/JCF/LZ	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	EZ/JCF		
A	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH

SCALE

GRID	DATUM	PROJECT MANAGER
		TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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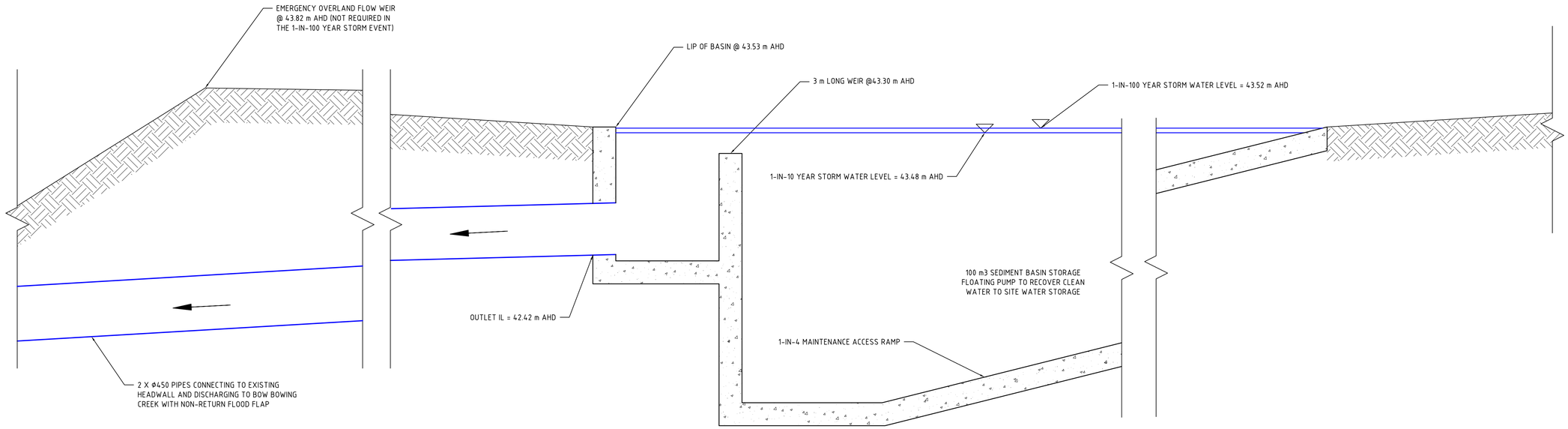
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: DRAINAGE DETAILS

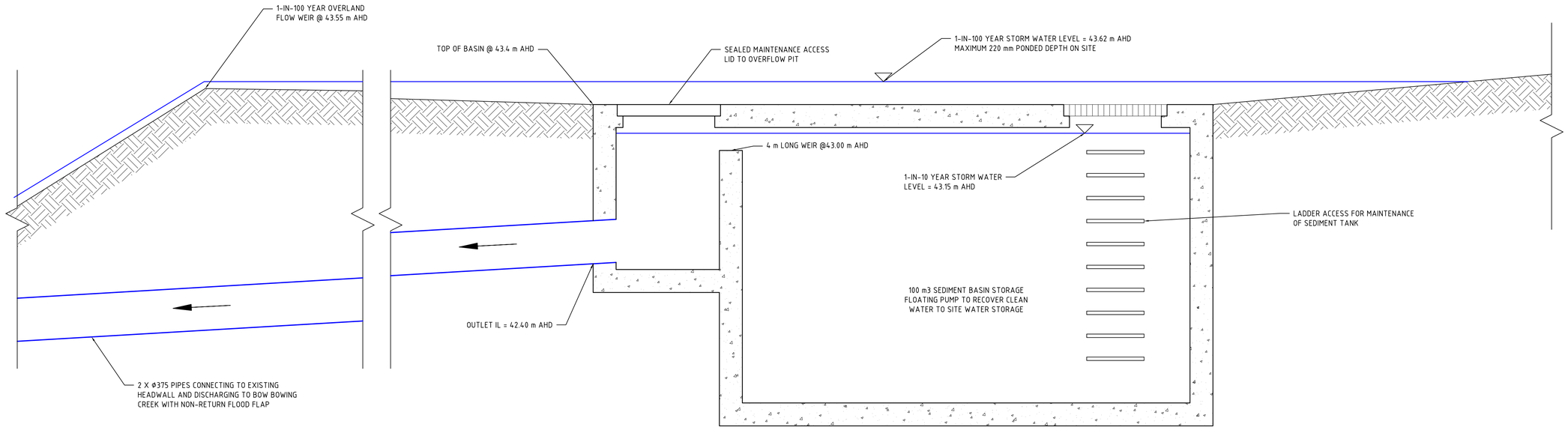
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-E200	D

DRAWING ID: P1203464-PS02-R12-E200



SECTION 01 - NORTHERN BASIN CONCEPT DESIGN

NOT TO SCALE



SECTION 02 - SOUTHERN BASIN CONCEPT DESIGN

NOT TO SCALE

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	DG/EZ/JCF	TH	TH

SCALE: 0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 METRES
A1 (A3) 1:20 (1:40)

GRID | DATUM | PROJECT MANAGER: TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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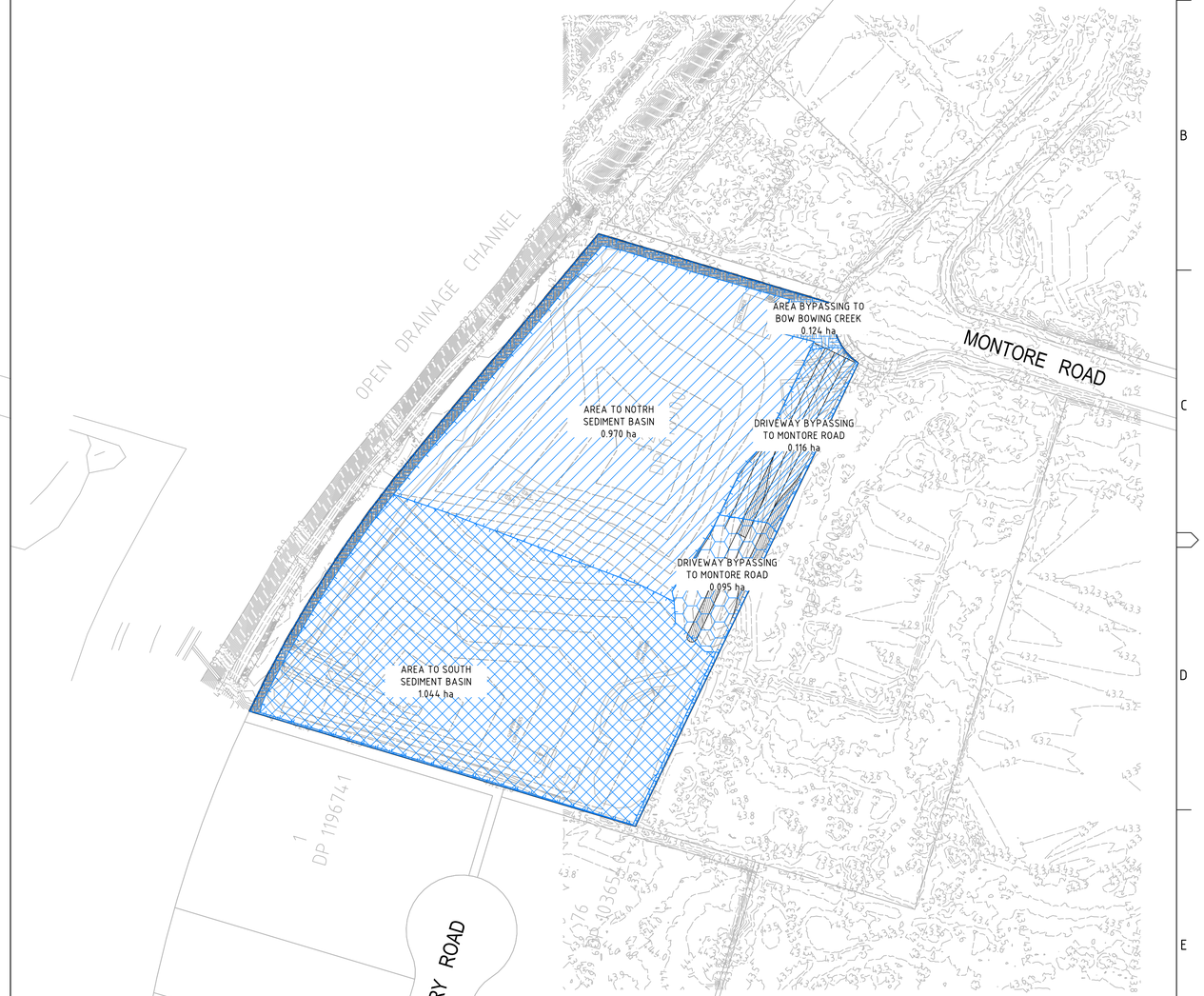
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: SEDIMENT BASIN CROSS SECTIONS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-E201	A

DRAWING ID: P1203464-PS02-R12-E201

PRINTED: --- USER: LOU
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	12/10/2018	RK	EZ	TH	TH

SCALE
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A1 (A3) 1:1,000 (1:2,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

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PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

martens & Associates Pty Ltd
Consulting Engineers
Environment
Water
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
DRAINS CATCHMENT PLANS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-E410	A

DRAWING ID: P1203464-PS02-R12-E410

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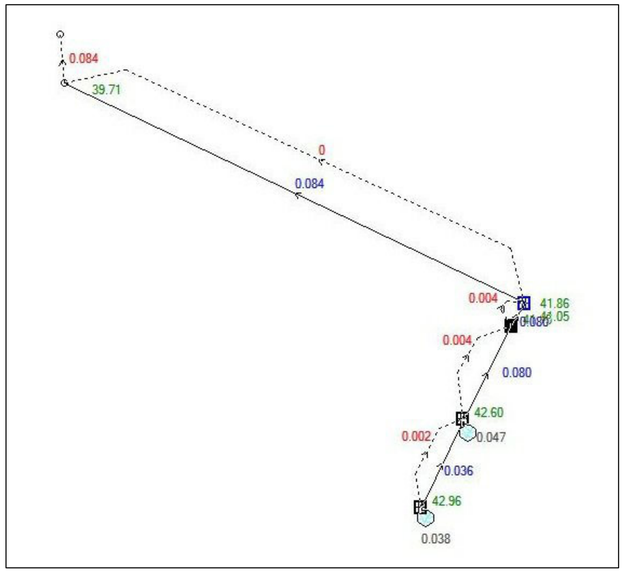
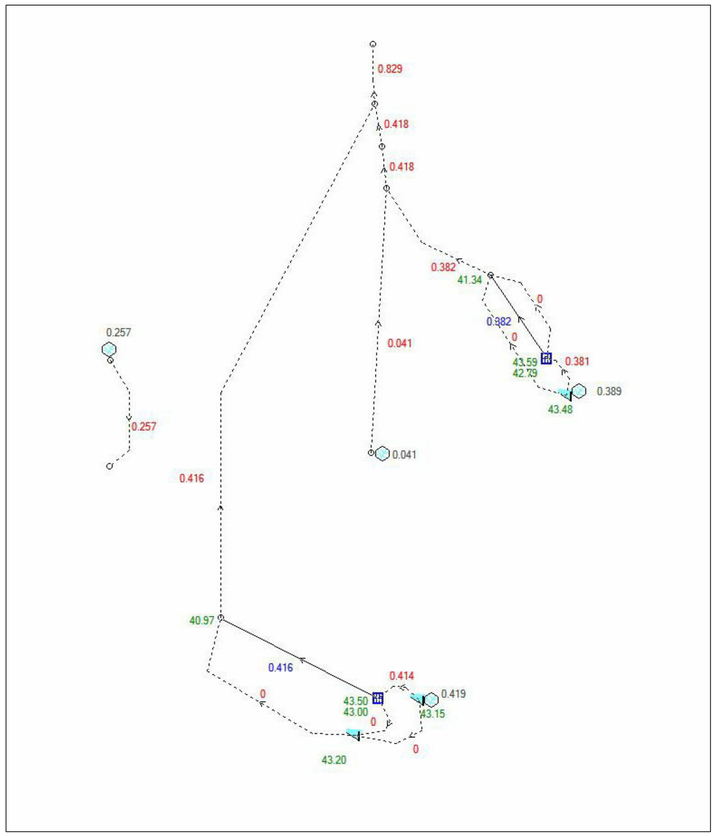
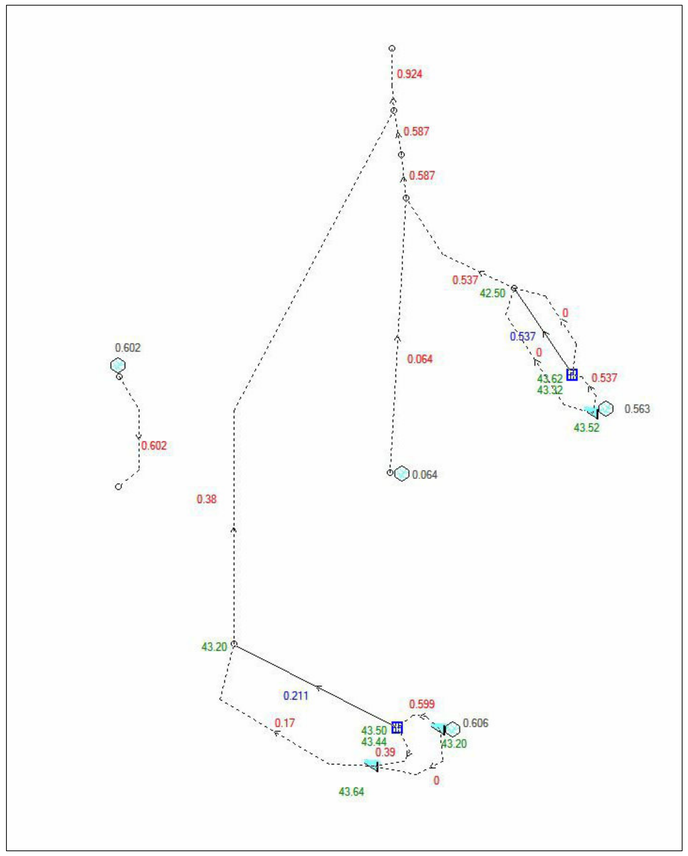


DRIVEWAY DRAINAGE 1-IN-10 YEAR ARI



SEDIMENT BASINS 1-IN-10 YEAR ARI



SEDIMENT BASINS 1-IN-100 YEAR ARI

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	MINOR AMENDMENTS	15/11/2019	JCF/LZ/PB	DG/EZ/JCF	TH	TH
C	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	DG/EZ/JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	EZ/JCF		
A	UPDATE	09/08/2018	PB	EZ		

SCALE

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GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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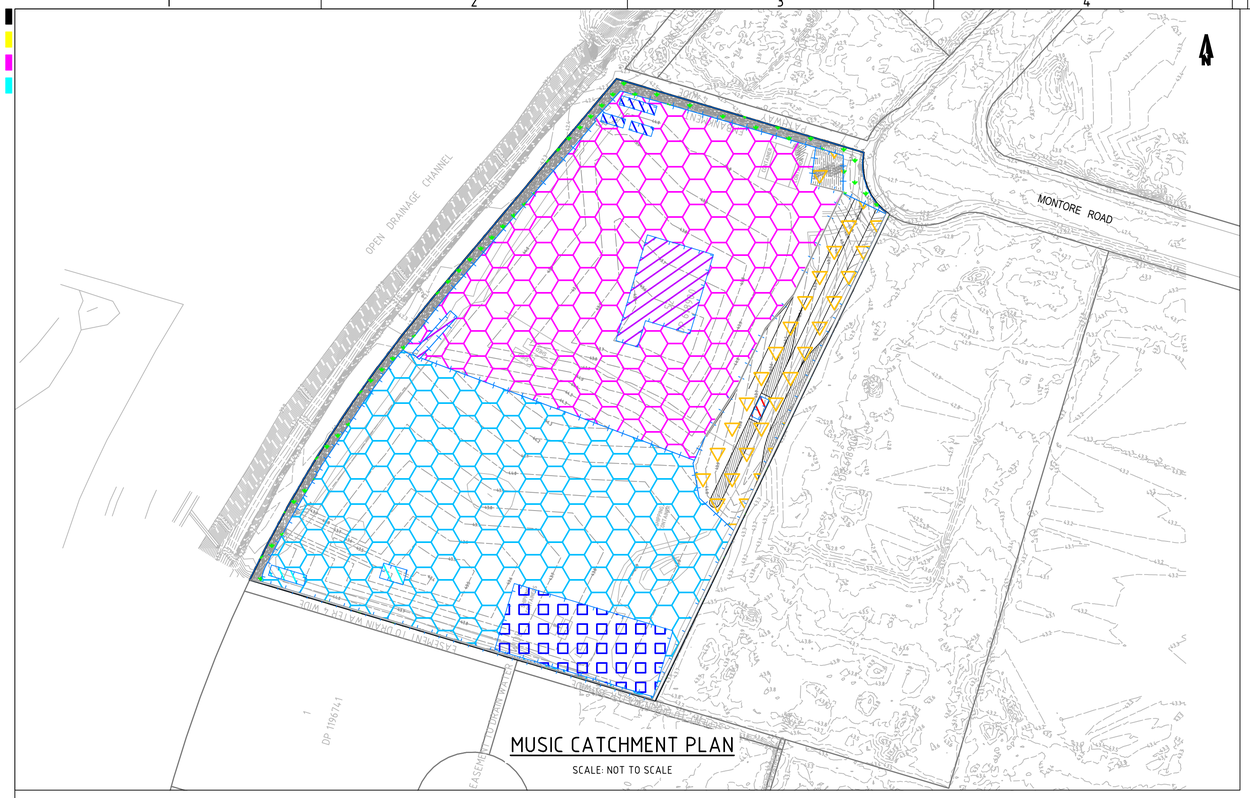
DRAWING TITLE: DRAINS MODELLING RESULTS

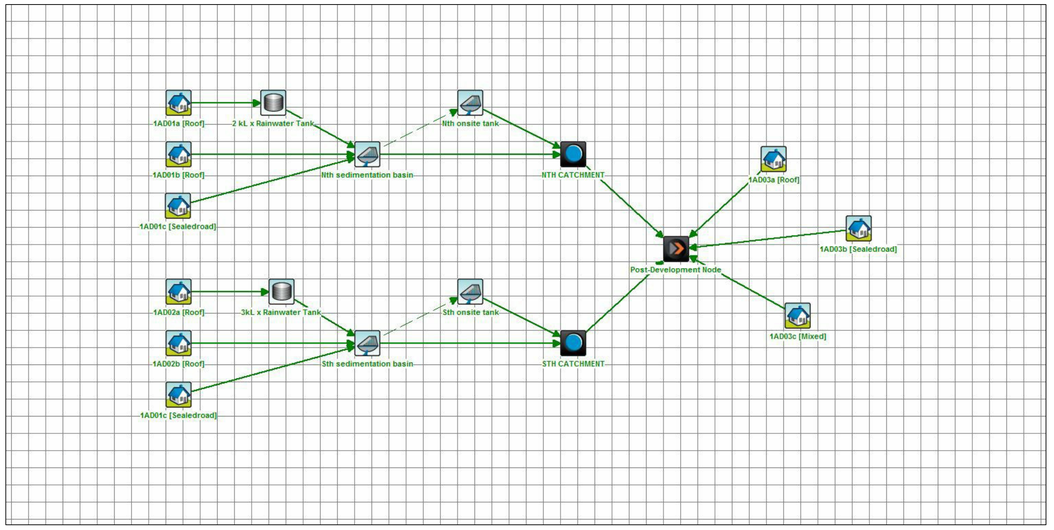
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-E600	D

DRAWING ID: P1203464-PS02-R12-E600



MUSIC CATCHMENT PLAN

SCALE: NOT TO SCALE



MUSIC LAYOUT

MUSIC CATCHMENTS (P12034641MUS01V01)

KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE
NORTHERN CATCHMENT					
	ROOF TO 2kL RWT	1AD01a	0.008	100	NSW MUSIC MODELLING GUIDELINES 2015
	ROOF BYPASS 2kL RWT	1AD01b	0.073	100	NSW MUSIC MODELLING GUIDELINES 2015
	SEALED ROAD TO SEDIMENT BASIN	1AD01c	0.887	100	NSW MUSIC MODELLING GUIDELINES 2015
SOUTHERN CATCHMENT					
	ROOF TO 3kL RWT	1AD02a	0.122	100	NSW MUSIC MODELLING GUIDELINES 2015
	ROOF BYPASS 3kL RWT	1AD02b	0.008	100	NSW MUSIC MODELLING GUIDELINES 2015
	SEALED ROAD TO SEDIMENT BASIN	1AD02c	0.913	100	NSW MUSIC MODELLING GUIDELINES 2015
CATCHMENT BYPASS SEDIMENT BASINS					
	ROOF	1AD03a	0.002	100	NSW MUSIC MODELLING GUIDELINES 2015
	SEALED ROAD	1AD03b	0.215	100	NSW MUSIC MODELLING GUIDELINES 2015
	BUFFER	1AD03c	0.118	0	NSW MUSIC MODELLING GUIDELINES 2015
TOTAL SITE					
		TOTAL - OVERALL		2.346	= 100 % OF OVERALL AREA
		TOTAL - IMPERVIOUS		2.228	= 95 % OF OVERALL AREA
		TOTAL - PERVIOUS		0.118	= 5 % OF OVERALL AREA
NOTES:					
1. INTERNAL REUSE FOR TOILET FLUSHING IS 20 kL/PERSON/DAY.					
2. INTERNAL REUSE FOR DUST SUPPRESSION AND SAND WASHING SYSTEM IS 81.65 kL/DAY FOR EACH SEDIMENTATION BASIN.					

MUSIC MODELLING RESULTS (P1203464MUS01V01)

MUSIC NODE	POST DEVELOPMENT NODE			
PARAMETER	SOURCES	RESIDUAL LOAD	% REDUCTION	% TARGET
Flow (ML/yr)	16.6	8.73	47.3	NONE
Total Suspended Solids (kg/yr)	5.25E+03	9.69E+02	81.5	80
Total Phosphorus (kg/yr)	8.91	2.31	74	45
Total Nitrogen (kg/yr)	39.4	17.5	55.5	45
Gross Pollutants (kg/yr)	427	40.9	90.4	90

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	15/11/2019	LL	EZ	TH	TH

SCALE

GRID | DATUM | PROJECT MANAGER: TH

CLIENT: CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
WATER QUALITY CATCHMENT PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-E700	A

DRAWING ID: P1203464-PS02-R12-E700

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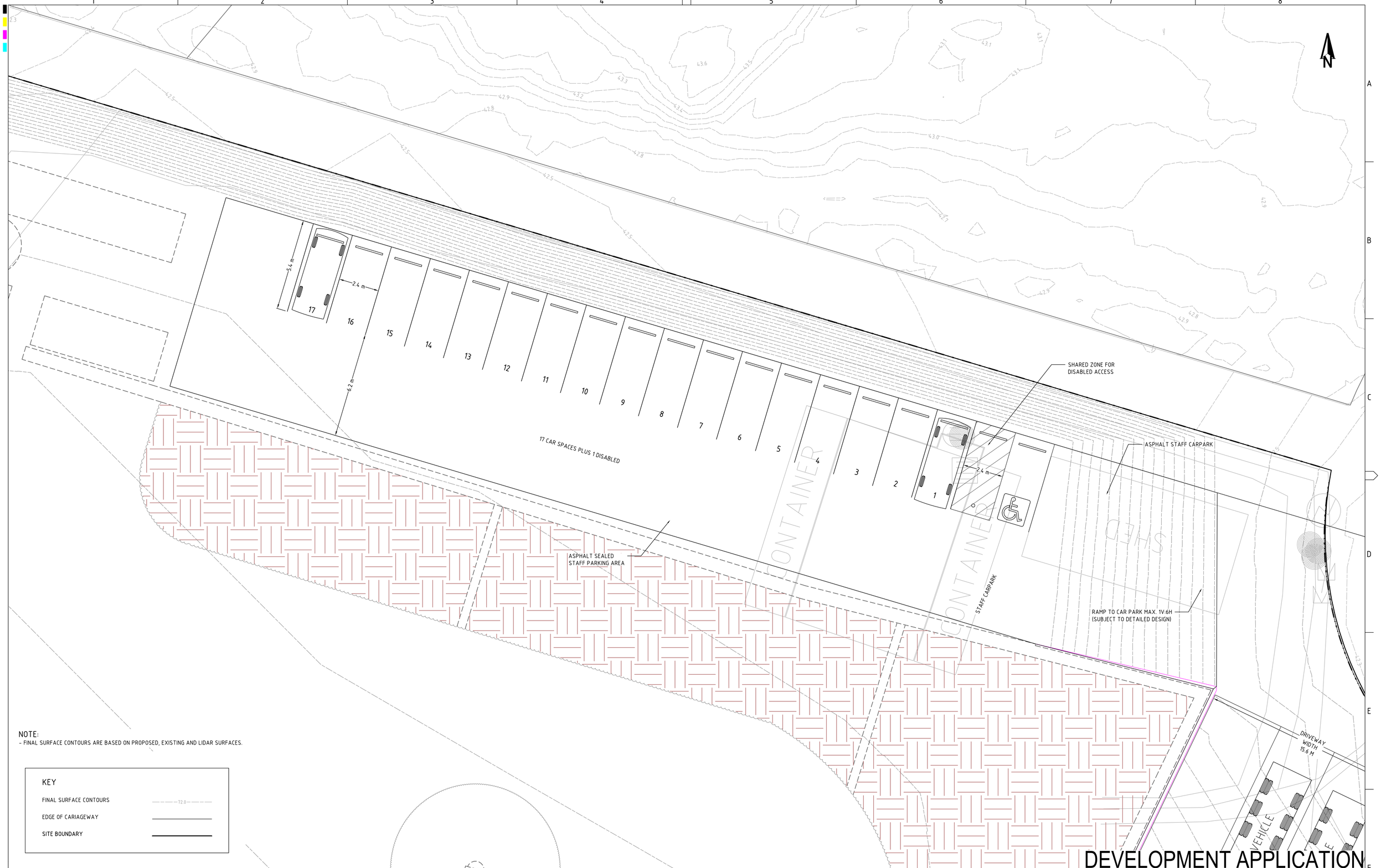
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



NOTE:
- FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.

KEY

FINAL SURFACE CONTOURS — 72.0 —

EDGE OF CARIAGEWAY

SITE BOUNDARY

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
F	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**JCF**	**TH**	**TH**
E	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
D	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
C	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
A	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	JCF	TH	

SCALE
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE
CARPARK PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-F102	F

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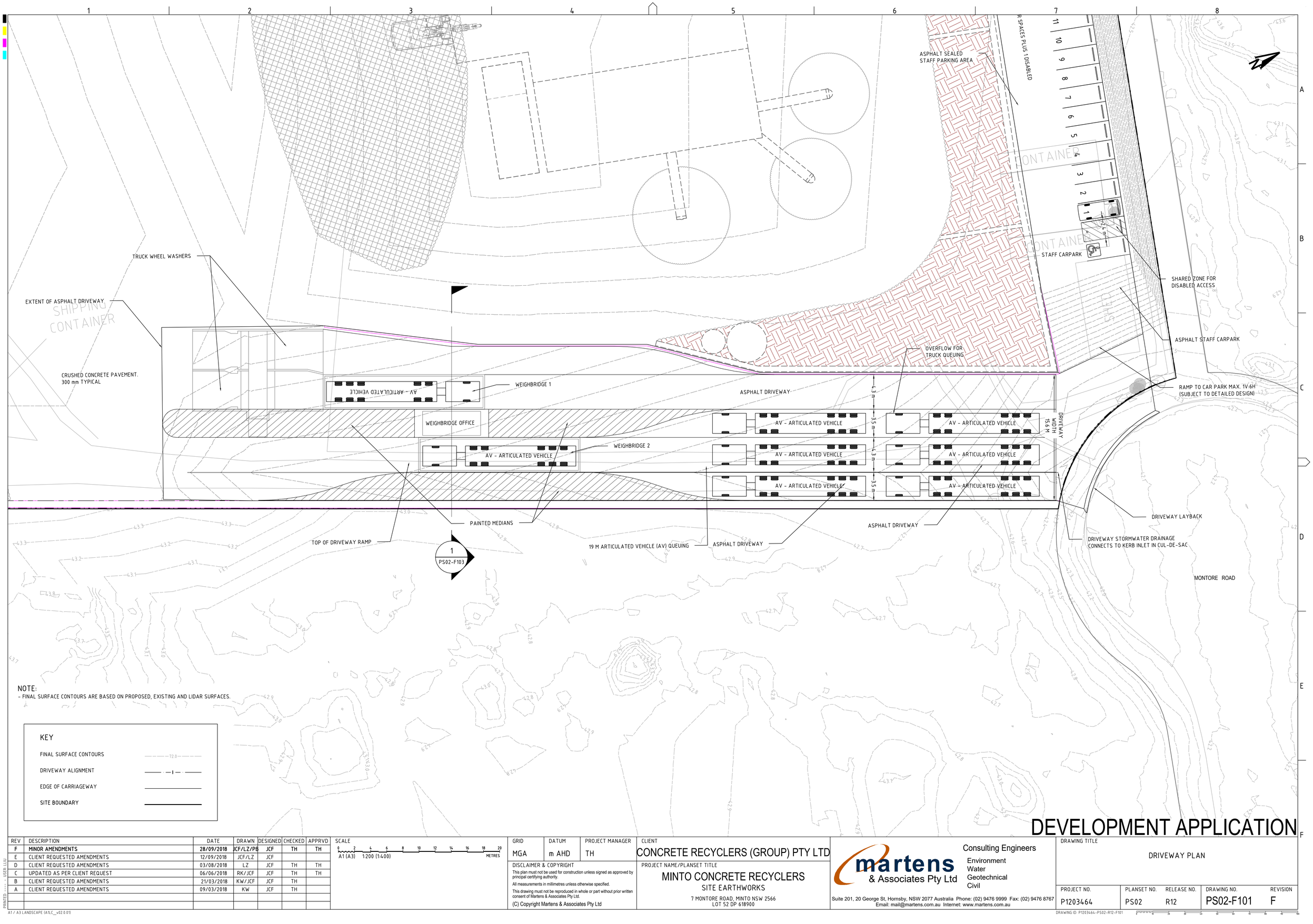
A1 / A3 LANDSCAPE (A1LC_v02.0.01)
DRAWING ID: P1203464-PS02-R12-F102



NOTE:
- FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.

KEY

- FINAL SURFACE CONTOURS — 72.0 —
- DRIVEWAY ALIGNMENT
- EDGE OF CARRIAGEWAY
- SITE BOUNDARY

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
F	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**JCF**	**TH**	**TH**
E	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
D	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
C	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
A	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	JCF	TH	

SCALE
0 2 4 6 8 10 12 14 16 18 20 METRES
A1 (A3) 1:200 (1:400)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
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PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
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7 MONTORE ROAD, MINTO NSW 2566
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DRAWING TITLE
DRIVEWAY PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-F101	F

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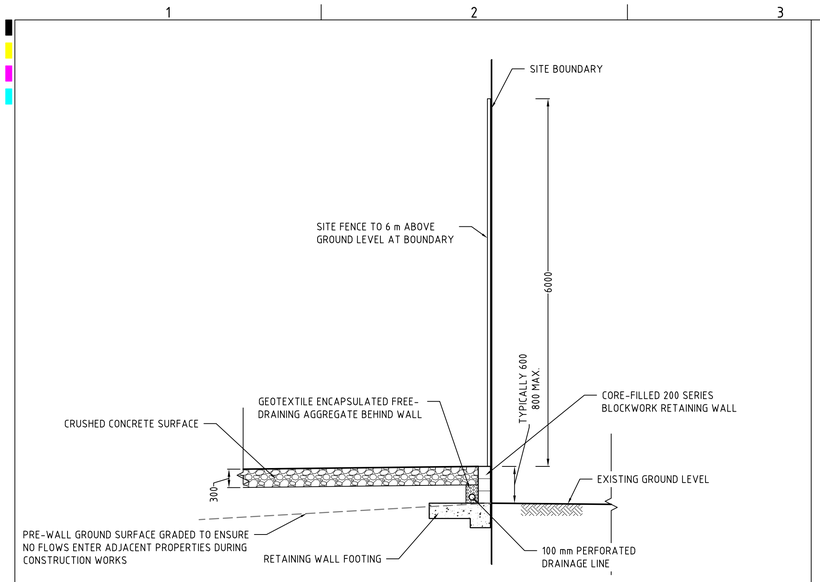
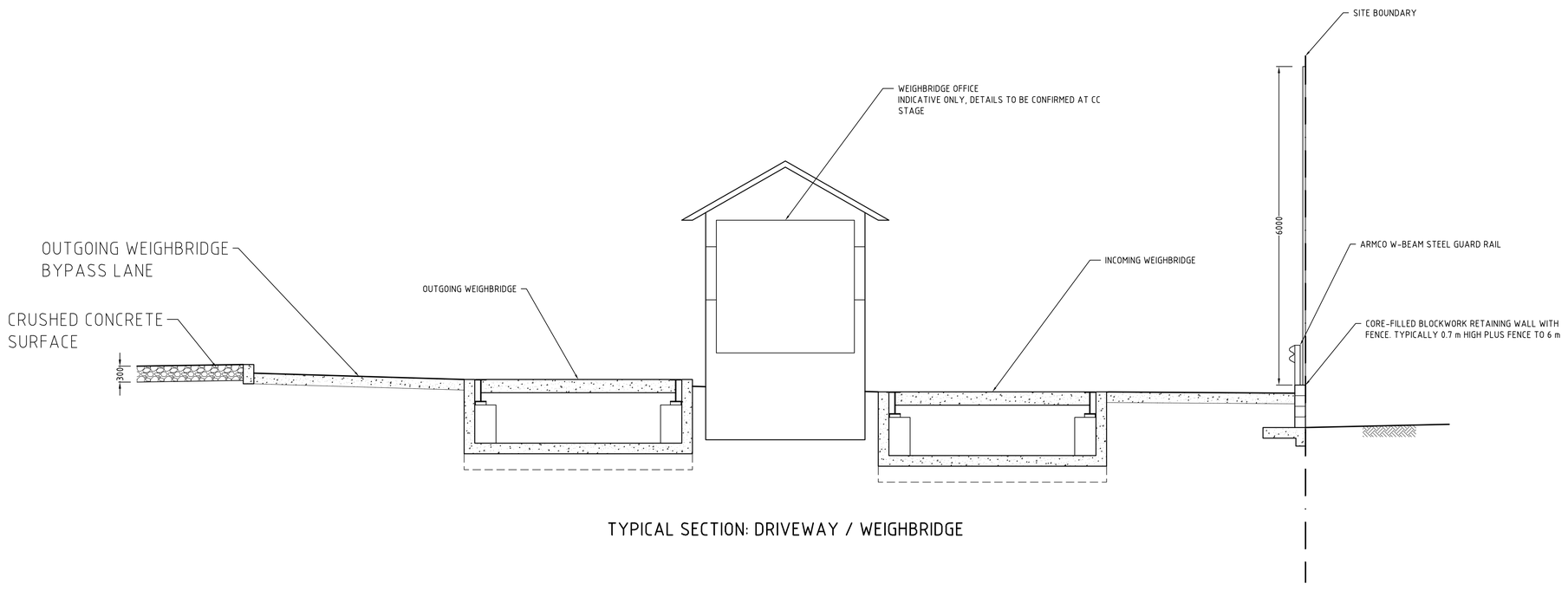
DRAWING ID: P1203464-PS02-R12-F101



TYPICAL PROPERTY BOUNDARY SECTION, EASTERN BOUNDARY



TYPICAL SECTION: DRIVEWAY / WEIGHBRIDGE

NOTES:
- RETAINING WALL & FENCE SUBJECT TO DETAILED DESIGN.

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**JCF**	**TH**	**TH**
D	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
C	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
B	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
A	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	JCF	TH	

SCALE
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 METRES
A1 (A3) 1:50 (1:100)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

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PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE
DRIVEWAY CROSS SECTION

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-F103	E

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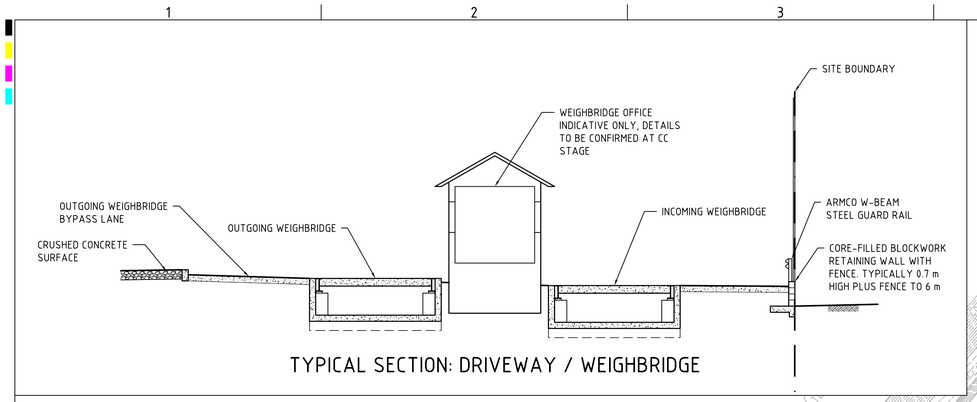
DRAWING ID: P1203464-PS02-R12-F103



TYPICAL SECTION: DRIVEWAY / WEIGHBRIDGE

MONTORE ROAD

DRIVEWAY BLOCKWORK RETAINING WALL
MAX. HEIGHT 1.5 m

WEIGHBRIDGE AREA

EASTERN BLOCKWORK RETAINING WALL
MAX. HEIGHT 0.72 m

SOUTHERN BLOCKWORK RETAINING WALL
MAX. HEIGHT 1.8 m

TOW 44.100 BOW 42.584
TOW 42.372 BOW 42.335
CH 0.000
CH 15
CH 30
CH 45
TOW 44.100 BOW 43.788
TOW 43.334 BOW 42.754
CH 60
TOW 44.100 BOW 44.035
CH 75
CH 90
TOW 44.100 BOW 43.387
CH 105
CREST 115.000
CH 120
CH 135
CH 150
CH 165
CH 176.150
TOW 44.100 BOW 43.505
BOW 42.264 TOW 44.100
TOW 44.100 BOW 42.649
EASEMENT TO DRAIN WATER 1 WIDE
OPEN DRAINAGE
DP 68900
DP 196741

NOTE:
- FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.

KEY

FINAL SURFACE CONTOURS ——72.0——

EDGE OF RETAINING WALL

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
G	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**CG/JCF**	**TH**	**TH**
F	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
E	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
D	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
C	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
B	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	CG/JCF	TH	
A	BALANCE SITE EARTHWORKS	07/11/2017	CG	CG	TH	

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	MAHD	TH

CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE
RETAINING WALL PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-F200	G

DRAWING ID: P1203464-PS02-R12-F200

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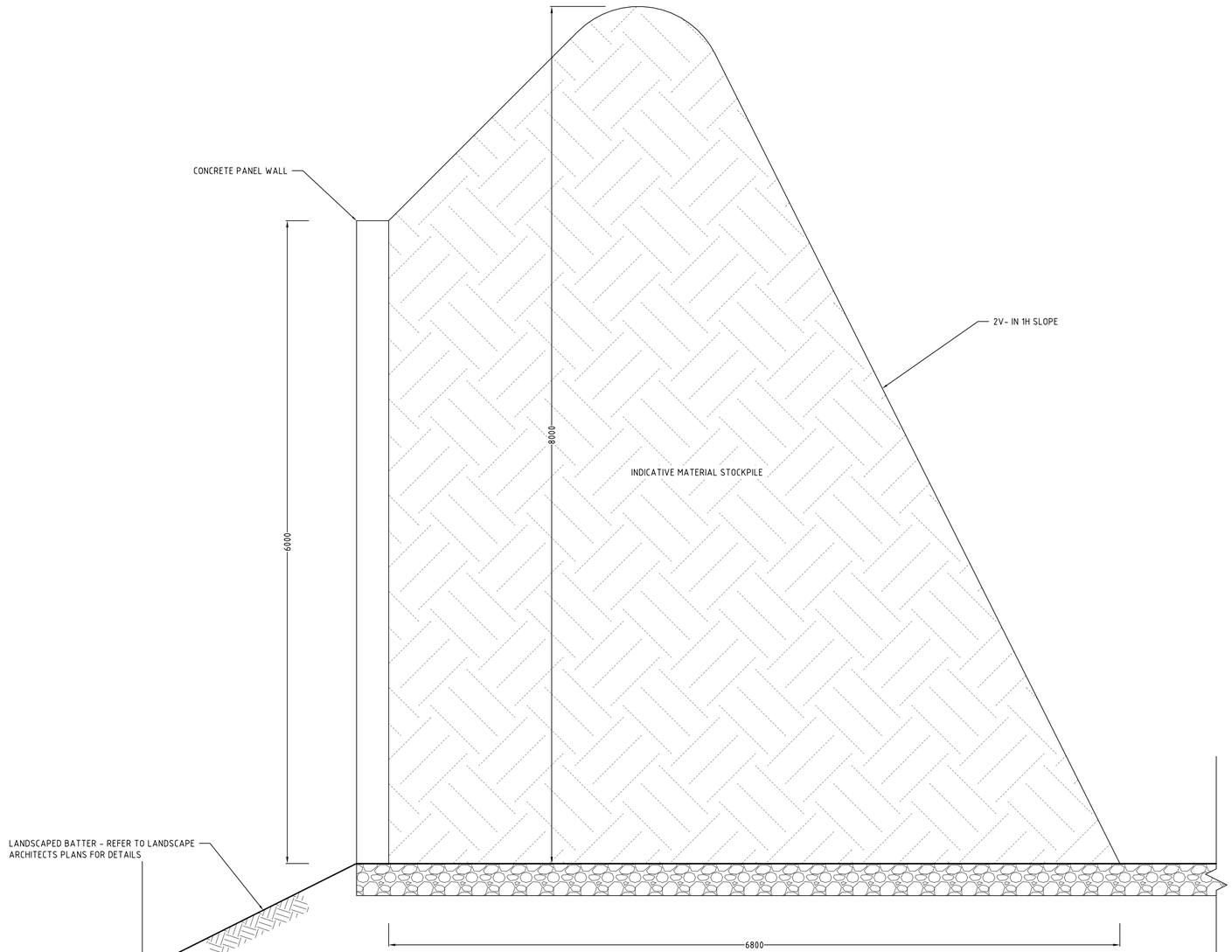

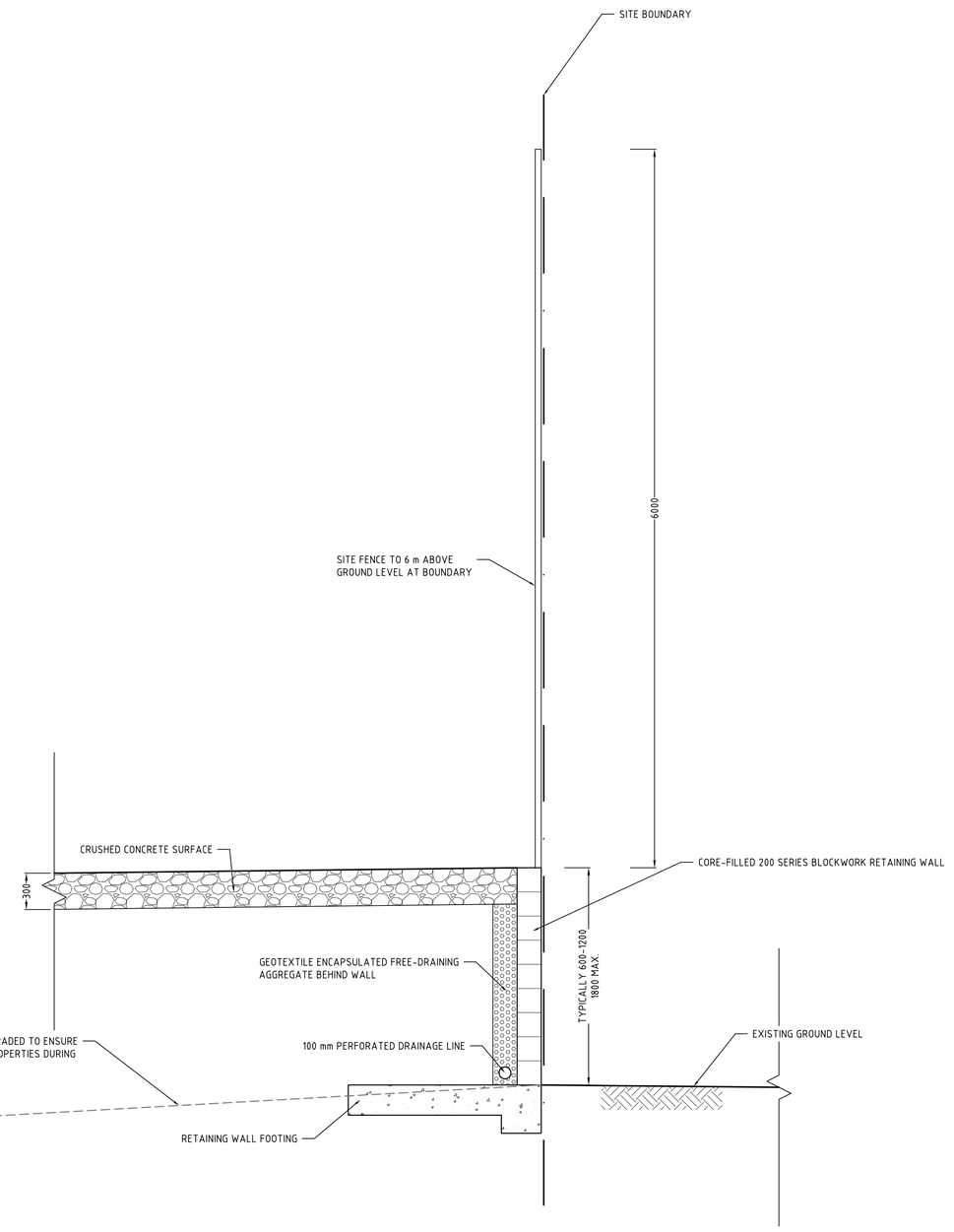

NOTE:
- CONCEPT DESIGN ONLY. SUBJECT TO DETAILED DESIGN.

TYPICAL PROPERTY BOUNDARY SECTIONS: EASTERN, SOUTHERN AND WESTERN BOUNDARIES

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
E	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**JCF**	**TH**	**TH**
D	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
C	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
B	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
A	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	JCF	TH	

SCALE
0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 METRES
A1 (A3) 1:20 (1:40)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

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PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

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DRAWING TITLE
RETAINING WALL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-F201	E

DRAWING ID: P1203464-PS02-R12-F201

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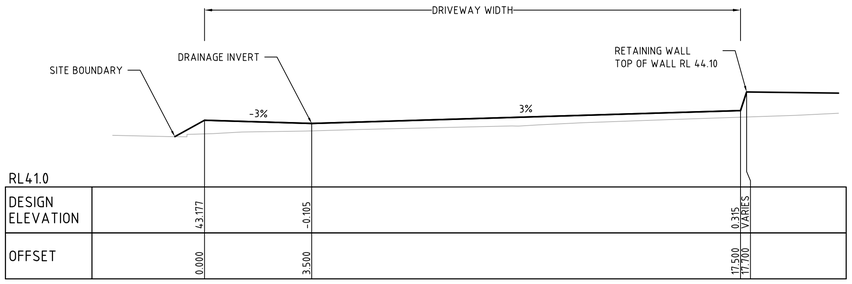
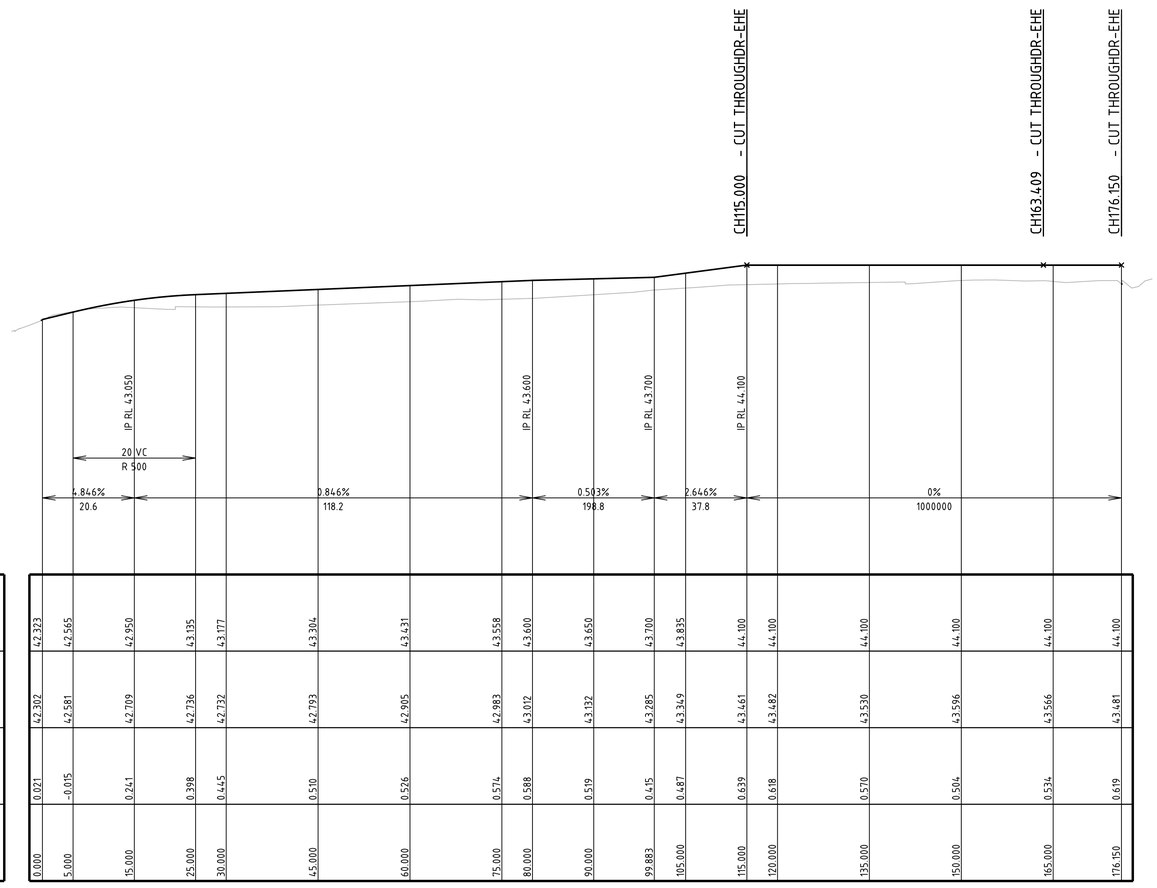


DRIVEWAY (21-MSL01) TYPICAL SECTION

SCALE: 1:100



21-MSL01 LONG. SECTION (ON ROAD ALIGNMENT)

SCALE: HORIZONTAL - 1:500
VERTICAL - 1:100

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	28/09/2018	JCF/LZ/PB	CG/JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	CG/JCF	TH	
A	BALANCE SITE EARTHWORKS	07/11/2017	CG	CG	TH	

SCALE
A1 (A3) 1:500 (1:1,000) 0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:100 (1:200) 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	MAHD	TH

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CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
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DRAWING TITLE
DRIVEWAY LONGITUDINAL AND TYPICAL CROSS SECTIONS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-F400	C

DRAWING ID: P1203464-PS02-R12-F400

PRINTED: --- - USER: LUU
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

KEY:

- ASPHALT DRIVEWAY
- ASPHALT CARPARKING AREA
- CONCRETE PAVEMENT
- CRUSHED CONCRETE PAVEMENT TYPICALLY 300 mm THICK
- VEGETATED BATTERS TO LANDSCAPE ARCHITECT DETAIL

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
F	**MINOR AMENDMENTS**	**28/09/2018**	**JCF/LZ/PB**	**JCF**	**TH**	**TH**
E	CLIENT REQUESTED AMENDMENTS	12/09/2018	JCF/LZ	JCF		
D	CLIENT REQUESTED AMENDMENTS	03/08/2018	LZ	JCF	TH	TH
C	UPDATED AS PER CLIENT REQUEST	06/06/2018	RK/JCF	JCF	TH	TH
B	CLIENT REQUESTED AMENDMENTS	21/03/2018	KW/JCF	JCF	TH	
A	CLIENT REQUESTED AMENDMENTS	09/03/2018	KW	JCF	TH	

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	m AHD	TH

CLIENT
CONCRETE RECYCLERS (GROUP) PTY LTD

PROJECT NAME/PLANSET TITLE
MINTO CONCRETE RECYCLERS
SITE EARTHWORKS
7 MONTORE ROAD, MINTO NSW 2566
LOT 52 DP 618900

martens & Associates Pty Ltd
Consulting Engineers
Environment
Water
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DEVELOPMENT APPLICATION

DRAWING TITLE
PAVEMENT PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203464	PS02	R12	PS02-G100	F

DRAWING ID: P1203464-PS02-R12-G100

PRINTED: ---- - USER: LOU
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

NOTES:

THE PURPOSE OF THIS SURVEY WAS TO OBTAIN TOPOGRAPHICAL DETAIL AS REPRESENTED ON THIS PLAN.IF IT IS INTENDED TO ERECT ADDITIONAL STRUCTURES OR FENCING ON THE SUBJECT PROPERTY, THEN THE BOUNDARIES SHOULD BE MARKED.

REDUCED LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (AHD) AND ARE SHOWN THUS ·55.55.

CONTOURS ARE BASED ON AUSTRALIAN HEIGHT DATUM (AHD) AND ARE AT INTERVALS OF 0.5 METRES.

ORIGIN OF LEVELS IS SSM21860, RL43.216, VERTICAL ACCURACY C? AS SUPPLIED BY LAND AND PROPERTY MANAGEMENT AUTHORITY DATED 12.06.2012.

COORDINATES ARE BASED ON THE MAP GRID OF AUSTRALIA (MGA).

A SCALE FACTOR OF 1.000 HAS BEEN USED FOR COORDINATE CALCULATIONS.

ORIGIN OF COORDINATES IS PM52452 E300333.552m N=6232216.354 HORIZONTAL ACCURACY B?, AND SSM21860 E=300351.580 N=6232778.428 HORIZONTAL ACCURACY C? AS SUPPLIED BY LAND AND PROPERTY MANAGEMENT AUTHORITY DATED 12.06.2012.

BOUNDARIES HAVE NOT BEEN DEFINED OR MARKED.

BEARINGS, DIMENSIONS AND AREAS SHOWN HEREON HAVE BEEN COMPILED FROM PUBLIC RECORDS AND ARE SUBJECT TO A BOUNDARY SURVEY.

LOCATION OF UTILITY FEATURES, AS SHOWN HEREON, HAVE BEEN DETERMINED FROM VISIBLE SURFACE INFORMATION AVAILABLE.

BEFORE ANY EXCAVATION COMMENCES ON SITE, THE CONTRACTOR/DESIGNER MUST INVESTIGATE UNDERGROUND UTILITY SERVICES.

DIAL 1100 BEFORE YOU DIG

MGA

CONCRETE HEADWALL INVERT 39.96 PIPE 900 DIA

CONCRETE DRAINAGE CHANNEL

OPEN DRAINAGE CHANNEL

BOTTOM OF BANK

TOP OF BANK

CHORD 107.29
ARC 107.55
RADIUS 428.24
92°49'40"

CHAIN WIRE FENCE

EASEMENT TO DRAIN WATER 4 WIDE

101
DP 818914

STOCKPILE

286°35'45"
38.17

PEMBURY ROAD

EASEMENT TO DRAIN WATER 3 WIDE

EASEMENT TO DRAIN WATER 3.5 WIDE

79
DP 1036540

EASEMENT TO DRAIN WATER 1.5 WIDE

EMBANKMENT

GRASS

GRAVEL

CONCRETE

BITUMEN

PONDS UNDER CONSTRUCTION
NO ACCESS AT TIME OF SURVEY

52
DP 618900
CARPARK

PORTABLE METAL SHEDS

PORTABLE METAL OFFICE

CONCRETE HEADWALL INVERT 39.58 PIPE 1500 DIA

40°01'30"
95.875

176.15
205°42'00"

EASEMENT FOR LANDSCAPING VARIABLE WIDTH

4 WIDE PATHWAY

106°35'50"
84.24

4
DP 1076508

51
DP 618900

KERB & GUTTER

BENCH MARK
NAIL ON KERB
RL 42.095 AHD

157°44'00"
CHORD 21.85
ARC 23.15
RADIUS 20

MONTORE ROAD

- SEWER LAMP HOLE
- SEWER MANHOLE
- RLEV ROOF RIDGE LEVEL
- GLEV ROOF GUTTER LEVEL

DETAIL SURVEY
No.7 MONTORE ROAD
MINTO
IN THE LOCAL GOVERNMENT AREA OF
CAMPBELLTOWN
RE: MR B. LAWSON

RATIO 1:500 @ A1 (5 0 5 10 15 20 25)	SURVEYED MS
LEVEL DATUM AHD	DRAWN MS
DATE 08.06.2012	CAD FILE CH5241A1
SHEET 1 OF 2	REFERENCE CH5241.001

WILLIAM L. BACKHOUSE Pty. Limited
SURVEYORS, PLANNERS & DEVELOPMENT CONSULTANTS.
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